

MANGALURU SMART CITY

1.1 Grand Summary for Under Ground Drainage Zone-3 (Part-2)

Sr. No.	Description	Cost In INR
1	Underground Drainage	24187274
2	Utility Shifting -Compound wall,Culvert and RCC Drain	12,33,457
3	Electrical Pole Shifting	8,36,649
	Total Cost	2,62,57,380
	Add Tender Premium @ 5%	13,12,869
	Add Contingency @ 3%	7,87,721
	Taxes as applicable @4%	10,50,295
	Administrative charges,Miscellaneous and rounding off (LS)	5,91,735
	Grand Total	3,00,00,000

**Executive Engineer
MSCL Mangaluru**

**GM Technical
MSCL Mangaluru**

**Managing Director
MSCL Mangaluru**

MANGALURU SMART CITY

1.2 BOQ of UNDERGROUND DRAINAGE FOR Zone-3 (Part-2)

BOQ item No	Specification	Unit	Quantity	Rate	Amount	Remarks
	UNDERGROUND DRAINAGE					
1	KSRRB200-8. Clearing and grubbing road land including uprooting rank vegetation, grass, brush, shrubs, saplings and trees of girth upto 300mm, by manual means, in area of light jungle, removal of stumps, disposal of unserviceable materials, stacking of serviceable materials labour charges complete as per specifications KSRB Pg No.136,SI No.18.11	Sqm	5972.00	6.72	40,132	
2	Cutting asphalt road surface for pipeline trenches and disposing off the excavated stuff with all lead and lift as directed including barricading,danger lighting etc., KUWSDB-15-16 SI No.5.2,Pg No.17	Cum	922.00	647.36	5,96,866	
3	Cutting Concrete road surface for pipeline trenches and disposing off the excavated stuff with all lead and lift as directed including barricading,danger lighting etc., KUWSDB-15-16 SI No.5.3,Pg No.17	Cum	102.44	1298.08	1,32,981	
4	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.(As per Data Rate)	Sqm	154.64	36.83	5,695	
5	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring,strutting,bailing out water at every 100 meters wherever neccessary as directed in the following Strata KUWSDB SR 15-16,SI No 1-i-(a),Pg No 5					
	do in all soils mixed mixed with boulders of 30 cms size upto an exclusive of disintegrated rock D182					
	0 to 2mtr depth	Cum	3434.88	196.00	6,73,237	
	2 to 4mtr depth	Cum	143.77	259.84	37,358	
6	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring,strutting,bailing out water at every 100 meters wherever neccessary as directed in the following Strata KUWSDB SR 15-16,SI No 1-ii-(a),Pg No 5					
	In disintegrated rock, soft rock, soft shale, medium hard rock comprising of lime stone, sand stone, hard shale, schiest, fissured rock without resorting to blasting					
	0 to 2mtr depth	Cum	429.36	442.40	1,89,949	
	2 to 4mtr depth	Cum	95.85	495.04	47,450	
7	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring,strutting,bailing out water at every 100 meters wherever neccessary as directed in the following Strata KUWSDB SR 15-16,SI No 1-iii-(a),Pg No 7					
	In hard laterite rock or hard laterite rock containing iron ore upto 20% by chistelling and trimming to proper slope					
	0 to 2mtr depth	Cum	306.69	674.24	2,06,780	
	2 to 4mtr depth	Cum	68.46	807.52	55,286	

BOQ item No	Specification	Unit	Quantity	Rate	Amount	Remarks
8	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16, SI No 1-iv-(a), Pg No 7					
	In hard laterite rock containing iron ore above 20% by chistelling and trimming to proper slope					
	0 to 2mtr depth	Cum	85.87	1430.24	1,22,818	
	2 to 4mtr depth	Cum	47.92	1500.80	71,926	
9	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16, SI No 1-vi-(a), Pg No 9					
	In hard rock by Controlled blasting					
	0 to 2mtr depth	Cum	122.67	1413.44	1,73,393	
	2 to 4mtr depth	Cum	136.93	1565.76	2,14,397	
10	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16, SI No 1-v-(a), Pg No 7					
	In hard rock by chistelling					
	0 to 2mtr depth	Cum	61.34	1780.80	1,09,229	
	2 to 4mtr depth	Cum	68.46	1910.72	1,30,816	
11	Earthwork Excavation by Mechanical Means Earthwork in excavation for pipeline trenches beyond 600mm and 1500mm trench width as per drawing and technical specification, including setting out, construction of shoring, strutting, barricading, danger lighting, bracing, using sight rails and boning rods at every 100 meters wherever necessary as directed, removal of slumps and other deleterious matter, dressing of sides and levelling the bottom of trench to the extent required, utilising the available excavated earth locally for the work etc., complete in the following strata. KUWSDB SR 15-16, SI No Vii 3, Pg No 11					
	a) - do - In ordinary/All soils/Hard soil	Cum	1533.71	107.52	1,64,905	
	b) -do- In Ordinary Rock (not requiring blasting)	Cum	433.92	146.72	63,664	
	c) -do- In Hard Rock (requiring blasting)	Cum	77.88	847.84	66,030	
12	Providing coarse sand bedding for the pipeline trenches including watering and consolidation by punners etc., complete with all lead and lift (In black cotton and rock reaches) KUWSDB 15-16, Pg No 17, SI No.6	Cum	51.52	1809.92	93,244	

BOQ item No	Specification	Unit	Quantity	Rate	Amount	Remarks
13	Providing Muram/Gravel Bedding for the pipeline trenches including watering and consolidation by punners etc., complete with all lead and lift as directed including barricading, danger lighting etc., as directed by the Engineer-in-Charge etc., complete, for all type of soils excluding black cotton soil and rock reaches. KUWSDB Pg No.17,SI No.6.1,6.2	Cum	360.63	276.64	99,764	
14	KSRB 4-1.6 ; Providing and laying in position plain cement concrete of mix 1:2:4 with cement @ 240kgs, with 20mm and down size graded granite metal coarse aggregates @ 0.69 cum and fine aggregates @ 0.459cum, 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. KSRB 16-17, Pg No.12,SI No.4.6	Cum	103.04	6093.92	6,27,898	
15	Supplying Unplasticised PVC pipes confirming to IS 15328:2003 with latest amendments ended with integral sockets with ISI mark and conveying to worksite,rolling and lowering into trenches,Laying true to line and level and perfect linking at joints,testing and commissioning,including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of UPVC Pipes (with cost of elastomeric sealing rings) and specials (excluding cost of specials) with jointing of approved type,with all labour with all lead and lift including encasing the pipe aaround to a depth of not less than 15cms with soft gravel or selected earth available from the excavation etc.,complete and giving neccessary hydraulic test to the required pressure as per ISS (Contractor will make his own arrangements for procuring water for testing) KUWSDB,Pg No 205 and 207,SI No 4					
a	Supply and laying of PVC- U Pipes as per IS 15328 SN 4 - Ring tite: 200mm	Rmt	2403.00	804.40	19,32,973	
16	Supplying Unplasticised PVC pipes confirming to IS 15328:2003 with latest amendments ended with integral sockets with ISI mark and conveying to worksite,rolling and lowering into trenches,Laying true to line and level and perfect linking at joints,testing and commissioning,including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of UPVC Pipes (with cost of elastomeric sealing rings) and specials (excluding cost of specials) with jointing of approved type,with all labour with all lead and lift including encasing the pipe aaround to a depth of not less than 15cms with soft gravel or selected earth available from the excavation etc.,complete and giving neccessary hydraulic test to the required pressure as per ISS (Contractor will make his own arrangements for procuring water for testing) KUWSDB,Pg No 207 and 207,SI No b1					
a	Supply and laying of PVC- U Pipes as per IS 15328 SN 8 - Ring tite: 110mm	Rmt	2520.00	305.96	7,71,019	
17	Construction RCC M25 circular inspection chamber 600 mm dia x 600mm depth (clear inside dimension) for single pipeline, with M15 PCC bed for 100 mm thick using mix with cement @240 kgs granite graded metal of 20 mm and down size and clean sieved river sand , M25 RCC raft & sidewall concrete with 20mm and downsize granite metal, , finish smooth with a floating coat of cement on walls and bed concrete complete , including fixing and grouting of pipes, including conveying to work spot supply and fixing SFRC manhole cover and frame (Heavy Duty) confirming to IS: 12592 with latest amendments as per standard design including cost of reinforcement, all materials, labour charges, curing complete as per specifications.	Nos	242.00	6637.00	16,06,154	

BOQ item No	Specification	Unit	Quantity	Rate	Amount	Remarks
18	Making connections of drain or sewer line of size 100mm to 230mm external dia with existing manhole including breaking into and making good the walls, floors with cement concrete M15 with 20mm and downsize granite metal mix cement plastered on both sides with cement mortar 1:3 finished with a floating coat of neat cement and making necessary channels for the drain etc., complete PWD SR 2016-17,SI No.11.47.3,Pg No.73	Nos	13.00	1942.08	25,247	
19	Constructing RCC Manhole chamber of 1:1.5:3 proportion or approved type pre-cast RCC manhole chambers,constructed using form vibrators of standard type, with barricading, danger lighting and using of sight rails and boning rods wherever necessary , shoring and strutting wherever required using ordinary port land cement, using 1:1.5:3 proportion RCC with 20 mm and down graded jelly, well graded sand and steel of approved quality , 200 mm thick top concrete slab, having wall thickness and raft thickness as in approved drawings and with an offset in raft around the chamber as in approved drawing, benching concrete with 1:6 slope towards the central drain finished smooth, including fixing and grouting of pipes, including conveying to work spot supply and fixing SFRC manhole cover and frame (Heavy Duty) confirming to IS: 12592 with latest amendments, on a bed of CC 1:2:4 supplying and fixing of minimum 3 mm thick encapsulated plastic footsteps (as per IS 10910) on 12 mm dia. Grade Fe-415 steel bar (as per IS 1786) staggered at 300 mm apart as detailed in Technical specifications, including sand bedding wherever required, disposal of surplus earth, watering, curing, engraving manhole number with flow direction on the inner cylindrical surface etc., complete including cost of reinforcement steel and fabrication charges					
a	1.2 Meter Dia Manhole					
	For 1.1m Depth	Nos	4.00	44077.60	1,76,310	
	For 1.2m Depth	Nos	44.00	45641.12	20,08,209	
	For 1.3m Depth	Nos	13.00	47124.00	6,12,612	
	For 1.4m Depth	Nos	6.00	48686.40	2,92,118	
	For 1.5m Depth	Nos	6.00	50248.80	3,01,493	
	For 1.6m Depth	Nos	12.00	51812.32	6,21,748	
	For 1.7m Depth	Nos	5.00	53373.60	2,66,868	
	For 1.8m Depth	Nos	3.00	54857.60	1,64,573	
	For 1.9m Depth	Nos	2.00	56420.00	1,12,840	
	For 2.0m Depth	Nos	2.00	58387.84	1,16,776	
	For 2.2m Depth	Nos	2.00	61588.80	1,23,178	
	For 2.3m Depth	Nos	2.00	63189.28	1,26,379	
	For 2.4m Depth	Nos	2.00	64789.76	1,29,580	
	For 2.5m Depth	Nos	2.00	66390.24	1,32,780	
	For 2.6m Depth	Nos	2.00	67990.72	1,35,981	
	For 2.7m Depth	Nos	1.00	69591.20	69,591	
	For 2.8m Depth	Nos	3.00	71191.68	2,13,575	
	For 2.9m Depth	Nos	2.00	72792.16	1,45,584	
	For 3.0m Depth	Nos	3.00	74392.64	2,23,178	
	For 3.1m Depth	Nos	4.00	95601.97	3,82,408	
	For 3.2m Depth	Nos	1.00	97524.90	97,525	
b	1.5 meter Dia Manhole					
	For 3.8m Depth	Nos	1.00	109062.46	1,09,062	
	For 4.3m Depth	Nos	2.00	121127.22	2,42,254	
	For 4.6m Depth	Nos	1.00	129346.11	1,29,346	
	For 4.9m Depth	Nos	1.00	137565.01	1,37,565	

BOQ item No	Specification	Unit	Quantity	Rate	Amount	Remarks
20	Refilling Pipeline Trenches and foundation with selected available earth from trench excavation and foundation including watering,consolidation in layers of 15cms.,thick including disposing off the surplus earth with all lead and lift. KUWSDB Pg No 15,SI No 2	Cum	3212.52	66.08	2,12,283	
21	Removal of Unserviceable Soil with Disposal KSRRB M300-19. Removal of unserviceable soil including excavation, loading and disposal but excluding replacement by suitable soil which shall be paid separately as per clause 300.5 complete as per specifications. MORTH Specification No. 301 KPWD Pg No. 144 ,SI No.19.20					
	5 Km Distance	Cum	4426.27	135.52	5,99,848	
22	KSRRB M400-6.2. Construction of Granular Sub-base by Providing Close graded crushed stone aggregates of granite /trap/basalt material spreading in uniform layers with motor grader 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 specifications. B. By mix in place Method For grading II material KSRB Pg No.155,20.5.2	Cum	1527.26	1576.96	24,08,421	
23	KSRRB M400-Wet Mix macadam KSRRB M400-17. Providing, laying, spreading and compacting crushed stone aggregates of granite/trap/ basalt to wet mix macadam specification including per mixing the material with water at OMC in Mechanical mix plant carriage of mixed material by tipper to site, laying in uniform layers with paver in sub-base/base course on well prepared surface and compacting with vibratory roller to achieve the desired density complete as per specification. MORTH Specification NO.406 KSRB Pg No 158,20.18	Cum	1272.71	1868.16	23,77,631	
24	KSRRB M500-6. Providing and applying primer coat with S.S. bitumen emulsion on prepared surface of granular base such as WMM including cleaning of road surface and spraying primer at the rate of 0.60 kg / sqm using mechanical means complete as per specifications. MORTH Specification No. 502 KSRB Pg No.161,SI No:21.6	Sqm	5090.85	29.12	1,48,246	
25	Providing and laying bituminous macadam on prepared surface with crushed coarse aggregates as per design mix formula for base / binding course including loading of aggregates with F.E loader, hot mixing of stone aggregates and bitumen in hot mix plant 40/60 TPH capacity, transporting the mixed material in tipper to paver and laying mixed materials with paver finisher to the required level and grade, rolling by power roller to achieve the desired density, 50 / 75 mm compacted thickness with 3.4% bitumen but excluding cost of primer/tack coat with all lead and lift including cost of materials, labour, HOM of machineries complete as per specifications. MORTH Chapter 5, using 60/70 grade bitumen, Including environmental and social safe guards, including all taxes, as directed by the Engineer-in-Charge etc., complete. 50mm thick KSRRB Pg No.162,SI No. 21.11.6	Cum	254.54	6054.72	15,41,184	

BOQ item No	Specification	Unit	Quantity	Rate	Amount	Remarks
26	KSRRB 500-7. Providing and applying tack coat using 80/100 grade bitumen(VG10) on the prepared black topped surfaces at 2.5 kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications. MORTH/Chapter 5	Sqm	5090.85	13.44	68,421	
27	Providing and laying Semi dense bituminous concrete with 40-60 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder at 4.5 to 5% of mix and filter, transporting the hot mix to work site, laying with a hydrostatic paver finisher with mechanical paver to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause no. 500.8, 25 mm compacted thickness with 5% bitumen 60/70 grade using 40-60 HMP (Grading II) using mechanical paver, with all lead and lift ,Labour, as per specification, Including environmental and social safe guards, including all taxes, as directed by the Engineer-in-Charge etc., complete. 25mm thick	Cum	127.27	7778.40	9,89,967	
28	Dewatering for Lowering of water table to creat dry conditions at least upto the bed of the excavation including the cost of material, labour T & P articles & machinery laying sewer line & Manholes as per approved drawings according. to the requirement of the construction of structure. The cost of this work shall be inclusive of disposal of water pumped out at a safe place away from the structure. The dewatering will work till the completion of the structure as per approved drawings ,with all horizontal leads and lifts etc., complete in all respects as per specification and as directed by engineer.During the execution of work enough precaution should be taken by the contractor to ensure that the clear water flows from the delivery pipe of pumps to avoid any settlement of soil during the process. (A s per Data Rate)	Day	75.00	4218.20	3,16,365	
29	KSRRB 14.6-2 :Providing and laying heavy duty cobble stones 75mm thick interlock pavers, 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. PWD (16-17,Pg No.101,SI No.14.7)	Sqm	178.72	1086.40	1,94,162	
Total					2,41,87,274	
	UTILITY SHIFTING					
A	DISMANTLING					
1	KSRRB M200-13.2. 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. MORTH Specification No. 202 KSRRB Pg No.137,SI No.18.21	Cum	51.91	673.12	34,943	
2	KSRRB M200-14.2. 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) Dismantling brick/Tile work B. In cement mortar. MORTH Specification No. 202 KSRRB Pg No.137,SI No.18.23	Cum	22.25	273.28	6,080	

BOQ item No	Specification	Unit	Quantity	Rate	Amount	Remarks
B	COMPOUND WALL					
1	KSRB 2-2.1 : Earthwork excavation for foundation of buildings, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in ordinary soil not exceeding 1.5 m. in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m. after breaking of clods complete as per specifications. specification. No. KBS 2.1(a) / 2.3.5 KSRRB Pg No.5,SI No.2.3	Cum	68.40	211.68	14,479	
2	KSRB 4-1.1: Providing and laying in position plain cement concrete of mix 1:2:4 with OPC cement @ 240kgs, with 40mm and down size graded granite metal coarse aggregates @0.878cum and fine aggregates @ 0.459cum machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2 KSRRB Pg No.12,SI No.4.1	Cum	12.09	5838.56	70,585	
3	Providing and constructing granite / trap / basalt size stone masonry in foundation with cement mortar 1:6 stone hammerd dressed in courses not less than 20 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KBS 5.1.13 KSRRB Pg No.254,SI No.34.8.2	Cum	43.20	4689.44	2,02,584	
4	Providing & constructing laterite size stone masonry in CM 1:6 including cost and conveyance of all materials curing, etc complete as per specification I.S. 3620 / 1979 having compressive strength not less than 3.5 N/mm2 for saturated dry samples. For super structure in CM 1:6 (Cement 45 kgs/M3) (Ground Floor) KSRRB Pg No.267,SI No.37.66.1	Cum	18.58	4939.20	91,768	
5	KSRB15-3.11 : Providing 20mm thick cement plaster in single coat with cement mortar 1:4, to stone masonry & concrete surface including rounding off corners wherever required smooth rendering, : Providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications. KSRRB Pg No.114,SI No.15.19	Sqm	224.48	262.08	58,832	
6	KSRB 15-16.1 : Providing and finishing external walls in two coats with waterproof cement paint of approved brand and shade to give an even shade after thoroughly brooming the surface to remove all dirt and loose powdered material, free from mortar drops and other foreign matter cost of materials, labour, complete as per specifications. - with primer. KSRRB Pg No.118,SI No.15.53.2	Sqm	224.48	94.08	21,119	
7	KSRB 2.3: Filling available excavated earth (excluding rock) in sides of foundations upto plinth in layers not exceeding 20cms. In depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5m. including cost of all labour complete as per specifications. Specification No. KBS 2.9 KSRRB Pg No.6,SI No.2.10	Cum	22.80	142.24	3,243	
C	CULVERT					
1	KSRB 2-2.1 : Earthwork excavation for foundation of buildings, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in ordinary soil not exceeding 1.5 m. in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m. after breaking of clods complete as per specifications. specification. No. KBS 2.1(a) / 2.3.5 KSRRB Pg No 5,SI No.2.3	Cum	103.52	211.68	21,912	

BOQ item No	Specification	Unit	Quantity	Rate	Amount	Remarks
2	KSRRB M2900- PCC 1:3:6 in Foundation KSRRB M2900-1. Plain cement concrete 1:3:6 mix with crushed stone aggregate 40 m nominal size mechanically mixed, placed in foundation and compacted by vibration including curing complete as per specifications MORTH Specification No. 408 KSRRB Pg No.253,SI No.34.1	Cum	5.65	4966.08	28,046	
3	Providing and constructing granite / trap / basalt size stone masonry in foundation with cement mortar 1:6 stone hammerd dressed in courses not less than 20 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KBS 5.1.13 KSRRB Pg No.254,SI No.34.8.2	Cum	16.60	4689.44	77,856	
4	Providing and constructing granite / trap / basalt size stone masonry in basement with cement mortar 1:6, edges of stones chistle dressed in courses not less than 15 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KSRRB Pg No.254,SI No.34.9	Cum	11.34	5605.60	63,568	
5	Providing flush pointing to square rubble, course or uncoursed stone masonry with cement mortar, 20mm deep, after raking joints to depth of 20mm nicely lining, including cost of materials, labour, curing complete as per specifications. – do – cement mortar 1:4 KSRRB Pg No.254,SI No.34.12.1	Sqm	37.80	108.64	4,107	
6	Providing and laying reinforced cement concrete pipe NP3 for culverts including pointing ends, and fixing collars with cement mortar 1:2 including cost of all materials, labour, curing complete as per specifications. Specifications. No. KSRRB 1000, 2300 MOST Specification No.1000 / 2300 - - 300mm. dia KSRRB Pg No.253,SI No.34.6.1	Rmt	25.00	1772.96	44,324	
7	Providing and constructing granite / trap / basalt size stone masonry in basement with cement mortar 1:6, edges of stones chistle dressed in courses not less than 15 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KSRRB Pg No.254,SI No.34.9	Rmt	25.00	3099.04	77,476	
8	KSRRB 2.3: Filling available excavated earth (excluding rock) in sides of foundations upto plinth in layers not exceeding 20cms. In depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5m. including cost of all labour complete as per specifications. Specification No. KBS 2.9 KSRRB Pg No.6,SI No.2.10	Cum	34.51	142.24	4,908	
D	RCC DRAINS					
1	Earthwork excavation for foundation of buildings, water supply , sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in Ordinary Soil not exceeding 1.5 m.in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m after breaking of clods complete as per specificationsincluding clearing vegetation, shoring, strutting, dewatering if required,and ramming with selected earth for foundation and disposing off excess excavated material as approved by Engineer etc. complete with all lead and lift including danger lighting wherever necessary as directed in the following strata. KSRRB Pg No.5,SI No.2.3	Cum	85.19	211.68	18,032	

BOQ item No	Specification	Unit	Quantity	Rate	Amount	Remarks
2	Providing and laying in position plain cement concrete of mix 1:2:4 with OPC cement @ 240kgs, with 40mm and down size graded granite metal coarse aggregates @0.878cum and fine aggregates @0.459cum 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 machineries, curing complete as per specifications. KSRB Pg No 12,SI No.4.1	Cum	5.74	5838.56	33,499	
3	Providing and laying in position reinforced cement concrete of design mix M25 with OPC cement @ 340kgs, with 20mm and down size graded granite metal coarse aggregates @0.70 cum and fine aggregates @ 0.47cum, with super plasticisers @ 3 liters conforming to IS 9103-1999 reafirmed-2008 at machine mixed, concrete laid in layers not exceeding 15 cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls, returnwalls, walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks, anchor blocks & plinths etc including cost of all materials, labour, HOM of machinery, curing, complete but excluding cost of reinforcement as per specifications. KSRB Pg No.13,SI No.4.10	Cum	18.60	6967.52	1,29,596	
4	Providing TMT steel reinforcement for R.C.C 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 and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete with all lead lifts and as per specifications and directinon of Engineer-in-Charge. FE 500 KSRB Pg No.17,SI No.4.46.2 Rev.	MT	1.86	67879.84	1,26,257	
5	Providing and removing,centering, shuttering, strutting, propping etc., and removal of form work for foundations, footings, bases of columns for mass concrete including cost of all materials, labour complete as per specifications. KSRB Pg No.15,SI No.4.28	Sqm	31.50	258.72	8,150	
6	Providing and removing centering, shuttering, strutting, propping etc., and removal of form work for vertical surface such as walls at any thickness, including attached pilasters, buttresses plinth cills and string courses cost of all materials, labour complete as per specifications. KSRB Pg No.15,SI No.4.31	Sqm	216.00	328.16	70,883	
7	Providing and removing centering, shuttering, strutting, propping etc., and removal of form work for flat surface such as roofs, landings, balconies and likes, thickness upto 200mm including cost of all materials, labour complete as per specification. (Ground floor) KSRB,Pg No.15,SI No.4.18	Sqm	27.00	350.56	9,465	
8	KSRRB M2200 - Providing Weep holes Providing weep holes in Brick masonry / Plain / Reinforced concrete abutment, wing wall / return wall with PVC 90mm outer dia pipe 2 kg / Sqcm, extending through the full width of the structure with slope of 1V:20H towards drawing force complete as per drawing and Technical specifications complete as per specifications. KSRB,Pg No.225,SI No.28.10	Rmt	9.00	283.36	2,550	

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MANGALURU SMART CITY											
1.40 Measurement Sheet of UNDERGROUND DRAINAGE Zone 4 Part 2 and Zone 3 Part 1											
Electrical Estimates for Pole Shifting in Zone-4 and Zone 3 Under ground drainage system at Mangaluru											
Item No	Particulars	Unit	No	L(m)	B(m)	D(m)	Qty	Rate (Rs)	Amount (Rs)	Remarks	
11.2.1	Releasing and removal of 9 Mtr RCC pole and shifting to new location & re-erection of released 9 metre RCC pole in the location specified, including transportation to work site, digging a pit to a depth of 1.8 mtr, aligning it, refilling the old and new pits using soil removed up to ground level, compacting, complete for each pole, at an average span of maximum 40 metres including all lead and lifts, as per KPTCL/MESCOM/ IE rule & specifications	Nos					14	2920.30	40884.20	RA-1	
11.2.2	Supply and erection of 9 metre RCC poles(using Tor50 12mm dia steel), including transportation to work site with all lead from factory and head load from the nearest road; digging a pit to a depth up to of 1.8 mtr, aligning it, refilling the soil removed up to ground level, compacting, complete for each pole, at a average span of 40 metres (max.) as per KPTCL/MESCOM/ IE rules including all lead and Lift.	Nos					10	7478.00	74780.00	RA-2	
11.2.3	Releasing and removal of deteriorated / damaged 9 mtr RCC poles in 11 kV HT line , refilling of the pit up to ground level compacting etc., and handing over the unused damaged / deteriorated poles to MESCOM including all lead and lift.as per KPTCL/MESCOM/ IE rules.	Nos					10	1555.59	15555.89	RA-3	
11.2.4	Releasing and removal of 11Mtr rail pole / ISMB poles, and shifting to new location & re-erection of released 11Mtr rail pole /ISMB poles including transportation to work site with all lead from factory and head load from the nearest road, in a pit of depth 1.8 mtrs, insertion of released pole in the new pit after coating with anti corrosive paint of black colour to a length of depth of insertion, aligning it, refilling the pit with soil removed, complete for each pole, at a average span of maximum 50metres Including all lead and lift, as per KPTCL/MESCOM/ IE rules and specifications.	Nos					1	2997.44	2997.44	RA-4	
11.2.5	Supply and erection of 11 metre long Rail pole / ISMB -200 x 100mm size, transportation to work site with all lead from factory and head load from the nearest road; digging 1.8 Mtr pit, applying two coats of anti-corrosive paint to the root to a length of depth of insetion of black colour, aligning it, refilling the pit with soil removed up to ground level, compacting, complete for each pole, for a average span of maximum 50mtres as per KPTCL rules.(Including all lead and Lift).as per KPTCL/MESCOM/ IE rules.	Nos					0.5	17234.60	8617.30	RA-5	
11.2.6	Pole base concreting : supplying and providing pole base concrete of size 500 x 650 x 150 mm using 1:4:8 ratio cement concrete for 9mtr RCC pole including shuttering & all other materials and labour all lead and lift as per KPTCL/MESCOM/ IE rules.	Each					12	229.00	2748.00	RA-6	
11.2.7	Pole base concreting : supplying and providing pole base concrete of size 650 x 500 x 150 mm using 1:4:8 ratio cement concrete for 11 mtr ISMC / ISMB pole including shuttering & all other materials and labour all lead and lift as per KPTCL/MESCOM/ IE rules.	Each					1	704.00	704.00	RA-7	
11.2.8	Pole concreting : supplying and providing 1:2:4 ratio concrete mix of size 500 x 650 x 1700 mm cement concreting for 9 mtr RCC pole including all materials and labour, shuttering including all lead and lift as per KPTCL/MESCOM/ IE rules.	Each					12	2566.00	30792.00	RA-8	
11.2.9	Pole concreting : supplying and providing 1:2:4 ratio concrete mix of size 500 x 650 x 2000 mm cement concreting for 11mtr ISMB pole concreting including all materials and labour , shuttering including all lead and lift as per KPTCL/MESCOM/ IE rules.	Each					1	2721.00	2721.00	RA-9	
11.2.10	Releasing and refixing of 11kV Horizontal cross arm with HT Single top support , clamps, bolts, nuts and washers including all lead and lift as per KPTCL/MESCOM/ IE rules.	Set					14	272.75	3818.43	RA-10	
11.2.11	Supplying and fixing of 11kV Horizontal cross arm with HT Single top support, including clamps, bolts, nuts and washers including all lead and lift and MESCOM specifications.	Set					10	525.55	5255.50	RA-11	
11.2.12	Releasing and removal of deteriorated damaged HT cross arms and handing over the released materials to MESCOM including all lead and lift as per KPTCL/MESCOM/ IE rules.	Set					10	140.27	1402.73	RA-12	
11.2.13	Releasing and refixing of released 4 pin LT Horizontal cross arms, fabricated out of mild steel structure steel as per KPTCL standards complete set with all fixing accessories like bolt, nuts, washers, pole clamps etc., including all necessary lead and lift as per KPTCL/MESCOM/ IE rules.	Set					14	264.48	3702.72	RA-13	
11.2.14	Supply and fixing of 4 pin LT horizontal cross arms, fabricated out of mild steel structure steel as per KPTCL standards complete set with all fixing accessories like bolt, nuts, washers, pole clamps etc., including all necessary lead and lift as per KPTCL/MESCOM/ IE rules.	Set					10	402.20	4022.00	RA-14	
11.2.15	Releasing and removal of deteriorated / damaged 4 pin cross arms and handing over released cross arm to MESCOM including all lead and lift as per KPTCL/MESCOM/ IE rules.	Set					10	118.55	1185.52	RA-15	
11.2.16	Releasing and refixing of released Guy sets with break insulators, 7 / 10 SWG GI wire, turn buckle and anchoring arrangements with necessary earth work excavation, providing and laying of concrete including curing etc. complete as per KPTCL specification and rules including all lead and lifts as per KPTCL/MESCOM/ IE rules.	Set					2.5	1030.37	2575.93	RA-16	
11.2.17	Supply and fixing of Guy sets with No. 15 break insulator, 7 / 10 SWG GI rope, turn buckle and anchoring arrangements with necessary earth work excavation, providing and laying of concrete including curing etc. complete as per KPTCL specification and rules including all lead and lift as per KPTCL/MESCOM/ IE rules.	Set					2	1317.30	2634.60	RA-17	
11.2.18	Releasing and restringing of released ACSR conductor and handing over the unused released materials to MESCOM including all lead and lift as per KPTCL/MESCOM/ IE rules.	Km					5	7185.04	35925.20	RA-18	
11.2.19	Supplying and stringing of Rabbit ACSR conductor, inclusive of length for jumps, binding to the Pin Insulators, with minimum sag of 5% with necessary lead and lifts as per IE Rules/ KPTCL /ESCOM specification.	Km					0	37457.60	0.00	RA-19	
11.2.20	Releasing and restringing using released conductor for LT distribution line and returning the excess / unused materials to MESCOM including all lead and lift as per KPTCL/MESCOM/ IE Specifications.	Km					6.5	5270.32	34257.05	RA-20	

Item No	Particulars	Unit	No	L(m)	B(m)	D(m)	Qty	Rate (Rs)	Amount (Rs)	Remarks
11.2.21	Supplying and stringing of Weasel ACSR conductor for LT distribution as per MESCOM / KPTCL specifications and standards including all lead and lift.	Km					0.5	22873.85	11436.93	RA-21
11.2.22	Supplying and fixing of 11 KV Pin insulators with porcelien shell & GI pin including fixing hardwares like nut, plate and spring washers as per KPTCL/MESCOM standards and specifications including all lead and lift.	Nos					41.5	94.00	3901.00	RA-22
11.2.23	Supplying and fixing of 1.1 KV class pin insulator shell with GI pin including fixing hardwares like nut, plate and spring washers as per KPTCL standards and specifications including all lead and lift.	Nos					55	38.00	2090.00	RA-23
11.2.24	Supplying and fixing of No 8 strain/ LT Shackle insulators at the dead end / cut points of LT distribution line as per KPTCL /ESCOM specifications & standards including all lead and lift.	Nos					25	14.00	350.00	RA-24
11.2.25	Supplying and fixing of 11 kv, 45 kN Disc insulator at the dead end / cut points of HT line including fixing hardwares like nut, plate and spring washers as per KPTCL standards and specifications including all lead and lift.	Nos					28.5	290.00	8265.00	RA-25
11.2.26	Releasing and Refixing of released 11kv Pin insulator with GI pin and fixing hardwares like nut, plate and spring washers as per KPTCL standards and specifications including all lead and lift.	Nos					47	40.60	1908.20	RA-26
11.2.27	Releasing and Refixing of released 11kv, 45 kN Disc insulators at the dead end or cut point with necessary fixing hardwares like nut & bolts, plate and spring washers as per KPTCL / ESCOM specifications & standards including all lead and lift.	Nos					28.5	49.30	1405.05	RA-27
11.2.28	Releasing and re-erection after transportation to the site of 11 kV DP structure kit, for the 11 kV DP made of 9mtr long, 145 kg WL RCC poles as per Drg No. SIC/DL/WSO 18/29-7-85 with accessories like clamps, bolt & Nuts plate and spring washers etc., including erectoin of poles after digging suitable pits & all lead and lift as per KPTCL/MESCOMspecifications.	Set					2	8959.26	17918.52	RA-28
11.2.29	Supply & erection, transportation to the site of 11 kV DP structure kit and 9 Mtr 145 kG WL RCC poles for making 11 kV DP as per Drg No. SIC/DL/WSO 18/29-7-85 with accessories like clamps, bolt & Nuts plate and spring washers etc., including erectoin of poles after digging suitable pits & all lead and lift as per KPTCL/MESCOMspecifications.	Set					1	20625.40	20625.40	RA-29
11.2.30	Releasing and removal of DP structure for mounting Transformer and handing over the released materials to MESCOM including all lead and lift.	Set					3	5928.93	17786.80	RA-30
11.2.31	Releasing and Re-erection of released 63 kVA Transformer along with associated equipment of the transformer centre as per Dgr No..KEB/SIC/WS/022/date :12.9.86 and handing over the unused released materials to MESCOM including all lead and lift.	Per unit					1	28977.09	28977.09	RA-31.1
11.2.32	Releasing and Re-erection of released 63 kVA transformer in temperary location and shifting the same back to original location after completion of pipe line work along with associated equipment of the transformer centre as per Dgr No..KEB/SIC / WS/022/date :12.9.86 and handing over the unused released materials to MESCOM including all lead and lift.	Per unit					0.5	57954.18	28977.09	RA-31.2
11.2.33	Releasing and Re-erection of released 100 kVA Transformer along with associated equipment of the transformer centre as per Dgr No..KEB/SIC/WS/022/date :12.9.86 and handing over the unused materials to MESCOM including all lead and lift.	Per unit					0.5	32175.65	16087.82	RA-32.1
11.2.34	Releasing and Re-erection of released 100 kVA transformer in temperary location and shifting the same back to original location after completion of pipe line work along with associated equipment of the transformer centre as per Dgr No..KEB/SIC / WS/022/date :12.9.86 and handing over the unused released materials to MESCOM including all lead and lift.	Per unit					0.5	64351.29	32175.65	RA-32.2
11.2.35	Releasing and Re-erection of released 250 kVA Transformer along with associated equipment of the transformer centre as per Dgr No..KEB/SIC/WS/022/date :12.9.86 and handing over the unused materials to MESCOM including all lead and lift.	Per unit					0.5	30225.11	15112.55	RA-33.1
11.2.36	Releasing and Re-erection of released 250 kVA transformer in temperary location and shifting the same back to original location after completion of pipe line work along with associated equipment of the transformer centre as per Dgr No..KEB/SIC / WS/022/date :12.9.86 and handing over the unused released materials to MESCOM including all lead and lift.	Per unit					0.5	60450.21	30225.11	RA-33.2
11.2.37	Releasing and Refixing of released 200A Single Break GOS with operating handle, tandom pipe etc., and returning the unused released materials to MESCOM including all lead and lift as per KPTCL/MESCOM specifications.	Set					2.5	1752.18	4380.45	RA-34
11.2.38	Releasing and Refixing of released HG Fuse Unit and handing over the unused released materials to MESCOM including all lead and lift as per KPTCL/MESCOM specifications.	Set					1	1165.37	1165.37	RA-35
11.2.39	Releasing and Refixing of released Lightning Arrestors and handing over the unused released materials to MESCOM including all lead and lift as per KPTCL/MESCOMspecifications.	Set					1	195.61	195.61	RA-36
11.2.40	Releasing and Refixing of released LT Protection Kit and handing over the unused released materials to MESCOM including all lead and lift as per KPTCL/MESCOMspecifications.	Set					1	1129.55	1129.55	RA-37
11.2.41	Releasing and Refixing of released L T Distribution Box and handing over the unused released materials to MESCOM including all lead and lift as per KPTCL/MESCOMspecifications.	Set					1	1253.53	1253.53	RA-38
11.2.42	Releasing and refixing of released street light fitting on to shifted pole including wiring and testing the connection and proper function of the fitting including all lead and lift as per MESCOM /MCC specifications.	Set					15.5	484.88	7515.64	RA-39
11.2.43	Releasing and reconnection of released House Service Connection,fixing PVC pipe for taking the leads from the conductor to the pole fuse board or line conductor (including taking the lead wire inside the pvc pipe & giving connection to the overhead line & pole fuse box/ fuse board including all lead and lift as per MESCOM specifications.	Set					23.5	360.91	8481.27	RA-40
11.2.44	Supplying and fixing 2.5m long 2.9 mm thick 40mm dia GI pipe earth electrode for DP structures, including excavation of pit, necessary salt and charcoal, construction of masonary chamber with cover complete as specified in IS 3043 and drawing including running of 7/10SWG GI wire for connection with all lead and lift as per KPTCL/MESCOMspecifications.	Set					8	2057.85	16462.80	RA-41

Item No	Particulars	Unit	No	L(m)	B(m)	D(m)	Qty	Rate (Rs)	Amount (Rs)	Remarks
11.2.45	Releasing and restringing of released 1.1kv grade aerial bunched 5 core (3 x 95 sq mm for phase and 1 x 70 sq mm neutral and 1 x 16 sq mm street light cable, XLPE insulated stranded aluminium conductor, layed around a weather resistant black XLPE insulated AAA Messenger wire on shifted poles including all lead and lift as MESCOM/MCC specifications.	Km					0.5	56273.63	28136.82	RA-42
11.2.46	Releasing and refixing of released guarding materials for HT & LT and P & T lines and Road Crossings etc., on shifted line complete with all necessary accessories including all lead and lifts as per IE/KPTCL Rules & Specifications.	Set					2	2917.55	5835.09	RA-43
11.2.47	Supplying and fixing of guarding for HT & LT lines, P & T lines and Road Crossings etc., complete with all necessary accessories including all lead and lift as per IE/KPTCL Rules & Specifications.	Set					1	4935.55	4935.55	RA-44
11.2.48	Releasing and relaying of released 2.5 to 25sqmm size L T Under ground cable for house service connection including termination and testing for proper function including all lead and lift as per KPTCL/MESCOM/ IE rules.	Km					0.5	35192.37	17596.19	RA-45
11.2.49	Supplying and fixing straight through jointing kit suitable for 1.1kv class LT UG cable of size 4C x 10 sq mm and 4C x 16 sq mm including all lead and lift as per MESCOM Norms.	Kit					15.5	1327.00	20568.50	RA-46.1
11.2.50	Supplying and fixing straight through jointing kit suitable for 1.1kv class LT UG cable of size 3.5C x 25 sq mm & 3.5 C x 35 sq mm including all lead and lift as per MESCOM Norms.	Kit					8.00	1604.00	12832.00	RA-46.2
11.2.51	Providing at site, inclusive of all lead and lift, brand new approved make aluminium conductor PVC insulated, sheathed, steel wire armoured UG cable with PVC outer sheathing 1.1 KV class UG cable confirming to IS: 1554(P-1) - 2C X 10 SQ MM Aluminium cable.	Km					0.0	72856.30	0.00	RA-47.1
11.2.52	Providing at site, inclusive of all lead and lift, brand new approved make aluminium conductor PVC insulated, sheathed, steel wire armoured UG cable with PVC outer sheathing of 1.1 KV class UG cable confirming to IS: 1554(P-1)- 4C X 10 SQ MM Aluminium cable.	Km					0	90073.30	0.00	RA-47.2
11.2.53	Providing at site, inclusive of all lead and lift, brand new approved make aluminium conductor PVC insulated, sheathed, steel wire armoured UG cable with PVC outer sheathing 1.1 KV class UG cable confirming to IS: 1554(P-1) - 2C X 16 SQ MM Aluminium cable.	Km					0	75478.30	0.00	RA-47.3
11.2.54	Providing at site, inclusive of all lead and lift, brand new approved make aluminium conductor PVC insulated, sheathed, steel wire armoured UG cable with PVC outer sheathing of 1.1 KV class UG cable confirming to IS: 1554(P-1)- 4C X 16 SQ MM Aluminium cable.	Km					0	109051.30	0.00	RA-47.4
11.2.55	Providing at site, inclusive of all lead and lift, brand new approved make aluminium conductor PVC insulated, sheathed, steel wire armoured UG cable with PVC outer sheathing of 1.1 KV class UG cable confirming to IS: 1554(P-1)- 4C X 25 SQ MM Aluminium cable.	Km					0	128300.30	0.00	RA-47.5
11.2.56	Releasing and relaying the existing GI/PVC pipe for house service connection including all lead and lift as per MESCOM Norms.	Mtr					312	123.98	38680.20	RA-48
11.2.57	Supplying and laying of Class A, 40mm dia., GI pipe on pole /wall/drain crossing with necessary clamping arrangements for UG cable of 1.1KV class.	Mtr					18.5	345.00	6382.50	RA-49.1
11.2.58	Digging of trench of 0.6m deep x 0.5 m wide trench and refilling the same to the required ground level and consolidating etc., including all lead and lift, as per ESCOM specifications.	Mtr					156	78.00	12168.00	RA-50
11.2.59	Providing and filling of river sand all around UG cable to a depth of 150 mm all around, laid in excavated trench as per ESCOM / KPTCL specifications	Mtr					156	103.00	16068.00	RA-51
11.2.60	Temporary Shifting of HT/LT lines: Shifting of electrical poles along with HT/LT cross arms to temporary location and reshifting to original position after completion of work including all lead and lift as per the instructions of KPTCL /MESCOM Authority.	Set					3	10774.63	32323.89	RA-52
11.2.61	Releasing and re-erection of released 8 mtr long strut pole including calmps digging pit, concreting with all accessories at the new alignment of O H line.	Nos					3	2336.24	7008.72	RA-53
11.2.62	Realeasing and re-erection of three pole structure using 9 mtr long, 145 kg WL, RCC poles and structural materials in proposed location complete set including all stanadrd accessories & including all lead and lift as per MESCOM specifications /estimate.	Set					0.5	13414.68	6707.34	RA-54
	Total								761649.00	
	KPTCL/ESCOM registration cum processing fee, Issue of NOC, Initial security deposits, Meter security deposits, supervision, inspection charges, etc Including liaison with power supply authorities, electrical inspectorate, transmission of relevant documents, arranging for power supply, pollution control board acceptances for Genset installation and other charges including generator installation also.	Job					0.5	150000.00	75000.00	
	Grand Total								836649.00	

Assistant Engineer
MSCL Mangaluru

Executive Engineer
MSCL Mangaluru

GM Technical
MSCL Mangaluru

MANGALURU SMART CITY
1.30 Measurement Sheet of UNDERGROUND DRAINAGE Zone-3 (Part -2)

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
1	KSRRB200-8. Clearing and grubbing road land including uprooting rank vegetation, grass, brush, shrubs, saplings and trees of girth upto 300mm, by manual means, in area of light jungle, removal of stumps, disposal of unserviceable materials, stacking of serviceable materials labour charges complete as per specifications KSRB Pg No.136,SI No.18.11						
	Zone 3 Part 2	Sqm	1				5971.77
	Total	Sqm				Total	5972.00
2	Cutting asphalt road surface for pipeline trenches and disposing off the excavated stuff with all lead and lift as directed including barricading,danger lighting etc., KUWSD-15-16 SI No.5.2,Pg No.17						
	Zone- 3 (Part- 2)						
	Only for Pipe portion trench						
	PM Rao Road						
	MH 1157 to O44	Cum	1	169.00	1.20	0.2	40.56
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	1	417.60	2.10	0.2	175.39
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	1	48.30	1.20	0.2	11.59
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	1	478.00	2.10	0.2	200.76
	Carstreet Road						
	MH 1231 to O 56	Cum	1	100.50	1.20	0.2	24.12
	VT Road						
	MH 1300 to O 53	Cum	1	492.20	2.10	0.2	206.72
	ASR Pai Road						
	MH 1513 to O 61	Cum	1	196.70	1.20	0.2	47.21
	Car street Road						
	MH 1528 to O26	Cum	1	133.20	1.20	0.2	31.97
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	1	219.80	1.20	0.2	52.75
	Kudroli Road						
	MH 1657 to O 32	Cum	1	100.70	1.20	0.2	24.17
	Zone- 3 (Part- 2)						
	Only for Manhole portion						
	PM Rao Road						
	MH 1157 to O44	Cum	6	2.00	2.00	0.2	4.80
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	18	2.00	2.00	0.2	14.40
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	2	2.00	2.00	0.2	1.60
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	20	2.00	2.00	0.2	16.00
	Carstreet Road						
	MH 1231 to O 56	Cum	4	2.00	2.00	0.2	3.20
	VT Road						
	MH 1300 to O 53	Cum	20	2.00	2.00	0.2	16.00
	ASR Pai Road						
	MH 1513 to O 61	Cum	7	2.00	2.00	0.2	5.60
	Car street Road						
	MH 1528 to O26	Cum	6	2.00	2.00	0.2	4.80
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	8	2.00	2.00	0.2	6.40
	Kudroli Road						
	MH 1657 to O 32	Cum	4	2.00	2.00	0.2	3.20
	For Household Connection- Zone 3 Part 2 (MH = 110 Nos, L=5m X 4 connections in each manhole) -Road width >3m and 50% of length	Cum	110	10.00	0.60	0.2	132.00
	For Household Connection- Zone 3 Part 2 (MH = 1 Nos, L=5m X 4 connections in each manhole) - Road width<3m and 50% of length	Cum	1	10.00	0.60	0.2	1.20
		Cum				Total	1024.44
	Total 90% of Quantity for Asphalt Road	Cum				Total	922.00

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
3	Cutting Concrete road surface for pipeline trenches and disposing off the excavated stuff with all lead and lift as directed including barricading,danger lighting etc., KUWSDB-15-16 SI No.5.3,Pg No.17						
	Total quantity for Zone 3 Part 2	Cum					1024.44
	Total 10% of Quantity for Concrete Road	Cum					102.44
4	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.(As per Data Rate)						
	Zone- 3 (Part- 2)						
	Only for Pipe portion trench						
	Car Street Cross Road						
	MH 569 to O 26	Sqm	1	47.20	1.20		56.64
	For Manhole Area						
	Car Street Cross Road						
	MH 569 to O 26	Sqm	2	2.00	2.00		8.00
	Household Connection						
	Zone 3 Part 2						
	For Household Connection- Zone 3 Part 1 (MH = 11Nos, L=5m X 4 connections in each manhole)-Road Width >3m and 50% of length	Sqm	11	10.00	0.60		66.00
	For Household Connection- Zone 3 Part 1 (MH = 4Nos, L=5m X 4 connections in each manhole)-Road width <3m and 50% of length	Sqm	4	10.00	0.60		24.00
		Sqm				Total	154.64
5	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring,strutting,bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16,SI No 1,Pg No 5						
i)	do in all soils mixed mixed with boulders of 30 cms size upto an exclusive of disintegrated rock D182						
A	Zone- 3 (Part- 2)						
a	0 to 2 mtr Depth						
	PM Rao Road						
	MH 1157 to O44	Cum	1	169.00	0.80	1.39	187.48
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	1	417.60	1.40	1.74	1019.25
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	1	48.30	0.80	1.64	63.47
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	1	478.00	1.40	1.92	1282.69
	Carstreet Road						
	MH 1231 to O 56	Cum	1	100.50	0.80	1.40	112.46
	VT Road						
	MH 1300 to O 53	Cum	1	492.20	1.40	1.84	1266.11
	ASR Pai Road						
	MH 1513 to O 61	Cum	1	196.70	0.80	1.35	212.89
	Car street Road						
	MH 1528 to O26	Cum	1	133.20	0.80	1.56	165.88
	Car Street Cross Road						
	MH 569 to O 26	Cum	1	47.20	0.80	1.59	59.85
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	1	219.80	0.80	1.54	270.02
	Kudroli Road						
	MH 1657 to O 32	Cum	1	100.70	0.80	1.65	132.82
		Cum				Total	4772.92
B	Zone- 3 (Part- 2)						
a	0 to 2 mtr Depth (Manhole)						
	PM Rao Road						
	MH 1157 to O44	Cum	6	2.00	2.00	1.64	39.28
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	18	2.00	2.00	1.83	131.42
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	2	2.00	2.00	1.78	14.26
	Car Street and Cross Road						

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
	MH1719 to MH O-27	Cum	20	2.00	2.00	1.93	154.04
	Carstreet Road						
	MH 1231 to O 56	Cum	4	2.00	2.00	1.65	26.38
	VT Road						
	MH 1300 to O 53	Cum	20	2.00	2.00	1.92	153.26
	ASR Pai Road						
	MH 1513 to O 61	Cum	7	2.00	2.00	1.60	44.88
	Car street Road						
	MH 1528 to O26	Cum	6	2.00	2.00	1.73	41.62
	Car Street Cross Road						
	MH 569 to O 26	Cum	2	2.00	2.00	1.75	13.96
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	8	2.00	2.00	1.72	55.04
	Kudroli Road						
	MH 1657 to O 32	Cum	4	2.00	2.00	1.79	28.70
		Cum				Total	702.84
	For Household Connection- Zone 3 Part 2 (MH = 121 Nos, L=5m X 4 connections in each manhole) Road width >3m	Cum	121	20.00	0.60	0.9	1306.80
	For Household Connection- Zone 3 Part 2 (MH =5 Nos, L=5m X 4 connections in each manhole) - Road width <3m	Cum	5	20.00	0.60	0.9	54.00
	Total Qty	Cum					6836.55
	Total Trench Line Qty	Cum					6133.72
	Total 80% of Qty above trench line Qty	Cum					4906.98
	70% Manual Qty	Cum					3434.88
5	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16, Sl No ii, Pg No 5						
ii)	do in all soils mixed mixed with boulders of 30 cms size upto an exclusive of disintegrated rock D182						
A	Zone- 3 (Part- 2)						
a	2 to 4 mtr Depth (for 0.80m Width)						
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	1	417.60	0.80	0.15	48.44
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	1	478.00	0.80	0.95	361.66
	VT Road						
	MH 1300 to O 53	Cum	1	492.20	0.80	0.70	274.54
		Cum				Total	684.64
B	Zone- 3 (Part- 2)						
a	2 to 4 mtr Depth (Manhole)						
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	18	2.00	2.00	0.11	8.16
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	20	2.00	2.00	1.05	84.32
	VT Road						
	MH 1300 to O 53	Cum	20	2.00	2.00	0.72	57.60
	Car street Road						
	MH 1528 to O26	Cum	6	2.00	2.00	0.04	0.96
		Cum				Total	151.04
		Cum				Total	835.68
	Total Trench Line Qty						684.64
	30% of Total Qty	Cum					205.39
	70% Manual Qty	Cum					143.77

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
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Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
6	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDb SR 15-16, SI No 1-ii-(a), Pg No 5						
ii	In disintegrated rock, soft rock, soft shale, medium hard rock comprising of lime stone, sand stone, hard shale, schiest, fissured rock without resorting to blasting						
a	0 to 2.0m Depth						
	Total Trench line Qty	Cum	1				6133.72
	Total 10% Quantity	Cum					613.37
	70% Manual Qty	Cum					429.36
b	2.0 to 4.0m Depth						
	Total Trench line Qty	Cum	1				684.64
	Total 20% Quantity	Cum					136.93
	70% Manual Qty	Cum					95.85
7	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDb SR 15-16, SI No 1-iii-(a), Pg No 7						
iii	In hard laterite rock or hard laterite rock containing iron ore upto 20% by chistelling and trimming to proper slope						
	0 to 2.0m Depth						
	Total Trench line Qty	Cum	1				6133.72
	Total 5% Quantity	Cum					306.69
b	2.0 to 4.0m Depth						
	Total Trench line Qty	Cum	1				684.64
	Total 10% Quantity	Cum					68.46
8	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDb SR 15-16, SI No 1-iv-(a), Pg No 7						
	In hard laterite rock containing iron ore above 20% by chistelling and trimming to proper slope						
a	0 to 2.0m Depth						
	Total Trench line Qty	Cum	1				6133.72
	Total 2% Quantity	Cum					122.67
	70% Manual Qty	Cum					85.87
b	2.0 to 4.0m Depth						
	Total Trench line Qty	Cum	1				684.64
	Total 10% Quantity	Cum					68.46
	70% Manual Qty	Cum					47.92
9	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDb SR 15-16, SI No 1-vi-(a), Pg No 9						
	In hard rock by Controlled blasting						
a	0 to 2.0m Depth						
	Total Trench line Qty	Cum	1				6133.72
	Total 2% Quantity	Cum					122.67
b	2.0 to 4.0m Depth						
	Total Trench line Qty	Cum	1				684.64
	Total 20% Quantity	Cum					136.93

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
10	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16, SI No 1-v-(a), Pg No 7						
	In hard rock by chistelling						
a	0 to 2.0m Depth						
	Total Trench line Qty	Cum	1				6133.72
	Total 1% Quantity	Cum					61.34
b	2.0 to 4.0m Depth						
	Total Trench line Qty	Cum	1				684.64
	Total 10% Quantity	Cum					68.46
11	Earthwork Excavation by Mechanical Means Earthwork in excavation for pipeline trenches beyond 600mm and 1500mm trench width as per drawing and technical specification, including setting out, construction of shoring, strutting, barricading, danger lighting, bracing, using sight rails and boning rods at every 100 meters wherever necessary as directed, removal of slumps and other deleterious matter, dressing of sides and levelling the bottom of trench to the extent required, utilising the available excavated earth locally for the work etc., complete in the following strata. KUWSDB SR 15-16, SI No Vii 3, Pg No 11						
i)	a) - do - In ordinary/All soils/Hard soil						
	Total Qty	1					5112.37
	Total 30% of Quantity	Cum			Total		1533.71
ii)	b) -do- In Ordinary Rock (not requiring blasting)						
	Total Trench line Quantity	1					1446.39
	Total 30% of Quantity	Cum			Total		433.92
iii)	c) -do- In Hard Rock (requiring blasting)						
	Total Trench line Quantity	1					259.60
	Total 30% of Quantity	Cum			Total		77.88
12	Providing course sand bedding for the pipeline trenches including watering and consolidation by punners etc., complete with all lead and lift (In black cotton and rock reaches) KUWSDB 15-16, Pg No 17, SI No.6						
A	Zone- 3 (Part- 2)						
	Vol of sand Boxing						
	PM Rao Road						
	MH 1157 to O44	Cum	1	169.00	0.80	0.15	20.28
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	1	417.60	0.80	0.15	50.11
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	1	48.30	0.80	0.15	5.80
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	1	478.00	0.80	0.15	57.36
	Carstreet Road						
	MH 1231 to O 56	Cum	1	100.50	0.80	0.15	12.06
	VT Road						
	MH 1300 to O 53	Cum	1	492.20	0.80	0.15	59.06
	ASR Pai Road						
	MH 1513 to O 61	Cum	1	196.70	0.80	0.15	23.60
	Car street Road						
	MH 1528 to O26	Cum	1	133.20	0.80	0.15	15.98
	Car Street Cross Road						
	MH 569 to O 26	Cum	1	47.20	0.80	0.15	5.66
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	1	219.80	0.80	0.15	26.38
	Kudroli Road						
	MH 1657 to O 32	Cum	1	100.70	0.80	0.15	12.08
	For Household Connection- Zone 3 Part 2 (MH = 121 Nos, L=5m X 4 connections in each manhole) Road width >3m	Cum	121	20.00	0.60	0.15	217.80
	For Household Connection- Zone 3 Part 2 (MH =5 Nos, L=5m X 4 connections in each manhole) - Road width <3m	Cum	5	20.00	0.60	0.15	9.00
	Total	Cum					515.18

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
B	Pipe Deduction				Area (pi*r*r)		
	Zone- 3 (Part- 2)						
	For Pipe line (200mm dia pipe)						
	PM Rao Road						
	MH 1157 to O44	Cum	-1	169.00	0.031		-5.31
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	-1	417.60	0.031		-13.11
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	-1	48.30	0.031		-1.52
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	-1	478.00	0.031		-15.01
	Carstreet Road						
	MH 1231 to O 56	Cum	-1	100.50	0.031		-3.16
	VT Road						
	MH 1300 to O 53	Cum	-1	492.20	0.031		-15.46
	ASR Pai Road						
	MH 1513 to O 61	Cum	-1	196.70	0.031		-6.18
	Car street Road						
	MH 1528 to O26	Cum	-1	133.20	0.031		-4.18
	Car Street Cross Road						
	MH 569 to O 26	Cum	-1	47.20	0.031		-1.48
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	-1	219.80	0.031		-6.90
	Kudroli Road						
	MH 1657 to O 32	Cum	-1	100.70	0.031		-3.16
	For Household Connection- Zone 3 Part 2 (MH = 121 Nos, L=5m X 4 connections in each manhole) Road width >3m	Cum	-121	20.00	0.009		-22.99
	For Household Connection- Zone 3 Part 2 (MH =5 Nos, L=5m X 4 connections in each manhole) - Road width <3m	Cum	-5	20.00	0.009		-0.95
	Total Ded						-99.40
	Total Sand Qty for pipe line trench	Cum					515.18
	For Manhole side						
C	Zone- 3 (Part- 2)						
	PM Rao Road						
	MH 1157 to O44	Cum	6	2.00	2.00	1.64	39.28
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	18	2.00	2.00	1.94	139.58
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	2	2.00	2.00	1.78	14.26
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	20	2.00	2.00	2.98	238.36
	Carstreet Road						
	MH 1231 to O 56	Cum	4	2.00	2.00	1.65	26.38
	VT Road						
	MH 1300 to O 53	Cum	20	2.00	2.00	2.64	210.86
	ASR Pai Road						
	MH 1513 to O 61	Cum	7	2.00	2.00	1.60	44.88
	Car street Road						
	MH 1528 to O26	Cum	6	2.00	2.00	1.77	42.58
	Car Street Cross Road						
	MH 569 to O 26	Cum	2	2.00	2.00	1.75	13.96
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	8	2.00	2.00	1.72	55.04
	Kudroli Road						
	MH 1657 to O 32	Cum	4	2.00	2.00	1.79	28.70
							853.88

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
D	Zone- 3 (Part- 2)			Area= $\pi \times r \times r$			
	Ded Manhole portion for 1.2m Dia	Cum	-92	2.11		2.31	-449.83
	Ded Manhole portion for 1.5m Dia	Cum	-5	2.44		4.79	-58.32
E	Deduction for PCC and Raft						
	For 1.2m Dia Manhole-PCC	Cum	-92	2.00	2.00	0.15	-55.20
	For 1.2m Dia Manhole-Raft	Cum	-92	1.80	1.80	0.30	-89.42
	For 1.5m Dia Manhole-PCC	Cum	-5	2.30	2.30	0.15	-3.97
	For 1.5m Dia Manhole-Raft	Cum	-5	2.10	2.10	0.30	-6.62
	Total Deduction Qty	Cum					-762.75
	Total Net Qty	Cum				Net Total	606.31
	Total Qty of sand bedding in trench line	Cum					515.18
	Sand - 10% of total bedding qty	Cum					51.52
13	Providing Muram/Gravel Bedding for the pipeline trenches including watering and consolidation by punners etc., complete with all lead and lift as directed including barricading, danger lighting etc., as directed by the Engineer-in-Charge etc., complete, for all type of soils excluding black cotton soil and rock reaches. KUWSDB Pg No.17,SI No.6.1,6.2						
	Total bedding quantity	Cum	1				515.18
	Murum/Gravel - 70% of total bedding qty	Cum	1				360.63
14	KSRB 4-1.6 ; Providing and laying in position plain cement concrete of mix 1:2:4 with cement @ 240kgs, with 20mm and down size graded granite metal coarse aggregates @ 0.69 cum and fine aggregates @ 0.459cum, 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. KSRB 16-17, Pg No.12,SI No.4.6						
	Total bedding quantity	Cum	1				515.18
	PCC M15 at water logged area & drains- 20% of total bedding qty	Cum	1				103.04
15	Supplying Unplasticised PVC pipes conforming to IS 15328:2003 with latest amendments ended with integral sockets with ISI mark and conveying to worksite,rolling and lowering into trenches,Laying true to line and level and perfect linking at joints,testing and commissioning,including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of UPVC Pipes (with cost of elastomeric sealing rings) and specials (excluding cost of specials) with jointing of approved type,with all labour with all lead and lift including encasing the pipe alround to a depth of not less than 15cms with soft gravel or selected earth available from the excavation etc.,complete and giving neccessary hydraulic test to the required pressure as per ISS (Contractor will make his own arrangements for procuring water for testing) KUWSDB Pg No 205 and 207 SI No 4						
	Supply and laying of PVC- U Pipes as per IS 15328 SN 4 -Ring tite: 200mm						
A	Zone- 3 (Part- 2)						
	PM Rao Road						
	MH 1157 to O44	Rmt	1	169.00			169.00
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Rmt	1	417.60			417.60
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Rmt	1	48.30			48.30
	Car Street and Cross Road						
	MH1719 to MH O-27	Rmt	1	478.00			478.00
	Carstreet Road						
	MH 1231 to O 56	Rmt	1	100.50			100.50
	VT Road						
	MH 1300 to O 53	Rmt	1	492.20			492.20

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
	ASR Pai Road						
	MH 1513 to O 61	Rmt	1	196.70			196.70
	Car street Road						
	MH 1528 to O26	Rmt	1	133.20			133.20
	Car Street Cross Road						
	MH 569 to O 26	Rmt	1	47.20			47.20
	KSR Cross Road						
	MH 1673 to MH 1529	Rmt	1	219.80			219.80
	Kudroli Road						
	MH 1657 to O 32	Rmt	1	100.70			100.70
		Rmt				Total	2403.00
16	Supplying Unplasticised PVC pipes confirming to IS 15328:2003 with latest amendments ended with integral sockets with ISI mark and conveying to worksite,rolling and lowering into trenches,Laying true to line and level and perfect linking at joints,testing and commissioning,including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of UPVC Pipes (with cost of elastomeric sealing rings) and specials (excluding cost of specials) with jointing of approved type,with all labour with all lead and lift including encasing the pipe around to a depth of not less than 15cms with soft gravel or selected earth available from the excavation etc.,complete and giving necessary hydraulic test to the required pressure as per ISS (Contractor will make his own arrangements for procuring water for testing) <u>KUWSDB.Pr No 207 and 207.SI No b1</u>						
	Supply and laying of PVC- U Pipes as per IS 15328 SN 8 -Ring tite: 110mm						
	For Household Connection- Zone 3 Part 2 (MH = 121 Nos, L=5m X 4 connections in each manhole) Road width >3m	Rmt	121	20.00			2420.00
	For Household Connection- Zone 3 Part 2 (MH =5 Nos, L=5m X 4 connections in each manhole) - Road width <3m	Rmt	5	20.00			100.00
		Rmt				Total	2520.00
17	Construction RCC M25 circular inspection chamber 600 mm dia x 600mm depth (clear inside dimension) for single pipeline, with M15 PCC bed for 100 mm thick using mix with cement @240 kgs granite graded metal of 20 mm and down size and clean sieved river sand , M25 RCC raft & sidewall concrete with 20mm and downsize granite metal , finish smooth with a floating coat of cement on walls and bed concrete complete , including fixing and grouting of pipes, including conveying to work spot supply and fixing SFRC manhole cover and frame (Heavy Duty) confirming to IS: 12592 with latest amendments as per standard design including cost of reinforcement, all materials, labour charges, curing complete as per specifications. <u>As Per Data Rate</u>						
	Zone 3 Part 2						
	For Household Connection- Zone 3 Part 2 (MH =121 Nos, L=5m X 4 connections in each manhole) - Road width >3m	Nos	242				242.00
		Nos				Total	242.00
18	Making connections of drain or sewer line of size 100mm to 230mm external dia with existing manhole including breaking into and making good the walls, floors with cement concrete M15 with 20mm and downsize granite metal mix cement plastered on both sides with cement mortar 1:3 finished with a floating coat of neat cement and making necessary channels for the drain etc., complete <u>PWD SR 2016-17,SI No.11.47.3,Pg No.73</u>						
	Connecting Line to Existing manhole						
	MH-1322 to O-61	Nos	1				1.00
	MH-1532 to O-26	Nos	1				1.00
	MH-1560 to O-26	Nos	1				1.00
	MH-1700 to O-65	Nos	1				1.00
	MH-1569 to O-55	Nos	1				1.00
	MH-1739 to O-29	Nos	1				1.00
	MH-1742 to O-28	Nos	1				1.00
	MH-1733 to O53	Nos	1				1.00
	MH-1598 to O-56	Nos	1				1.00
	MH-1230 to O-27	Nos	1				1.00
	MH-1169 to O-58	Nos	1				1.00
	MH-1631 to O-67	Nos	1				1.00
	MH-1652 to O-32	Nos	1				1.00
		Nos				Total	13.00

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
19	Constructing RCC Manhole chamber of 1:1.5:3 proportion or approved type pre-cast RCC manhole chambers,constructed using form vibrators of standard type, with barricading, danger lighting and using of sight rails and boning rods wherever necessary , shoring and strutting wherever required using ordinary port land cement, using 1:1.5:3 proportion RCC with 20 mm and down graded jelly, well graded sand and steel of approved quality , 200 mm thick top concrete slab, having wall thickness and raft thickness as in approved drawings and with an offset in raft around the chamber as in approved drawing, benching concrete with 1:6 slope towards the central drain finished smooth, including fixing and grouting of pipes, including conveying to work spot supply and fixing SFRC manhole cover and frame (Heavy Duty) confirming to IS: 12592 with latest amendments, on a bed of CC 1:2:4 supplying and fixing of minimum 3 mm thick encapsulated plastic footsteps (as per IS 10910) on 12 mm dia. Grade Fe-415 steel bar (as per IS 1786) staggered at 300 mm apart as detailed in Technical specifications, including sand bedding wherever required, disposal of surplus earth, watering, curing, engraving manhole number with flow direction on the inner cylindrical surface etc., complete including cost of reinforcement steel and fabrication charges and also cost and conveyance of all materials, labour with all lead and lifts for various diameters and depths noted below as per specification, drawing and or						
A	Zone 3 Part 2						
	1.2m Dia Manholes						
	For 1.1m Depth	Nos	4				4.00
	For 1.2m Depth	Nos	44				44.00
	For 1.3m Depth	Nos	13				13.00
	For 1.4m Depth	Nos	6				6.00
	For 1.5m Depth	Nos	6				6.00
	For 1.6m Depth	Nos	12				12.00
	For 1.7m Depth	Nos	5				5.00
	For 1.8m Depth	Nos	3				3.00
	For 1.9m Depth	Nos	2				2.00
	For 2.0m Depth	Nos	2				2.00
	For 2.2m Depth	Nos	2				2.00
	For 2.3m Depth	Nos	2				2.00
	For 2.4m Depth	Nos	2				2.00
	For 2.5m Depth	Nos	2				2.00
	For 2.6m Depth	Nos	2				2.00
	For 2.7m Depth	Nos	1				1.00
	For 2.8m Depth	Nos	3				3.00
	For 2.9m Depth	Nos	2				2.00
	For 3.0m Depth	Nos	3				3.00
	For 3.1m Depth	Nos	4				4.00
	For 3.2m Depth	Nos	1				1.00
		Nos			Total		121.00
	1.5m Dia Manholes						
	For 3.8m Depth	Nos	1				1.00
	For 4.3m Depth	Nos	2				2.00
	For 4.6m Depth	Nos	1				1.00
	For 4.9m Depth	Nos	1				1.00
		Nos			Total		5.00
		Nos				Total	126.00
20	Refilling Pipeline Trenches and foundation with selected available earth from trench excavation and foundation including watering,consolidation in layers of 15cms.,thick including disposing off the surplus earth with all lead and lift. KUWSDB Pg No 15,SI No 2						
A	Zone 3 Part 2						
a	Excavation Qty (Pipe Line trench and manhole) -SI No 5	Cum	1				7672.24
b	Deduction						
	Sand Bed Qty (Only for Pipe line trench and Household)-SI No 12	Cum	-1				-515.18
	Pipe Qty - SI No 12	Cum	-1				-99.40
	PCC and Raft Qty for manhole - SI No 12	Cum	-1				-155.21
	Manhole Ded - SI No 12	Cum	-1				-508.15
	Bituminous layer Qty (SI No.22,23,25 & 26) GSB and WMM	Cum	-1				-3181.78
					Total Refilled Qty		3212.52

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
21	Removal of Unserviceable Soil with Disposal KSRRB M300-19. Removal of unserviceable soil including excavation, loading and disposal but excluding replacement by suitable soil which shall be paid separately as per clause 300.5 complete as per specifications. MORTH Specification No. 301 KPWD Pg No. 144 ,SI No.19.20						
A	Zone 3 Part 2						
a	Excavation Qty (SI No 4,5 and 6)	Cum	1				7672.24
b	Deduction						
	Refilled Excavated Soil Qty (SI No. 14)	Cum	-1				-3212.52
	Total Qty	Cum					4459.72
	Deduct 0.75% Wastage during loading	Cum	-1				-33.45
	Net Qty	Cum					4426.27
22	KSRRB M400-6.2. Construction of Granular Sub-base by Providing Close graded crushed stone aggregates of granite /trap/basalt material spreading in uniform layers with motor grader 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 specifications. B. By mix in place Method For grading II material KSRRB Pg No.155,20.5.2						
A	Zone- 3 (Part- 2)						
	Only for Pipe portion trench						
	PM Rao Road						
	MH 1157 to O44	Cum	1	169.00	1.20	0.30	60.84
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	1	417.60	2.10	0.30	263.09
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	1	48.30	1.20	0.30	17.39
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	1	478.00	2.10	0.30	301.14
	Carstreet Road						
	MH 1231 to O 56	Cum	1	100.50	1.20	0.30	36.18
	VT Road						
	MH 1300 to O 53	Cum	1	492.20	2.10	0.30	310.09
	ASR Pai Road						
	MH 1513 to O 61	Cum	1	196.70	1.20	0.30	70.81
	Car street Road						
	MH 1528 to O26	Cum	1	133.20	1.20	0.30	47.95
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	1	219.80	1.20	0.30	79.13
	Kudroli Road						
	MH 1657 to O 32	Cum	1	100.70	1.20	0.30	36.25
		Cum					1222.87
B	Zone- 3 (Part- 2)						
	Only for Manhole portion						
	PM Rao Road						
	MH 1157 to O44	Cum	6	2.00	2.00	0.30	7.20
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	18	2.00	2.00	0.30	21.60
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	2	2.00	2.00	0.30	2.40
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	20	2.00	2.00	0.30	24.00
	Carstreet Road						
	MH 1231 to O 56	Cum	4	2.00	2.00	0.30	4.80
	VT Road						
	MH 1300 to O 53	Cum	20	2.00	2.00	0.30	24.00
	ASR Pai Road						
	MH 1513 to O 61	Cum	7	2.00	2.00	0.30	8.40
	Car street Road						
	MH 1528 to O26	Cum	6	2.00	2.00	0.30	7.20
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	8	2.00	2.00	0.30	9.60
	Kudroli Road						
	MH 1657 to O 32	Cum	4	2.00	2.00	0.30	4.80

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
	For Household Connection- Zone 3 Part 2 (MH = 110 Nos, L=10.5m X 4 connections in each manhole) Road width >3m and 50% of length	Cum	110	10.00	0.60	0.30	198.00
	For Household Connection- Zone 3 Part 2 (MH =1 Nos, L=10.5m X 4 connections in each manhole) - Road width <3m and 50% of length	Cum	1	10.00	0.60	0.30	1.80
				Area (Pi*r*r)			
C	Zone- 3 (Part- 2)						
	Ded Manhole top cover Dia 0.60m and base dia 1.2m	Cum	-107	0.283		0.30	-9.07
	Ded Manhole top cover Dia 0.60m and base dia 1.5m	Cum	-4	0.283		0.30	-0.34
		Cum				Total	1527.26
23	KSRRB M400- Wet Mix macadam KSRRB M400-17. Providing, laying, spreading and compacting crushed stone aggregates of granite/trap/basalt to wet mix macadam specification including per mixing the material with water at OMC in Mechanical mix plant carriage of mixed material by tipper to site, laying in uniform layers with paver in sub-base/base course on well prepared surface and compacting with vibratory roller to achieve the desired density complete as per specification. MORTH Specification NO.406 KSRRB Po No 158 20 18						
A	Zone- 3 (Part- 2)						
	Only for Pipe portion trench						
	PM Rao Road						
	MH 1157 to O44	Cum	1	169.00	1.20	0.25	50.70
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	1	417.60	2.10	0.25	219.24
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	1	48.30	1.20	0.25	14.49
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	1	478.00	2.10	0.25	250.95
	Carstreet Road						
	MH 1231 to O 56	Cum	1	100.50	1.20	0.25	30.15
	VT Road						
	MH 1300 to O 53	Cum	1	492.20	2.10	0.25	258.41
	ASR Pai Road						
	MH 1513 to O 61	Cum	1	196.70	1.20	0.25	59.01
	Car street Road						
	MH 1528 to O26	Cum	1	133.20	1.20	0.25	39.96
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	1	219.80	1.20	0.25	65.94
	Kudroli Road						
	MH 1657 to O 32	Cum	1	100.70	1.20	0.25	30.21
		Cum					1019.06
B	Zone- 3 (Part- 2)						
	Only for Manhole portion						
	PM Rao Road						
	MH 1157 to O44	Cum	6	2.00	2.00	0.25	6.00
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	18	2.00	2.00	0.25	18.00
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	2	2.00	2.00	0.25	2.00
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	20	2.00	2.00	0.25	20.00
	Carstreet Road						
	MH 1231 to O 56	Cum	4	2.00	2.00	0.25	4.00
	VT Road						
	MH 1300 to O 53	Cum	20	2.00	2.00	0.25	20.00
	ASR Pai Road						
	MH 1513 to O 61	Cum	7	2.00	2.00	0.25	7.00
	Car street Road						
	MH 1528 to O26	Cum	6	2.00	2.00	0.25	6.00
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	8	2.00	2.00	0.25	8.00
	Kudroli Road						
	MH 1657 to O 32	Cum	4	2.00	2.00	0.25	4.00
	For Household Connection- Zone 3 Part 2 (MH = 110 Nos, L=10.5m X 4 connections in each manhole) Road width >3m and 50% of length	Cum	110	10.00	0.60	0.25	165.00
	For Household Connection- Zone 3 Part 2 (MH =1 Nos, L=10.5m X 4 connections in each manhole) - Road width <3m and 50% of length	Cum	1	10.00	0.60	0.25	1.50
				Area (Pi*r*r)			

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
C	Zone- 3 (Part- 2)						
	Ded Manhole top cover Dia 0.60m and base dia 1.2m	Cum	-107	0.283		0.25	-7.56
	Ded Manhole top cover Dia 0.60m and base dia 1.5m	Cum	-4	0.283		0.25	-0.28
		Cum				Total	1272.71
24	KSRRB M500-6. Providing and applying primer coat with S.S. bitumen emulsion on prepared surface of granular base such as WMM including cleaning of road surface and spraying primer at the rate of 0.60 kg / sqm using mechanical means complete as per specifications. MORTH Specification No. 502 KSRB Pg No.161,SI No:21.6						
A	Zone- 3 (Part- 2)						
	Only for Pipe portion trench						
	PM Rao Road						
	MH 1157 to O44	Sqm	1	169.00	1.20		202.80
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Sqm	1	417.60	2.10		876.96
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Sqm	1	48.30	1.20		57.96
	Car Street and Cross Road						
	MH1719 to MH O-27	Sqm	1	478.00	2.10		1003.80
	Carstreet Road						
	MH 1231 to O 56	Sqm	1	100.50	1.20		120.60
	VT Road						
	MH 1300 to O 53	Sqm	1	492.20	2.10		1033.62
	ASR Pai Road						
	MH 1513 to O 61	Sqm	1	196.70	1.20		236.04
	Car street Road						
	MH 1528 to O26	Sqm	1	133.20	1.20		159.84
	KSR Cross Road						
	MH 1673 to MH 1529	Sqm	1	219.80	1.20		263.76
	Kudroli Road						
	MH 1657 to O 32	Sqm	1	100.70	1.20		120.84
B	Zone- 3 (Part- 2)						
	Only for Manhole portion						
	PM Rao Road						
	MH 1157 to O44	Sqm	6	2.00	2.00		24.00
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Sqm	18	2.00	2.00		72.00
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Sqm	2	2.00	2.00		8.00
	Car Street and Cross Road						
	MH1719 to MH O-27	Sqm	20	2.00	2.00		80.00
	Carstreet Road						
	MH 1231 to O 56	Sqm	4	2.00	2.00		16.00
	VT Road						
	MH 1300 to O 53	Sqm	20	2.00	2.00		80.00
	ASR Pai Road						
	MH 1513 to O 61	Sqm	7	2.00	2.00		28.00
	Car street Road						
	MH 1528 to O26	Sqm	6	2.00	2.00		24.00
	KSR Cross Road						
	MH 1673 to MH 1529	Sqm	8	2.00	2.00		32.00
	Kudroli Road						
	MH 1657 to O 32	Sqm	4	2.00	2.00		16.00
	For Household Connection- Zone 3 Part 2 (MH = 110 Nos, L=10.5m X 4 connections in each manhole) Road width >3m and 50% of length	Sqm	110	10.00	0.60		660.00
	For Household Connection- Zone 3 Part 2 (MH =1 Nos, L=10.5m X 4 connections in each manhole) - Road width <3m and 50% of length	Sqm	1	10.00	0.60		6.00
				Area (Pi*r*r)			
C	Zone- 3 (Part- 2)						
	Ded Manhole top cover Dia 0.60m and base dia 1.2m	Sqm	-107	0.283			-30.24
	Ded Manhole top cover Dia 0.60m and base dia 1.5m	Sqm	-4	0.283			-1.13
		Sqm				Total	5090.85

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
25	Providing and laying bituminous macadam on prepared surface with crushed coarse aggregates as per design mix formula for base / binding course including loading of aggregates with F.E loader, hot mixing of stone aggregates and bitumen in hot mix plant 40/60 TPH capacity, transporting the mixed material in tipper to paver and laying mixed materials with paver finisher to the required level and grade, rolling by power roller to achieve the desired density, 50 / 75 mm compacted thickness with 3.4% bitumen but excluding cost of primer/tack coat with all lead and lift including cost of materials, labour, HOM of machineries complete as per specifications. MORTH Chapter 5, using 60/70 grade bitumen, Including environmental and social safe guards, including all taxes, as directed by the Engineer-in-Charge etc., complete. 50mm thick KSRRB Pg No.162,SI No. 21.11.6						
	Zone- 3 (Part- 2)						
	Only for Pipe portion trench						
	PM Rao Road						
	MH 1157 to O44	Cum	1	169.00	1.20	0.05	10.14
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	1	417.60	2.10	0.05	43.85
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	1	48.30	1.20	0.05	2.90
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	1	478.00	2.10	0.05	50.19
	Carstreet Road						
	MH 1231 to O 56	Cum	1	100.50	1.20	0.05	6.03
	VT Road						
	MH 1300 to O 53	Cum	1	492.20	2.10	0.05	51.68
	ASR Pai Road						
	MH 1513 to O 61	Cum	1	196.70	1.20	0.05	11.80
	Car street Road						
	MH 1528 to O26	Cum	1	133.20	1.20	0.05	7.99
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	1	219.80	1.20	0.05	13.19
	Kudroli Road						
	MH 1657 to O 32	Cum	1	100.70	1.20	0.05	6.04
	Zone- 3 (Part- 2)						
	Only for Manhole portion						
	PM Rao Road						
	MH 1157 to O44	Cum	6	2.00	2.00	0.05	1.20
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	18	2.00	2.00	0.05	3.60
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	2	2.00	2.00	0.05	0.40
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	20	2.00	2.00	0.05	4.00
	Carstreet Road						
	MH 1231 to O 56	Cum	4	2.00	2.00	0.05	0.80
	VT Road						
	MH 1300 to O 53	Cum	20	2.00	2.00	0.05	4.00
	ASR Pai Road						
	MH 1513 to O 61	Cum	7	2.00	2.00	0.05	1.40
	Car street Road						
	MH 1528 to O26	Cum	6	2.00	2.00	0.05	1.20
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	8	2.00	2.00	0.05	1.60
	Kudroli Road						
	MH 1657 to O 32	Cum	4	2.00	2.00	0.05	0.80
	For Household Connection- Zone 3 Part 2 (MH = 110 Nos, L=10.5m X 4 connections in each manhole) Road width >3m and 50% of length	Cum	110	10.00	0.60	0.05	33.00
	For Household Connection- Zone 3 Part 2 (MH =1 Nos, L=10.5m X 4 connections in each manhole) - Road width <3m and 50% of length	Cum	1	10.00	0.60	0.05	0.30
	Zone- 3 (Part- 2)						
	Ded Manhole top cover Dia 0.60m and base dia 1.2m	Cum	-107	0.28		0.05	-1.51
	Ded Manhole top cover Dia 0.60m and base dia 1.5m	Cum	-4	0.28		0.05	-0.06
		Cum				Total	254.54

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
26	KSRRB 500-7. Providing and applying tack coat using 80/100 grade bitumen(VG10) on the prepared black topped surfaces at 2.5 kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications. MORTH/Chapter 5 KSRB Pg No.161,SI No:21.7 Rev Rate-18.12.2017						
	Zone- 3 (Part- 2)						
	Only for Pipe portion trench						
	PM Rao Road						
	MH 1157 to O44	Sqm	1	169.00	1.20		202.80
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Sqm	1	417.60	2.10		876.96
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Sqm	1	48.30	1.20		57.96
	Car Street and Cross Road						
	MH1719 to MH O-27	Sqm	1	478.00	2.10		1003.80
	Carstreet Road						
	MH 1231 to O 56	Sqm	1	100.50	1.20		120.60
	VT Road						
	MH 1300 to O 53	Sqm	1	492.20	2.10		1033.62
	ASR Pai Road						
	MH 1513 to O 61	Sqm	1	196.70	1.20		236.04
	Car street Road						
	MH 1528 to O26	Sqm	1	133.20	1.20		159.84
	KSR Cross Road						
	MH 1673 to MH 1529	Sqm	1	219.80	1.20		263.76
	Kudroli Road						
	MH 1657 to O 32	Sqm	1	100.70	1.20		120.84
	Zone- 3 (Part- 2)						
	Only for Manhole portion						
	PM Rao Road						
	MH 1157 to O44	Sqm	6	2.00	2.00		24.00
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Sqm	18	2.00	2.00		72.00
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Sqm	2	2.00	2.00		8.00
	Car Street and Cross Road						
	MH1719 to MH O-27	Sqm	20	2.00	2.00		80.00
	Carstreet Road						
	MH 1231 to O 56	Sqm	4	2.00	2.00		16.00
	VT Road						
	MH 1300 to O 53	Sqm	20	2.00	2.00		80.00
	ASR Pai Road						
	MH 1513 to O 61	Sqm	7	2.00	2.00		28.00
	Car street Road						
	MH 1528 to O26	Sqm	6	2.00	2.00		24.00
	KSR Cross Road						
	MH 1673 to MH 1529	Sqm	8	2.00	2.00		32.00
	Kudroli Road						
	MH 1657 to O 32	Sqm	4	2.00	2.00		16.00
	For Household Connection- Zone 3 Part 2 (MH = 110 Nos, L=10.5m X 4 connections in each manhole) Road width >3m and 50% of length	Sqm	110	10.00	0.60		660.00
	For Household Connection- Zone 3 Part 2 (MH =1 Nos, L=10.5m X 4 connections in each manhole) - Road width <3m and 50% of length	Sqm	1	10.00	0.60		6.00
				Area (Pi*r*r)			
	Zone- 3 (Part- 2)						
	Ded Manhole top cover Dia 0.60m and base dia 1.2m	Sqm	-107	0.28			-30.24
	Ded Manhole top cover Dia 0.60m and base dia 1.5m	Sqm	-4	0.28			-1.13
		Sqm				Total	5090.85

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
27	Providing and laying Semi dense bituminous concrete with 40-60 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder at 4.5 to 5% of mix and filter, transporting the hot mix to work site, laying with a hydrostatic paver finisher with mechanical paver to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause no. 500.8, 25 mm compacted thickness with 5% bitumen 60/70 grade using 40-60 HMP (Grading II) using mechanical paver, with all lead and lift ,Labour, as per specification, Including environmental and social safe guards, including all taxes, as directed by the Engineer-in-Charge etc., complete. 25mm thick KSRRB Pg No.163,SJ No. 21.20.6						
	Zone- 3 (Part- 2)						
	Only for Pipe portion trench						
	PM Rao Road						
	MH 1157 to O44	Cum	1	169.00	1.20	0.025	5.07
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	1	417.60	2.10	0.025	21.92
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	1	48.30	1.20	0.025	1.45
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	1	478.00	2.10	0.025	25.10
	Carstreet Road						
	MH 1231 to O 56	Cum	1	100.50	1.20	0.025	3.02
	VT Road						
	MH 1300 to O 53	Cum	1	492.20	2.10	0.025	25.84
	ASR Pai Road						
	MH 1513 to O 61	Cum	1	196.70	1.20	0.025	5.90
	Car street Road						
	MH 1528 to O26	Cum	1	133.20	1.20	0.025	4.00
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	1	219.80	1.20	0.025	6.59
	Kudroli Road						
	MH 1657 to O 32	Cum	1	100.70	1.20	0.025	3.02
	Zone- 3 (Part- 2)						
	Only for Manhole portion						
	PM Rao Road						
	MH 1157 to O44	Cum	6	2.00	2.00	0.025	0.60
	Sharavu Ganapati Temple Road and Car Street Cross Road						
	MH 2506 to MH 1725	Cum	18	2.00	2.00	0.025	1.80
	Sharavu Ganapati Temple cross Road						
	MH 567 to MH 1932	Cum	2	2.00	2.00	0.025	0.20
	Car Street and Cross Road						
	MH1719 to MH O-27	Cum	20	2.00	2.00	0.025	2.00
	Carstreet Road						
	MH 1231 to O 56	Cum	4	2.00	2.00	0.025	0.40
	VT Road						
	MH 1300 to O 53	Cum	20	2.00	2.00	0.025	2.00
	ASR Pai Road						
	MH 1513 to O 61	Cum	7	2.00	2.00	0.025	0.70
	Car street Road						
	MH 1528 to O26	Cum	6	2.00	2.00	0.025	0.60
	KSR Cross Road						
	MH 1673 to MH 1529	Cum	8	2.00	2.00	0.025	0.80
	Kudroli Road						
	MH 1657 to O 32	Cum	4	2.00	2.00	0.025	0.40
	For Household Connection- Zone 3 Part 2 (MH = 110 Nos, L=10.5m X 4 connections in each manhole) Road width >3m and 50% of length	Cum	110	10.00	0.60	0.025	16.50
	For Household Connection- Zone 3 Part 2 (MH =1 Nos, L=10.5m X 4 connections in each manhole) - Road width <3m and 50% of length	Cum	1	10.00	0.60	0.025	0.15
				Area (Pi*r*r)			
	Zone- 3 (Part- 2)						
	Ded Manhole top cover Dia 0.60m and base dia 1.2m	Cum	-107	0.28		0.025	-0.76
	Ded Manhole top cover Dia 0.60m and base dia 1.5m	Cum	-4	0.28		0.025	-0.03
		Cum				Total	127.27

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
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Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
28	Dewatering for Lowering of water table to creat dry conditions at least upto the bed of the excavation including the cost of material, labour T & P articles & machinery laying sewer line & Manholes as per approved drawings according. to the requirement of the construction of structure. The cost of this work shall be inclusive of disposal of water pumped out at a safe place away from the structure. The dewatering will work till the completion of the structure as per approved drawings ,with all horizontal leads and lifts etc., complete in all respects as per specification and as directed by engineer.During the execution of work enough precaution should be taken by the contractor to ensure that the clear water flows from the delivery pipe of pumps to avoid any settlement of soil during the process. (A s per Data Rate)						
	Zone 3 Part 2 - 2 months x 15 days-	Day s of 8 hours	75.00				75.00
						Total	75.00
29	KSRB 14.6-2 :Providing and laying heavy duty cobble stones 75mm thick interlock pavers, 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. PWD (16-17,Pg No.101,SI No.14.7)						
	Zone- 3 (Part- 2)						
	Only for Pipe portion trench						
	Car Street Cross Road						
	MH 569 to O 26	Sqm	1	47.20	1.80		84.96
	For Manhole Area						
	Car Street Cross Road						
	MH 569 to O 26	Sqm	2	2.00	2.00		8.00
	Manhole Cover Deduction				Area = pi *r*r		
	Ded Manhole top cover Dia 0.60m and base dia 1.2m	Sqm	-14	0.28			-3.96
	Ded Manhole top cover Dia 0.60m and base dia 1.5m	Sqm	-1	0.28			-0.28
	Household Connection						
	Zone 3 Part 2						
	For Household Connection- Zone 3 Part 1 (MH = 11Nos, L=5m X 4 connections in each manhole)-Road Width >3m and 50% of length	Sqm	11	10.00	0.60		66.00
	For Household Connection- Zone 3 Part 1 (MH = 4Nos, L=5m X 4 connections in each manhole)-Road width <3m and 50% of length	Sqm	4	10.00	0.60		24.00
		Sqm				Total	178.72
	UTILITY SHIFTING						
A	Dismantling						
1	KSRRB M200-13.2. 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. MORTH Specification No. 202 KSRRB Pg No.137,SI No.18.21						
	Compound wall - S S Masonry Foundation	Cum	1	60.00	0.6	0.60	21.60
		Cum	1	60.00	0.45	0.60	16.20
		Cum	1	60.00	0.3	0.30	5.40
	Super structure	Cum	1	60.00	0.23	1.20	16.56
	Culvert - Foundaiaon	Cum	10	1.50	0.60	1.00	9.00
		Cum	10	1.50	0.60	0.60	5.40
	Total	Cum					74.16
	Total 70% of Qty						51.91

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
2	KSRRB M200-14.2. 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) Dismantling brick/Tile work B. In cement mortar. MORTH Specification No. 202 KSRRB Pg No.137,SI No.18.23						
	Compound wall - S S Masonry Foundation	Cum	1	60.00	0.6	0.60	21.60
		Cum	1	60.00	0.45	0.60	16.20
		Cum	1	60.00	0.3	0.30	5.40
	Super structure	Cum	1	60.00	0.23	1.20	16.56
	Culvert - Foundaiaion	Cum	10	1.50	0.60	1.00	9.00
		Cum	10	1.50	0.60	0.60	5.40
	Total	Cum					74.16
	Total 30% of Qty						22.25
B	Compound wall						
1	KSRRB 2-2.1 : Earthwork excavation for foundation of buildings, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in ordinary soil not exceeding 1.5 m. in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m. after breaking of clods complete as per specifications. specification. No. KBS 2.1(a) / 2.3.5 KSRRB Pg No.5,SI No.2.3						
	Excavation for compound wall in ordinary soil	Cum	1	60.00	0.95	1.20	68.40
	Total	Cum					68.40
2	KSRRB 4-1.1: Providing and laying in position plain cement concrete of mix 1:2:4 with OPC cement @ 240kgs, with 40mm and down size graded granite metal coarse aggregates @0.878cum and fine aggregates @ 0.459cum machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2 KSRRB Pg No.12,SI No.4.1						
	PCC	Cum	1	60.00	0.95	0.15	8.55
	DPC	Cum	1	60.00	0.45	0.08	2.16
	Copping	Cum	1	60.00	0.23	0.08	1.10
	Extra at Pillar top	Cum	17	0.45	0.45	0.08	0.28
	Total	Cum					12.09
3	Providing and constructing granite / trap / basalt size stone masonry in foundation with cement mortar 1:6 stone hammerd dressed in courses not less than 20 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KBS 5.1.13 KSRRB Pg No.254,SI No.34.8.2						
	Size stone masonry at Foundation						
	1st Course	Cum	1	60.00	0.60	0.60	21.60
	2nd Course	Cum	1	60.00	0.45	0.60	16.20
	Plinth	Cum	1	60.00	0.30	0.30	5.40
	Total	Cum					43.20
4	Providing & constructing laterite size stone masonry in CM 1:6 including cost and conveyance of all materials curing, etc complete as per specification I.S. 3620 / 1979 having compressive strength not less than 3.5 N/mm2 for saturated dry samples. For super structure in CM 1:6 (Cement 45 kgs/M3) (Ground Floor) KSRRB Pg No.267,SI No.37.66.1						
	For Superstrucure wall	Cum	1	60.00	0.23	1.20	16.56
	For Pillars	Cum	17	0.45	0.45	1.20	4.13
	Deduct Pillars at wall	Cum	-17	0.45	0.23	1.20	-2.11
	Total	Cum					18.58

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
5	KSRB15-3.11 : Providing 20mm thick cement plaster in single coat with cement mortar 1:4, to stone masonry & concrete surface including rounding off corners wherever required smooth rendering, : Providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications. KSRRB Pg No.114,SI No.15.19						
	For supper structure Plastering on both sides	Sqm	1	60.00		3.08	184.80
	For Pillars projections	Sqm	34	0.22		3.08	23.04
	For DPC horizontal portion	Sqm	1	60.00	0.22		13.20
	Pillar top	Sqm	17	0.45		0.45	3.44
	Total	Sqm					224.48
6	KSRB 15-16.1 : Providing and finishing external walls in two coats with waterproof cement paint of approved brand and shade to give an even shade after throughly brooming the surface to remove all dirt and loose powdered material, free from mortar drops and other foreign matter cost of materials, labour, complete as per specifications. - with primer. KSRRB Pg No.118,SI No.15.53.2						
	Total Qty same as above SI No 5	Sqm	1				224.48
7	KSRB 2.3: Filling available excavated earth (excluding rock) in sides of foundations upto plinth in layers not exceeding 20cms. In depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5m. including cost of all labour complete as per specifications. Specification No. KBS 2.9 KSRRB Pg No.6,SI No.2.1						
	Refilling Qty 1/3rd of Excavated Qty	Cum	1				22.80
C	CULVERT						
1	KSRB 2-2.1 : Earthwork excavation for foundation of buildings, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in ordinary soil not exceeding 1.5 m. in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m. after breaking of clods complete as per specifications. specification. No. KBS 2.1(a) / 2.3.5 KSRRB Pg No 5,SI No.2.3						
	For pipe culverts - 300mm dia.						
	excavation for pipe	Cum	5	5.00	0.90	1.45	32.63
	excavation for masonry structure	Cum	10	1.50	0.60	1.45	13.05
	For pipe culverts - 450mm dia.						
	excavation for pipe	Cum	5	5.00	1.05	1.60	42.00
	excavation for masonry structure	Cum	10	1.65	0.6	1.60	15.84
	Total	Cum					103.52
2	KSRRB M2900- PCC 1:3:6 in Foundation KSRRB M2900-1. Plain cement concrete 1:3:6 mix with crushed stone aggregate 40 m nominal size mechanically mixed, placed in foundation and compacted by vibration including curing complete as per specifications MORTH Specification No. 408 KSRRB Pg No.253,SI No.34.1						
	For pipe culverts - 300mm dia.						
	PCC for pipe	Cum	5	5.00	0.30	0.15	1.13
	excavation for masonry structure	Cum	10	1.50	0.60	0.15	1.35
	For pipe culverts - 450mm dia.						
	PCC for pipe	Cum	5	5.00	0.45	0.15	1.69
	excavation for masonry structure	Cum	10	1.65	0.60	0.15	1.49
	Total	Cum					5.65
3	Providing and constructing granite / trap / basalt size stone masonry in foundation with cement mortar 1:6 stone hammerd dressed in courses not less than 20 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KBS 5.1.13 KSRRB Pg No.254,SI No.34.8.2						
	For pipe culvert 300mm dia	Cum	10	1.50	0.60	1.00	9.00
	Deduct pipe	Cum	-10	0.07			-0.71
	For pipe culvert 450mm dia	Cum	10	1.65	0.60	1.00	9.90
	Deduct pipe	Cum	-10	0.16			-1.59
	Total	Cum					16.60

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
4	Providing and constructing granite / trap / basalt size stone masonry in basement with cement mortar 1:6, edges of stones chistle dressed in courses not less than 15 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KSRB Pg No.254,SI No.34.9						
	For pipe culvert 300mm dia	Cum	10	1.50	0.60	0.60	5.40
	For pipe culvert 450mm dia	Cum	10	1.65	0.60	0.60	5.94
	Total	Cum					11.34
5	Providing flush pointing to square rubble, course or uncoursed stone masonry with cement mortar, 20mm deep, after raking joints to depth of 20mm nicely lining, including cost of materials, labour, curing complete as per specifications. – do – cement mortar 1:4 KSRB Pg No.254,SI No.34.12.1						
	For pipe culvert 300mm dia	Sqm	20	1.50		0.60	18.00
	For pipe culvert 450mm dia	Sqm	20	1.65		0.60	19.80
	Total	Sqm					37.80
6	Providing and laying reinforced cement concrete pipe NP3 for culverts including pointing ends, and fixing collars with cement mortar 1:2 including cost of all materials, labour, curing complete as per specifications. Specifications. No. KSRB 1000, 2300 MOST Specification No.1000 / 2300 -- 300mm. dia KSRB Pg No.253,SI No.34.6.1						
	for 300mm dia	Rmt	5	5.00			25.00
	Total	Rmt					25.00
7	Providing and laying reinforced cement concrete pipe NP3 for culverts including pointing ends, and fixing collars with cement mortar 1:2 including cost of all materials, labour, curing complete as per specifications. Specifications. No. KSRB 1000, 2300 MOST Specification No.1000 / 2300 -- 450mm. dia KSRB Pg No.253,SI No.34.6.2						
	for 450mm dia	Rmt	5	5.00			25.00
	Total	Rmt					25.00
8	KSRB 2.3: Filling available excavated earth (excluding rock) in sides of foundations upto plinth in layers not exceeding 20cms. In depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5m. including cost of all labour complete as per specifications. Specification No. KSRB 2.9 KSRB Pg No.6,SI No.2.10						
	1/3 of total excavation	Cum	1				34.51
D	RCC DRAINS						
1	Earthwork excavation for foundation of buildings, water supply , sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in Ordinary Soil not exceeding 1.5 m.in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m after breaking of clods complete as per specificationsincluding clearing vegetation, shoring, strutting, dewatering if required,and ramming with selected earth for foundation and disposing off excess excavated material as approved by Engineer etc. complete with all lead and lift including danger lighting wherever necessary as directed in the following strata. KSRB Pg No.5,SI No.2.3						
	In ordinary soil	Cum	1	180.00	0.85	0.53	80.33
	Extra for filter media	Cum	180	0.30	0.30	0.30	4.86
	Total	Cum					85.19

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
2	Providing and laying in position plain cement concrete of mix 1:2:4 with OPC cement @ 240kgs, with 40mm and down size graded granite metal coarse aggregates @0.878cum and fine aggregates @0.459cum 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 machineries, curing complete as per specifications. KSRB Pg No 12,SI No.4.1						
	PCC For raft	Cum	1	90.00	0.85	0.08	5.74
	Total	Cum					5.74
3	Providing and laying in position reinforced cement concrete of design mix M25 with OPC cement @ 340kgs, with 20mm and down size graded granite metal coarse aggregates @0.70 cum and fine aggregates @ 0.47cum, with super plasticisers @ 3 liters conforming to IS 9103-1999 reaffirmed-2008 at machine mixed, concrete laid in layers not exceeding 15 cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls, returnwalls, walls (any thickness) including attached pilasters, columnspillars, posts, struts, buttresses, bed blocks, anchor blocks & plinths etc including cost of all materials, labour, HOM of machinery, curing, complete but excluding cost of reinforcement as per specifications. KSRB Pg No.13,SI NO.4.10						
	For raft	Cum	1	90.00	0.70	0.10	6.30
	For side wall	Cum	2	90.00	0.10	0.60	10.80
	For Precast cover slabs	Cum	60	0.50	0.50	0.10	1.50
	Total	Cum					18.60
4	Providing TMT steel reinforcement for R.C.C 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 and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete with all lead lifts and as per specifications and directinon of Engineer-in-Charge. FE 500 KSRB Pg No.17,SI No.4.46.2 Rev.						
	Total concrete	Cum	1				18.60
	Reinforcement TMT 100kg/ cum	Kg	1				1860.00
	Total	MT					1.86
5	Providing and removing,centering, shuttering, strutting, propping etc., and removal of form work for foundations, footings, bases of columns for mass concrete including cost of all materials, labour complete as per specifications. KSRB Pg No.15,SI No.4.28						
	For PCC sides	Sqm	2	90.00		0.08	13.50
	For raft sides	Sqm	2	90.00		0.10	18.00
	Total	Sqm					31.50
6	Providing and removing centering, shuttering, strutting, propping etc., and removal of form work for vertical surface such as walls at any thickness, including attached pilasters, buttresses plinth cills and string courses cost of all materials, labour complete as per specifications. KSRB Pg No.15,SI No.4.31						
	For side wall	Sqm	4	90.00		0.60	216.00
	Total	Sqm					216.00
7	Providing and removing centering, shuttering, strutting, propping etc., and removal of form work for flat surface such as roofs, landings, balconies and likes, thickness upto 200mm including cost of all materials, labour complete as per specification. (Ground floor) KSRB,Pg No.15,SI No.4.18						
	For Cover slab	Sqm	1	0.50	0.50		0.25
	Slab side	Sqm	2	0.50		0.10	0.10
		Sqm	2	0.50		0.10	0.10
	Sub Total						0.45
	No. of cover slabs = 45/1.5	Sqm	60				27.00
	Total	Sqm					27.00

Sr.No.	Description of Work	UNIT	No	LENGTH	BREADTH	DEPTH	QUANTITY
8	KSRRB M2200 - Providing Weep holes Providing weep holes in Brick masonry / Plain / Reinforced concrete abutment, wing wall / return wall with PVC 90mm outer dia pipe 2 kg / Sqcm, extending through the full width of the structure with slope of 1V:20H towards drawing force complete as per drawing and Technical specifications complete as per specifications. KSRB,Pg No.225,SI No.28.10						
		Rmt	90	0.10			9.00
	Total	Rmt					9.00
9	Providing and laying of filter media with granular materials/stone crushed aggregates satisfying the requirement laid down in clause 2500.4.2.2 of morth specification to a thickness not less than 600 mm with smaller size to wards the soil and bigger size towards the wall and provided over the entire surface behind the abutment,wing wall and return wall to full hight compacted to afirm condition complete as per drawing and technical specification KSRB,Pg No.225,SI No.28.13						
	For filter media.	Cum	90	0.30	0.30	0.30	2.43
	Total	Cum					2.43
10	KSRB 2.3: Filling available excavated earth (excluding rock) in sides of foundations upto plinth in layers not exceeding 20cms. In depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5m. including cost of all labour complete as per specifications. Specification No. KBS 2.9 KSRB Pg No.6,SI No.2.10						
	Total excavation	Cum	1				85.19
	Deduct PCC	Cum	-1				-5.74
	Raft	Cum	-1				-17.10
	Drain Volume	Cum	-1	90.00	0.50	0.50	-22.50
	Total	Cum					39.85

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MANGALURU SMART CITY												
1.7 Measurement Sheet of UNDERGROUND DRAINAGE Zone 3 Part 2												
RCC inspection chamber (Sewer line)												
Item No	RA Ref. No	Descriptions		Unit	No	Length (m)	Breadth (m)	Depth (m)	Quantity	Rate (Rs)	Amount (Rs)	Remarks
1.0	1	Earthwork excavation for foundation of buildings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches in ordinary soil including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with all lead and lift after breaking of clods complete as per specifications, as per direction of Engineer etc., complete by manual means		Cum								
			A= (3.142*(.8+.1+.1)^2)/4		1	0.79		0.79	0.62			
				Cum				Total	0.62			
				Cum				Say	0.70	211.68	148.18	
2	2	Providing and laying in position plain cement concrete M15 grade with granite graded metal of 20 mm and down size and clean sieved river sand for foundation and levelling course, machine mixed, concrete laid, well compacted, including cost and conveyance		Cum								
				Cum	1	0.79		0.10	0.08			
								Total	0.08			
				Cum				Say	0.10	6,093.92	609.39	
3	3	Providing and laying in position reinforced cement concrete of design mix M25 with OPC cement @ 340kgs, with 20mm and down size graded granite metal coarse aggregates @0.70 cum and fine aggregates @ 0.47cum, with super plasticisers @ 3 liters conforming to IS 9103-1999 reafirmed-2008 at machine mixed, concrete laid in layers not exceeding 15 cms thick, vibrated for all works in foundation for footings, pedestrals, retaining walls, returnwalls, walls (any thickness) including attached pilasters, columnspillars, posts, struts, buttresses, bed blocks, anchor blocks & plinths etc including cost of all materials, labour, HOM of machinery, curing, complete but excluding cost of reinforcement as per specifications.		Cum								
	1	Foundation Raft		Cum	1	0.50		0.15	0.08			
	2	Walls			1	2.20	0.10	0.60	0.13			
					1	2.51	0.10	0.10	0.03			
				Cum				Total	0.23			
				Cum				Say	0.25	6,967.52	1,741.88	

4	4	Providing and fabricating TMT Steel reinforcement bars of Fe-500 grade including straightening the bars, cutting, bending, hooking and placing in position, lapping and or welding wherever required, tying with binding wire, anchoring to the adjoining members wherever necessary as per approved design and drawings including cost and conveyance of all materials with all leads and lifts, loading and unloading, all labour, hire charges of machineries, T&P, etc. complete and all other incidental items of works required for successful completion of the work as per approved drawings, specifications and as directed by the Engineer-in-charge. (Laps, hooks, chairs and wastages will not be measured and will not be paid for separately.)	MT									
			MT	1	0.23			0.015				
			MT				Say	0.015	67,879.84	1,018.20		
5	5	Providing and removing, centering, shuttering, strutting, propping etc and removal of form work for foundations, bases of columns for mass concrete including cost of all materials, labour complete as per specifications	Sqm							-		
		For raft		1	2.51		0.15	0.38		-		
			Sqm				Total	0.38		-		
			Sqm				Say	0.40	258.72	103.49		
6	6	Providing and removing centering, shuttering, strutting, propping etc., and removal of form work for vertical surfaces such as walls of any thickness including cost of all materials, labour complete as per specification.	Sqm									
		Outer wall	Sqm	1	2.51		0.60	1.51		-		
		Inner wall	Sqm	1	1.89		0.60	1.13		-		
		top edge outer	Sqm	1	2.83		0.10	0.28		-		
		top edge inner	Sqm	1	2.20		0.10	0.22				
			Sqm				Total	3.14		-		
			Sqm				Say	3.20	328.16	1,050.11		
7	7	Refilling pipeline trenches and foundation with selected available earth from trench excavation and foundation including watering, consolidation in layers of 15 cms., thickness including disposing off the surplus earth with all lead and lift, Including environmental and social safe guards, including all taxes, as directed by the Engineer-in-Charge etc., complete.										
		Total Excavation	Cum					0.62				
		Deduct PCC	Cum					-0.08				
		Deduct Raft						-0.08				
		Deduct Chamber	Cum	-1	0.50		0.70	-0.35				
			Cum				Total	0.11				
			Cum				Say	0.20	66.08	13.22		
8	8	Supply and fixing SFRC manhole cover and frame (heavy duty) confirming to IS :12592 with latest ammendments	Nos	1				1.00	1,952.50	1,952.50		
									Total	6,636.96		
									Say	6,637.00		

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MANGALURU SMART CITY
1.5 Rate Analysis of Underground Drainage Zone 3 Part 2

RATE ANALYSIS - UnderGround Drainage Zone3 Part 2

1	KSRRB200-8. Clearing and grubbing road land including uprooting rank vegetation, grass, brush, shrubs, saplings and trees of girth upto 300mm, by manual means, in area of light jungle, removal of stumps, disposal of unserviceable materials, stacking of serviceable materials labour charges complete as per specifications KSRB Pg No.136,SI No.18.11		
	Basic rate		6.00
	Add 12% For area weightage		0.72
		Rate	6.72 Sqm
2	Cutting asphalt road surface for pipeline trenches and disposing off the excavated stuff with all lead and lift as directed including barricading,danger lighting etc., KUWSDB-15-16 SI No.5.2,Pg No.17		
	Basic rate		578
	Add 12% For area weightage		69.36
		Rate	647.36 Cum
3	Cutting Concrete road surface for pipeline trenches and disposing off the excavated stuff with all lead and lift as directed including barricading,danger lighting etc., KUWSDB-15-16 SI No.5.3,Pg No.17		
	Basic rate		1159
	Add 12% For area weightage		139.08
		Rate	1298.08 Cum
4	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.(As per Data Rate)		
	Basic rate		36.83
		Rate	36.83 Sqm
5	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring,strutting,bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16,SI No 1,Pg No 5		
i	do in all soils mixed mixed with boulders of 30 cms size upto an exclusive of disintegrated rock D182		
a	0 to 2mtr depth		
	Basic rate		175.00
	Add 12% For area weightage		21.00
		Rate	196.00 Cum
b	2 to 4mtr depth		
	Basic rate		232.00
	Add 12% For area weightage		27.84
		Rate	259.84 Cum
6	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring,strutting,bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16,SI No 1-ii-(a),Pg No 5		
	In disintegrated rock, soft rock, soft shale, medium hard rock comprising of lime stone, sand stone, hard shale, schiest, fissured rock without resorting to blasting		
a	0 to 2mtr depth		
	Basic rate		395.00
	Add 12% For area weightage		47.4
		Rate	442.40 Cum
b	2 to 4mtr depth		
	Basic rate		442.00
	Add 12% For area weightage		53.04
		Rate	495.04 Cum

7	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16, SI No 1-iii-(a), Pg No 7			
	In hard laterite rock or hard laterite rock containing iron ore upto 20% by chistelling and trimming to proper slope			
a	0 to 2mtr depth			
	Basic rate		602.00	
	Add 12% For area weightage		72.24	
		Rate	674.24	Cum
b	2 to 4mtr depth			
	Basic rate		721.00	
	Add 12% For area weightage		86.52	
		Rate	807.52	Cum
8	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16, SI No 1-iv-(a), Pg No 7			
	In hard laterite rock containing iron ore above 20% by chistelling and trimming to proper slope			
a	0 to 2mtr depth			
	Basic rate		1277.00	
	Add 12% For area weightage		153.24	
		Rate	1430.24	Cum
b	2 to 4mtr depth			
	Basic rate		1340.00	
	Add 12% For area weightage		160.8	
		Rate	1500.80	Cum
9	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16, SI No 1-vi-(a), Pg No 9			
	In hard rock by Controlled blasting			
a	0 to 2mtr depth			
	Basic rate		884.00	
	Add		378.00	
	Add 12% For area weightage		151.44	
		Rate	1413.44	Cum
b	2 to 4mtr depth			
	Basic rate		1020.00	
	Add		378.00	
	Add 12% For area weightage		167.76	
		Rate	1565.76	Cum
10	Earthwork excavation for pipeline trenches (Except building work) including barricading depositing on bank with all lead including danger lighting and using sight rails and boning rods including shoring, strutting, bailing out water at every 100 meters wherever necessary as directed in the following Strata KUWSDB SR 15-16, SI No 1-v-(a), Pg No 7			
	In hard rock by chistelling			
a	0 to 2mtr depth			
	Basic rate		1590.00	
	Add 12% For area weightage		190.8	
		Rate	1780.80	Cum
b	2 to 4mtr depth			
	Basic rate		1706.00	
	Add 12% For area weightage		204.72	
		Rate	1910.72	Cum

11	<p>Earthwork Excavation by Mechanical Means</p> <p>Earthwork in excavation for pipeline trenches beyond 600mm and 1500mm trench width as per drawing and technical specification, including setting out, construction of shoring, strutting, barricading, danger lighting, bracing, using sight rails and boning rods at every 100 meters wherever necessary as directed, removal of slumps and other deleterious matter, dressing of sides and levelling the bottom of trench to the extent required, utilising the available excavated earth locally for the work etc., complete in the following strata.</p> <p>KUWSDB SR 15-16, SI No VII 3, Pg No 11</p>			
	a) - do - In ordinary/All soils/Hard soil			
	Basic rate		96.00	
	Add 12% For area weightage		11.52	
		Rate	107.52	Cum
	b) -do- In Ordinary Rock (not requiring blasting)			
	Basic rate		131.00	
	Add 12% For area weightage		15.72	
		Rate	146.72	Cum
	c) -do- In Hard Rock (requiring blasting)			
	Basic rate		757.00	
	Add 12% For area weightage		90.84	
		Rate	847.84	Cum
12	<p>Providing course sand bedding for the pipeline trenches including watering and consolidation by punners etc., complete with all lead and lift (In black cotton and rock reaches)</p> <p>KUWSDB 15-16, Pg No 17, SI No.6</p>			
	Basic rate		1616.00	
	Add 12% For area weightage		193.92	
		Rate	1809.92	Cum
13	<p>Providing Muram/Gravel Bedding for the pipeline trenches including watering and consolidation by punners etc., complete with all lead and lift as directed including barricading, danger lighting etc., as directed by the Engineer-in-Charge etc., complete, for all type of soils excluding black cotton soil and rock reaches.</p> <p>KUWSDB Pg No.17, SI No.6.1,6.2</p>			
	Basic rate		247.00	
	Add 12% For area weightage		29.64	
		Rate	276.64	Cum
14	<p>KSRB 4-1.6 ; Providing and laying in position plain cement concrete of mix 1:2:4 with cement @ 240kgs, with 20mm and down size graded granite metal coarse aggregates @ 0.69 cum and fine aggregates @ 0.459cum, 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.</p> <p>KSRB 16-17, Pg No.12, SI No.4.6</p>			
	Basic rate		5441.00	
	Add 12% For area weightage		652.92	
		Rate	6093.92	Cum
15	<p>Supplying Unplasticised PVC pipes conforming to IS 15328:2003 with latest amendments ended with integral sockets with ISI mark and conveying to worksite, rolling and lowering into trenches, Laying true to line and level and perfect linking at joints, testing and commissioning, including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of UPVC Pipes (with cost of elastomeric sealing rings) and specials (excluding cost of specials) with jointing of approved type, with all labour with all lead and lift including encasing the pipe around to a depth of not less than 15cms with soft gravel or selected earth available from the excavation etc., complete and giving necessary hydraulic test to the required pressure as per ISS (Contractor will make his own arrangements for procuring water for testing)</p> <p>KUWSDB, Pg No 205 and 207, SI No 4</p>			
	Supply and laying of PVC- U Pipes as per IS 15328 SN 4 -Ring size: 200mm			
	Basic Material Rate		754.00	
	Labour Rate		45	
	Add 12% For area weightage For labour		5.4	
		Rate	804.40	Rmt

16	Supplying Unplasticised PVC pipes confirming to IS 15328:2003 with latest amendments ended with integral sockets with ISI mark and conveying to worksite,rolling and lowering into trenches,Laying true to line and level and perfect linking at joints,testing and commissioning,including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of UPVC Pipes (with cost of elastomeric sealing rings) and specials (excluding cost of specials) with jointing of approved type,with all labour with all lead and lift including encasing the pipe around to a depth of not less than 15cms with soft gravel or selected earth available from the excavation etc.,complete and giving necessary hydraulic test to the required pressure as per ISS (Contractor will make his own arrangements for procuring water for testing) KUWSDB,Pg No 207 and 207,SI No b1			
	Supply and laying of PVC- U Pipes as per IS 15328 SN 8 -Ring tite: 110mm			
	Basic rate Material Rate		269.00	
	Labour Rate		33	
	Add 12% For area weightage For labour		3.96	
		Rate	305.96	Rmt
17	Construction RCC M25 circular inspection chamber 600 mm dia x 600mm depth (clear inside dimension) for single pipeline, with M15 PCC bed for 100 mm thick using mix with cement @240 kgs granite graded metal of 20 mm and down size and clean sieved river sand , M25 RCC raft & sidewall concrete with 20mm and downsize granite metal, , finish smooth with a floating coat of cement on walls and bed concrete complete , including fixing and grouting of pipes, including conveying to work spot supply and fixing SFRC manhole cover and frame (Heavy Duty) confirming to IS: 12592 with latest amendments as per standard design including cost of reinforcement, all materials, labour charges, curing complete as per specifications. As Per Data Rate			
	Basic rate		6637.00	
		Rate	6637.00	Nos
18	Making connections of drain or sewer line of size 100mm to 230mm external dia with existing manhole including breaking into and making good the walls, floors with cement concrete M15 with 20mm and downsize granite metal mix cement plastered on both sides with cement mortar 1:3 finished with a floating coat of neat cement and making necessary channels for the drain etc., complete PWD SR 2016-17,SI No.11.47.3,Pg No.73			
	Basic rate		1734.00	
	Add 12% For area weightage		208.08	
		Rate	1942.08	Nos
19	Constructing RCC Manhole chamber of 1:1.5:3 proportion or approved type pre-cast RCC manhole chambers,constructed using form vibrators of standard type, with barricading, danger lighting and using of sight rails and boning rods wherever necessary , shoring and strutting wherever required using ordinary port land cement, using 1:1.5:3 proportion RCC with 20 mm and down graded jelly, well graded sand and steel of approved quality , 200 mm thick top concrete slab, having wall thickness and raft thickness as in approved drawings and with an offset in raft around the chamber as in approved drawing, benching concrete with 1:6 slope towards the central drain finished smooth, including fixing and grouting of pipes, including conveying to work spot supply and fixing SFRC manhole cover and frame (Heavy Duty) confirming to IS: 12592 with latest amendments, on a bed of CC 1:2:4 supplying and fixing of minimum 3 mm thick encapsulated plastic footsteps (as per IS 10910) on 12 mm dia. Grade Fe-415 steel bar (as per IS 1786) staggered at 300 mm apart as detailed in Technical specifications, including sand bedding wherever required, disposal of surplus earth, watering, curing, engraving manhole number with flow direction on the inner cylindrical surface etc., complete including cost of reinforcement steel and fabrication charges and also cost and conveyance of all materials, labour with all lead and lifts for various diameters and depths noted below as per specification, drawing and as directed by the Engineer inclusive of earth work excavation in all type of soil. BWSSB 16-17,SI No 84,Pg No 81-82			
A	1.2 m dia manholes			
a	For 1.1 m depth			
	Basic rate		39355.00	
	Add 12% For Area weightage		4722.60	
		Rate	44077.60	Nos
b	For 1.2 m depth			
	Basic rate		40751.00	
	Add 12% For Area weightage		4890.12	
		Rate	45641.12	Nos
c	For 1.3 m depth			
	Basic rate		42075.00	
	Add 12% For Area weightage		5049.00	

		Rate	47124.00	Nos
d	For 1.4 m depth			
	Basic rate		43470.00	
	Add 12% For Area weightage		5216.40	
		Rate	48686.40	Nos
e	For 1.5 m depth			
	Basic rate		44865.00	
	Add 12% For Area weightage		5383.80	
		Rate	50248.80	Nos
f	For 1.6 m depth			
	Basic rate		46261.00	
	Add 12% For Area weightage		5551.32	
		Rate	51812.32	Nos
g	For 1.7 m depth			
	Basic rate		47655.00	
	Add 12% For Area weightage		5718.60	
		Rate	53373.60	Nos
h	For 1.8 m depth			
	Basic rate		48980.00	
	Add 12% For Area weightage		5877.60	
		Rate	54857.60	Nos
i	For 1.9 m depth			
	Basic rate		50375.00	
	Add 12% For Area weightage		6045.00	
		Rate	56420.00	Nos
j	For 2.0m depth			
	Basic rate		52132.00	
	Add 12% For Area weightage		6255.84	
		Rate	58387.84	Nos
k	For 2.1m depth Difference of basic rate for Manhole depth 2m & 3m (66422-52132)			14290
	for every 0.1m depth of manhole (Difference/10)			1429
	Basic rate		53561.00	
	Add 12% For Area weightage		6427.32	
		Rate	59988.32	Nos
l	For 2.2m depth			
	Basic rate		54990.00	
	Add 12% For Area weightage		6598.80	
		Rate	61588.80	Nos
m	For 2.3m depth			
	Basic rate		56419.00	
	Add 12% For Area weightage		6770.28	
		Rate	63189.28	Nos
n	For 2.4m depth			
	Basic rate		57848.00	
	Add 12% For Area weightage		6941.76	
		Rate	64789.76	Nos
o	For 2.5m depth			
	Basic rate		59277.00	
	Add 12% For Area weightage		7113.24	
		Rate	66390.24	Nos
p	For 2.6m depth			
	Basic rate		60706.00	
	Add 12% For Area weightage		7284.72	
		Rate	67990.72	Nos
q	For 2.7m depth			
	Basic rate		62135.00	
	Add 12% For Area weightage		7456.20	
		Rate	69591.20	Nos
r	For 2.8m depth			
	Basic rate		63564.00	
	Add 12% For Area weightage		7627.68	
		Rate	71191.68	Nos
s	For 2.9m depth			
	Basic rate		64993.00	

	Add 12% For Area weightage		7799.16	
		Rate	72792.16	Nos
t	For 3.0m depth			
	Basic rate		66422.00	
	Add 12% For Area weightage		7970.64	
		Rate	74392.64	Nos
B	1.5 m dia manholes			
a	For 3.1m depth Difference of basic rate for Manhole depth 3m & 4m (100811-83642)		17169	
	for every 0.1m depth of manhole (Difference/10)		1716.9	
	Basic rate		85358.90	
	Add 12% For Area weightage		10243.07	
		Rate	95601.97	Nos
b	For 3.2m depth			
	Basic rate		87075.80	
	Add 12% For Area weightage		10449.10	
		Rate	97524.90	Nos
c	For 3.8m depth			
	Basic rate		97377.20	
	Add 12% For Area weightage		11685.26	
		Rate	109062.46	Nos
d	For 4.3m depth			
	Basic rate		108149.30	
	Add 12% For Area weightage		12977.92	
		Rate	121127.22	Nos
e	For 4.6m depth			
	Basic rate		115487.60	
	Add 12% For Area weightage		13858.51	
		Rate	129346.11	Nos
f	For 4.9m depth			
	Basic rate		122825.90	
	Add 12% For Area weightage		14739.11	
		Rate	137565.01	Nos
20	Refilling Pipeline Trenches and foundation with selected available earth from trench excavation and foundation including watering,consolidation in layers of 15cms.,thick including disposing off the surplus earth with all lead and lift. KUWSDB Pg No 15,SI No 2			
	Basic Rate		59.00	
	Add 12% For Area weightage		7.08	
		Rate	66.08	Cum
21	Removal of Unserviceable Soil with Disposal KSRRB M300-19. Removal of unserviceable soil including excavation, loading and disposal but excluding replacement by suitable soil which shall be paid separately as per clause 300.5 complete as per specifications. MORTH Specification No. 301 KPWD Pg No. 144 ,SI No.19.20			
	Basic Rate		37.00	
	Lead & Lift Charges - 5Km ,KPWD-16-17,SI No.17.4 (Earth=1.28),Pg No 140		16.00	
	Loading & Unloading -KPWD-16-17,SI No.17.1,Pg No 134		68.00	
	Sub Total		121.00	
	Add 12% For Area weightage		14.52	
		Rate	135.52	Cum
22	KSRRB M400-6.2. Construction of Granular Sub-base by Providing Close graded crushed stone aggregates of granite /trap/basalt material spreading in uniform layers with motor grader 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 specifications. B. By mix in place Method For grading II material KSRB Pg No.155,20.5.2			
	Basic Rate		1408	
	Sub Total		1408.00	

	Add 12% For Area weightage		168.96	
		Rate	1576.96	Cum
23	KSRRB M400-Wet Mix macadam KSRRB M400-17. Providing, laying, spreading and compacting crushed stone aggregates of granite/trap/ basalt to wet mix macadam specification including per mixing the material with water at OMC in Mechanical mix plant carriage of mixed material by tipper to site, laying in uniform layers with paver in sub- base/base course on well prepared surface and compacting with vibratory roller to achieve the desired density complete as per specification. MORTH Specification NO.406 KSRB Pg No 158,20.18			
	Basic Rate		1668	
	Sub Total		1668.00	
	Add 12% For Area weightage		200.16	
		Rate	1868.16	Cum
24	KSRRB M500-6. Providing and applying primer coat with S.S. bitumen emulsion on prepared surface of granular base such as WMM including cleaning of road surface and spraying primer at the rate of 0.60 kg / sqm using mechanical means complete as per specifications. MORTH Specification No. 502 KSRB Pg No.161,SI No:21.6			
	Basic Rate		26.00	
	Sub Total		26.00	
	Add 12% For Area weightage		3.12	
		Rate	29.12	Sqm
25	Providing and laying bituminous macadam on prepared surface with crushed coarse aggregates as per design mix formula for base / binding course including loading of aggregates with F.E loader, hot mixing of stone aggregates and bitumen in hot mix plant 40/60 TPH capacity, transporting the mixed material in tipper to paver and laying mixed materials with paver finisher to the required level and grade, rolling by power roller to achieve the desired density, 50 / 75 mm compacted thickness with 3.4% bitumen but excluding cost of primer/tack coat with all lead and lift including cost of materials, labour, HOM of machineries complete as per specifications. MORTH Chapter 5, using 60/70 grade bitumen, Including environmental and social safe guards, including all taxes, as directed by the Engineer-in-Charge etc., complete. 50mm thick KSRRB Pg No.162,SI No. 21.11.6			
	Basic Rate		5406.00	
	Sub Total		5406.00	
	Add 12% For Area weightage		648.72	
		Rate	6054.72	Cum
26	KSRRB 500-7. Providing and applying tack coat using 80/100 grade bitumen(VG10) on the prepared black topped surfaces at 2.5 kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications. MORTH/Chapter 5 KSRB Pg No.161,SI No:21.7 Rev Rate-18.12.2017			
	Basic Rate		12.00	
	Sub Total		12.00	
	Add 12% For Area weightage		1.44	
		Rate	13.44	Sqm
27	Providing and laying Semi dense bituminous concrete with 40-60 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder at 4.5 to 5% of mix and filter, transporting the hot mix to work site, laying with a hydrostatic paver finisher with mechanical paver to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause no. 500.8, 25 mm compacted thickness with 5% bitumen 60/70 grade using 40-60 HMP (Grading II) using mechanical paver, with all lead and lift ,Labour, as per specification, Including environmental and social safe guards, including all taxes, as directed by the Engineer-in-Charge etc., complete. 25mm thick KSRRB Pg No.163,SI No. 21.20.6			
	Basic Rate		6945.00	
	Sub Total		6945.00	
	Add 12% For Area weightage		833.40	
		Rate	7778.40	Cum

28	Dewatering for Lowering of water table to creat dry conditions at least upto the bed of the excavation including the cost of material, labour T & P articles & machinery laying sewer line & Manholes as per approved drawings according. to the requirement of the construction of structure. The cost of this work shall be inclusive of disposal of water pumped out at a safe place away from the structure. The dewatering will work till the completion of the structure as per approved drawings ,with all horizontal leads and lifts etc., complete in all respects as per specification and as directed by engineer.During the execution of work enough precaution should be taken by the contractor to ensure that the clear water flows from the delivery pipe of pumps to avoid any settlement of soil during the process. (A s per Data Rate)			
	Basic Rate		4218.20	
	Sub Total		4218.20	
		Rate	4218.20	Day
29	KSRB 14.6-2 :Providing and laying heavy duty cobble stones 75mm thick interlock pavers, 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. PWD (16-17,Pg No.101,SI No.14.7)			
	Basic Rate		970.00	
	Sub Total		970.00	
	Add 12% For Area weightage		116.40	
		Rate	1086.40	Sqm

Assistant Engineer
MSCL Mangaluru

Executive Engineer
MSCL Mangaluru

GM Technical
MSCL Mangaluru

MANGALURU SMART CITY
1.6 Rate Analysis of Underground Drainage Zone 3 Part 2

RATE ANALYSIS - UnderGround Drainage Zone 3 Part 2 UTILITY SHIFTING

	DISMANTLING			
1	KSRRB M200-13.2. 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. MORTH Specification No. 202 KSRRB Pg No.137,SI No.18.21			
	Basic rate		601	
	Add 12% For area weightage		72.12	
		Rate	673.12	Cum
2	KSRRB M200-14.2. 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) Dismantling brick/Tile work B. In cement mortar. MORTH Specification No. 202 KSRRB Pg No.137,SI No.18.23			
	Basic rate		244	
	Add 12% For area weightage		29.28	
		Rate	273.28	Cum
	COMPOUND WALL			
1	KSRRB 2-2.1 : Earthwork excavation for foundation of buildings, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in ordinary soil not exceeding 1.5 m. in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m. after breaking of clods complete as per specifications. specification. No. KBS 2.1(a) / 2.3.5 KSRRB Pg No.5,SI No.2.3			
	Basic rate		189	
	Add 12% For area weightage		22.68	
		Rate	211.68	Cum
2	KSRRB 4-1.1: Providing and laying in position plain cement concrete of mix 1:2:4 with OPC cement @ 240kgs, with 40mm and down size graded granite metal coarse aggregates @0.878cum and fine aggregates @ 0.459cum machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, in foundation, including cost of all materials, labour, HOM of machinery, curing complete as per specifications. Specification No. KBS 4.1, 4.2 KSRRB Pg No.12,SI No.4.1			
	Basic rate		5213	
	Add 12% For area weightage		625.56	
		Rate	5838.56	Cum
3	Providing and constructing granite / trap / basalt size stone masonry in foundation with cement mortar 1:6 stone hammerd dressed in courses not less than 20 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KBS 5.1.13 KSRRB Pg No.254,SI No.34.8.2			
	Basic rate		4187.00	
	Add 12% For area weightage		502.44	
		Rate	4689.44	Cum

4	Providing & constructing laterite size stone masonry in CM 1:6 including cost and conveyance of all materials curing, etc complete as per specification I.S. 3620 / 1979 having compressive strength not less than 3.5 N/mm ² for saturated dry samples. For super structure in CM 1:6 (Cement 45 kgs/M ³) (Ground Floor) KSRRB Pg No.267,SI No.37.66.1			
	Basic rate		4410.00	
	Add 12% For area weightage		529.2	
		Rate	4939.20	Cum
5	KSRB15-3.11 : Providing 20mm thick cement plaster in single coat with cement mortar 1:4, to stone masonry & concrete surface including rounding off corners wherever required smooth rendering, : Providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications. KSRRB Pg No.114,SI No.15.19			
	Basic rate		234.00	
	Add 12% For area weightage		28.08	
		Rate	262.08	Sqm
6	KSRB 15-16.1 : Providing and finishing external walls in two coats with waterproof cement paint of approved brand and shade to give an even shade after thoroughly brooming the surface to remove all dirt and loose powdered material, free from mortar drops and other foreign matter cost of materials, labour, complete as per specifications. - with primer. KSRRB Pg No.118,SI No.15.53.2			
	Basic rate		84.00	
	Add 12% For area weightage		10.08	
		Rate	94.08	Sqm
7	KSRB 2.3: Filling available excavated earth (excluding rock) in sides of foundations upto plinth in layers not exceeding 20cms. In depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5m. including cost of all labour complete as per specifications. Specification No. KBS 2.9 KSRRB Pg No.6,SI No.2.10			
	Basic Material Rate		127.00	
	Add 12% For area weightage		15.24	
		Rate	142.24	Cum
	CULVERT			
1	KSRB 2-2.1 : Earthwork excavation for foundation of buildings, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in ordinary soil not exceeding 1.5 m. in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m. after breaking of clods complete as per specifications. specification. No. KBS 2.1(a) / 2.3.5 KSRRB Pg No 5,SI No.2.3			
	Basic rate		189.00	
	Add 12% For area weightage		22.68	
		Rate	211.68	Cum
2	KSRRB M2900- PCC 1:3:6 in Foundation KSRRB M2900-1. Plain cement concrete 1:3:6 mix with crushed stone aggregate 40 m nominal size mechanically mixed, placed in foundation and compacted by vibration including curing complete as per specifications MORTH Specification No. 408 KSRRB Pg No.253,SI No.34.1			
	Basic rate		4434.00	
	Add 12% For area weightage		532.08	
		Rate	4966.08	Cum
3	Providing and constructing granite / trap / basalt size stone masonry in foundation with cement mortar 1:6 stone hammerd dressed in courses not less than 20 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KBS 5.1.13 KSRRB Pg No.254,SI No.34.8.2			
	Basic Rate		4187.00	
	Add 12% For Area weightage		502.44	
		Rate	4689.44	Cum

4	Providing and constructing granite / trap / basalt size stone masonry in basement with cement mortar 1:6, edges of stones chistle dressed in courses not less than 15 cms high, bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications. KSRB Pg No.254,SI No.34.9			
	Basic Rate		5005.00	
	Add 12% For Area weightage		600.6	
		Rate	5605.60	Cum
5	Providing flush pointing to square rubble, course or uncoursed stone masonry with cement mortar, 20mm deep, after raking joints to depth of 20mm nicely lining, including cost of materials, labour, curing complete as per specifications. – do – cement mortar 1:4 KSRB Pg No.254,SI No.34.12.1			
	Basic Rate		97.00	
	Sub Total		97.00	
	Add 12% For Area weightage		11.64	
		Rate	108.64	Sqm
6	Providing and laying reinforced cement concrete pipe NP3 for culverts including pointing ends, and fixing collars with cement mortar 1:2 including cost of all materials, labour, curing complete as per specifications. Specifications. No. KSRB 1000, 2300 MOST Specification No.1000 / 2300 - - 300mm. dia KSRB Pg No.253,SI No.34.6.1			
	Basic Rate		1583	
	Sub Total		1583.00	
	Add 12% For Area weightage		189.96	
		Rate	1772.96	Rmt
7	Providing and laying reinforced cement concrete pipe NP3 for culverts including pointing ends, and fixing collars with cement mortar 1:2 including cost of all materials, labour, curing complete as per specifications. Specifications. No. KSRB 1000, 2300 MOST Specification No.1000 / 2300 - - 450mm. dia KSRB Pg No.253,SI No.34.6.2			
	Basic Rate		2767	
	Sub Total		2767.00	
	Add 12% For Area weightage		332.04	
		Rate	3099.04	Rmt
8	KSRB 2.3: Filling available excavated earth (excluding rock) in sides of foundations upto plinth in layers not exceeding 20cms. In depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5m. including cost of all labour complete as per specifications. Specification No. KBS 2.9 KSRB Pg No.6,SI No.2.10			
	Basic Rate		127.00	
	Sub Total		127.00	
	Add 12% For Area weightage		15.24	
		Rate	142.24	Cum
	RCC DRAINS			
1	Earthwork excavation for foundation of buildings, water supply , sanitary lines and electrical conduits either in pits or in trenches 1.5m and above in width, in Ordinary Soil not exceeding 1.5 m.in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with lead upto 50 m after breaking of clods complete as per specificationsincluding clearing vegetation, shoring, strutting, dewatering if required,and ramming with selected earth for foundation and disposing off excess excavated material as approved by Engineer etc. complete with all lead and lift including danger lighting wherever necessary as directed in the following strata. KSRB Pg No.5,SI No.2.3			
	Basic Rate		189.00	
	Sub Total		189.00	
	Add 12% For Area weightage		22.68	
		Rate	211.68	Cum

2	Providing and laying in position plain cement concrete of mix 1:2:4 with OPC cement @ 240kgs, with 40mm and down size graded granite metal coarse aggregates @0.878cum and fine aggregates @0.459cum 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 machineries, curing complete as per specifications. KSRB Pg No 12,SI No.4.1			
	Basic Rate		5213.00	
	Sub Total		5213.00	
	Add 12% For Area weightage		625.56	
		Rate	5838.56	Cum
3	Providing and laying in position reinforced cement concrete of design mix M25 with OPC cement @ 340kgs, with 20mm and down size graded granite metal coarse aggregates @0.70 cum and fine aggregates @ 0.47cum, with super plasticisers @ 3 liters conforming to IS 9103-1999 reaffirmed-2008 at machine mixed, concrete laid in layers not exceeding 15 cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls, returnwalls, walls (any thickness) including attached pilasters, columnspillars, posts, struts, buttresses, bed blocks, anchor blocks & plinths etc including cost of all materials, labour, HOM of machinery, curing, complete but excluding cost of reinforcement as per specifications. KSRB Pg No.13,SI NO.4.10			
	Basic Rate		6221.00	
	Sub Total		6221.00	
	Add 12% For Area weightage		746.52	
		Rate	6967.52	Cum
4	Providing TMT steel reinforcement for R.C.C 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 and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete with all lead lifts and as per specifications and directinon of Engineer-in-Charge. FE 500 KSRB Pg No.17,SI No.4.46.2 Rev.			
	Basic Rate		60607.00	
	Sub Total		60607.00	
	Add 12% For Area weightage		7272.84	
		Rate	67879.84	MT
5	Providing and removing,centering, shuttering, strutting, propping etc., and removal of form work for foundations, footings, bases of columns for mass concrete including cost of all materials, labour complete as per specifications. KSRB Pg No.15,SI No.4.28			
	Basic Rate		231.00	
	Sub Total		231.00	
	Add 12% For Area weightage		27.72	
		Rate	258.72	Sqm
6	Providing and removing centering, shuttering, strutting, propping etc., and removal of form work for vertical surface such as walls at any thickness, including attached pilasters, buttresses plinth cills and string courses cost of all materials, labour complete as per specifications. KSRB Pg No.15,SI No.4.31			
	Basic Rate		293.00	
	Sub Total		293.00	
	Add 12% For Area weightage		35.16	
		Rate	328.16	Sqm
7	Providing and removing centering, shuttering, strutting, propping etc., and removal of form work for flat surface such as roofs, landings, balconies and likes, thickness upto 200mm including cost of all materials, labour complete as per specification. (Ground floor) KSRB,Pg No.15,SI No.4.18			
	Basic Rate		313.00	
	Sub Total		313.00	
	Add 12% For Area weightage		37.56	
		Rate	350.56	Sqm

8	KSRRB M2200 - Providing Weep holes Providing weep holes in Brick masonry / Plain / Reinforced concrete abutment, wing wall / return wall with PVC 90mm outer dia pipe 2 kg / Sqcm, extending through the full width of the structure with slope of 1V:20H towards drawing force complete as per drawing and Technical specifications complete as per specifications. KSRB,Pg No.225,SI No.28.10			
	Basic Rate		168.00	
	Less cost of Material (AC Pipe)		-50.00	
	Sub Total		118.00	
	Add Cost of PVC 90mm outer dia pipe 2 kg / Sqcm		135.00	
			253.00	
	Add 12% For Area weightage		30.36	
		Rate	283.36	Rmt
9	Providing and laying of filter media with granular materials/stone crushed aggregates satisfying the requirement laid down in clause 2500.4.2.2 of morth specification to a thickness not less than 600 mm with smaller size to wards the soil and bigger size towards the wall and provided over the entire surface behind the abutment,wing wall and return wall to full hight compacted to afirm condition complete as per drawing and technical specification KSRB,Pg No.225,SI No.28.13			
	Basic Rate		1296.00	
	Sub Total		1296.00	
	Add 12% For Area weightage		155.52	
		Rate	1451.52	Cum
10	KSRB 2.3: Filling available excavated earth (excluding rock) in sides of foundations upto plinth in layers not exceeding 20cms. In depth, compacting each deposited layer by ramming after watering with lead upto 50m. and lift upto 1.5m. including cost of all labour complete as per specifications. Specification No. KBS 2.9 KSRB Pg No.6,SI No.2.10			
	Basic Rate		127.00	
	Sub Total		127.00	
	Add 12% For Area weightage		15.24	
		Rate	142.24	Cum

Assistant Engineer
MSCL Mangaluru

Executive Engineer
MSCL Mangaluru

GM Technical
MSCL Mangaluru

MANGALURU SMART CITY									
1.8 Rate Analysis of Underground Drainage Zone 3 Part 2									
Electrical Rate Analysis for pole shifting work in Under Ground Drainage System									
RA No.	Description	SR	Ref	Unit	Basic	Labour/lead/lift/dewatering/MISC etc.,	Locality Allowance @ 45% on labour	Total	Remarks
1	Releasing and erection of 9 metre RCC poles including transportation to work site with all lead from factory and head load from the nearest road; digging a pit to a depth up to of 1.8 mtr giving coating of colour, aligning it, refilling the soil removed, complete for each pole, for a average span of maximum 50mtres as per KPTCL rules.(Including all lead and Lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.1,(b)	Nos					
	Releasing of 9 mtr RCC pole is 90%of erection ie 1060*90%					954.00			
	Erection of 9 mtr RCC pole is 1060					1060.00			
						2014.00	906.3	2,920.30	
	Grand Total							2,920.30	
2	Supply and erection of 9 metre RCC poles(using Tor50 12mm dia steel), including transportation to work site with all lead from factory and head load from the nearest road; digging a pit to a depth up to of 1.8 mtr giving coating of colour, aligning it, refilling the soil removed, complete for each pole, for a average span of maximum 50mtres as per KPTCL rules.(Including all lead and Lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.1,(b)	Nos	5,941.00	1060.00	477	7,478.00	
	Grand Total							7,478.00	
3	Releasing of deteriorated 9mtr RCC poles and handing over the unused materials to MESCOM including all lead and lift.	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.1,(b)	Nos					
	Releasing of 9 mtr RCC pole is 90%of erection ie 1060* 90%					954.00			
	Transpotation 2% on material ie 5941*2%					118.82			
						1072.82	482.769	1,555.59	
	Grand Total							1,555.59	
4	Releasing and erection of 11 Mtr ISMB poles including transportation to work site with all lead from factory and head load from the nearest road; digging a pit to a depth up to of 1.8 mtr giving coating of colour, aligning it, refilling the soil removed, complete for each pole, for a average span of maximum 50mtres as per KPTCL rules.(Including all lead and Lift)	MESCOM -SR 2016-17	11kv labour cost SI .No.55 item No.2.6	Nos					
	Releasing of 9 mtr RCC pole is 90%of erection ie 1088*90%					979.20			
	Erection of 9 mtr RCC pole is 1088					1088.00			
						2067.20	930.24	2,997.44	
	Grand Total							2,997.44	

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RA No.	Description	SR	Ref	Unit	Basic	Labour/lead/lift/dewatering/MISC etc.,	Locality Allowance @ 45% on labour	Total	Remarks
16	Releasing and fixing of Guy sets with break insulators, steel rope, turn buckle and anchoring arrangements with necessary earth work excavation, providing and laying of concrete including curing etc. complete as per KPTCL specification and rules.(including all lead and lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XVIII,(b)	set					
	Releasing 90% of erection ie is 374*90%					336.60			
	erection ie is 374					374.00			
						710.60	319.77	1,030.37	
	Grand Total							1,030.37	
17	Supply and fixing of Guy sets with break insulators, steel rope, turn buckle and anchoring arrangements with necessary earth work excavation, providing and laying of concrete including curing etc. complete as per KPTCL specification and rules.(including all lead and lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XVIII,(b)	set	775.00	374.00	168.3	1,317.30	
	Grand Total							1,317.30	
18	Releasing and restringing of HT conductor and handing over the unused materials to MESCOM including all lead and lift	MESCOM -SR 2016-176	11kv Materials and labour cost S.No.XVI,(b)	KM					
	Releasing 90% of stringing ie is 2608* 90%					2347.20			
	stringing ie is 2608					2608.00			
						4955.20	2229.84	7,185.04	
	Grand Total							7,185.04	
19	Supplying and stringing of ACSR (Rabbit) conductor for Jumps, including all necessary binding to the insulator (Cost to include all materials for accessories) including necessary lead and lifts as per KPTCL specification .(including all lead and lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XVI,(b)	KM	33,676.00	2608.00	1173.6	37,457.60	
	Grand Total							37,457.60	
20	Releasing and restringing of LT conductor and handing over the unused materials to MESCOM including all lead and lift	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XVI,(a)	KM					
	Releasing 90% of stringing ie is 1913* 90%					1721.70			
	stringing ie is 1913					1913.00			
						3634.70	1635.615	5,270.32	
	Grand Total							5,270.32	
21	Supplying and restringing of LT conductor and handing over the unused materials to MESCOM including all lead and lift	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XVI,(a)	KM	20,100.00	1913.00	860.85	22,873.85	
	Grand Total							22,873.85	

RA No.	Description	SR	Ref	Unit	Basic	Labour/lead/lift/dewatering/MISC etc.,	Locality Allowance @ 45% on labour	Total	Remarks
22	Supplying and fixing of 11 KV class pin insulators and GI pin and nut as per KPTCL rules and specifications(including all lead and lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XV,(a)	Nos	94.00			94.00	
	Grand Total							94.00	
23	Supplying and fixing of 1.1 KV class pin insulators and GI pin and nut as per KPTCL rules and specifications(including all lead and lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XV,(d)	Nos	38.00			38.00	
	Grand Total							38.00	
24	Supplying and fixing of No 8 strain insulators as per KPTCL rules and specifications. (Including all lead and lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XV,(c)	Nos	14.00			14.00	
	Grand Total							14.00	
25	Supplying and fixing of 11 KV Disc insulator (45KN) including fixing accessories such as clamps,bolts and nuts etc as per KPTCL specifications(including all lead and lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XV,(e)	Nos	290.00			290.00	
	Grand Total							290.00	
26	Releasing and Replacing 11kv Pin insulator	MESCOM -SR 2016-17	11kv Labour portion S.No.58 item No.2.9	Nos		28.00	12.6	40.60	
	Grand Total							40.60	
27	Releasing and Replacing dead end disc 45kn insulator	MESCOM -SR 2016-17	11kv Labour portion S.No.58 item No.2.10	Nos		34.00	15.3	49.30	
	Grand Total							49.30	
28	Releasing , erection , transportation upto site of DP structure using 9mtr long RCC pole and accessories such as cross arms, brace arms(Horizontal & cross member), strain plates, civil works, channels, Angles, bolts, nuts etc including all lead and lift.	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.V,(a)	set					
	Releasing of 9 mtr RCC DP is 90%of erection ie 3252*90%					2926.80			
	Erection of 9 mtr RCC DP is 3252					3252.00			
						6178.80	2780.46	8,959.26	
	Grand Total							8,959.26	

RA No.	Description	SR	Ref	Unit	Basic	Labour/lead/lift/dewatering/MISC etc.,	Locality Allowance @ 45% on labour	Total	Remarks
29	Supply, erection , transportation upto site of DP structure using 9mtr RCC pole and accessories such as cross arms, brace arms(Horizontal & cross member), strain plates, civil works, channels, Angles, bolts, nuts etc including all lead and lift.	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.V,(a)	set	15,910.00	3252.00	1463.4	20,625.40	
	Grand Total							20,625.40	
30	Releasing of Transformer DP structure and handing over the unused materials to MESCOM including all lead and lift.	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.VII,1(a)	set					
	Releasing is 90% of erection ie 4115*90%					3703.50			
	Transpotation 2% on material ie 19271*2%					385.42			
						4088.92	1840.014	5,928.93	
	Grand Total							5,928.93	
31.1	'Releasing and Re-errection of 63KVA Transformer along with Distribution box ,associated equipment of the transformer centre and handing over the unused materials to MESCOM including all lead and lift.	MESCOM SR2016-17 COST DATA SHEETS	11kv Materials and labour cost S.No.25a	per unit					
	Releasing is 90% of erection ie 11078* 90%					9970.20			
	Erection-10014					10014.00			
						19984.20	8992.89	28,977.09	
	Grand Total							28,977.09	
31.2	Releasing and Re-errection of released 63 kVA transformer in temperary location and shifting the same back to original loacation after completion of pipe line work along with associated equipment of the transformer centre as per Dgr No..KEB/SIC / WS/022/date :12.9.86 and handing over the unused released materials to MESCOM including all lead and lift.	MESCOM SR2016-17 COST DATA SHEETS	11kv Materials and labour cost S.No.25a	per unit					
	Releasing is 90% of erection ie 11078* 90%x2					19940.40			
	Erection-10014*2					20028.00			
						39968.40	17985.78	57,954.18	
	Grand Total							57,954.18	
32.1	'Releasing and Re-errection of 100KVA Transformer along with Distribution box ,associated equipment of the transformer centre and handing over the unused materials to MESCOM including all lead and lift.	MESCOM SR20164-17 COST DATA SHEETS	11kv Materials and labour cost S.No.26a(iii)	per unit					
	Releasing is 90% of erection ie 11679* 90%					10511.10			
	Erection-11679					11679.00			
						22190.10	9985.545	32,175.65	
	Grand Total							32,175.65	

RA No.	Description	SR	Ref	Unit	Basic	Labour/lead/lift/dewatering/MISC etc.,	Locality Allowance @ 45% on labour	Total	Remarks
32.2	Releasing and Re-errection of released 100 kVA transformer in temperary location and shifting the same back to original loacation after completion of pipe line work along with associated equipment of the transfoer centre as per Dgr No..KEB/SIC / WS/022/date :12.9.86 and handing over the unused released materials to MESCOM including all lead and lift.	MESCOM SR20164-17 COST DATA SHEETS	11kv Materials and labour cost S.No.26a(iii)	per unit					
	Releasing is 90% of erection ie 11679* 90%*2					21022.20			
	Erection-11679*2					23358.00			
						44380.20	19971.09	64,351.29	
	Grand Total							64,351.29	
33.1	'Releasing and Re-errection of 250KVA Transformer along with Distribution box ,associated equipment of the transformer centre and handing over the unused materials to MESCOM including all lead and lift.	MESCOM SR2016-17 COST DATA SHEETS	11kv Materials and labour cost S.No.27a	per unit					
	Releasing is 90% of erection ie 10971* 90%					9873.90			
	Erection-10971					10971.00			
						20844.90	9380.205	30,225.11	
33.2	Releasing and Re-errection of released 250 kVA transformer in temperary location and shifting the same back to original loacation after completion of pipe line work along with associated equipment of the transfoer centre as per Dgr No..KEB/SIC / WS/022/date :12.9.86 and handing over the unused released materials to MESCOM including all lead and lift.	MESCOM SR2016-17 COST DATA SHEETS	11kv Materials and labour cost S.No.27a	per unit					
	Releasing is 90% of erection ie 10971* 90%*2					19747.80			
	Erection-10971*2					21942.00			
						41689.80	18760.41	60,450.21	
	Grand Total							60,450.21	
34	Releasing and Refixing of 200A Single Break GOS and handing over the unused materials to MESCOM including all lead and lift.	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XXIV(a)	set					
	Releasing is 90% of erection ie 636* 90%					572.40			
	Erection-563					636.00			
						1208.40	543.78	1,752.18	
	Grand Total							1,752.18	
35	Releasing and Refixing of HG Fuse Unit and handing over the unused materials to MESCOM including all lead and lift.	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XXV	set					
	Releasing is 90% of erection ie 423*90%					380.70			
	Erection-375					423.00			
						803.70	361.665	1,165.37	

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RA No.	Description	SR	Ref	Unit	Basic	Labour/lead/lift/dewatering/MISC etc.,	Locality Allowance @ 45% on labour	Total	Remarks
41	Supplying and fixing 2.5m long 40mm dia GI earth electrode for DP structures, with necessary salt and charcoal, excavation for the pits, masonry chamber with cover all as specified in IS 3043 and drawing including 10SWg GI wire with all lead and lift.	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XXVIII(a)	per electrode	1,227.00	573.00	257.85	2,057.85	
	Grand Total							2,057.85	
42	Releasing and stringing of 1.1kv grade aerial bunched 3/2 core cable of XLPE insulation stranded aluminium conductor stranded around a weather resistant black XLPE insulated AAA Messenger wire 3*95 for phase conductor and 1*70 is neutral and 1*16 street light including all lead and lift as mescom/MCC norms	MESCOM -SR 2016-17	11kv Labour portion S.No.308 item No.46.3	Km					
	Releasing is 90% of fixing ie 20426*90%					18383.40			
	Stringing-20426					20426.00			
						38809.40	17464.23	56,273.63	
	Grand Total							56,273.63	
43	Supplying and fixing of guarding materials for HT & LT and P & T cum road guard etc., complete as per IE/KPTCL Rules & Specifications complete with all necessary accessories. (including all lead and lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XVIII(c)	set					
	Releasing 90% of erection-1059*90%					953.10			
	erection-1059					1059.00			
						2012.10	905.445	2,917.55	
	Grand Total							2,917.55	
44	Supplying and fixing of guarding materials for HT & LT and P & T cum road guard etc., complete as per IE/KPTCL Rules & Specifications complete with all necessary accessories. (including all lead and lift)	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.XVIII(c)	Mtr	3,400.00	1059.00	476.55	4,935.55	
	Grand Total							4,935.55	
45	Releasing and relaing follwing size of Under ground cable of house service connection including termination and testing of proper function including all lead and lift	MESCOM -SR 2016-17	11kv Labour portion S.No.262 item No.35.1	km					
	2.5 to 25sqmm 2C/4C Aluminium cable								
	Releasing is 90% laying=12774*90%					11496.60			
	laying=11304					12774.00			
						24270.60	10921.77	35,192.37	
	Grand Total							35,192.37	
46	Supplying and fixing straight through jointing kit suitable for 1.1kv class LT UG cable including all lead and lift as per MESCOM Norms including all lead and lift								
46.1	10/16sqmm	PWD SR 2014-15	Page No 63 item No.7.15.2	kit	1,327.00			1,327.00	
	Grand Total							1,327.00	
46.2	25/35sqmm	PWD SR 2014-15	Page No 63 item No.7.15.3	kit	1,604.00			1,604.00	

RA No.	Description	SR	Ref	Unit	Basic	Labour/lead/lift/dewatering/MISC etc.,	Locality Allowance @ 45% on labour	Total	Remarks
	Grand Total							1,604.00	
47	Providing at site inclusive of all lead and lift of brand new approved make copper/aluminium conductor PVC insulated, sheathed steel/wire steel armoured UG cable with PVC outer sheathing 1.1 KV class UG cable (confirming to ISS 1554.)(including all lead and lift)	MESCOM -SR 2016-17							
47.1	2CX10SQMM Aluminiumn cable	MESCOM -SR 2016-17	Stock material SLNo.250 item No.36.02 and 11kv Labour portion S.No.262 item No.35.1	KM	54,334.00	12774.00	5748.3	72,856.30	
	Grand Total							72,856.30	
47.2	4CX10SQMM Aluminiumn cable	MESCOM -SR 2016-17	Stock material SLNo.251 item No.36.03 and 11kv Labour portion	KM	71,551.00	12774.00	5748.3	90,073.30	
	Grand Total							90,073.30	
47.3	2CX16SQMM Aluminiumn cable	MESCOM -SR 2016-17	Stock material SLNo.252 item No.36.04 and 11kv Labour portion	KM	56,956.00	12774.00	5748.3	75,478.30	
	Grand Total							75,478.30	
47.4	4CX16SQMM Aluminiumn cable	MESCOM -SR 2016-17	Stock material SLNo.253 item No.36.05 and 11kv Labour portion	KM	90,529.00	12774.00	5748.3	1,09,051.30	
	Grand Total							1,09,051.30	
47.5	4CX25SQMM Aluminiumn cable	MESCOM -SR 2016-17	Stock material SLNo.255 item No.36.07 and 11kv Labour portion S.No.262 item No.35.1	KM	1,09,778.00	12774.00	5748.3	1,28,300.30	
	Grand Total							1,28,300.30	
48	Releasing and relaying the existing GI/PVC pipe for house service connection including all lead and lift as per MESCOM Norms including all lead and lift	MESCOM -SR 2016-17	11kv Labour portion S.No.245 item No.32.16	mtr					
	Releasing is 90% of laying ie 45*90%					40.50			
	laying=45					45.00			
						85.50	38.475	123.98	
	Grand Total							123.98	
49	Supplying and laying of Class A GI pipe on pole /wall/drain crossing with nexessary clamoing arrangements for UG cable of 1.1KV class.							-	
49.1	40mm dia size	PWD-Ele SR 2014-15	Page No 62 item no7.12.1	Mtr	345.00			345.00	

RA No.	Description	SR	Ref	Unit	Basic	Labour/lead/lift/dewatering/MISC etc.,	Locality Allowance @ 45% on labour	Total	Remarks
	Grand Total							345.00	
50	Digging of trench of 0.6m deep x 0.5 m wide refilling the trench to the required ground level and consolidating etc., (including all lead and lift)	PWD-Electrical SR 2014-15	Page No 62 item no 7.9.1	Mtr	78.00			78.00	
	Grand Total							78.00	
51	Providing and filling sand in excavated trench to cover already laid UG cable to a depth of 150mm all around the Cable	PWD-Electrical SR 2014-15	Page No 62 No 7.10	Mtr	103.00			103.00	
	Grand Total							103.00	
52	Shifting of poles with HT/LT lines: Shifting of electrical poles along with HT/LT cross arms to temporary location and reshifting to original position after completion of work including all lead and lift as per MESCOM /MESCOM Authority	MESCOM -SR 2016-17	11kv Materials and labour cost S.No.1,(b)	set					
	Dismantling of 9mtr RCC poles =1060*90%=1060*90% (90% of erection cost) x2 times	11kv Materials and labour cost	S.No.1,(b)			1908			
	Erection of 9Mtr RCC poles-2times(1060x2)	11kv Materials and labour cost	S.No.1,(b)			2120			
	Dismantlin of HT cross crom(90% of erection)x 2times-99*90%	11kv Materials and labour cost	S.No.X,(a)			178.2			
	erection cross arms x2 times=99*2	11kv Materials and labour cost	S.No.X,(a)			198			
	Releasing of conductor(90% of stringing)=50*3=150mtr-(2608/1000*90%*150)*2	11kv Materials and labour cost	S.No.XVIII,(b)			704.16			
	stringing of Conductor=50*3=150 x2 times (2608/1000)50*3)	11kv Materials and labour cost	S.No.XVIII,(b)			782.4			
	Dismantling of guy sets(90% of erection) x2 times(374*90%*2)	11kv Materials and labour cost	S.No.XVIII,(b)			673.2			
	Erection of guy sets x2 times(374*2)	11kv Materials and labour cost	S.No.XVIII,(b)			748			
	Transpotation 2% on material cost-5941*2%	11kv Materials and labour cost	S.No.1(b)			118.82			
						7430.78	3343.851	10,774.63	
	Grand Total							10,774.63	
53	Releasing and erection 8 mtr strut pole including calmps digging pit, concreting withh all accessories of 8mtr PSC poles	11kv Materials and labour cost	S.No.I(c)	set					
	Releasing 90% of erection-848*90%					763.20			
	Erection					848.00			
						1611.20	725.04	2,336.24	

RA No.	Description	SR	Ref	Unit	Basic	Labour/lead/lift/dewatering/MISC etc.,	Locality Allowance @ 45% on labour	Total	Remarks
	Grand Total							2,336.24	
54	Releasing and erection of 9 mtr RCC three pole structure complete set including all stanadrd accessories as per MESCOM norms /estimate including all lead and lift	Rates for various line materials and labour charges used in cost data sheets for general works	SL.No.VII(1a)	set					
	Releasing 90% of erection-4115*90%					3703.5			
	Erection					5548			
						9251.5	4163.175	13,414.68	
	Grand Total							13,414.68	

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1.9 Rate Analysis of Underground Drainage Zone 3 Part 2

Rate Analysis For RCC Inspection Chamber					
Sl. No	Descriptions	Unit	SR Rate (Rs)	SR Ref.	Remarks
1	Earthwork excavation for foundation of buildings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches in ordinary soil including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from edges of excavation with all lead and lift after breaking of clods complete as per specifications, as per direction of Engineer etc., complete by manual means-	Cum		PWD SR 16-17 Page 5 Item No 2.3	
	Basic Rate		189.00		
	A.W. 12%		22.68		
	Total	Cum	211.68		
2	Providing and laying in position plain cement concrete M15 grade with granite graded metal of 20 mm and down size and clean sieved river sand for foundation and levelling course, machine mixed, concrete laid, well compacted, including cost and conveyance of all materials, all leads and lifts, loading and unloading, labour, hire charges of machinery, T&P., curing and all other incidental items of work required for successful completion of the work and as directed by the Engineer -in-charge of the work etc complete.	Cum		PWD SR 16-17 Page 12 Item No 4.6	
	Basic Rate		5441.00		
	A.W. 12%		652.92		
	Total	Cum	6093.92		
3	Providing and laying in position reinforced cement concrete of design mix M25 with OPC cement @ 340kgs, with 20mm and down size graded granite metal coarse aggregates @0.70 cum and fine aggregates @ 0.47cum, with super plasticisers @ 3 liters conforming to IS 9103-1999 reafirmed-2008 at machine mixed, concrete laid in layers not exceeding 15 cms thick, vibrated for all works in foundation for footings, pedestals, retaining walls, returnwalls, walls (any thickness) including attached pilasters, columnpillars, posts, struts, buttresses, bed blocks, anchor blocks & plinths etc including cost of all materials, labour, HOM of machinery, curing, complete but excluding cost of reinforcement as per specifications.	Cum		PWD SR 16-17 Page 13 Item No 4.10	
	Basic Rate		6221.00		
	A.W. 12%		746.52		
	Total	Cum	6967.52		
4	Providing and fabricating TMT Steel reinforcement bars of Fe-500 grade including straightening the bars, cutting, bending, hooking and placing in position, lapping and or welding wherever required, tying with binding wire, anchoring to the adjoining members wherever necessary as per approved design and drawings including cost and conveyance of all materials with all leads and lifts, loading and unloading, all labour, hire charges of machineries, T&P, etc. complete and all other incidental items of works required for successful completion of the work as per approved drawings, specifications and as directed by the Engineer-in-charge. (Laps, hooks, chairs and wastages will not be measured and will not be paid for separately)	MT		PWD SR 16-17 Page No 17 SI No 4.46.2	ISSUE Rate
	Basi Rate		60607.00		
	A.W. 12%		7272.84		
	Total rate	MT	67879.84		

Sl. No	Descriptions	Unit	SR Rate (Rs)	SR Ref.	Remarks
5	Providing and removing, centering, shuttering, strutting, propping etc and removal of form work for foundations, bases of columns/raft, including cost of all materials, labour complete as per specifications	Sqm		PWD SR 16-17 Page No 15 SI no 4.28	
	Basic Rate		231.00		
	A.W. 12%		27.72		
	Total	Sqm	258.72		
6	Providing and removing centering, shuttering, strutting, propping etc., and removal of form work for vertical surfaces such as walls of any thickness, slabs, including cost of all materials, labour complete as per specification.	Sqm		PWD SR 16-17 Page No 15 SI No 4.31	
	Basic rate		293.00		
	A.W. 12%		35.16		
	Total	Sqm	328.16		
7	Refilling pipeline trenches and foundation with selected available earth from trench excavation and foundation including watering, consolidation in layers of 15 cms., thickness including disposing off the surplus earth with all lead and lift, Including environmental and social safe guards, including all taxes, as directed by the Engineer-in-Charge etc., complete.	Cum		KUWS&DB SR 2015-16. P-15, I-2	
	Basic rate		59.00		
	A.W. 12%		7.08		
	Total Rate	Cum	66.08		
8	Supply and fixing SFRC manhole cover and frame (Heavy duty) confirming to IS :12592 with latest ammendments	Nos		KUWS&DB SR 2015-16. P-93 and 94,	
	Basic rate		1775.00		
	Fixing charges 10%		177.50		
	Total Rate		1952.50		

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Name of the Work :- Mangaluru Smart City
1.10 Rate Analysis of Taking out existing CC interlocking paver blocks

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.(As per Data Rate)					
	Details of cost for 10 sqm.					
Sr.No.	Description	Unit	Quantity	Rate	Amount	Reference
	Labour					
a	Beldar	Day	0.25	258.88	64.72	KSRB Pg No.LIV SI No.5 Zone 2
b	Coolie	Day	1.00	258.88	258.88	KSRB Pg No.LIV,SI No.6 Zone 2
c	Sundries	LS	2.70	1.73	4.67	CPWD Pg No 29,Code No 9999
d	Lead and Lift Charges					
	Up to 1 Km (Debris=1.30 kg/m3)	Cum	1.30	2.5	3.25	KPWD-16-17,SI No.17.4 Pg No 140
	Total				331.52	
d	Add 1% Water Charges				3.32	
	Total				334.84	
e	Add 10 % Contractor's profit and overheads				33.48	
	Cost of 10 sqm				368.32	
	Cost of 1 sqm				36.83	

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MANGALURU SMART CITY
1.11 Rate Analysis of Underground Drainage Zone 3 Part 2

Rate analysis for Dewatering charges									
S.No.	Description	Unit	Nos.	Length	Width	Depth	Quantity	Rate (Rs.)	Amount (Rs.)
1	Dewatering for Lowering of water table to creat dry conditions at least upto the bed of the excavation including the cost of material, labour T & P articles & machinery laying sewer line & Manholes as per approved drawings according. to the requirement of the construction of structure. The cost of this work shall be inclusive of disposal of water pumped out at a safe place away from the structure. The dewatering will work till the completion of the structure as per approved drawings ,with all horizontal leads and lifts etc., complete in all respects as per specification and as directed by engineer.During the execution of work enough precaution should be taken by the contractor to ensure that the clear water flows from the delivery pipe of pumps to avoid any settlement of soil during the process.								
	Rate analysis for Dewatering charges.								
	HOM of Pump 23 KW - KPWD,SI No.58,Code No 1079 Pg No.XXXXVIII	Day	1				1	800	800.00
	Generator 33 KVAHire charges -KPWD,SI No.93,Code No 1322 Pg No.XXXXIX	Hr	8				8	296	2368.00
	Add Operator charges	Nos	2				2	250	500.00
							Cost for One day		3668.00
	Add 15 % cost for idling period on sub-total								550.20
	Cost for One day							8 hr	4218.20

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