

"Construction of 2 Lane RoB and LHS in Lieu of LC 65 (Km 656/7-8) and LC 66(Km 657/0-1) Between Halvad-Sukhpur Station on VG-SIOB Section On Halvad-Tikar Road " Under programme of SJMMSVY

SCHEDULE - B

Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
1	1837.00	Empty boring through all sorts of strata for providing 1.20 Mt. diameter R.C.C. bored piles to required depth required depth including providing necessary casing pipe with all plants and equipments as required complete.		Rmt	
2	3490.30	Providing and laying controlled cement concrete M 35 for R.C.C. bored piles of 1.20 M dia. including ramming, vibrating and finishing excluding T.M.T Reinforcement complete.e.		Cum	
3	185.00	Dismantling of Structures (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 and lead of 1000 metres). Prestressed / Reinforced cement concrete grade M-20 & above		Cum	
4	61.60	Providing steel Liner for curbs and steining for wells including fabricating and setting out as per detailed drawing as directed.		M.T	
5	2000.00	Static Load testing of foundation piles including loading with necessary kentledge or any other suitable method as directed.		M.T	
6	5.00	Dyanamic Load testingof foundation piles including loading with necessary kentledge or any other suitable method as directed.		Nos	
7	136.00	Conducting Pile low strain integrity test as per ASTM D 5882- 96 code of American Society for Testing on cast -in situ RCC pile of 1200 mm diameter inclusive of analysis with all contractor's equipment, manpower, site preparation, lead and lifts etc. complete as per standard procedure, and as directed by the Engineer in charge. Note:- Rate is inclusive All equipment, All labour and consumable required & Mobilization of equipment.		Nos	
8	11295.00	Excavation for foundation in sand gravel, clay, soft, soils and murrum etc. including soring strutting and dewatering as necessary and dis posing off the excavated stuff as directed (A) Depth up to 3.00 mt depth and lead upto 100m for 10 Cum		Cum	
0	170.40	(B) Depth up to 3.0 to 6.0 Mt		Cum	
9	3009.50	Excavation in hard rock by dry-wet blasting and chiselling including dewatering preparing foundation base by proper benching and stepping and disposing of the excavated stuff as directed.(B) prohibited Blasting work.		Cum	
10	1440.70	Providing & filling in foundation with ordinary cement concrete M 15 mix and providing necessary vertical pin headers including formwork vibrating ramming & curing complete.		Cum	
11	1840.90	Providing and casting in-situ controlled cement concrete M 35 For R.C.C. pile cap including necessary formwork vibrating, curing and finishing complete.		Cum	
12A	4577.50	Providing and casting in situ controlled cement concrete M-35 for R.C.C. return, R.C.C Sump as per drawings including centering shuttering, scaffolding where necessary, laying vibrating, curing and finishing complete. complete as per specification.(1) Piers (2) Abutment (3) RCC return Height from 0.0 to 5.0 M		Cum	
12B	61.80	Providing and casting in situ controlled cement concrete M-35 for R.C.C. return, R.C.C Sump as per drawings including centering shuttering, scaffolding where necessary, laying vibrating, curing and finishing complete. complete as per specification.(1) Piers (2) Abutment (3) RCC return Height from 5.0M to 10.0M		Cum	
13	922.00	Providing and casting in situ controlled cement concrete M-35 for R.C.C. work in pier cap,abutment cap and dirt wall including controlled cement concrete M-40 bed blocks or pedestals of required size below bearings as per detailed drawings, centering, shuttering, scaffolding, wherever necessary, laying vibating, curing and finishing complete.		Cum	
14	1018.90	Providing and fixing in position of steel grade FE-550D (TMT) for R.C.C. bored piles & Pile Cap including cutting hooking, tying, welding etc., complete as per detailed drawing and specification.		M.T	
15	835.00	Providing and fixing in position steel bar for pier, Retaining wall ,pier cap ,Dirt wall,pedestal & sesmic arrester, RCC Box reinforcement of steel grade FE-550D (TMT) including cutting , bending, hooking, tying, welding etc., complete as per detailed drawing and Specification.		M.T	
16	1250.80	Providing and applying Coal Tar Epoxy protective paint for Pile Cap in two coats of DFT 210 microns for foundations /concrete surfaces in contact with soil complete as per Specifications and as directed by the Engineer including all leads and lifts etc. complete.		Sq.m	
17	212.00	Providing and casting in situ controlled cement M 35 for R.C.C. work in superstructure including centring shuttering scaffolding, ramming, vibrating curing and finishing complete.		Cum	
18	738.30	Supplying, fabrication, assembling of all types of steel girders of specified spans with structural steel conforming to Quality "B0" Grade Designation E350 conforming to IS:2062, erection / slewing / end launching of steel girders with cranes or any other approved launching methods as per site conditions (not requiring traffic block) on substructure including provision of trolley refuges etc., complete as per approved QAP and drawings conforming to IRS-B1-2001 and other relevant codes and specifications. Note: 1. Detailed fabrication and erection drawings & launching methodology will be prepared by the contractor and got approved from Railway. 2. The rate is all inclusive including launching in position, complete in all respect except cost of (i) Painting / Metalising; (ii) Bearings & (iii) HSFG bolts which shall be paid extra under relevant item. 3. The payment shall be made on the theoretical weight of main components and gusset plates only. 4. Payment Schedule: (i) Receipt of material at site: 40% (ii) Fabrication of girders: 20% (iii) Erection/Launching: 20% (iv) Completion in all respects: 20%		M.T	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
19	11074.50	Supplying and fixing HSFG bolts of any dia and any length with suitable nuts including DTI washers conforming to IRS-B1-2001 for bridges and steel structures with contractors labour, tools and plants and lead and lift etc., complete		Kg	
20	850.90	Providing and placing in position FE 550D TMT bar reinforcement including cutting, bending, hooking, and tying complete as per detailed drawing. For Super Structure & Crash barrier, Crash barrier with friction slab		M.T	
21	56900.00	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved technical specifications.		M.T.	
22	88.00	Strip Seal Expansion Joint (Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.)		Rmt	
23	898.30	Providing and casting RCC in M-40 controlled concrete Crash Barriers as per detailed drawings including necessary scaffolding, centering, formwork, mixing in machine, transporting, placing, compacting, finishing, curing, etc. complete including providing and fixing of inserts if any with all leads and lifts as per drawing & specification and as directed by Engineer, excluding reinforcement.		Cum	
24	59.00	Providing and erecting a Double "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fittings to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 811.		Rmt	
25	27.00	Providing and laying precast R.C.C. footpath slab in controlled cement concrete of M-25 grade (7.0Cm. thickness including necessary reinforcement and providing and setting cement chequered tiles in C.M. 1:5 as per drawing including necessary formwork, curing and finishing complete.		Cum	
26	117.00	Providing parapet of controlled cement concrete M-30 as per detailed drawings with necessary reinforcement including, shuttering, laying vibrating and finishing to line and level complete. (ii) Cast in situ.		Rmt	
27	4646.20	Providing & laying approved make Double walled corrugated pipes (DWC) of polyethylene (conforming to IS14930II) with necessary connecting accessories of same material at required depth in existing trench for laying of cable. below ground/road surface for enclosing cable as directed by engineer in charge. (A) 50 mm outer dia		Rmt	
28	228.00	Providing G.I. 100mm diameter water spouts including necessary iron gratings as per drawings.		Each	
29	1554.00	Providing, laying and jointing in true line and level 110 diameter U.P.V.C (Type B) conforming to IS 13592-1992 with one end plain and other end socketed with rubber ring, & fittings conforming to ISI 14735-1999 of approved make for drainage system pipe line, pipe shall be jointed with each other with rubber lubricant, pipe shall be fixed on wall using of PVC clamp of the size 110 mm diameter x 149 mm length x 145 mm height at every 2000 mm center to center or shall be concealed in walls as directed including necessary fittings such as bends, shoes etc. including testing of pipes and joints and jointed with adhesive solvent cement including cost of all materials.		Rmt	
30	170.00	Supplying, Fabricating and fixing access ladders, inspection platforms, Trolley refuges etc., on bridges with structural steel conforming to IS:2062 including welding / bolting, priming painting with one coat of ready mixed paint of Zinc Chromate (IS:104) with DFT of 25-30 microns followed by one coat of Zinc Chrome Red Oxide (IS:2074) with DFT of 25 microns with all material, labour, T&P as a complete job. Note: Painting shall be paid separately under relevant item.		M.T.	
31	610.00	Mastic Asphalt (Providing and laying 25 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-39, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine-grained hard stone chipping of 13.2 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100°C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 516.)		Sq.mt.	
32	5472.00	Providing and applying tack coat with emulsion RS1 grade at the rate of 3.0 kg/ 10 Sq.mt. including cost of asphalt and preparing the surface heating, and applying etc. complete.		Sq.mt.	
33	890.30	Road marking with hot applied thermo plastic paints with reflectorising glass beads on bitumin surface providing and laying a hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads @ 250gm/sqm area, thickness of 2.5mm is excluding of surface applied glass beads as per IRC-35 2015. The finished surface to be level, uniform and free from streaks and holes. zebra patta/bump patta lane/center line/edge line/cut patta. The white color marking should provide luminance coefficient on cement road shall be min 130mcd/m ² /lux and Asphalt road shall be min 100 mcd/m ² /lux during the service life during the day time. The marking should meet the performance criteria for night time reflectivity, wet reflectivity and skid resistance as mentioned in the section 15 of IRC35-2015. warranty for retro reflectivity shall be two years.		Sq.mt.	
34	820.10	Cat Eye / Road Stud / RPM: Supplying of Molded Twin Shanks Raised Pavement Markers made of polycarbonate and ABS moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall support a load of 13635 kgs. tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MORTH Circular No RW/NH/33023/10-97 DO III Dt 11.06. 1997. The height, width and length shall not exceed 20 mm, 130 mm and 130 mm and with minimum reflective area of 13 Sqcm on each side and the slope to the base shall be 35 +/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/- 2 mm and height not less than 30 +/- 2 mm) from the body is to be a minimum value of 500 Kgf. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturers recommendation and The color of the marker should be as per the IRC 35-2015 and as directed by Engineer-in-charge.		Nos	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
35	15837.70	Providing and applying one coat Epoxy Phenolic primer of DFT 50 micron and two coats of Epoxy Phenolic coating of DFT 100 microns each or any other equivalent epoxy coating system to all concrete surfaces exposed to atmosphere in substructure and superstructure including cost of material, labour, transportation, scaffolding and preparing the surfaces by cleaning, washing, sand / grit blasting etc. complete and as directed by Engineer and as per specification. (Paint shall be got approved from Engineer and tested from approved laboratory).		Sq.mt.	
36	2.90	Clearing and grubbing road land including uprooting rank vegetation grass bushes, shrubs, sapling and trees girth up to 300 mm removal of stumps of trees cut earlier and disposal of unserviceable materials (C) By mechanical means in area of light jungle		Hectare	
37	2.51	Demarcation of road alignment including marking out road line by providing and fixing wooden pegs or steel rod of required size at every 25 M to 50 M & at pier location. including excavating trenches on both sides of 0.30 m. x 0.30M. including supplying of labours and all materials for every work etc. complete.		Km	
38	270.00	Dismantling the existing structure including removing and stacking the dismantled materials as and where directed. (A) R.C.C. Work		Cum	
39	1833.40	Empty boring through in Rock for providing 1.20 Mt. diameter R.C.C. bored piles to required depth including providing necessary casing pipe with all plants and equipments as required complete.		Cum	
40	7686.60	Carting of excavated material such as murum, earth, kapachi, gravel, brickbats, kankar, debris, sand, dismantled material, including loading, unloading, stacking etc. complete at non objectional place as directed by engineer in charge. (Lead up to 5.0 km)		Cum	
41A	77.00	Providing and casting in situ controlled cement M-40 for R.C.C. work For Piers, U-Type Wall as per drawing including centring shuttering scaffolding where necessary laying vibrating curing and finishing complete. exposed concrete finish and form mark as directed by Engineer-in-charge, etc. complete as per specification. 0.0M to 5.0M height		Cum	
41B	18.00	Providing and casting in situ controlled cement M-40 for R.C.C. work For Piers, U-Type Wall as per drawing including centring shuttering scaffolding where necessary laying vibrating curing and finishing complete. exposed concrete finish and form mark as directed by Engineer-in-charge, etc. complete as per specification. 5.0M to 10.0M height		Cum	
42	196.00	Providing and casting in situ controlled cement concrete M-40 for R.C.C. work in pier cap, abutment cap and dirt wall including controlled cement concrete M-45 bed blocks or pedestals of required size below bearings as per detailed drawings, centering, shuttering, scaffolding, wherever necessary, laying vibrating, curing and finishing complete.		Cum	
43	739.50	Filling available excavated earth (excluding rock) in trenches, sides of foundations etc. in layers not exceeding 20 cm. in depth consolidating each disposed layer by ramming and watering.		Cum	
44	3161.00	Providing and casting in situ controlled Cement Concrete M-50 for prestressed concrete work in Super structure including centering, shuttering, curing, scaffolding, ramming, vibrating, finishing, (I) Deck Slab. (II) Main Girders. (III) Diaphragm or cross girder (IV) Solid Slab etc.		Cum	
45	143.50	Providing and fixing in position to exact profile high tensile steel wires of required ultimate strength including bending, cutting, tying providing necessary standard and anchorages, sheathing, stressing, grouting, ducts as per detailed drawing including necessary plant and machinery complete.		M.T	
46	506880.00	Providing and laying in position fully moulded restrained elastomeric bearing as per detailed drawings.		Cu.cm	
47	450.00	Carrying out load test of super structure as directed including all necessary materials plant equipment, instruments, labour and arrangements for test directed.		M.T	
48	32.00	Providing and casting in situ controlled cement concrete concrete M-35 for approach slab including formwork curing and finishing complete.		Cum	
49A	20.00	Providing and fixing RCC M:25 architectural pylons at end of approach structures including all materials, labour, reinforcement laying, ramming, curing etc. complete as per detailed working drawing. (A) Architectural Pylon Concrete		Cum	
49B	4.00	Architectural Pylon TMT 550D		M.T	
50	34.20	Providing and fixing in position steel bar reinforcement For Approach slab, Wearing Coat & Kerb, crash barrier of steel grade FE-550D (TMT) including cutting, bending, hooking, tying, welding etc. complete as per detailed drawing and specification.		M.T	
51	76.00	Modular Strip / Box Seal Joint (Providing and laying of a modular strip Box steel expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.)		Rmt	
52	4.00	Providing and fixing marble slab including engraving and painting complete. (A) size 75 cm x 60 cm x 4 cm		Each	
53	1522.00	Providing and Laying only with Knitted and PVC coated Polyester Uniaxial Geogrid-Techgrid indigenously manufactured from selected high tenacity polyester yarn with high molecular weight (> 25000 g/mol), and low carboxyl end group (<30mmol/kg) for Reinforced soil wall with granular fill of PHI-30 degree (design is to be carried out in accordance with BS-8006 / FHWA) with concrete Panel (M40) as fascia, casting & erection of panels with Techgrid, providing & laying of levelling pad of M15, providing and laying coping beam (M25), providing and laying 600mm thick filter media etc. completed as per the necessary drawing and instruction of Engineer In Charge. Excluding providing, laying and compacting selected backfill and retained fill behind the wall, excavation and ground improvement, if any.		Sq.m	
54	19409.00	Providing Earth fill / Sand & filling in approach portion of RE/Retaining Wall as per MORTH section 3100 and IRC:SP:102 latest Revision including laying as per specification, compaction in 250 mm thick loose layers and dressing (MORTH specification Cl. by mechanical means using motor grader including 305.3.5), watering upto required OMC including rolling with the use of vibratory roller when fill is at suitable moisture content with desired field density all as per the approved design, drawing, specification and directed by the Engineer.		Cum	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
55	922.00	Providing and casting RCC in M-40 controlled concrete Crash Barrier with friction slab (For RE Wall portion) as per detailed drawings including necessary scaffolding, centering, formwork, mixing in machine, transporting, placing, compacting, finishing, curing, etc. complete including providing and fixing of inserts if any with all leads and lifts as per drawing & specification and as directed by Engineer, excluding reinforcement.		Cum	
56	11912.80	Box cutting the road surface to proper slope and camber for making a base for road work including removing the excavated stuff and depositing on the road side slope as directed with all lead & lift.		Cum	
57	4770.00	Earth work for embankment with effective CBR 5% including breaking clods dressing With all lead and lift and including watering, rolling, and consolidation of subgrade in layers at O.MC. to required dry density including filling the depressing which occur during the process using vibratory roller 8.T. to 10 T.		Cum	
58	3254.00	Construction of 200 mm compacted coarsed granular subbase (Grade-I crushed B.T materials of 53 mm to 26.5 mm @ 35 %,26.5 mm to 4.75 mm @ 45% ,Below 2.36 mm @ 20 %) by providing close graded material , mixing in a mechanical mix plant at OMC,carriage of a mix material to work site, spreading uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve desire density , complete clause as per 401.		Cum	
59	2950.00	Providing and laying wet mix base course macadam 250 mm in Two layer using machine crushed chips as per required gradation mixing with required optimum quantity of water conveying the mix to site and spreading to grade and camber with mechanical paver consolidation by vibratory roller including material, labour, plant and machinery and equipment etc. complete.		Cum	
60	13198.00	Providing and applying priming coat with emulsion SS1 grade at the rate of 7.50 kg/ 10 Sq.mt. including cost of asphalt and preparing the surface heating, and applying etc. complete.		Sq.mt.	
61	1536.00	Providing and laying 80 mm DBM in single layer using crushed stone aggregate BT chips as per required gradation and using emulsion asphalt as a tack coat @ 2.5 kg / 10 sqmt and the VG-30 grade asphalt at 40 kg/MT)by total weight of mix hot laid process using hot mix plant including heating and mixing asphalt & materials by hot mix process transporting the mix and laying by paver finisher including consolidation with vibratory roller including cost of material, labour, machinery equipment and fuel , oil , lubricant for plant and machinery using contractor's own plant and machineries etc. complete		M.T	
62	1060.00	Providing and laying 95 mm DBM in single layer using crushed stone aggregate BT chips as per required gradation and using emulsion asphalt as a tack coat @ 2.5 kg / 10 sqmt and the VG-30 grade asphalt at 40 kg/MT)by total weight of mix hot laid process using hot mix plant including heating and mixing asphalt & materials by hot mix process transporting the mix and laying by paver finisher including consolidation with vibratory roller including cost of material, labour, machinery equipment and fuel , oil , lubricant for plant and machinery using contractor's own plant and machineries etc. complete		M.T	
63	1119.00	Providing and laying 40 mm Bitumen concrete using crushed stone aggregate BT chips as per required gradation and the VG-30 grade asphalt at 54 kg/MT)by total weight of mix hot laid process using hot mix plant including heating and mixing asphalt & materials by drum mix process transporting the mix and laying by paver finisher including consolidation with vibratory roller including cost of material, labour, machinery equipment and fuel , oil , lubricant for plant and machinery using contractor's own plant and machineries etc. complete.		M.T	
64	584.00	Providing and laying 50 mm Bitumen concrete using crushed stone aggregate BT chips as per required gradation and the VG-30 grade asphalt at 52 kg/MT)by total weight of mix hot laid process using hot mix plant including heating and mixing asphalt & materials by drum mix process transporting the mix and laying by paver finisher including consolidation with vibratory roller including cost of material, labour, machinery equipment and fuel , oil , lubricant for plant and machinery using contractor's own plant and machineries etc. complete.		M.T	
65	4862.00	Mastic Asphalt (Providing and laying 6 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine-grained hard stone chipping of 6 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 1000C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.)		Sq.mt.	
66	307.00	Construction of dry lean cement concrete Sub- base over a prepared sub-grade or drainage layer with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per table 600-1, cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver finisher with electronic sensor, compacting with 8- 10 tonnes vibratory roller, finishing and curing as per clause 601 of specification complete in all respect.		Cum	
67	921.00	Construction of un-reinforced, dowel jointed, plain cement concrete pavement with M-40 grade concrete over a prepared sub base with cement , coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with electronic sensor slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, admixtures as approved, curing compound, finishing to lines and grades as per drawing as per IRC 15 2011.		Cum	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
68	1.00	Facility Informatory Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet I 4mm ACP (Aluminium composite Panel); size 80 x 60 cms. rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with High Intensity Prismatic Grade retro reflectivesheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6mtr long stand post of Iron Angle 75 x 75 x 6mm / 65 NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with best quality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting.		NO.	
69	1.00	Providing & Fixing Village name boards made out of 2mm. Aluminium sheet / 4 mm ACP (aluminium composite panel), size 90 x 60 cms rectangle per the design of IRC - 67 - 2012 Pre treated with phosphating process & acid etching : coated with one coat of epoxy primer and two coats of best quality epoxy paint reflectorised with high intensity prismatic grade retro reflective sheeting of type-4 as per ASTM D-4956 and latest M.O.S.T Specification, 3.3 M long (2 no's) Stand post and frame fabricated from suitable size iron angle of 75 x 75 x 6mm/ 65 NB circular MS pipe as required and frame fabricated from suitable size iron angle of 35x35x3mm; painted with best quality epoxy coating in black and white bends the details of symbol or inscription / numerals for each board shall be as per the instruction for of Engineer-in-charge, The fixing at site shall be in 1;2;4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. comp. under the supervision of engineer in charge. A warranty for 7 years for the retro reflective sheeting from original manufacturer and certified copy of three years outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.(B) Class-B type-4 retro reflective sheeting.		NO.	
70	8.00	Regulatory/ Mandatory Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminium composite Panel); size 60 cms. Dia Circle as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with High Intensity Prismatic Grade retro reflectivesheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6mtr long stand post of Iron Angle 75 x75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting.		NO.	
71	8.00	Providing and fixing Cautionary Sign Board made out of 2mm aluminium sheet/ 4 mm ACP (aluminium composite panel), size 90 x 90 x 90 cms equilateral triangle, as per the design of IRC-67-2012. Pre treated with phosphating process and acid etching coated with one coat of epoxy primer and two coats of best quality epoxy paint, reflectorized with high intensity prismatic grade retro reflective sheeting of type-4 as per ASTM D-4956 and as per the latest M.O.S.T. specification, 3.6 Mt. long stand post and frame fabricated from suitable size iron angle of 75 x 75 x 6mm / 65 NB circular MS pipe as required and frame fabricated from suitable size iron angle & 35 x 35 x 3mm; painted with best quality epoxy coating in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 cms for each leg, including excavation curing etc. complete under the supervision of Engineer-In-Charge. A warranty for 7 years for the retro reflective sheeting from original manufacturer and certified copy of three years outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.(B) Class-B type-4 retro reflective sheeting.		NO.	
72	2.00	STOP Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet I 4mm ACP (Aluminium composite Panel); size 90 cms. Octagonal as per design of IRC-67-2012. Pre-treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with High Intensity Prismatic Grade retro reflective sheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T. Specifications; 3.6mtr long stand post of Iron Angle 75 x 75 x 6mm /GSNB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with best quality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 Cms. for each leg including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting.		NO.	
73	6.00	Hazard Marker Sign :-Providing and fixing sign boards made out of 1.5mm aluminium sheet / 3mm ACP (Aluminium composite Panel); size 90x30 cms. rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflective sheeting of Type-11 as per ASTM D 4956 and latest M.O.S.T.Specifications; 1.8mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with best quality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 cms. for each leg.including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting.		NO.	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
74	20.00	Chevron sign :-Providing and fixing sign boards made out of 1.5mm aluminium sheet / 3mm ACP (Aluminum composite Panel); size 60x50cm rectangular as per design of IRC-67-2012. Pre treated with phospheting process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ; reflectorised with High Intensity Prismatic Grade retro reflectivesheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of Iron Angle 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35x35x3mm; painted with bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-B Type-4 Retro Reflective sheeting		NO.	
75	3402.70	Painting Two Coats on crash barriers (Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces).		Sq.m	
76	1.00	Providing & fixing ordinary Kilometre stone of precast C.C. 1:2:4 including necessary reinforcement as per I.R.C. type design in C.C. 1:4:8 including letter & paints etc. complete (For N.H., S.H. & M.D.R.)		Each	
77	101.40	Providing and casting in situ controlled cement concrete M-30 for Kerb/ kerb blocks including formwork curing and finishing, complete		Cum	
78	840.00	Providing and laying of Extruded Biaxial Polypropylene Geogride 30 KN as per clause no 3102.8 and approval design and specification with accessories like tie strips,nuts & bolts and loops/lugs for joining reinforcing elements with the facia ,panels and overlaps and other protective elements as per detailed specification.		Sq.mt.	
79	710.70	Providing fusion bonded Epoxy coating not less than 175 micron thickness and up to 300 micron to reinforcement bars as per IS-13620-1993/ASTM-775 M including testing of coating at plant and all taxes (A) 10mm to 16mm dia bar		MT	
80	1657.50	Providing fusion bonded Epoxy coating not less than 175 micron thickness and up to 300 micron to reinforcement bars as per IS-13620-1993/ASTM-775 M including testing of coating at plant and all taxes (B) 20mm to 32 mm dia bar		MT	
81	520.00	Making trench in soft soil of suitable width of 90 cms deep for laying cable or locating the fault all over the run and backfilling the same and making the surface as normal ground.		Rmt	
82	10.00	Supplying following size of Light duty "A" Class G.I . Pipe & erecting as directed by Engineer-in-charge. (B)50 mm dia		Rmt	
83A	4.00	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (C) 3 & 1/2 core 70 Sq. mm		Each	
83B	4.00	(D) 2 to 4 core 16 Sq. mm		Each	
83C	4.00	(A) 3 core 35/50 Sq. mm		Each	
84A	14.00	Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. LT Panel 1 & 2 (16 sqmm 4 core)		Each	
84B	4.00	@ 4 Nos. each (D) 35/50 sqmm		Each	
84C	64.00	(A) 1.5/ 2.5/4/6 Sq.mm		Each	
84D	76.00	(C) 16/25 Sq.mm		Each	
84E	8.00	(d)35/50 Sq. mm		Each	
85A	1540.00	Providing and erecting XLPE (IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (A) 4 core 10 Sq. mm		Rmt	
85B	90.00	(B) 3 1/2 core 70 Sq. mm (35 Sq. mm 1/2 ore)		Rmt	
85C	300.00	(C) 4 core 16 Sq. mm.		Rmt	
85D	80.00	(D)3 1/2core 50Sq.mm (25 Sq.1/2mmcore)		Rmt	
86	20.00	Providing & erecting approved make street light / wall mounting junction box compression moulded from DMC (thermoset plastic) vertical sliding cover having locking with square head stud loop in / loop out in built terminal suitable for four core cable, waterproof of I.P. 54 protected with clamp or bolt nut & earth bolt of following size. [A] 200mm x 127mm x 83 mm		Each	
87A	15.00	Providing Street Light pole bracket consisting of medium class MS pipe of 4.2 cms. Out side dia complete with suitable sleeve tubing 45 cms. long M S. pipe (Medium Class). Suitable for 76.5 mm /80mm / required size of pole top having sufficient fastners for fixing the brackets and having spread of 1.5.Rmt. length with 110 deg.with vertical plane & suitable welded stays, reducer and with check nuts complete painted with one coat of Red oxide / PU base primer and two coats of Aluminium / PU paint. paint with following nos of arms. [A] Single Arm Bracket 1.5 Mtr		Each	
87B	25.00	[B] Double Arm Bracket 1.5 Mtr		Each	
88A	89.00	Supplying and erecting LED street light / Flood light fittings with High power White LEDs wattage of 3 Watt and above assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded aluminium with diffuser and Polycarbonate optics/ lenses, with toughened glass with company mark/name engraved or embossed 160 to 270 V,Power Factor more than 0.95, THD < 10 %, CCT 3000 K to 5700K,Uniformity ratio >0.45, Luminaire efficacy> 100 lumens/watt . LED driver efficiency > 85 %.(fittings required LM-79 & LM-80 certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.) (iv) above 90 to 120 watts (v)above 120 to 160 wattsThe Engineer incharge may select any wattage capacity between the ranges shown.) (A) Street Light (IP-65), Surge protection -4KV integral and ,Light must have 440VAC line supply with over voltage protection.		Each	
88B	8.00	(v)above 120 to 160 watts		Each	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
89	50.00	Supplying and erecting approved make Octagonal pole made from HR sheet steel. The pole should be made as per IS. and shall be coated with hot dip galvanizing as per IS 2629/2633/4759, suitable suspend local wind speed with integral Junction box consist of terminal plate of min 6mm Hylam sheet, standard profile 35mmX7.5mm Din-Rail for MCB Mounting, stud type terminal and arrangement for cable termination to be erected With Suitable foundation (Included) as per details given by manufacturer considering site requirement. (I) 10 Mtr. Long 70 mm Top X 175 mm bottom dia, 4 mm thickness with 275mmX275mmX16mm base plate, 4-M24 Bolts and 750mm long with necessary G.I. J Bolts .Approx Pole weight 145 kg.		Each	
90	480.00	Supplying and erecting Flexible PVC insulated multistrand multicore 1.1 kv grade ISI marked copper wires of following size to be erected as directed. e) 1.50 Sq.mm 3 core round PVC sheathed		Rmt	
91	16.00	Pipe type earthing with 40 mm dia 2.5 mtr long 'B' grade G.I. pipe with necessary coupling buch buried in specially prepared earth pit & G.I. earth wire of 8 SWG erected & connected as directed (Each for every three pole)		Each	
92	16.00	For using salt and charcoal / coke as required for pipe type earthing.		Each	
93	94.40	Providing and erecting HOT deep Galvanised iron strip wire 8 to 16 SWG.		Kg	
94	4.00	Supply & erecting in earthpit of minimum bore dia. 225 mm size ASH or approved make Saf Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made pf corrosion free G.I.Pipes having Outer pipe dia of 80 mm having 80-200 Micron galvanising, Inner pipe dia of 40 mm having 200-250 Micron galvanising, connection terminal dia of 14 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications. [A]For electrical installation up to 440 V Length of pipe - 1 Mtr Back filling compound- 1 Nos. of Bag of 15 Kgs. For LT panel 1 & 2 * 2 Nos. Each		Each	
95	1.00	Supplying & erecting IP 55 grade following size section pillar fabricated from joint less M.S. Sheet with angle iron legs made from jointless M.S. Angle with cable clamps to be buried in ground to have appropriate erection to work uniform until erected with cement concrete foundation and 45 cm high bricks work finishing with plaster etc. hinged double door internally supported on both side, with internal and outside looking arrangement with look and keys in duplicate 35 x 35 x 5 mm M.S. Angle of Two Nos. one is welded and other with nut and bolt for erecting Bakelite sheet. Painting the Section Pillar inside and out side with three tank powder coated paint. section pillar roof should be without joint with water leakage proof & tested as per IP 55 test & followed by IS 2147 of 1962. (B) 75 X 60 X 45 cm section pillar fabricated from 16 Gauge MS Sheet with angle iron legs 45 cm long made from 35 X 35 X 5 mm thick MS angle.		Each	
96	1.00	Supplying & erecting IP 55 grade following size section pillar fabricated from joint less M.S. Sheet with angle iron legs made from jointless M.S. Angle with cable clamps to be buried in ground to have appropriate erection to work uniform until erected with cement concrete foundation and 45 cm high bricks work finishing with plaster etc. hinged double door internally supported on both side, with internal and outside looking arrangement with look and keys in duplicate 35 x 35 x 5 mm M.S. Angle of Two Nos. one is welded and other with nut and bolt for erecting Bakelite sheet. Painting the Section Pillar inside and out side with three tank powder coated paint. section pillar roof should be without joint with water leakage proof & tested as per IP 55 test & followed by IS 2147 of 1962. (B) 60 X 30 X 45 cm section pillar fabricated from 16 Gauge MS Sheet with angle iron legs 45 cm long made from 35 X 35 X 5 mm thick MS angle.		Each	
97	40.00	Providing and erecting Miniature circuit breaker single pole 6A to 25A suitable operate on 240V A.C. system and having breaking capacity 10 KA to be erected in existing box. Confirming to IS 8828/1996 with ISI Mark.		Each	
98	6.00	Providing & erecting 415V MCB Four Pole Switch for Lighting Load (B curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (a) 6 to 32 Amp.		Each	
99	10.00	Supplying and erecting bakelite sheet 12mm thick HYLAM make on existing angle iron frame.		Kg	
100	4.00	Supplying & erecting approved make Digital time switch having lithium cell 6 years operative and operate battery backup 1 channel day clock with 14 memory programme, suitable to operate on 240V + 5%, 16A with, floating contacts Minimum switching setup time 1 minimum & LCD display. Also comprised permanent ON/OFF switching. Programming switches & housed in fire proof thermoplastic enclosure & transparent cover erected as required with necessary connection erected as directed.		Each	
101	4.00	Supplying & erecting power contactor for time switch complete erected and connected as per direction Cat III [C] 4 pole 440V 16 Amp. [A] 2 Pole 250V 12 Amp.		Each	
102	4862.00	Providing and fixing pre-cast Rubber Dye / steel Dye inter locking concrete block 60mm thick with grade of concrete M30 pneumatic compressed / vibrated mechanically and as per approved design Confirming to IS 15658 : 2006 including 35 mm Sand layer for levelling and filling the joint with sand in proper line and level as per guidelines of IRC : SP 63-2018 etc. Complete		Sq.m	
103	1029.00	Providing and fixing pre-cast concrete kerb stone of gray cement based concrete block 30cm length,30cm height and 15cm thick of M25 grade concret as per approved design and including excavation for fixing in proper line and level,filling the joint with C:M 1:3 (1cement:3fine sand) etc complete.		Rmt	
104	0.60	Planting Flowering Plants and Shrubs in Central Verge in 5m width , as instructed by Engg in charge.		Km	
105	1029.00	Providing and fixing 1.20 Metre high fencing with 2.0 Metre long M.S. Angle posts 40mm x 40 mm x6 mm and oil painting 3 coats fixed at 2.5 Mt,C/c. with five Horizontan lines and two diagonals of galvanised steel barbed wire weighting 9.38 Kg. per 100 Metre, strained and fixed to posts with G.I,staples including fixing the postsin ground with 0.5 M x 0.5.M x 0.5 M. block in C.C1:5:10 etc complete.		Meter	
106	1815.00	Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with shoring and strutting if required as per required gradient and line including safety provisions using site rails and stacking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified. a) In all sorts of soil and soft murrum. Up to 1.50 mt Depth		Cum	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
107	65.00	Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with shoring and strutting if required as per required gradient and line including safety provisions using site rails and stacking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified. a) In all sorts of soil and soft murrum. 1.50 mt to 3.0 mt Depth		Cum	
108	1485.00	Refilling the pipeline trenches incl. ramming, watering, consolidating disposal of surplus stuff as directed within a radius of 3 km. Refilling as directed		Cum	
109A	514.49	Providing and supplying D. I. K-9 grade pipes for following nominal bore diameter with internal cement mortar lining including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, Unloading, conveyance to departmental stores, stacking etc. complete. (A) (Pipe Dia 200mm) .		Rmt	
109B	514.49	(B) 250mm Dia.		Rmt	
109C	527.50	(B) 300mm Dia.		Rmt	
110	11707.00	Manufacture, Supply & Delivery of Ductile Iron Flange socket spigot bends, tees, reducers or any other specials as per BS-EN-545/1995 Class-A series K12 suitable for use with D.I. Pipes manufactured as per IS:8329/1994 delivery of specials is to be made to GWSSB store or site of works any where in Gujarat including all taxes, loading, unloading, carting, stacking, insurance, inspection charges, octroi etc. complete. With external bitumen & zinc coating & internal cement mortar lining, Socket & Spigot (Type 80 to 300mm Dia)		Kg	
111	527.50	Manufacture, Supply & Delivery of Electric Resistance Welded (Up to 400mm)/Submerged Arc Welded (Above 400mm) M.S. Pipe having beveled ends plate or coil conforming to IS-3589-2001 or its latest revision/ amendment for following thickness outside diameter at GWSSB store or site anywhere in Gujarat State including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading conveyance to Departmental stores, stacking etc. all complete. (Pipe OD 323.9mm)		Rmt	
112A	514.49	Lowering, laying and jointing C. I. S & S Spun pipes suitable for Tyton joints /Mortar J (lined D. I. Pipes of various classes with CI / MS specials of following diameters in proper position, grade and alignment as directed by Engineer-in-charge including hydraulic testing etc. comp. (Pipe Dia 200mm)		Rmt	
112B	514.49	(B) 250mm Dia.		Rmt	
112C	527.50	(C) 300mm Dia.		Rmt	
113	527.50	Lowering, laying, jointing & welding in position to correct line & level M.S. Pipe with Outsides 3 LPE coating & inside solvent free liquid epoxy lining on pedestal or chairs upon prepared formation or prepared bedding in trenches the rates include conveyance from store to site of work loading, unloading, heat shrink sleeve jointing hydrotesting etc. complete.		Rmt	
114	515.00	Supplying and fixing reinforced concrete heavy duty non-pressure pipes with collars for culverts including setting and joining the pipes in C.M. 1:2 watering and laying (To level of slops of I.S. 458 / 1971 Class NP4 casted by vertically vibrated technology of following internal diameter. (a) 450mm dia.		Rmt	
115	17.00	Providing and constructing Sewer manholes, scraper manholes and unit house connection chamber, as per the type design in brick masonry in C. M. 1:5 and inside and outside 20mm thick plastering in C. M. 1:3 necessary 100 mm coping with reinforcement in R.C.C.M. 200 fixing C. I. steps and fixing manhole frame and covers (But excluding supply of manhole frame and covers) over manholes and house connection chambers and fixing Manhole covers (but excluding supplying of manhole covers) over scraper manhole etc. complete, providing and fixing safety chain wherever necessary as per the stipulations in the type design complete as per latest CPHEEO manual. (excl. excavation). Manhole type "B" as above but upto 1.5m depth.		No.	
116	13.00	Providing and constructing Sewer manholes, scraper manholes and unit house connection chamber, as per the type design in brick masonry in C. M. 1:5 and inside and outside 20mm thick plastering in C. M. 1:3 necessary 100 mm coping with reinforcement in R.C.C.M. 200 fixing C. I. steps and fixing manhole frame and covers (But excluding supply of manhole frame and covers) over manholes and house connection chambers and fixing Manhole covers (but excluding supplying of manhole covers) over scraper manhole etc. complete, providing and fixing safety chain wherever necessary as per the stipulations in the type design complete as per latest CPHEEO manual. (excl. excavation). Extra depth beyond 1.5m but upto 4.0m depth for type "B" manhole above.		No.	
117	45.90	Providing and filling sand below R.C.C. Raft in Layers including ramming and watering complete.		Cum	
118	155.70	Providing and Casting in situ controlled Cement Concrete M-30 for R.C.C. Raft and cutt-off walls including necessary shuttering laying, vibrating, ramming and curing complete.		Cum	
119	51.80	Grouting with cement slurry with cement @ 5 kg/Sqm between the box segments after completion of pushing including cost of all materials, labour etc. complete.		Sq.m	
120	447.10	Casting and installation of single/twin RCC box of all sizes with or without common web section including design of pushing scheme, thrust bed, casting of all RCC components, with specified grade of controlled concrete, pushing it in correct position and alignment below Railway track/Road following all measures of track safety by "Box pushing technique" as per approved drawings/scheme, with or without surcharge in all types of soils with disposal of surplus earth away from vent up to 1 Km, fixing arrangement for all services & utilities including parapet walls on both sides, wearing course, foot paths, plaques, drainage arrangements etc. and all other incidental works to complete the ROB/RUB/Canal crossing in all respect as per specifications to the satisfaction of Engineer-in-Charge. Note: 1. The rate includes all items of work/supplies for complete job in all respects except "cost of Reinforced cement concrete, cement, reinforcement & shuttering" of (i) main RCC Box; (ii) Thrust Bed; (iii) Footpath (iv) Parapet wall and (v) wearing Course only, which shall be paid extra under relevant items of USSOR. 2. In case Drag Sheet and/or Rail Cluster are to be used as per approved scheme and design, the same shall be paid extra under relevant item. 3. The payment for this item shall be made for the clear inner cross section area of the parent RCC Box/Boxes and barrel length i.e. clear inner volume of parent RCC Box/Boxes.		Cum	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
121	3.00	Insertion of temporary Reliving girder in place of formation involving dismantling of track, removal of ballast and neatly stacking for future use, excavation & installation of CC crib or wooden crib at both ends as per approved Girder by contractor's crane, tools & plants, filling of design in one or more traffic blocks, excavation for creating space for insertion of girder as required, placement of earth/sand filled bags at different stages as required, linking of track and connecting with the approaches, ballasting, boxing and packing approach sleepers to make track fit for 20 kmph to the satisfaction of Engineer in charge. RH /Temporary girder of length above 16.3m and up to 26.00 using Road crane capacity of 80 MT Note: 1. The CC Crib as required and Temporary Girder shall be supplied by Railways at available location. 2. Transportation of Temporary Girder to site shall be paid separately under relevant item. 3. The charges for wooden sleepers/blocks required for matting and bearing as per approved design shall be paid extra as per relevant item. 4. In case bridge timber / channel sleepers are required to be laid on girder, the same shall be paid separately under relevant item.		Each	
122	3.00	Removal of temporary girder, crib on both ends and placing temporary girder on crib / cess away from Railway track as directed by engineer at site under traffic block; filling of Railway's earth by ramming, pulling ballast from stack / adjoining track / same track, laying track, linking with approach track and packing of ballast for opening track at 20 kmph speed, boxing & dressing of cess, ballast profiling etc. Note: If earth is to be brought by contractor from outside, the same will be paid separately. RH /Temporary girder of length above 16.3m and up to 26.00 using Road crane capacity of 80 MT		Each	
123	212.07	Loading, transportation, unloading and stacking relieving girder (a) For first Five km.		M.T	
124	111336.75	Loading, transportation, unloading and stacking relieving girder (B) For each additional one km. Or part thereof		M.T/KM	
125	1084.00	Providing & laying weep hole in Abutments, and returns by using PVC pipe of 100mm including laying in proper grede and jointing the completed as per detailed specification.		Each	
126	1065.20	Providing and laying - Fitter Media 600mm thick directed at the back of abutments, returns and wing walls as per detailed specifications.		Sq.m	
127	181.20	Providing and casting in-situ controlled cement concrete M-30 for thickness as per drawing wearing coat laid as directed including tamping, vibrating finishing curing and filling in joints with bitumen complete.		Cum	
128	26.60	Supplying promoulded bituminous joint filler.(i) 12mm thick		Cu.m	
129	10.00	Providing flood gauge marks on substructure as per design including painting complete.		Sq.m	
130	66.50	Providing, laying and jointing in true line and level 160 diameter U.P.V.C (Type B) conforming to IS 13592-1992 with one end plain and other end socketed with rubber ring, & fittings conforming to ISI 14735-1999 of approved make for drainage system pipe line, pipe shall be jointed with each other with rubber lubricant, pipe shall be fixed on wall using of PVC clamp of the size 160 mm diameter x 210 mm length x 196 mm height at every 2000 mm center to center or shall be concealed in walls as directed including necessary fittings such as bends, shoes etc. including testing of pipes and joints and jointed with adhesive solvent cement including cost of all materials.		Rmt	
131	33.30	Providing and fixing post and pipe railing as per detailed drawing including 3 coats of painting to steel works complete.		Rmt	
132	137.70	Dismantling of Flexible Pavements (Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres. stacking serviceable and unserviceable materials separately)		Cum	
133	27904.50	Supply and Fabrication with Erection and painting with 2 coat of enamel paint with zinc oxide at site of structural steel as per the approved drawings of Staircase, Railing, height barrier, grating,Front shield,Rear Shield,Cutting edge Plates cover or other works using ISMB, ISA, ISMC, MS/ Chequered Plates, flat, square bars, pipe, square pipe, etc. including welding, cutting, wastage, etc. complete with contractors own Mild steel confirming to IS 2062-2011 Grade E250, BR quality with all welds, rivets, nuts bolts, etc. with contractor's own materials, fabrication, machinery, templates, fixtures, equipments, tools and plants, transportation, skilled/unskilled labour, all leads and lifts, descent, loading, unloading etc. complete and as per approved drawings & specifications by approved vendors only.The rate is inclusive of transportation of Structural Steel / fabricated components to site by contractor's own means at his cost. The structural steel to be used shall be procured from the approved manufacturer only. Work has to be done as per drawings and specifications approved by Authority.		kg	
134	1694.50	Providing and fixing PUF Insulated continuous sandwich panels for roofs of total thickness not less than 30 mm made out from continue line method. Panel shall have 0.5 mm thick pre coated GI sheet on both side of Polyurethane foam with external face being corrugated in shape for GI and PU foam both material. The crest height of the panel shall be of 35mm minimum with 250mm c/c pitch. The Precoated sheet shall be of minimum 240 mpa steel grade confirming to IS 14246:1995 and shall have zinc coating of 120 gsm as per IS:277 , 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 micron.The PPGI Sheet shall have protective guard film of minimum 25 microns to avoid scratches while transportation.The roof panels are laid over a frame work of trusses, columns and purlins fixed using 90mm self drilling bolt with rubber washer including all types of flashings. PU Foam must be self-extinguishing, fire retardant type having minimum density of 40 Kg/Cu.mt.(+ , - 2 Kgs) including 0.25mm craft paper edging,self tapping screws of required length and No.etc complete as per structural design and direction of Engineer-in-charge.		Sq.mt.	
135	3.00	Direction (Junction) Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 244x122 cms. rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ; reflectorised with High Intensity Prismatic Grade retro reflectivesheeting ofType-4 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4.0mtr (2 No.) long stand post of Iron Angle 75 x 75 x 6mm/ 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50x50x5mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2 :4 CC blockof size 45 x 45 x 60 Cms. for each leg including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting		NO.	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
136	15.00	Supplying and fixing reinforced concrete heavy duty non-pressure pipes with collars for culverts carrying heavy traffic as per IS 458-1991 specifications including setting the pipes in C.M. 1:2 watering and laying (to level or slopes) of class NP3 of following internal diameters.(iii) 600mm dia. (more than 10 ton)		Rmt	
137	1.00	Supplying & erecting IP 55 grade following size section pillar fabricated from joint less M.S. Sheet with angle iron legs made from jointless M.S. Angle with cable clamps to be buried in ground to have appropriate erection to work uniform until erected with cement concrete foundation and 45 cm high bricks work finishing with plaster etc. hinged double door internally supported on both side, with internal and outside looking arrangement with lock and keys in duplicate 35 x 35 x 5 mm M.S. Angle of Two Nos. one is welded and other with nut and bolt for erecting Bakelite sheet. Painting the Section Pillar inside and out side with three tank powder coated paint. section pillar roof should be without joint with water leakage proof & tested as per IP 55 test & followed by IS 2147 of 1962 (A) 150 X 90 X 75 cm section pillar fabricated from 14 Gauge MS Sheet with angle iron legs 95 cm long made from 40 X 40 X 6 mm thick MS angle.		Each	
138	1.00	Providing and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 25 KA. at 415 V, having normal current rating up to 25 A to 100A. with Fixed thermal & magnetic release suitable to work on A.C. supply 50 c/s. with all internal connections, spreader tinned copper & complete erected in existing 16 G.M.S. housing.		Each	
139	1.00	Providing and erecting Approved make RCCBs conforming to IS: 12640 and having sensitivity of 30 mA and Short Circuit withstand capacity of 10 KA and suitable for operation on 3 phase and neutral 415V, 50Hz. having characteristic of quick action & tripping with all advance feature & do not incorporate any electronic component for following Max. rating erected as directed (iv) 100 Amms. EP (100 mA Sensitivity)		Each	
140	2.00	Supplying and erecting triple pole & neutral 440V/ 500V panel mounting Aluminium Busbars with four equal Nos. of bus having current density not more than 0.8 Amp. / sq.mm (Rated current / cross section area) duly wrapped with colour insulating tape for phase sequence of following current carrying capacity, erected with necessary bus bar supports / insulators, main cable socket to each busbar, erected in existing cubical panel with necessary connections. (B) Suitable for 200 Amp. Capacity		Meter	
141	2.00	Providing & erecting 415V MCB Four Pole Switch for Lighting Load (C curve) having 10KA breaking capacity & confirms to IS: 8828 in existing box having following capacity (a) 6 to 32 Amp.		Meter	
142	1.00	Smart 4G Timer, Supply of IoT based 4G Smart Streetlight Control & Monitoring System having a Smart Panel comprising of 3 Phase IoT Streetlight Smart 4G Timer with 16x2 LCD to display RSSI, relay status, RTC time & diagnostics., Controller works on 3-phase & also on any available 1-Phase., Controller with 8-hour battery backup during external power failure. External power failure alert immediately to cloud., 110-630 V AC @ 50-60 Hz – 3 phase operating range., Standby power consumption less than 3W., Smart 4G Timer with RS232 port for DLMS Energy meter., Smart 4G Timer must be compatible with any make / brand of DLMS (RS232) Energy Meter., DI: 4 Nos. (3 Contactor / Latch detection, 1 for Door Sensor.), DO: 3 Relays for Independent control each phase (R, Y, B) with 1 extra spare relay., Smart 4G Timer with dual SIM functionality for connectivity backup., 4G M2M SIM 3-Year communication included., Local configuration via WiFi / BLE for maintenance or during force majeure., GPS chip inbuilt of Smart 4G Timer for auto location tracking & astronomic schedule location., 50 programmable schedules., Astronomic scheduling with monthly offsets., Smart 4G Timer has inbuilt timer stores schedules locally & also stores schedule execution logs locally, syncs to cloud whenever connected to cloud., Auto-scheduler overrides manual operations., Monitoring & alerts for MCB trips., Over/under voltage, current, overload, power factor & short circuit protections with alerts via Dashboard, App, SMS, WhatsApp & Email., Contactor / Latch chattering protection & alerts., Smart 4G Timer with neutral failure protection and alert., Built-in Watchdog for anti-jamming., Smart 4G Timer must send Regular "heartbeat" on software for CCMS status., Accelerometer for tamper & panel movement detection & alerts., Smart 4G Timer must be tested from an NABL Lab for Surge Test @ 6 KV (IEC 61000-4-5), ESD Test @ 4 KV (IEC 61000-4-2), EFT @ 2 KV (IEC 61000-4-4), Conducted Emission @ 150 KHz-30 MHz (CISPR11), Damp Heat Test (40 Deg C @ 95% RH) 2 cycles of 12+12 hours (IS: 9000 (Part 5/Sec.2):1981 latest) with all test passing criteria as "Temporary degradation or loss of function or performance which is self-recoverable", FOTA functionality required for upgrades., Smart 4G Timer sends & stores online/offline data of controller & load for lamp burn hours analysis.,		Each	
143	4.00	Supplying & erecting earth pit of minimum bore dia.150mm size approved make Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free hot dipped G.I.Pipes having Outer pipe dia of 50mm having 80-200 Micron galvanising, Inner pipe dia of 25 mm having 200-250 Micron galvanising, connection terminal dia of 12mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications with chamber and heavy duty cover. (A) approved make OEM has to submit test certificate including value of earth resistance of installation duly stamped and signed by agency and officer Incharge has to ensure the value of earthing resistance mentioned in test Certificate) & having back filling compound of (B) Inner chemical (CCM Compound)- Resistivity:- 0.2 ohm / meter testing as per IEC 62561-2017, Voltage drop:- < 1 volt at no load & dry form, Sulphur content:- <2%(C) Back fill Compound :- Earthing compound should be capable to retain moisture for long time Necessary test report must be submitted by Agency. (a) For Electrical Installation up to 440V in normal soil Length of pipe - 1 Mtr, Back filling compound - 1 Nos Bag of 15 Kg.		Each	
144	1.00	Providing & erecting Medium Voltage Danger Notice Board sticker as per language suggested by engineer incharge of standard size as per IS-2551		Each	
145	6.00	Providing and erecting required size HOT deep Galvanised iron strip for earthing of H.T. , OCB/ ACB/ Transformer LT panel board. Motors etc. using proper clamp.		Kg/Mtr	
146	10.00	Providing & erecting approved make street light / wall mounting junction box compression moulded from SMC (thermoset plastic) vertical sliding cover having locking with square head stud loop in / loop out in built terminal suitable for four core cable, waterproof of I.P. 54 protected with clamp or bolt nut & earth bolt of following size.(A) 200mm x 127mm x 83 mm		Each	
147	1.00	Supplying and erecting B class galvanised iron pipe 32 mm outside dia 45 cm long duly welded on 20 cm x 20 cm x 3 mm thick M.S. base plate, erected on wall or corner for mounting street light luminaire with necessary hardware materials duly painted.		Each	
148A	2.00	Providing and erecting Street Light pole bracket comprising main B Class GI pipe of 4.2 cm/require outside dia. complete with suitable B Class G.I. sleeve tubing of approx. 45cms.length and suitable for 76.5 mm /80mm / required size of pole top having sufficient fasteners for fixing the brackets and having spread of 1.5.mtr. length with 110 deg.with vertical plane & suitable welded stays, reducer and with check nuts complete painted with one coat of Red oxide / PU base primer and two coats of Aluminium / PU paint. paint with following nos of arms. [A] Single Arm Bracket 1.5 Mtr		Each	
148B	10.00	[B] Double Arm Bracket 1.5 Mtr		Each	
149	32.00	providing and erecting Miniature circuit breaker single pole 0.5A to 2A system and having breaking capacity 10 KA to be erected in existina box. confirming to IS 8828/1996 with ISI Mark		Each	
150	23.00	Providing and fixing in position steel bar for RCC Sump reinforcement of steel grade FE-500D (TMT) including cutting , bending, hooking, tying, welding etc., complete as per detailed drawing and specification.		M.T	
151	3.70	Providing and laying controlled cement concrete M25 and curing complete excluding the cost of formwork and reinforcement for reinforced concrete work in (A) Foundations, Footings, Base of Columns and Mass Concrete.		Cum	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
152	2.30	Providing and laying controlled cement concrete M25 and curing complete excluding the cost of formwork and reinforcement for reinforced concrete work in (D) Columns, Pillar Posts & Struts, upto floor two level.		Cum	
153	11.30	Providing and laying controlled cement concrete M25 and curing complete excluding the cost of formwork and reinforcement for reinforced concrete work in (C) labs, landing, shelves, Balconies, Lintels, Beams, Girders and Cantilever upto floor two level.		Cum	
154	1.80	Providing and laying in position FE 500D TMT bar reinforcement including cutting, bending, hooking and tying complete as per detailed drawings for the following. (Pump Room)		M.T	
155	28.70	Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./Sq.Cm. In foundation and plinth in Cement Mortar 1:6 (1- Cement : 6 -fine sand) (B) Conventional		Cum	
156	120.80	Providing 15mm thick cement plaster in single coat on Rough (Similar)side of single or half brick walls for interior plastering upto floor two level and finished even and smooth in (i) Cement mortar 1:3 (1-cement:3-sand)		Sq.mt.	
157	120.80	Providing 20 mm thick double coat mala cement plaster on outside / concrete work for plastering comprising of base coat of 12 mm thick cement plaster in cement mortar (1 Cement : 4 coarse sand) in rough finishing and 8 mm thick top coat of cement mortar 1:2 (1 Cement : 2 Coarse sand) finished with trowel including scaffolding curing etc. complete.		Sq.mt.	
158	24.50	Providing 10mm thick cement plaster in single coat on Ceiling for interior plastering upto floor two level and finished even and smooth in (i) Cement mortar 1:3 (1- cement:3-sand)		Sq.mt.	
159	120.80	Applying two coats of Birla (white cement based) or Asian (acrylic lapy- putty) or equivalent & two coats of primer of approved brand and manufacture on new wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.		Sq.mt.	
160	120.80	Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.		Sq.mt.	
161	120.80	Finishing wall with weather proof exterior emulsion paint on wall surface (two coats) to give an required shade even shade after thoroughly brushing the surface to remove all dirt, and remains of loose powdered materials.etc complete		Sq.mt.	
162	5.10	Providing and fixing 35 mm thick shutters for Doors, windows and clerestory windows including Indian teak wood frames 10 cm x 7 cm. size including black enamelled iron oxidized fixtures and fastenings including primer coat of approved quality and two coats of oil painting etc. complete. (ii) Fully Panelled.		Sq.mt.	
163	5.80	Providing and fixing window having extruded aluminum Colour Powder Coated section frame main outer size 63.50 x 38.10 x 1.95 mm(of Jindal Section no:4605,@ Wt 1.094 Kg / Rmt), horizontal two track member size 61.85 mm x 31.75 mm x 1.20mm (of Jindal Section no: 8687 @ wt.of 0.695 Kg/mt), vertical member of size 61.85 mm x 31.75mm x 1.30 mm (of Jindal Section no:8758 @ wt.of 0.0.659 Kg/mt) with sliding shutters of horizontal member size 40mm x 18mm x 1.29mm (of Jindal Section no:8949 @ wt.of 0.456Kg/mt), vertical member of size 40mm x 18mm x 1.29mm (of Jindal Section no:8947 @ wt.of 0.456Kg/mt/ Section 8948, @ Wt. 0.457 Kg/mt) with 5 mm thick transparent bronze colour tinted float glass with powder coated aluminum fittings and fixtures and transparent silicon sealant glass fixing to frame as per details etc complete for window.		Sq.mt.	

SCHEDULE - B					
Item No.	Qty.	Item of work	Rate in Rs.	Unit	Amount
164	24.50	Providing and laying polished Kota stone slab flooring over 20mm (Average) thick base of cement mortar 1:6 (1- cement : 6- coarse sand) or L.M. 1:1.5 (1-Lime putty :1.5 - coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and polishing etc. complete. (A) 25mm thick		Sq.mt.	
165A	1100.00	Supplying and fixing reinforced concrete heavy duty nonpressure pipes with collars for culverts carrying heavy traffic as per IS 458-1991 specifications including setting the pipes in C.M. 1:2 watering and laying (to level or slopes) of class NP4 of following internal diameters.. (B) 900mm dia. (C) 1800mm dia.		Rmt	
165B	2.50			Rmt	
166	20.00	Providing and supplying ISI mark G. I. pipes with Couplings of following class and diameter including all taxes,insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc complete (IS -1239) (Heavy Duty) 100mm dia		Rmt	
167	37.00	Constructing brick masonry road gully chamber 1100mm x 775mm including 500mm x 450mm (C.I. Horizontal grating with frame and vertical grating complete.)		NO.	
168	37.00	Providing and fixing C.I. Manhole cover 0.60 M. x 0.45M. size having weight not less than 35Kg.		NO.	
169	2.00	Providing & erecting vertical turbine dewatering pumps set with cast iron body, stainless-steel shafts, stainless-steel impellers, brass joints, complete for operating on three phase power supply of 415 V, 50 Hz, AC Power, with Starter Panel, base plate, foundation bolts, earthing points, dry run protection, G.I. Header connecting the pumps, 150mm dia G.I. Pipe up to nearest catch basin, cable connections from starter panels to pumps, valves, etc, complete as per the approval and direction of the Engineer-in-charge. BHP not less than 50BHP		NO.	
170	1.00	Supplying and erecting, commissioning and testing diesel generating set having continuous rating, 3 phase, 415 volts, 50 cycles A.C. supply comprising of a totally enclosed air/water cooled diesel engine with multi- cylinders developing suitable BHP not less than following capacity at 1500 RPM with 10% overload for one hour in 24 hours with standard accessories like fly wheel, lubricating oil cooler, "A" class governor, heavy duty fuel wheel and lubricating oil filter, oil bath air filter, lubricating oil pressure gauge, end exhaust manifold, standard set of tools with adjustable spanners, screw drivers, feeder gauge, cylinder head to cover, joint cylinder head to exhaust, element lube oil filter, 12/24 volts electric starting equipment complete with standard battery, dynamo, cut- outs, ammeter, necessary wiring, pressure gauge, starter etc and heavy duty Residential type exhaust silencer and vertical hot air duct both logged with asbestos rope, save oil trays, exhaust piping of required length, standard wall/floor mounted fuel with level indicator and piping and drip proof alternator, self excited, self regulated, screen protected, with excitation system, capable of delivering the rated system output at 415 volts, 3 phase, 0.8 PF, 50 Hz, 4 wire, running at 1500 RPM, conforming to IS- 4722- 1968 with voltage regulation +/- 5% of rated voltage from no load to full load. Both the engine and alternator fitted on a common fabricated steel base plate with antivibration mounting engine and alternator both connected to each other by flexible flange coupling and with floor/wall mounted control panel box comprising of voltmeter ammeter, selector switches, ACB / MCCB / MCB of adequate capacity, indicator lamps duly wired with HRC fuses. The alternator & control panel shall be connected with provided suitable capacity armoured cable and complete with Acoustic enclosure (canopy) made out of 18 SWG CRCA Sheet, sound absorbing material Rockwool of 64 density & 100 mm thick conforming to IS:8183 The resin bonded rockwool covered from inside the canopy by perforated sheet with 3/4 mm holes, sound level not more than 75 dB at a distance of 1 mtr, as per PVCT norms. Erection, commissioning and satisfactory testing as per requirement with first filling of fuel, oil, etc. with guarantee of complete system for One year. & with obtaining all necessary certificate from Electrical Inspector. The Capacity and Ratings of DG sets are as below. Continous Rating of 125 KVA, BHP not less than 154 BHP		NO.	
171	1.00	Providing & erecting approved make AMF control panel suitable for following size of 3 phase, 415 V., 50 cycles, A.C. diesel generating set complete of scope as detailed below: 1) Power module: A pair of electromechanically interlocked contactors (for mains & generator) Overload relay for generator contactor Neutral contactor for mains and generator Power socket for connections. 2) Control and metering module: Line voltage monitor. Generator voltage monitor Ammeter 3 items attempt start facility. Air circuit breakers/MCB/MCCB of suitable rating for auto/manual operation. Auto/manual switch. Emergency stop push buttons. Manual start push button. frequency meter. Engine hour meter. Two earthing studs. 3) Protection module: The engine shutdown in the unlikely event of Low lube oil pressure High cylinder head temperature. V belt failure. 4) Indicators with alarm Load on generator.5)Indicators Load on mains Engine fails to start. Emergency stop battery charger.The AMF Panel of following capacity (c) AMF Control Panel for 100 KVA/125 KVA 3 phase DG Set		NO.	
Total Of Schedule B:					
Say					