

Project Name: Mangaluru Smart City

Grand Summary for Loop Road

Sr. No.	Description	Cost In INR
1	Road and Other Works	10,48,06,661
2	Street Lighting	18,72,611
3	Landscape Work	5,68,177
	Sub Total	10,72,47,449
	Maintenance Cost	60,90,294
	Provision for Third Party Damages and Maintenance at 1 st Year(DLP)	11,23,806
	GST @ 12%	92,26,821
	Escalation and Tender Premium at 10%	107,24,745
	Add 3% Contingency	32,17,423
	Miscellaneous and Rounding off	9,462
	Grand Total	13,76,40,000

**EXECUTIVE ENGINEER
MSCL MANGALURU**

**GENERAL MANAGER TECHNICAL
MSCL MANGALURU**

**MANAGING DIRECTOR
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City
3.1 BOQ of Road and Other Work for Loop Road

Sr. No.	Specification	Unit	Qty.	Rate	Amount	Remarks
1.00	Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)	Sqm	2573.75	68.16	1,75,427	
2.00	KSRRB M200.Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (KSRRB 18-19,Page No 140,SI No : 18.47)	Cum	443.21	988.90	4,38,290	
3.00	KSRRB M200-Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202. (KSRRB 18-19,Page No.141,S.I.No.18.49)	Rmt	1288.40	13.20	17,007	
4.00	KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KSRRB 18-19,18.20,Page No.139)	Cum	25.81	429.00	11,072	
5.00	KSRRB 300-50. Scarifying bituminous course 50mm to 75mm thick along with premix carpet / surface dressing by road roller attached with scarifier without disturbing the base and stacking the debris including cost of all labour charges, HOM of machineries complete as per specifications. MORTH / Section 5.(KSRRB 18-19, SI No.19.56,Pg No.146)	Sqm	3340.40	42.90	1,43,303	
6.00	KSRRB 300-46. Scarifying by mechanical means stone metal crust 50mm to 100mm thick by along with 20mm premix carpet I surface dressing and stacking of old serviceable materials including cost of all labour charges, HOM complete as per specifications. MORTH I Chapter 3.(KSRRB 18-19,SI No.19.52,Pg No.146)	Sqm	4930.80	42.90	2,11,531	
7.00	KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantaling Brick/Tile work B.In Cement mortar (KSRRB 18-19,Page No 139,SI No : 18.23)	Cum	509.09	386.10	1,96,560	
8.00	KSRRB M800-Permanent type barricade in construction zone KSRRB M800-44.1. Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55-2014 complete as per specifications . A. With steel components(KSRRB 18-19,Page No 187,SI No : 24.45)	Nos.	108.00	4,211.90	4,54,885	

Sr. No.	Specification	Unit	Qty.	Rate	Amount	Remarks
9.00	KSRRB M300-14. Excavation for roadwork in all types of soil by mechanical means including cutting and loading to tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transportation with a lead of 1.00 km and complete as per specifications. MORTH Specification No.301 (KSRRB 18-19,Page No 143,SI No : 19.14)	Cum	11797.81	45.10	5,32,081	
10.00	KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KSRB 18-19,SI No.2.11,Pg. No.7)	Cum	4601.25	132.00	6,07,365	
11.00	KSRRB 300-58. Compaction of original ground by mechanical means including filling in depression occurring during rolling including cost of all labour, HOM complete as per specifications. MORTH I Chapter 3 (KSRRB 18-19,SI No.19.64,Pg. No.147)	Sqm	8272.15	6.60	54,596	
12.00	KSRB 4-1.7 : Providing and laying in position plain cement concrete of Mix 1:3:6 with OPC @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.69 cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills, including cost of all materials, labour, HOM curing complete as per specifications. Specification No. KBS 4.1, 4.2 (KSRB 18-19,SI No.4.7,Pg No.13)	Cum	921.67	6,347.00	58,49,839	
13.00	Construction of granular sub-base Grading-Vas Sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite/ trap/basalt material, mixing in a mechanical mix plant at OMC, Carriage of mixed material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98% proctor density, complete as per specifications. Clause 401 of MORTH V Revision. (KSRRB 18-19,P.No.153, SI.No.20.4)	Cum	1830.38	2,382.60	43,61,063	
14.00	KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnspillers, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications. (KSRB 18-19,Page No 14,SI No :4.10)	Cum	1242.11	6,817.80	84,68,458	
15.00	KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2 (KSRB 18-19,Page No 16,SI No : 4.28)	Sqm	9956.41	289.30	28,80,389	
16.00	KSRB 4.9.2 : Providing T.M.T steel reinforcement for RCC work including straighting,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500 (KSRB 18-19,Page No 18,SI No : 4.46.2)	MT	99.07	77,860.20	77,13,610	

Sr. No.	Specification	Unit	Qty.	Rate	Amount	Remarks
17.00	KSRRB M300-53. Construction of embankment with approved material Gravel/Murum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300-2 complete as per specifications, including cost of gravel/ murum, watering charges & compaction by vibratory roller to 95% of modified proctors density. MORTH Specification No. 305 (KSRRB 18-19,Pg No.147,SI No.19.60)	Cum	1703.46	594.22	10,12,230	
18.00	KSRRB M600-1.Providing and Constructing dry lean cement concrete mix CC 1:5:10 base with OPC 25mm and down size graded granite metal coarse aggregate at 0.86cum and fine aggregates @0.58cum over a prepared sub-base, coarse and fine aggregate conforming to IS: 383-2016,aggregate cement ratio not to exceed 15:1, Aggregate gradation after blending to be as per Table 600-1,optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. Clause 601of MORTH V Revision and IS 456 Table-5 -do- with OPC at 150 kg/cum and coarse aggregate 0.86cum, fine aggregate 0.58cum using Concrete Batch mix Plant at 75 cum/hr capacity with Slip form paver with electronic sensor. (KSRRB 18-19,Page No 174,SI No : 22.1.1)	Cum	681.38	4,452.80	30,34,049	
19.00	KSRRB M600-2. Providing and Constructing un-reinforced, dowel jointed, plain cement Pavement Quality concrete for pavements using Grade concrete M40 having Flexural strength not less than 4.50 Mpa over a prepared base with OPC, coarse aggregate at 0.64 cum, fine aggregates at 0.36 cum,Coarse and fine aggregate conforming to IS:383-2016 and Table 600-3 of MORTH V Revision, with Superplastizer at 3 lts conforming to IS 9103-2008. loading materials to batch mix plant by front end loader,mixed in a cement concrete batch mix plant as per approved mix design,transported to site in transit truck agitator 5 cum capacity, laid with Paver, compacted and finished in a continuous operation as per IRC-15 including cost for providing of contraction,expansion, construction and longitudinal joints, joint filler, separation membrane of impermeable plastic sheet of 125 micron, groove cutting,sealant primer joint sealant, debonding strip,dowel bars at 9 kg/cum, tie rods at 1.15 kg/cum, admixtures as approved, curing compound, finishing to lines and grades, textured with texturing machine, and curing including cost of all materials, labour,hire charges of machineries, all lead & lift charges etc., complete as per specifications. Clause 601 of MORTH V Revision and IS 456 Table-5	Cum	1572.58	6,341.50	,99,72,516	
20.00	Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower and as shown on drawing and as per MORTH specifications clause 602. (Non SOR Item)	Rmt	2,652.00	115.00	3,04,980	
21.00	KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1 (KSRRB 18-19,Page No 260,SI No : 35.8)	Rmt	2,652.00	364.10	9,65,593	

Sr. No.	Specification	Unit	Qty.	Rate	Amount	Remarks
22.00	Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)	Nos.	1,039.00	1,986.60	20,64,077	
23.00	Providing and fixing pre cast solid cement concrete kerb stones made out of C.C. 1:2:4 with top and bottom width 114 and 165 mm respectively, 400mm high and 450mm in length finished with CM 1 3 plastering and finishing cutting, including form work, curing, including cost of all materials, labour, hire charges of machinery, loading, unloading, lead and lift, transportation etc., complete. (Page No 27,SI No : 5.30)	Nos.	9,641.00	463.10	44,64,747	
24.00	KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per MORTH specifications section 8. (KSRRB 18-19,Page No 180,SI No : 24.1)	Sqm	1,180.35	88.00	103,871	
25.00	P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)	Nos.	165.00	917.00	1,51,305	
26.00	Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)	Nos.	130.00	3,500.00	4,55,000	
27.00	Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)	Rmt	176.00	302.64	53,265	
28.00	KSRRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia , of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10. (KSRRB SR 2018-19,P.No.88, SI.No.12.89)	Nos.	176.00	913.00	1,60,688	
29.00	KSRRB 12-8.2 : Constructing brick masonry inspection chamber 500x700mm, and 450mm depth , (clear inside dimension) for pipeline with one or two inlets, using table moulded non-modular bricks of class designation 50 in cement mortar 1:5, C.I cover with frame (light duty) 455x610mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23kg and weight of frame 15 kg) R.C.C. top slab with cement concrete M 15 with 20mm and downsize granite metal , foundation concrete M 5 with 40mm and downsize granite metal inside plastering 12mm thick with cement mortar 1:3, finished smooth with a floating coat of cement on walls and bed concrete complete as per standard design including cost of materials, labour charges, curing complete as per specifications. Specification No. KBS (P.No. 76/ I.No.11.52 of PWD SR 2018-19)	Nos.	135.00	9,125.60	12,31,956	

Sr. No.	Specification	Unit	Qty.	Rate	Amount	Remarks
30.00	KSRRB M800-29.3.Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case-III :Triple row for three utility services. (KSRRB 2018-19,Pg No 186,Sl.No.24.36)	Rmt	648.00	5,524.20	35,79,682	
31.00	Providing and laying Dia 225mm HDPE Power Duct with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	3,858.00	2,587.36	99,82,035	
32.00	Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering, Jointing into trenches, Complete. (Market Rate)	Nos.	322.00	1,775.00	5,71,550	
33.00	Providing and laying Dia 160mm HDPE Power Duct with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	7,716.00	1,423.92	1,09,86,967	
34.00	Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)	Nos.	642.00	1,475.00	9,46,950	
35.00	Providing and Fixing Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	1,286.00	1,183.54	15,22,032	
36.00	Providing and Fixing Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	1,286.00	2,297.46	29,54,534	
37.00	Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent Indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)	Rmt	1,929.00	725.32	13,99,142	
38.00	Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)	Nos.	23.00	175.00	4,025	

Sr. No.	Specification	Unit	Qty.	Rate	Amount	Remarks
39.00	Providing and laying heavy duty cobble stones 60mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 30mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (KSRB 18-19, Pg No 103,SI No : 14.6)	Sqm	7,584.76	1,161.60	88,10,457	
40.00	Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 40mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 30mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	450.40	912.00	4,10,765	
41.00	Providing and laying heavy duty cobble stones 75mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 30mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (KSRB 18-19,Page No 103,SI No : 14.7)	Sqm	1,487.48	1,225.40	18,22,758	
42.00	KSRRB M800-2. Retro-Reflectorised Traffic Signs - Manufacturing, Supply and Installation of retro-reflective cautionary, mandatory & Informatory signboards made out of cube corner micro prismatic grade sheeting conforming to type XI standards of IRC:67:2012 specifications & fixed over 4mm thick aluminium composite panel sheet having minimum 0.30 mm thick aluminum skin on both sides & fixed over a support frame of 25X25X3mm MS angle and mounted on 75 mm dia OR 75X75X6mm mild steel angle to Total height 2.70 m with clear height of not less than 2.10 m from the ground level to the bottom of the sign board & 60mm below ground level. the sign post should be painted with be coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height alternatively firmly fixed to the ground by means of foundation with M20 grade cement concrete of 45cmX45cmX60cm including cost & conveyance of all materials, equipment, machinery & labour with all leads and lifts, loading charges necessary for satisfactory completion of the works as directed be engineer in-charge.	Nos.	42.00	3,862.10	1,62,208	
	10 years warranty for Retro Reflective Sheeting from the original sheeting manufactures as per clause 6.9 in IRC: 2012 & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be obtained from the supplier. 900MM Equilateral Triangle-TYPE XI (KSRRB 18-19,Page No 180,SI No : 24.2.1)					

Sr. No.	Specification	Unit	Qty.	Rate	Amount	Remarks
43.00	<p>KSRRB M800-2. Retro-Reflectorised Traffic Signs - Manufacturing, Supply and Installation of retro-reflective cautionary, mandatory & Informatory signboards made out of cube corner micro prismatic grade sheeting conforming to type XI standards of IRC:67:2012 specifications & fixed over 4mm thick aluminium composite panel sheet having minimum 0.30 mm thick aluminum skin on both sides & fixed over a support frame of 25X25X3mm MS angle and mounted on 75 mm dia OR 75X75X6mm mild steel angle to Total height 2.70 m with clear height of not less than 2.10 m from the ground level to the bottom of the sign board & 60mm below ground level. the sign post should be painted with be coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height alternatively firmly fixed to the ground by means of foundation with M20 grade cement concrete of 45cmX45cmX60cm including cost & conveyance of all materials, equipment, machinery & labour with all leads and lifts, loading charges necessary for satisfactory completion of the works as directed be engineer in-charge.</p>	Nos.	9.00	5,453.80	49,084	
	<p>10 years warranty for Retro Reflective Sheeting from the original sheeting manufactures as per clause 6.9 in IRC: 2012 & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be obtained from the supplier. 900MM Octagon Stop Board-TYPE XI (KSRRB 18-19,Page No 180,SI No : 24.2.6)</p>					
44.00	<p>KSRRB M800-2. Retro-Reflectorised Traffic Signs - Manufacturing, Supply and Installation of retro-reflective cautionary, mandatory & Informatory signboards made out of cube corner micro prismatic grade sheeting conforming to type XI standards of IRC:67:2012 specifications & fixed over 4mm thick aluminium composite panel sheet having minimum 0.30 mm thick aluminum skin on both sides & fixed over a support frame of 25X25X3mm MS angle and mounted on 75 mm dia OR 75X75X6mm mild steel angle to Total height 2.70 m with clear height of not less than 2.10 m from the ground level to the bottom of the sign board & 60mm below ground level. the sign post should be painted with be coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height alternatively firmly fixed to the ground by means of foundation with M20 grade cement concrete of 45cmX45cmX60cm including cost & conveyance of all materials, equipment, machinery & labour with all leads and lifts, loading charges necessary for satisfactory completion of the works as directed be engineer in-charge.</p> <p>10 years warranty for Retro Reflective Sheeting from the original sheeting manufactures as per clause 6.9 in IRC: 2012 & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be obtained from the supplier. 600MM Circle-TYPE XI (KSRRB 18-19,Page No 180,SI No : 24.2.3)</p>	Nos.	4.00	3,429.80	13,719	
45.00	<p>Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface:Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803 (KSRRB 18-19,Page No 182,SI No : 24.15)</p>	Sqm	611.83	471.90	2,88,723	

Sr. No.	Specification	Unit	Qty.	Rate	Amount	Remarks
46.00	Providing & installing of E- toilet with Super structure of the electronic toilet to have asthetic ambience with inner room size 1.2 x 0.8 x 2.4 (LXWXH)meters and Size of electronic toilet overall size in meters 2.30x1.25x2.80 (LXWXH) Total area 35 Sft. with Built-access controlled main door and side walls made of SS Grade 304,Toilet floor and closet are to be stainless steel of grade 304.E-Toilet shall have Built-in water tank with minimum 225 Lit capacity and Access controll using coin validator for entering the unit based on automatic payment collection mechanism exit from the unit should be manual.Automatic lights inside the unit with gloves on opening the door.E-Toilet shall be Automatic flushing system which includes Automatic Pre flush cleaning before use,Automatic closet washing mechanism after use and Automatic platform cleaning mechanism programmed after specific numbers.In addition to these flush switch is to be provided for manual operation.Standard features should include heath faucet,exhaust fan and cloth hanger	Nos	2.00	5,75,000	11,50,000	
	The E-Toilet shall have Alert to users-different indication on 'ready to use',busy are to be provided in the unit also with Voice guidance in the unit for users. Web enabled support-GPRS based Real time data to be provided from the unit through web for knowing the health status like number of users per day and coins collected.E-toilet shall have Modular and portable design enabling easy assembling and installation at site.Call ceneter and web portal facilities for registering complience and tracking usage,coin collection etc.Status display in LED,Printed instruction stickers are to be provided.For Advertisement purpose space for advertisement dispaly to be povided on the exterior of the unit for income generation and sustainability. Backup power facility like UPS is to be provided to supplement upto 30 Min Base of the unit to be placed on a suitable concrete structure with a ashthetic finish. (Non SOR Item)					
47.00	Supply and Fixing of Traffic signal Straight pole of 6 mtr, inner dia 100 mm from resistant to peeling with base plate size of (LXWXT) 200mm X200mmX6mm painted with redoxide and double coat with synthetic enamel paint of yellow colour assembly G.I., class B, as per technical specification (NON SOR Item)	Nos.	8.00	18,691	1,49,528	
48.00	Supply and fixing of Traffic signal Cantilever pole Class B having inner diameter of 100 mm or more with a height of 6m including extension arm assembly having outer diameter of 75mm with arm span of 4 mtr length and base plate of size 300mm X 300mm with thickness of 6 mm welded at the bottom of the pole base as per technical specification & drawings. (NON SOR Item)	Nos.	8.00	52,850	4,22,800	
49.00	Supply and fixing of 300 mm dia – single source – LED retrofit - Red (blow) as per Specification (NON SOR Item)	Nos.	16.00	11,082	1,77,312	
50.00	Supply and fixing of 300 mm dia – single source – LED retrofit - Amber (blow) as per Specification (NON SOR Item)	Nos.	16.00	11,082	1,77,312	
51.00	Supply and fixing of 300 mm dia – single source – LED retrofit - Green (arrow/U- Turn) EN-12368 as per Specification (NON SOR Item)	Nos.	16.00	13,973	2,23,568	
52.00	Supply and fixing of 300 mm dia – single source – LED retrofit - Red (ped. standing) EN-12368 as per Specification (NON SOR Item)	Nos.	16.00	11,082	1,77,312	
53.00	Supply and fixing of 300 mm dia – single source – LED retrofit - Green (ped.walking) EN-12368 as per Specification (NON SOR Item)	Nos.	16.00	13,973	2,23,568	
54.00	Supply and fixing of 300 mm dia - No Right Turn/No Left turn/No Straight/No 'U' Turn aspects by using UV stabilized ink on face plate EN-12368 as per Specification (NON SOR Item)	Nos.	16.00	6,196	99,136	
55.00	Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	92.00	4,500	4,14,000	

Sr. No.	Specification	Unit	Qty.	Rate	Amount	Remarks
56.00	Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)	MT	5.37	100,000	5,37,000	
57.00	Providing and Fixing SS 304 Outdoor Dustbin(Pivoted Type and Mounted on SS Poles) of 55 liters capacity all complete to the satisfaction of the Engineer in charge. (NON SOR Item)	Nos.	29.00	7,500	2,17,500	
58.00	Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead of 5 km Item No 17.4 KSRRB M100-4.1- Earth	Cum	11,797.81	90.86	10,71,949	
59.00	Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead of 5km Item No 17.4 KSRRB M100-4.1- Debris	Cum	1,876.15	91.30	1,71,292	
			Total		10,48,06,661	

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City

3.1.1 Measurement Sheet of Road and Other Work for Loop Road

Sr. No.	Description	Unit	No's	L	B	H	Qty.
Road and Junction Pavment and Other Works							
1	Taking out existing CC interlocking paver blocks from footpath/central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)						
	Paver Block on Carriage Way						
	Maidan Road (AB Shetty and Hamilton Circle)						
	Right Hand Side Existing Paver Block on Carriageway						
	Ch.44.50 to Ch.84.00	Sqm	1	39.5	3.57		141.02
	Ch.84.00 to Ch.247.00	Sqm	1	154.216	3.72		573.68
	Left Hand Side Existing paver Block on Carriageway						
	Ch.44.50 to Ch.79.15	Sqm	1	34.48	2		68.96
	Ch.120.00 to Ch.208.79	Sqm	1	90.32	2.66		239.89
	Nellikai Road						
	Left Hand Side of Road						
	Ch.95.00 to Ch.109.0	Sqm	1	13.9	3.3		45.87
	Right Hand Side of Road						
	Ch.285.0 to Ch.296.0	Sqm	1	10.94	1.88		20.57
	4th Cross Road						
	Ch.22.15 to Ch.230.0	Sqm	1	207.85	1.99		413.62
	Ch.175.0 to Ch.190.0(Triangular Shape)	Sqm	0.5	21	2.84		29.82
	Ch.190 to Ch.210.0	Sqm	1	14.32	3.33		47.69
	4th Cross Road						
	Left Hand Side Footpath						
	Ch.20.0 to Ch.40.0	Sqm	1	20.00	4.86		97.20
	Ch.40.0 to Ch.350.0	Sqm	1	220.00	2.2		484.00
	Right Hand Side Footpath						
	Ch.15.0 to Ch.180.0	Sqm	1	165.00	2.2		363.00
	Offset at @ Ch.100.0 to Ch.110.0	Sqm	1	18.14	2.67		48.43
		Sqm			Total Qty.		2573.75
2	KSRRB M200.Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock pilling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (KSRRB 18-19,Page No 140,SI No : 18.47)						
	Hamilton Junction	Cum	1	71	22.4	0.3	477.12
	Ded. Round About	Cum	-1	3.14	36	0.3	-33.91
		Cum			Total Qty.		443.21
3	KSRRB M200-Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202. (KSRRB 18-19,Page No.141,S.I.No.18.49)						
	Median Kerb-Maidan Road(A B Shetty to Hamilton Circle)						
	Ch.40.00 to Ch.97.80	Rmt	2	57.8			115.60
	Ch.120.0 to 230.00	Rmt	2	110			220.00
	Hamilton Junction Round About,Dia=12m,Circumference=3.14 x 12=37.68m	Rmt	1	37.68			37.68
	Maidan Road (AB shetty to Hamilton circle)						
	Left Hand Side of Road						
	Ch.40.0 to Ch.46.80	Rmt	1	7.5			7.50
	Ch.46.80 to Ch.96.30	Rmt	1	49			49.00
	Service Bus Stand Road (LHS Side)	Rmt	1	14			14.00
	Service Bus Stand Road (RHS Side)	Rmt	1	25			25.00
	Ch.120.0 to Ch.170.0	Rmt	1	51.74			51.74
	Ch.180.0 to Ch. 210.0	Rmt	1	29.32			29.32
	Ch.210.0 to Ch.240.0(Curved area-Maidan Road)	Rmt	1	27			27.00
	Right Hand Side of Road						
	Ch.40.0 to Ch.44.32	Rmt	1	4.74			4.74
	Ch.44.32 to Ch.90.0	Rmt	1	44.42			44.42

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Ch.90.0 to Ch.120.0	Rmt	1	32.4			32.40
	Ch.120.0 to Ch.170.0	Rmt	1	44			44.00
	Ch.185.0 To Ch.210.0	Rmt	1	45			45.00
	Ch.210.0 to Ch.240.0(Curved area-Mangala karnis Road)	Rmt	1	27			27.00
	Footpath on mangala karnis Road (Mosque Side)	Rmt	1	50			50.00
	Footpath on mangala karnis Road (Old Kent Road Side)	Rmt	1	122			122.00
	4th Cross Road						
	Right hand side Footpath						
	Ch.30.0 to Ch.200.0	Rmt	1	169			169.00
	Left hand Side Footpath						
	Ch.30.0 to Ch.200.0	Rmt	1	173			173.00
		Rmt			Total Qty.		1288.40
4	KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KSRRB 18-19,18.20,Page No.139)						
	Hamilton Junction-Fountain Outer Circle Wall	Cum	3.14	12	0.3	0.45	5.09
	Hamilton Junction-Fountain Inner Circle wall	Cum	3.14	8.88	0.3	0.45	3.76
	Base of Fountain	Cum	3.14	6	6	0.15	16.96
		Cum			Total Qty.		25.81
5	KSRRB 300-50. Scarifying bituminous course 50mm to 75mm thick along with premix carpet / surface dressing by road roller attached with scarifier without disturbing the base and stacking the debris including cost of all labour charges, HOM of machineries complete as per specifications. MORTH / Section 5.(KSRRB 18-19, SI No.19.56,Pg No.146)						
	Nellikai Road						
	Ch.25.00 to Ch.40.0	Sqm	1	15	6		90.00
	Ch.40.0 to Ch.80.00	Sqm	1	40	6.23		249.20
	Ch.80.0 to Ch.120.0	Sqm	1	40	7.01		280.40
	Ch.120.0 to Ch.160.0	Sqm	1	40	7.55		302.00
	Ch.160.0 to Ch.200.00	Sqm	1	40	7.86		314.40
	Ch.200.0 to Ch.240.0	Sqm	1	40	7.55		302.00
	Ch.240.0 to Ch.270.0	Sqm	1	30	7.63		228.90
	Nellikai Road and Mission Road Junction	Sqm	1	22	24		528.00
	Mission Road						
	Ch.20.0 to Ch.190.0	Sqm	1	170	6.15		1045.50
		Sqm			Total Qty.		3340.40
6	KSRRB 300-46. Scarifying by mechanical means stone metal crust 50mm to 100mm thick by along with 20mm premix carpet I surface dressing and stacking of old serviceable materials including cost of all labour charges, HOM complete as per specifications. MORTH I Chapter 3.(KSRRB 18-19,SI No.19.52,Pg No.146)						
	Nellikai Road						
	Ch.25.00 to Ch.40.0	Sqm	1	15	6		90.00
	Ch.40.0 to Ch.80.00	Sqm	1	40	6.23		249.20
	Ch.80.0 to Ch.120.0	Sqm	1	40	7.01		280.40
	Ch.120.0 to Ch.160.0	Sqm	1	40	7.55		302.00
	Ch.160.0 to Ch.200.00	Sqm	1	40	7.86		314.40
	Ch.200.0 to Ch.240.0	Sqm	1	40	7.55		302.00
	Ch.240.0 to Ch.270.0	Sqm	1	30	7.63		228.90
	Nellikai Road and Mission Road Junction	Sqm	1	22	24		528.00
	Mission Road						
	Ch.20.0 to Ch.190.0	Sqm	1	170	6.15		1045.50
	Hamilton Circle	Sqm	1	71	22.4		1590.40
		Sqm			Total Qty.		4930.80
7	KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantaling Brick/Tile work B.In Cement mortar (KSRRB 18-19,Page No 139,SI No : 18.23)						

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Maidan Road(AB Shetty to Hamilton Circle)						
	Ch.0.0 to Ch.230.0-Wall	Cum	2	230.00	0.15	0.50	34.50
	Ch.0.0 to 230.0 -Base	Cum	1	230.00	1.00	0.23	52.90
	Ch.0.0 to 230.0 -Top Slab	Cum	1	230.00	1.00	0.15	34.50
	Nellikai Road -Left hand storm water drain-Laterite						
	Ch.0.0 to Ch.270.0-Wall	Cum	2	285.00	0.15	0.50	42.75
	Ch.0.0 to 270.0 -Base	Cum	1	285.00	1.00	0.23	65.55
	Ch.0.0 to 270.0 -Top Slab(Consider 50% of Length)	Cum	0.5	285.00	1.00	0.15	21.38
	Nellikai Road -Right hand storm water drain-Laterite						
	CH.0.0 to Ch.190.0-Wall	Cum	2	143.00	0.15	0.50	21.45
	CH.0.0 to Ch.190.0-Base	Cum	1	143.00	1.00	0.23	32.89
	CH.0.0 to Ch.190.0-Top Slab (Consider 50% of Length)	Cum	0.5	143.00	1.00	0.15	10.73
	Mission Street Road-Left hand storm water drain-Laterite						
	Ch.0.0 to Ch.190.0-Wall	Cum	2	190.00	0.15	0.50	28.50
	Ch.0.0 to Ch.190.0-Base	Cum	1	190.00	1.00	0.23	43.70
	Ch.0.0 to Ch.190.0-Top Slab	Cum	1	190.00	1.00	0.15	28.50
	Mission Street Road-Right hand storm water drain						
	Ch.0.0 to Ch.190.0-Wall	Cum	2	190.00	0.15	0.50	28.50
	Ch.0.0 to Ch.190.0-Base	Cum	1	190.00	1.00	0.23	43.70
	Ch.0.0 to Ch.190.0-Top Slab	Cum	0.5	190.00	1.00	0.15	14.25
	Cross Drain at Mission Street Road						
	Wall	Cum	2	10.00	0.15	0.50	1.50
	Base	Cum	1	10.00	1.00	0.23	2.30
	Top Slab	Cum	1	10.00	1.00	0.15	1.50
		Cum			Total Qty.		509.09
8	KSRRB M800-Permanent type barricade in construction zone KSRRB M800-44.1. Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55-2014 complete as per specifications . A. With steel components(KSRRB 18-19,Page No 187,SI No : 24.45)						
	Length of Road						
	4th Cross Road						
	Ch.0.0 to Ch.270.0	Rm	1	270.00			270.00
						Total Length	270.00
	No. of Barricade = Length of Road / Length of one barricade (2.5m)	Nos.				Total Qty.	108.00
9	KSRRB M300-14. Excavation for roadwork in all types of soil by mechanical means including cutting and loading to tipplers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transportation with a lead of 1.00 km and complete as per specifications. MORTH Specification No.301 (KSRRB 18-19,Page No 143,SI No : 19.14)						
	Nellikai Road						
	Ch. 25.00 to 270.0	Cum	1	245	9.3	0.58	1310.14
	Mission Road						
	Ch. 23.78 to Ch.28.48	Cum	1	163.72	9.3	0.58	875.49
	Hamilton Circle	Cum	1	71	22.4	0.40	636.16
	Excavation for SWD						
	Maidan Road						
	Foundation						
	RHS	Cum	1	254	1.7	1.25	539.75
	LHS	Cum	1	232	1.7	1.25	493.00
	Nellikai Road						
	Foundation						
	RHS	Cum	1	331	1.7	1.25	703.38
	Mission Street Road						
	Foundation						
	RHS	Cum	1	196	1.7	1.25	416.50
	LHS	Cum	1	207	1.7	1.25	439.88
	4th Cross Lane						
	Foundation						
	RHS	Cum	1	251	1.70	1.25	533.38
	LHS	Cum	1	176	1.70	1.25	374.00
	Electrical Poles	Cum	104	1.35	1.35	1.00	189.54

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Signal Poles	Cum	16	1.6	1.6	1.00	40.96
	Electrical HDPE Pipe laying						
	Maidan Road	Cum	1	446.2	0.9	1.80	722.84
	Nellikai Road	Cum	1	555	0.9	1.80	899.10
	Mission Road	Cum	1	378.4	0.9	1.80	613.01
	4th Cross Road	Cum	1	393.4	0.9	1.80	637.31
	Chamber Excavation	Cum	65	3.3	2.2	2.40	1132.56
	Footpath Excavation						
	Maidan Road (AB shetty to Hamilton Circle)Footpath						
	Left Hand Side of Road						
	Ch.0.0 to Ch.100.0	Cum	1	84.49	2.2	0.15	27.88
	Service Bus Stand Road (LHS Side)	Cum	1	45.6	2.2	0.15	15.05
	Service Bus Stand Road (RHS Side)	Cum	1	35.92	2.2	0.15	11.85
	Ch.120.0 to Ch.170.0	Cum	1	52.59	2.2	0.15	17.35
	Ch.180.0 to Ch. 210.0	Cum	1	27.16	2.2	0.15	8.96
	Ch.210.0 to Ch.240.0(Curved area-Maidan Road)	Cum	1	19.12	3	0.15	8.60
	Right Hand Side of Road						
	Ch.30.0 to Ch.170.0	Cum	1	141.27	2.2	0.15	46.62
	Ch.180.0 to Ch.240.0	Cum	1	54.4	2.2	0.15	17.95
	Mangala Devi Road-RHS	Cum	1	49	1.55	0.15	11.39
	Mangala Devi Road-LHS	Cum	1	72.69	1.64	0.15	17.88
	Hamilton Circle Junction-Footpath						
	Rosario Church Road-LHS	Cum	1	47	2.2	0.15	15.51
	Rosario Church Road-RHS	Cum	1	83.175	5.3	0.15	66.12
	Bunder Road-LHS	Cum	1	71.63	7.43	0.15	79.83
	Bunder Road-RHS	Cum	1	74.21	6.41	0.15	71.35
	Nellikai Road-LHS						
	Ch.10.0 to Ch.50.0	Cum	1	38.91	2.2	0.15	12.84
	Ch.55.0 to Ch.125.0	Cum	1	67.04	2.2	0.15	22.12
	Ch.120.0 to Ch.270.0	Cum	1	119.69	2.2	0.15	39.50
	Ch.280.0 to Ch.310.0	Cum	1	29.68	2.2	0.15	9.79
	Nellikai Road-RHS						
	Ch.10.0 to Ch.35.0	Cum	1	25.92	1.4	0.15	5.44
	Ch.45.0 to Ch.95.0	Cum	1	47	1.4	0.15	9.87
	Ch.105.0 to Ch.180.0	Cum	1	71.83	1.4	0.15	15.08
	Ch.190.0 to Ch.270.0	Cum	1	84.11	1.4	0.15	17.66
	At Junction at Nellikai and 4th cross road	Cum	1	165		0.15	24.75
	4th Cross Road						
	Left Hand Side Footpath						
	Ch.20.0 to Ch.40.0	Cum	1	20	4.86	0.15	14.58
	Ch.40.0 to Ch.350.0	Cum	1	220	2.2	0.15	72.60
	Right Hand Side Footpath						
	Ch.15.0 to Ch.180.0	Cum	1	165	2.2	0.15	54.45
	Offset at @ Ch.100.0 to Ch.110.0	Cum	1	18.14	2.67	0.15	7.27
	Mission Street						
	Right hand side Footpath						
	Ch.10.00 to Ch.25.00	Cum	1	15	3.74	0.15	8.42
	Ch.47.0 to Ch.175.0	Cum	1	148.88	2.2	0.15	49.13
	Ch.175.0 to Ch.190.0	Cum	1	28.55	5.6	0.15	23.98
	Left Hand Side Footpath						
	Ch.0.0 to Ch.40.0	Cum	1	70	2.2	0.15	23.10
	Ch.40.0 to Ch.110.0	Cum	1	66.174	2.2	0.15	21.84
	Ch.120.0 to Ch.206.0	Cum	1	100	2.2	0.15	33.00
	Ch.56.57 to Ch.84.36	Cum	1	27	4.86	0.15	19.68
	Compound Wall side paver Block						
	Maidan Road						
	RHS-Ch.40.00 to Ch.120.0(Average Width)	Cum	1	80.23	1.6	0.15	19.26
	Rosario Church LHS	Cum	1	56.92	3.94	0.15	33.64
	Bus Service Road-RHS	Cum	1	30.94	4.2	0.15	19.49
	Bus Service Road-LHS	Cum	1	38.9	1.61	0.15	9.39
	Ch.50.0 to 100.0	Cum	1	48	2.16	0.15	15.55
	Ch. 0 to 50	Cum	1	32.22	3.7	0.15	17.88
	Nellikai Road						
	RHS-Ch.150.0 to Ch.200.0	Cum	1	66.79	2.92	0.15	29.25
	RHS-Ch.150.0 to Ch.210.0	Cum	1	19	1.66	0.15	4.73
	LHS-Ch.10.0 to Ch.35.0	Cum	1	69.49		0.15	10.42
	Ch.45.0 to Ch.95.0	Cum	1	46.81	1.34	0.15	9.41
	Ch.110 to Ch.180.0	Cum	1	45		0.15	6.75
	Mission Street	Cum	1	82.26	1.5	0.15	18.51
	Ch.80.0 to Ch.115.0	Cum	1	32	1.32	0.15	6.34
	Ch.120.0 to Ch.206.0	Cum	1	98.68	2	0.15	29.60
	4th Cross Road						
	RHS-Ch.20.0 to Ch.180.0(Avg. width)	Cum	1	160	3	0.15	72.00
	LHS-0.0 to 63.0	Cum	1	49.78	2.62	0.15	19.56
	Ch.63 to Ch.180.0(Avg. Width)	Cum	1	117	1.000	0.15	17.55
	Cum					Total Qty.	11797.81

Sr. No.	Description	Unit	No's	L	B	H	Qty.
10	KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KSRB 18-19,SI No.2.11,Pg. No.7)						
	Electrical HDPE Pipe laying						
	Maidan Road	Cum	1	446.2	0.9	1.8	722.84
	Nellikai Road	Cum	1	555	0.9	1.8	899.10
	Mission Road	Cum	1	378.4	0.9	1.8	613.01
	4th Cross Road	Cum	1	393.4	0.9	1.8	637.31
	Dia 225mm Pipe Volume	Cum	-2	1929	3.14	0.05	-605.71
	Dia 160 mm Pipe Volume	Cum	-4	1929	3.14	0.03	-726.85
	Total Excavation for Chambers	Cum	1	1132.56			1132.56
	Deduct Vol of Chamber	Cum	-65	2.40	0.90	2.10	-294.84
	Total Excavation for Electric Pole	Cum	1	189.54			189.54
	Ded. Vol of Concrete	Cum	-1	18.25			-18.25
	Total Excavation for Signal Pole	Cum	1	40.96			40.96
	Ded. Vol of Concrete	Cum	-1	6.00			-6.00
	Total Excavation for SWD	Cum	1	3499.88			3499.88
	Deducting the Volume of SWD						
	Maidan Road						
	Foundation						
	RHS	Cum	-1	254	0.90	1.00	-228.60
	LHS	Cum	-1	232	0.90	1.00	-208.80
	Nellikai Road						
	Foundation						
	RHS	Cum	-1	331	0.90	1.00	-297.90
	Mission Street Road						
	Foundation						
	RHS	Cum	-1	196	0.90	1.00	-176.40
	LHS	Cum	-1	207	0.90	1.00	-186.30
	4th Cross Lane						
	Foundation						
	RHS	Cum	-1	251	0.90	1.00	-225.90
	LHS	Cum	-1	176	0.90	1.00	-158.40
		Cum			Total Qty.		4601.25
11	KSRRB 300-58. Compaction of original ground by mechanical means including filling in depression occurring during rolling including cost of all labour, HOM complete as per specifications. MORTH I Chapter 3 (KSRRB 18-19,SI No.19.64,Pg. No.147)						
	Maidan Road (AB shetty to Hamilton Circle)Footpath						
	Left Hand Side of Road						
	Ch.0.0 to Ch.100.0	Sqm	1	84.49	2.2		185.88
	Service Bus Stand Road (LHS Side)	Sqm	1	45.6	2.2		100.32
	Service Bus Stand Road (RHS Side)	Sqm	1	35.92	2.2		79.02
	Ch.120.0 to Ch.170.0	Sqm	1	52.59	2.2		115.70
	Ch.180.0 to Ch. 210.0	Sqm	1	27.16	2.2		59.75
	Ch.210.0 to Ch.240.0(Curved area-Maidan Road)	Sqm	1	19.12	3		57.36
	Right Hand Side of Road						
	Ch.30.0 to Ch.170.0	Sqm	1	141.27	2.2		310.79
	Ch.180.0 to Ch.240.0	Sqm	1	54.4	2.2		119.68
	Mangala Devi Road-RHS	Sqm	1	49	1.55		75.95
	Mangala Devi Road-LHS	Sqm	1	72.69	1.64		119.21
	Hamilton Circle Junction-Footpath						
	Rosario Church Road-LHS	Sqm	1	47	2.2		103.40
	Rosario Church Road-RHS	Sqm	1	83.175	5.3		440.83
	Bunder Road-LHS	Sqm	1	71.63	7.43		532.21
	Bunder Road-RHS	Sqm	1	74.21	6.41		475.69
	Nellikai Road-LHS						
	Ch.10.0 to Ch.50.0	Sqm	1	38.91	2.2		85.60
	Ch.55.0 to Ch.125.0	Sqm	1	67.04	2.2		147.49
	Ch.120.0 to Ch.270.0	Sqm	1	119.69	2.2		263.32
	Ch.280.0 to Ch.310.0	Sqm	1	29.68	2.2		65.30
	Nellikai Road-RHS						
	Ch.10.0 to Ch.35.0	Sqm	1	25.92	1.4		36.29
	Ch.45.0 to Ch.95.0	Sqm	1	47	1.4		65.80
	Ch.105.0 to Ch.180.0	Sqm	1	71.83	1.4		100.56
	Ch.190.0 to Ch.270.0	Sqm	1	84.11	1.4		117.75
	At Junction at Nellikai and 4th cross road	Sqm	1	165			165.00
	4th Cross Road						

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Left Hand Side Footpath						
	Ch.20.0 to Ch.40.0	Sqm	1	20	4.86		97.20
	Ch.40.0 to Ch.350.0	Sqm	1	220	2.2		484.00
	Right Hand Side Footpath						
	Ch.15.0 to Ch.180.0	Sqm	1	165	2.2		363.00
	Offset at @ Ch.100.0 to Ch.110.0	Sqm	1	18.14	2.67		48.43
	Mission Street						
	Right hand side Footpath						
	Ch.10.00 to Ch.25.00	Sqm	1	15	3.74		56.10
	Ch.47.0 to Ch.175.0	Sqm	1	148.88	2.2		327.54
	Ch.175.0 to Ch.190.0	Sqm	1	28.55	5.6		159.88
	Left Hand Side Footpath						
	Ch.0.0 to Ch.40.0	Sqm	1	70	2.2		154.00
	Ch.40.0 to Ch.110.0	Sqm	1	66.174	2.2		145.58
	Ch.120.0 to Ch.206.0	Sqm	1	100	2.2		220.00
	Ch.56.57 to Ch.84.36	Sqm	1	27	4.86		131.22
	Compound Wall side paver Block						
	Maidan Road						
	RHS-Ch.40.00 to Ch.120.0(Average Width)	Sqm	1	80.23	1.6		128.37
	Rosario Church LHS	Sqm	1	56.92	3.94		224.26
	Bus Service Road-RHS	Sqm	1	30.94	4.2		129.95
	Bus Service Road-LHS	Sqm	1	38.9	1.61		62.63
	Ch.50.0 to 100.0	Sqm	1	48	2.16		103.68
	Ch. 0 to 50	Sqm	1	32.22	3.7		119.21
	Nellikai Road						
	RHS-Ch.150.0 to Ch.200.0	Sqm	1	66.79	2.92		195.03
	RHS-Ch.150.0 to Ch.210.0	Sqm	1	19	1.66		31.54
	LHS-Ch.10.0 to Ch.35.0	Sqm	1	69.49			69.49
	Ch.45.0 to Ch.95.0	Sqm	1	46.81	1.34		62.73
	Ch.110 to Ch.180.0	Sqm	1	45			45.00
	Mission Street						
	Ch.80.0 to Ch.115.0	Sqm	1	32	1.32		42.24
	Ch.120.0 to Ch.206.0	Sqm	1	98.68	2		197.36
	4th Cross Road						
	RHS-Ch.20.0 to Ch.180.0(Avg. width)	Sqm	1	160	3		480.00
	LHS-0.0 to 63.0	Sqm	1	49.78	2.62		130.42
	Ch.63 to Ch.180.0(Avg. Width)	Sqm	1	117	1		117.00
		Sqm			Total Qty.		8272.15
12	KSRB 4-1.7 : Providing and laying in position plain cement concrete of Mix 1:3:6 with OPC @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.69 cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 ems. thick, well compacted, in foundation, plinth and cills, including cost of all materials, labour, HOM curing complete as per specifications. Specification No. KBS 4.1, 4.2 (KSRB 18-19,SI No.4.7,Pg No.13						
	Signal Pole RCC Pedstal at hamilton circle	Cum	16	1	1.00	0.10	1.60
	Electrical Pole	Cum	104	1.1	1.10	0.10	12.58
	Maidan Road (AB shetty to Hamilton Circle)Footpath						
	Right Hand Side of Road						
	Ch.0.0 to Ch.100.0	Cum	1	84.49	1.3	0.10	10.98
	Service Bus Stand Road (LHS Side)	Cum	1	45.6	1.3	0.10	5.93
	Service Bus Stand Road (RHS Side)	Cum	1	35.92	1.3	0.10	4.67
	Ch.120.0 to Ch.170.0	Cum	1	52.59	1.3	0.10	6.84
	Ch.180.0 to Ch. 210.0	Cum	1	27.16	1.3	0.10	3.53
	Ch.210.0 to Ch.240.0(Curved area-Maidan Road)	Cum	1	19.12	2.1	0.10	4.02
	Left Hand Side of Road	Cum					
	Ch.30.0 to Ch.170.0	Cum	1	141.27	1.3	0.10	18.37
	Ch.180.0 to Ch.240.0	Cum	1	54.4	1.3	0.10	7.07
	Mangala Devi Road-RHS	Cum	1	49	0.65	0.10	3.19
	Hamilton Circle Junction-Footpath	Cum					
	Rosario Church Road-LHS	Cum	1	47	1.3	0.10	6.11
	Rosario Church Road-RHS	Cum	1	83.175	4.4	0.10	36.60
	Bunder Road-LHS	Cum	1	71.63	6.53	0.10	46.77
	Bunder Road-RHS	Cum	1	74.21	5.51	0.10	40.89
	4th Cross Road	Cum					
	Left Hand Side Footpath	Cum					
	Ch.20.0 to Ch.40.0	Cum	1	20	3.96	0.10	7.92
	Ch.40.0 to Ch.350.0	Cum	1	220	1.3	0.10	28.60
	Right Hand Side Footpath						
	Ch.15.0 to Ch.180.0	Cum	1	165	1.3	0.10	21.45
	Offset at @ Ch.100.0 to Ch.110.0	Cum	1	18.14	1.77	0.10	3.21
	Mission Street						

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Right hand side Footpath						
	Ch.10.00 to Ch.25.00	Cum	1	15	2.84	0.10	4.26
	Ch.47.0 to Ch.175.0	Cum	1	148.88	1.3	0.10	19.35
	Ch.175.0 to Ch.190.0	Cum	1	28.55	4.7	0.10	13.42
	Left Hand Side Footpath						
	Ch.0.0 to Ch.40.0	Cum	1	70	1.3	0.10	9.10
	Ch.40.0 to Ch.110.0	Cum	1	66.174	1.3	0.10	8.60
	Ch.120.0 to Ch.206.0	Cum	1	100	1.3	0.10	13.00
	Ch.56.57 to Ch.84.36	Cum	1	27	3.96	0.10	10.69
	Compound Wall side paver Block						
	Maidan Road						
	RHS-Ch.40.00 to Ch.120.0	Cum	1	80.23	1.6	0.10	12.84
	Rosario Church LHS	Cum	1	56.92	3.94	0.10	22.43
	Bus Service Road-RHS	Cum	1	30.94	4.2	0.10	12.99
	Bus Service Road-LHS	Cum	1	38.9	1.61	0.10	6.26
	Ch.50.0 to 100.0	Cum	1	48	2.16	0.10	10.37
	Ch. 0 to 50	Cum	1	32.22	3.7	0.10	11.92
	Nellikai Road						
	RHS-Ch.150.0 to Ch.210.0	Cum	1	66.79	2.92	0.10	19.50
	RHS-Ch.150.0 to Ch.210.0	Cum	1	18.1	1.66	0.10	3.00
	LHS-Ch.10.0 to Ch.35.0	Cum	1	69.49		0.10	6.95
	Ch.45.0 to Ch.95.0	Cum	1	46.81	0.44	0.10	2.06
	Ch.110 to Ch.180.0	Cum	1	45		0.10	4.50
	Mission Street	Cum	1	82.26	0.6	0.10	4.94
	Ch.80.0 to Ch.115.0	Cum	1	32	0.42	0.10	1.34
	Ch.120.0 to Ch.206.0	Cum	1	98.68	1.1	0.10	10.85
	4th Cross Road						
	RHS-Ch.20.0 to Ch.180.0	Cum	1	160	3.00	0.10	48.00
	LHS-0.0 to 63.0	Cum	1	49.78	2.62	0.10	13.04
	Ch.63 to Ch.180.0(Avg. Width)	Cum	1	117	1.00	0.10	11.70
	SWD						
	Maidan Road						
	Foundation						
	RHS	Cum	1	254.00	1.70	0.10	43.18
	LHS	Cum	1	232.00	1.70	0.10	39.44
	Nellikai Road						
	Foundation						
	RHS	Cum	1	331.00	1.70	0.10	56.27
	Mission Street Road						
	Foundation						
	RHS	Cum	1	196.00	1.70	0.10	33.32
	LHS	Cum	1	207.00	1.70	0.10	35.19
	4th Cross Lane						
	Foundation						
	RHS	Cum	1	251.00	1.70	0.10	42.67
	LHS	Cum	1	176.00	1.70	0.10	29.92
	Below Kerb Stone	Cum	1	2692	0.20	0.10	53.83
	Below Kerb Stone	Cum	1	416	0.20	0.10	8.31
	Electrical Chamber						
	Foundation	Cum	65	2.7	1.6	0.10	28.08
		Cum			Total Qty.		921.67
13	Construction of granular sub-base Grading-Vas Sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite/ trap/basalt material, mixing in a mechanical mix plant at OMC, Carriage of mixed material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98% proctor density, complete as per specifications. Clause 401 of MORTH V Revision. (KSRRB 18-19,P.No.153, Sl.No.20.4)						
e	Signal Pole RCC Pedstal at hamilton Circle	Cum	16	1	1	0.15	2.40
	Maidan Road (AB shetty to Hamilton Circle)Footpath						
	Right Hand Side of Road						
	Ch.0.0 to Ch.100.0	Cum	1	84.49	1.30	0.15	16.48
	Service Bus Stand Road (LHS Side)	Cum	1	45.6	1.30	0.15	8.89
	Service Bus Stand Road (RHS Side)	Cum	1	35.92	1.30	0.15	7.00
	Ch.120.0 to Ch.170.0	Cum	1	52.59	1.30	0.15	10.26
	Ch.180.0 to Ch. 210.0	Cum	1	27.16	1.30	0.15	5.30
	Ch.210.0 to Ch.240.0(Curved area-Maidan Road)	Cum	1	19.12	2.10	0.15	6.02
	Left Hand Side of Road						
	Ch.30.0 to Ch.170.0	Cum	1	141.27	1.30	0.15	27.55
	Ch.180.0 to Ch.240.0	Cum	1	54.4	1.30	0.15	10.61
	Mangala Devi Road-RHS	Cum	1	49	0.65	0.15	4.78
	Hamilton Circle Junction-Footpath						
	Rosario Church Road-LHS	Cum	1	47	1.30	0.15	9.17

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Rosario Church Road-RHS	Cum	1	83.175	4.40	0.15	54.90
	Bunder Road-LHS	Cum	1	71.63	6.53	0.15	70.16
	Bunder Road-RHS	Cum	1	74.21	5.51	0.15	61.33
	4th Cross Road						
	Left Hand Side Footpath						
	Ch.20.0 to Ch.40.0	Cum	1	20	3.96	0.15	11.88
	Ch.40.0 to Ch.350.0	Cum	1	220	1.30	0.15	42.90
	Right Hand Side Footpath						0.00
	Ch.15.0 to Ch.180.0	Cum	1	165	1.30	0.15	32.18
	Offset at @ Ch.100.0 to Ch.110.0	Cum	1	18.14	1.77	0.15	4.82
	Mission Street						
	Right hand side Footpath						
	Ch.10.00 to Ch.25.00	Cum	1	15	2.84	0.15	6.39
	Ch.47.0 to Ch.175.0	Cum	1	148.88	1.30	0.15	29.03
	Ch.175.0 to Ch.190.0	Cum	1	28.55	4.70	0.15	20.13
	Left Hand Side Footpath						
	Ch.0.0 to Ch.40.0	Cum	1	70	1.30	0.15	13.65
	Ch.40.0 to Ch.110.0	Cum	1	66.174	1.30	0.15	12.90
	Ch.120.0 to Ch.206.0	Cum	1	100	1.30	0.15	19.50
	Ch.56.57 to Ch.84.36	Cum	1	27	3.96	0.15	16.04
	Compound Wall side paver Block						
	Maidan Road						
	RHS-Ch.40.00 to Ch.120.0	Cum	1	80.23	1.60	0.15	19.26
	Rosario Church LHS	Cum	1	56.92	3.94	0.15	33.64
	Bus Service Road-RHS	Cum	1	30.94	4.20	0.15	19.49
	Bus Service Road-LHS	Cum	1	38.9	1.61	0.15	9.39
	Ch.50.0 to 100.0	Cum	1	48	2.16	0.15	15.55
	Ch. 0 to 50	Cum	1	32.22	3.70	0.15	17.88
	Nellikai Road						
	RHS-Ch.150.0 to Ch.210.0	Cum	1	66.79	2.92	0.15	29.25
	RHS-Ch.150.0 to Ch.210.0	Cum	1	18.10	1.66	0.15	4.51
	LHS-Ch.10.0 to Ch.35.0	Cum	1	69.49		0.15	10.42
	Ch.45.0 to Ch.95.0	Cum	1	46.81	0.44	0.15	3.09
	Ch.110 to Ch.180.0	Cum	1	45		0.15	6.75
	Mission Street	Cum	1	82.26	0.60	0.15	7.40
	Ch.80.0 to Ch.115.0	Cum	1	32	0.42	0.15	2.02
	Ch.120.0 to Ch.206.0	Cum	1	98.68	1.10	0.15	16.28
	4th Cross Road						
	RHS-Ch.20.0 to Ch.180.0	Cum	1	160	3.00	0.15	72.00
	LHS-0.0 to 63.0	Cum	1	49.78	2.62	0.15	19.56
	Ch.63 to Ch.180.0(Avg. Width)	Cum	1	117	1.00	0.15	17.55
	Pavers on Carriageway						
	Maidan Road (AB shetty to Hamilton Circle)						
	LHS Side						
	Ch.46.80 to Ch.90.00	Cum	1	38.67	2.5	0.15	14.50
	Ch.130.0 to Ch.170.0	Cum	1	45.72	2.5	0.15	17.15
	Ch.180.0 to Ch.210.0	Cum	1	29.7	2.5	0.15	11.14
	Nellikai Road						
	Right hand Side Road						
	Ch.25.0 to Ch.45.0	Cum	1	20	1.6	0.15	4.80
	Ch.65.0 to Ch.120.0	Cum	1	55	1.8	0.15	14.85
	Ch.155.0 to Ch.210.0	Cum	1	55	2.6	0.15	21.45
	Mission Street Road						
	Ch.50 to Ch.100.0	Cum	1	47.64	2.42	0.15	17.29
	Ch.115 to Ch.180	Cum	1	60.53	2.76	0.15	25.06
	Road						
	Nellikai Road						
	Ch. 25.00 to 270.0	Cum	1	245	9.3	0.15	341.78
	Junction of Mission street road and Nellikai Road	Cum	1	23	25.25	0.15	87.11
	Mission Road						
	Ch. 23.78 to Ch.187.5	Cum	1	163.72	9.3	0.15	228.39
	Hamilton Circle						
	Hamilton Junction	Cum	1	71	22.4	0.15	238.56
		Cum			Total Qty.		1830.38

Sr. No.	Description	Unit	No's	L	B	H	Qty.
14	KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reafirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedastals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnspillers, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications. (KSRB 18-19,Page No 14,SI No :4.10)						
	Signal Pole RCC Pedstal at Hamilton Circle						
	Base	Cum	16	1.00	1.00	0.20	3.20
	Column	Cum	16	0.50	0.50	0.70	2.80
	Electrical Pole						
	Foundation	Cum	104	0.75	0.75	0.20	11.70
	Column	Cum	104	0.3	0.30	0.70	6.55
	SWD						
	Maidan Road						
	Foundation-SWD						
	RHS	Cum	1	254	1.10	0.15	41.91
	LHS	Cum	1	232	1.10	0.15	38.28
	Wall-SWD						
	RHS	Cum	2	254	0.15	1.00	76.20
	LHS	Cum	2	232	0.15	1.00	69.60
	Top Slab						
	RHS	Cum	1	254	0.90	0.15	34.29
	LHS	Cum	1	232	0.90	0.15	31.32
	Deduction of Access Cover						
	RHS	Cum	-25	0.60	0.45	0.15	-1.01
	LHS	Cum	-23	0.60	0.45	0.15	-0.93
	Nellikai Road						
	Foundation						
	RHS	Cum	1	331	1.10	0.15	54.62
	Wall						
	RHS	Cum	2	331	1.00	0.15	99.30
	Top Slab						
	RHS	Cum	1	331	0.90	0.15	44.69
	Deduction of Access Cover						
	RHS	Cum	-33	0.60	0.45	0.15	-1.34
	Mission Street Road						
	Foundation						
	RHS	Cum	1	196	1.10	0.15	32.34
	LHS	Cum	1	207	1.10	0.15	34.16
	Wall						
	RHS	Cum	2	196	0.15	1.00	58.80
	LHS	Cum	2	207	0.15	1.00	62.10
	Top Slab						
	RHS	Cum	1	196	0.90	0.15	26.46
	LHS	Cum	1	207	0.90	0.15	27.95
	Deduction of Access Cover						
	RHS	Cum	-20	0.60	0.45	0.15	-0.81
	LHS	Cum	-21	0.60	0.45	0.15	-0.85
	4th Cross Lane						
	Foundation						
	RHS	Cum	1	251	1.10	0.15	41.42
	LHS	Cum	1	176	1.10	0.15	29.04
	Wall						
	RHS	Cum	2	251	0.15	1.00	75.30
	LHS	Cum	2	176	0.15	1.00	52.80
	Top Slab						
	RHS	Cum	1	251	0.90	0.15	33.89
	LHS	Cum	1	176	0.90	0.15	23.76
	Deduction of Access Cover						
	RHS	Cum	-25	0.60	0.45	0.15	-1.01
	LHS	Cum	-18	0.60	0.45	0.15	-0.73
	Electrical Chamber						
	Foundation	Cum	65	2.70	1.60	0.20	56.16
	Long Wall	Cum	130	2.40	0.20	2.10	131.04
	Short Wall	Cum	130	0.90	0.20	2.10	49.14

Sr. No.	Description	Unit	No's	L	B	H	Qty.
		Cum		Total Qty.			1242.11
15	KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2 (KSRB 18-19,Page No 16,SI No : 4.28)						
	Signal Pole RCC Pedstal at hamilton circle						
	Base	Sqm	64	1.00		0.20	12.80
	Column	Sqm	64	0.50		0.70	22.40
	Electrical Pole						
	Foundation	Sqm	416	0.75		0.20	62.40
	Column	Sqm	416	0.3		0.70	87.36
	SWD						
	Maidan Road						
	Foundation-SWD						
	RHS	Sqm	2	254		0.15	76.20
	LHS	Sqm	2	232		0.15	69.60
	Wall-SWD						
	RHS	Sqm	4	254		1	1016.00
	LHS	Sqm	4	232		1	928.00
	Top Slab(Centering and Edges of Slab)						
	RHS	Sqm	1	254	0.9		228.60
	LHS	Sqm	1	232	0.9		208.80
	Deduction of Access Cover						
	RHS	Sqm	-25	0.6	0.45		-6.75
	LHS	Sqm	-23	0.6	0.45		-6.21
	Nellikai Road						
	Foundation						
	RHS	Sqm	2	331		0.15	99.30
	Wall						
	RHS	Sqm	2	331	1		662.00
	Top Slab						
	RHS	Sqm	1	331	0.9		297.90
	Deduction of Access Cover						
	RHS	Sqm	-33	0.6	0.45		-8.91
	Mission Street Road						
	Foundation						
	RHS	Sqm	2	196		0.15	58.80
	LHS	Sqm	2	207		0.15	62.10
	Wall						
	RHS	Sqm	4	196		1	784.00
	LHS	Sqm	4	207		1	828.00
	Top Slab						
	RHS	Sqm	1	196	0.9		176.40
	LHS	Sqm	1	207	0.9		186.30
	Deduction of Access Cover						
	RHS	Sqm	-20	0.6	0.45		-5.40
	LHS	Sqm	-21	0.6	0.45		-5.67
	4th Cross Lane						
	Foundation						
	RHS	Sqm	2	251		0.15	75.30
	LHS	Sqm	2	176		0.15	52.80
	Wall						
	RHS	Sqm	4	251		1	1004.00
	LHS	Sqm	4	176		1	704.00
	Top Slab						
	RHS	Sqm	1	251	0.9		225.90
	LHS	Sqm	1	176	0.9		158.40
	Deduction of Access Cover						
	RHS	Sqm	-25	0.6	0.45		-6.75
	LHS	Sqm	-18	0.6	0.45		-4.86
	Electrical Chamber						
	Foundation-Long Side	Sqm	130	2.70		0.20	70.20
	Foundation-Short Side	Sqm	130	1.60		0.20	41.60
	Long Wall	Sqm	260	2.40		2.10	1310.40
	Short Wall	Sqm	260	0.90		2.10	491.40
		Sqm			Total Qty.		9956.41

Sr. No.	Description	Unit	No's	L	B	H	Qty.
16	KSRB 4.9.2 :Providing T.M.T steel reinforcement for RCC work including straighting, cutting, bending, hooking, placing in position, lapping and/or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per design (laps, hooks and wastage shall not be measured and paid) cost of materials, labour, H.O.M of machinery complete as per specifications. Specification No. KBS4.6.3. do with TMT bars Fe500 (KSRB 18-19, Page No 18, SI No : 4.46.2)			Cum	Kg/Cum	Kg	MT
	Signal Footing	MT	1	3.20	60.00	192.00	0.19
	Signal Column	MT	1	2.80	80.00	224.00	0.22
	Electrical Pole-Pestal-Footing	MT	1	11.70	60.00	702.00	0.70
	Electrical Pole-Pestal-Column	MT	1	6.55	80.00	524.16	0.52
	SWD and Electrical Chamber	MT	1	1217.86	80.00	97428.60	97.43
		MT		1242.11	0.00	Total	99.07
17	KSRRB M300-53. Construction of embankment with approved material Gravel/Murum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300-2 complete as per specifications, including cost of gravel/ murum, watering charges & compaction by vibratory roller to 95% of modified proctors density. MORTH Specification No. 305 (KSRRB 18-19, Pg No.147, SI No.19.60)						
	Pavers on Carriageway						
	Maidan Road (AB shetty to Hamilton Circle)						
	LHS Side						
	Ch.46.80 to Ch.90.00	Cum	1	38.67	2.5	0.25	24.17
	Ch.130.0 to Ch.170.0	Cum	1	45.72	2.5	0.25	28.58
	Ch.180.0 to Ch.210.0	Cum	1	29.7	2.5	0.25	18.56
	Nellikai Road						
	Right hand Side Road						
	Ch.25.0 to Ch.45.0	Cum	1	20	1.6	0.25	8.00
	Ch.65.0 to Ch.120.0	Cum	1	55	1.8	0.25	24.75
	Ch.155.0 to Ch.210.0	Cum	1	55	2.6	0.25	35.75
	Mission Street Road						
	Ch.50 to Ch.100.0	Cum	1	47.64	2.42	0.25	28.82
	Ch.115 to Ch.180	Cum	1	60.53	2.76	0.25	41.77
	Concrete Road and Junctions						
	Nellikai Road						
	Ch. 25.00 to 270.0	Cum	1	245	9.3	0.25	569.63
	Junction of Mission street road and Nellikai Road	Cum	1	23	25.25	0.25	145.19
	Mission Road						
	Ch. 23.78 to Ch.187.5	Cum	1	163.72	9.3	0.25	380.65
	Hamilton Circle						
	Hamilton Junction	Cum	1	71	22.4	0.25	397.60
		Cum				Total	1703.46
18	KSRRB M600-1. Providing and Constructing dry lean cement concrete mix CC 1:5:10 base with OPC 25mm and down size graded granite metal coarse aggregate at 0.86cum and fine aggregates @0.58cum over a prepared sub-base, coarse and fine aggregate conforming to IS: 383-2016, aggregate cement ratio not to exceed 15:1, Aggregate gradation after blending to be as per Table 600-1, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. Clause 601 of MORTH V Revision and IS 456 Table-5 -do- with OPC at 150 kg/cum and coarse aggregate 0.86cum, fine aggregate 0.58cum using Concrete Batch mix Plant at 75 cum/hr capacity with Slip form paver with electronic sensor. (KSRRB 18-19, Page No 174, SI No : 22.1.1)						
	Pavers on Carriageway						
	Maidan Road (AB shetty to Hamilton Circle)						
	LHS Side						
	Ch.46.80 to Ch.90.00	Cum	1	38.67	2.5	0.10	9.67
	Ch.130.0 to Ch.170.0	Cum	1	45.72	2.5	0.10	11.43
	Ch.180.0 to Ch.210.0	Cum	1	29.7	2.5	0.10	7.43
	Nellikai Road						

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Right hand Side Road						
	Ch.25.0 to Ch.45.0	Cum	1	20	1.6	0.10	3.20
	Ch.65.0 to Ch.120.0	Cum	1	55	1.8	0.10	9.90
	Ch.155.0 to Ch.210.0	Cum	1	55	2.6	0.10	14.30
	Mission Street Road						
	Ch.50 to Ch.100.0	Cum	1	47.64	2.42	0.10	11.53
	Ch.115 to Ch.180	Cum	1	60.53	2.76	0.10	16.71
	Concrete Road and Junctions						
	Nellikai Road						
	Ch. 25.00 to 270.0	Cum	1	245	9.3	0.10	227.85
	Junction of Mission street road and Nellikai Road	Cum	1	23	25.25	0.10	58.08
	Mission Road						
	Ch. 23.78 to Ch.187.5	Cum	1	163.72	9.3	0.10	152.26
	Hamilton Circle						
	Hamilton Junction	Cum	1	71	22.4	0.10	159.04
		Cum			Total Qty.		681.38
19	KSRRB M600-2. Providing and Constructing un-reinforced, dowel jointed, plain cement Pavement Quality concrete for pavements using Grade concrete M40 having Flexural strength not less than 4.50 Mpa over a prepared base with OPC, coarse aggregate at 0.64 cum, fine aggregates at 0.36 cum, Coarse and fine aggregate conforming to IS:383-2016 and Table 600-3 of MORTH V Revision, with Superplastizer at 3 lts conforming to IS 9103-2008. loading materials to batch mix plant by front end loader, mixed in a cement concrete batch mix plant as per approved mix design, transported to site in transit truck agitator 5 cum capacity, laid with Paver, compacted and finished in a continuous operation as per IRC-15 including cost for providing of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane of impermeable plastic sheet of 125 micron, groove cutting, sealant primer joint sealant, debonding strip, dowel bars at 9 kg/cum, tie rods at 1.15 kg/cum, admixtures as approved, curing compound, finishing to lines and grades, textured with texturing machine, and curing including cost of all materials, labour, hire charges of machineries, all lead & lift charges etc., complete as per						
	Nellikai Road						
	Ch. 25.00 to 270.0	Cum	1	245	9.3	0.25	569.63
	Junction of Mission street road and Nellikai Road	Cum	1	23	25.25	0.25	145.19
	Mission Road(PQC Thk Change as per Technical Comitee comments-15/05/18)						
	Ch. 23.78 to Ch.187.5	Cum	1	163.72	9.3	0.25	380.65
	Hamilton Circle						
	Hamilton Junction	Cum	1	71	22.4	0.30	477.12
		Cum				Total	1572.58
20	Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower and as shown on drawing and as per MORTH specifications clause 602. (Non SOR Item)						
	Maidan Road						
	Ch.20 to Ch.230.0						
	Longitudinal Joint	Rmt	2	210			420.00
	Joint across the chainage	Rmt	60	16.75			1005.00
	4th Cross Road						
	Ch.0 to Ch.210.0						
	Longitudinal Joint	Rmt	2	210			420.00
	Joint across the chainage	Rmt	60	13.45			807.00
		Rmt			Total Qty.		2652.00
21	KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications. Morth specification No.3005.1 (KSRRB 18-19, Page No 260, SI No : 35.8)						
	Consider Same Qty of Joint Filling	Rmt			Total Qty.		2652.00

Sr. No.	Description	Unit	No's	L	B	H	Qty.
22	Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not be more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)						
Maidan Road (AB Shetty to Hamilton Circle)							
	Ch.20.00 to Ch.97.80	Rmt	2	77.8			155.60
	Ch.120.0 to 230.00	Rmt	2	130			260.00
		Rmt			Sub Total 2		415.60
		No's			Total Qty.		1039
23	Providing and fixing pre cast solid cement concrete kerb stones made out of C.C. 1:2:4 with top and bottom width 114 and 165 mm respectively, 400mm high and 450mm in length finished with CM 1 3 plastering and finishing cutting, including form work, curing, including cost of all materials, labour, hire charges of machinery, loading, unloading, lead and lift, transportation etc., complete. (Page No 27,SI No : 5.30)						
Footpath							
Maidan Road (AB shetty to Hamilton circle)							
Left Hand Side of Road							
	Ch.40.0 to Ch.46.80	Rmt	1	7.5			7.50
	Ch.46.80 to Ch.96.30	Rmt	1	49			49.00
	Service Bus Stand Road (LHS Side)	Rmt	1	14			14.00
	Service Bus Stand Road (RHS Side)	Rmt	1	25			25.00
	Ch.120.0 to Ch.170.0	Rmt	1	51.74			51.74
	Ch.180.0 to Ch. 210.0	Rmt	1	29.32			29.32
	Ch.210.0 to Ch.240.0(Curved area-Maidan Road)	Rmt	1	27			27.00
Right Hand Side of Road							
	Ch.40.0 to Ch.44.32	Rmt	1	4.74			4.74
	Ch.44.32 to Ch.90.0	Rmt	1	44.42			44.42
	Ch.90.0 to Ch.120.0	Rmt	1	32.4			32.40
	Ch.120.0 to Ch.170.0	Rmt	1	44			44.00
	Ch.185.0 To Ch.210.0	Rmt	1	45			45.00
	Ch.210.0 to Ch.240.0(Curved area-Mangala karnis Road)	Rmt	1	27			27.00
	Footpath on mangala karnis Road (Mosque Side)	Rmt	1	50			50.00
	Footpath on mangala karnis Road (Old Kent Road Side)	Rmt	1	122			122.00
Hamilton Circle							
	North-East Side Footpath at Fourth Cross lane Side	Rmt	1	89			89.00
	Island at junction of maidan Road and Rossary Church Road	Rmt	1	30			30.00
	South-East Side Footpath at Rosari Church Road	Rmt	1	65			65.00
	South-West Side Footpath at Rosari Church Road	Rmt	1	126			126.00
	North West Side Footpath-1 at Bunder Road	Rmt	1	90.7			90.70
	North West Side Footpath-2 at Bunder Road	Rmt	1	85			85.00
	North West Side Footpath at Bunder Road and Nellikai Road	Rmt	1	46.2			46.20
	North West Side Footpath at Nellikai Road	Rmt	1	22			22.00
	Island at junction of Nellikai Road and 4th cross Road	Rmt	1	31			31.00
	Landscape side Kerb stone	Rmt	1	16			16.00
Nellikai Road							
Right Hand Side Footpath							
	Ch.10.0 to Ch.20.0	Rmt	1	27.35			27.35
	Ch.20.0 to Ch.50.0	Rmt	1	65			65.00
	Ch.60.0 to Ch.125.0	Rmt	1	150			150.00
	Ch.130.0 to Ch.140.0	Rmt	1	15			15.00
	Ch.150.0 to Ch.270.0	Rmt	1	170			170.00
	Ch.280.0 to Ch.310.0	Rmt	1	37			37.00
Left Hand Side Footpath							
	Ch.0.0 to Ch.290.0	Rmt	1	290			290.00
4th Cross Road							
Right hand side Footpath							
	Ch.30.0 to Ch.200.0	Rmt	1	169			169.00

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Left hand Side Footpath						
	Ch.30.0 to Ch.200.0	Rmt	1	173			173.00
	Mission Street Road						
	LHS						
	Ch.0.00 to 40.00	Rmt	1	52.28			52.28
	Ch.45.0 to Ch.110.0	Rmt	1	80			80.00
	Ch.120.0 to 206.00	Rmt	1	105			105.00
	RHS						
	Ch.10.0 to Ch.190.0	Rmt	1	184			184.00
		Rmt				Total(A)	2691.65
	Water table						
	Maidan Road (AB shetty to Hamilton circle)	Rmt	1	486			486.00
	Nellikai Road	Rmt	1	331			331.00
	Mission Street Road	Rmt	1	403			403.00
	4th Cross Road	Rmt	1	427			427.00
						B	1647.00
	C= A+B/0.45m(length of Kerb Stone)	Nos				Total(C)	9641.00
24.00	KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per MORTH specifications section 8. (KSRRB 18-19,Page No 180,SI No : 24.1)						
	Footpath						
	Maidan Road (AB shetty to Hamilton circle)						
	Left Hand Side of Road						
	Ch.40.0 to Ch.46.80	Sqm	1	7.5		0.32	2.36
	Ch.46.80 to Ch.96.30	Sqm	1	49.0		0.32	15.44
	Service Bus Stand Road (LHS Side)	Sqm	1	14.0		0.32	4.41
	Service Bus Stand Road (RHS Side)	Sqm	1	25.0		0.32	7.88
	Ch.120.0 to Ch.170.0	Sqm	1	51.7		0.32	16.30
	Ch.180.0 to Ch. 210.0	Sqm	1	29.3		0.32	9.24
	Ch.210.0 to Ch.240.0(Curved area-Maidan Road)	Sqm	1	27.0		0.32	8.51
	Right Hand Side of Road						
	Ch.40.0 to Ch.44.32	Sqm	1	4.7		0.32	1.49
	Ch.44.32 to Ch.90.0	Sqm	1	44.4		0.32	13.99
	Ch.90.0 to Ch.120.0	Sqm	1	32.4		0.32	10.21
	Ch.120.0 to Ch.170.0	Sqm	1	44.0		0.32	13.86
	Ch.185.0 To Ch.210.0	Sqm	1	45.0		0.32	14.18
	Ch.210.0 to Ch.240.0(Curved area-Mangala karnis Road)	Sqm	1	27.0		0.32	8.51
	Footpath on mangala karnis Road (Mosque Side)	Sqm	1	50.0		0.32	15.75
	Footpath on mangala karnis Road (Old Kent Road Side)	Sqm	1	122.0		0.32	38.43
	Hamilton Circle						
	North-East Side Footpath at Fourth Cross lane Side	Sqm	1	89.0		0.32	28.04
	Island at junction of maidan Road and Rossary Church Road	Sqm	1	30.0		0.32	9.45
	South-East Side Footpath at Rosari Church Road	Sqm	1	65.0		0.32	20.48
	South-West Side Footpath at Rosari Church Road	Sqm	1	126.0		0.32	39.69
	North West Side Footpath-1 at Bunder Road	Sqm	1	90.7		0.32	28.57
	North West Side Footpath-2 at Bunder Road	Sqm	1	85.0		0.32	26.78
	North West Side Footpath at Bunder Road and Nellikai Road	Sqm	1	46.2		0.32	14.55
	North West Side Footpath at Nellikai Road	Sqm	1	22.0		0.32	6.93
	Island at junction of Nellikai Road and 4th cross Road	Sqm	1	31.0		0.32	9.77
	Landscape side Kerb stone	Sqm	1	16.0		0.32	5.04
	Nellikai Road						
	Right Hand Side Footpath						
	Ch.10.0 to Ch.20.0	Sqm	1	27.4		0.32	8.62
	Ch.20.0 to Ch.50.0	Sqm	1	65.0		0.32	20.48
	Ch.60.0 to Ch.125.0	Sqm	1	150.0		0.32	47.25
	Ch.130.0 to Ch.140.0	Sqm	1	15.0		0.32	4.73
	Ch.150.0 to Ch.270.0	Sqm	1	170.0		0.32	53.55
	Ch.280.0 to Ch.310.0	Sqm	1	37.0		0.32	11.66
	Left Hand Side Footpath	Sqm					
	Ch.0.0 to Ch.290.0	Sqm	1	290.0		0.32	91.35
	4th Cross Road						
	Right hand side Footpath						
	Ch.30.0 to Ch.200.0	Sqm	1	169.0		0.32	53.24
	Left hand Side Footpath						
	Ch.30.0 to Ch.200.0	Sqm	1	173.0		0.32	54.50
	Mission Street Road						
	LHS						
	Ch.0.00 to 40.00	Sqm	1	52		0.32	16.47
	Ch.45.0 to Ch.110.0	Sqm	1	80		0.32	25.20
	Ch.120.0 to 206.00	Sqm	1	105		0.32	33.08
	RHS						

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Ch.10.0 to Ch.190.0	Sqm	1	184		0.32	57.96
	Maidan Road (AB Shetty to Hamilton Circle)						
	Ch.20.00 to Ch.97.80	Sqm	2	77.8		0.80	124.48
	Ch.120.0 to 230.00	Sqm	2	130		0.80	208.00
		Sqm			Total Qty.		1180.35
25	P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)						
	Maidan Road						
	RHS	Nos.	25				25.00
	LHS	Nos.	23				23.00
	Nellikai Road						
	RHS	Nos.	33				33.00
	Mission Street						
	RHS	Nos.	20				20.00
	LHS	Nos.	21				21.00
	4th Cross lane						
	RHS	Nos.	25				25.00
	LHS	Nos.	18				18.00
		Nos.			Total Qty.		165.00
26	Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)						
	Electrical Chambers	Nos.	2	65			130.00
27	Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)						
	Maidan Road						
	RHS-Length = 254m	Rmt	27	1.0			27.00
	LHS-Length=232m	Rmt	25	1.0			25.00
	Nellikai Road						
	RHS-Length = 331m	Rmt	35	1.0			35.00
	Mission Street						
	RHS-Length=196m	Rmt	21	1.0			21.00
	LHS-Length=207m	Rmt	22	1.0			22.00
	4th Cross lane						
	RHS-Length=251m	Rmt	27	1.0			27.00
	LHS-Length=176m	Rmt	19	1.0			19.00
		Rmt			Total Qty.		176.00
28	KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia, of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10. (KSRB SR 2018-19,P.No.88, SI.No.12.89)						
	Maidan Road						
	RHS-Length = 254m	Nos.	27				27.00
	LHS-Length=232m	Nos.	25				25.00
	Nellikai Road						0.00
	RHS-Length = 331m	Nos.	35				35.00
	Mission Street						0.00
	RHS-Length=196m	Nos.	21				21.00
	LHS-Length=207m	Nos.	22				22.00
	4th Cross lane						0.00
	RHS-Length=251m	Nos.	27				27.00
	LHS-Length=176m	Nos.	19				19.00
		Nos.			Total Qty.		176.00

Sr. No.	Description	Unit	No's	L	B	H	Qty.
29	KSRB 12-8.2 : Constructing brick masonry inspection chamber 500x700mm, and 450mm depth, (clear inside dimension) for pipeline with one or two inlets, using table moulded non-modular bricks of class designation 50 in cement mortar 1:5, C.I cover with frame (light duty) 455x610mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23kg and weight of frame 15 kg) R.C.C. top slab with cement concrete M 15 with 20mm and downsize granite metal , foundation concrete M 5 with 40mm and downsize granite metal inside plastering 12mm thick with cement mortar 1:3, finished smooth with a floating coat of cement on walls and bed concrete complete as per standard design including cost of materials, labour charges, curing complete as per specifications. Specification No. KBS (P.No. 76/ I.No.11.52 of PWD SR 2018-19)						
	Maidan Road	Nos.	34				34.00
	Nellikai Road	Nos.	42				42.00
	Mission Street Road	Nos.	29				29.00
	4th Cross Road	Nos.	30				30.00
							135.00
30	KSRRB M800-29.3.Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case-III :Triple row for three utility services. (KSRRB 2018-19,Pg No 186,Sl.No.24.36)						
	Maidan Road	Rmt	9	17			153
	Nellikai Road	Rmt	9	10			90
	Mission Street road	Rmt	9	20			180
	4th Cross Road	Rmt	9	25			225
		Rmt			Total Qty.		648.00
31	Providing and laying Dia 225mm HDPE Power Duct with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)						
	Maidan Road	Rmt	2	487			974
	Nellikai Road	Rmt	2	603			1206
	Mission Road	Rmt	2	412			824
	4th Cross Road	Rmt	2	427			854
		Rmt			Total Qty.		3858.00
32	Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering, Jointing into trenches, Complete. (Market Rate)						
	Maidan Road-LHS+RHS	Nos.	81				81
	Nellikai Road-LHS+RHS	Nos.	101				101
	Mission Road-LHS+RHS	Nos.	69				69
	4th Cross Road-LHS+RHS	Nos.	71				71
		Nos.			Total Qty.		322.00

Sr. No.	Description	Unit	No's	L	B	H	Qty.
33	Providing and laying Dia 160mm HDPE Power Duct with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)						
	Maidan Road-LHS+RHS	Rmt	4	487			1948
	Nellikai Road-LHS+RHS	Rmt	4	603			2412
	Mission Road-LHS+RHS	Rmt	4	412			1648
	4th Cross Road-LHS+RHS	Rmt	4	427			1708
		Rmt			Total Qty.		7716.00
34	Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)						
	Maidan Road-LHS+RHS	Nos.	162				162
	Nellikai Road-LHS+RHS	Nos.	201				201
	Mission Road-LHS+RHS	Nos.	137				137
	4th Cross Road-LHS+RHS	Nos.	142				142
		Nos.			Total Qty.		642.00
35	Providing and Fixing Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)						
	Maidan Road-LHS+RHS	Rmt	487				487
	Nellikai Road-LHS+RHS	Rmt	603				603
	Mission Road-LHS+RHS	Rmt	412				412
	4th Cross Road-LHS+RHS	Rmt	427				427
							1929.00
	No. of Spacer=Total Length of Pipe / 1.5m	Nos.			Total Qty.		1286.00
36	Providing and Fixing Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)						
	Maidan Road-LHS+RHS	Rmt	487				487
	Nellikai Road-LHS+RHS	Rmt	603				603
	Mission Road-LHS+RHS	Rmt	412				412
	4th Cross Road-LHS+RHS	Rmt	427				427
							1929.00
	No. of Spacer=Total Length of Pipe / 1.5m	Nos.			Total Qty.		1286.00
37	Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent Indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)						
	Maidan Road-LHS+RHS	Rmt	1	487			487
	Nellikai Road-LHS+RHS	Rmt	1	603			603
	Mission Road-LHS+RHS	Rmt	1	412			412
	4th Cross Road-LHS+RHS	Rmt	1	427			427
		Rmt			Total Qty.		1929.00
38	Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)						
	Maidan Road-LHS+RHS	Nos.	6				6
	Nellikai Road-LHS+RHS	Nos.	7				7
	Mission Road-LHS+RHS	Nos.	5				5
	4th Cross Road-LHS+RHS	Nos.	5				5
		Nos.			Total Qty.		23.00

Sr. No.	Description	Unit	No's	L	B	H	Qty.
39	Providing and laying heavy duty cobble stones 60mm thick, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 30mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (KSRB 18-19, Pg No 103,SI No : 14.6)						
	Maidan Road (AB shetty to Hamilton Circle)Footpath						
	Left Hand Side of Road						
	Ch.0.0 to Ch.100.0	Sqm	1	84.49	2.20		185.88
	Service Bus Stand Road (LHS Side)	Sqm	1	45.60	2.20		100.32
	Service Bus Stand Road (RHS Side)	Sqm	1	35.92	2.20		79.02
	Ch.120.0 to Ch.170.0	Sqm	1	52.59	2.20		115.70
	Ch.180.0 to Ch. 210.0	Sqm	1	27.16	2.20		59.75
	Ch.210.0 to Ch.240.0(Curved area-Maidan Road)	Sqm	1	19.12	3.00		57.36
	Right Hand Side of Road						
	Ch.30.0 to Ch.170.0	Sqm	1	141.27	2.20		310.79
	Ch.180.0 to Ch.240.0	Sqm	1	54.40	2.20		119.68
	Mangala Devi Road-RHS	Sqm	1	49.00	1.55		75.95
	Mangala Devi Road-LHS	Sqm	1	72.69	1.64		119.21
	Ded. Tectile Tiles @ Maidan Road Footpath						
	Left Hand Side						
	Ch.40.0 to 100.0-Directional Tile	Sqm	-1	59.00	0.30		-17.70
	Ch.40.0 to 100.0-Stop Tile	Sqm	-2	0.90	0.90		-1.62
	Directional Tile at Pedstrian Crossing @ Ch.90.0	Sqm	-1	1.97	0.30		-0.59
	Directional Tile at Pedstrian Crossing @ Ch.90.0	Sqm	-1	3.00	0.30		-0.90
	Directional Tile at Pedstrian Crossing @ Service Bus Road(RHS)	Sqm	-1	0.75	0.30		-0.23
	Directional Tile at Pedstrian Crossing @ Service Bus Road(RHS)	Sqm	-1	2.85	0.30		-0.86
	Ch.110.0 to Ch. 170.0	Sqm	-1	74.53	0.30		-22.36
	Directional Tile at Pedstrian Crossing @ Service Bus Road(LHS)	Sqm	-1	0.75	0.30		-0.23
	Directional Tile at Pedstrian Crossing @ Service Bus Road(LHS)	Sqm	-1	3.00	0.30		-0.90
	Directional Tile at Pedstrian Crossing @ Ch.120.0	Sqm	-1	0.30	0.30		-0.09
	Directional Tile at Pedstrian Crossing @ Ch.120.0	Sqm	-1	3.00	0.30		-0.90
	Stop Tiles @ Ch.120.0 and Service Bus Road-Pedstrian Crossing	Sqm	-2	0.90	0.90		-1.62
	Stop Tiles at Ch.170.00	Sqm	-1	0.90	0.30		-0.27
	Stop tile @ Ch.180.0	Sqm	-1	0.90	0.30		-0.27
	Ch.180.0 to Ch. 240.0 (Towards Maidan Road)						0.00
	Directional Tile at Pedstrian Crossing @ Ch.210.0	Sqm	-1	0.78	0.30		-0.23
	Directional Tile at Pedstrian Crossing @ Ch.210.0	Sqm	-1	3.30	0.30		-0.99
	Right Hand Side						0.00
	Directional Tile Ch.40.0 to Ch.170.0	Sqm	-1	127.00	0.30		-38.10
	Directional Tile at Pedstrian Crossing @ Ch.90.0	Sqm	-1	0.80	0.30		-0.24
	Directional Tile at Pedstrian Crossing @ Ch.90.0	Sqm	-1	3.00	0.30		-0.90
	Directional Tile at Pedstrian Crossing @ Ch.120.0	Sqm	-1	0.54	0.30		-0.16
	Directional Tile at Pedstrian Crossing @ Ch.120.1	Sqm	-1	3.00	0.30		-0.90
	Stop Tile @ Ch.170.0	Sqm	-1	0.90	0.30		-0.27
	Stop Tile @ Ch.90.0 and Ch.120.0	Sqm	-2	0.90	0.90		-1.62
	Directional Tile @Ch.185.0 to 210.0	Sqm	-1	30.11	0.30		-9.03
	Directional Tile at Pedstrian Crossing @ Ch.215.0	Sqm	-1	0.53	0.30		-0.16
	Directional Tile at Pedstrian Crossing @ Ch.215.0	Sqm	-1	3.00	0.30		-0.90
	Stop Tile at Ch.185.00	Sqm	-1	0.90	0.30		-0.27
	Stop Tile at Ch.215.00	Sqm	-1	0.90	0.90		-0.81
	Hamilton Circle Junction-Footpath						
	Rosario Church Road-LHS	Sqm	1	47.00	2.20		103.40
	Rosario Church Road-RHS	Sqm	1	83.18	5.30		440.83
	Bunder Road-LHS	Sqm	1	71.63	7.43		532.21
	Bunder Road-RHS	Sqm	1	74.21	6.41		475.69
	North-East Side Footpath at Fourth Cross lane Side	Sqm	-1	85.57	0.30		-25.67
	Stop Tiles @ North East Side Footpath at Fourth Cross lane	Sqm	-2	0.90	0.90		-1.62
	Directional Tile Pedstrian Crossing@ North East Side Footpath at Maidan Road at Ch.30.0	Sqm	-1	2.20	0.30		-0.66
	Directional Tile Pedstrian Crossing@ North East Side Footpath at Maidan Road at Ch.30.0	Sqm	-1	3.00	0.30		-0.90
	Directional Tile Pedstrian Crossing@ Footpath at 4th Cross oad at Ch.210.0	Sqm	-1	3.83	0.30		-1.15
	South-East Side Footpath at Rosari Church Road	Sqm	-1	64.50	0.30		-19.35

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Stop Tiles	Sqm	-1	0.90	0.90		-0.81
	Directional Tile Pedstrian Crossing@ Footpath at Rossary Road	Sqm	-1	3.27	0.30		-0.98
	Directional Tile Pedstrian Crossing@ Footpath at Rossary Road	Sqm	-1	3.00	0.30		-0.90
	South West Footpath of Rossary Road	Sqm	-1	118.00	0.30		-35.40
	Bunder Road Footpath-1	Sqm	-1	70.00	0.30		-21.00
	Stop Tile	Sqm	-1	0.90	0.90		-0.81
	Directional Tile Pedstrian Crossing @ Rossary Road Footpath-1	Sqm	-1	5.37	0.30		-1.61
	Directional Tile Pedstrian Crossing @ Rossary Road Footpath-1	Sqm	-1	3.00	0.30		-0.90
	Bunder Road Footpath-2	Sqm	-1	70.00	0.30		-21.00
	Stop Tile	Sqm	-1	0.90	0.90		-0.81
	Stop Tile	Sqm	-1	0.90	0.30		-0.27
	Directional Tile Pedstrian Crossing @ Rossary Road Footpath-2	Sqm	-1	4.83	0.30		-1.45
	Directional Tile Pedstrian Crossing @ Rossary Road Footpath-2	Sqm	-1	3.00	0.30		-0.90
	Directional Tile at Footpath at Junction of Bunder Road and Rosarry Church Road	Sqm	-1	27.00	0.30		-8.10
	Stop Tile at Footpath at Junction of Bunder Road and Rosarry Church Road	Sqm	-1	0.90	0.30		-0.27
	Directional Tile at North West Side Footpath at Nellikai Road	Sqm	-1	19.26	0.30		-5.78
	Stop Tile at North West Side Footpath at Nellikai Road	Sqm	-1	0.90	0.90		-0.81
	Stop Tile at North West Side Footpath at Nellikai Road	Sqm	-1	0.90	0.30		-0.27
	Directional Tile Pedstrian Crossing @ Nellikai Road @ Ch.290.0(RHS)	Sqm	-1	0.63	0.30		-0.19
	Directional Tile Pedstrian Crossing @ Nellikai Road @ Ch.290.0(RHS)	Sqm	-1	0.30	0.30		-0.09
	Nellikai Road-LHS						
	Ch.10.0 to Ch.50.0	Sqm	1	38.91	2.20		85.60
	Ch.55.0 to Ch.125.0	Sqm	1	67.04	2.20		147.49
	Ch.120.0 to Ch.270.0	Sqm	1	119.69	2.20		263.32
	Ch.280.0 to Ch.310.0	Sqm	1	29.68	2.20		65.30
	Nellikai Road-RHS						
	Ch.10.0 to Ch.35.0	Sqm	1	25.92	1.40		36.29
	Ch.45.0 to Ch.95.0	Sqm	1	47.00	1.40		65.80
	Ch.105.0 to Ch.180.0	Sqm	1	71.83	1.40		100.56
	Ch.190.0 to Ch.270.0	Sqm	1	84.11	1.40		117.75
	At Junction at Nellikai and 4th cross road	Sqm	1	165.00			165.00
	Landscape area(R-5.86m)	Sqm	-0.5	3.13	34.34		-53.74
	Triangular Island at Mission Street road and 4th Cross Road	Sqm	0.5	10.52	6.88		36.19
	Deduction of Landscape	Sqm	-0.5	4.45	2.00		-4.45
	Ded.of Tectile Tile @ Nellikai Road						
	Left Hand Side						
	Directional Tiles Ch.24.50 to Ch.36.37	Sqm	-1	11.83	0.30		-3.55
	Stop Tiles Ch.24.50 to Ch.50.1	Sqm	-1	0.90	0.30		-0.27
	Directional Tiles Ch.50.00 to Ch.95.0	Sqm	-1	16.00	0.30		-4.80
	Stop Tiles Ch.50.00 to Ch.95.0	Sqm	-1	0.90	0.30		-0.27
	Directional Tiles Ch.112.00 to Ch.182.0	Sqm	-1	69.00	0.30		-20.70
	Stop Tiles Ch.112.00 to Ch.182.0	Sqm	-1	0.90	0.90		-0.81
	Stop Tiles Ch.112.00 to Ch.182.0	Sqm	-1	0.90	0.30		-0.27
	Directional Tile Pedstrian Crossing @ Ch.135.0	Sqm	-1	0.94	0.30		-0.28
	Directional Tile Pedstrian Crossing @ Ch.135.0	Sqm	-1	3.00	0.30		-0.90
	Directional Tiles Ch.190.0 to Ch.274.0	Sqm	-1	92.25	0.30		-27.68
	Stop Tiles Ch.190.0 to Ch.274.0	Sqm	-1	0.90	0.30		-0.27
	Right Hand Side						0.00
	Directional Tiles Ch.24.50 to Ch.50.0	Sqm	-1	25.00	0.30		-7.50
	Stop Tiles Ch.24.50 to Ch.50.1	Sqm	-1	0.90	0.30		-0.27
	Directional Tile Ch.60.0 to Ch.124.0	Sqm	-1	66.40	0.30		-19.92
	Stop Tile Ch.60.0 to Ch.124.1	Sqm	-1	0.90	0.30		-0.27
	Directional Tile at Ch.130.0 to Ch. 140.0	Sqm	-1	6.51	0.30		-1.95
	Stop Tile at Ch.130.0 to Ch. 140.1	Sqm	-1	0.90	0.90		-0.81
	Stop Tile at Ch.130.0 to Ch. 140.2	Sqm	-1	0.90	0.30		-0.27
	Directional Tile Pedstrian Crossing Ch.135.0	Sqm	-1	0.41	0.90		-0.37
	Directional Tile Pedstrian Crossing Ch.135.0	Sqm	-1	3.00	0.30		-0.90
	Directional Tiles Ch.150.0 to Ch.270.0	Sqm	-1	125.00	0.90		-112.50
	Stop Tiles Ch.150.0 to Ch.270.1	Sqm	-2	0.90	0.30		-0.54
	Directional Tiles Ch.280.0 to Ch.290.0	Sqm	-1	10.69	0.90		-9.62
	Stop Tiles Ch.280.0 to Ch.290.1	Sqm	-1	0.90	0.30		-0.27
	4th Cross Road						
	Left Hand Side Footpath						

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Ch.20.0 to Ch.40.0	Sqm	1	20.00	4.86		97.20
	Ch.40.0 to Ch.350.0	Sqm	1	220.00	2.20		484.00
	Right Hand Side Footpath						
	Ch.15.0 to Ch.180.0	Sqm	1	165.00	2.20		363.00
	Offset at @ Ch.100.0 to Ch.110.0	Sqm	1	18.14	2.67		48.43
	4th Cross Road -Tactile Tile Ded.						0.00
	Left Hand Side Footpath-Directional Tile @ Ch.30.0 to 200.0	Sqm	-1	170.00	0.30		-51.00
	Directional Tile Pedstrian Crossing @ Ch.105.0	Sqm	-1	4.86	0.30		-1.46
	Stop Tile Pedstrian Crossing @ Ch.105.0	Sqm	-1	0.90	0.90		-0.81
	Right Hand Side Footpath-Directional Tile @ Ch.30.0 to 200.0	Sqm	-1	162.00	0.30		-48.60
	Directional Tile Pedstrian Crossing @ Ch.105.0	Sqm	-1	0.77	0.30		-0.23
	Stop Tile Pedstrian Crossing @ Ch.105.0	Sqm	-1	3.00	0.30		-0.90
	Stop Tile	Sqm	-1	0.90	0.90		-0.81
	Mission Street						
	Right hand side Footpath						
	Ch.10.00 to Ch.25.00	Sqm	1	15.00	3.74		56.10
	Ch.47.0 to Ch.175.0	Sqm	1	148.88	2.20		327.54
	Ch.175.0 to Ch.190.0	Sqm	1	28.55	5.60		159.88
	Left Hand Side Footpath						
	Ch.0.0 to Ch.40.0	Sqm	1	70.00	2.20		154.00
	Ch.40.0 to Ch.110.0	Sqm	1	66.17	2.20		145.58
	Ch.120.0 to Ch.206.0	Sqm	1	100.00	2.20		220.00
	Ch.56.57 to Ch.84.36	Sqm	1	27.00	4.86		131.22
	Ded. Of tactile tile @ Mission street road						
	Left hand side Footpath						
	Directional Tile @Ch.24.00 to Ch.38.00	Sqm	-1	14.00	0.30		-4.20
	Stop Tile @Ch.24.00 to Ch.38.00	Sqm	-1	0.90	0.30		-0.27
	Directional Tile @Ch.47.0 to Ch.112.6	Sqm	-1	65.81	0.30		-19.74
	Stop Tile @Ch.47.0 to Ch.112.7	Sqm	-2	0.90	0.30		-0.54
	Directional Tile Pedstrian Crossing @ Ch.100.0	Sqm	-1	0.38	0.30		-0.11
	Stop Tile Pedstrian Crossing @ Ch.100.0	Sqm	-1	3.00	0.30		-0.90
	Stop Tile Pedstrian Crossing @ Ch.100.0	Sqm	-1	0.90	0.90		-0.81
	Directional Tile @ Ch.122.20 to Ch.176.57	Sqm	-1	54.36	0.30		-16.31
	Stop Tile @ Ch.122.20 to Ch.176.58	Sqm	-1	0.90	0.30		-0.27
	Right Hand Side Footpath						0.00
	Directional Tile @ Ch.20.00 to Ch.176.57	Sqm	-1	153.27	0.30		-45.98
	Directional Tile Pedstrian Crossing @ Ch.100.0	Sqm	-1	3.11	0.30		-0.93
	Stop Tile Pedstrian Crossing @ Ch.100.0	Sqm	-1	3.00	0.30		-0.90
	Stop Tile Pedstrian Crossing @ Ch.100.0	Sqm	-1	0.90	0.90		-0.81
	Compound Wall side paver Block						
	Maidan Road						
	RHS-Ch.40.00 to Ch.120.0(Average Width)	Sqm	1	80.23	1.60		128.37
	Rosario Church LHS	Sqm	1	56.92	3.94		224.26
	Bus Service Road-RHS	Sqm	1	30.94	4.20		129.95
	Bus Service Road-LHS	Sqm	1	38.90	1.61		62.63
	Ch.50.0 to 100.0	Sqm	1	48.00	2.16		103.68
	Ch. 0 to 50	Sqm	1	32.22	3.70		119.21
	Nellikai Road						
	RHS-Ch.150.0 to Ch.200.0	Sqm	1	66.79	2.92		195.03
	RHS-Ch.150.0 to Ch.210.0	Sqm	1	19.00	1.66		31.54
	LHS-Ch.10.0 to Ch.35.0	Sqm	1	69.49			69.49
	Ch.45.0 to Ch.95.0	Sqm	1	46.81	1.34		62.73
	Ch.110 to Ch.180.0	Sqm	1	45.00			45.00
	Mission Street	Sqm	1	82.26	1.50		123.39
	Ch.80.0 to Ch.115.0	Sqm	1	32.00	1.32		42.24
	Ch.120.0 to Ch.206.0	Sqm	1	98.68	2.00		197.36
	4th Cross Road						
	RHS-Ch.20.0 to Ch.180.0(Avg. width)	Sqm	1	160.00	3.00		480.00
	LHS-0.0 to 63.0	Sqm	1	49.78	2.62		130.42
	Ch.63 to Ch.180.0(Avg. Width)	Sqm	1	117.00	1.00		117.00
		Sqm			Total Qty.		7584.76
40	Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 40mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 30mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)						
	Tectile Tiles @ Maidan Road Footpath						

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Left Hand Side						
	Ch.40.0 to 100.0-Directional Tile	sqm	1.00	59.00	0.30		17.70
	Ch.40.0 to 100.0-Stop Tile	sqm	2.00	0.90	0.90		1.62
	Directional Tile at Pedstrian Crossing @ Ch.90.0	sqm	1.00	1.97	0.30		0.59
	Directional Tile at Pedstrian Crossing @ Ch.90.0	sqm	1.00	3.00	0.30		0.90
	Directional Tile at Pedstrian Crossing @ Service Bus Road(RHS)	sqm	1.00	0.75	0.30		0.23
	Directional Tile at Pedstrian Crossing @ Service Bus Road(RHS)	sqm	1.00	2.85	0.30		0.86
	Ch.110.0 to Ch. 170.0	sqm	1.00	74.53	0.30		22.36
	Directional Tile at Pedstrian Crossing @ Service Bus Road(LHS)	sqm	1.00	0.75	0.30		0.23
	Directional Tile at Pedstrian Crossing @ Service Bus Road(LHS)	sqm	1.00	3.00	0.30		0.90
	Directional Tile at Pedstrian Crossing @ Ch.120.0	sqm	1.00	0.30	0.30		0.09
	Directional Tile at Pedstrian Crossing @ Ch.120.0	sqm	1.00	3.00	0.30		0.90
	Stop Tiles @ Ch.120.0 and Service Bus Road-Pedstrian Crossing	sqm	2.00	0.90	0.90		1.62
	Stop Tiles at Ch.170.00	sqm	1.00	0.90	0.30		0.27
	Stop tile @ Ch.180.0	sqm	1.00	0.90	0.30		0.27
	Ch.180.0 to Ch. 240.0 (Towards Maidan Road)	sqm	0.00	0.00	0.00		0.00
	Directional Tile at Pedstrian Crossing @ Ch.210.0	sqm	1.00	0.78	0.30		0.23
	Directional Tile at Pedstrian Crossing @ Ch.210.0	sqm	1.00	3.30	0.30		0.99
	Right Hand Side	sqm	0.00	0.00	0.00		0.00
	Directional Tile Ch.40.0 to Ch.170.0	sqm	1.00	127.00	0.30		38.10
	Directional Tile at Pedstrian Crossing @ Ch.90.0	sqm	1.00	0.80	0.30		0.24
	Directional Tile at Pedstrian Crossing @ Ch.90.0	sqm	1.00	3.00	0.30		0.90
	Directional Tile at Pedstrian Crossing @ Ch.120.0	sqm	1.00	0.54	0.30		0.16
	Directional Tile at Pedstrian Crossing @ Ch.120.1	sqm	1.00	3.00	0.30		0.90
	Stop Tile @ Ch.170.0	sqm	1.00	0.90	0.30		0.27
	Stop Tile @ Ch.90.0 and Ch.120.0	sqm	2.00	0.90	0.90		1.62
	Directional Tile @Ch.185.0 to 210.0	sqm	1.00	30.11	0.30		9.03
	Directional Tile at Pedstrian Crossing @ Ch.215.0	sqm	1.00	0.53	0.30		0.16
	Directional Tile at Pedstrian Crossing @ Ch.215.0	sqm	1.00	3.00	0.30		0.90
	Stop Tile at Ch.185.00	sqm	1.00	0.90	0.30		0.27
	Stop Tile at Ch.215.00	sqm	1.00	0.90	0.90		0.81
							0.00
	Ded. Tectile Tiles @ hamilton Circle Footpath						0.00
	North-East Side Footpath at Fourth Cross lane Side	sqm	1	85.57	0.30		25.67
	Stop Tiles @ North East Side Footpath at Fourth Cross lane	sqm	2	0.90	0.90		1.62
	Directional Tile Pedstrian Crossing@ North East Side Footpath at Maidan Road at Ch.30.0	sqm	1	2.20	0.30		0.66
	Directional Tile Pedstrian Crossing@ North East Side Footpath at Maidan Road at Ch.30.0	sqm	1	3.00	0.30		0.90
	Directional Tile Pedstrian Crossing@ Footpath at 4th Cross oad at Ch.210.0	sqm	1	3.83	0.30		1.15
	South-East Side Footpath at Rosari Church Road	sqm	1	64.50	0.30		19.35
	Stop Tiles	sqm	1	0.90	0.90		0.81
	Directional Tile Pedstrian Crossing@ Footpath at Rossary Road	sqm	1	3.27	0.30		0.98
	Directional Tile Pedstrian Crossing@ Footpath at Rossary Road	sqm	1	3.00	0.30		0.90
	South West Footpath of Rossary Road	sqm	1	118.00	0.30		35.40
	Bunder Road Footpath-1	sqm	1	70.00	0.30		21.00
	Stop Tile	sqm	1	0.90	0.90		0.81
	Directional Tile Pedstrian Crossing @ Rossary Road Footpath-1	sqm	1	5.37	0.30		1.61
	Directional Tile Pedstrian Crossing @ Rossary Road Footpath-1	sqm	1	3.00	0.30		0.90
	Bunder Road Footpath-2	sqm	1	70.00	0.30		21.00
	Stop Tile	sqm	1	0.90	0.90		0.81
	Stop Tile	sqm	1	0.90	0.30		0.27
	Directional Tile Pedstrian Crossing @ Rossary Road Footpath-2	sqm	1	4.83	0.30		1.45
	Directional Tile Pedstrian Crossing @ Rossary Road Footpath-2	sqm	1	3.00	0.30		0.90
	Directional Tile at Footpath at Junction of Bunder Road and Rosarry Church Road	sqm	1	27.00	0.30		8.10
	Stop Tile at Footpath at Junction of Bunder Road and Rosarry Church Road	sqm	1	0.90	0.30		0.27
	Directional Tile at North West Side Footpath at Nellikai Road	sqm	1	19.26	0.30		5.78
	Stop Tile at North West Side Footpath at Nellikai Road	sqm	1	0.90	0.90		0.81
	Stop Tile at North West Side Footpath at Nellikai Road	sqm	1	0.90	0.30		0.27
	Directional Tile Pedstrian Crossing @ Nellikai Road @ Ch.290.0(RHS)	sqm	1	0.63	0.30		0.19

Sr. No.	Description	Unit	No's	L	B	H	Qty.
	Directional Tile Pedstrian Crossing @ Nellikai Road @ Ch.290.0(RHS)	sqm	1	0.30	0.30		0.09
							0.00
	4th Cross Road -Tactile Tile Ded.						0.00
	Left Hand Side Footpath-Directional Tile @ Ch.30.0 to 200.0	sqm	1	170.00	0.30		51.00
	Directional Tile Pedstrian Crossing @ Ch.105.0	sqm	1	4.86	0.30		1.46
	Stop Tile Pedstrian Crossing @ Ch.105.0	sqm	1	0.90	0.90		0.81
	Right Hand Side Footpath-Directional Tile @ Ch.30.0 to 200.0	sqm	1	162.00	0.30		48.60
	Directional Tile Pedstrian Crossing @ Ch.105.0	sqm	1	0.77	0.30		0.23
	Stop Tile Pedstrian Crossing @ Ch.105.0	sqm	1	3.00	0.30		0.90
	Stop Tile	sqm	1	0.90	0.90		0.81
							0.00
	Tactile tile @ Mission street road						0.00
	Left hand side Footpath						0.00
	Directional Tile @Ch.24.00 to Ch.38.00	sqm	1	14.00	0.30		4.20
	Stop Tile @Ch.24.00 to Ch.38.00	sqm	1	0.90	0.30		0.27
	Directional Tile @Ch.47.0 to Ch.112.6	sqm	1	65.81	0.30		19.74
	Stop Tile @Ch.47.0 to Ch.112.7	sqm	2	0.90	0.30		0.54
	Directional Tile Pedstrian Crossing @ Ch.100.0	sqm	1	0.38	0.30		0.11
	Stop Tile Pedstrian Crossing @ Ch.100.0	sqm	1	3.00	0.30		0.90
	Stop Tile Pedstrian Crossing @ Ch.100.0	sqm	1	0.90	0.90		0.81
	Directional Tile @ Ch.122.20 to Ch.176.57	sqm	1	54.36	0.30		16.31
	Stop Tile @ Ch.122.20 to Ch.176.58	sqm	1	0.90	0.30		0.27
	Right Hand Side Footpath	sqm	0	0.00	0.00		0.00
	Directional Tile @ Ch.20.00 to Ch.176.57	sqm	1	153.27	0.30		45.98
	Directional Tile Pedstrian Crossing @ Ch.100.0	sqm	1	3.11	0.30		0.93
	Stop Tile Pedstrian Crossing @ Ch.100.0	sqm	1	3.00	0.30		0.90
	Stop Tile Pedstrian Crossing @ Ch.100.0	sqm	1	0.90	0.90		0.81
		sqm				Total Qty.	450.40
41	Providing and laying heavy duty cobble stones 75mm thick, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 30mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (KSRB 18-19,Page No 103,SI No : 14.7)						
	Maidan Road (AB shetty to Hamilton Circle)						
	LHS Side						
	Ch.46.80 to Ch.90.00	Sqm	1	38.67	2.5		96.68
	Ch.130.0 to Ch.170.0	Sqm	1	45.72	2.5		114.30
	Ch.180.0 to Ch.210.0	Sqm	1	29.7	2.5		74.25
	Nellikai Road	Sqm					
	Right hand Side Road						
	Ch.25.0 to Ch.45.0	Sqm	1	20	1.6		32.00
	Ch.65.0 to Ch.120.0	Sqm	1	55	1.8		99.00
	Ch.155.0 to Ch.210.0	Sqm	1	55	2.6		143.00
	Mission Street Road						
	Ch.50 to Ch.100.0	Sqm	1	47.64	2.42		115.29
	Ch.115 to Ch.180	Sqm	1	60.53	2.76		167.06
	Table top crossing						
	AB Shetty	Sqm	4	19.85	3		238.20
	Service Road	Sqm	1	12	3		36.00
	Rossary Road	Sqm	3	6.3	3		56.70
	Nellikai Road	Sqm	3	9	3		81.00
	Mission Road	Sqm	3	7	3		63.00
	4th Cross Road	Sqm	3	19	3		171.00
		Sqm				Total Qty.	1487.48
	Sinages						

Sr. No.	Description	Unit	No's	L	B	H	Qty.
42	KSRRB M800-2. Retro-Reflectorised Traffic Signs - Manufacturing, Supply and Installation of retro-reflective cautionary, mandatory & Informatory signboards made out of cube corner micro prismatic grade sheeting confirming to type XI standards of IRC:67:2012 specifications & fixed over 4mm thick aluminium composite panel sheet having minimum 0.30 mm thick aluminum skin on both sides & fixed over a support frame of 25X25X3mm MS angle and mounted on 75 mm dia OR 75X75X6mm mild steel angle to Total height 2.70 m with clear height of not less than 2.10 m from the ground level to the bottom of the sign board & 60mm below ground level. the sign post should be painted with be coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height alternatively firmly fixed to the ground by means of foundation with M20 grade cement concrete of 45cmX45cmX60cm including cost & conveyance of all materials, equipment, machinery & labour with all leads and lifts, loading charges necessary for satisfactory completion of the works as directed be engineer in-charge.						
	10 years warranty for Retro Reflective Sheeting from the original sheeting manufactures as per clause 6.9 in IRC: 2012 & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be obtained from the supplier. 900MM Equilateral Triangle-TYPE XI (KSRRB 18-19,Page No 180,SI No : 24.2.1)						
	Maidan Road(A B Shetty to Hamilton Circle)		14				14.00
	Rosario Church Road		3				3.00
	Bunder Road-at hamilton		3				3.00
	Bunder Road-at Nillikai and Mission		3				3.00
	Nellikai Road		7				7.00
	Mission Road		7				7.00
	4th Cross Road		5				5.00
		Nos.			Total Qty.		42.00
43	KSRRB M800-2. Retro-Reflectorised Traffic Signs - Manufacturing, Supply and Installation of retro-reflective cautionary, mandatory & Informatory signboards made out of cube corner micro prismatic grade sheeting confirming to type XI standards of IRC:67:2012 specifications & fixed over 4mm thick aluminium composite panel sheet having minimum 0.30 mm thick aluminium skin on both sides & fixed over a support frame of 25X25X3mm MS angle and mounted on 75 mm dia OR 75X75X6mm mild steel angle to Total height 2.70 m with clear height of not less than 2.10 m from the ground level to the bottom of the sign board & 60mm below ground level. the sign post should be painted with be coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height alternatively firmly fixed to the ground by means of foundation with M20 grade cement concrete of 45cmX45cmX60cm including cost & conveyance of all materials, equipment, machinery & labour with all leads and lifts, loading charges necessary for satisfactory completion of the works as directed be engineer in-charge.						
	10 years warranty for Retro Reflective Sheeting from the original sheeting manufactures as per clause 6.9 in IRC: 2012 & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be obtained from the supplier. 900MM Octagon Stop Board-TYPE XI (KSRRB 18-19,Page No 180,SI No : 24.2.6)						
	Maidan Road(A B Shetty to Hamilton Circle)		3				3.00
	Rosario Church Road		1				1.00
	Bunder Road-at hamilton		1				1.00
	Bunder Road-at Nillikai and Mission		1				1.00
	Nellikai Road		1				1.00
	Mission Road		1				1.00
	4th Cross Road		1				1.00
		Nos.			Total Qty.		9.00

Sr. No.	Description	Unit	No's	L	B	H	Qty.
44	KSRRB M800-2. Retro-Reflectorised Traffic Signs - Manufacturing, Supply and Installation of retro-reflective cautionary, mandatory & Informatory signboards made out of cube corner micro prismatic grade sheeting confirming to type XI standards of IRC:67:2012 specifications & fixed over 4mm thick aluminium composite panel sheet having minimum 0.30 mm thick aluminum skin on both sides & fixed over a support frame of 25X25X3mm MS angle and mounted on 75 mm dia OR 75X75X6mm mild steel angle to Total height 2.70 m with clear height of not less than 2.10 m from the ground level to the bottom of the sign board & 60mm below ground level. the sign post should be painted with be coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height alternatively firmly fixed to the ground by means of foundation with M20 grade cement concrete of 45cmX45cmX60cm including cost & conveyance of all materials, equipment, machinery & labour with all leads and lifts, loading charges necessary for satisfactory completion of the works as directed by engineer in-charge.						
	10 years warranty for Retro Reflective Sheeting from the original sheeting manufactures as per clause 6.9 in IRC: 2012 & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be obtained from the supplier. 600MM Circle-TYPE XI (KSRRB 18-19,Page No 180,SI No : 24.2.3)						
	Nellikai Road	Nos.	2				2.00
	Mission Road	Nos.	2				2.00
		Nos.			Total Qty.		4.00
45	Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface:Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803 (KSRRB 18-19,Page No 182,SI No : 24.15)						
	Maidan Road (AB Shetty to Hamilton Circle)-4 lane			Length	Width		
	Dash line(6x0.1)						
	Ch.30.0 to Ch.100.0	Sqm	32	3	0.1		9.60
	Ch.120.0 to Ch.210.0	Sqm	40	3	0.1		12.00
	Edge Line						0.00
	Ch.30.0 to Ch.210.0	Sqm	4	180	0.1		72.00
	Nellikai Road						
	Dash line						
	Ch.25.0 to Ch.290.0	Sqm	90	3	0.1		27.00
	Edge line						
	Ch.25.0 to Ch.290.0	Sqm	2	3	0.1		0.60
	4th Cross Road			Area			
	Arrows -Straight	Sqm	33	0.76			25.08
	Edge Line(Ch.0.0 to Ch.260.0)	Sqm	2	260	0.10		52.00
	Dash line(Ch.0.0 to Ch.260.0)	Sqm	90	3	0.10		27.00
	Mission Road						
	Edge Line(Ch.0.0 to Ch.210.0)	Sqm	2	210	0.10		42.00
	Dash line (Ch.0.0 to 210.0)	Sqm	72	3	0.10		21.60
	Total Pedstrian Crossing						
	AB Shetty	Sqm	4	19.85	1.50		119.10
	Service Road	Sqm	1	12	1.50		18.00
	Rossary Road	Sqm	3	6.3	1.50		28.35
	Nellikai Road	Sqm	3	9	1.50		40.50
	Mission Road	Sqm	3	7	1.50		31.50
	4th Cross Road	Sqm	3	19	1.50		85.50
		Sqm				Total	611.83

Sr. No.	Description	Unit	No's	L	B	H	Qty.
46	Providing & installing of E- toilet with Super structure of the electronic toilet to have asthetic ambience with inner room size 1.2 x 0.8 x 2.4 (LXWXH)meters and Size of electronic toilet overall size in meters 2.30x1.25x2.80 (LXWXH) Total area 35 Sft. with Built-access controlled main door and side walls made of SS Grade 304,Toilet floor and closet are to be stainless steel of grade 304.E-Toilet shall have Built-in water tank with minimum 225 Lit capacity and Access controll using coin validator for entering the unit based on automatic payment collection mechanism exit from the unit should be manual.Automatic lights inside the unit with gloves on opening the door.E-Toilet shall be Automatic flushing system which includes Automatic Pre flush cleaning before use,Automatic closet washing mechanism after use and Automatic platform cleaning mechanism programmed after specific numbers.In addition to these flush switch is to be provided for manual operation.Standard features should include heath faucet,exhaust fan and cloth hanger.	Nos.	2				2.00
	The E-Toilet shall have Alert to users-different indication on 'ready to use',busy are to be provided in the unit also with Voice guidance in the unit for users. Web enabled support-GPRS based Real time data to be provided from the unit through web for knowing the health status like number of users per day and coins collected.E-toilet shall have Modular and portable design enabling easy assembling and installation at site.Call ceneter and web portal facilities for registering complience and tracking usage,coin collection etc.Status display in LED,Printed instruction stickers are to be provided.For Advertisement purpose space for advertisement dispalty to be povided on the exterior of the unit for income generation and sustainability. Backup power facility like UPS is to be provided to supplement upto 30 Min Base of the unit to be placed on a suitable concrete structure with a ashthetic finish. (Non SOR Item)						
47	Supply and Fixing of Traffic signal Straight pole of 6 mtr, inner dia 100 mm from resistant to peeling with base plate size of (LXWXT) 200mm X200mmX6mm painted with redoxide and double coat with synthetic enamel paint of yellow colour assembly G.I., class B, as per technical specification (NON SOR Item)	Nos.	8				8.00
48	Supply and fixing of Traffic signal Cantilever pole Class B having inner diameter of 100 mm or more with a height of 6m including extension arm assembly having outer diameter of 75mm with arm span of 4 mtr length and base plate of size 300mm X 300mm with thickness of 6 mm welded at the bottom of the pole base as per technical specification & drawings. (NON SOR Item)	Nos.	8				8.00
49	Supply and fixing of 300 mm dia – single source – LED retrofit - Red (blow) as per Specification (NON SOR Item)	Nos.	16				16.00
50	Supply and fixing of 300 mm dia – single source – LED retrofit - Amber (blow) as per Specification (NON SOR Item)	Nos.	16				16.00
51	Supply and fixing of 300 mm dia – single source – LED retrofit - Green (arrow/U- Turn) EN-12368 as per Specification (NON SOR Item)	Nos.	16				16.00
52	Supply and fixing of 300 mm dia – single source – LED retrofit - Red (ped. standing) EN-12368 as per Specification (NON SOR Item)	Nos.	16				16.00
53	Supply and fixing of 300 mm dia – single source – LED retrofit - Green (ped.walking) EN-12368 as per Specification (NON SOR Item)	Nos.	16				16.00
54	Supply and fixing of 300 mm dia - No Right Turn/No Left turn/No Straight/No 'U' Turn aspects by using UV stabilized ink on face plate EN-12368 as per Specification (NON SOR Item)	Nos.	16				16.00
55	Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	92				92.00

Sr. No.	Description	Unit	No's	L	B	H	Qty.
56	Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)						
Handrail Maidan Side Road							
AB Shetty to Hamilton Circle							
	RHS	Rm	1	172			172.00
	LHS	Rm	1	86			86.00
		Rm				A=	258.00
Hand Rail of length 2.4 meter Steel Qty.							
	Horizontal Member-M.S.Box 25x25x3.2mm thk.	KG		3	2.4	4.536	32.66
	Vertical Member-M.S. Box 50x25x3.2mm thk.	KG		1	1.375	7.368	10.13
	Verical Bar-Dia 16mm	KG		20	0.475	0.7493296	7.12
					Area	Thk	
	Logo Plate	KG		1	0.07065	0.001	0.000071
		KG				Total Wight for 2.4 m Railing (A)	49.91
	Railing per 1m Weight(A / 2.4 m)	KG				B=	20.8
	Total Railing Weight (A x B)	MT					5.37
57	Providing and Fixing SS 304 Outdoor Dustbin(Pivoted Type and Mounted on SS Poles) of 55 liters capacity all complete to the satisfaction of the Engineer in charge.	Nos.	20				20.00
58	Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead of 5 km Item No 17.4 KSRRB M100-4.1-Earth	Cum	1.00	11797.81			11797.81
59	Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead of 5km Item No 17.4 KSRRB M100-4.1-Debris	Cum	1.00	1876.15			1876.15

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City
3.1.2 Rate Analysis of Road & Other Work for Loop Road

1	Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)			
	Basic rate		68.16	
		Rate	68.16	Cum
2	KSRRB M200.Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (KSRRB 18-19,Page No 140,SI No : 18.47)			
	Basic rate		899	
	Add 10% For area weightage (Mangalore City)		89.9	
		Rate	988.90	Cum
3	KSRRB M200-Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202. (KSRRB 18-19,Page No.141,S.I.No.18.49)			
	Basic rate		12.00	
	Add 10% For area weightage (Mangalore City)		1.2	
		Rate	13.20	Rmt
4	KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KSRRB 18-19,18.20,Page No.139)			
	Basic rate		390	
	Add 10% For area weightage (Mangalore City)		39	
		Rate	429.00	Cum
5	KSRRB 300-50. Scarifying bituminous course 50mm to 75mm thick along with premix carpet / surface dressing by road roller attached with scarifier without disturbing the base and stacking the debris including cost of all labour charges, HOM of machineries complete as per specifications. MORTH / Section 5.(KSRRB 18-19, SI No.19.56,Pg No.146)			
	Basic rate		39	
	Add 10% For area weightage (Mangalore City)		3.9	
		Rate	42.90	Sqm
6	KSRRB 300-46. Scarifying by mechanical means stone metal crust 50mm to 100mm thick by along with 20mm premix carpet I surface dressing and stacking of old serviceable materials including cost of all labour charges, HOM complete as per specifications. MORTH I Chapter 3.(KSRRB 18-19,SI No.19.52,Pg No.146)			
	Basic rate		39	
	Add 10% For area weightage (Mangalore City)		3.9	
		Rate	42.90	Sqm

7	KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantaling Brick/Tile work B.In Cement mortar (KSRRB 18-19,Page No 139,SI No : 18.23)				
	Basic rate			351	
	Add 10% For area weightage (Mangalore City)			35.1	
			Rate	386.10	Cum
8	KSRRB M800-Permanent type barricade in construction zone KSRRB M800-44.1. Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55-2014 complete as per specifications . A. With steel components(KSRRB 18-19,Page No 187,SI No : 24.45)				
	Basic rate			3829	
	Add 10% For area weightage (Mangalore City)			382.9	
			Rate	4211.90	Each
9	KSRRB M300-14. Excavation for roadwork in all types of soil by mechanical means including cutting and loading to tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transportation with a lead of 1.00 km and complete as per specifications. MORTH Specification No.301 (KSRRB 18-19,Page No 143,SI No : 19.14)				
	Basic rate			41	
	Add 10% For area weightage (Mangalore City)			4.1	
			Rate	45.10	Cum
10	KSRRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KSRRB 18-19,SI No.2.11,Pg. No.7)				
	Basic rate			120	
	Add 10% For area weightage (Mangalore City)			12	
			Rate	132.00	Cum
11	KSRRB 300-58. Compaction of original ground by mechanical means including filling in depression occurring during rolling including cost of all labour, HOM complete as per specifications. MORTH I Chapter 3 (KSRRB 18-19,SI No.19.64,Pg. No.147)				
	Basic rate			6	
	Add 10% For area weightage (Mangalore City)			0.6	
			Rate	6.60	Sqm
12	KSRRB 4-1.7 : Providing and laying in position plain cement concrete of Mix 1:3:6 with OPC @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.69 cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills, including cost of all materials, labour, HOM curing complete as per specifications. Specification No. KBS 4.1, 4.2 (KSRRB 18-19,SI No.4.7,Pg No.13)				
	Basic Rate			5770	
	Add 10% For area weightage (Mangalore City)			577	
			Rate	6347.00	Cum

13	Construction of granular sub-base Grading-Vas Sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite/ trap/basalt material, mixing in a mechanical mix plant at OMC, Carriage of mixed material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98% proctor density, complete as per specifications. Clause 401 of MORTH V Revision. (KSRRB 18-19,P.No.153, SI.No.20.4)			
	Basic Rate		2166	
	Add 10% For area weightage (Mangalore City)		216.6	
		Rate	2382.60	Cum
14	KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications. (KSRB 18-19,Page No 14,SI No :4.10)			
	Basic Rate		6198	
	Add 12% For area weightage (Mangalore City)		619.8	
		Rate	6817.80	Cum
15	KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2 (KSRB 18-19,Page No 16,SI No : 4.28)			
	Basic Rate		263	
	Add 10% For area weightage (Mangalore City)		26.3	
		Rate	289.30	Sqm
16	KSRB 4.9.2 :Providing T.M.T steel reinforcement for RCC work including straighting,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500 (KSRB 18-19,Page No 18,SI No : 4.46.2)			
	Basic Rate		70782	
	Add 10% For area weightage (Mangalore City)		7078.2	
		Rate	77860.20	MT
17	KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300-2 complete as per specifications, including cost of gravel/ murrum, watering charges & compaction by vibratory roller to 95% of modified proctors density. MORTH Specification No. 305 (KSRRB 18-19,Pg No.147,SI No.19.60)			
	Basic Rate		489	
	Add 20km lead (17.4 KSRRB M100-4.1-Cost of haulage excluding loading and unloading MORTH-100/Chapter 1-case 1- Surface Road)=2.0 Rs/ Tkm x 1.28 T x 20km		51.2	
	Sub Total		540.2	
	Add 10% For area weightage (Mangalore City)		54.02	
		Rate	594.22	Cum

18	<p>KSRRB M600-1. Providing and Constructing dry lean cement concrete mix CC 1:5:10 base with OPC 25mm and down size graded granite metal coarse aggregate at 0.86cum and fine aggregates @0.58cum over a prepared sub-base, coarse and fine aggregate conforming to IS: 383-2016, aggregate cement ratio not to exceed 15:1, Aggregate gradation after blending to be as per Table 600-1, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. Clause 601 of MORTH V Revision and IS 456 Table-5</p> <p>-do- with OPC at 150 kg/cum and coarse aggregate 0.86cum, fine aggregate 0.58cum using Concrete Batch mix Plant at 75 cum/hr capacity with Slip form paver with electronic sensor. (KSRRB 18-19, Page No 174, SI No : 22.1.1)</p>				
	Basic Rate			4048	
	Add 10% For area weightage (Mangalore City)			404.8	
		Rate		4452.80	Cum
19	<p>KSRRB M600-2. Providing and Constructing un-reinforced, dowel jointed, plain cement Pavement Quality concrete for pavements using Grade concrete M40 having Flexural strength not less than 4.50 Mpa over a prepared base with OPC, coarse aggregate at 0.64 cum, fine aggregates at 0.36 cum, Coarse and fine aggregate conforming to IS:383-2016 and Table 600-3 of MORTH V Revision, with Superplastizer at 3 lts conforming to IS 9103-2008. loading materials to batch mix plant by front end loader, mixed in a cement concrete batch mix plant as per approved mix design, transported to site in transit truck agitator 5 cum capacity, laid with Paver, compacted and finished in a continuous operation as per IRC-15 including cost for providing of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane of impermeable plastic sheet of 125 micron, groove cutting, sealant primer joint sealant, debonding strip, dowel bars at 9 kg/cum, tie rods at 1.15 kg/cum, admixtures as approved, curing compound, finishing to lines and grades, textured with texturing machine, and curing including cost of all materials, labour, hire charges of machineries, all lead & lift charges etc., complete as per specifications. Clause 601 of MORTH V Revision and IS 456 Table-5</p> <p>-do- with OPC at 420 kg/cum and coarse aggregate 0.64cum, fine aggregate 0.36cum using Concrete Batch mix Plant at 75 cum/hr capacity with fixed form paver. (KSRRB 18-19, Page No 175 & 176 , SI No : 22.2.2)</p>				
	Basic Rate			5765	
	Add 10% For area weightage (Mangalore City)			576.5	
		Rate		6341.50	Cum
20	<p>Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower and as shown on drawing and as per MORTH specifications clause 602. (Non SOR Item)</p>				
	Rate Approved as per EOI by MD MSCL Mangalore, Refer Sr.No.2	Rate		115	Rmt
21	<p>KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications. Morth specification No.3005.1 (KSRRB 18-19, Page No 260, SI No : 35.8)</p>				
	Basic Rate			331	
	Add 10% For area weightage (Mangalore City)			33.1	
		Rate		364.10	Rmt

22	<p>Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)</p>			
Rate Arrived as per Rate analysis				
	Basic Rate		1806	
	Add 10% For area weightage (Mangalore City)		180.6	
		Rate	1986.60	Nos
23	<p>Providing and fixing pre cast solid cement concrete kerb stones made out of C.C. 1:2:4 with top and bottom width 114 and 165 mm respectively, 400mm high and 450mm in length finished with CM 1 3 plastering and finishing cutting, including form work, curing, including cost of all materials, labour, hire charges of machinery, loading, unloading, lead and lift, transportation etc., complete. (Page No 27,SI No : 5.30)</p>			
	Basic rate		421	
	Add 10% For area weightage (Mangalore City)		42.1	
		Rate	463.10	Nos.
24	<p>KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per MORTH specifications section 8. (KSRRB 18-19,Page No 180,SI No : 24.1)</p>			
	Basic Rate		80	
	Add 10% For area weightage (Mangalore City)		8	
		Rate	88	Sqm
25	<p>P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)</p>			
Rate Arrived as per Rate analysis				
	Basic Rate		917	
		Rate	917	Nos.
26	<p>Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)</p>			
	Basic Rate			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.15	Rate	3500.00	Nos.
27	<p>Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)</p>			
	Basic Rate		297	
	Add 12% on Labor Charges=Rs.47,For area weightage (Mangalore City)		5.64	
		Rate	302.64	Rm
28	<p>KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia, of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10. (KSRB SR 2018-19,P.No.88, SI.No.12.89)</p>			

	Basic Rate		830	
	Add 10% For area weightage (Mangalore City)		83	
		Rate	913	Nos.
29	<p>KSRRB 12-8.2 : Constructing brick masonry inspection chamber 500x700mm, and 450mm depth, (clear inside dimension) for pipeline with one or two inlets, using table moulded non-modular bricks of class designation 50 in cement mortar 1:5, C.I cover with frame (light duty) 455x610mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23kg and weight of frame 15 kg) R.C.C. top slab with cement concrete M 15 with 20mm and downsize granite metal , foundation concrete M 5 with 40mm and downsize granite metal inside plastering 12mm thick with cement mortar 1:3, finished smooth with a floating coat of cement on walls and bed concrete complete as per standard design including cost of materials, labour charges, curing complete as per specifications. Specification No. KBS (P.No. 76/ I.No.11.52 of PWD SR 2018-19)</p>			
	Basic Rate		8296	
	Add 10% For area weightage (Mangalore City)		829.6	
		Rate	9125.6	Nos.
30	<p>KSRRB M800-29.3.Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case-III :Triple row for three utility services. (KSRRB 2018-19,Pg No 186,SI.No.24.36)</p>			
	Basic Rate		5022	
	Add 10% For area weightage (Mangalore City)		502.2	
		Rate	5524.20	Rmt
31	<p>Providing and laying Dia 225mm HDPE Power Duct with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)</p>			
	Basic Rate		2500	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)		78	
	Add 12% For area weightage (Mangalore City)		9.36	
		Rate	2587.36	Rm
32	<p>Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering,Jointing into trenches,Complete. (Market Rate)</p>			
	Basic Rate		1775	
		Rate	1775.00	Nos.
33	<p>Providing and laying Dia 160mm HDPE Power Duct with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years.(Market Rate)</p>			
	Basic Rate		1350	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)		66	
	Add 12% For area weightage (Mangalore City)		7.92	
		Rate	1423.92	Rm

34	Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)			
	Basic Rate		1475	
		Rate	1475.00	Nos.
35	Providing and Fixing Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1003	
	GST @18%		180.54	
		Rate	1183.54	Nos.
36	Providing and Fixing Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1947	
	GST @18%		350.46	
		Rate	2297.46	Nos.
37	Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent indian standard and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe etc.Complete. (Market Rate)			
	Basic Rate		685	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)		36	
	Add 12% For area weightage (Mangalore City)		4.32	
		Rate	725.32	Rm
38	Supplying Coupler for 7-way 40mmHDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe.Complete. (Market Rate)			
	Basic Rate		175	
		Rate	175.00	Nos.
39	Providing and laying heavy duty cobble stones 60mm thick, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 30mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (KSRB 18-19, Pg No 103,SI No : 14.6)			
	Basic rate		1056.00	
	Add 10% For area weightage (Mangalore City)		105.6	
		Rate	1161.60	Sqm
40	Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 40mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 30mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.12	Rate	912.00	Sqm

41	<p>Providing and laying heavy duty cobble stones 75mm thick, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 30mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (KSRB 18-19,Page No 103,SI No : 14.7)</p>			
	Basic rate			1114
	Add 10% For area weightage (Mangalore City)			111.4
		Rate	1225.40	Sqm
42	<p>KSRRB M800-2. Retro-Reflectorised Traffic Signs - Manufacturing, Supply and Installation of retro-reflective cautionary, mandatory & Informatory signboards made out of cube corner micro prismatic grade sheeting confirming to type XI standards of IRC:67:2012 specifications & fixed over 4mm thick aluminium composite panel sheet having minimum 0.30 mm thick aluminum skin on both sides & fixed over a support frame of 25X25X3mm MS angle and mounted on 75 mm dia OR 75X75X6mm mild steel angle to Total height 2.70 m with clear height of not less than 2.10 m from the ground level to the bottom of the sign board & 60mm below ground level. the sign post should be painted with be coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height alternatively firmly fixed to the ground by means of foundation with M20 grade cement concrete of 45cmX45cmX60cm including cost & conveyance of all materials, equipment, machinery & labour with all leads and lifts, loading charges necessary for satisfactory completion of the works as directed be engineer in-charge.</p>			
	<p>10 years warranty for Retro Reflective Sheeting from the original sheeting manufactures as per clause 6.9 in IRC: 2012 & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be obtained from the supplier. 900MM Equilateral Triangle-TYPE XI (KSRRB 18-19,Page No 180,SI No : 24.2.1)</p>			
	Basic Rate			3511
	Add 10% For area weightage (Mangalore City)			351.1
		Rate	3862.10	Nos
43	<p>KSRRB M800-2. Retro-Reflectorised Traffic Signs - Manufacturing, Supply and Installation of retro-reflective cautionary, mandatory & Informatory signboards made out of cube corner micro prismatic grade sheeting confirming to type XI standards of IRC:67:2012 specifications & fixed over 4mm thick aluminium composite panel sheet having minimum 0.30 mm thick aluminum skin on both sides & fixed over a support frame of 25X25X3mm MS angle and mounted on 75 mm dia OR 75X75X6mm mild steel angle to Total height 2.70 m with clear height of not less than 2.10 m from the ground level to the bottom of the sign board & 60mm below ground level. the sign post should be painted with be coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height alternatively firmly fixed to the ground by means of foundation with M20 grade cement concrete of 45cmX45cmX60cm including cost & conveyance of all materials, equipment, machinery & labour with all leads and lifts, loading charges necessary for satisfactory completion of the works as directed be engineer in-charge.</p>			
	<p>10 years warranty for Retro Reflective Sheeting from the original sheeting manufactures as per clause 6.9 in IRC: 2012 & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be obtained from the supplier. 900MM Octagon Stop Board-TYPE XI (KSRRB 18-19,Page No 180,SI No : 24.2.6)</p>			
	Basic Rate			4958
	Add 10% For area weightage (Mangalore City)			495.8
		Rate	5453.80	Nos

44	<p>KSRRB M800-2. Retro-Reflectorised Traffic Signs - Manufacturing, Supply and Installation of retro-reflective cautionary, mandatory & Informatory signboards made out of cube corner micro prismatic grade sheeting conforming to type XI standards of IRC:67:2012 specifications & fixed over 4mm thick aluminium composite panel sheet having minimum 0.30 mm thick aluminum skin on both sides & fixed over a support frame of 25X25X3mm MS angle and mounted on 75 mm dia OR 75X75X6mm mild steel angle to Total height 2.70 m with clear height of not less than 2.10 m from the ground level to the bottom of the sign board & 60mm below ground level. the sign post should be painted with be coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height alternatively firmly fixed to the ground by means of foundation with M20 grade cement concrete of 45cmX45cmX60cm including cost & conveyance of all materials, equipment, machinery & labour with all leads and lifts, loading charges necessary for satisfactory completion of the works as directed be engineer in-charge.</p>												
	<p>10 years warranty for Retro Reflective Sheeting from the original sheeting manufactures as per clause 6.9 in IRC: 2012 & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be obtained from the supplier. 600MM Circle-TYPE XI (KSRRB 18-19,Page No 180,SI No : 24.2.3)</p>												
	<table border="1"> <tr> <td>Basic Rate</td> <td></td> <td>3118</td> <td></td> </tr> <tr> <td>Add 10% For area weightage (Mangalore City)</td> <td></td> <td>311.8</td> <td></td> </tr> <tr> <td></td> <td>Rate</td> <td>3429.80</td> <td>Nos</td> </tr> </table>	Basic Rate		3118		Add 10% For area weightage (Mangalore City)		311.8			Rate	3429.80	Nos
Basic Rate		3118											
Add 10% For area weightage (Mangalore City)		311.8											
	Rate	3429.80	Nos										
45	<p>Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface:Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803 (KSRRB 18-19,Page No 182,SI No : 24.15)</p>												
	<table border="1"> <tr> <td>Basic Rate</td> <td></td> <td>429</td> <td></td> </tr> <tr> <td>Add 10% For area weightage (Mangalore City)</td> <td></td> <td>42.9</td> <td></td> </tr> <tr> <td></td> <td>Rate</td> <td>471.90</td> <td>Sqm</td> </tr> </table>	Basic Rate		429		Add 10% For area weightage (Mangalore City)		42.9			Rate	471.90	Sqm
Basic Rate		429											
Add 10% For area weightage (Mangalore City)		42.9											
	Rate	471.90	Sqm										
46	<p>Providing & installing of E- toilet with Super structure of the electronic toilet to have asthetic ambience with inner room size 1.2 x 0.8 x 2.4 (LXWXH)meters and Size of electronic toilet overall size in meters 2.30x1.25x2.80 (LXWXH) Total area 35 Sft. with Built-accs controlled main door and side walls made of SS Grade 304,Toilet floor and closet are to be stainless steel of grade 304.E-Toilet shall have Built-in water tank with minimum 225 Lit capacity and Acess controll using coin validator for entering the unit based on automatic payment collection mechanism exit from the unit should be manual.Automatic lights inside the unit with gloves on opening the door.E-Toilet shall be Automatic flushing system which includes Automatic Pre flush cleaning before use,Automatic closet washing mechanism after use and Automatic platform cleaning mechanism programmed after specific numbers.In addition to these flush switch is to be provided for manual operation.Standard features should include heath faucet,exhaust fan and cloth hanger.</p>												
	<p>The E-Toilet shall have Alert to users-different indication on 'ready to use',busy are to be provided in the unit also with Voice guidance in the unit for users. Web enabled support-GPRS based Real time data to be provided from the unit through web for knowing the health status like number of users per day and coins collected.E-toilet shall have Modular and portable design enabling easy assembling and installation at site.Call ceneter and web portal facilities for registering complience and tracking usage,coin collection etc.Status display in LED,Printed instruction stickers are to be provided.For Advertisement purpose space for advertisement dispaly to be provided on the exterior of the unit for income generation and sustainability. Backup power facility like UPS is to be provided to supplement upto 30 Min Base of the unit to be placed on a suitable concrete structure with a ashthetic finish. (Non SOR Item)</p>												
	<table border="1"> <tr> <td>Baisc rate</td> <td></td> <td>575000</td> <td></td> </tr> <tr> <td>Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.1</td> <td>Rate</td> <td>575000</td> <td>Nos.</td> </tr> </table>	Baisc rate		575000		Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.1	Rate	575000	Nos.				
Baisc rate		575000											
Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.1	Rate	575000	Nos.										

47	Supply and Fixing of Traffic signal Straight pole of 6 mtr, inner dia 100 mm from resistant to peeling with base plate size of (LXWXT) 200mm X200mmX6mm painted with redoxide and double coat with synthetic enamel paint of yellow colour assembly G.I., class B, as per technical specification (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.5	Rate	18691	Nos.
48	Supply and fixing of Traffic signal Cantilever pole Class B having inner diameter of 100 mm or more with a height of 6m including extension arm assembly having outer diameter of 75mm with arm span of 4 mtr length and base plate of size 300mm X 300mm with thickness of 6 mm welded at the bottom of the pole base as per technical specification & drawings. (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.6	Rate	52850	Nos.
49	Supply and fixing of 300 mm dia – single source – LED retrofit - Red (blow) as per Specification (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.7	Rate	11082	Nos.
50	Supply and fixing of 300 mm dia – single source – LED retrofit - Amber (blow) as per Specification (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.7	Rate	11082	Nos.
51	Supply and fixing of 300 mm dia – single source – LED retrofit - Green (arrow/U- Turn) EN-12368 as per Specification (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.8	Rate	13973	Nos.
52	Supply and fixing of 300 mm dia – single source – LED retrofit - Red (ped. standing) EN-12368 as per Specification (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.9	Rate	11082	Nos.
53	Supply and fixing of 300 mm dia – single source – LED retrofit - Green (ped.walking) EN-12368 as per Specification (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.10	Rate	13973	Nos.
54	Supply and fixing of 300 mm dia - No Right Turn/No Left turn/No Straight/No 'U' Turn aspects by using UV stabilized ink on face plate EN-12368 as per Specification (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.11	Rate	6196	Nos.
55	Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge			
	Basic Rate		4500	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.13	Rate	4500.00	Nos.
56	Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)			

	Basic Rate		100000.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.26	Rate	100000.00	MT
57	Providing and Fixing SS 304 Outdoor Dustbin(Pivoted Type and Mounted on SS Poles) of 55 liters capacity all complete to the satisfaction of the Engineer in charge. (NON SOR Item)			
	Basic Rate		7500	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.14	Rate	7500.00	Nos.
58	Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead of 5 km Item No 17.4 KSRRB M100-4.1-Earth			
	Earth	2.0x1.28x10km		
	Baisc rate		25.60	
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00	
	Sub Total		82.60	
	Add 10% For area weightage (Mangalore City)		8.26	
		Rate	90.86	Cum
59	Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead of 5km Item No 17.4 KSRRB M100-4.1-Debris			
	Debris	2.0x1.30x10Km		
	Baisc rate		26.00	
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00	
	Sub Total		83.00	
	Add 10% For area weightage (Mangalore City)		8.3	
		Rate	91.30	Cum

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City

3.2.1 BOQ of Electrical lighting Works for Loop Roads

Sr.No.	Specification	Unit	Quantity	Rate	Amount	Remarks
1	Lighting Poles					
1.1	Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)	Nos.	2	1,000	2,000	
1.2	Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)	Nos.	6	17,118	102,708	
1.3	Lighting Pole, 7 m Fabrication, supply and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)	Nos.	52	12,420	645,840	
1.4	Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)	Nos.	46	7,398	340,308	

Sr.No.	Specification	Unit	Quantity	Rate	Amount	Remarks
1.5	Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)	Nos.	6	3,540	21,240	
1.6	Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)	Nos.	52	2,400	124,800	
1.7	Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)	Nos.	14	700	9,800	
2	Lighting Panel					
2.1	Street Light Control Panel (SLCP) Supply, installation, testing and commissioning of SLCP Shall be conforming following IS standards – IS: 2147 – 1962 Degree of protection Floor / wall/ structure mounted, free standing, suitable for cable entry from bottom side, dust proof, vermin proof, 3 phase and neutral, bus bar, aluminium, neutral bus shall be of same size as phase bus bars, Short circuit capacity for the bus bars and switches shall be 10 kA, as SLD No. 1.01 (Non SOR Item)	No.	4	50,000	200,000	
3	LT Cable					
3.1	Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)	m	2325	117	272,025	
3.2	Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)	m	656	81.60	53,530	
3.3	Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)	Nos	832	11.31	9,410	
3.4	Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)	Nos	660	3.21	2,119	
4	Earthing system					

Sr.No.	Specification	Unit	Quantity	Rate	Amount	Remarks
4.1	Chemical Earthing for grounding, conduits, IC cut outs and other equipment on the meter board by using copper /SS rod with earth enhancing backfill compound which is non corrosive, thermally, conductive, potential, to permissible limits, superior, fault, conductive capacity, non toxic, weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64, SI No.7.23.6)	Kit	8	5,500.00	44,000	
4.2	Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)	Rmt	2299	19.50	44,831	
TOTAL					18,72,611	

**Executive Engineer
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**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City

3.2.2 M.S.of Electrical Lighting Works for Loop Roads

Sr.No.	Specification	Unit	No.	L	B	H	Quantity
1	Lighting Poles						
1.1	Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)						
	Maidan Road-2 (Consider 10% qty of Existing Electric pole)	Nos.	2				2.00
1.2	Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)						
	Maidan Road-2	Nos.	6				6.00
1.3	Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)						
	Nellikai Road	Nos.	22				22.00
	Mission Road	Nos.	16				16.00
	4th Cross Road	Nos.	14				14.00
						Total	52

Sr.No.	Specification	Unit	No.	L	B	H	Quantity
1.4	Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)						
	Maidan Road-2	Nos.	46				46.00
1.5	Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)						
	Maidan Road-2	Nos.	6				6.00
1.6	Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)						
	Nellikai Road	Nos.	22				22.00
	Mission Road	Nos.	16				16.00
	4th Cross Road	Nos.	14				14.00
						Total	52
1.7	Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)						
	Maidan Road-2	Nos.	14				14.00
2	Lighting Panel						
2.1	Street Light Control Panel (SLCP) Supply, installation, testing and commissioning of SLCP Shall be conforming following IS standards – IS: 2147 – 1962 Degree of protection Floor / wall/ structure mounted, free standing, suitable for cable entry from bottom side, dust proof, vermin proof, 3 phase and neutral, bus bar, aluminium, neutral bus shall be of same size as phase bus bars, Short circuit capacity for the bus bars and switches shall be 10 kA, as SLD No. 1.01 (Non SOR Item)						
	Maidan Road-2	No.	1				1.00
	Nellikai Road	No.	1				1.00
	Mission Road	No.	1				1.00
	4th Cross Road	No.	1				1.00
						Total	4

Sr.No.	Specification	Unit	No.	L	B	H	Quantity
3	LT Cable						
3.1	Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)						
	Maidan Road-2(Consider 25% more length for looping) Ch.0.0 to Ch.230.0	m	2	288			575.00
	Nellikai Road(Consider 25% more length for looping) Ch.10.0 to Ch.310.0	m	2	375			750.00
	Mission Road(Consider 25% more length for looping) Ch.0.0 to Ch.200.0	m	2	250			500.00
	4th Cross Road(Consider 25% more length for looping) Ch.0.0 to Ch.200.0	m	2	250			500.00
						Total	2325
3.2	Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)						
	Maidan Road-2						
	9m high pole	m	6	18			108.00
	4m high pole	m	46	4			184.00
	Nellikai Road						
	7m high pole	m	22	7			154.00
	Mission Road						
	7m high pole	m	16	7			112.00
	4th Cross Road						
	7m high pole	m	14	7			98.00
						Total	656
3.3	Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)		No.of Poles	No.of Lugs			
	Maidan Road-2						
	9m high pole	Nos.	6	8			48.00
	4m high pole	Nos.	46	8			368.00
	Nellikai Road						
	7m high pole	Nos.	22	8			176.00
	Mission Road						
	7m high pole	Nos.	16	8			128.00
	4th Cross Road						
	7m high pole	Nos.	14	8			112.00
						Total	832
3.4	Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)						
	Maidan Road-2						
	9m high pole(two Cables for two arm)	Nos.	12	6			72.00
	4m high pole	Nos.	46	6			276.00
	Nellikai Road						
	7m high pole	Nos.	22	6			132.00

Sr.No.	Specification	Unit	No.	L	B	H	Quantity
	Mission Road						
	7m high pole	Nos.	16	6			96.00
	4th Cross Road						
	7m high pole	Nos.	14	6			84.00
					Total		660
4.1	Chemical Earthing for grounding,conduits,IC cut outs and otherequipmentson the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)						
	Maidan Road-2	Nos.	2				2.00
	Nellikai Road	Nos.	2				2.00
	Mission Road	Nos.	2				2.00
	4th Cross Road	Nos.	2				2.00
					Total		8
4.2	Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)						
	Maidan Road-2(Consider 10% more length for looping) Ch.0.0 to Ch.230.0	Rm	3	253			759.00
	Nellikai Road(Consider 10% more length for looping) Ch.10.0 to Ch.310.0	Rm	2	330			660.00
	Mission Road(Consider 10% more length for looping) Ch.0.0 to Ch.200.0	Rm	2	220			440.00
	4th Cross Road(Consider 10% more length for looping) Ch.0.0 to Ch.200.0	Rm	2	220			440.00
					Total		2299

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

**Name of the Work :- Mangalore Smart City
3.2.3 Rate Analysis of Electrical Lighting for Maidan Road**

1	Lighting Poles			
1.1	Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.22	Rate	1,000	Nos.
1.2	Lighting Pole, 9 m Fabrication, suppl and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)			
	Basic rate		17118	
		Rate	17,118	Nos.
1.3	Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)			
	Basic rate		12420	
		Rate	12420	Nos.
1.4	Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)			

	Basic rate		7398	
		Rate	7,398	Nos.
1.5	Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)			
	Basic rate		3540	
		Rate	3,540	Nos.
1.6	Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)			
	Basic rate		2400	
		Rate	2,400	Nos.
1.7	Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)			
	Basic rate		700	
		Rate	700	Nos.
2	Lighting Panel			
2.1	Street Light Control Panel (SLCP) Supply, installation, testing and commissioning of SLCP Shall be conforming following IS standards – IS: 2147 – 1962 Degree of protection Floor / wall/ structure mounted, free standing, suitable for cable entry from bottom side, dust proof, vermin proof, 3 phase and neutral, bus bar, aluminium, neutral bus shall be of same size as phase bus bars, Short circuit capacity for the bus bars and switches shall be 10 kA, as SLD No. 1.01 (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.20	Rate	50,000	Nos.
3	LT Cable			
3.1	Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)			
	Basic rate		117	
		Rate	117	Rm
3.2	Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)			
	Basic rate		81.6	
		Rate	81.60	Rm

3.3	Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)		11.31	
	Basic rate			
		Rate	11.31	Nos.
3.4	Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)		3.21	
	Basic rate			
		Rate	3.21	Nos.
4.1	Chemical Earthing for grounding,conduits,IC cut outs and otherequipments on the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)		5500	
	Basic rate			
		Rate	5500.00	Kit
4.2	Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)		19.5	
	Basic rate			
		Rate	19.50	Rmt

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Manglore Smart City
3.3 BOQ OF SOFTSCAPE at Nellikai Road RHS

Sr.No.	Specifications	Unit	Quantity	Rate	Amount	Remarks
1.1	SOIL MIXES and Ground Preparation					
1.1.1	Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	36.22	140.00	5,071	
1.1.2	KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stacking complete as per specifications. MORTH Specification No. 308.2(KSRRB 18-19,Page No.150,SI.No.19.90)	Cum	17.84	224.40	4,003	
1.1.3	KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KSRRB 18-19,Page No.148,SI No.19.77)	Cum	54.05	113.30	6,124	
1.1.4	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)	Cum	54.05	23.91	1,292	
1.1.5	Soil preparation of Lawn					
	KSRRB M300-3.Making lawns including ploughing and breaking of clod,removal of rubbish,dressing and supplying doobs grass roots and planting at 15 cm apart,including supplying and spreading of farm yard manure at rate of 0.18cum per 100 sqm complete as per specifications. MORTH Specification No.307 (KSRRB 18-19,Pg No. 148, SI No. 19.80)	Sqm	13.93	17.60	245	
1.1.6	Bed Prepartion for , Ground covers, Climbers/ creepers, Shrubs					

Sr.No.	Specifications	Unit	Quantity	Rate	Amount	Remarks
	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	236.40	146.00	34,514	
1.2	SHRUBS: Supply and Stacking of Shrubs					
1.2.1	Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.	45.00	840.00	37,800	
1.2.2	Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.	103.00	840.00	86,520	
1.3	TURF					
1.3.1	ZOYSIA JAPONICA (MAT) (Non SOR Item)	Sqm	19.00	156.80	2,979	
1.4	IRRIGATION					
1.4.1	supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	90.09	560.00	50,448	
Total					2,28,996	

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Manglore Smart City
3.3.1 Measurement Sheet of softscape at Nellikai Road RHS

Sr.No.	Item	Unit	No.	L	B	H	Qty.
1.1	SOIL MIXES and Ground Preparation						
1.1.1	Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)						
	Ch.10.0	Cum	0.67	9.65	1.48	0.60	5.74
	Ch.20.0	Cum	0.67	2.79	1.48	0.60	1.66
	Ch.40	Cum	0.67	4.67	1.48	0.60	2.78
	Ch.60	Cum	0.67	4.16	1.48	0.60	2.48
	Ch.120	Cum	0.67	4.76	1.48	0.60	2.83
	Ch.150	Cum	0.67	5.32	1.48	0.60	3.17
	At Junction of Nellikai and Fourth Cross lane- Semicircular Area of Radius =4.72m. Area =0.5x 3.14x 4.72x 4.72	Cum	0.335	3.14	22.28	0.60	14.06
	Island at Junction of Nellikai and Fourth Cross lane	Cum	0.335	6.20	2.81	0.60	3.5
	Consider 2/3rd Qty of Item No.1.1.7	Cum					36.22
1.1.2	KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(KSRRB 18-19,Page No.150,SI.No.19.90)						
	Ch.10.0	Cum	0.33	9.65	1.48	0.6	2.83
	Ch.20.0	Cum	0.33	2.79	1.48	0.6	0.82
	Ch.40	Cum	0.33	4.67	1.48	0.6	1.37
	Ch.60	Cum	0.33	4.16	1.48	0.6	1.22
	Ch.120	Cum	0.33	4.76	1.48	0.6	1.39
	Ch.150	Cum	0.33	5.32	1.48	0.6	1.56
	At Junction of Nellikai and Fourth Cross lane- Semicircular Area of Radius =4.72m. Area =0.5x 3.14x 4.72x 4.72	Cum	0.165	3.14	22.278	0.6	6.93
	Island at Junction of Nellikai and Fourth Cross lane	Cum	0.165	6.2	2.81	0.6	1.72
	Consider 1/3rd Qty of Item No.1.1.7	Cum					17.84
1.1.3	KSRRB M300-Horticulture KSRRB M300- Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KSRRB 18-19,Page No.148,SI No.19.77)						

Sr.No.	Item	Unit	No.	L	B	H	Qty.
	Ch.10.0	Cum	1	9.65	1.48	0.6	8.57
	Ch.20.0	Cum	1	2.79	1.48	0.6	2.48
	Ch.40	Cum	1	4.67	1.48	0.6	4.15
	Ch.60	Cum	1	4.16	1.48	0.6	3.69
	Ch.120	Cum	1	4.76	1.48	0.6	4.23
	Ch.150	Cum	1	5.32	1.48	0.6	4.72
	At Junction of Nellikai and Fourth Cross lane- Semicircular Area of Radius =4.72m. Area =0.5x 3.14x 4.72x 4.72	Cum	0.5	3.14	22.278	0.6	20.99
	Island at Junction of Nellikai and Fourth Cross lane	Cum	0.5	6.2	2.81	0.6	5.23
						Total	54.05
1.1.4	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)						
	Consider Same Qty. of 1.1.7	Cum					54.05
1.1.5	Soil preparation of Lawn						
	KSRRB M300-3.Making lawns including ploughing and breaking of clod,removal of rubbish,dressing and supplying doobs grass roots and planting at 15 cm apart,including supplying and spreading of farm yard manure at rate of 0.18cum per 100 sqm complete as per specifications. MORTH Specification No.307 (KSRRB 19.80)						
	In rows 5 cm apart in both directions						
	Ch.10.0	Sqm	2	9.65		0.15	2.90
	Ch.20.0	Sqm	2	2.79		0.15	0.84
	Ch.40	Sqm	2	4.67		0.15	1.40
	Ch.60	Sqm	2	4.16		0.15	1.25
	Ch.120	Sqm	2	4.76		0.15	1.43
	Ch.150	Sqm	2	5.32		0.15	1.60
	At Junction of Nellikai and Fourth Cross lane- Semicircular Perimeter =0.5x3.14xD	Cum	0.5	14.8208		0.15	1.11
	At Junction of Nellikai and Fourth Cross lane- Semicircular Diameter =D	Cum	1	4.72		0.15	0.71
	Island at Junction of Nellikai and Fourth Cross lane, Perimeter= Nos.x (L+B)xWidth	Cum	2	6.2	2.81	0.15	2.70
						Total	13.93
1.1.6	Bed Preparation for , Ground covers, Climbers/ creepers, Shrubs						

Sr.No.	Item	Unit	No.	L	B	H	Qty.
	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)						
	Ch.10.0	Cum	1	9.65	1.48	0.6	8.57
	Ch.20.0	Cum	1	2.79	1.48	0.6	2.48
	Ch.40	Cum	1	4.67	1.48	0.6	4.15
	Ch.60	Cum	1	4.16	1.48	0.6	3.69
	Ch.120	Cum	1	4.76	1.48	0.6	4.23
	Ch.150	Cum	1	5.32	1.48	0.6	4.72
	At Junction of Nellikai and Fourth Cross lane- Semicircular Area of Radius =4.72m. Area =0.5x 3.14x 4.72x 4.72	Cum	1	14.82	22.278	0.6	198.11
	Island at Junction of Nellikai and Fourth Cross lane	Cum	1	6.20	2.81	0.6	10.45
						Total	236.40
1.2	SHRUBS: Supply and Stacking of Shrubs						
1.2.1	Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.					45.00
1.2.2	Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.					103.00
	Total	Nos.					148.00
1.3	TURF						
1.3.1	ZOYSIA JAPONICA (MAT)(Non SOR Item)	Sqm					19.00
	At Junction of Nellikai and Fourth Cross lane- Semicircular Area of Radius =4.72m. Area =0.5x 3.14x 4.72x 4.72	Sqm					
	Island at Junction of Nellikai and Fourth Cross lane	Sqm					
	Total	Sqm					19.00
1.4	IRRIGATION						

Sr.No.	Item	Unit	No.	L	B	H	Qty.
1.4.1	supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Consider Same Qty. of 1.1.6) (Non SOR Item)						90.09
	Ch.10.0	Sqm	1	9.65	1.48		14.28
	Ch.20.0	Sqm	1	2.79	1.48		4.13
	Ch.40	Sqm	1	4.67	1.48		6.91
	Ch.60	Sqm	1	4.16	1.48		6.16
	Ch.120	Sqm	1	4.76	1.48		7.04
	Ch.150	Sqm	1	5.32	1.48		7.87
	At Junction of Nellikai and Fourth Cross lane- Semicircular Area of Radius =4.72m. Area =0.5x 3.14x 4.72x2	Sqm	0.5	3.14	22.278		34.98
	Island at Junction of Nellikai and Fourth Cross lane,Perimeter= Nos.x (L+B)xWidth	Sqm	0.5	6.2	2.81		8.71
						Total	90.09

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Manglore Smart City
3.3.2 Rate Analysis of SOFTSCAPE at Nellikai Road RHS

RATE ANALYSIS - SOFTSCAPE

1.1.1	Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.27	Rate	140.00	Cum
1.1.2	KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(KSRRB 18-19,Page No.150,Sl.No.19.90)			
	Basic rate		204	
	Add 10% For area weightage		20.4	
		Rate	224.40	Cum
1.1.3	KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KSRRB 18-19,Page No.148,Sl No.19.77)			
	Basic rate		103	
	Add 10% For area wightage		10.3	
		Rate	113.30	Cum
1.1.4	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.28	Rate	23.91	Cum

1.1.5	Soil preparation of Lawn KSRRB M300-3.Making lawns including ploughing and breaking of clod,removal of rubbish,dressing and supplying doobs grass roots and planting at 15 cm apart,including supplying and spreading of farm yard manure at rate of 0.18cum per 100 sqm complete as per specifications. MORTH Specification No.307 (KSRRB 19.80)			
	Basic rate		16	
	Add 10% For area wightage		1.6	
		Rate	17.60	Sqm
1.1.6	Bed Prepartion for , Ground covers, Climbers/ creepers, Shrubs			
	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.29	Rate	146.00	Cum
1.2	SHRUBS: Supply and Stacking of Shrubs			
1.2.1	Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)			
	Basic Rate		840	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.30	Rate	840.00	No
1.2.2	Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)			

	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.31	Rate	840.00	No
1.3	TURF			
1.3.1	ZOYSIA JAPONICA (MAT) (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.32	Rate	156.80	Sqm
1.4	IRRIGATION			
1.4.1	supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.34	Rate	560.00	Sqm

**Assistant Engineer
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**Executive Engineer
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**General Manager
Technical
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Name of the Work :- Manglore Smart City
3.4.1 Measurement Sheet of softscape Medians for Loop Road

Sr.No.	Specifications	Unit	Nos	L	B	H	Qty.
1.1	SOIL MIXES and Ground Preparation						
1.1.1	Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)						
	Ch.22.228 to Ch.25.190	Cum	0.67	3.02	0.60	1.1	1.34
	Ch.28.48 to Ch.90.0	Cum	0.67	62.27	0.60	1.1	27.54
	Ch.94.05 to 97.46	Cum	0.67	3.37	0.60	1.1	1.49
	Ch.125.25 to Ch.213.0	Cum	0.67	87.64	0.60	1.1	38.75
	Rosario Church Lane Median	Cum	0.67	17.56	0.60	1.1	7.77
	Traffic Island at Maidan Road and Rosario Church Road	Cum	0.67	8.92	8.27	1.1	54.37
	Consider 2/3rd Qty. of 1.1.8	Cum					131.25
1.1.2	KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stacking complete as per specifications. MORTH Specification No. 308.2(KSRRB 18-19,Page No.150,SI.No.19.90)						
	Median Kerb Stone						
	Ch.22.228 to Ch.25.190	Cum	0.33	3.02	0.60	1.1	0.66
	Ch.28.48 to Ch.90.0	Cum	0.33	62.27	0.60	1.1	13.56
	Ch.94.05 to 97.46	Cum	0.33	3.37	0.60	1.1	0.73
	Ch.125.25 to Ch.213.0	Cum	0.33	87.64	0.60	1.1	19.09
	Rosario Church Lane Median	Cum	0.33	17.56	0.60	1.1	3.82
	Traffic Island at Maidan Road and Rosario Church Road	Cum	0.33	8.92	8.27	1.1	26.78
	Consider 1/3rd Qty. of 1.1.8	Cum					64.64
1.1.6	KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KSRRB 18-19,Page No.148,SI No.19.77)						
	Median Kerb Stone						
	Ch.22.228 to Ch.25.190	Cum	1	3.02	0.60	0.15	0.3
	Ch.28.48 to Ch.90.0	Cum	1	62.27	0.60	0.15	5.6
	Ch.94.05 to 97.46	Cum	1	3.37	0.60	0.15	0.3
	Ch.125.25 to Ch.213.0	Cum	1	87.64	0.60	0.15	7.9
	Rosario Church Lane Median	Cum	1	17.56	0.60	0.15	1.6
	Traffic Island at Maidan Road and Rosario Church Road	Cum	1	8.92	8.27	0.15	11.1
		Cum					26.71
1.1.7	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)						

Sr.No.	Specifications	Unit	Nos	L	B	H	Qty.
	Median Kerb Stone						
	Consider Same Qty. of 1.1.6	Cum					26.71
1.1.8	Bed Preparation for , Ground covers , Climbers/ creepers, Shrubs						
	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)						
	Median Kerb Stone						
	Ch.22.228 to Ch.25.190	Cum	1	3.02	0.60	1.1	2.0
	Ch.28.48 to Ch.90.0	Cum	1	62.27	0.60	1.1	41.1
	Ch.94.05 to 97.46	Cum	1	3.37	0.60	1.1	2.2
	Ch.125.25 to Ch.213.0	Cum	1	87.64	0.60	1.1	57.8
	Rosario Church Lane Median	Cum	1	17.56	0.60	1.1	11.6
	Traffic Island at Maidan Road and Rosario Church Road	Cum	0.5	8.92	8.27	1.1	40.6
		Cum					155.32
1.1.9	Turf						
	Zoysia Japonic, should be brought to the site in sheets, and stacked on site with regular watering; until after the planting.						
	Ch.22.228 to Ch.25.190	Sqm	2	3.02	0.15		0.9
	Ch.28.48 to Ch.90.0	Sqm	2	62.27	0.15		18.7
	Ch.94.05 to 97.46	Sqm	2	3.37	0.15		1.0
	Ch.125.25 to Ch.213.0	Sqm	2	87.64	0.15		26.3
	Rosario Church Lane Median	Sqm	2	17.56	0.15		5.3
	Traffic Island at Maidan Road and Rosario Church Road	Sqm	2	34.38	0.15		10.3
		Sqm					62.47
1.2	SHRUBS: Supply and Stacking of Shrubs						
1.2.1	Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	1649				1649.0
1.2.2	Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	18				18.0

Sr.No.	Specifications	Unit	Nos	L	B	H	Qty.
1.2.3	Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	16				16.0
1.2.4	<i>Nerium oleander</i> , c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	19				19.0
	Total	Nos.					1702.0
1.3	IRRIGATION						
1.3.1	supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Consider Same Qty. of 1.1.6) (Non SOR Item)						
	Median Kerb Stone						
	Ch.22.228 to Ch.25.190	Sqm	1	3.02	0.60		1.81
	Ch.28.48 to Ch.90.0	Sqm	1	62.27	0.60		37.36
	Ch.94.05 to 97.46	Sqm	1	3.37	0.60		2.02
	Ch.125.25 to Ch.213.0	Sqm	1	87.64	0.60		52.58
	Rosario Church Lane Median	Sqm	1	17.56	0.60		10.54
	Traffic Island at Maidan Road and Rosario Church Road	Sqm	1	8.92	8.27		73.77
		Sqm					178.1

**Assistant Engineer
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**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Manglore Smart City
3.4 BOQ OF SOFTSCAPE FOR MEDIAN -LOOP ROAD (A.B.Shetty to Hamilton Circle)

Sr.No.	Specifications	Unit	Quantity	Rate	Amount	Remarks
1.1	SOIL MIXES and Ground Preparation					
1.1.1	Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	131.25	140.00	18,375	
1.1.2	KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(KSRRB 18-19,Page No.150,SI.No.19.90)	Cum	64.64	224.40	14,506	
1.1.3	KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KSRRB 18-19,Page No.148,SI No.19.77)	Cum	26.71	113.30	3,026	
1.1.4	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)	Cum	26.71	23.91	639	
1.1.5	Bed Preparation for , Ground covers , Climbers/ creepers, Shrubs					
	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	155.32	146.00	22,677	
1.1.6	Turf					
	Zoysia Japonic, should be brought to the site in sheets, and stacked on site with regular watering; until after the planting.	Sqm	62.47	156.80	9,795	
1.2	SHRUBS: Supply and Stacking of Shrubs					
1.2.1	Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	1649.00	84.00	138,516	
1.2.2	Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	18.00	140.00	2,520	

Sr.No.	Specifications	Unit	Quantity	Rate	Amount	Remarks
1.2.3	Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	16.00	840.00	13,440	
1.2.4	Nerium oleander, c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	19.00	840.00	15,960	
1.3	IRRIGATION					
1.3.1	supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent)All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	178.08	560.00	99,727	
Total					3,39,181	

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Manglore Smart City

3.4.2 Rate Analysis of SOFTSCAPE MEDIAN for Loop Road

RATE ANALYSIS - SOFTSCAPE

1.1.1	Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.27	Rate	140.00	Cum
1.1.2	KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(KSRRB 18-19,Page No.150,SI.No.19.90)			
	Basic rate		204	
	Add 10% For area weightage (Mangalore City)		20.4	
		Rate	224.40	Cum
1.1.3	KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KSRRB 18-19,Page No.148,SI No.19.77)			
	Basic rate		103	
	Add 10% For area weightage (Mangalore City)		10.3	
		Rate	113.30	Cum
1.1.4	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.28	Rate	23.91	Cum

1.1.8	Bed Preparation for , Ground covers , Climbers/ creepers, Shrubs			
	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.29	Rate	146.00	Cum
1.1.9	TURF			
	Zoysia Japonic, should be brought to the site in sheets, and stacked on site with regular watering; until after the planting.			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.32	Rate	156.80	Sqm
1.2	SHRUBS: Supply and Stacking of Shrubs			
1.2.1	Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.39	Rate	84.00	Nos.
1.2.2	Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40	Rate	140.00	Nos.

1.2.3	Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40	Rate	840.00	Nos.
1.2.4	Nerium oleander, c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40	Rate	840.00	Nos.
1.3	IRRIGATION			
1.4.1	supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent)All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.29	Rate	560.00	Sqm

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager
Technical
MSCL Mangaluru**

Mangalore Smart City : Maidan Road
3.5 Rate Analysis for Kerb Stone 900 mm High

Sr.No.	Description	Unit	Qty	Rate/Unit	Amount	Remarks
1	Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).					
	Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m Details of cost 100 metre i.e. No. of kerb stones = 100/0.405=247 Nos. width of kerb stone =0.4m Precast C.C. Kerb stone M - 20 = $247 \times (((0.25+0.3)/2) \times 0.6 + 0.3 \times 0.3) \times 0.405 = 25.5 \text{ cu m}$					
	Material					
	Precast C.C. Kerb stone M - 20	Cum	25.500	14381.53	366729.05	Rate attached
	Shuttering Work					
	Mortar 1:3 for fixing joints = 246x1x [[$(0.250+0.30)/2$]*0.60*0.005] (0.30x0.30x0.005) = 0.313cum. Cement mortar 1:3 (1 cement : 3 coarse sand)	Cum	0.300	5666.00	1699.80	KSRB 18-19,SI No 1.3 Pg No 2
	Mason (brick layer) 1st class	day	2.500	466.20	1165.50	KSRB 18-19 Pg No LVI
	Mason (brick layer) 2nd class	day	2.500	456.20	1140.50	
	Beldar	day	2.500	446.20	1115.50	
	Coolie	day	1.650	446.20	736.23	
	Total				372586.58	
	Add 1 % Water charges				3725.87	
					376312.45	
	Add 10 % Contractor's profit				37631.24	
	Add 10% Contractor Overhead				37631.24	
	Cost of 25.5 cum				451574.93	
	cost for 1 cum.				17708.82	A
	Cost per Kerb of width 0.405m =A X 0.102cum (Vol of one Kerb)				1806	Per No

Executive Engineer
MSCL Mangaluru

General Manager Technical
MSCL Mangaluru

Name of the Work :- Mangalore Smart City
3.6 Rate Analysis of Pre Cast RCC Square Cover

Sr. No.	DESCRIPTION	Unit	No.	Qty	Rate	Amount
1	Rectangular shape 600x450 mm precast R.C.C. manhole cover with frame(CPWD 2016,Material rate-7130,Pg.No.35)	Nos.	1.00		700.00	700
	Transportation @ 1%	Nos.	1.00			7
	Fixing Charges @10%	Nos.	1.00			70
	Contractor Profit@10%	Nos.	1.00			70
	Contractor Overhead @10%	Nos.	1.00			70
	Sub Total					917
	Total					917

Executive Engineer
MSCL Mangaluru

General Manager Technical
MSCL Mangaluru

Name of the Work :- Mangalore Smart City
3.7 Rate Analysis of taking out paver block

Sr.No.	Description	Unit	Quantity	Rate	Amount	Reference
1	Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.					
	Details of cost for 10 sqm.					
a	Labour					
b	Beldar	Day	0.25	446.20	111.55	KPWD 18-19 SOR, Pg No.LVI SI No.5
c	Collie	Day	1	446.20	446.2	KPWD18-19 SOR, Pg No.LVI,SI No.6
d	Sundries	LS	2.7	1.73	4.67	CPWD Pg No 29,
	Total				562.42	
e	Add 1% Water Charges				5.62	
	Total				568.04	
f	Add 10 % Contractor's profit				56.8	
g	Add 10 % Contractor's overheads				56.804	
	Cost of 10 sqm				681.644	
	Cost of 1 sqm				68.16	

Executive Engineer
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General Manager Technical
MSCL Mangaluru

Name of the Work :- Mangalore Smart City

3.8 Comparitive Statement For Power Ducts

1	Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years.	Dura Line	Aadarsha	Utkarsha
	Basic Cost per RM	2500	2250	2875
	GST 18%	---	405	---
	Total Cost per RM	2500	2655	2875

2	Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering, Jointing into trenches, Complete.	Dura Line	Aadarsha (Including in pipe cost)	Utkarsha (Not Quoted)
	Basic Cost per Nos.	1175	0	0
	GST 18%	---	0	---
	Total Cost per Nos.	1175	0	0

3	Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years.	Dura Line	Aadarsha	Utkarsha
	Basic Cost per RM	1350	1135	1550
	GST 18%	---	204.3	---
	Total Cost per RM	1350	1339.3	1550

4	Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete.	Dura Line	Aadarsha (Including in pipe cost)	Utkarsha (Not Quoted)
	Basic Cost per Nos.	1475	0	0
	GST 18%	---	0	---
	Total Cost per Nos.	1475	0	0

5	Providing and Fixing Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material.-2Rows in One Column	Dura Line	Aadarsha (Not Quoted)	Utkarsha
	Basic Cost per Nos.	1003	0	1150
	GST 18%	---	0	---
	Total Cost per Nos.	1003	0	1150

6	Providing and Fixing Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material.-4 Rows in One Column	Dura Line	Aadarsha (Not Quoted)	Utkarsha
	Basic Cost per Nos.	1947	0	2150
	GST 18%	---	0	---
	Total Cost per Nos.	1947	0	2150

7	Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete.	Dura Line	Aadarsha	Utkarsha
	Basic Cost per Nos.	685	745	750
	GST 18%	---	134.1	---
	Total Cost per Nos.	685	879.1	750

8	Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete.	Dura Line	Aadarsha	Utkarsha
	Basic Cost per Nos.	175	0	0
	GST 18%	---	0	---
	Total Cost per Nos.	175	0	0

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

3.9 Summary for Maintenance of Loop Road

Sr.No.	Description	Total Amount Rs.
1	2nd year Maintenance Cost	1,958,422.00
2	3rd year Maintenance Cost	2,030,140.00
3	4th year Maintenance Cost	2,101,732.00
	Total Maintenance Amount	6,090,294.00

Note: Operation and Maintenance cost is approved by KUIDFC

**EXECUTIVE ENGINEER
MSCL MANGALURU**

**GENERAL MANAGER TECHNICAL
MSCL MANGALURU**

Name of the Work :- Mangalore Smart City
3.10 Maintenance BOQ of Road and Other Work for Loop Road-1st Year

Sr. No.	Specification	Unit	Total Qty.	Rate	Amount
Civil Works					
1.00	Operation & Maintenance for 1st Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)	Sqm	15.00	70.89	1063
2.00	Operation & Maintenance for 1st Year: KSRRB M200. Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (Page No 138,SI No : 18.47)	Cum	3.68	1028.46	3,785
3.00	Operation & Maintenance for 1st Year: KSRRB M200- Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202.	Rmt	10.00	13.73	137
4.00	Operation & Maintenance for 1st Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18.20,Page	Cum	0.50	446.16	223
5.00	Operation & Maintenance for 1st Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar	Cum	2.88	401.54	1156
6.00	Operation & Maintenance for 1st Year: KSRRB M300-14. Excavation for roadwork in all types of soil by mechanical means including cutting and loading to tipper, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transportation with a lead of 1.00 km and complete as per specifications. MORTH Specification No.301 (KSRRB 18-19,Page No 143,SI No : 19.14)	Cum	25.00	46.90	1,173
7.00	Operation & Maintenance for 1st Year: KSRRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 16-17,SI No.2.11,Pg. No.6)	Cum	25.00	137.28	3,432
8.00	Operation & Maintenance for 1st Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occurring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 16-	Sqm	50.00	6.86	343
9.00	Operation & Maintenance for 1st Year: KSRRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills , including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 18-19,SI.No.4.7,Page No.13)	Cum	5.00	6600.88	33,004

Sr. No.	Specification	Unit	Total Qty.	Rate	Amount
10.00	<p>Operation & Maintenance for 1st Year: Construction of granular sub-base Grading-Vas Sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite/ trap/basalt material, mixing in a mechanical mix plant at OMC, Carriage of mixed material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98% proctor density, complete as per specifications. Clause 401 of MORTH V Revision. (KSRRB 18-19,P.No.153, SI.No.20.4)</p>	Cum	7.50	2477.90	18,584
11.00	<p>Operation & Maintenance for 1st Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications.</p>	Cum	6.30	7090.51	44,670
12.00	<p>Operation & Maintenance for 1st Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2</p>	Sqm	36.00	300.87	10,831
13.00	<p>Operation & Maintenance for 1st Year: KSRB 4.9.2 :Providing T.M.T steel reinforcement for RCC work including straightening,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500</p>	MT	0.50	80974.61	40,487
14.00	<p>Operation & Maintenance for 1st Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305</p>	Cum	6.13	615.74	3,774
15.00	<p>Operation & Maintenance for 1st Year: KSRRB M600-1.Providing and Constructing dry lean cement concrete mix CC 1:5:10 base with OPC 25mm and down size graded granite metal coarse aggregate at 0.86cum and fine aggregates @0.58cum over a prepared sub-base, coarse and fine aggregate conforming to IS: 383-2016,aggregate cement ratio not to exceed 15:1, Aggregate gradation after blending to be as per Table 600-1,optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. Clause 601of MORTH V Revision and IS 456 Table-5 -do- with OPC at 150 kg/cum and coarse aggregate 0.86cum, fine aggregate 0.58cum using Concrete Batch mix Plant at 75 cum/hr capacity with Slip form paver with electronic sensor. (KSRRB 18-19,Page No 174,SI No : 22.1.1)</p>	Cum	1.23	4630.91	5,696

Sr. No.	Specification	Unit	Total Qty.	Rate	Amount
16.00	<p>Operation & Maintenance for 1st Year: KSSRRB M600-2.Construction of unreinforced,dowel jointed,plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplastisizer at 3 lts confirming to IS9103-1999 reaffirmed 2008(Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design,transported to site,laid with a fixed form or slip form paver spread,compacted and finished in a continuous operation including provision of contraction, expansio, construction and longitudinal joints,including groove cutting chrges, joints filler,separation memberane, sealent primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing complete as per sprcifications MORTH specification No.602.do with M40 (420Kg per cum Cement,C.A,0.67 cum F.A.044Cum (Page No 176,SI No : 22.2.2)</p>	Cum	2.82	6595.16	18,598
17.00	<p>Operation & Maintenance for 1st Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)</p>	Rmt	150.00	119.60	17,940
18.00	<p>Operation & Maintenance for 1st Year: KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1 (Page No 257,SI No : 35.8)</p>	Rmt	150.00	378.66	56,799
19.00	<p>Operation & Maintenance for 1st Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)</p>	Nos.	6.00	1878.24	11,269
20.00	<p>Operation & Maintenance for 1st Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete (Page No 25,SI No : 5.3)</p>	Nos.	50.00	481.62	24,081
21.00	<p>Operation & Maintenance for 1st Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.</p>	m	50.00	112.11	5,606
22.00	<p>Operation & Maintenance for 1st Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8 (Page No 182,SI No : 24.1)</p>	Sqm	5.78	91.52	529
23.00	<p>Operation & Maintenance for 1st Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)</p>	Nos.	1.00	953.68	954

Sr. No.	Specification	Unit	Total Qty.	Rate	Amount
24.00	Operation & Maintenance for 1st Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)	Nos.	1.00	3640.00	3,640
25.00	Operation & Maintenance for 1st Year: Providing gully pipe lowering, laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line. The rate shall include all jointing materials, testing apparatus and water for testing etc as directed by the Engineer in charge (page No.41, Item No.7, KUWSDB SOR 2016-17)	Rmt	1.00	314.52	315
26.00	Operation & Maintenance for 1st Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia , of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10.	Nos.	1.00	949.52	950
27.00	Operation & Maintenance for 1st Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia , across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17, Item No.24.34, Pg.No.188)	Rmt	4.00	5745.17	22,981
28.00	Operation & Maintenance for 1st Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	10.00	2690.85	26,909
29.00	Operation & Maintenance for 1st Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering, Jointing into trenches, Complete. (Market Rate)	Nos.	2.00	1917.00	3,834
30.00	Operation & Maintenance for 1st Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	39.00	1480.88	57,754
31.00	Operation & Maintenance for 1st Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)	Nos.	4.00	1534.00	6,136
32.00	Operation & Maintenance for 1st Year: Providing and Fixing Spacers for Power Ducts of size 225 mm , to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7.00	1223.66	8,566
33.00	Operation & Maintenance for 1st Year: Providing and Fixing Spacers for Power Ducts of size 160 mm , to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7.00	2375.34	16,627

Sr. No.	Specification	Unit	Total Qty.	Rate	Amount
34.00	Operation & Maintenance for 1st Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)	Rmt	10.00	754.33	7,543
35.00	Operation & Maintenance for 1st Year: Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)	Nos.	1.00	182.00	182
36.00	Operation & Maintenance for 1st Year: Providing and laying heavy duty cobble stones 60mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	37.92	1208.06	45,810
37.00	Operation & Maintenance for 1st Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	2.25	948.48	2,134
38.00	Operation & Maintenance for 1st Year: Providing and laying heavy duty cobble stones 75mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	4.21	1274.42	5,365
39.00	Operation & Maintenance for 1st Year: Road Marking with hot applied Thermoplastic Compound with Reflectrizing Glass Beads on Concrete Surface: Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streak and holes complete as per specifications. MORTH specification No.803 (Page No 192, SI No : 24.57)	Sqm	305.91	490.78	1,50,135
40.00	Operation & Maintenance for 1st Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.	Nos	2.00	63648.00	1,27,296
41.00	Operation & Maintenance for 1st Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	1.00	4680.00	4,680
42.00	Operation & Maintenance for 1st Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved), with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect. (Non SOR Item)	MT	0.30	104000.00	31,200

Sr. No.	Specification	Unit	Total Qty.	Rate	Amount
43.00	Operation & Maintenance for 1st Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Cum	198.00	193.61	38,335
44.00	Operation & Maintenance for 1st Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Earth	Cum	58.53	94.49	5,530
45.00	Operation & Maintenance for 1st Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Debris	Cum	9.38	102.39	,960
	Electrical Works				
46.00	Operation & Maintenance for 1st Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)	Nos.	1.00	1040.00	1,040
47.00	Operation & Maintenance for 1st Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)	Nos.	1.00	17802.72	17,803
48.00	Operation & Maintenance for 1st Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)	Nos.	1.00	12916.80	12,917
49.00	Operation & Maintenance for 1st Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)	Nos.	1.00	7693.92	7,694
50.00	Operation & Maintenance for 1st Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)	Nos.	1.00	3681.60	3,682

Sr. No.	Specification	Unit	Total Qty.	Rate	Amount
51.00	Operation & Maintenance for 1st Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)	Nos.	1.00	2496.00	2,496
52.00	Operation & Maintenance for 1st Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)	Nos.	118.00	728.00	85,904
LT Cable					
53.00	Operation & Maintenance for 1st Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)	m	12.00	121.68	1,460
54.00	Operation & Maintenance for 1st Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)	m	5.00	84.86	424
55.00	Operation & Maintenance for 1st Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)	Nos	5.00	11.76	59
56.00	Operation & Maintenance for 1st Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)	Nos	4.00	3.34	13
Earthing system					
57.00	Operation & Maintenance for 1st Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipmentson the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)	Kit	1.00	5720.00	5,720
58.00	Operation & Maintenance for 1st Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)	Rmt	12.00	20.28	243
Landcaping Works					
SOIL MIXES and Ground Preparation					
59.00	Operation & Maintenance for 1st Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	0.84	145.60	122

Sr. No.	Specification	Unit	Total Qty.	Rate	Amount
60.00	Operation & Maintenance for 1st Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page No.152,Sl.No.19.90)	Cum	0.41	233.38	96
61.00	Operation & Maintenance for 1st Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307	Cum	0.40	117.83	47
62.00	Operation & Maintenance for 1st Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)	Cum	0.40	24.87	10
Soil preparation of Lawn					
63.00	Operation & Maintenance for 2nd Year: Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc complete including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Sqm	14.00	117.83	1,650
Bed Prepartion for , Ground covers, Climbers/ creepers, Shrubs					
64.00	Operation & Maintenance for 1st Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	1.96	151.84	298
SHRUBS: Supply and Stacking of Shrubs					
65.00	Operation & Maintenance for 1st Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.	10.00	873.60	8,736
66.00	Operation & Maintenance for 1st Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.	20.00	873.60	17,472
67.00	Operation & Maintenance for 1st Year: Pandanus variegted'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	330.00	87.36	28,829
68.00	Operation & Maintenance for 1st Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	4.00	145.60	582
69.00	Operation & Maintenance for 1st Year: Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	4.00	873.60	3,494
70.00	Operation & Maintenance for 1st Year: <i>Nerium oleander</i> , c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	4.00	873.60	3,494
TURF					
71.00	Operation & Maintenance for 1st Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)	Sqm	41.00	163.07	6,686
IRRIGATION					

Sr. No.	Specification	Unit	Total Qty.	Rate	Amount
72.00	Operation & Maintenance for 1st Year: Watering with tanker to landscape area and plants for one year	Year	1.00	38324.81	38,325
73.00	Operation & Maintenance for 1st Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	6.00	582.40	3,494
				Total	11,23,806

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City
3.10.1 Maintenance BOQ of Road and Other Work for Loop Road-1st Year

Sr.No.	Specification	Unit	No.	L	B	D	Qty.	Actual %
Civil Works								
1.00	Operation & Maintenance for 1st Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)	Sqm	1	10	1.5		15.00	0.58%
2.00	Operation & Maintenance for 1st Year: KSRRB M200. Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra)	Cum	1	3.5	3.5	0.3	3.68	0.83%
3.00	Operation & Maintenance for 1st Year: KSRRB M200- Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202.	Rmt	1	10			10.00	0.78%
4.00	Operation & Maintenance for 1st Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 18-19,18.20,Page No.137)	Cum	1	1	1	0.5	0.50	1.94%
5.00	Operation & Maintenance for 1st Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar	Cum	1	25	0.5	0.23	2.88	0.57%
6.00	Operation & Maintenance for 1st Year: KSRRB M300-14. Excavation for roadwork in all types of soil by mechanical means including cutting and loading to tipper, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transportation with a lead of 1.00 km and complete as per specifications. MORTH Specification No.301 (KSRRB 18-19,Page No 143,SI No : 19.14)	Cum	1.00	10	5	0.5	25.00	0.21%
7.00	Operation & Maintenance for 1st Year: KSRRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 18-19,SI No.2.11,Pg. No.6)	Cum	1.00	10	5	0.5	25.00	0.54%
8.00	Operation & Maintenance for 1st Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occurring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 16-	Sqm	1.00	10		5	50.00	0.60%
9.00	Operation & Maintenance for 1st Year: KSRRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills , including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 18-19,SI.No.4.7,Page No.13)	Cum	1.00	10	5	0.1	5.00	0.54%

Sr.No.	Specification	Unit	No.	L	B	D	Qty.	Actual %
10.00	Operation & Maintenance for 1st Year: Construction of granular sub-base Grading-Vas Sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite/trap/basalt material, mixing in a mechanical mix plant at OMC, Carriage of mixed material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98% proctor density, complete as per specifications. Clause 401 of MORTH V Revision. (KSRRB 18-19,P.No.153, SI.No.20.4)	Cum	1.00	10	5	0.15	7.50	0.41%
11.00	Operation & Maintenance for 1st Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters confirming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications. (Page No 13,SI No : 4.10)	Cum	1.00	20	0.35	0.9	6.30	0.51%
12.00	Operation & Maintenance for 1st Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2	Sqm	2.00	20		0.9	36.00	0.36%
13.00	Operation & Maintenance for 1st Year: KSRB 4.9.2 : Providing T.M.T steel reinforcement for RCC work including straighting,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500	MT	1.00	0.50			0.50	0.50%
14.00	Operation & Maintenance for 1st Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305	Cum	1.00	3.5	3.5	0.5	6.13	0.36%
15.00	Operation & Maintenance for 1st Year: KSRRB M600-1.Providing and Constructing dry lean cement concrete mix CC 1:5:10 base with OPC 25mm and down size graded granite metal coarse aggregate at 0.86cum and fine aggregates @0.58cum over a prepared sub-base, coarse and fine aggregate conforming to IS: 383-2016,aggregate cement ratio not to exceed 15:1, Aggregate gradation after blending to be as per Table 600-1,optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. Clause 601of MORTH V Revision and IS 456 Table-5 -do- with OPC at 150 kg/cum and coarse aggregate 0.86cum, fine aggregate 0.58cum using Concrete Batch mix Plant at 75 cum/hr capacity with Slip form paver with electronic sensor. (KSRRB 18-19,Page No 174,SI No : 22.1.1)	Cum	1.00	3.5	3.5	0.1	1.23	0.18%
16.00	Operation & Maintenance for 1st Year: KSSRRB M600-2.Construction of unreinforced,dowel jointed, plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplasticizer at 3 lts confirming to IS9103-1999 reaffirmed 2008(Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design,transported to site,laid with a fixed form or slip form paver spread,compacted and finished in a continuous operation including provision of contraction, expansio, construction and longitudinal joints,including groove cutting chrges, joints filler,separation memberane, sealent primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing complete as per sprcifications MORTH specification No.602.do with M40 (420Kg per cum Cement,C.A,0.67 cum F.A.044Cum (Page No 176,SI No : 22.2.2)	Cum	1.00	3.5	3.5	0.23	2.82	0.18%

Sr.No.	Specification	Unit	No.	L	B	D	Qty.	Actual %
17.00	Operation & Maintenance for 1st Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)	Rmt	1.00	150			150.00	5.66%
18.00	Operation & Maintenance for 1st Year: KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1	Rmt	1.00	150			150.00	5.66%
19.00	Operation & Maintenance for 1st Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)	Nos.	6				6.00	0.58%
20.00	Operation & Maintenance for 1st Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete (Page No 25,SI No : 5.3)	Nos.	50				50.00	0.52%
21.00	Operation & Maintenance for 1st Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Nos.	50				50.00	
22.00	Operation & Maintenance for 1st Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8 (Page No 182,SI No : 24.1)	Sqm	1	35	0.165		5.78	0.49%
23.00	Operation & Maintenance for 1st Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)	Nos.	1.00				1.00	0.61%
24.00	Operation & Maintenance for 1st Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)	Nos.	1.00				1.00	0.77%
25.00	Operation & Maintenance for 1st Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)	Rmt	1.00	1.00			1.00	0.57%
26.00	Operation & Maintenance for 1st Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia , of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10.	Nos.	1.00	1			1.00	0.57%

Sr.No.	Specification	Unit	No.	L	B	D	Qty.	Actual %
27.00	Operation & Maintenance for 1st Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)	Rmt	1	4.00			4.00	0.62%
28.00	Operation & Maintenance for 1st Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	1	10			10.00	0.26%
29.00	Operation & Maintenance for 1st Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering,Jointing into trenches,Complete. (Market Rate)	Nos.	2				2.00	0.62%
30.00	Operation & Maintenance for 1st Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years.(Market Rate)	Rmt	1	39			39.00	0.51%
31.00	Operation & Maintenance for 1st Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)	Nos.	4				4.00	0.62%
32.00	Operation & Maintenance for 1st Year: Providing and Fixing Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7				7.00	0.54%
33.00	Operation & Maintenance for 1st Year: Providing and Fixing Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7				7.00	0.54%
34.00	Operation & Maintenance for 1st Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent indian standard and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe etc.Complete. (Market Rate)	Rmt	1	10			10.00	0.52%
35.00	Operation & Maintenance for 1st Year: Supplying Coupler for 7-way 40mmHDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe.Complete. (Market Rate)	Nos.	1				1.00	4.35%
36.00	Operation & Maintenance for 1st Year: Providing and laying heavy duty cobble stones 60mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Market Rate)	Sqm	1	10	3.792		37.92	0.50%

Sr.No.	Specification	Unit	No.	L	B	D	Qty.	Actual %
37.00	Operation & Maintenance for 1st Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	1.00	10	0.225		2.25	0.50%
38.00	Operation & Maintenance for 1st Year: Providing and laying heavy duty cobble stones 75mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Page No 101,SI No : 14.7)	Sqm	1.00	10	0.421		4.21	0.28%
39.00	Operation & Maintenance for 1st Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface: Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803 (Page No 192,SI No : 24.57)	Sqm	1.00	2039.433	0.15		305.91	50.00%
40.00	Operation & Maintenance for 1st Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.	Nos	2.00				2.00	100.00%
41.00	Operation & Maintenance for 1st Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	1.00				1.00	1.09%
42.00	Operation & Maintenance for 1st Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)	MT	1.00	0.3			0.30	5.59%
43.00	Operation & Maintenance for 1st Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Cum	2.00	1650	0.6	0.1	198.00	
44.00	Operation & Maintenance for 1st Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Earth	Cum	1.00	58.53			58.53	0.50%
45.00	Operation & Maintenance for 1st Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Debris	Cum	1.00	9.38			9.38	0.50%
Electrical Works								
46.00	Operation & Maintenance for 1st Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)	Nos.	1				1.00	50.00%
47.00	Operation & Maintenance for 1st Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)	Nos.	1				1.00	16.67%

Sr.No.	Specification	Unit	No.	L	B	D	Qty.	Actual %
48.00	Operation & Maintenance for 1st Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)	Nos.	1				1.00	1.92%
49.00	Operation & Maintenance for 1st Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)	Nos.	1				1.00	2.17%
50.00	Operation & Maintenance for 1st Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)	Nos.	1				1.00	16.67%
51.00	Operation & Maintenance for 1st Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)	Nos.	1				1.00	1.92%
52.00	Operation & Maintenance for 1st Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.- 8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)	Nos.	118				118.00	
LT Cable								
53.00	Operation & Maintenance for 1st Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)	m	1	12.00			12.00	0.52%
54.00	Operation & Maintenance for 1st Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)	m	1	5.00			5.00	0.76%
55.00	Operation & Maintenance for 1st Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)	Nos	5				5.00	0.60%
56.00	Operation & Maintenance for 1st Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)	Nos	4				4.00	0.61%
Earthing system								

Sr.No.	Specification	Unit	No.	L	B	D	Qty.	Actual %
57.00	Operation & Maintenance for 1st Year: Chemical Earthing for grounding,conduits,IC cut outs and other equipmentson the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential, to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)	Kit	1				1.00	12.50%
58.00	Operation & Maintenance for 1st Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)	Rmt	1	12			12.00	0.52%
	Landcaping Works							
	SOIL MIXES and Ground Preparation							
59.00	Operation & Maintenance for 1st Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	1	10	0.558	0.15	0.84	0.50%
60.00	Operation & Maintenance for 1st Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page No.152,SI.No.19.90)	Cum	1	10	0.412	0.1	0.41	0.50%
61.00	Operation & Maintenance for 1st Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KPWD SR 16-17,Page No.150,SI No.19.77)	Cum	1	10	0.404	0.1	0.40	0.50%
62.00	Operation & Maintenance for 1st Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)	Cum	1	10	0.404	0.1	0.40	0.50%
	Soil preparation of Lawn							
63.00	Operation & Maintenance for 2nd Year: Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc complete including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Sqm	1.00	20	0.7		14.00	100.50%
	Bed Prepartion for , Ground covers, Climbers/ creepers, Shrubs							
64.00	Operation & Maintenance for 1st Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	1	10	0.196		1.96	0.50%
	SHRUBS: Supply and Stacking of Shrubs							
65.00	Operation & Maintenance for 1st Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.	10.00				10.00	22.22%
66.00	Operation & Maintenance for 1st Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.	20.00				20.00	19.42%
67.00	Operation & Maintenance for 1st Year: Pandanus variegted'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	330.00				330.00	20.01%

Sr.No.	Specification	Unit	No.	L	B	D	Qty.	Actual %
68.00	Operation & Maintenance for 1st Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	4.00				4.00	22.22%
69.00	Operation & Maintenance for 1st Year: Ficus blackenia, c/c: 600m, must be bushy and multibranch(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	4.00				4.00	25.00%
70.00	Operation & Maintenance for 1st Year: <i>Nerium oleander</i> , c/c: 600m, must be bushy and multibranch(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	4.00				4.00	21.05%
TURF								
71.00	Operation & Maintenance for 1st Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)	Sqm	1	20	2.05		41.00	50.33%
IRRIGATION								
72.00	Operation & Maintenance for 1st Year: Watering with tanker to landscape area and plants for one year							
73.00	Operation & Maintenance for 1st Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	1	10	0.6		6.00	2.24%

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City

3.10.2 Maintenance of 1st Year - Rate Analysis of Road & Other Work for Loop Road

1	<p>Operation & Maintenance for 1st Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)</p>		68.16	
	Basic rate		68.16	
	O&M 1st year escalation of 4%		2.73	
		Rate	70.89	Sqm
2	<p>Operation & Maintenance for 1st Year: KSRRB M200.Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra)</p>		899	
	Basic rate		899	
	O&M 1st year escalation of 4%		35.96	
	Add 10% For area weightage (Mangalore City)		93.5	
		Rate	1028.46	Cum
3	<p>Operation & Maintenance for 1st Year: KSRRB M200-Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202.</p>		12.00	
	Basic rate		12.00	
	O&M 1st year escalation of 4%		0.48	
	Add 10% For area weightage (Mangalore City)		1.25	
		Rate	13.73	Rmt
4	<p>Operation & Maintenance for 1st Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 18-19,18.20,Page No.137)</p>		390	
	Basic rate		390	
	O&M 1st year escalation of 4%		15.6	
	Add 10% For area weightage (Mangalore City)		40.56	
		Rate	446.16	Cum
5	<p>Operation & Maintenance for 1st Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar</p>		351	
	Basic rate		351	
	O&M 1st year escalation of 4%		14.04	
	Add 10% For area weightage		36.5	
		Rate	401.54	Cum
6	<p>Operation & Maintenance for 1st Year: KSRRB M300-14. Excavation for roadwork in all types of soil by mechanical means including cutting and loading to tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transportation with a lead of 1.00 km and complete as per specifications. MORTH Specification No.301 (KSRRB 18-19,Page No 143,SI No : 19.14)</p>		41	
	Basic rate		41	
	O&M 1st year escalation of 4%		1.64	
	Add 10% For area weightage (Mangalore City)		4.26	

		Rate	46.90	Cum
7	Operation & Maintenance for 1st Year: KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 18-19,SI No.2.11,Pg. No.6)			
	Basic rate		120	
	O&M 1st year escalation of 4%		4.8	
	Add 10% For area weightage (Mangalore City)		12.48	
		Rate	137.28	Cum
8	Operation & Maintenance for 1st Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occurring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 18-19,SI No.19.64,Pg. No.149)			
	Basic rate		6	
	O&M 1st year escalation of 4%		0.24	
	Add 10% For area weightage (Mangalore City)		0.62	
		Rate	6.86	Sqm
9	Operation & Maintenance for 1st Year: KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills, including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 18-19,SI.No.4.7,Page No.13)			
	Basic Rate		5770	
	O&M 1st year escalation of 4%		230.8	
	Add 10% For area weightage (Mangalore City)		600.08	
		Rate	6600.88	Cum
10	Operation & Maintenance for 1st Year: Construction of granular sub-base Grading-Vas Sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite/ trap/basalt material, mixing in a mechanical mix plant at OMC, Carriage of mixed material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98% proctor density, complete as per specifications. Clause 401 of MORTH V Revision. (KSRRB 18-19,P.No.153, SI.No.20.4)			
	Basic Rate		2166	
	O&M 1st year escalation of 4%		86.64	
	Add 10% For area weightage (Mangalore City)		225.26	
		Rate	2477.90	Cum
11	Operation & Maintenance for 1st Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications.			
	Basic Rate		6198	
	O&M 1st year escalation of 4%		247.92	
	Add 10% For area weightage (Mangalore City)		644.59	
		Rate	7090.51	Cum
12	Operation & Maintenance for 1st Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2			
	Basic Rate		263	
	O&M 1st year escalation of 4%		10.52	

	Add 10% For area weightage (Mangalore City)		27.35	
		Rate	300.87	Sqm
13	Operation & Maintenance for 1st Year: KSRB 4.9.2 :Providing T.M.T steel reinforcement for RCC work including straighting,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500			
	Basic Rate		70782	
	O&M 1st year escalation of 4%		2831.28	
	Add 10% For area weightage (Mangalore City)		7361.33	
		Rate	80974.61	MT
14	Operation & Maintenance for 1st Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305			
	Basic Rate		489	
	O&M 1st year escalation of 4%		19.56	
	Add 20km lead (17.4 KSRRB M100-4.1-Cost of haulage excluding loading and unloading MORTH-100/Chapter 1-case 1- Surface Road)=2.0 Rs/ Tkm x 1.28 T x 20km		51.2	
	Sub Total		559.76	
	Add 10% For area weightage (Mangalore City)		55.98	
		Rate	615.74	Cum
15	Operation & Maintenance for 1st Year: KSRRB M600-1.Providing and Constructing dry lean cement concrete mix CC 1:5:10 base with OPC 25mm and down size graded granite metal coarse aggregate at 0.86cum and fine aggregates @0.58cum over a prepared sub-base, coarse and fine aggregate conforming to IS: 383-2016,aggregate cement ratio not to exceed 15:1, Aggregate gradation after blending to be as per Table 600-1,optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. Clause 601of MORTH V Revision and IS 456 Table-5 -do- with OPC at 150 kg/cum and coarse aggregate 0.86cum, fine aggregate 0.58cum using Concrete Batch mix Plant at 75 cum/hr capacity with Slip form paver with electronic sensor. (KSRRB 18-19,Page No 174,SI No : 22.1.1)			
	Basic Rate		4048	
	O&M 1st year escalation of 4%		161.92	
	Add 10% For area weightage (Mangalore City)		420.99	
		Rate	4630.91	Cum
16	Operation & Maintenance for 1st Year: KSSRRB M600-2.Construction of unreinforced,dowel jointed,plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplasticizer at 3 lts confirming to IS9103-1999 reaffirmed 2008(Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design,transported to site,laid with a fixed form or slip form paver spread,compacted and finished in a continuous operation including provision of contraction, expansion construction and longitudinal joints,including groove cutting chrges, joints filler,separation memberane, sealent primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing complete as per sprcifications MORTH specification No.602.do with M40 (420Kg per cum Cement,C.A,0.67 cum F.A.044Cum (Page No 176,SI No : 22.2.2)			
	Basic Rate		5765	
	O&M 1st year escalation of 4%		230.6	
	Add 10% For area weightage (Mangalore City)		599.56	
		Rate	6595.16	Cum

17	Operation & Maintenance for 1st Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)			115	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.2				
	O&M 1st year escalation of 4%			4.6	
		Rate		119.6	Rmt
18	Operation & Maintenance for 1st Year: KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1 (Page No 257,SI No : 35.8)			331	
	Basic Rate			13.24	
	O&M 1st year escalation of 4%			34.42	
	Add 10% For area weightage (Mangalore City)				
		Rate		378.66	Rmt
19	Operation & Maintenance for 1st Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)			1806	
	Rate Arrived as per Rate analysis			72.24	
	Basic Rate				
	O&M 1st year escalation of 4%				
		Rate		1878.24	Nos
20	Operation & Maintenance for 1st Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete			421	
	Basic rate			16.84	
	O&M 1st year escalation of 4%			43.78	
	Add 10% For area weightage				
		Rate		481.62	Nos.
21	Operation & Maintenance for 1st Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.			98	
	Basic rate			3.92	
	O&M 1st year escalation of 4%			10.19	
	Add 10% For area weightage				
		Rate		112.11	Nos.
22	Operation & Maintenance for 1st Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8 (Page No 182,SI No : 24.1)				

	Basic Rate		80	
	O&M 1st year escalation of 4%		3.2	
	Add 10% For area weightage (Mangalore City)		8.32	
		Rate	91.52	Sqm
23	Operation & Maintenance for 1st Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)			
	Rate Arrived as per Rate analysis			
	Basic Rate		917	
	O&M 1st year escalation of 4%		36.68	
		Rate	953.68	Nos.
24	Operation & Maintenance for 1st Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.15		3500.00	
	O&M 1st year escalation of 4%		140	
		Rate	3640.00	Nos.
25	Operation & Maintenance for 1st Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)			
	Basic Rate		297	
	O&M 1st year escalation of 4%		11.88	
	Add 12% on Labor Charges=Rs.47,For area weightage (Mangalore City)		5.64	
		Rate	314.52	Rm
26	Operation & Maintenance for 1st Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia, of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10. (PWD SR 2015-16,P.No.86, SI.No.12.89)			
	Basic Rate		830	
	O&M 1st year escalation of 4%		33.2	
	Add 10% For area weightage (Mangalore City)		86.32	
		Rate	949.52	Nos.
27	Operation & Maintenance for 1st Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)			
	Basic Rate		5022	
	O&M 1st year escalation of 4%		200.88	
	Add 10% For area weightage (Mangalore City)		522.29	
		Rate	5745.17	Rm

28	Operation & Maintenance for 1st Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)			
	Basic Rate		2500	
	Labour Cost for laying and Jointing-KUWSDB, HDPE Pipes, Item No.50, Pg.No.123)		78	
	Add 12% For area weightage (Mangalore City)		9.36	
	Sub Total		2587.36	
	O&M 1st year escalation of 4%		103.49	
		Rate	2690.85	Rm
29	Operation & Maintenance for 1st Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering, Jointing into trenches, Complete. (Market Rate)			
	Basic Rate		1775	
	Escalation @ 8% on Basic rate		142	
		Rate	1917.00	Nos.
30	Operation & Maintenance for 1st Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)			
	Basic Rate		1350	
	Labour Cost for laying and Jointing-KUWSDB, HDPE Pipes, Item No.50, Pg.No.123)		66	
	Add 12% For area weightage (Mangalore City)		7.92	
	Sub Total		1423.92	
	O&M 1st year escalation of 4%		56.96	
		Rate	1480.88	Rm
31	Operation & Maintenance for 1st Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)			
	Basic Rate		1475	
	O&M 1st year escalation of 4%		59	
		Rate	1534.00	Nos.
32	Operation & Maintenance for 1st Year: Providing and Fixing Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1003	
	O&M 1st year escalation of 4%		40.12	
	GST @18%		180.54	
		Rate	1223.66	Nos.
33	Operation & Maintenance for 1st Year: Providing and Fixing Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1947	
	O&M 1st year escalation of 4%		77.88	
	GST @18%		350.46	
		Rate	2375.34	Nos.

34	Operation & Maintenance for 1st Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent Indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)			
	Basic Rate		685	
	Labour Cost for laying and Jointing-KUWSDB, HDPE Pipes, Item No.50, Pg.No.123)		36	
	Add 12% For area weightage (Mangalore City)		4.32	
	Sub Total		725.32	
	O&M 1st year escalation of 4%		29.01	
		Rate	754.33	Rm
35	Operation & Maintenance for 1st Year: Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)			
	Basic Rate		175	
	O&M 1st year escalation of 4%		7	
		Rate	182.00	Nos.
36	Operation & Maintenance for 1st Year: Providing and laying heavy duty cobble stones 60mm thick, using cement and coarse sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.			
	Basic rate		1056.00	
	O&M 1st year escalation of 4%		42.24	
	Add 10% For area weightage (Mangalore City)		109.82	
		Rate	1208.06	Sqm
37	Operation & Maintenance for 1st Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and coarse sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore, Refer Sr.No.12		912.00	
	O&M 1st year escalation of 4%		36.48	
		Rate	948.48	Sqm
38	Operation & Maintenance for 1st Year: Providing and laying heavy duty cobble stones 75mm thick, using cement and coarse sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Page No 101, SI No : 14.7)			
	Basic rate		1114	
	O&M 1st year escalation of 4%		44.56	
	Add 10% For area weightage (Mangalore City)		115.86	
		Rate	1274.42	Sqm

39	Operation & Maintenance for 1st Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface:Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803		
	Basic Rate		429
	O&M 1st year escalation of 4%		17.16
	Add 10% For area weightage (Mangalore City)		44.62
		Rate	490.78 Sqm
40	Operation & Maintenance for 1st Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.		
	Baisc rate		61200
	O&M 1st year escalation of 4%		2448
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.1	Rate	63648 Nos.
41	Operation & Maintenance for 1st Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.13		4500.00
	O&M 1st year escalation of 4%		180
		Rate	4680 Nos.
42	Operation & Maintenance for 1st Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.26		100000.00
	O&M 1st year escalation of 4%		4000
		Rate	104000 MT
43	Operation & Maintenance for 1st Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.		
	Basic Rate		186.16
	O&M 1st year escalation of 4%		7.45
		Rate	193.61 Nos.
44	Operation & Maintenance for 1st Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Earth		
	Earth	2.0x1.28x10km	
	Baisc rate		25.60
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00
	Sub Total-1		82.60
	Add 10% For area weightage (Mangalore City)		8.26
	Sub Total-2		90.86
	O&M 1st year escalation of 4%		3.63
		Rate	94.49 Cum
45	Operation & Maintenance for 1st Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Debris		

	Debris	2.0x1.30x10Km		
	Baisc rate		32.50	
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00	
	Sub Total-1		89.50	
	Add 10% For area weightage (Mangalore City)		8.95	
	Sub Total-2		98.45	
	O&M 1st year escalation of 4%		3.94	
		Rate	102.39	Cum
	Lighting Poles			
46	Operation & Maintenance for 1st Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.22		1,000	
	O&M 1st year escalation of 4%		40	
		Rate	1040	Nos.
47	Operation & Maintenance for 1st Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)			
	Basic rate		17118	
	O&M 1st year escalation of 4%		684.72	
		Rate	17,802.72	Nos.
48	Operation & Maintenance for 1st Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)			
	Basic rate		12420	
	O&M 1st year escalation of 4%		496.8	
		Rate	12,916.80	Nos.
49	Operation & Maintenance for 1st Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)			
	Basic rate		7398	
	O&M 1st year escalation of 4%		295.92	
		Rate	7,693.92	Nos.
50	Operation & Maintenance for 1st Year: Supplying and fixing of hot dip Galvinized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)			
	Basic rate		3540	

	O&M 1st year escalation of 4%		141.6	
		Rate	3,681.60	Nos.
51	Operation & Maintenance for 1st Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)			
	Basic rate		2400	
	O&M 1st year escalation of 4%		96	
		Rate	2,496	Nos.
52	Operation & Maintenance for 1st Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)			
	Basic rate		700	
	O&M 1st year escalation of 4%		28	
		Rate	728	Nos.
	LT Cable			
53	Operation & Maintenance for 1st Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)			
	Basic rate		117	
	O&M 1st year escalation of 4%		4.68	
		Rate	121.68	Rm
54	Operation & Maintenance for 1st Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)			
	Basic rate		81.6	
	O&M 1st year escalation of 4%		3.26	
		Rate	84.86	Rm
55	Operation & Maintenance for 1st Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)			
	Basic rate		11.31	
	O&M 1st year escalation of 4%		0.45	
		Rate	11.76	Nos.
56	Operation & Maintenance for 1st Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)			
	Basic rate		3.21	
	O&M 1st year escalation of 4%		0.13	
		Rate	3.34	Nos.
57	Operation & Maintenance for 1st Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipmentson the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)			
	Basic rate		5500	
	O&M 1st year escalation of 4%		220	
		Rate	5720	Kit

58	Operation & Maintenance for 1st Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)			
	Basic rate		19.5	
	O&M 1st year escalation of 4%		0.78	
		Rate	20.28	Rmt
59	Operation & Maintenance for 1st Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.27		140.00	
	O&M 1st year escalation of 4%		5.6	
		Rate	145.60	Cum
60	Operation & Maintenance for 1st Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page No.152,SI.No.19.90)			
	Basic rate		204	
	O&M 1st year escalation of 4%		8.16	
	Add 10% For area weightage		21.22	
		Rate	233.38	Cum
61	Operation & Maintenance for 1st Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KPWD SR 16-17,Page No.150,SI No.19.77)			
	Basic rate		103	
	O&M 1st year escalation of 4%		4.12	
	Add 10% For area wightage		10.71	
		Rate	117.83	Cum
62	Operation & Maintenance for 1st Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.28		23.91	
	O&M 1st year escalation of 4%		0.96	
		Rate	24.87	Cum
63	Operation & Maintenance for 1st Year: Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc complete including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.			
	Basic rate		103	
	O&M 1st year escalation of 4%		4.12	
	Add 10% For area wightage		10.71	
		Rate	117.83	Sqm

64	Operation & Maintenance for 1st Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)			146.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.29				
	O&M 1st year escalation of 4%			5.84	
			Rate	151.84	Cum
SHRUBS: Supply and Stacking of Shrubs					
65	Operation & Maintenance for 1st Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)			840.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.30				
	O&M 1st year escalation of 4%			33.6	
			Rate	873.60	Nos.
66	Operation & Maintenance for 1st Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)			840.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.31				
	O&M 1st year escalation of 4%			33.6	
			Rate	873.60	Nos.
67	Operation & Maintenance for 1st Year: Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)			84.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.39				
	O&M 1st year escalation of 4%			3.36	
			Rate	87.36	Nos.
68	Operation & Maintenance for 1st Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)			140.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40				
	O&M 1st year escalation of 4%			5.6	
			Rate	145.60	Nos.
69	Operation & Maintenance for 1st Year: Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.			840.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40				
	O&M 1st year escalation of 4%			33.6	
			Rate	873.60	Nos.
70	Operation & Maintenance for 1st Year: Nerium oleander, c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.			840.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40				
	O&M 1st year escalation of 4%			33.6	
			Rate	873.60	Nos.

	TURF			
71	Operation & Maintenance for 1st Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.32		156.80	
	O&M 1st year escalation of 4%		6.27	
		Rate	163.07	Sqm
	IRRIGATION			
72	Operation & Maintenance for 1st Year: Watering with tanker to landscape area and plants for one year			
	Water Tanker =52 Rs/ Hour,One Year Cost=92 days x 3 hrs/day x 61rs/hr (365days-90 days of mansoon=275 days/3 days=92 days,consider watering at every 3 days)		14352	
	Mazdoor = 0.5 days x 446.2		20525.2	
	Add 10% For area wightage		2052.52	
	O&M 1st year escalation of 4%		1395.09	
		Rate	38324.81	Sqm
73	Operation & Maintenance for 1st Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.34		560.00	
	O&M 1st year escalation of 4%		22.4	
		Rate	582.40	Sqm

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City
3.11 Maintenance BOQ of Road and Other Work for Loop Road-2nd Year

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
Civil Works					
1.00	Operation & Maintenance for 2nd Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)	Sqm	15.00	73.61	1104
2.00	Operation & Maintenance for 2nd Year: KSRRB M200. Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (Page No 138,SI No : 18.47)	Cum	3.68	1068.01	3,930
3.00	Operation & Maintenance for 2nd Year: KSRRB M200- Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202.	Rmt	10.00	14.26	143
4.00	Operation & Maintenance for 2nd Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18.20,Page	Cum	0.15	463.32	69
5.00	Operation & Maintenance for 2nd Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantaling Brick/Tile work B.In Cement mortar (Page No 137,SI No : 18.22)	Cum	2.88	416.99	1201
6.00	Operation & Maintenance for 2nd Year: KSRRB M300-14. Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 bucket capacity including cutting and loading in tippers,trimming bottom and side slopes,in accordance with requirements of lines and grades and cross sections,and transporting disposal location up to a lead of 1.00Km and complete as per specifications. MORTH specification No.301(Including transporting charges, loading and unloading for lead 5km) (Page No 143,SI No : 19.14)	Cum	25.00	48.71	1,218
7.00	Operation & Maintenance for 2nd Year: KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 18-19,SI No.2.11,Pg. No.6)	Cum	25.00	142.56	3,564
8.00	Operation & Maintenance for 2nd Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occuring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 18-19,SI No.19.64,Pg. No.149)	Sqm	50.00	7.13	357

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
9.00	Operation & Maintenance for 2nd Year: KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills , including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 18-19,SI.No.4.7,Page No.13)	Cum	5.00	6854.76	34,274
10.00	Operation & Maintenance for 2nd Year: KSRRB M400-6.2. Construction of granular sub base by providing close graded crushed stone aggregate of granite/trap/basalt material,spreading in uniform layers with motor on prepared surface,mixing by mix in place method by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density,complete as per specification. B.By Mix in Place Methode. Close graded granular sub base material as per 400-1 For Grading II material (Page No.156 SI No. 22.5)	Cum	7.50	2573.21	19,299
11.00	Operation & Maintenance for 2nd Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters confirming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications. (Page No.149 SI No. 14)	Cum	45.00	7363.22	331,345
12.00	Operation & Maintenance for 2nd Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2	Sqm	36.00	312.44	11,248
13.00	Operation & Maintenance for 2nd Year: KSRB 4.9.2 : Providing T.M.T steel reinforcement for RCC work including straightening,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to the adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500	MT	0.50	84089.02	42,045
14.00	Operation & Maintenance for 2nd Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305	Cum	12.50	637.25	7,966
15.00	Operation & Maintenance for 2nd Year: KSRRB M600-1.Construction of dry lean cement concrete mix M15 with 1:5:10 OPC cement @160Kgs,with 25mm and down size graded granite/trap/basalt metal coarse aggregate at 0.86cum and fine aggregate @ 0.58cum Sub-base over prepared sub grade with (coarse and fine aggregate confirming to IS:383) aggregate cement ration not to exceed 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content to be determined during trail length construction, concrete strength not to be less than 10Mpa at 7 days,mixed in a batching plant,transported to site,laid with a paver with electronic sensor,compacting with 8-10 tonnes vibratory roller,finishing and curing complete as per specifications.Morth specification No.601 (Page No.176 SI No. 22.4)	Cum	5.00	4809.02	24,045

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
16.00	<p>Operation & Maintenance for 2nd Year: KSSRRB M600-2. Construction of unreinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplasticizer at 3 lts confirming to IS9103-1999 reaffirmed 2008 (Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, including groove cutting charges, joints filler, separation membrane, sealant primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing complete as per specifications MORTH specification No.602.do with M40 (420Kg per cum Cement, C.A, 0.67 cum F.A. 0.44 Cum (Page No 176, SI No : 22.2.2)</p>	Cum	11.50	6848.82	78,761
17.00	<p>Operation & Maintenance for 2nd Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)</p>	Rmt	300.00	124.20	37,260
18.00	<p>Operation & Maintenance for 2nd Year: KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications. Morth specification No.3005.1 (Page No 257, SI No : 35.8)</p>	Rmt	300.00	393.23	117,969
19.00	<p>Operation & Maintenance for 2nd Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)</p>	Nos.	6.00	1950.48	11,703
20.00	<p>Operation & Maintenance for 2nd Year: Providing and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively, 400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials, labour, hire charges of machinery, loading, unloading, lead and lift, transportation etc., complete (Page No 25, SI No : 5.3)</p>	Nos.	50.00	500.15	25,008
21.00	<p>Operation & Maintenance for 2nd Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.</p>	m	50.00	116.42	5,821
22.00	<p>Operation & Maintenance for 2nd Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8 (Page No 182, SI No : 24.1)</p>	Sqm	1190.00	95.04	113,098
23.00	<p>Operation & Maintenance for 2nd Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)</p>	Nos.	10.00	990.36	9,904

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
24.00	Operation & Maintenance for 2nd Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)	Nos.	10.00	3780.00	37,800
25.00	Operation & Maintenance for 2nd Year: Providing gully pipe lowering, laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line. The rate shall include all jointing materials, testing apparatus and water for testing etc as directed by the Engineer in charge (page No.41, Item No.7, KUWSDB SOR 2016-17)	Rmt	5.00	326.40	1,632
26.00	Operation & Maintenance for 2nd Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia , of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10.	Nos.	5.00	986.04	4,930
27.00	Operation & Maintenance for 2nd Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia , across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17, Item No.24.34, Pg.No.188)	Rmt	5.00	5966.14	29,831
28.00	Operation & Maintenance for 2nd Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	10.00	2794.35	27,944
29.00	Operation & Maintenance for 2nd Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering, Jointing into trenches, Complete. (Market Rate)	Nos.	2.00	1917.00	3,834
30.00	Operation & Maintenance for 2nd Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	39.00	1537.83	59,975
31.00	Operation & Maintenance for 2nd Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)	Nos.	4.00	1593.00	6,372
32.00	Operation & Maintenance for 2nd Year: Providing and Fixing Spacers for Power Ducts of size 225 mm , to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7.00	1263.78	8,846

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
33.00	Operation & Maintenance for 2nd Year: Providing and Fixing Spacers for Power Ducts of size 160 mm , to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7.00	2453.22	17,173
34.00	Operation & Maintenance for 2nd Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)	Rmt	10.00	783.35	7,834
35.00	Operation & Maintenance for 2nd Year: Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)	Nos.	1.00	189.00	189
36.00	Operation & Maintenance for 2nd Year: Providing and laying heavy duty cobble stones 60mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.	Sqm	37.92	1254.53	47,572
37.00	Operation & Maintenance for 2nd Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	2.25	984.96	2,216
38.00	Operation & Maintenance for 2nd Year: Providing and laying heavy duty cobble stones 75mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.	Sqm	4.21	1323.43	5,572
39.00	Operation & Maintenance for 2nd Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface: Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streak and holes complete as per specifications. MORTH specification No.803	Sqm	305.91	509.65	1,55,907
40.00	Operation & Maintenance for 1st Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.	Nos	2.00	66096.00	1,32,192
41.00	Operation & Maintenance for 2nd Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	5.00	4860.00	24,300
42.00	Operation & Maintenance for 2nd Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved), with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)	MT	0.30	108000.00	32,400

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
43.00	Operation & Maintenance for 2nd Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Cum	198.00	201.05	39,808
44.00	Operation & Maintenance for 2nd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Earth	Cum	58.53	98.13	5,744
45.00	Operation & Maintenance for 2nd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Debris	Cum	9.38	98.60	,925
	Electrical Works				
46.00	Operation & Maintenance for 2nd Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)	Nos.	1.00	1080.00	1,080
47.00	Operation & Maintenance for 2nd Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)	Nos.	1.00	18487.44	18,487
48.00	Operation & Maintenance for 2nd Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)	Nos.	1.00	13413.60	13,414
49.00	Operation & Maintenance for 2nd Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)	Nos.	1.00	7989.84	7,990
50.00	Operation & Maintenance for 2nd Year: Supplying and fixing of hot dip Galvinized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)	Nos.	1.00	3823.20	3,823

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
51.00	Operation & Maintenance for 2nd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)	Nos.	1.00	2592.00	2,592
52.00	Operation & Maintenance for 2nd Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)	Nos.	118.00	756.00	89,208
	LT Cable				
53.00	Operation & Maintenance for 2nd Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5.7.5.4)	m	12.00	126.36	1,516
54.00	Operation & Maintenance for 2nd Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)	m	10.00	88.13	881
55.00	Operation & Maintenance for 2nd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21.7.21.6)	Nos	5.00	12.21	61
56.00	Operation & Maintenance for 2nd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)	Nos	4.00	3.47	14
	Earthing system				
57.00	Operation & Maintenance for 2nd Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipments on the mter board by using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)	Kit	1.00	5940.00	5,940
58.00	Operation & Maintenance for 2nd Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)	Rmt	12.00	21.06	253
	Landcaping Works				
	SOIL MIXES and Ground Preparation				
59.00	Operation & Maintenance for 2nd Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	150.00	151.20	22680
60.00	Operation & Maintenance for 2nd Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page No.152,SI.No.19.90)	Cum	45.00	242.35	10906

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
61.00	Operation & Maintenance for 2nd Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307	Cum	0.40	122.36	49
62.00	Operation & Maintenance for 2nd Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)	Cum	0.40	25.82	10
	Soil preparation of Lawn				
63.00	Operation & Maintenance for 2nd Year: Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc complete including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Sqm	12.00	122.36	1,468
	Bed Preparation for , Ground covers, Climbers/ creepers, Shrubs				
64.00	Operation & Maintenance for 2nd Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	240.00	157.68	37843
	SHRUBS: Supply and Stacking of Shrubs				
65.00	Operation & Maintenance for 2nd Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.	23.00	907.20	20,866
66.00	Operation & Maintenance for 2nd Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.	50.00	907.20	45,360
67.00	Operation & Maintenance for 2nd Year: Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	800.00	90.72	72,576
68.00	Operation & Maintenance for 2nd Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	9.00	151.20	1361
69.00	Operation & Maintenance for 2nd Year: Ficus blackenia, c/c: 600m, must be bushy and multibranch(ed)atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	8.00	907.20	7,258
70.00	Operation & Maintenance for 2nd Year: <i>Nerium oleander</i> , c/c: 600m, must be bushy and multibranch(ed)atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	9.00	907.20	8,165
	TURF				
71.00	Operation & Maintenance for 2nd Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)	Sqm	41.00	169.34	6,943
	IRRIGATION				
72.00	Operation & Maintenance for 2nd Year: Watering with tanker to landscape area and plants for one year	Year	1.00	39720.98	39,721

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
73.00	Operation & Maintenance for 2nd Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	6.00	604.80	3,629
			Total	19,58,422	

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City
3.11.1 Maintenance BOQ of Road and Other Work for Loop Road-2nd Year

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
Civil Works							
1.00	Operation & Maintenance for 2nd Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)	Sqm	1	10	1.5		15.00
2.00	Operation & Maintenance for 2nd Year: KSRRB M200. Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (Page No 138,SI No : 18.47)	Cum	1	3.5	3.5	0.3	3.68
3.00	Operation & Maintenance for 2nd Year: KSRRB M200- Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202.	Rmt	1	10			10.00
4.00	Operation & Maintenance for 2nd Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18.20,Page No.137)	Cum	1	1	0.3	0.5	0.15
5.00	Operation & Maintenance for 2nd Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar (Page No 137,SI No : 18.23)	Cum	1	25	0.5	0.23	2.88
6.00	Operation & Maintenance for 2nd Year: KSRRB M300-14. Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 bucket capacity including cutting and loading in tippers,trimming bottom and side slopes,in accordance with requirements of lines and grades and cross sections,and transporting disposal location up to a lead of 1.00Km and complete as per specifications. MORTH specification No.301(Including transporting charges, loading and unloading for lead 5km)	Cum	1.00	10	5	0.5	25.00
7.00	Operation & Maintenance for 2nd Year: KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 16-17,SI No.2.11,Pg. No.6)	Cum	1.00	10	5	0.5	25.00
8.00	Operation & Maintenance for 2nd Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occurring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 16-17,SI No.19.64,Pg. No.149)	Sqm	1.00	10		5	50.00
9.00	Operation & Maintenance for 2nd Year: KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills , including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 18-19,SI.No.4.7,Page No.13)	Cum	1.00	10	5	0.1	5.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
10.00	<p>Operation & Maintenance for 2nd Year: KSRRB M400-6.2.Construction of granular sub base by providing close graded crushed stone aggregate of granite/trap/basalt material,spreading in uniform layers with motor on prepared surface,mixing by mix in place method by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density,complete as per specification. B.By Mix in Place Methode. Close graded granular sub base material as per 400-1 For Grading II material (Page No 155,SI No : 20.5.2)</p>	Cum	1.00	10	5	0.15	7.50
11.00	<p>Operation & Maintenance for 2nd Year: KSRRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications. (Page No 13,SI No : 4.10)</p>	Cum	1.00	10	5	0.9	45.00
12.00	<p>Operation & Maintenance for 2nd Year: KSRRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2 (Page No 15,SI No : 4.28)</p>	Sqm	2.00	20		0.9	36.00
13.00	<p>Operation & Maintenance for 2nd Year: KSRRB 4.9.2 :Providing T.M.T steel reinforcement for RCC work including straightening,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KSB4.6.3. do with TMT bars Fe500</p>	MT	1.00	0.50			0.50
14.00	<p>Operation & Maintenance for 2nd Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305</p>	Cum	1.00	10	5	0.25	12.50
15.00	<p>Operation & Maintenance for 2nd Year: KSRRB M600-1.Construction of dry lean cement concrete mix M15 with 1:5:10 OPC cement @160Kgs,with 25mm and down size graded granite/trap/basalt metal coarse aggregate at 0.86cum and fine aggregate @ 0.58cum Sub-base over prepared sub grade with (coarse and fine aggregate conforming to IS:383) aggregate cement ration not to excee 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content to be determined during trail length construction, concrete strength not to be less than 10Mpa at 7 days,mixed in a batching plant,transported to site,laid with a paver with electronic sensor,compacting with 8-10 tonnes vibratory roller,finishing and curing complete as per specifications.Morth specification No.601 (Page No 176,SI No : 22.1)</p>	Cum	1.00	10	5	0.1	5.00
16.00	<p>Operation & Maintenance for 2nd Year: KSRRB M600-2.Construction of unreinforced,dowel jointed,plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplasticizer at 3 lts conforming to IS9103-1999 reaffirmed 2008(Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design,transported to site,laid with a fixed form or slip form paver spread,compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints,including groove cutting chrges, joints filler,separation memberane, sealent primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing complete as per sprcifications MORTH specification No.602.do with M40 (420Kg per cum Cement,C.A,0.67 cum F.A.044Cum (Page No 176,SI No : 22.2.2)</p>	Cum	1.00	10	5	0.23	11.50

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
17.00	Operation & Maintenance for 2nd Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)	Rmt	1.00	300			300.00
18.00	Operation & Maintenance for 2nd Year: KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1 (Page No 257,SI No : 35.8)	Rmt	1.00	300			300.00
19.00	Operation & Maintenance for 2nd Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)	Nos.	6				6.00
20.00	Operation & Maintenance for 2nd Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete (Page No 25,SI No : 5.3)	Nos.	50				50.00
21.00	Operation & Maintenance for 2nd Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	m	50				50.00
22.00	Operation & Maintenance for 2nd Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8 (Page No 182,SI No : 24.1)	Sqm	1	10	119		1190.00
23.00	Operation & Maintenance for 2nd Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)	Nos.	10.00				10.00
24.00	Operation & Maintenance for 2nd Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)	Nos.	10.00				10.00
25.00	Operation & Maintenance for 2nd Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)	Rmt	1.00	5.00			5.00
26.00	Operation & Maintenance for 2nd Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia, of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10. (PWD SR 2015-16,P.No.86, SI.No.12.89)	Nos.	5.00				5.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
27.00	Operation & Maintenance for 2nd Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)	Rmt	1	5.00			5.00
28.00	Operation & Maintenance for 2nd Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	1	10			10.00
29.00	Operation & Maintenance for 2nd Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering,Jointing into trenches,Complete. (Market Rate)	Nos.	2				2.00
30.00	Operation & Maintenance for 2nd Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	1	39			39.00
31.00	Operation & Maintenance for 2nd Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)	Nos.	4				4.00
32.00	Operation & Maintenance for 2nd Year: Providing and Fixing Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7				7.00
33.00	Operation & Maintenance for 2nd Year: Providing and Fixing Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7				7.00
34.00	Operation & Maintenance for 2nd Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent indian standard and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe etc.Complete. (Market Rate)	Rmt	1	10			10.00
35.00	Operation & Maintenance for 2nd Year: Supplying Coupler for 7-way 40mmHDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe.Complete. (Market Rate)	Nos.	1				1.00
36.00	Operation & Maintenance for 2nd Year: Providing and laying heavy duty cobble stones 60mm thick , using cement and coarse sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Page No 101,SI No : 14.6)	Sqm	1	10	3.792		37.92

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
37.00	Operation & Maintenance for 2nd Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	1.00	10	0.225		2.25
38.00	Operation & Maintenance for 2nd Year: Providing and laying heavy duty cobble stones 75mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Page No 101,SI No : 14.7)	Sqm	1.00	10	0.421		4.21
39.00	Operation & Maintenance for 2nd Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface: Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803 (Page No 192,SI No : 24.57)	Sqm	1.00	2039.433	0.15		305.91
40.00	Operation & Maintenance for 2nd Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.	Nos	2.00				2.00
41.00	Operation & Maintenance for 2nd Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	5.00				5.00
42.00	Operation & Maintenance for 2nd Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)	MT	1.00	0.3			0.30
43.00	Operation & Maintenance for 2nd Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Cum	2.00	1650	0.6	0.1	198.00
44.00	Operation & Maintenance for 2nd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Earth	Cum	1.00	58.53			58.53
45.00	Operation & Maintenance for 2nd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Debris	Cum	1.00	9.38			9.38
Electrical Works							
46.00	Operation & Maintenance for 2nd Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)	Nos.	1				1.00
47.00	Operation & Maintenance for 2nd Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)	Nos.	1				1.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
48.00	Operation & Maintenance for 2nd Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)	Nos.	1				1.00
49.00	Operation & Maintenance for 2nd Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)	Nos.	1				1.00
50.00	Operation & Maintenance for 2nd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)	Nos.	1				1.00
51.00	Operation & Maintenance for 2nd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)	Nos.	1				1.00
52.00	Operation & Maintenance for 2nd Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)	Nos.	118				118.00
LT Cable							
53.00	Operation & Maintenance for 2nd Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)	m	1	12.00			12.00
54.00	Operation & Maintenance for 2nd Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)	m	1	10.00			10.00
55.00	Operation & Maintenance for 2nd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)	Nos	5				5.00
56.00	Operation & Maintenance for 2nd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)	Nos	4				4.00
Earthing system							
57.00	Operation & Maintenance for 2nd Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipments on the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)	Kit	1				1.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
58.00	Operation & Maintenance for 2nd Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)	Rmt	1	12			12.00
Landcaping Works							
SOIL MIXES and Ground Preparation							
59.00	Operation & Maintenance for 2nd Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	1	500	0.5	0.6	150.00
60.00	Operation & Maintenance for 2nd Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page No.152,SI.No.19.90)	Cum	1	500	0.6	0.15	45.00
61.00	Operation & Maintenance for 2nd Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KPWD SR 16-17,Page No.150,SI No.19.77)	Cum	1	10	0.404	0.1	0.40
62.00	Operation & Maintenance for 2nd Year: Mixing earth and sludge or manure in the required propotion specified or directed by the Officer-in-charge (Non SOR item)	Cum	1	10	0.404	0.1	0.40
Soil preparation of Lawn							
63.00	Operation & Maintenance for 2nd Year: Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc complete including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Sqm	1.00	20	0.6		12.00
Bed Preparation for , Ground covers, Climbers/ creepers, Shrubs							
64.00	Operation & Maintenance for 2nd Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	1	400	0.6		240.00
SHRUBS: Supply and Stacking of Shrubs							
65.00	Operation & Maintenance for 2nd Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.	23.00				23.00
66.00	Operation & Maintenance for 2nd Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.	50.00				50.00
67.00	Operation & Maintenance for 2nd Year: Pandanus variegted'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	800.00				800.00
68.00	Operation & Maintenance for 2nd Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	9.00				9.00
69.00	Operation & Maintenance for 2nd Year: Ficus blackenia, c/c: 600m, must be bushy and multibranch(ed)atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	8.00				8.00
70.00	Operation & Maintenance for 2ndYear: <i>Nerium oleander</i> , c/c: 600m, must be bushy and multibranch(ed)atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	9.00				9.00
TURF							
71.00	Operation & Maintenance for 2nd Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)	Sqm	1	20	2.05		41.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
	IRRIGATION						
72.00	Operation & Maintenance for 2nd Year: Watering with tanker to landscape area and plants for one year	Year	1.00				1.00
73.00	Operation & Maintenance for 2nd Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	1	10	0.6		6.00

Assistant Engineer
MSCL Mangaluru

Executive Engineer
MSCL Mangaluru

General Manager Technical
MSCL Mangaluru

Name of the Work :- Mangalore Smart City

3.11.2 Maintenance 2nd Year - Rate Analysis of Road & Other Work for Loop Road

1	Operation & Maintenance for 2nd Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)				
	Basic rate			68.16	
	O&M 2nd year escalation of 8%			5.45	
			Rate	73.61	Sqm
2	Operation & Maintenance for 2nd Year: KSRRB M200.Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (Page No 138,SI No : 18.47)				
	Basic rate			899	
	O&M 2nd year escalation of 8%			71.92	
	Add 10% For area weightage (Mangalore City)			97.09	
			Rate	1068.01	Cum
3	Operation & Maintenance for 2nd Year: KSRRB M200-Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202. (Page No.139,S.I.No.18.49)				
	Basic rate			12.00	
	O&M 2nd year escalation of 8%			0.96	
	Add 10% For area weightage (Mangalore City)			1.3	
			Rate	14.26	Rmt
4	Operation & Maintenance for 2nd Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18.20,Page No.137)				
	Basic rate			390	
	O&M 2nd year escalation of 8%			31.2	
	Add 10% For area weightage (Mangalore City)			42.12	
			Rate	463.32	Cum
5	Operation & Maintenance for 2nd Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar (Page No 137,SI No : 18.23)				
	Basic rate			351	
	O&M 2nd year escalation of 8%			28.08	
	Add 10% For area weightage			37.91	
			Rate	416.99	Cum

6	<p>Operation & Maintenance for 2nd Year: KSRRB M300-14. Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 bucket capacity including cutting and loading in tippers,trimming bottom and side slopes,in accordance with requirements of lines and grades and cross sections,and transporting disposal location up to a lead of 1.00Km and complete as per specifications. MORTH specification No.301(Including transporting charges, loading and unloading for lead 5km) (Page No 143,SI No : 19.14)</p>				
	Basic rate			41	
	O&M 2nd year escalation of 8%			3.28	
	Add 10% For area weightage (Mangalore City)			4.43	
			Rate	48.71	Cum
7	<p>Operation & Maintenance for 2nd Year: KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 16-17,SI No.2.11,Pg. No.6)</p>				
	Basic rate			120	
	O&M 2nd year escalation of 8%			9.6	
	Add 10% For area weightage (Mangalore City)			12.96	
			Rate	142.56	Cum
8	<p>Operation & Maintenance for 2nd Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occuring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 16-17,SI No.19.64,Pg. No.149)</p>				
	Basic rate			6	
	O&M 2nd year escalation of 8%			0.48	
	Add 10% For area weightage (Mangalore City)			0.65	
			Rate	7.13	Sqm
9	<p>Operation & Maintenance for 2nd Year: KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills, ncluding cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 16-17,SI.No.4.7,Page No.13)</p>				
	Basic Rate			5770	
	O&M 2nd year escalation of 8%			461.6	
	Add 10% For area weightage (Mangalore City)			623.16	
			Rate	6854.76	Cum
10	<p>Operation & Maintenance for 2nd Year: KSRRB M400-6.2.Construction of granular sub base by providing close graded crushed stone aggregate of granite/trap/basalt material,spreading in uniform layers with motor on prepared surface,mixing by mix in place methode by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density,complete as per specification. B.By Mix in Place Methode. Close graded granular sub base material as per 400-1 For Grading II material (Page No 155,SI No : 20.5.2)</p>				
	Basic Rate			2166	
	O&M 2nd year escalation of 8%			173.28	
	Add 10% For area weightage (Mangalore City)			233.93	
			Rate	2573.21	Cum

11	Operation & Maintenance for 2nd Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications. (Page No 13,SI No : 4.10)			
	Basic Rate		6198	
	O&M 2nd year escalation of 8%		495.84	
	Add 10% For area weightage (Mangalore City)		669.38	
		Rate	7363.22	Cum
12	Operation & Maintenance for 2nd Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2 (Page No 15,SI No : 4.28)			
	Basic Rate		263	
	O&M 2nd year escalation of 8%		21.04	
	Add 10% For area weightage (Mangalore City)		28.4	
		Rate	312.44	Sqm
13	Operation & Maintenance for 2nd Year: KSRB 4.9.2 :Providing T.M.T steel reinforcement for RCC work including straightening,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500			
	Basic Rate		70782	
	O&M 2nd year escalation of 8%		5662.56	
	Add 10% For area weightage (Mangalore City)		7644.46	
		Rate	84089.02	MT
14	Operation & Maintenance for 2nd Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305			
	Basic Rate		489	
	O&M 2nd year escalation of 8%		39.12	
	Add 20km lead (17.4 KSRRB M100-4.1-Cost of haulage excluding loading and unloading MORTH-100/Chapter 1-case 1-Surface Road)=2.0 Rs/ Tkm x 1.28 T x 20km		51.2	
	Sub Total		579.32	
	Add 10% For area weightage (Mangalore City)		57.93	
		Rate	637.25	Cum

15	<p>Operation & Maintenance for 2nd Year: KSSRRB M600-1.Construction of dry lean cement concrete mix M15 with 1:5:10 OPC cement @160Kgs,with 25mm and down size graded granite/trap/basalt metal coarse aggregate at 0.86cum and fine aggregate @ 0.58cum Sub-base over prepared sub grade with (coarse and fine aggregate confirming to IS:383) aggregate cement ration not to excee 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content to be determined during trail length construction, concrete strength not to be less than 10Mpa at 7 days,mixed in a batching plant,transported to site,laid with a paver with electronic sensor,compacting with 8-10 tonnes vibratory roller,finishing and curing complete as per specifications.Morth specification No.601</p>				
	Basic Rate			4048	
	O&M 2nd year escalation of 8%			323.84	
	Add 10% For area weightage (Mangalore City)			437.18	
			Rate	4809.02	Cum
16	<p>Operation & Maintenance for 2nd Year: KSSRRB M600-2.Construction of unreinforced,dowel jointed,plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplastisizer at 3 lts confirming to IS9103-1999 reaffirmed 2008(Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design,transported to site,laid with a fixed form or slip form paver spread,compacted and finished in a continuous operation including provision of contraction, expansio, construction and longitudinal joints,including groove cutting chrges, joints filler,separation memberane, sealent primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing complete as per sprcifications MORTH specification No.602.do with M40 (420Kg per cum Cement,C.A,0.67 cum F.A.044Cum (Page No 176,SI No : 22.2.2)</p>				
	Basic Rate			5765	
	O&M 2nd year escalation of 8%			461.2	
	Add 10% For area weightage (Mangalore City)			622.62	
			Rate	6848.82	Cum
17	<p>Operation & Maintenance for 2nd Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)</p>				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.2			115	
	O&M 2nd year escalation of 8%			9.2	
			Rate	124.2	Rmt
18	<p>Operation & Maintenance for 2nd Year: KSSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1</p>				
	Basic Rate			331	
	O&M 2nd year escalation of 8%			26.48	
	Add 10% For area weightage (Mangalore City)			35.75	
			Rate	393.23	Rmt

19	<p>Operation & Maintenance for 2nd Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)</p>				
Rate Arrived as per Rate analysis					
	Basic Rate		1806		
	O&M 2nd year escalation of 8%		144.48		
		Rate	1950.48	Nos	
20	<p>Operation & Maintenance for 2nd Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete (Page No 25,SI No : 5.3)</p>				
	Basic rate		421		
	O&M 2nd year escalation of 8%		33.68		
	Add 10% For area weightage		45.47		
		Rate	500.15	Nos.	
21	<p>Operation & Maintenance for 2nd Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.</p>				
	Basic rate		98		
	O&M 2nd year escalation of 8%		7.84		
	Add 10% For area weightage		10.58		
		Rate	116.42	Nos.	
22	<p>Operation & Maintenance for 2nd Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8 (Page No 182,SI No : 24.1)</p>				
	Basic Rate		80		
	O&M 2nd year escalation of 8%		6.4		
	Add 10% For area weightage (Mangalore City)		8.64		
		Rate	95.04	Sqm	
23	<p>Operation & Maintenance for 2nd Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)</p>				
Rate Arrived as per Rate analysis					
	Basic Rate		917		
	O&M 2nd year escalation of 8%		73.36		
		Rate	990.36	Nos.	

24	Operation & Maintenance for 2nd Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)		3500.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.15			
	O&M 2nd year escalation of 8%		280	
		Rate	3780.00	Nos.
25	Operation & Maintenance for 2nd Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testing etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)			
	Basic Rate		297	
	O&M 2nd year escalation of 8%		23.76	
	Add 12% on Labor Charges=Rs.47,For area weightage (Mangalore City)		5.64	
		Rate	326.4	Rm
26	Operation & Maintenance for 2nd Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia, of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10. (PWD SR 2015-16,P.No.86, Sl.No.12.89)			
	Basic Rate		830	
	O&M 2nd year escalation of 8%		66.4	
	Add 10% For area weightage (Mangalore City)		89.64	
		Rate	986.04	Nos.
27	Operation & Maintenance for 2nd Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)			
	Basic Rate		5022	
	O&M 2nd year escalation of 8%		401.76	
	Add 10% For area weightage (Mangalore City)		542.38	
		Rate	5966.14	Rm
28	Operation & Maintenance for 2nd Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)			
	Basic Rate		2500	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)		78	
	Add 12% For area weightage (Mangalore City)		9.36	

	Sub Total		2587.36	
	O&M 2nd year escalation of 8%		206.99	
		Rate	2794.35	Rm
29	Operation & Maintenance for 2nd Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering,Jointing into trenches,Complete. (Market Rate)			
	Basic Rate		1775	
	O&M 2nd year escalation of 8%		142	
		Rate	1917.00	Nos.
30	Operation & Maintenance for 2nd Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil presuure and other physical properties comforming to ASTMF 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years.(Market Rate)			
	Basic Rate		1350	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)		66	
	Add 12% For area weightage (Mangalore City)		7.92	
	Sub Total		1423.92	
	O&M 2nd year escalation of 8%		113.91	
		Rate	1537.83	Rm
31	Operation & Maintenance for 2nd Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)			
	Basic Rate		1475	
	O&M 2nd year escalation of 8%		118	
		Rate	1593.00	Nos.
32	Operation & Maintenance for 2nd Year: Providing and Fixixng Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1003	
	O&M 2nd year escalation of 8%		80.24	
	GST @18%		180.54	
		Rate	1263.78	Nos.
33	Operation & Maintenance for 2nd Year: Providing and Fixixng Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1947	
	O&M 2nd year escalation of 8%		155.76	
	GST @18%		350.46	
		Rate	2453.22	Nos.

34	Operation & Maintenance for 2nd Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)			
	Basic Rate		685	
	Labour Cost for laying and Jointing-KUWSDB, HDPE Pipes, Item No.50, Pg.No.123)		36	
	Add 12% For area weightage (Mangalore City)		4.32	
	Sub Total		725.32	
	O&M 2nd year escalation of 8%		58.03	
		Rate	783.35	Rm
35	Operation & Maintenance for 2nd Year: Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)			
	Basic Rate		175	
	O&M 2nd year escalation of 8%		14	
		Rate	189.00	Nos.
36	Operation & Maintenance for 2nd Year: Providing and laying heavy duty cobble stones 60mm thick, using cement and coarse sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Page No 101, SI No : 14.6)			
	Basic rate		1056.00	
	O&M 2nd year escalation of 8%		84.48	
	Add 10% For area weightage (Mangalore City)		114.05	
		Rate	1254.53	Sqm
37	Operation & Maintenance for 2nd Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and coarse sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore, Refer Sr.No.12		912.00	
	O&M 2nd year escalation of 8%		72.96	
		Rate	984.96	Sqm

38	Operation & Maintenance for 2nd Year: Providing and laying heavy duty cobble stones 75mm thick, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Page No 101,SI No : 14.7)			
	Basic rate		1114	
	O&M 2nd year escalation of 8%		89.12	
	Add 10% For area weightage (Mangalore City)		120.31	
		Rate	1323.43	Sqm
39	Operation & Maintenance for 2nd Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface:Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803 (Page No 192,SI No : 24.57)			
	Basic Rate		429	
	O&M 2nd year escalation of 8%		34.32	
	Add 10% For area weightage (Mangalore City)		46.33	
		Rate	509.65	Sqm
40	Operation & Maintenance for 2nd Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.			
	Baisc rate		61200	
	O&M 2nd year escalation of 8%		4896	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.1	Rate	66096	Nos.
41	Operation & Maintenance for 2nd Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.13		4500.00	
	O&M 2nd year escalation of 8%		360	
		Rate	4860	Nos.
42	Operation & Maintenance for 2nd Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.26		100000.00	
	O&M 2nd year escalation of 8%		8000	
		Rate	108000	MT

43	Operation & Maintenance for 2nd Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.		
	Basic Rate		186.16
	O&M 2nd year escalation of 8%		14.89
		Rate	201.05
			Nos.
44	Operation & Maintenance for 2nd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Earth		
	Earth	2.0x1.28x10km	
	Basic rate		25.60
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00
	Sub Total-1		82.60
	Add 10% For area weightage (Mangalore City)		8.26
	Sub Total-2		90.86
	O&M 2nd year escalation of 8%		7.27
		Rate	98.13
			Cum
45	Operation & Maintenance for 2nd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Debris		
	Debris	2.0x1.30x10Km	
	Basic rate		26.00
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00
	Sub Total-1		83.00
	Add 10% For area weightage (Mangalore City)		8.3
	Sub Total-2		91.30
	O&M 2nd year escalation of 8%		7.3
		Rate	98.60
			Cum
	Lighting Poles		
46	Operation & Maintenance for 2nd Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.22		1,000
	O&M 2nd year escalation of 8%		80
		Rate	1080
			Nos.
47	Operation & Maintenance for 2nd Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)		
	Basic rate		17118
	O&M 2nd year escalation of 8%		1369.44

		Rate	18,487.44	Nos.
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48	<p>Operation & Maintenance for 2nd Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)</p>			12420	
	Basic rate			993.6	
	Escalation @ 8% on Basic rate				
		Rate	13,413.60	Nos.	
49	<p>Operation & Maintenance for 2nd Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)</p>			7398	
	Basic rate			591.84	
	O&M 2nd year escalation of 8%				
		Rate	7,989.84	Nos.	
50	<p>Operation & Maintenance for 2nd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)</p>			3540	
	Basic rate			283.2	
	O&M 2nd year escalation of 8%				
		Rate	3,823.20	Nos.	
51	<p>Operation & Maintenance for 2nd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)</p>			2400	
	Basic rate			192	
	Escalation @ 8% on Basic rate				
		Rate	2,592	Nos.	
52	<p>Operation & Maintenance for 2nd Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)</p>			700	
	Basic rate			56	
	O&M 2nd year escalation of 8%				
		Rate	756	Nos.	
	LT Cable				

53	Operation & Maintenance for 2nd Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)			
	Basic rate		117	
	O&M 2nd year escalation of 8%		9.36	
		Rate	126.36	Rm
54	Operation & Maintenance for 2nd Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)			
	Basic rate		81.6	
	O&M 2nd year escalation of 8%		6.53	
		Rate	88.13	Rm
55	Operation & Maintenance for 2nd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)			
	Basic rate		11.31	
	O&M 2nd year escalation of 8%		0.9	
		Rate	12.21	Nos.
56	Operation & Maintenance for 2nd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)			
	Basic rate		3.21	
	O&M 2nd year escalation of 8%		0.26	
		Rate	3.47	Nos.
57	Operation & Maintenance for 2nd Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipmentson the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)			
	Basic rate		5500	
	O&M 2nd year escalation of 8%		440	
		Rate	5940	Kit
58	Operation & Maintenance for 2nd Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)			
	Basic rate		19.5	
	O&M 2nd year escalation of 8%		1.56	
		Rate	21.06	Rmt

59	Operation & Maintenance for 2nd Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.27		140.00
	O&M 2nd year escalation of 8%		11.2
		Rate	151.20 Cum
60	Operation & Maintenance for 2nd Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page No.152,SI.No.19.90)		
	Basic rate		204
	O&M 2nd year escalation of 8%		16.32
	Add 10% For area weightage		22.03
		Rate	242.35 Cum
61	Operation & Maintenance for 2nd Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KPWD SR 16-17,Page No.150,SI No.19.77)		
	Basic rate		103
	O&M 2nd year escalation of 8%		8.24
	Add 10% For area wightage		11.12
		Rate	122.36 Cum
62	Operation & Maintenance for 2nd Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.28		23.91
	O&M 2nd year escalation of 8%		1.91
		Rate	25.82 Cum
63	Operation & Maintenance for 2nd Year: Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc complete including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.		
	Basic rate		103
	O&M 2nd year escalation of 8%		8.24
	Add 10% For area wightage		11.12
		Rate	122.36 Sqm

64	Operation & Maintenance for 2nd Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.29		146.00
	O&M 2nd year escalation of 8%		11.68
		Rate	157.68 Cum
	SHRUBS: Supply and Stacking of Shrubs		
65	Operation & Maintenance for 2nd Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.30		840.00
	O&M 2nd year escalation of 8%		67.2
		Rate	907.20 Nos.
66	Operation & Maintenance for 2nd Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.31		840.00
	O&M 2nd year escalation of 8%		67.2
		Rate	907.20 Nos.
67	Operation & Maintenance for 2nd Year: Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.39		84.00
	O&M 2nd year escalation of 8%		6.72
		Rate	90.72 Nos.
68	Operation & Maintenance for 2nd Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40		140.00
	O&M 2nd year escalation of 8%		11.2
		Rate	151.20 Nos.
69	Operation & Maintenance for 2nd Year: Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40		840.00
	O&M 2nd year escalation of 8%		67.2
		Rate	907.20 Nos.

70	Operation & Maintenance for 2ndYear: Nerium oleander, c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40		840.00	
	O&M 2nd year escalation of 8%		67.2	
		Rate	907.20	Nos.
	TURF			
71	Operation & Maintenance for 2nd Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.32		156.80	
	O&M 2nd year escalation of 8%		12.54	
		Rate	169.34	Sqm
	IRRIGATION			
72	Operation & Maintenance for 2nd Year: Watering with tanker to landscape area and plants for one year			
	Water Tanker =52 Rs/ Hour,One Year Cost=92 days x 3 hrs x 61rs/hr (365days-90 days of mansoon=275 days/3 days=92 days,consider watering at every 3 days)		14352	
	Mazdoor = 0.5 days x 446.20		20526.12	
	Add 10% For area wightage		2052.612	
	O&M 2nd year escalation of 8%		2790.25	
		Rate	39720.98	Year
73	Operation & Maintenance for 2nd Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.34		560.00	
	O&M 2nd year escalation of 8%		44.8	
		Rate	604.80	Sqm

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City
3.12 Maintenance BOQ of Road and Other Work for Loop Road-3rd Year

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
Civil Works					
1.00	Operation & Maintenance for 3rd Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)	Sqm	15.00	76.34	1145
2.00	Operation & Maintenance for 3rd Year: KSRRB M200. Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (Page No 138,SI No : 18.47)	Cum	3.68	1107.57	4,076
3.00	Operation & Maintenance for 3rd Year: KSRRB M200- Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202.	Rmt	10.00	14.78	148
4.00	Operation & Maintenance for 3rd Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18.20,Page No.137)	Cum	0.15	480.48	72
5.00	Operation & Maintenance for 3rd Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantaling Brick/Tile work B.In Cement mortar	Cum	2.88	432.43	1245
6.00	Operation & Maintenance for 3rd Year: KSRRB M300-14. Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 bucket capacity including cutting and loading in tippers,trimming bottom and side slopes,in accordance with requirements of lines and grades and cross sections,and transporting disposal location up to a lead of 1.00Km and complete as per specifications. MORTH specification No.301(Including transporting charges, loading and unloading for lead 5km) (Page No 143,SI No : 19.14)	Cum	25.00	50.51	1,263
7.00	Operation & Maintenance for 3rd Year: KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 18-19,SI No.2.11,Pg. No.6)	Cum	25.00	147.84	3,696
8.00	Operation & Maintenance for 3rd Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occurring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 16-	Sqm	50.00	7.39	370
9.00	Operation & Maintenance for 3rd Year: KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills , ncluding cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 18-19,SI.No.4.7,Page No.13)	Cum	5.00	7108.64	35,543

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
10.00	<p>Operation & Maintenance for 3rd Year: KSRRB M400-6.2. Construction of granular sub base by providing close graded crushed stone aggregate of granite/trap/basalt material, spreading in uniform layers with motor on prepared surface, mixing by mix in place methode by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per specification. B. By Mix in Place Methode. Close graded granular sub base material as per 400-1 For Grading II material</p>	Cum	7.50	2668.51	20,014
11.00	<p>Operation & Maintenance for 3rd Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs, with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed, concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedastals, retaining walls, return walls, walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks, anchor blocks & plinths etc., Including cost of labour, HOM of machinery, curing, complete but excluding cost of reinforcement as per specifications.</p>	Cum	45.00	7635.94	343,617
12.00	<p>Operation & Maintenance for 3rd Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc., and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials, labour complete as per specifications. Specification No. KSB 4.6.2</p>	Sqm	36.00	324.02	11,665
13.00	<p>Operation & Maintenance for 3rd Year: KSRB 4.9.2 : Providing T.M.T steel reinforcement for RCC work including straighting, cutting, bending, hooking, placing in position, lapping and/or welding wherever required, tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps, hooks and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete as per specifications. Specification No. KBS4.6.3. do with TMT bars Fe500</p>	MT	0.50	87203.42	43,602
14.00	<p>Operation & Maintenance for 3rd Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications. (Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305</p>	Cum	12.50	658.77	8,235
15.00	<p>Operation & Maintenance for 3rd Year: KSRRB M600-1. Construction of dry lean cement concrete mix M15 with 1:5:10 OPC cement @160Kgs, with 25mm and down size graded granite/trap/basalt metal coarse aggregate at 0.86cum and fine aggregate @ 0.58cum Sub-base over prepared sub grade with (coarse and fine aggregate conforming to IS:383) aggregate cement ration not to excee 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content to be determined during trail length construction, concrete strength not to be less than 10Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. Morth specification No.601</p>	Cum	5.00	4987.14	24,936
16.00	<p>Operation & Maintenance for 3rd Year: KSSRRB M600-2. Construction of unreinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplasticizer at 3 lts conforming to IS9103-1999 reaffirmed 2008 (Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver spread, compacted and finished in a continuous operation including provision of contraction, expansio, construction and longitudinal joints, including groove cutting chrges, joints filler, separation memberane, sealent primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing complete as per sprcifications MORTH specification No.602. do with M40 (420Kg per cum Cement, C.A, 0.67 cum F.A. 0.44 Cum (Page No 176, SI No : 22.2.2)</p>	Cum	11.50	7102.48	81,679

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
17.00	Operation & Maintenance for 3rd Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)	Rmt	300.00	128.80	38,640
18.00	Operation & Maintenance for 3rd Year: KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1 (Page No 257,SI No : 35.8)	Rmt	300.00	407.79	122,337
19.00	Operation & Maintenance for 3rd Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)	Nos.	6.00	2022.72	12,136
20.00	Operation & Maintenance for 3rd Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete	Nos.	50.00	518.67	25,934
21.00	Operation & Maintenance for 3rd Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Nos.	50.00	120.74	6,037
22.00	Operation & Maintenance for 3rd Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8	Sqm	1190.00	98.56	117,286
23.00	Operation & Maintenance for 3rd Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)	Nos.	10.00	1027.04	10,270
24.00	Operation & Maintenance for 3rd Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)	Nos.	10.00	3920.00	39,200
25.00	Operation & Maintenance for 3rd Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)	Rmt	5.00	337.34	1,687
26.00	Operation & Maintenance for 3rd Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia , of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10.	Nos.	5.00	1022.56	5,113

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
27.00	Operation & Maintenance for 3rd Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)	Rmt	5.00	6187.10	30,936
28.00	Operation & Maintenance for 3rd Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	10.00	2897.84	28,978
29.00	Operation & Maintenance for 3rd Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering, Jointing into trenches, Complete. (Market Rate)	Nos.	2.00	1988.00	3,976
30.00	Operation & Maintenance for 3rd Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	39.00	1594.79	62,197
31.00	Operation & Maintenance for 3rd Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)	Nos.	4.00	1652.00	6,608
32.00	Operation & Maintenance for 3rd Year: Providing and Fixing Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7.00	1263.78	8,846
33.00	Operation & Maintenance for 3rd Year: Providing and Fixing Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7.00	2531.10	17,718
34.00	Operation & Maintenance for 3rd Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent Indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)	Rmt	10.00	812.36	8,124
35.00	Operation & Maintenance for 3rd Year: Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)	Nos.	1.00	196.00	196

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
36.00	Operation & Maintenance for 3rd Year: Providing and laying heavy duty cobble stones 60mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.	Sqm	37.92	1300.99	49,334
37.00	Operation & Maintenance for 3rd Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	2.25	1021.44	2,298
38.00	Operation & Maintenance for 3rd Year: Providing and laying heavy duty cobble stones 75mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.	Sqm	4.21	1372.45	5,778
39.00	Operation & Maintenance for 3rd Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface: Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803	Sqm	305.91	528.53	1,61,683
40.00	Operation & Maintenance for 3rd Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.	Nos	2.00	68544.00	1,37,088
41.00	Operation & Maintenance for 3rd Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	5.00	5040.00	25,200
42.00	Operation & Maintenance for 3rd Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)	MT	0.30	112000.00	33,600
43.00	Operation & Maintenance for 3rd Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Cum	198.00	208.50	41,283
44.00	Operation & Maintenance for 3rd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Earth	Cum	58.53	101.76	5,956
45.00	Operation & Maintenance for 3rd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Debris	Cum	9.38	102.26	,959
	Electrical Works				

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
46.00	Operation & Maintenance for 3rd Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)	Nos.	1.00	1120.00	1,120
47.00	Operation & Maintenance for 3rd Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)	Nos.	1.00	19172.16	19,172
48.00	Operation & Maintenance for 3rd Year: Lighting Pole, 7 m Fabrication, supply and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)	Nos.	1.00	13910.40	13,910
49.00	Operation & Maintenance for 3rd Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)	Nos.	1.00	8285.76	8,286
50.00	Operation & Maintenance for 3rd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)	Nos.	1.00	3964.80	3,965
51.00	Operation & Maintenance for 3rd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)	Nos.	1.00	2688.00	2,688
52.00	Operation & Maintenance for 3rd Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)	Nos.	118.00	784.00	92,512
	LT Cable				
53.00	Operation & Maintenance for 3rd Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)	m	12.00	131.04	1,572

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
54.00	Operation & Maintenance for 3rd Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)	m	10.00	91.39	914
55.00	Operation & Maintenance for 3rd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)	Nos	5.00	12.67	63
56.00	Operation & Maintenance for 3rd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)	Nos	4.00	3.60	14
	Earthing system				
57.00	Operation & Maintenance for 3rd Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipments on the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)	Kit	1.00	6160.00	6,160
58.00	Operation & Maintenance for 3rd Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)	Rmt	12.00	21.84	262
	Landcaping Works				
	SOIL MIXES and Ground Preparation				
59.00	Operation & Maintenance for 3rd Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	150.00	156.80	23520
60.00	Operation & Maintenance for 3rd Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page	Cum	45.00	251.33	11310
61.00	Operation & Maintenance for 3rd Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307	Cum	0.40	126.90	51
62.00	Operation & Maintenance for 3rd Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)	Cum	0.40	26.78	11
	Soil preparation of Lawn				
63.00	Operation & Maintenance for 3rd Year: KSRRB M300-3.Making lawns including ploughing and breaking of clod,removal of rubbish,dressing and supplying doobs grass roots and planting at 15 cm apart,including supplying and spreading of farm yard manure at rate of 0.18cum per 100 sqm complete as per specifications. MORTH Specification No.307 (KSRRB 19.80)	Sqm	12.00	126.90	1,523
	Bed Prepartion for , Ground covers, Climbers/ creepers, Shrubs				

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
64.00	Operation & Maintenance for 3rd Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	240.00	163.52	39245

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
	SHRUBS: Supply and Stacking of Shrubs				
	Operation & Maintenance for 3rd Year:				
65.00	Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.	23.00	940.80	21,638
	Operation & Maintenance for 3rd Year:				
66.00	Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.	50.00	940.80	47,040
	Operation & Maintenance for 3rd Year:				
67.00	Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	800.00	94.08	75,264
	Operation & Maintenance for 3rd Year:				
68.00	Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	9.00	156.80	1411
	Operation & Maintenance for 3rd Year:				
69.00	Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	8.00	940.80	7,526
	Operation & Maintenance for 3rd Year:				
70.00	Nerium oleander, c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	9.00	940.80	8,467
	TURF				
	Operation & Maintenance for 3rd Year:				
71.00	ZOYSIA JAPONICA (MAT) (Non SOR Item)	Sqm	41.00	175.62	7,200
	IRRIGATION				
	Operation & Maintenance for 3rd Year:				
72.00	Watering with tanker to landscape area and plants for one year	Year	1.00	40829.06	40,829
	Operation & Maintenance for 3rd Year:				
73.00	supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	6.00	627.20	3,763
				Total	20,30,140

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City
3.12.1 Maintenance BOQ of Road and Other Work for Loop Road-3rd Year

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
Civil Works							
1.00	Operation & Maintenance for 3rd Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)	Sqm	1	10	1.5		15.00
2.00	Operation & Maintenance for 3rd Year: KSRRB M200. Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (Page No 138,SI No : 18.47)	Cum	1	3.5	3.5	0.3	3.68
3.00	Operation & Maintenance for 3rd Year: KSRRB M200- Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202. (Page No.139,S.I.No.18.49)	Rmt	1	10			10.00
4.00	Operation & Maintenance for 3rd Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18.20,Page No.137)	Cum	1	1	0.3	0.5	0.15
5.00	Operation & Maintenance for 3rd Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar (Page No 137,SI No : 18.23)	Cum	1	25	0.5	0.23	2.88
6.00	Operation & Maintenance for 3rd Year: KSRRB M300-14. Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 bucket capacity including cutting and loading in tippers,trimming bottom and side slopes,in accordance with requirements of lines and grades and cross sections,and transporting disposal location up to a lead of 1.00Km and complete as per specifications. MORTH specification No.301(Including transporting charges, loading and unloading for lead 5km) (Page No 143,SI No : 19.14)	Cum	1.00	10	5	0.5	25.00
7.00	Operation & Maintenance for 3rd Year: KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 18-19,SI No.2.11,Pg. No.6)	Cum	1.00	10	5	0.5	25.00
8.00	Operation & Maintenance for 3rd Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occurring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 16-	Sqm	1.00	10		5	50.00
9.00	Operation & Maintenance for 3rd Year: KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills , including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 18-19,SI.No.4.7,Page No.13)	Cum	1.00	10	5	0.1	5.00
10.00	Operation & Maintenance for 3rd Year: KSRRB M400-6.2. Construction of granular sub base by providing close graded crushed stone aggregate of granite/trap/basalt material,spreading in uniform layers with motor on prepared surface,mixing by mix in place method by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density,complete as per specification. B.By Mix in Place Methode . Close graded granular sub base material as per 400-1 For Grading II material (Page No 155,SI No : 20.5.2)	Cum	1.00	10	5	0.15	7.50

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
11.00	Operation & Maintenance for 3rd Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications.	Cum	1.00	10	5	0.9	45.00
12.00	Operation & Maintenance for 3rd Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2	Sqm	2.00	20		0.9	36.00
13.00	Operation & Maintenance for 3rd Year: KSRB 4.9.2 : Providing T.M.T steel reinforcement for RCC work including straighting,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinary complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500	MT	1.00	0.50			0.50
14.00	Operation & Maintenance for 3rd Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305	Cum	1.00	10	5	0.25	12.50
15.00	Operation & Maintenance for 3rd Year: KSRRB M600-1.Construction of dry lean cement concrete mix M15 with 1:5:10 OPC cement @160Kgs,with 25mm and down size graded granite/trap/basalt metal coarse aggregate at 0.86cum and fine aggregate @ 0.58cum Sub-base over prepared sub grade with (coarse and fine aggregate conforming to IS:383) aggregate cement ration not to excee 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content to be determined during trail length construction, concrete strength not to be less than 10Mpa at 7 days,mixed in a batching plant,transported to site,laid with a paver with electronic sensor,compacting with 8-10 tonnes vibratory roller,finishing and curing complete as per specifications.Morth specification No.601	Cum	1.00	10	5	0.1	5.00
16.00	Operation & Maintenance for 3rd Year: KSSRRB M600-2.Construction of unreinforced,dowel jointed, plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplastisizer at 3 lts conforming to IS9103-1999 reaffirmed 2008(Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design,transported to site,laid with a fixed form or slip form paver spread,compacted and finished in a continuous operation including provision of contraction, expansio, construction and longitudinal joints,including groove cutting chrges, joints filler,separation memberane, sealnt primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing complete as per sprcifications MORTH specification No.602.do with M40 (420Kg per cum Cement,C.A,0.67 cum F.A.044Cum (Page No 176,SI No : 22.2.2)	Cum	1.00	10	5	0.23	11.50
17.00	Operation & Maintenance for 3rd Year: Vaccum de-watering with vaccum pump and suction mat and compaction with skin floater clubbed with floating disc including cost of generator, HOM of machinery, Screed Vibratory, Power Floater, blade and disc etc., with all lead and lift.	Sqm	1.00	10	5		50.00
17.00	Operation & Maintenance for 3rd Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)	Rmt	1.00	300			300.00
18.00	Operation & Maintenance for 3rd Year: KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1 (Page No 257,SI No : 35.8)	Rmt	1.00	300			300.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
19.00	Operation & Maintenance for 3rd Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not be more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)	Nos.	6				6.00
20.00	Operation & Maintenance for 3rd Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete	Nos.	50				50.00
21.00	Operation & Maintenance for 3rd Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Nos.	50				50.00
22.00	Operation & Maintenance for 3rd Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8	Sqm	1	10	119		1190.00
23.00	Operation & Maintenance for 3rd Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)	Nos.	10.00				10.00
24.00	Operation & Maintenance for 3rd Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)	Nos.	10.00				10.00
25.00	Operation & Maintenance for 3rd Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)	Rmt	1.00	5.00			5.00
26.00	Operation & Maintenance for 3rd Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia , of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10. (PWD SR 2015-16,P.No.86, SI.No.12.89)	Nos.	5.00				5.00
27.00	Operation & Maintenance for 3rd Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia , across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)	Rmt	1	5.00			5.00
28.00	Operation & Maintenance for 3rd Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil presuure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	1	10			10.00
29.00	Operation & Maintenance for 3rd Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering,Jointing into trenches,Complete. (Market Rate)	Nos.	2				2.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
30.00	Operation & Maintenance for 3rd Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	1	39			39.00
31.00	Operation & Maintenance for 3rd Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)	Nos.	4				4.00
32.00	Operation & Maintenance for 3rd Year: Providing and Fixing Spacers for Power Ducts of size 225 mm , to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7				7.00
33.00	Operation & Maintenance for 3rd Year: Providing and Fixing Spacers for Power Ducts of size 160 mm , to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7				7.00
34.00	Operation & Maintenance for 3rd Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent Indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)	Rmt	1	10			10.00
35.00	Operation & Maintenance for 3rd Year: Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)	Nos.	1				1.00
36.00	Operation & Maintenance for 3rd Year: Providing and laying heavy duty cobble stones 60mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	1	10	3.792		37.92
37.00	Operation & Maintenance for 3rd Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	1.00	10	0.225		2.25
38.00	Operation & Maintenance for 3rd Year: Providing and laying heavy duty cobble stones 75mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	1.00	10	0.421		4.21
39.00	Operation & Maintenance for 3rd Year: Road Marking with hot applied Thermoplastic Compound with Reflecting Glass Beads on Concrete Surface: Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streak and holes complete as per specifications. MORTH specification No.803	Sqm	1.00	2039.433	0.15		305.91
40.00	Operation & Maintenance for 3rd Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.	Nos	2.00				2.00
41.00	Operation & Maintenance for 3rd Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	5.00				5.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
42.00	Operation & Maintenance for 3rd Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)	MT	1.00	0.3			0.30
43.00	Operation & Maintenance for 3rd Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Cum	2.00	1650	0.6	0.1	198.00
44.00	Operation & Maintenance for 3rd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Earth	Cum	1.00	58.53			58.53
45.00	Operation & Maintenance for 3rd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Debris	Cum	1.00	9.38			9.38
Electrical Works							
46.00	Operation & Maintenance for 3rd Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)	Nos.	1				1.00
47.00	Operation & Maintenance for 3rd Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)	Nos.	1				1.00
48.00	Operation & Maintenance for 3rd Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)	Nos.	1				1.00
49.00	Operation & Maintenance for 3rd Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)	Nos.	1				1.00
50.00	Operation & Maintenance for 3rd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)	Nos.	1				1.00
51.00	Operation & Maintenance for 3rd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)	Nos.	1				1.00
52.00	Operation & Maintenance for 3rd Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)	Nos.	118				118.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
	LT Cable						
53.00	Operation & Maintenance for 3rd Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)	m	1	12.00			12.00
54.00	Operation & Maintenance for 3rd Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)	m	1	10.00			10.00
55.00	Operation & Maintenance for 3rd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)	Nos	5				5.00
56.00	Operation & Maintenance for 3rd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)	Nos	4				4.00
	Earthing system						
57.00	Operation & Maintenance for 3rd Year: Chemical Earthing for grounding, conduits, IC cut outs and otherequipments on the mter board by using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)	Kit	1				1.00
58.00	Operation & Maintenance for 3rd Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)	Rmt	1	12			12.00
	Landcaping Works						
	SOIL MIXES and Ground Preparation						
59.00	Operation & Maintenance for 3rd Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	1	500	0.5	0.6	150.00
60.00	Operation & Maintenance for 3rd Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page	Cum	1	500	0.6	0.15	45.00
61.00	Operation & Maintenance for 3rd Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307	Cum	1	10	0.404	0.1	0.40
62.00	Operation & Maintenance for 3rd Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)	Cum	1	10	0.404	0.1	0.40
	Soil preparation of Lawn						
63.00	Operation & Maintenance for 3rd Year: KSRRB M300-3.Making lawns including ploughing and breaking of clod,removal of rubbish,dressing and supplying doobs grass roots and planting at 15 cm apart,including supplying and spreading of farm yard manure at rate of 0.18cum per 100 sqm complete as per specifications. MORTH Specification No.307 (KSRRB 19.80)	Sqm	1.00	20	0.6		12.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
	Bed Preparation for , Ground covers, Climbers/ creepers, Shrubs						
64.00	Operation & Maintenance for 3rd Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	1	400	0.6		240.00
	SHRUBS: Supply and Stacking of Shrubs						
65.00	Operation & Maintenance for 3rd Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.	23.00				23.00
66.00	Operation & Maintenance for 3rd Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.	50.00				50.00
67.00	Operation & Maintenance for 3rd Year: Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	800.00				800.00
68.00	Operation & Maintenance for 3rd Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	9.00				9.00
69.00	Operation & Maintenance for 3rd Year: Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	8.00				8.00
70.00	Operation & Maintenance for 3rdYear: Nerium oleander, c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	9.00				9.00
	TURF						
71.00	Operation & Maintenance for 3rd Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)	Sqm	1	20	2.05		41.00
	IRRIGATION						
72.00	Operation & Maintenance for 3rd Year: Watering with tanker to landscape area and plants for one year	Year	1.00				1.00
73.00	Operation & Maintenance for 3rd Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	1	10	0.6		6.00

Assistant Engineer
MSCL Mangaluru

Executive Engineer
MSCL Mangaluru

General Manager Technical
MSCL Mangaluru

Name of the Work :- Mangalore Smart City

3.12.2 Maintenance 3rd Year - Rate Analysis of Road & Other Work for Loop Road

1	Operation & Maintenance for 3rd Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)			
	Basic rate		68.16	
	O&M 3rd year escalation of 12%		8.18	
		Rate	76.34	Sqm
2	Operation & Maintenance for 3rd Year: KSRRB M200.Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra)			
	Basic rate		899	
	O&M 3rd year escalation of 12%		107.88	
	Add 10% For area weightage (Mangalore City)		100.69	
		Rate	1107.57	Cum
3	Operation & Maintenance for 3rd Year: KSRRB M200-Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202.			
	Basic rate		12.00	
	O&M 3rd year escalation of 12%		1.44	
	Add 10% For area weightage (Mangalore City)		1.34	
		Rate	14.78	Rmt
4	Operation & Maintenance for 3rd Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18,20,Page No.137)			
	Basic rate		390	
	O&M 3rd year escalation of 12%		46.8	
	Add 10% For area weightage (Mangalore City)		43.68	
		Rate	480.48	Cum
5	Operation & Maintenance for 3rd Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar			
	Basic rate		351	
	O&M 3rd year escalation of 12%		42.12	
	Add 10% For area weightage		39.31	
		Rate	432.43	Cum

6	Operation & Maintenance for 3rd Year: KSRRB M300-14. Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 bucket capacity including cutting and loading in tippers,trimming bottom and side slopes,in accordance with requirements of lines and grades and cross sections,and transporting disposal location up to a lead of 1.00Km and complete as per specifications. MORTH specification No.301(Including transporting charges, loading and unloading for lead 5km) (Page No 143,SI No : 19.14)			
	Basic rate		41	
	O&M 3rd year escalation of 12%		4.92	
	Add 10% For area weightage (Mangalore City)		4.59	
		Rate	50.51	Cum
7	Operation & Maintenance for 3rd Year: KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 18-19,SI No.2.11,Pg. No.6)			
	Basic rate		120	
	O&M 3rd year escalation of 12%		14.4	
	Add 10% For area weightage (Mangalore City)		13.44	
		Rate	147.84	Cum
8	Operation & Maintenance for 3rd Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occurring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 16-17,SI No.19.64,Pg.			
	Basic rate		6	
	O&M 3rd year escalation of 12%		0.72	
	Add 10% For area weightage (Mangalore City)		0.67	
		Rate	7.39	Sqm
9	Operation & Maintenance for 3rd Year: KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills, ncluding cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 16-17,SI.No.4.7,Page			
	Basic Rate		5770	
	O&M 3rd year escalation of 12%		692.4	
	Add 10% For area weightage (Mangalore City)		646.24	
		Rate	7108.64	Cum
10	Operation & Maintenance for 3rd Year: KSRRB M400-6.2.Construction of granular sub base by providing close graded crushed stone aggregate of granite/trap/basalt material,spreading in uniform layers with motor on prepared surface,mixing by mix in place methode by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density,complete as per specification. B.By Mix in Place Methode. Close graded granular sub base material as per 400-1 For Grading II material (Page No 155,SI No : 20.5.2)			
	Basic Rate		2166	
	O&M 3rd year escalation of 12%		259.92	
	Add 10% For area weightage (Mangalore City)		242.59	
		Rate	2668.51	Cum

11	<p>Operation & Maintenance for 3rd Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnspillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications. (Page No 13,SI No : 4.10)</p>			
	Basic Rate		6198	
	O&M 3rd year escalation of 12%		743.76	
	Add 10% For area weightage (Mangalore City)		694.18	
		Rate	7635.94	Cum
12	<p>Operation & Maintenance for 3rd Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2</p>			
	Basic Rate		263	
	O&M 3rd year escalation of 12%		31.56	
	Add 10% For area weightage (Mangalore City)		29.46	
		Rate	324.02	Sqm
13	<p>Operation & Maintenance for 3rd Year: KSRB 4.9.2 :Providing T.M.T steel reinforcement for RCC work including straighting,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500</p>			
	Basic Rate		70782	
	O&M 3rd year escalation of 12%		8493.84	
	Add 10% For area weightage (Mangalore City)		7927.58	
		Rate	87203.42	MT
14	<p>Operation & Maintenance for 3rd Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305</p>			
	Basic Rate		489	
	O&M 3rd year escalation of 12%		58.68	
	Add 20km lead (17.4 KSRRB M100-4.1-Cost of haulage excluding loading and unloading MORTH-100/Chapter 1-case 1-Surface Road)=2.0 Rs/ Tkm x 1.28 T x 20km		51.2	
	Sub Total		598.88	
	Add 10% For area weightage (Mangalore City)		59.89	
		Rate	658.77	Cum

15	<p>Operation & Maintenance for 3rd Year: KSSRRB M600-1.Construction of dry lean cement concrete mix M15 with 1:5:10 OPC cement @160Kgs,with 25mm and down size graded granite/trap/basalt metal coarse aggregate at 0.86cum and fine aggregate @ 0.58cum Sub-base over prepared sub grade with (coarse and fine aggregate confirming to IS:383) aggregate cement ration not to excee 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content to be determined during trail length construction, concrete strength not to be less than 10Mpa at 7 days,mixed in a batching plant,transported to site,laid with a paver with electronic sensor,compacting with 8-10 tonnes vibratory roller,finishing and curing complete as per specifications.Morth specification No.601</p>				
	Basic Rate			4048	
	O&M 3rd year escalation of 12%			485.76	
	Add 10% For area weightage (Mangalore City)			453.38	
			Rate	4987.14	Cum
16	<p>Operation & Maintenance for 3rd Year: KSSRRB M600-2.Construction of unreinforced,dowel jointed,plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplastisizer at 3 lts confirming to IS9103-1999 reaffirmed 2008(Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design,transported to site,laid with a fixed form or slip form paver spread,compacted and finished in a continuos operation including provision of contraction, expansio, construction and longitudinal joints,including groove cutting chrges, joints filler,separation memberane, sealent primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing complete as per sprcifications MORTH specification No.602.do with M40 (420Kg per cum Cement,C.A,0.67 cum F.A.044Cum (Page No 176,SI No : 22.2.2)</p>				
	Basic Rate			5765	
	O&M 3rd year escalation of 12%			691.8	
	Add 10% For area weightage (Mangalore City)			645.68	
			Rate	7102.48	Cum
17	<p>Operation & Maintenance for 3rd Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)</p>				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.2			115	
	O&M 3rd year escalation of 12%			13.8	
			Rate	128.8	Rmt
18	<p>Operation & Maintenance for 3rd Year: KSSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1</p>				
	Basic Rate			331	
	O&M 3rd year escalation of 12%			39.72	
	Add 10% For area weightage (Mangalore City)			37.07	
			Rate	407.79	Rmt

19	<p>Operation & Maintenance for 3rd Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)</p>				
Rate Arrived as per Rate analysis					
	Basic Rate			1806	
	O&M 3rd year escalation of 12%			216.72	
		Rate		2022.72	Nos
20	<p>Operation & Maintenance for 3rd Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete</p>				
	Basic rate			421	
	O&M 3rd year escalation of 12%			50.52	
	Add 10% For area weightage			47.15	
		Rate		518.67	Nos.
21	<p>Operation & Maintenance for 3rd Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.</p>				
	Basic rate			98	
	O&M 3rd year escalation of 12%			11.76	
	Add 10% For area weightage			10.98	
		Rate		120.74	Nos.
22	<p>KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8</p>				
	Basic Rate			80	
	O&M 3rd year escalation of 12%			9.6	
	Add 10% For area weightage (Mangalore City)			8.96	
		Rate		98.56	Sqm
23	<p>Operation & Maintenance for 3rd Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)</p>				
Rate Arrived as per Rate analysis					
	Basic Rate			917	
	O&M 3rd year escalation of 12%			110.04	
		Rate		1027.04	Nos.

24	Operation & Maintenance for 3rd Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.15		3500.00	
	O&M 3rd year escalation of 12%		420	
		Rate	3920.00	Nos.
25	Operation & Maintenance for 3rd Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)			
	Basic Rate		297	
	O&M 3rd year escalation of 12%		35.64	
	Add 10% on Labor Charges=Rs.47,For area weightage (Mangalore City)		4.7	
		Rate	337.34	Rm
26	Operation & Maintenance for 3rd Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia, of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10.			
	Basic Rate		830	
	O&M 3rd year escalation of 12%		99.6	
	Add 10% For area weightage (Mangalore City)		92.96	
		Rate	1022.56	Nos.
27	Operation & Maintenance for 3rd Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)			
	Basic Rate		5022	
	O&M 3rd year escalation of 12%		602.64	
	Add 10% For area weightage (Mangalore City)		562.46	
		Rate	6187.10	Rm
28	Operation & Maintenance for 3rd Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil presuure and other physical properties comforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)			
	Basic Rate		2500	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)		78	
	Add 12% For area weightage (Mangalore City)		9.36	
	Sub Total		2587.36	
	O&M 3rd year escalation of 12%		310.48	

		Rate	2897.84	Rm
29	Operation & Maintenance for 3rd Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering,Jointing into trenches,Complete. (Market Rate)			
	Basic Rate		1775	
	O&M 3rd year escalation of 12%		213	
		Rate	1988.00	Nos.
30	Operation & Maintenance for 3rd Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil presuure and other physical properties comforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years.(Market Rate)			
	Basic Rate		1350	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)		66	
	Add 12% For area weightage (Mangalore City)		7.92	
	Sub Total		1423.92	
	O&M 3rd year escalation of 12%		170.87	
		Rate	1594.79	Rm
31	Operation & Maintenance for 3rd Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)			
	Basic Rate		1475	
	O&M 3rd year escalation of 12%		177	
		Rate	1652.00	Nos.
32	Operation & Maintenance for 3rd Year: Providing and Fixixng Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1003	
	O&M 3rd year escalation of 12%		80.24	
	GST @18%		180.54	
		Rate	1263.78	Nos.
33	Operation & Maintenance for 3rd Year: Providing and Fixixng Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1947	
	O&M 3rd year escalation of 12%		233.64	
	GST @18%		350.46	
		Rate	2531.10	Nos.

34	Operation & Maintenance for 3rd Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent Indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)			
	Basic Rate		685	
	Labour Cost for laying and Jointing-KUWSDB, HDPE Pipes, Item No.50, Pg.No.123)		36	
	Add 12% For area weightage (Mangalore City)		4.32	
	Sub Total		725.32	
	O&M 3rd year escalation of 12%		87.04	
		Rate	812.36	Rm
35	Operation & Maintenance for 3rd Year: Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)			
	Basic Rate		175	
	O&M 3rd year escalation of 12%		21	
		Rate	196.00	Nos.
36	Operation & Maintenance for 3rd Year: Providing and laying heavy duty cobble stones 60mm thick, using cement and coarse sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.			
	Basic rate		1056.00	
	O&M 3rd year escalation of 12%		126.72	
	Add 10% For area weightage (Mangalore City)		118.27	
		Rate	1300.99	Sqm
37	Operation & Maintenance for 3rd Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and coarse sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore, Refer Sr.No.12		912.00	
	O&M 3rd year escalation of 12%		109.44	
		Rate	1021.44	Sqm

38	Operation & Maintenance for 3rd Year: Providing and laying heavy duty cobble stones 75mm thick, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.			
	Basic rate		1114	
	O&M 3rd year escalation of 12%		133.68	
	Add 10% For area weightage (Mangalore City)		124.77	
		Rate	1372.45	Sqm
39	Operation & Maintenance for 3rd Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface:Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803 (Page No 192,SI No : 24.57)			
	Basic Rate		429	
	O&M 3rd year escalation of 12%		51.48	
	Add 10% For area weightage (Mangalore City)		48.05	
		Rate	528.53	Sqm
40	Operation & Maintenance for 3rd Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.			
	Baisc rate		61200	
	O&M 3rd year escalation of 12%		7344	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.1	Rate	68544	Nos.
41	Operation & Maintenance for 3rd Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.13		4500.00	
	O&M 3rd year escalation of 12%		540	
		Rate	5040	Nos.
42	Operation & Maintenance for 3rd Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.26		100000.00	
	O&M 3rd year escalation of 12%		12000	
		Rate	112000	MT

43	Operation & Maintenance for 3rd Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.		
	Basic Rate		186.16
	O&M 3rd year escalation of 12%		22.34
		Rate	208.5
			Nos.
44	Operation & Maintenance for 3rd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Earth		
	Earth	2.0x1.28x10km	
	Baisc rate		25.60
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00
	Sub Total-1		82.60
	Add 10% For area weightage (Mangalore City)		8.26
	Sub Total-2		90.86
	O&M 3rd year escalation of 12%		10.9
		Rate	101.76
			Cum
45	Operation & Maintenance for 3rd Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Debris		
	Debris	2.0x1.30x10Km	
	Baisc rate		26.00
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00
	Sub Total-1		83.00
	Add 10% For area weightage (Mangalore City)		8.3
	Sub Total-2		91.30
	O&M 3rd year escalation of 12%		10.96
		Rate	102.26
			Cum
	Lighting Poles		
46	Operation & Maintenance for 3rd Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.22		1,000
	O&M 3rd year escalation of 12%		120
		Rate	1120
			Nos.

47	<p>Operation & Maintenance for 3rd Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)</p>			17118	
	Basic rate				
	O&M 3rd year escalation of 12%			2054.16	
			Rate	19,172.16	Nos.
48	<p>Operation & Maintenance for 3rd Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)</p>			12420	
	Basic rate				
	O&M 3rd year escalation of 12%			1490.4	
			Rate	13,910.40	Nos.
49	<p>Operation & Maintenance for 3rd Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)</p>			7398	
	Basic rate				
	O&M 3rd year escalation of 12%			887.76	
			Rate	8,285.76	Nos.
50	<p>Operation & Maintenance for 3rd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)</p>			3540	
	Basic rate				
	O&M 3rd year escalation of 12%			424.8	
			Rate	3,964.80	Nos.
51	<p>Operation & Maintenance for 3rd Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)</p>			2400	
	Basic rate				
	O&M 3rd year escalation of 12%			288	
			Rate	2,688	Nos.

52	Operation & Maintenance for 3rd Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)			700	
	Basic rate			84	
	O&M 3rd year escalation of 12%				
		Rate	784		Nos.
	LT Cable				
53	Operation & Maintenance for 3rd Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)			117	
	Basic rate			14.04	
	O&M 3rd year escalation of 12%				
		Rate	131.04		Rm
54	Operation & Maintenance for 3rd Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)			81.6	
	Basic rate			9.79	
	O&M 3rd year escalation of 12%				
		Rate	91.39		Rm
55	Operation & Maintenance for 3rd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)			11.31	
	Basic rate			1.36	
	O&M 3rd year escalation of 12%				
		Rate	12.67		Nos.
56	Operation & Maintenance for 3rd Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)			3.21	
	Basic rate			0.39	
	O&M 3rd year escalation of 12%				
		Rate	3.60		Nos.
57	Operation & Maintenance for 3rd Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipmentson the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)			5500	
	Basic rate			660	
	O&M 3rd year escalation of 12%				
		Rate	6160		Kit

58	Operation & Maintenance for 3rd Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)			
	Basic rate		19.5	
	O&M 3rd year escalation of 12%		2.34	
		Rate	21.84	Rmt
59	Operation & Maintenance for 3rd Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.27		140.00	
	O&M 3rd year escalation of 12%		16.8	
		Rate	156.80	Cum
60	Operation & Maintenance for 3rd Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stacking complete as per specifications. MORTH Specification No. 308.2(Page No.152,SI.No.19.90)			
	Basic rate		204	
	O&M 3rd year escalation of 12%		24.48	
	Add 10% For area weightage		22.85	
		Rate	251.33	Cum
61	Operation & Maintenance for 3rd Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307			
	Basic rate		103	
	O&M 3rd year escalation of 12%		12.36	
	Add 10% For area wightage		11.54	
		Rate	126.90	Cum
62	Operation & Maintenance for 3rd Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.28		23.91	
	O&M 3rd year escalation of 12%		2.87	
		Rate	26.78	Cum
63	Operation & Maintenance for 3rd Year: Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc complete including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.			
	Basic rate		103	
	O&M 3rd year escalation of 12%		12.36	
	Add 10% For area wightage		11.54	
		Rate	126.90	Sqm

64	Operation & Maintenance for 3rd Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.29		146.00
	O&M 3rd year escalation of 12%		17.52
		Rate	163.52
			Cum
	SHRUBS: Supply and Stacking of Shrubs		
65	Operation & Maintenance for 3rd Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.30		840.00
	O&M 3rd year escalation of 12%		100.8
		Rate	940.80
			Nos.
66	Operation & Maintenance for 3rd Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.31		840.00
	O&M 3rd year escalation of 12%		100.8
		Rate	940.80
			Nos.
67	Operation & Maintenance for 3rd Year: Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.39		84.00
	O&M 3rd year escalation of 12%		10.08
		Rate	94.08
			Nos.
68	Operation & Maintenance for 3rd Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40		140.00
	O&M 3rd year escalation of 12%		16.8
		Rate	156.80
			Nos.
69	Operation & Maintenance for 3rd Year: Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40		840.00
	O&M 3rd year escalation of 12%		100.8
		Rate	940.80
			Nos.

70	Operation & Maintenance for 3rd Year: Nerium oleander, c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40		840.00	
	O&M 3rd year escalation of 12%		100.8	
		Rate	940.80	Nos.
	TURF			
71	Operation & Maintenance for 3rd Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.32		156.80	
	O&M 3rd year escalation of 12%		18.82	
		Rate	175.62	Sqm
	IRRIGATION			
72	Operation & Maintenance for 3rd Year: Watering with tanker to landscape area and plants for one year			
	Water Tanker =52 Rs/ Hour,One Year Cost=92 days x 3 hrs x 61rs/hr (365days-90 days of mansoon=275 days/3 days=92 days,consider watering at every 3 days)		14352	
	Mazdoor = 0.5 days x 446.2		20526.12	
	Add 10% For area wightage		2463.1344	
	O&M 3rd year escalation of 12%		3487.81	
		Rate	40829.06	Year
73	Operation & Maintenance for 3rd Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.34		560.00	
	O&M 3rd year escalation of 12%		67.2	
		Rate	627.20	Sqm

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**

Name of the Work :- Mangalore Smart City

3.13 Maintenance BOQ of Road and Other Work for Loop Road-4th Year

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
Civil Works					
1.00	Operation & Maintenance for 4th Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)	Sqm	15.00	79.07	1186
2.00	Operation & Maintenance for 4th Year: KSRRB M200. Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (Page No 138,SI No : 18.47)	Cum	3.68	1147.12	4,221
3.00	Operation & Maintenance for 4th Year: KSRRB M200- Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202.	Rmt	10.00	15.31	153
4.00	Operation & Maintenance for 4th Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18.20,Page No.137)	Cum	0.15	497.64	75
5.00	Operation & Maintenance for 4th Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar (Page No 137,SI No : 18.23)	Cum	2.88	447.88	1290
6.00	Operation & Maintenance for 4th Year: KSRRB M300-14. Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 bucket capacity including cutting and loading in tippers,trimming bottom and side slopes,in accordance with requirements of lines and grades and cross sections,and transporting disposal location up to a lead of 1.00Km and complete as per specifications. MORTH specification No.301(Including transporting charges, loading and unloading for lead 5km)	Cum	25.00	52.32	1,308
7.00	Operation & Maintenance for 4th Year: KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 16-17,SI No.2.11,Pg. No.6)	Cum	25.00	153.12	3,828
8.00	Operation & Maintenance for 4th Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occurring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 18-19,SI No.19.64,Pg. No.149)	Sqm	50.00	7.66	383
9.00	Operation & Maintenance for 4th Year: KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills , including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 18-19,SI.No.4.7,Page No.13)	Cum	5.00	7362.52	36,813

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
10.00	<p>Operation & Maintenance for 4th Year: KSRRB M400-6.2. Construction of granular sub base by providing close graded crushed stone aggregate of granite/trap/basalt material, spreading in uniform layers with motor on prepared surface, mixing by mix in place methode by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per specification. B. By Mix in Place Methode. Close graded granular sub base material as per 400-1 For Grading II material</p>	Cum	7.50	2763.82	20,729
11.00	<p>Operation & Maintenance for 4th Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs, with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters confirming to IS 9103-1999 reaffirmed -2008 at machine mixed, concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedastals, retaining walls, return walls, walls (any thickness) including attached pilasters, column pillars, posts, struts, buttresses, bed blocks, anchor blocks & plinths etc., including cost of labour, HOM of machinery, curing, complete but excluding cost of reinforcement as per specifications.</p>	Cum	45.00	7908.65	355,889
12.00	<p>Operation & Maintenance for 4th Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc., and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials, labour complete as per specifications. Specification No. KSB 4.6.2</p>	Sqm	36.00	335.59	12,081
13.00	<p>Operation & Maintenance for 4th Year: KSRB 4.9.2 : Providing T.M.T steel reinforcement for RCC work including straighting, cutting, bending, hooking, placing in position, lapping and/or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per design (laps, hooks and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete as per specifications. Specification No. KSB 4.6.3. do with TMT bars Fe500</p>	MT	0.50	90317.83	45,159
14.00	<p>Operation & Maintenance for 4th Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications. (Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305</p>	Cum	12.50	681.69	8,521
15.00	<p>Operation & Maintenance for 4th Year: KSRRB M600-1. Construction of dry lean cement concrete mix M15 with 1:5:10 OPC cement @160Kgs, with 25mm and down size graded granite/trap/basalt metal coarse aggregate at 0.86cum and fine aggregate @ 0.58cum Sub-base over prepared sub grade with (coarse and fine aggregate confirming to IS:383) aggregate cement ration not to exceed 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content to be determined during trail length construction, concrete strength not to be less than 10Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. Morth specification No. 601</p>	Cum	5.00	5165.25	25,826
16.00	<p>Operation & Maintenance for 4th Year: KSSRRB M600-2. Construction of unreinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplasticizer at 3 lts confirming to IS9103-1999 reaffirmed 2008 (Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, including groove cutting charges, joints filler, separation memberane, sealent primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing complete as per specifications MORTH specification No. 602. do with M40 (420Kg per cum Cement, C.A, 0.67 cum F.A. 0.44 Cum (Page No 176, SI No : 22.2.2)</p>	Cum	11.50	7356.14	84,596

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
17.00	Operation & Maintenance for 4th Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)	Rmt	300.00	133.40	40,020
18.00	Operation & Maintenance for 4th Year: KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1 (Page No 257,SI No : 35.8)	Rmt	300.00	422.36	126,708
19.00	Operation & Maintenance for 4th Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)	Nos.	6.00	2094.96	12,570
20.00	Operation & Maintenance for 4th Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete	Nos.	50.00	537.20	26,860
21.00	Operation & Maintenance for 4th Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Nos.	50.00	102.08	5,104
22.00	Operation & Maintenance for 4th Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8	Sqm	1190.00	102.08	121,475
23.00	Operation & Maintenance for 4th Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)	Nos.	10.00	1063.72	10,637
24.00	Operation & Maintenance for 4th Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)	Nos.	10.00	4060.00	40,600
25.00	Operation & Maintenance for 4th Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)	Rmt	5.00	350.16	1,751
26.00	Operation & Maintenance for 4th Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia , of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10.	Nos.	5.00	1059.08	5,295

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
27.00	Operation & Maintenance for 4th Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)	Rmt	5.00	6408.07	32,040
28.00	Operation & Maintenance for 4th Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	10.00	3001.34	30,013
29.00	Operation & Maintenance for 4th Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering, Jointing into trenches, Complete. (Market Rate)	Nos.	2.00	1988.00	3,976
30.00	Operation & Maintenance for 4th Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	39.00	1651.75	64,418
31.00	Operation & Maintenance for 4th Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)	Nos.	4.00	1711.00	6,844
32.00	Operation & Maintenance for 4th Year: Providing and Fixing Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7.00	1344.02	9,408
33.00	Operation & Maintenance for 4th Year: Providing and Fixing Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7.00	2608.98	18,263
34.00	Operation & Maintenance for 4th Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent Indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)	Rmt	10.00	841.37	8,414
35.00	Operation & Maintenance for 4th Year: Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)	Nos.	1.00	203.00	203
36.00	Operation & Maintenance for 4th Year: Providing and laying heavy duty cobble stones 60mm thick , using cement and coarse sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.	Sqm	37.92	1347.46	51,096

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
37.00	Operation & Maintenance for 4th Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	2.25	1057.92	2,380
38.00	Operation & Maintenance for 4th Year: Providing and laying heavy duty cobble stones 75mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.	Sqm	4.21	1421.46	5,984
39.00	Operation & Maintenance for 4th Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface: Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803	Sqm	305.91	547.40	1,67,455
40.00	Operation & Maintenance for 4th Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.	Nos	2.00	70992.00	1,41,984
41.00	Operation & Maintenance for 4th Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	5.00	5220.00	26,100
42.00	Operation & Maintenance for 4th Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)	MT	0.30	116000.00	34,800
43.00	Operation & Maintenance for 4th Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Cum	198.00	215.95	42,758
44.00	Operation & Maintenance for 4th Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Earth	Cum	58.53	105.40	6,169
45.00	Operation & Maintenance for 4th Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Debris	Cum	9.38	105.91	,993
	Electrical Works				
46.00	Operation & Maintenance for 4th Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)	Nos.	1.00	1160.00	1,160

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
47.00	Operation & Maintenance for 4th Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)	Nos.	1.00	19856.88	19,857
48.00	Operation & Maintenance for 4th Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)	Nos.	1.00	14407.20	14,407
49.00	Operation & Maintenance for 4th Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)	Nos.	1.00	8581.68	8,582
50.00	Operation & Maintenance for 4th Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)	Nos.	1.00	4106.40	4,106
51.00	Operation & Maintenance for 4thYear: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)	Nos.	1.00	2784.00	2,784
52.00	Operation & Maintenance for 4th Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)	Nos.	118.00	812.00	95,816
	LT Cable				
53.00	Operation & Maintenance for 4th Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)	m	12.00	135.72	1,629
54.00	Operation & Maintenance for 4th Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)	m	10.00	94.66	947

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
55.00	Operation & Maintenance for 4th Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)	Nos	5.00	13.12	66
56.00	Operation & Maintenance for 4thYear: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)	Nos	4.00	3.72	15
	Earthing system				
57.00	Operation & Maintenance for 4th Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipments on the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)	Kit	1.00	6380.00	6,380
58.00	Operation & Maintenance for 4th Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)	Rmt	12.00	22.62	271
	Landcaping Works				
	SOIL MIXES and Ground Preparation				
59.00	Operation & Maintenance for 4th Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	150.00	162.40	24360
60.00	Operation & Maintenance for 4th Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page No.152,SI.No.19.90)	Cum	45.00	260.30	11714
61.00	Operation & Maintenance for 4th Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307	Cum	0.40	131.43	53
62.00	Operation & Maintenance for 4th Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)	Cum	0.40	27.74	11
	Soil preparation of Lawn				
63.00	Operation & Maintenance for 4th Year: KSRRB M300-3.Making lawns including ploughing and breaking of clod,removal of rubbish,dressing and supplying doobs grass roots and planting at 15 cm apart,including supplying and spreading of farm yard manure at rate of 0.18cum per 100 sqm complete as per specifications. MORTH Specification No.307 (KSRRB 19.80)	Sqm	12.00	131.43	1,577
	Bed Prepartion for , Ground covers, Climbers/ creepers, Shrubs				
64.00	Operation & Maintenance for 4thYear: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	240.00	169.36	40646

Sr.No.	Specification	Unit	Total Qty.	Rate	Amount
	SHRUBS: Supply and Stacking of Shrubs				
	Operation & Maintenance for 4th Year:				
65.00	Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.	23.00	974.40	22,411
66.00	Operation & Maintenance for 4th Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.	50.00	974.40	48,720
67.00	Operation & Maintenance for 4th Year: Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	800.00	97.44	77,952
68.00	Operation & Maintenance for 4th Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	9.00	162.40	1462
69.00	Operation & Maintenance for 4th Year: Ficus blackenia, c/c: 600m, must be bushy and multibranched(atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	8.00	974.40	7,795
70.00	Operation & Maintenance for 4th Year: <i>Nerium oleander</i> , c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	9.00	974.40	8,770
	TURF				
71.00	Operation & Maintenance for 4th Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)	Sqm	41.00	181.89	7,457
	IRRIGATION				
72.00	Operation & Maintenance for 4th Year: Watering with tanker to landscape area and plants for one year	Year	1.00	42510.07	42,510
73.00	Operation & Maintenance for 4th Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	6.00	649.60	3,898
				Total	21,01,732

Executive Engineer
MSCL Mangaluru

General Manager Technical
MSCL Mangaluru

Name of the Work :- Mangalore Smart City
3.13.1 Maintenance BOQ of Road and Other Work for Loop Road-4th Year

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
Civil Works							
1.00	Operation & Maintenance for 4th Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)	Sqm	1	10	1.5		15.00
2.00	Operation & Maintenance for 4th Year: KSRRB M200. Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra) (Page No 138,SI No : 18.47)	Cum	1	3.5	3.5	0.3	3.68
3.00	Operation & Maintenance for 4th Year: KSRRB M200- Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202. (Page No.139,S.I.No.18.49)	Rmt	1	10			10.00
4.00	Operation & Maintenance for 4th Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18.20,Page No.137)	Cum	1	1	0.3	0.5	0.15
5.00	Operation & Maintenance for 4th Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar (Page No 137,SI No : 18.23)	Cum	1	25	0.5	0.23	2.88
6.00	Operation & Maintenance for 4th Year: KSRRB M300-14. Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 bucket capacity including cutting and loading in tippers,trimming bottom and side slopes,in accordance with requirements of lines and grades and cross sections,and transporting disposal location up to a lead of 1.00Km and complete as per specifications. MORTH specification No.301(Including transporting charges, loading and unloading for lead 5km) (Page No 143,SI No : 19.14)	Cum	1.00	10	5	0.5	25.00
7.00	Operation & Maintenance for 4th Year: KSRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 16-17,SI No.2.11,Pg. No.6)	Cum	1.00	10	5	0.5	25.00
8.00	Operation & Maintenance for 4th Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occurring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 16-17,SI No.19.64,Pg. No.149)	Sqm	1.00	10		5	50.00
9.00	Operation & Maintenance for 4th Year: KSRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills , including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 16-17,SI.No.4.7,Page No.13)	Cum	1.00	10	5	0.1	5.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
10.00	Operation & Maintenance for 4th Year: KSRRB M400-6.2. Construction of granular sub base by providing close graded crushed stone aggregate of granite/trap/basalt material, spreading in uniform layers with motor on prepared surface, mixing by mix in place method by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per specification. B. By Mix in Place Method. Close graded granular sub base material as per 400-1 For Grading II material (Page No 155, SI No : 20.5.2)	Cum	1.00	10	5	0.15	7.50
11.00	Operation & Maintenance for 4th Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs, with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters confirming to IS 9103-1999 reaffirmed -2008 at machine mixed, concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls, return walls, walls (any thickness) including attached pilasters, column pillars, posts, struts, buttresses, bed blocks, anchor blocks & plinths etc., including cost of labour, HOM of machinery, curing, complete but excluding cost of reinforcement as per specifications. (Page No 13, SI No : 4.10)	Cum	1.00	10	5	0.9	45.00
12.00	Operation & Maintenance for 4th Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc., and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials, labour complete as per specifications. Specification No. KSB 4.6.2 (Page No 15, SI No : 4.28)	Sqm	2.00	20		0.9	36.00
13.00	Operation & Maintenance for 4th Year: KSRB 4.9.2 : Providing T.M.T steel reinforcement for RCC work including straightening, cutting, bending, hooking, placing in position, lapping and/or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per design (laps, hooks and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete as per specifications. Specification No. KSB 4.6.3. do with TMT bars Fe500	MT	1.00	0.50			0.50
14.00	Operation & Maintenance for 4th Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications. (Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305	Cum	1.00	10	5	0.25	12.50
15.00	Operation & Maintenance for 4th Year: KSRRB M600-1. Construction of dry lean cement concrete mix M15 with 1:5:10 OPC cement @160Kgs, with 25mm and down size graded granite/trap/basalt metal coarse aggregate at 0.86cum and fine aggregate @ 0.58cum Sub-base over prepared sub grade with (coarse and fine aggregate confirming to IS:383) aggregate cement ratio not to exceed 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content to be determined during trial length construction, concrete strength not to be less than 10Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. MORTH specification No. 601 (Page No 176, SI No : 22.1)	Cum	1.00	10	5	0.1	5.00
16.00	Operation & Maintenance for 4th Year: KSRRB M600-2. Construction of unreinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplasticizer at 3 lts confirming to IS9103-1999 reaffirmed 2008 (Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, including groove cutting charges, joints filler, separation membrane, sealant primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing complete as per specifications MORTH specification No. 602. do with M40 (420Kg per cum Cement, C.A, 0.67 cum F.A. 0.44 Cum (Page No 176, SI No : 22.2)	Cum	1.00	10	5	0.23	11.50
17.00	Operation & Maintenance for 4th Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)	Rmt	1.00	300			300.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
18.00	Operation & Maintenance for 4th Year: KSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1 (Page No 257,SI No : 35.8)	Rmt	1.00	300			300.00
19.00	Operation & Maintenance for 4th Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)	Nos.	6				6.00
20.00	Operation & Maintenance for 4th Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete (Page No 25,SI No : 5.3)	Nos.	50				50.00
21.00	Operation & Maintenance for 4th Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Nos.	50				50.00
22.00	Operation & Maintenance for 4th Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8 (Page No 182,SI No : 24.1)	Sqm	1	10	119		1190.00
23.00	Operation & Maintenance for 4th Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached)	Nos.	10.00				10.00
24.00	Operation & Maintenance for 4th Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item)	Nos.	10.00				10.00
25.00	Operation & Maintenance for 4th Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)	Rmt	1.00	5.00			5.00
26.00	Operation & Maintenance for 4th Year: KSRRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia , of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10. (PWD SR 2015-16,P.No.86, SI.No.12.89)	Nos.	5.00				5.00
27.00	Operation & Maintenance for 4th Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia , across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)	Rmt	1	5.00			5.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
28.00	Operation & Maintenance for 4th Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	1	10			10.00
29.00	Operation & Maintenance for 4th Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering, Jointing into trenches, Complete. (Market Rate)	Nos.	2				2.00
30.00	Operation & Maintenance for 4th Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5, Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7. The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)	Rmt	1	39			39.00
31.00	Operation & Maintenance for 4th Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)	Nos.	4				4.00
32.00	Operation & Maintenance for 4th Year: Providing and Fixing Spacers for Power Ducts of size 225 mm , to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7				7.00
33.00	Operation & Maintenance for 4th Year: Providing and Fixing Spacers for Power Ducts of size 160 mm , to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)	Nos.	7				7.00
34.00	Operation & Maintenance for 4th Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent Indian standard and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipe etc. Complete. (Market Rate)	Rmt	1	10			10.00
35.00	Operation & Maintenance for 4th Year: Supplying Coupler for 7-way 40mm HDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe. Complete. (Market Rate)	Nos.	1				1.00
36.00	Operation & Maintenance for 4th Year: Providing and laying heavy duty cobble stones 60mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Page No 101, SI No : 14.6)	Sqm	1	10	3.792		37.92
37.00	Operation & Maintenance for 4th Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)	Sqm	1.00	10	0.225		2.25
38.00	Operation & Maintenance for 4th Year: Providing and laying heavy duty cobble stones 75mm thick , using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Page No 101, SI No : 14.7)	Sqm	1.00	10	0.421		4.21

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
39.00	Operation & Maintenance for 4th Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface: Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streak and holes complete as per specifications. MORTH specification No.803 (Page No 192, SI No : 24.57)	Sqm	1.00	2039.433	0.15		305.91
40.00	Operation & Maintenance for 4th Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.	Nos	2.00				2.00
41.00	Operation & Maintenance for 4th Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)	Nos.	5.00				5.00
42.00	Operation & Maintenance for 4th Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved), with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect. (Non SOR Item)	MT	1.00	0.3			0.30
43.00	Operation & Maintenance for 4th Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.	Cum	2.00	1650	0.6	0.1	198.00
44.00	Operation & Maintenance for 4th Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Earth	Cum	1.00	58.53			58.53
45.00	Operation & Maintenance for 4th Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1- Debris	Cum	1.00	9.38			9.38
	Electrical Works						
46.00	Operation & Maintenance for 4th Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)	Nos.	1				1.00
47.00	Operation & Maintenance for 4th Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)	Nos.	1				1.00
48.00	Operation & Maintenance for 4th Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)	Nos.	1				1.00
49.00	Operation & Maintenance for 4th Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)	Nos.	1				1.00

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
50.00	Operation & Maintenance for 4th Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)	Nos.	1				1.00
51.00	Operation & Maintenance for 4thYear: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)	Nos.	1				1.00
52.00	Operation & Maintenance for 4th Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)	Nos.	118				118.00
	LT Cable						
53.00	Operation & Maintenance for 4th Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)	m	1	12.00			12.00
54.00	Operation & Maintenance for 4th Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)	m	1	10.00			10.00
55.00	Operation & Maintenance for 4th Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)	Nos	5				5.00
56.00	Operation & Maintenance for 4thYear: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)	Nos	4				4.00
	Earthing system						
57.00	Operation & Maintenance for 4th Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipments on the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)	Kit	1				1.00
58.00	Operation & Maintenance for 4th Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessasary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)	Rmt	1	12			12.00
	Landcaping Works						
	SOIL MIXES and Ground Preparation						
59.00	Operation & Maintenance for 4th Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)	Cum	1	500	0.5	0.6	150.00
60.00	Operation & Maintenance for 4th Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stackin complete as per specifications. MORTH Specification No. 308.2(Page No.152,SI.No.19.90)	Cum	1	500	0.6	0.15	45.00
61.00	Operation & Maintenance for 4th Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307 (KPWD SR 16-17,Page No.150,SI No.19.77)	Cum	1	10	0.404	0.1	0.40

Sr.No.	Specification	Unit	No.	L	B	D	Qty.
62.00	Operation & Maintenance for 4th Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)	Cum	1	10	0.404	0.1	0.40
	Soil preparation of Lawn						
63.00	Operation & Maintenance for 4th Year: KSRRB M300-3.Making lawns including ploughing and breaking of clod,removal of rubbish,dressing and supplying doobs grass roots and planting at 15 cm apart,including supplying and spreading of farm yard manure at rate of 0.18cum per 100 sqm complete as per specifications. MORTH Specification No.307 (KSRRB 19.80)	Sqm	1.00	20	0.6		12.00
	Bed Preparation for , Ground covers, Climbers/ creepers, Shrubs						
64.00	Operation & Maintenance for 4thYear: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)	Cum	1	400	0.6		240.00
	SHRUBS: Supply and Stacking of Shrubs						
65.00	Operation & Maintenance for 4th Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)	Nos.	23.00				23.00
66.00	Operation & Maintenance for 4th Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)	Nos.	50.00				50.00
67.00	Operation & Maintenance for 4th Year: Pandanus variegted'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)	Nos.	800.00				800.00
68.00	Operation & Maintenance for 4th Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)	Nos.	9.00				9.00
69.00	Operation & Maintenance for 4th Year: Ficus blackenia, c/c: 600m, must be bushy and multibranch(ed)atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	8.00				8.00
70.00	Operation & Maintenance for 4th Year: Nerium oleander , c/c: 600m, must be bushy and multibranch(ed)atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.	Nos.	9.00				9.00
	TURF						
71.00	Operation & Maintenance for 4th Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)	Sqm	1	20	2.05		41.00
	IRRIGATION						
72.00	Operation & Maintenance for 4th Year: Watering with tanker to landscape area and plants for one year	Year	1.00				1.00
73.00	Operation & Maintenance for 4th Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)	Sqm	1	10	0.6		6.00

Assistant Engineer
MSCL Mangaluru

Executive Engineer
MSCL Mangaluru

General Manager Technical
MSCL Mangaluru

Name of the Work :- Mangalore Smart City
3.13.2 Maintenance 4th Year - Rate Analysis of Road & Other Work for Loop Road

1	Operation & Maintenance for 4th Year: Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.(RA attached)			
	Basic rate		68.16	
	O&M 4th year escalation of 16%		10.91	
		Rate	79.07	Sqm
2	Operation & Maintenance for 4th Year: KSRRB M200.Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled material stacking serviceable and unserviceable materials separately complete as per specifications.MORTH specification No.202.(Including transporting charges,loading and unloading for lead 5km-Extra)			
	Basic rate		899	
	O&M 4th year escalation of 16%		143.84	
	Add 10% For area weightage (Mangalore City)		104.28	
		Rate	1147.12	Cum
3	Operation & Maintenance for 4th Year: KSRRB M200-Dismantling of kerb Stone and Channel KSRRB M200-26. Dismantling Kerb stone by Manual means and disposal of dismantled materials with all lifts and complete as per specifications.MORTH Specification No.202.			
	Basic rate		12.00	
	O&M 4th year escalation of 16%		1.92	
	Add 10% For area weightage (Mangalore City)		1.39	
		Rate	15.31	Rmt
4	Operation & Maintenance for 4th Year: KSRRB M200-13.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. II. By Mechanical Means. A. Cement Concrete Grade M-15 &M-20. MORTH Specification No. 202 (KPWD SOR 16-17,18,20,Page No.137)			
	Basic rate		390	
	O&M 4th year escalation of 16%		62.4	
	Add 10% For area weightage (Mangalore City)		45.24	
		Rate	497.64	Cum
5	Operation & Maintenance for 4th Year: KSRRB M200-12.1. Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i)Dismantling Brick/Tile work B.In Cement mortar			
	Basic rate		351	
	O&M 4th year escalation of 16%		56.16	
	Add 10% For area weightage		40.72	
		Rate	447.88	Cum

6	Operation & Maintenance for 4th Year: KSRRB M300-14. Excavation for roadwork in all types of soil with hydraulic excavator of 0.9 bucket capacity including cutting and loading in tippers,trimming bottom and side slopes,in accordance with requirements of lines and grades and cross sections,and transporting disposal location up to a lead of 1.00Km and complete as per specifications. MORTH specification No.301(Including transporting charges, loading and unloading for lead 5km)				
	Basic rate			41	
	O&M 4th year escalation of 16%			6.56	
	Add 10% For area weightage (Mangalore City)			4.76	
			Rate	52.32	Cum
7	Operation & Maintenance for 4th Year: KSRRB 2-4 : Refilling available earth around pipe lines, cables in layers not exceeding 20cms in depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5 m. including cost of all labour complete as per specifications.(KPWD 18-19,SI No.2.11,Pg. No.6)				
	Basic rate			120	
	O&M 4th year escalation of 16%			19.2	
	Add 10% For area weightage (Mangalore City)			13.92	
			Rate	153.12	Cum
8	Operation & Maintenance for 4th Year: KSRRB 300-Compaction KSRRB 300-58. Compaction of original ground with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occuring during rolling including cost of all labour, HOM of machinery complete as per specifications. MORTH / Chapter 3.(KPWD 16-17,SI No.19.64,Pg.				
	Basic rate			6	
	O&M 4th year escalation of 16%			0.96	
	Add 10% For area weightage (Mangalore City)			0.7	
			Rate	7.66	Sqm
9	Operation & Maintenance for 4th Year: KSRRB 4-1.7 : Providing and laying in position plain cement concrete of mix 1:3:6 with OPC cement @ 220kgs, with 20mm and down size graded granite metal coarse aggregates @0.84cum and fine aggregates @ 0.56cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, plinth and cills, ncluding cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2(KPWD 16-17,SI.No.4.7,Page No.13)				
	Basic Rate			5770	
	O&M 4th year escalation of 16%			923.2	
	Add 10% For area weightage (Mangalore City)			669.32	
			Rate	7362.52	Cum
10	Operation & Maintenance for 4th Year: KSRRB M400-6.2.Construction of granular sub base by providing close graded crushed stone aggregate of granite/trap/basalt material,spreading in uniform layers with motor on prepared surface,mixing by mix in place methode by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density,complete as per specification. B.By Mix in Place Methode. Close graded granular sub base material as per 400-1 For Grading II material (Page No 155,SI No : 20.5.2)				
	Basic Rate			2166	
	O&M 4th year escalation of 16%			346.56	
	Add 10% For area weightage (Mangalore City)			251.26	
			Rate	2763.82	Cum

11	<p>Operation & Maintenance for 4th Year: KSRB 4.2.1 : Providing and laying in position reinforcement cement concrete of design Mix M25 with OPC cement @340Kgs,with 20mm and down size graded granite metal coarse aggregate @ 0.47 cum with super plasticisers @3 liters conforming to IS 9103-1999 reaffirmed -2008 at machine mixed,concrete laid in layers not exceeding 15cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls,return walls,walls (any thickness) including attached pilasters, columnspillars, posts, struts, buttresses, bed blocks,anchor blocks & plinths etc.,Including cost of labour,HOM of machinery,curing,complete but excluding cost of reinforcement as per specifications. (Page No 13,SI No : 4.10)</p>				
	Basic Rate			6198	
	O&M 4th year escalation of 16%			991.68	
	Add 10% For area weightage (Mangalore City)			718.97	
			Rate	7908.65	Cum
12	<p>Operation & Maintenance for 4th Year: KSRB 4.6.1 Providing and removing centering, shuttering, strutting, propping etc.,and removal of formwork for foundations, footings, bases of columns for mass concrete including cost of all materials,labour complete as per specifications. Specification No. KSB 4.6.2</p>				
	Basic Rate			263	
	O&M 4th year escalation of 16%			42.08	
	Add 10% For area weightage (Mangalore City)			30.51	
			Rate	335.59	Sqm
13	<p>Operation & Maintenance for 4th Year: KSRB 4.9.2 :Providing T.M.T steel reinforcement for RCC work including straighting,cutting,bending,hooking,placing in position,lapping and/or welding wherever required,tying with binding wire and anchoring to thr adjoining members wherever necessary complete as per design (laps,hooks and wastage shall not be measured and paid) cost of materials,labour,HOM of machinery complete as per specifications.Specification No. KBS4.6.3. do with TMT bars Fe500</p>				
	Basic Rate			70782	
	O&M 4th year escalation of 16%			11325.12	
	Add 10% For area weightage (Mangalore City)			8210.71	
			Rate	90317.83	MT
14	<p>Operation & Maintenance for 4th Year: KSRRB M300- Construction of Embankment with Material Gravel/ Murrum. KSRRB M300-53. Construction of embankment with approved material Gravel/Murrum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement Table 300- 2 complete as per specifications.(Including cost of gravel / murrum, watering charges & compaction by vibratory roller to 95% of proctors density) MORTH Specification No. 305</p>				
	Basic Rate			489	
	O&M 4th year escalation of 16%			78.24	
	Add 20km lead (17.4 KSRRB M100-4.1-Cost of haulage excluding loading and unloading MORTH-100/Chapter 1-case 1-Surface Road)=2.0 Rs/ Tkm x 1.28 T x 20km			52.48	
	Sub Total			619.72	
	Add 10% For area weightage (Mangalore City)			61.97	
			Rate	681.69	Cum
15	<p>Operation & Maintenance for 4th Year: KSRRB M600-1.Construction of dry lean cement concrete mix M15 with 1:5:10 OPC cement @160Kgs,with 25mm and down size graded granite/trap/basalt metal coarse aggregate at 0.86cum and fine aggregate @ 0.58cum Sub-base over prepared sub grade with (coarse and fine aggregate conforming to IS:383) aggregate cement ration not to excee 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content to be determined during trail length construction, concrete strength not to be less than 10Mpa at 7 days,mixed in a batching plant,transported to site,laid with a paver with electronic sensor,compacting with 8-10 tonnes vibratory roller,finishing and curing complete as per specifications.Morth specification No.601</p>				

	Basic Rate		4048	
	O&M 4th year escalation of 16%		647.68	
	Add 10% For area weightage (Mangalore City)		469.57	
		Rate	5165.25	Cum
16	Operation & Maintenance for 4th Year: KSSRRB M600-2.Construction of unreinforced,dowel jointed,plain cement concrete pavement over a prepared sub base with 25mm and down size graded granite metal coarse aggregate with superplasticizer at 3 lts conforming to IS9103-1999 reaffirmed 2008(Coarse and fine aggregate conforming to IS:383) mixed in a batching and mixing plant as per approved mix design,transported to site,laid with a fixed form or slip form paver spread,compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints,including groove cutting charges, joints filler,separation memberane, sealent primer, joints sealant, debonding strip, dowel bars at 4.5m intervals, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing complete as per specifications MORTH specification No.602.do with M40 (420Kg per cum Cement,C.A,0.67 cum F.A.044Cum			
	Basic Rate		5765	
	O&M 4th year escalation of 16%		922.4	
	Add 10% For area weightage (Mangalore City)		668.74	
		Rate	7356.14	Cum
17	Operation & Maintenance for 4th Year: Providing and placing joint sealant compound of cold polysulphide in the grooves after widening the groove to required width, sand blasting the groove face if recommended by the sealant manufacturer, cleaning the groove with air compressor, insertion of debonding strip, priming the sides of the sealant if the sealant manufacturer recommends and pouring the sealant all complete including material, manpower (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.2		115	
	O&M 4th year escalation of 16%		18.4	
		Rate	133.4	Rmt
18	Operation & Maintenance for 4th Year: KSSRRB 3000 Repair of Joint Grooves with Epoxy Mortar KSSRRB M3000-8 Repairs of spalled joints grooves of contraction joints longitudinal joints and expansion joints in concrete pavement using epoxy mortar concrete complete as per specifications.Morth specification No.3005.1			
	Basic Rate		331	
	O&M 4th year escalation of 16%		52.96	
	Add 10% For area weightage (Mangalore City)		38.4	
		Rate	422.36	Rmt
19	Operation & Maintenance for 4th Year: Providing and laying at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge). Kerb Dimension= Top Width=0.25m, Bottom Width=0.3 m, Height =0.9 m (RA Attached)			
	Rate Arrived as per Rate analysis			
	Basic Rate		1806	
	O&M 4th year escalation of 16%		288.96	
		Rate	2094.96	Nos

20	Operation & Maintenance for 4th Year: Providin and fixing pre cast solid concrete Kerb stones made out of CC 1:2:4 with top and bottom width 114 and 165mm respectively,400mm high and 450mm in length finished with CM 1:3 Plastering and finishing cutting, including cost of all materials,labour,hire charges of machinery,loading,unloading,lead and lift,transportation etc.,complete			
	Basic rate		421	
	O&M 4th year escalation of 16%		67.36	
	Add 10% For area weightage		48.84	
		Rate	537.20	Nos.
21	Operation & Maintenance for 4th Year: Removing and resetting of kerb stones. including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.			
	Basic rate		80	
	O&M 4th year escalation of 16%		12.8	
	Add 10% For area weightage		9.28	
		Rate	102.08	Nos.
22	Operation & Maintenance for 4th Year: KSRRB 800-1. Painting two coats after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete as per specifications. MORTH Chapter 8 (Page No 182,SI No : 24.1)			
	Basic Rate		80	
	O&M 4th year escalation of 16%		12.8	
	Add 10% For area weightage (Mangalore City)		9.28	
		Rate	102.08	Sqm
23	Operation & Maintenance for 4th Year: P/F Square shape 600mmx450 mm precast R.C.C. manhole cover with frame (Rate analysis attached) Rate Arrived as per Rate analysis			
	Basic Rate		917.00	
	O&M 4th year escalation of 16%		146.72	
		Rate	1063.72	Nos.
24	Operation & Maintenance for 4th Year: Providing and Fixing Recessed Inception chamber cover - size: (1250 x 1250 x 80)mm Material: Cast Iron / Ductile Iron (NON SOR Item) Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.15			
	O&M 4th year escalation of 16%		560	
		Rate	4060.00	Nos.
25	Operation & Maintenance for 4th Year: Providing gully pipe lowering,laying of PVC 100 mm dia pipes to the required alignments including specials and grade as indicated in drawings/design and hydraulically testing of the pipe line.The rate shall include all jointing materials,testing apparatus and water for testi g etc as directed by the Engineer in charge (page No.41,Item No.7,KUWSDB SOR 2016-17)			
	Basic Rate		297	
	O&M 4th year escalation of 16%		47.52	
	Add 12% on Labor Charges=Rs.47,For area weightage (Mangalore City)		5.64	
		Rate	350.16	Rm

26	Operation & Maintenance for 4th Year: KSRB 11-18-17.1 : Providing and fixing sand cast iron trap of 100mm dia, of self cleaning design with screwed down or hinged grating with or without vent arm including cutting and making good the walls and floors, cost of materials, labour, testing, complete as per specifications Specification No. KBS 11.1.10. (PWD SR 2015-16,P.No.86, SI.No.12.89)				
	Basic Rate			830	
	O&M 4th year escalation of 16%			132.8	
	Add 10% For area weightage (Mangalore City)			96.28	
			Rate	1059.08	Nos.
27	Operation & Maintenance for 4th Year: KSRRB M800- Cable Duct Across the road KSRRB M800-29.1. Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings complete as per specifications. Case - I : Single row for one utility service (KPWD SOR 16-17,Item No.24.34,Pg.No.188)				
	Basic Rate			5022	
	O&M 4th year escalation of 16%			803.52	
	Add 10% For area weightage (Mangalore City)			582.55	
			Rate	6408.07	Rm
28	Operation & Maintenance for 4th Year: Providing and laying Dia 225mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years. (Market Rate)				
	Basic Rate			2500	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)			78	
	Add 12% For area weightage (Mangalore City)			9.36	
	Sub Total			2587.36	
	O&M 4th year escalation of 16%			413.98	
			Rate	3001.34	Rm
29	Operation & Maintenance for 4th Year: Providing and HDPE Coupler for pipe Dia 225mm(O.D.) and conveying to work site including loading and unloading at both destination and lowering,Jointing into trenches,Complete. (Market Rate)				
	Basic Rate			1775	
	O&M 2nd year escalation of 12%			213	
			Rate	1988.00	Nos.
30	Operation & Maintenance for 4th Year: Providing and laying Dia 160mm HDPE Electrical pipe Conduits with Silicore Lubricant inner layer with ribs, dimensional ratio of 13.5,Deflection not greater than 5% when exposed to the normal operating temperature 90°C under the over burden soil pressure and other physical properties conforming to ASTM F 2160 and /or NEMA TC7.The expected service life of HDPE pipe conduits and accessories shall not be less than 50 years.(Market Rate)				
	Basic Rate			1350	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)			66	
	Add 12% For area weightage (Mangalore City)			7.92	
	Sub Total			1423.92	

	O&M 4th year escalation of 16%		227.83	
		Rate	1651.75	Rm
31	Operation & Maintenance for 4th Year: Supplying HDPE pipe Coupler for Dia 160mm(O.D.) and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe and special including encasing the pipe Complete. (Market Rate)			
	Basic Rate		1475	
	O&M 4th year escalation of 16%		236	
		Rate	1711.00	Nos.
32	Operation & Maintenance for 4th Year: Providing and Fixixng Spacers for Power Ducts of size 225 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1003	
	O&M 4th year escalation of 16%		160.48	
	GST @18%		180.54	
		Rate	1344.02	Nos.
33	Operation & Maintenance for 4th Year: Providing and Fixixng Spacers for Power Ducts of size 160 mm, to be placed at an interval of 1.5 meter. Spacers shall be made of ABS raw material. (Market rate)			
	Basic Rate		1947	
	O&M 4th year escalation of 16%		311.52	
	GST @18%		350.46	
		Rate	2608.98	Nos.
34	Operation & Maintenance for 4th Year: Supplying 7-way 40mm HDPE pipe Multi-way Duct Silicore Lubricant inner layer for ICT fibre cables conforming to ASTM F 2160 and /or equivalent indian standard and conveying to work site including loading and unloading at both destination and rolling,lowering into trenches,laying true to line and jointing of pipe etc.Complete. (Market Rate)			
	Basic Rate		685	
	Labour Cost for laying and Jointing-KUWSDB,HDPE Pipes,Item No.50,Pg.No.123)		36	
	Add 12% For area weightage (Mangalore City)		4.32	
	Sub Total		725.32	
	O&M 4th year escalation of 16%		116.05	
		Rate	841.37	Rm
35	Operation & Maintenance for 4th Year: Supplying Coupler for 7-way 40mmHDPE pipe With Multi-way Duct and conveying to work site including loading and unloading at both destination and lowering into trenches, and jointing of pipe.Complete. (Market Rate)			
	Basic Rate		175	
	O&M 4th year escalation of 16%		28	
		Rate	203.00	Nos.

36	<p>Operation & Maintenance for 4th Year: Providing and laying heavy duty cobble stones 60mm thick, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications.</p>			1056.00	
	Basic rate			168.96	
	O&M 4th year escalation of 16%			122.5	
	Add 10% For area weightage (Mangalore City)				
		Rate		1347.46	Sqm
37	<p>Operation & Maintenance for 4th Year: Providing and laying heavy duty Tactile Tiles (Direction and Stop tiles-300 x 300 mm) 60mm thick and Yellow in colour , using cement and course sand for manufacture of blocks of approved size, shape with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Non SOR Item)</p>			912.00	
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.12			145.92	
	O&M 4th year escalation of 16%				
		Rate		1057.92	Sqm
38	<p>Operation & Maintenance for 4th Year: Providing and laying heavy duty cobble stones 75mm thick, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specifications. (Page No 101,SI No : 14.7)</p>			1114	
	Basic rate			178.24	
	O&M 4th year escalation of 16%			129.22	
	Add 10% For area weightage (Mangalore City)				
		Rate		1421.46	Sqm
39	<p>Operation & Maintenance for 4th Year: Road Marking with hot applied Thermoplastic Compound with Reflectrising Glass Beads on Concrete Surface:Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads at 250 gms and 2 ltr of primer per sqm area,thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35.The finished surface to be level,uniform and free from streak and holes complete as per specifications.MORTH specification No.803 (Page No 192.SI No : 24.57)</p>			429	
	Basic Rate			68.64	
	O&M 4th year escalation of 16%			49.76	
	Add 10% For area weightage (Mangalore City)				
		Rate		547.40	Sqm
40	<p>Operation & Maintenance for 4th Year: Operation and Maintenance for eToilets Stainless Steel Public Model as specified in Road and Other works BOQ Item No.45.</p>			61200	
	Baisc rate			9792	
	O&M 4th year escalation of 16%				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.1	Rate		70992	Nos.

41	Operation & Maintenance for 4th Year: Providing and fixing of S.S. Bollards(SS304) on footpath as specified and directed by Engineer -in-charge (NON SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.13		4500.00
	O&M 4th year escalation of 16%		720
		Rate	5220
			Nos.
42	Operation & Maintenance for 4th Year: Providing and fixing of railing as detail design in MS HOLLOW SECTION and bars (shop drawing to be approved),with vertical support of 0.9m @2.2mc/c , all complete to the satisfaction of the Landscape architect.(Non SOR Item)		
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.26		100000.00
	O&M 4th year escalation of 16%		16000
		Rate	116000
			MT
43	Operation & Maintenance for 4th Year: Excavation and removal of silt and silt mixed with sand in slussy condition from canal bed including disposing off the same in spoil bank or on the canal embankment in layers as directed etc., complete with lead upto 50 m and all lifts. For Desilting of drains and grit chambers including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.		
	Basic Rate		186.16
	O&M 4th year escalation of 16%		29.79
		Rate	215.95
			Nos.
44	Operation & Maintenance for 4th Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Earth		
	Earth	2.0x1.28x10km	
	Basic rate		25.60
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00
	Sub Total-1		82.60
	Add 10% For area weightage (Mangalore City)		8.26
	Sub Total-2		90.86
	O&M 4th year escalation of 16%		14.54
		Rate	105.40
			Cum
45	Operation & Maintenance for 4th Year: Extra Lead for Disposing off unserviceable materials upto 10 Km beyond initial Lead Item No 17.4 KSRRB M100-4.1-Debris		
	Debris	2.0x1.30x10Km	
	Basic rate		26.00
	Add Loading and unloading charges(Item No 17.1 KSRRB M100-1)		57.00
	Sub Total-1		83.00
	Add 10% For area weightage (Mangalore City)		8.3
	Sub Total-2		91.30
	O&M 4th year escalation of 16%		14.61
		Rate	105.91
			Cum
	Lighting Poles		

46	Operation & Maintenance for 4th Year: Dismantling, removal, transportation to client's storage place existing lighting poles (Non SOR Item)				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.22			1,000	
	O&M 4th year escalation of 16%			160	
		Rate		1160	Nos.
47	Operation & Maintenance for 4th Year: Lighting Pole, 9 m Fabrication, supply and erection of 9 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.7)				
	Basic rate			17118	
	O&M 4th year escalation of 16%			2738.88	
		Rate		19,856.88	Nos.
48	Operation & Maintenance for 4th Year: Lighting Pole, 7 m Fabrication, suppl and erection of 7 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with oor opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 m pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 155 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No. 5.14.5)				
	Basic rate			12420	
	O&M 4th year escalation of 16%			1987.2	
		Rate		14,407.20	Nos.
49	Operation & Maintenance for 4th Year: Lighting Pole, 4 m Fabrication, supply and erection of 4 meters long hot dip Galvanised Octagonal pole with BSE 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, icluding suitable boards, bakelite sheet and MCBs as per IS specifications suitable for wind speed of 47 m/sec for 5 4 pole in single section and single joint welded as per IS 9595/IS 10178 AWG having dimensions bottom 130 mm dia, top 70 mm with 3 mm thick, suitable base plate and 4 nos. of long J bolts along with template and the pole shall be hot dip galvanized in single dipping with not less than 65 micron as per ASTM - A123 and 153 etc., (excluding foundation) as per drawing appended (Ref Electrical SOR SI No.5.14.2)				
	Basic rate			7398	
	O&M 4th year escalation of 16%			1183.68	
		Rate		8,581.68	Nos.
50	Operation & Maintenance for 4th Year: Supplying and fixing of hot dip Galvinized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Double Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.5)				
	Basic rate			3540	
	O&M 4th year escalation of 16%			566.4	
		Rate		4,106.40	Nos.

51	Operation & Maintenance for 4th Year: Supplying and fixing of hot dip Galvanized M.S.bracket Suitable for outdoor luminaries and mounted on Octagonal pole using necessary bolts,nuts, etc. complete Single Cross arm - 1500 mm (Ref Electrical SOR SI No.5.18.2)		2400	
	Basic rate			
	O&M 4th year escalation of 16%		384	
		Rate	2,784	Nos.
52	Operation & Maintenance for 4th Year: Painting of Existing street light pole after scrapping the old paint and painted with suitable colour enamel including coping/footing of the pole.-8mtr and above street light pole (Ref Electrical SOR SI No.16.28.3)		700	
	Basic rate			
	O&M 4th year escalation of 16%		112	
		Rate	812	Nos.
	LT Cable			
53	Operation & Maintenance for 4th Year: Supplying of 1.1 kV LT cable having aluminium conductor PVC insulated, extruded inner sheathed, galvanised, steel strips (except 2C x 10 sq. mm wire armoured) as per IS-3975:1990 and extruded PVC outer sheathed armoured cable as per IS - 1554 Part 1:1988 & conforming to GTP of GROUP B 4 Core x16 Sq.mm PVC Aluminium Conductor, (Ref Electrical SOR SI No.7.5,7.5.4)		117	
	Basic rate			
	O&M 4th year escalation of 16%		18.72	
		Rate	135.72	Rm
54	Operation & Maintenance for 4th Year: Supply and drawing flexible multicore cable with electrolyte grade flexible copper with low conductor conforming to Table 3 Class 5 of IS:8130-1984 and vargin PVC insulation and sheathed suitable for working voltage up to 1100 V as per IS-694:1990 and conforming to GTP of Group A. 3C x 2.5 sq. mm (Ref. Electrical SOR 2.8.8)		81.6	
	Basic rate			
	O&M 4th year escalation of 16%		13.06	
		Rate	94.66	Rm
55	Operation & Maintenance for 4th Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 16 Sq.mm PVC Aluminium Conductor (Ref Electrical SOR SI No.7.21,7.21.6)		11.31	
	Basic rate			
	O&M 4th year escalation of 16%		1.81	
		Rate	13.12	Nos.
56	Operation & Maintenance for 4th Year: Supplying tinned copper lugs and crimping and wiring to terminal point for wire of following sizes 2.5 sq. mm copper conductor (Ref Electrical SOR SI No.7.21.2)		3.21	
	Basic rate			
	O&M 4th year escalation of 16%		0.51	
		Rate	3.72	Nos.
57	Operation & Maintenance for 4th Year: Chemical Earthing for grounding,conduits,IC cut outs and otherequipmentson the mter boardby using copper /SS rod with earth enhancing backfill compound which is non corrosive ,thermally,conductive,potential,to permissible,limits,superior,fault,conductive capacity,non toxic,weather resistance and capable of achieving ohmic value less than one ohm (Ref Electrical SOR Pg.No.64,SI No.7.23.6)		5500	
	Basic rate			

	O&M 4th year escalation of 16%		880	
		Rate	6380	Kit
58	Operation & Maintenance for 4th Year: Supply and running GI conductor for grounding and (along with other wires in conduits system of wiring) using necessary suitable size clamps, nails, guttas/spacers etc-8 SWG (Ref Electrical SOR SI No.7.22.3)			
	Basic rate		19.5	
	O&M 4th year escalation of 16%		3.12	
		Rate	22.62	Rmt
59	Operation & Maintenance for 4th Year: Supplying and stacking of good earth at site including royalty and carriage upto 5 k.m. lead complete (earth measured in stacks will be reduced by 20% for payment). (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.27		140.00	
	O&M 4th year escalation of 16%		22.4	
		Rate	162.40	Cum
60	Operation & Maintenance for 4th Year: KSRRB M300-Supply at site of work well decayed farm yard manure KSRRB M300-11. Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stacking complete as per specifications. MORTH Specification No. 308.2(Page No.152,SI.No.19.90)			
	Basic rate		204	
	O&M 4th year escalation of 16%		32.64	
	Add 10% For area weightage		23.66	
		Rate	260.30	Cum
61	Operation & Maintenance for 4th Year: KSRRB M300-Horticulture KSRRB M300-Spreading of sludge farm yard manure or/ and good earth KSRRB M300-1. Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm yard manure or/and good earth to be paid for separately) complete as per specifications. MORTH Specification No. 307			
	Basic rate		103	
	O&M 4th year escalation of 16%		16.48	
	Add 10% For area wightage		11.95	
		Rate	131.43	Cum
62	Operation & Maintenance for 4th Year: Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge (Non SOR item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.28		23.91	
	O&M 4th year escalation of 16%		3.83	
		Rate	27.74	Cum
63	Operation & Maintenance for 4th Year: Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc complete including cost of all materials, scaffolding HOM of machineries with all lead and lifts, labour charges including implementation of Environmental and Social Safeguards & as per design, drawing, technical specifications and directions of Engineer-in-charge.			
	Basic rate		103	
	O&M 4th year escalation of 16%		16.48	
	Add 10% For area wightage		11.95	
		Rate	131.43	Sqm

64	Operation & Maintenance for 4th Year: Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately). (Non SOR Item)				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.29			146.00	
	O&M 4th year escalation of 16%			23.36	
			Rate	169.36	Cum
SHRUBS: Supply and Stacking of Shrubs					
65	Operation & Maintenance for 4th Year: Ficus Blackeana 5'-0" ht with 4-5 branches and bushy form (Non SOR Item)				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.30			840.00	
	O&M 4th year escalation of 16%			134.4	
			Rate	974.40	Nos.
66	Operation & Maintenance for 4th Year: Nerium Oleander variegated - 5'0" ht , 5-6 branches and bushy in form (Non SOR Item)				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.31			840.00	
	O&M 4th year escalation of 16%			134.4	
			Rate	974.40	Nos.
67	Operation & Maintenance for 4th Year: Pandanus variegated'gold ' 300mm ht , 300mm c/c in triangulation , with 4-5 fronds (Non SOR Item)				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.39			84.00	
	O&M 4th year escalation of 16%			13.44	
			Rate	97.44	Nos.
68	Operation & Maintenance for 4th Year: Bougenvilla variety 'red ' 600mm dia , specimen plant in round shape the plant should be ready in form and bushy to satisfaction of landscape architect/PMC (Non SOR Item)				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40			140.00	
	O&M 4th year escalation of 16%			22.4	
			Rate	162.40	Nos.
69	Operation & Maintenance for 4th Year: Ficus blackenia, c/c: 600m, must be bushy and multibranch(ed) (atleast 3), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.				
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40			840.00	
	O&M 4th year escalation of 16%			134.4	
			Rate	974.40	Nos.

70	Operation & Maintenance for 4th Year: Nerium oleander, c/c: 600m, must be bushy and multibranched(atleast 5), Dia: 750mm. Plants should be packed in tree bags and stacked well on site, and regularly watered; untill after the planting.			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.40		840.00	
	O&M 4th year escalation of 16%		134.4	
		Rate	974.40	Nos.
	TURF			
71	Operation & Maintenance for 4th Year: ZOYSIA JAPONICA (MAT) (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.32		156.80	
	O&M 4th year escalation of 16%		25.09	
		Rate	181.89	Sqm
	IRRIGATION			
72	Operation & Maintenance for 4th Year: Watering with tanker to landscape area and plants for one year			
	Water Tanker =52 Rs/ Hour,One Year Cost=92 days x 3 hrs x 61rs/hr (365days-90 days of mansoon=275 days/3 days=92 days,consider watering at every 3 days)		14352	
	Mazdoor = 0.5 days x 446.20		20525.2	
	Add 10% For area wightage		2052.52	
	O&M 4th year escalation of 16%		5580.35	
		Rate	42510.07	Year
73	Operation & Maintenance for 4th Year: supply and fixing of irrigation lines such that all the green areas and plants are adequately watered; by means of drip irrigation for trees , sub surface for shrubs and lawn areas / ground covers and pop up sprinklers for lawn areas. (Equipment make - Rainbird or equivalent) All material used should be comply to BSI code. All the necessary value and pump required for complete commissioning to be installed. (Non SOR Item)			
	Rate Approved as per EOI by MD MSCL Mangalore,Refer Sr.No.34		560.00	
	O&M 4th year escalation of 16%		89.6	
		Rate	649.60	Sqm

**Assistant Engineer
MSCL Mangaluru**

**Executive Engineer
MSCL Mangaluru**

**General Manager Technical
MSCL Mangaluru**