

S.E.C. Railway

No. EL/EST./BSP/tend./26-27/01

Office of the
Sr. Divl. Elect. Engineer (RS & G)
Bilaspur/ Dt. 19/05/2026

**Sr.DEN (Settlement)
S.E.C. Railway, Bilaspur.**

Sub: Tender schedule of the work viz ~ (1)Construction of new 14 Units for type-IV Qtr. under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP.(2)Const. of 14 Units type-IV Qtr. on replacement account under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP at BSP. (3).Provision of New Type-V (SPL) Qtrs 05 Nos. & Type-V Qtrs. 05 nos. in Bilaspur settlement under Sr.DEN/Settlement/BSP.(4.)Construction of new 14 Units for type-IV Qtr. under ADEN/Sett.-II/BSP in the jurisdiction of Sr. DEN Sett./BSP at Bilaspur.(5.)Provision of 20 Nos. Type-III Qtrs against replacement account in RTS, Wireless & Loco colony under Sr.DEN /Settlement/ BSP

Ref: Org.1.Est no.229/BSP/2025 dt.02.04.2026
2.Est no. 228/BSP/2025 dt.07.04.2026
3. Est no. 262/BSP/2025 dt.30.03.2026
4.Est no. 165/BSP/2025 dt.24.02.2026
5.Est no. 269/BSP/2025 dt.04.03.2026

In connection with above referred subject Electrical schedule for the work viz. ~“(1)Construction of new 14 Units for type-IV Qtr. under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP.(2)Const. of 14 Units type-IV Qtr. on replacement account under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP at BSP. (3).Provision of New Type-V (SPL) Qtrs 05 Nos. & Type-V Qtrs. 05 nos. in Bilaspur settlement under Sr.DEN/Settlement/BSP.(4.)Construction of new 14 Units for type-IV Qtr. under ADEN/Sett.-II/BSP in the jurisdiction of Sr. DEN Sett./BSP at Bilaspur.(5.)Provision of 20 Nos. Type-III Qtrs against replacement account in RTS, Wireless & Loco colony under Sr.DEN /Settlement/ BSP” has been prepared and is being sent to you for further process of floating composite tender.

(Soft copy shall be shared as per requirement.)

Enclosed - Electrical Tender schedule (86 pages).


Sr. Divisional Electrical Engineer (RS&G)
S.E.C.Railway, Bilaspur

Name of Work	<p>1. Construction of new 14 Units for type-IV Qtr. under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP.</p> <p>2. Const. of 14 Units type-IV Qtr. on replacement account under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP at BSP.</p> <p>3. Provision of New Type-V (SPL) Qtrs 05 Nos. & Type-V Qtrs. 05 nos. in Bilaspur settlement under Sr.DEN/Settlement/BSP.</p> <p>4. Construction of new 14 Units for type-IV Qtr. under ADEN/Sett.-II/BSP in the jurisdiction of Sr. DEN Sett./BSP at Bilaspur.</p> <p>5. Provision of 20 Nos. Type-III Qtrs against replacement account in RTS, Wireless & Loco colony under Sr.DEN /Settlement/ BSP</p>
--------------	---

Tender Value -2,18,51,043/-

(Rupees Two crore Eighteen lakh Fifty-One thousand Forty Three Only.)

Special Conditions -

1. All materials shall conform to the relevant Indian Standard Specification.
2. Supervision work of Electrical (G) related works portion shall be carried out by concerned SSEs/unit in-charge of Electrical (G) department.
3. Supply of materials shall be done to SSE (G)/BSP Store only after approval from the office of Sr.DEE (RS&G)/BSP& before installation at site.
4. The MB recording work of Electrical (G) related works portion shall be carried out by concerned SSEs/unit in-charge of Electrical (G) department after satisfactory installation.
5. Original vouchers/test certificate of supply items must be submitted to store during supply to SSE/G/store.
6. The contractor should carry out the Electrical Work in supervision of Class-A Electrical Contractor.His licence certificate to be submitted to Sr.DEE(RS&G)/BSP office before commencement of electrical work.
7. **Payment Clause:**Payment of supply items under will be made 75% after supply of materials and balance 25% shall be released after Erection of those items along with bill of execution portion of work. If supplied items are not installed due to railway reason then 75% cost will be released & 25% will be deducted against not installation of material, if supplied items is not installed due to contractor reason then 30% cost of supply & installation will be deducted from bills.
8. Before supply the material the contractor must take certification by the respective site supervisor that the site is ready in all respect depending on the conditions persist at the time of execution of work and scheduled items can be supplied .Only after certification by site supervisor, contractor will supply the material.All material will be supplied within one month from date of letter issued to contractor to supply the material; otherwise penalty of Rs.5000/- will be deducted after every 10 days.
9. For approval of **make** ,Samples of the materials to be submitted to Sr.DEE (RS&G) office before supply of material & material will be supplied from certified agency/OEM.
10. The material supplied will be as per make in india policy of government.




Schedule 1: Electrical portion of works "Bilaspur Division- Construction of new 14 Units for type-IV Qtr. under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP."

SN	Description of Items	Qty.	Unit	Rate	Total
A: Type-IV quarters (per qtr)					
1	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm with Aluminiumconductor , suitable for rated voltage at 1100 volts grade, as per IS:7098 (Part 1): 1988 latest.	150	Mtrs.	447	67050
2	Laying of cable of lower size (upto 4x35 Sq. mm) in Polythene (HDPE) pipe without digging of earth dressing of land including supply of HDPE pipe & all materials . [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984 : 2016 or relevant IS standard type: coil/straight as per requirement]	80	Mtrs	127	10160
3	Trenching/Digging of earth 1 mtr deep for cable laying.	100	Mtrs.	65.00	6500
4	Laying of cable of in GI pipe including supply of all materials (including t.G.I. Pipe & except Cable). With supply of G.I. pipe dia. 50mm thickness min. 2mm	20	Mtrs	579	11580
5	Laying of cable in open air/concealed in wall with supply of all material.	50	Mtrs.	32	1600
6	Earthing arrangement	2	Nos.	3428	6856
7	Supply, installation, testing & commissioning of prepaid cum postpaid Three phase Smart Energy Meter Accuracy Class 1.0, rating: 5-60A/10-60A/10-100A, 50Hz with Display Unit conforming to IS-16444 or latest, with Tamper Proof meter box/ enclosures of suitable size,wireless communication modules conforming to IS16444 part1 compatible with GPRS/Cellular. Configuration & Commissioning with existing system of software for meter data transmission, acquisition & management system for billing application including vending charges, Monthly SIM Charges per meter of Smart Energy Meters for 2 years. Warranty on meter,sim, metering accessories & OEM software: 5years from date of commissioning. Make : Genus/Secure/Lauritz Knudsen E&A (Schneider Electric)/Polaris Make for Meter Box: Make: Sintex, Hensel, Homelite, Schneider Electric or same as meter supplied/OEM make.	1	Nos.	7929	7929
8	AC starter Plug and socket with mcb 25A/16 metal clad/Polycarbonate box with plug and top	5	Nos	1745	8725
9	Fixing connection & commissioning of above	5	Nos	174	870
10	Supply of SPN Distribution board confirms to IS-13032 DBs are phosphatised and painted with epoxy polyster based powder paint, neutral link,earth terminal & bus-bar single door 8 way.	1	Nos.	1710	1710
11	Supply of Double pole isolator 40Amp	1	Nos.	385	385
12	Supply of MCB SP 6-32 A capacity.	6	Nos.	153	918
13	Fixing , connection & commissioning of DB/bus-bar chamber supplied above.	1	Nos.	34	34
14	Supply of 9W LED retrofit lamp B22 holder base with polycarbonate body.	5	Nos	141	705
15	Supply of ELCB/RCCB 63 amps. 4 pole 300mA sensitivity	1	Nos.	4568	4568
16	Fixing/Erection/Commissioning of above ELCB/RCCB 63 amps. 4	1	Nos.	456	456

	pole with all required material				
17	Concealed wiring for the 6 Amps. Light, fan & 5 Amps socket with 1.5 sqmm. FRLS copper wire including supply of all materials	42	Points	664	27888
18	Concealed Wiring for 6-16Amps plug points with PVC Pipe and PVC insulated copper conductor 2.5 sq. mm. size with supply of all materials.	18	Points	689	12402
19	Concealed Wiring for Sub-circuits	150	Mtrs.	208	31200
20	Supply of LED Inverter Batten 20 W 6500 K Tubelight polycarbonate body	3	Nos	796	2388
21	Supply of 20W LED tube light supply voltage 230V 50Hz built in electronic driver	6	Nos	593	3558
22	Supply of Electric Ceiling Fan BLDC Type Sweep Size (mm): 1200, rating: 5star, type of regulator: Electronic/remote	6	Nos	2836	17016
23	Fixing of lights/fans supplied as above with supply of flexible wire to connection the nearest ceiling rose.	29	Nos	37	1073
24	Supply of ding dong type call bell.	2	Nos	500	1000
25	Supply of Exhaust fan 300 mm sweep complete with accessories.	4	Nos	2490	9960
26	Supply of DP MCB 16 A flush mounting MCB complete with sheet steel enclosure, powder painted for use as main switch.	1	Nos	229	229
27	Fixing and connection of MCB DB supplied as above with supply of all material.	1	Nos	31	31
28	Concealed wiring for 20 Amps plug points with PVC pipe & PVC insulator copper conductor 4 sq mm size with supply of all material.	5	Point	963	4815
29	Supply of 10W-20W BULKHEAD FITTING with LED & enclosure	1	Nos	1525	1525
30	Supply of Mirror/decorative/bracket light 20W	13	Nos	563	7319
31	Supply of ELECTRIC WATER HEATER- GEYSER - Tank Capacity 25 Liter, 5star rated Material of Inner Container: Stainless Steel, Material of Outer Container: ABS, warranty: 3year.	2	Nos	10790	21580
32	Fixing of storage type geyser 25litrs capacity.	2	Nos	637	1274
	Total (Supply &labour) For 01 unit Ty-IV Qtrs				273304
A	Total (Supply &labour) For 14 Nos Ty-IV Qtr				3826256
B: Other electrical requirements for settlement area of quarters					
1	Supply of 7 mtrs height hot deep galvanized octagonal pole (single arm)	10	Nos.	9253	92530
2	Excavation of earth, provision of Foundation and erection of hot deep galvanized octagonal poles with aluminium& red oxide paint	10	Nos.	1581	15810
3	Supply of junction box 300x350x125 mm size material thickness 1.5mm with 1 no. 6A HRC fuse with base and 1 no. TPN terminal block stud type suitable for 25 sqmm cable.	10	Nos	1600	16000
4	Fixing & connection of junction boxes	10	Nos	140	1400
5	Supply of LED street light Luminaries 45W complete with all accessories.	20	Nos.	5139	102780
6	Fixing & connection of street light luminaire supplied above.	10	Nos	138	1380
7	Supply of class A MS pipe/MS clamp for clamping the light fitting at suitable design and size.	5	KG	37	185
8	Trimming of big branches above 15 cm.	20	Nos	342	6840
9	Trimming of small branches dia. Above 5 CM & less than 15 cm.	50	Nos	171	8550

10	Disconnection of existing wiring.	60	Nos	577	34620
11	Construction of Cement Concrete foundation containing cement concrete on the proportion 1:3:6 of cement,sand&ballst size of 40mm.	10	Cum	4232 0	42320
12	Supply DB containing one TP MCCB 100 Amps as incoming & 2 nos. 63 Amps. TP MCBs as outgoing complete with neutral bar din rail etc enclosed in a powder painted metallic enclosure.	1	Nos	12147 0	12147
13	Fixing, connection & commissioning of DB supplied as above.	1	Nos	1962 0	1962
14	Supply of outdoor type Feeder pillar panel (for residential quarters distribution) 3 phase, 12 way. Incomer 250A MCCB TPN Outgoing (12+12+12)Nos = 36 Nos 63 A Cam lock fuse , make: Havells/equivalent (12Nos per phase) with busbars of suitable size as per ampere ratings.	2	Nos	90000	180000
15	Erection & commissioning of Feeder pillar panel (for residential quarters power distribution and other electrical requirements)	2	Nos	9000	18000
B	Sub-total				534524
	Grand total of complete electrical cost (A+B)				4360780

Schedule 2: Const. of 14 Units type-IV Qtr. on replacement account under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP at BSP.

SN	Description of Items	Qty.	Unit	Rate	Total
	A:Type-IV quarters (per qrtr)				
1	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm with Aluminiumconductor , suitable for rated voltage at 1100 volts grade, as per IS:7098 (Part 1): 1988 latest.	150	Mtrs.	447	67050
2	Laying of cable of lower size (upto 4x35 Sq. mm) in Polythene (HDPE) pipe without digging of earth dressing of land including supply of HDPE pipe & all materials . [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984 : 2016 or relevant IS standard type: coil/straight as per requirement]	80	Mtrs	127	10160
3	Trenching/Digging of earth 1 mtr deep for cable laying.	100	Mtrs.	65 00	6500
4	Laying of cable of in GI pipe including supply of all materials (including t.G.I. Pipe & except Cable). With supply of G.I. pipe dia. 50mm thickness min. 2mm	20	Mtrs	579	11580
5	Laying of cable in open air/concealed in wall with supply of all material.	50	Mtrs.	32	1600
6	Earthing arrangement	2	Nos.	3428	6856
7	Supply, installation, testing & commissioning of prepaid cum postpaid Three phase Smart Energy Meter Accuracy Class 1.0, rating: 5-60A/10-60A/10-100A, 50Hz with Display Unit conforming to IS-16444 or latest, with Tamper Proof meter box/ enclosures of suitable size,wireless communication modules conforming to IS16444 part1 compatible with GPRS/Cellular. Configuration & Commissioning with existing system of software for meter data transmission, acquisition & management system for billing application including vending charges, Monthly SIM Charges per meter of Smart Energy Meters for 2 years. Warranty on meter,sim, metering accessories & OEM software: 5years from date of commissioning. Make : Genus/Secure/Lauritz Knudsen E&A (Schneider	1	Nos	7929	7929

	Electric)/Polaris Make for Meter Box Make: Sintex, Hensel, Homelite, Schneider Electric or same as meter supplied/OEM make.				
8	AC starter Plug and socket with mcb 25A/16 metal clad/Polycarbonate box with plug and top	5	Nos	1745	8725
9	Fixing connection & commissioning of above	5	Nos	174	870
10	Supply of SPN Distribution board conforms to IS-13032 DBs are phosphatised and painted with epoxy polyster based powder paint, neutral link, earth terminal & bus-bar single door 8 way	1	Nos	1710	1710
11	Supply of Double pole isolator 40Amp	1	Nos	385	385
12	Supply of MCB SP 6-32 A capacity	6	Nos	153	918
13	Fixing, connection & commissioning of DB/bus-bar chamber supplied above	1	Nos	34	34
14	Supply of 9W LED retrofit lamp B22 holder base with polycarbonate body.	5	Nos	141	705
15	Supply of ELCB/RCCB 63 amps. 4 pole 300mA sensitivity	1	Nos	4568	4568
16	Fixing/Erection/Commissioning of above ELCB/RCCB 63 amps. 4 pole with all required material	1	Nos	456	456
17	Concealed wiring for the 6 Amps. Light, fan & 5 Amps socket with 1.5 sqmm. FRLS copper wire including supply of all materials	42	Points	664	27888
18	Concealed Wiring for 6-16Amps plug points with PVC Pipe and PVC insulated copper conductor 2.5 sq. mm. size with supply of all materials.	18	Points	689	12402
19	Concealed Wiring for Sub-circuits.	150	Mtrs.	208	31200
20	Supply of LED Inverter Batten 20 W 6500 K Tubelight polycarbonate body	3	Nos	796	2388
21	Supply of 20W LED tube light supply voltage 230V 50Hz built in electronic driver.	6	Nos	593	3558
22	Supply of Electric Ceiling Fan BLDC Type Sweep Size (mm):1200, rating: 5star, type of regulator: Electronic/remote	6	Nos	2836	17016
23	Fixing of lights/fans supplied as above with supply of flexible wire to connection the nearest ceiling rose.	29	Nos	37	1073
24	Supply of ding dong type call bell.	2	Nos	500	1000
25	Supply of Exhaust fan 300 mm sweep complete with accessories.	4	Nos	2490	9960
26	Supply of DP MCB 16 A flush mounting MCB complete with sheet steel enclosure, powder painted for use as main switch.	1	Nos	229	229
27	Fixing and connection of MCB DB supplied as above with supply of all material.	1	Nos	31	31
28	Concealed wiring for 20 Amps plug points with PVC pipe & PVC insulator copper conductor 4 sq mm size with supply of all material.	5	Point	963	4815
29	Supply of 10W-20W BULKHEAD FITTING with LED & enclosure	1	Nos	1525	1525
30	Supply of Mirror/decorative/bracket light 20W	13	Nos	563	7319
31	Supply of ELECTRIC WATER HEATER- GEYSER - Tank Capacity 25 Liter, 5star rated Material of Inner Container: Stainless Steel, Material of Outer Container: ABS, warranty: 3year,	2	Nos	10790	21580
32	Fixing of storage type geyser 25litrs capacity	2	Nos	637	1274
	Total (Supply &labour) For 01 unit Ty-IV Qtrs				273304
A	Total (Supply &labour) For 14 Nos Ty-IV Qtr				3826256
B: Other electrical requirements for settlement area of quarters					

1	Supply of 7 mtrs height hot deep galvanized octagonal pole (single arm)	10	Nos.	9253	92530
2	Excavation of earth, provision of Foundation and erection of hot deep galvanized octagonal poles with aluminium & red oxide paint	10	Nos.	1581	15810
3	Supply of junction box 300x350x125 mm size material thickness 1.5mm with 1 no. 6A HRC fuse with base and 1 no. TPN terminal block stud type suitable for 25 sqmm cable.	10	Nos.	1600	16000
4	Fixing & connection of junction boxes	10	Nos.	140	1400
5	Supply of LED street light Luminaries 45W complete with all accessories.	20	Nos.	5139	102780
6	Fixing & connection of street light luminaire supplied above.	10	Nos.	138	1380
7	Supply of class A MS pipe/MS clamp for clamping the light fitting at suitable design and size.	5	KG	37	185
8	Trimming of big branches above 15 cm.	20	Nos.	342	6840
9	Trimming of small branches dia. Above 5 CM & less than 15 cm.	50	Nos.	171	8550
10	Disconnection of existing wiring.	60	Nos.	577	34620
11	Construction of Cement Concrete foundation containing cement concrete on the proportion 1:3:6 of cement, sand & ballst size of 40mm.	10	Cum	4232.0	42320
12	Supply DB containing one TP MCCB 100 Amps as incoming & 2 nos. 63 Amps. TP MCBs as outgoing complete with neutral bar din rail etc enclosed in a powder painted metallic enclosure.	1	Nos.	12147.0	12147
13	Fixing, connection & commissioning of DB supplied as above.	1	Nos.	1962.0	1962
14	Supply of outdoor type Feeder pillar panel (for residential quarters distribution) 3 phase, 12 way. Incomer 250A MCCB TPN Outgoing (12+12+12) Nos = 36 Nos 63 A Cam lock fuse, make: Havells/equivalent (12Nos per phase) with busbars of suitable size as per ampere ratings.	2	Nos.	90000	180000
15	Erection & commissioning of Feeder pillar panel (for residential quarters power distribution and other electrical requirements)	2	Nos.	9000	18000
B	Sub-total				534524
	Grand total of complete electrical cost (A+B)				4360780

Schedule 3: Electrical portion of works "Bilaspur Division: Provision of new Type-V(SPL) Qrtrs. 05Nos & Type-V Qrtr. 5Nos in Bilaspur Settlement under SrDEN/Settlement/Bilaspur"

SN	Description of Items	Qty.	Unit	Rate	Total
	A: Type-V and Type-V (SPL) quarters (per qrtr)				
1	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm with Aluminium conductor, suitable for rated voltage at 1100 volts grade, as per IS:7098 (Part 1): 1988 latest.	200	Mtrs.	447	89400
2	Laying of cable of lower size (upto 4x35 Sq. mm) in Polythene (HDPE) pipe without digging of earth dressing of land including supply of HDPE pipe & all materials. [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984 : 2016 or relevant IS standard type: coil/straight as per requirement]	90	Mtrs	127	11430
3	Trenching/Digging of earth 1 mtr deep for cable laying	140	Mtrs.	65.00	9100
4	Laying of cable of in GI pipe including supply of all materials	50	Mtrs	279	13950

	(including tG I Pipe & except Cable) With supply of G I pipe dia. 50mm thickness min. 2mm				
5	Laying of cable in open air/concealed in wall with supply of all material	60	Mtrs	32	1920
6	Earthing arrangement				
7	Supply, installation, testing & commissioning of prepaid cum postpaid Three phase Smart Energy Meter Accuracy Class 1.0, rating: 5-60A/10-60A/10-100A, 50Hz with Display Unit conforming to IS-16444 or latest, with Tamper Proof meter box/ enclosures of suitable size, wireless communication modules conforming to IS16444 part1 compatible with GPRS/Cellular including data communication for online energy monitoring /billing system with disconnection/ re-connection through remote location and data export to energy billing system for 2 years and technical support. Configuration & Commissioning with existing system of software for meter data transmission, acquisition & management system for billing application including vending charges, Monthly SIM Charges per meter of Smart Energy Meters for 2 years. The meter shall have suitable provision to consumer token entry locally in case of no WAN/communication scenario and monitoring consumption information through mobile app. Warranty on meter, sim, metering accessories & OEM software: 10years from date of commissioning. Make : Genus/Secure/Lauritz Knudsen E&A (Schneider Electric)/Polaris Make for Meter Box: Make: Sintex, Hensel, Homelite, Schneider Electric or same as meter supplied/OEM make.	3 1	Nos Nos	3428 7929	10284 7929
8	Supply of 4 modular plate complete with 20/16 Amps AC starter, 25/16 Amps socket, 25/16 Amps plugs.	5	Nos	1745	8725
9	Fixing connection & commissioning of above	5	Nos	174	870
10	Supply of TPN vertical Distribution board confirms to IS-13032 DBs are phosphatised and painted with epoxy polyster based powder paint, neutral link, earth terminal & bus- bar double door 4 way (4+12) way	1	Nos	2713	2713
11	Fixing and connection of MCB DB supplied with supply of all material.	1	Nos	34	34
12	Supply of MCB SP 6-32 A capacity.	12	Nos	153	1836
13	Supply of TPN MCB 63 A capacity (C-curve)	1	Nos	1832	1832
14	Supply of 9W LED retrofit lamp B22 holder base with polycarbonate body	4	Nos	141	564
15	Supply of 10W-20W BULKHEAD FITTING with LED & enclosure	4	Nos	1525	6100
16	Supply of ELCB/RCCB 63 amps. 4 pole 300mA sensitivity	1	Nos	4568	4568
17	Fixing/Erection/Commissioning of above ELCB/RCCB 63 amps. 4 pole with all required material	1	Nos	456	456
18	Concealed wiring for the 6 Amps. Light, fan & 5 Amps socket with 1.5 sqmm. FRLS copper wire including supply of all materials	102	Points	664	67728
19	Concealed Wiring for 6-16Amps plug points with PVC Pipe and PVC insulated copper conductor 2.5 sq. mm size with supply of all materials	19	Points	689	13091
20	Concealed Wiring for Sub-circuits	250	Mtrs	208	52000
21	Supply of 36W Led Recessed Luminaire(Panel Light).	15	Nos	1312	19680

	size: 2ftx2ft(approx), colour: 6000K				
22	Supply of LED Recessed Luminaire Round shaped (downlight) wattage: 18W to 24W, colour: 6000K/6500K	30	Nos	980	29400
23	Supply of LED Inverter Batten 20 W 6500 K Tubelight polycarbonate body	3	Nos	796	2388
24	Supply of 20W LED tube light supply voltage 230V 50Hz built in electronic driver	7	Nos	495	3465
25	Supply of Electric Ceiling Fan BLDC Type Sweep Size (mm): 1200, rating: 5star, type of regulator: Electronic/remote	6	Nos	2836	17016
26	Fixing of lights/fans supplied as above with supply of flexible wire to connection the nearest ceiling rose.	87	Nos	50	4350
27	Supply of ding dong type call bell.	1	Nos	495	495
28	Supply of Exhaust fan 300 mm sweep complete with accessories.	4	Nos	1649	6596
29	Supply of TPN MCB 63A flush mounting complete with sheet steel enclosure, powder painted for use as main switch.	1	Nos	2993	2993
30	Fixing and connection of MCB DB supplied as above with supply of all material.	1	Nos	50	50
31	Concealed wiring for 20 Amps plug points with PVC pipe & PVC insulator copper conductor 4 sq mm size with supply of all material.	5	Point	963	4815
32	Supply of ELECTRIC WATER HEATER- GEYSER - Tank Capacity 25 Liter, 5star rated Material of Inner Container: Stainless Steel, Material of Outer Container: ABS, warranty: 3year.	4	Nos	10790	43160
33	Fixing of storage type geyser 25litrs capacity.	4	Nos	637	2548
34	Supply of Mirror/decorative/bracket light 20W	13	Nos	563	7319
	Total (Supply &labour) For 01 unit Ty-V/Ty-V Spl. Qtrs				448805
A	Total (Supply &labour) For 10 Nos Ty-V/Ty-V Spl. Qtrs				4488050
B: Other electrical requirements for settlement area of quarters					
1	Supply of 7 mtrs height hot deep galvanized octagonal pole (single arm)	20	Nos	9253	185060
2	Excavation of earth, provision of Foundation and erection of hot deep galvanized octagonal poles with aluminium& red oxide paint	20	Nos	1581	31620
3	Supply of junction box 300x350x125 mm size material thickness 1.5mm with 1 no. 6A HRC fuse with base and 1 no. TPN terminal block stud type suitable for 25 sqmm cable.	20	Nos	1600	32000
4	Fixing & connection of junction boxes	20	Nos	140	2800
5	Supply of LED street light Luminaries 45W complete with all accessories.	40	Nos	5139	205560
6	Fixing & connection of street light luminaire supplied above.	40	Nos	138	5520
7	Supply of class A MS pipe/MS clamp for clamping the light fitting at suitable design and size.	40	KG	37	1480
8	Trimming of big branches above 15 cm.	20	Nos	342	6840
9	Trimming of small branches dia. Above 5 CM & less than 15 cm.	50	Nos	171	8550
10	Disconnection of existing wiring.	40	Nos	577	23080
11	Construction of Cement Concrete foundation containing cement concrete on the proportion 1:3:6 of cement,sand&ballist size of 40mm.	10	Cum	4232.0	42320
12	Supply of DB containing one TP MCCB 100 Amps as incoming & 2	1	Nos	12147	12147

13	nos 63 Amps. TP MCBs as outgoing complete with neutral bar din rail etc enclosed in a powder painted metallic enclosure				
B	Sub-total	1	Nos	1962	1962
	Grand total of complete electrical cost (A+B)				558939
Schedule 4: Electrical portion of works "Construction of new 14 units Type-IV quarters under jurisdiction of ADEN/Settl-II/BSP in the jurisdiction of SrDEN/Settl./BSP at Bilaspur"					
SN	Description of Items	Qty.	Unit	Rate	Total
	A :Type-IV quarters (per qrtr)				
1	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm with Aluminiumconductor , suitable for rated voltage at 1100 volts grade, as per IS:7098 (Part 1): 1988 latest.	150	Mtrs.	447	67050
2	Laying of cable of lower size (upto 4x35 Sq. mm) in Polythene (HDPE) pipe without digging of earth dressing of land including supply of HDPE pipe & all materials . [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984 : 2016 or relevant IS standard type: coil/straight as per requirement]	40	Mtrs	127	5080
3	Trenching/Digging of earth 1 mtr deep for cable laying.	50	Mtrs.	65.00	3250
4	Laying of cable of in GI pipe including supply of all materials (including t.G.I. Pipe & except Cable). With supply of G.I. pipe dia. 50mm thickness min. 2mm	10	Mtrs	279	2790
5	Laying of cable in open air/concealed in wall with supply of all material.	50	Mtrs.	32	1600
6	Earthing arrangement	2	Nos.	3428	6856
7	Supply, installation, testing & commissioning of prepaid cum postpaid Three phase Smart Energy Meter Accuracy Class 1.0, rating: 5-60A/10-60A/10-100A, 50Hz with Display Unit conforming to IS-16444 or latest, with Tamper Proof meter box/ enclosures of suitable size,wireless communication modules confirming to IS16444 part1 compatible with GPRS/Cellular including data communication for online energy monitoring /billing system with disconnection/ re-connection through remote location and data export to energy billing system for 2 years and technical support. Configuration & Commissioning with existing system of software for meter data transmission, acquisition & management system for billing application including vending charges, Monthly SIM Charges per meter of Smart Energy Meters for 2 years. The meter shall have suitable provision to consumer token entry locally in case of no WAN/communication scenario and monitoring consumption information through mobile app. Warranty on meter,sim, metering accessories & OEM software: 10years from date of commissioning. Make : Genus/Secure/Lauritz Knudsen E&A (Schneider Electric)/Polaris Make for Meter Box: Make: Sintex, Hensel, Homelite, Schneider Electric or same as meter supplied/OEM make.	1	Nos.	7929	7929
8	Plug and socket with mcb 25A metal clad box with metal plug and top	5	Nos	1745	8725
9	Fixing connection & commissioning of above	5	Nos	174	870

10	Supply of SPN Distribution board conforms to IS-13032 DBs are phosphatised and painted with epoxy polyester based powder paint, neutral link, earth terminal & bus-bar single door 8 way.	1	Nos.	1710	1710
11	Supply of Double pole isolator 40Amp	1	Nos.	385	385
12	Supply of MCB SP 6-32 A capacity.	6	Nos.	153	918
13	Fixing, connection & commissioning of DB/bus-bar chamber supplied above.	1	Nos.	34	34
14	Supply of 9W LED retrofit lamp B22 holder base with polycarbonate body.	5	Nos.	141	705
15	Supply of ELCB/RCCB 63 amps, 4 pole 300mA sensitivity	1	Nos.	4568	4568
16	Fixing/Erection/Commissioning of above ELCB/RCCB 63 amps, 4 pole with all required material	1	Nos.	456	456
17	Concealed wiring for the 6 Amps. Light, fan & 5 Amps socket with 1.5 sqmm. FRLS copper wire including supply of all materials	43	Points	664	28552
18	Concealed Wiring for 6-16Amps plug points with PVC Pipe and PVC insulated copper conductor 2.5 sq. mm. size with supply of all materials.	18	Points	689	12402
19	Concealed Wiring for Sub-circuits.	150	Mtrs.	208	31200
20	Supply of LED Inverter Batten 20 W 6500 K Tubelight polycarbonate body	3	Nos.	796	2388
21	Supply of 20W LED tube light supply voltage 230V 50Hz built in electronic driver.	6	Nos.	593	3558
22	Supply of Electric Ceiling Fan BLDC Type Sweep Size (mm): 1200, rating: 5star, type of regulator: Electronic/remote	6	Nos.	2836	17016
23	Fixing of lights/fans supplied as above with supply of flexible wire to connection the nearest ceiling rose.	30	Nos.	37	1110
24	Supply of ding dong type call bell.	2	Nos.	91	182
25	Supply of Exhaust fan 300 mm sweep complete with accessories.	4	Nos.	1649	6596
26	Supply of DP MCB 16 A flush mounting MCB complete with sheet steel enclosure, powder painted for use as main switch.	1	Nos.	229	229
27	Fixing and connection of MCB DB supplied as above with supply of all material.	1	Nos.	31	31
28	Supply of 10W-20W BULKHEAD FITTING with LED & enclosure	2	Nos.	1525	3050
29	Supply of Mirror/decorative/bracket light 20W	13	Nos.	563	7319
30	Supply of ELECTRIC WATER HEATER- GEYSER - Tank Capacity 25 Liter, 5star rated Material of Inner Container: Stainless Steel, Material of Outer Container: ABS, warranty: 3year,	2	Nos.	10790	21580
31	Fixing of storage type geyser 25litrs capacity.	2	Nos.	637	1274
32					
	Total (Supply &labour) For 01 unit Ty-IV Qtrs				249413
A	Total (Supply &labour) For 14 Nos Ty-IV Qtr				3491782
	B:Other electrical requirements for settlement area of quarters				
1	Supply of 7 mtrs height hot deep galvanized octagonal pole (single arm)	15	Nos.	9253	138795
2	Excavation of earth, provision of Foundation and erection of hot deep galvanized octagonal poles with aluminium & red oxide paint	15	Nos.	1581	23715
3	Supply of junction box 300x350x125 mm size material thickness 1.5mm with 1 no. 6A HRC fuse with base and 1 no. TPN terminal	15	Nos.	1600	24000

	block stud type suitable for 25 sqmm cable				
4	Fixing & connection of junction boxes	15	Nos	140	2100
5	Supply of LED street light Luminaries 45W complete with all accessories.	15	Nos	5139	77085
6	Fixing & connection of street light luminaire supplied above.	15	Nos	138	2070
7	Supply of class A MS pipe/MS clamp for clamping the light fitting at suitable design and size.	15	KG	37	555
8	Trimming of big branches above 15 cm.	5	Nos	342	1710
9	Trimming of small branches dia. Above 5 CM & less than 15 cm.	10	Nos	171	1710
10	Disconnection of existing wiring.	2	Nos	577	1154
11	Construction of Cement Concrete foundation containing cement concrete on the proportion 1:3:6 of cement, sand & ballst size of 40mm.	15	Cum	4232.0	63480
12	Supply of outdoor type Feeder pillar panel (for residential quarters distribution) 3 phase, 12 way. Incomer 400A MCCB TPN Outgoing (12+12+12) Nos = 36 Nos 63 A Cam lock fuse, make: Havells/equivalent (12Nos per phase) with busbars of suitable size as per ampere ratings.	2	Nos.	90000	180000
13	Erection & commissioning of Feeder pillar panel (for residential quarters power distribution and other electrical requirements)	2	Nos.	9000	18000
B	Sub-total				534374
	Grand total of complete electrical cost (A+B)				4028130

Schedule 5: Electrical portion of work "Bilaspur Division : Provision of 20 Nos Ty-III Qtrs against replacement account in RTS, Wireless & Loco Colony under SrDEN/Settlement/Bilaspur including boundary wall rain water harvesting and other facilities."

SN	Description of Items	Qty.	Unit	Rate	Total
	A :Type-III quarters (per qtr)				
1	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x16sqmm with Aluminium conductor, suitable for rated voltage at 1100 volts grade, as per IS:7098 (Part 1): 1988 latest.	100	Mtrs.	351	35100
2	Laying of cable of lower size (upto 4x35 Sq. mm) in Polythene (HDPE) pipe without digging of earth dressing of land including supply of HDPE pipe & all materials. [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984 : 2016 or relevant IS standard type: coil/straight as per requirement]	40	Mtrs	127	5080
3	Trenching/Digging of earth 1 mtr deep for cable laying.	40	Mtrs.	65	2600
4	Laying of cable of in GI pipe including supply of all materials (including t.G.I. Pipe & except Cable). With supply of G.I. pipe dia. 50mm thickness min. 2mm	10	Mtrs	279	2790
5	Laying of cable in open air/concealed in wall with supply of all material.	50	Mtrs.	32	1600
6	Earthing arrangement	1	Nos.	3428	3428
7	Supply of electronic KWH meter (energy meter) 5-30 amps AC static 230 volt accuracy class-I	1	Nos.	656	656
8	Fixing, connection & commissioning of above supplied	1	Nos.	141	141
9	Plug and socket with mcb 25A metal clad box with metal plug and	4	Nos	1745	6980

	top				
10	Fixing connection & commissioning of above				
11	Supply of SPN Distribution board conforms to IS-13032 DBs are phosphatised and painted with epoxy polyester based powder paint, neutral link, earth terminal & bus-bar single door 6 way	4	Nos	174	696
12	Supply of Double pole isolator 40Amp	1	Nos	639	639
13	Supply of MCB SP 6-32 A capacity	1	Nos	385	385
14	Fixing, connection & commissioning of DB/bus-bar chamber supplied above	4	Nos	153	612
15	Supply of 9W LED retrofit lamp B22 holder base with polycarbonate body	1	Nos	29	29
16	Supply of ELCB 32 amps, 2 pole 300 MA sensitivity	4	Nos	141	564
17	Fixing of ELCB 32 Amps, 2 pole 300 MA sensitivity	1	Nos	1576	1576
18	Concealed wiring for the 6 Amps, Light, fan & 5 Amps socket with 1.5 sqmm. FRLS copper wire including supply of all materials	1	Nos	140	140
19	Concealed Wiring for 6-16Amps plug points with PVC Pipe and PVC insulated copper conductor 2.5 sq. mm. size with supply of all materials	36	Points	326	11736
20	Concealed Wiring for Sub-circuits	15	Points	430	6450
21	Supply of LED Inverter Batten 20 W 6500 K Tubelight polycarbonate body	150	Mtrs.	162	24300
22	Supply of 20W LED tube light supply voltage 230V 50Hz built in electronic driver	3	Nos	796	2388
23	Supply of Electric Ceiling Fan BLDC Type Sweep Size (mm):1200, rating: 5star, type of regulator: Electronic/remote	2	Nos	593	1186
24	Fixing of lights/fans supplied as above with supply of flexible wire to connection the nearest ceiling rose.	4	Nos	2836	11344
25	Supply of ding dong type call bell.	25	Nos	37	925
26	Supply of Exhaust fan 300 mm sweep complete with accessories.	1	Nos	91	91
27	Supply of DP MCB 16 A flush mounting MCB complete with sheet steel enclosure, powder painted for use as main switch.	3	Nos	1649	4947
28	Fixing and connection of MCB DB supplied as above with supply of all material.	1	Nos	229	229
29	Concealed wiring for 20 Amps plug points with PVC pipe & PVC insulator copper conductor 4 sq mm size with supply of all material.	1	Nos	31	31
30	Supply of ELECTRIC WATER HEATER- GEYSER - Tank Capacity 25 Liter, 5star rated Material of Inner Container: Stainless Steel, Material of Outer Container: ABS, warranty: 3year.	4	Point	963	3852
31	Fixing of storage type geyser 25litrs capacity.	2	Nos	10790	21580
32	Supply of Mirror/decorative/bracket light 20W	2	Nos	637	1274
	Total (Supply &labour) For 01 unit Ty-IV Qtrs	8	Nos	563	4504
					157853
A	Total (Supply &labour) For 20 Nos Ty-III Qtrs				3157060
	B:Other electrical requirements for settlement area of quarters, boundary wall rain water harvesting and other facilities				
1	Supply of Submersible multistage pump capacity 5H.P., 3 phase Pump for 150 mm Dia bore well suitable for head ≥64m, rating: 5star	2	Nos	30478	60956

2	Supply of Submersible openwell pump capacity 5H.P., 3 phase Pump for 300 mm Dia bore well suitable for head $\geq 24\text{m}$, rating: 5star	2	Nos	24800	49600
3	Supply of 5 H.P. SEMI AUTOMATIC STAR DELTA starter panel	4	Nos	6500	26000
4	Installation of pumps supplied	5	Nos	1201	6005
5	Supply of Submersible cable 3 core PVC insulated Flat with copper conductor 4 sq mm size as per details	200	Mtrs	90	18000
6	Supply of PVC insulated Galvanised Steel wire rope 8 mm size as per details	400	Mtrs	228	91200
7	Supply DB containing one TP MCCB 100 Amps as incoming & 2 nos. 63 Amps. TP MCBs as outgoing complete with neutral bar din rail etc enclosed in a powder painted metallic enclosure.	1	Nos	12147	12147
8	Fixing, connection & commissioning of DB supplied as above.	1	Nos	2040	2040
9	Supply of TPN Distribution board conforms to IS-13032 DBs are phosphatised and painted with epoxy polyester based powder paint, neutral link, earth terminal & bus- bar double door 12 way.	2	Nos	2713	5426
10	Fixing and connection of MCB DB supplied with supply of all material.	2	Nos	34	68
11	Supply of MCB SP 6-32 A capacity.	24	Nos	153	3672
12	Supply of TPN MCB 63 A capacity.(C-curve)	2	Nos	1832	3664
13	Supply of 7 mtrs height hot deep galvanized octagonal pole (single arm)	12	Nos	9253	111036
14	Excavation of earth, provision of Foundation and erection of hot deep galvanized octagonal poles with aluminium & red oxide paint	12	Nos	1581	18972
15	Supply of junction box 300x350x125 mm size material thickness 1.5mm with 1 no. 6A HRC fuse with base and 1 no. TPN terminal block stud type suitable for 25 sqmm cable.	12	Nos	1600	19200
16	Fixing & connection of junction boxes	12	Nos	140	1680
17	Supply of LED street light Luminaries 45W complete with all accessories.	24	Nos	5139	123336
18	Fixing & connection of street light luminaire supplied above.	24	Nos	138	3312
19	Supply of class A MS pipe/MS clamp for clamping the light fitting at suitable design and size.	12	KG	37.28	447.36
20	Construction of Cement Concrete foundation containing cement concrete on the proportion 1:3:6 of cement, sand & ballst size of 40mm.	10	Cum	4232.0	42320
21	Supply of DB containing one TP MCCB 100 Amps as incoming & 2 nos 63 Amps. TP MCBs as outgoing complete with neutral bar din rail etc enclosed in a powder painted metallic enclosure	1	Nos	12147	12147
22	Fixing of above DB.	1	Nos	1962	1962
23	Erection & painting of departmentally supplied rail poles (13-8 Mtrs long)	15	MT	2846	42690
24	Cutting of Rail poles	5	Nos	505	2525
25	Transportation of rail pole from PWI godown/way site station to Work site	3	per Trip	18019	54057
26	Supply of Stays & Guys.	6	Nos	445	2670
27	Erection of Stays & Guys	6	Nos	116	696
28	Supply & fixing of C.I. clamp for top earth wire with all accessories like MS flat iron 50X8" size, nut - bolt, washer, reel insulator etc.	12	Nos	191	2292

29	Supply of G.I. wire 8 SWG size.	50	KG	40	2000
30	Drawing of earth wire	50	KG	5	250
31	Supply of LT 5 pin vertical bracket for single circuit including back clamp, nut-bolt and washer.	12	Nos.	1291	15492
32	Fixing of LT 5 pin vertical bracket including back clamp, nut-bolt and washers	12	Nos.	28	336
33	Supply of LT insulator SHACKLE type 90X75 mm.	60	Nos.	102	6120
34	Supply of G.I. Bolt Nut 4.5 inch x 1/2 inch with G.I. washers for fixing of LT insulators.	60	Nos.	289	17340
35	Fixing of SHACKLE type insulator after release of old insulator if required.	60	Nos.	74	4440
36	Supply and fixing of vertical guarding with reel insulator	12	Nos.	150	1800
37	Supply of Aluminium conductor galvanized steel wire 50 sqmm reinforced size 6/3.35 MM ALUMN+1/3.35MM STEEL.	3	KM	37160	111480
38	Drawl of 5conductor LT line using ACSR conductor.	600	MTRS	6.000	3600
39	Supply of LT Pin insulator	60	Nos.	278	16680
40	Erection of LT pin insulator	60	Nos.	27	1620
B	Sub-total				899278
	Grand total of complete electrical cost (A+B)				4056338

SCOPE OF WORK & DETAILED TECHNICAL SPECIFICATIONS

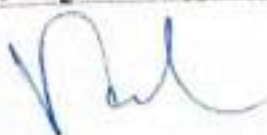
SCHEDULE-1		
Electrical portion of works "Bilaspur Division- Construction of new 14 Units for type-IV Qtr. under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP."		
A: Type-IV quarters (per qtr)		
Item No.	Description of Items	Detailed technical specification/ Scope of work of items appearing in schedule- 1
1	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm with Aluminiumconductor , suitable for rated voltage at 1100 volts grade, as per IS:7098 (Part 1): 1988 latest.	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm with Aluminiumconductor , suitable for rated voltage at 1100 volts grade, as per IS:7098 (Part 1): 1988 latest. Make: Polycab, Havells, KEI, Finolex, RR Kabel, Ultracab, Vishal Cables, or equivalent makes conforming to BIS standards shall be accepted.
2	Laying of cable of lower size (upto 4x35 Sq. mm) in Polythene (HDPE) pipe without digging of earth dressing of land including supply of HDPE pipe & all materials [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984 : 2016 or relevant IS standard type: coil/straight as per requirement]	The cable of lower size upto 4x35 sq.mm (supplied by Railway) shall be laid in cable trenches along the road/track/ yard without digging in all sorts of soil with/without HDPE Pipe including supply of HDPE pipe & all materials. [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984: 2016 or relevant IS standard type: coil/straight as per requirement] as per site conditions requirements. The cable laying shall be done and back filling and properly dressing of land there after laying of cable with cement concrete/ Bitumen properly to the original condition. More than one cable be laid on the same trench if required. The path and type of cable to be laid on that path shall be decided by authorized representative of Sr.DEE/ RS&G/BSP' at site. If anything, get damaged/partially

3	Trenching/Digging of earth 1 mtr deep for cable laying.	<p>damaged the same shall be repaired as far as possible to original by the contractor. Cable shall be supplied by Railway. Cable route marker shall be provided at appropriate distance on cable route by contractor after cable laying.</p> <p>The work consists of Trenching/Digging of earth 1mtr deep for cable laying. The trenching /digging shall be done in all sort of soil as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP. If anything gets damaged/partially damaged during trenching /digging the same shall be repaired as far as possible to original. During course of digging if depth of 1 meter is not feasible due to technical reason then the depth may be reduced & payment will be done on pro rata basis</p>
4	Laying of cable of in GI pipe including supply of all materials (including t.G.I. Pipe & except Cable). With supply of G.I. pipe dia. 50mm thickness min. 2mm	<p>This item includes Laying of cable of in GI pipe including supply of all materials. With supply of G.I. pipe dia. 50mm thickness min. 2 mm. The Cable laying across the road /track/yard should be done minimum one-meter-deep trench only through GI pipe of suitable diameter & wall thickness. Each cable should be laid through separate GI pipe. If any road/platform is cut for trenching, the same shall be restored after laying of cable with cement, bitumen properly to the original condition. GI pipe shall be used. All supporting materials shall be supplied by the contractor except cable. For underground cable laying cable route marker at appropriate distance shall be provided by contractor after cable laying. The work shall be carried out according to relevant IS std. and as per directive of authorized representative of Sr. DEE(RS&G)/BSP. If anything gets damaged/partially damaged the same shall be repaired as far as possible to original. The depth of cable trench may be varying as per site conditions. During course of digging if depth of 1 meter is not feasible due to technical reason then the depth may be reduced & payment will be done on pro rata basis.</p>
5	Laying of cable in open air/concealed in wall with supply of all material.	<p>Laying of cables (supplied by Railway) in open air/ concealed, should be supported with G.I. wire if laid in between two structure (Pole to Pole), such that there should not be any mechanical load on cable. Laying of cable should be supported with proper size of 'U, clamp & nut bolts, 1mtr apart, if laid with support of walls. Laying of cable should be properly supported if laid under MS structure/Shelter etc. Laying of cable in open air consists of terminating it to the DB fixed on a SST Poles/Mast or any other supporting structure with proper lugs and glands. The cable shall be laid through class A GI pipes (supplied by Railway) of 40mm dia. or other size, 3 Mtr./ 2 mm long on the vertical runs over the pole/walls. The cable & the pipe shall be properly clamped to the pole/walls with clamps made out of MS flat iron of 25mm x 5mm and painted to be supplied by the contractor. All materials shall be supplied by the contractor. The work shall be done as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP.</p>
6	Earthing arrangement	<p>Supply & Laying of earth cone with supply of all materials including GI strip. The earth cone supplied shall be fabricated from Class-B. G.I. pipe conforming to IS: 3043 - 1987</p>




		<p>(Reaffirmed 2006) amended up to date or relevant IS standard and as per CEE/GRC drawing No. CEE/A4/P-105. The Earth pipe should have outer dia. 60.2 mm, inner dia. 54.4 mm & thickness 2.9 mm. (aprx.) (Make for GI pipe: SAIL, JINDAL, Surya, TATA, Prakash, PSST or equivalent makes conforming to BIS standards shall be accepted.). The Earth Cone shall be erected as per CEE/GRC' s drawing No. CEE/G/A3/P-134 including supply of all materials. The Earth cone shall be connected by the contractor to the DBs / Poles as described in the erection/installation of the respective materials with GI Strip of size 25 mm x 3 mm (minimum) (or as specified) with hot-dip galvanization of uniform coating. Make for GI strip: SAIL/Jindal/Surya/TATA/Prakash/PSST or equivalent approved make. The location for earth cones shall be indicated by the authorized representative of SR.DEE (RS&G)/ BSP. Earth values after meggering to be written on the earth pit. M.S. Cover plate 3 mm thick/concrete to be provided on earth pit. All joints shall be properly cleaned. The work shall be carried out according to relevant IS std. and as per directive of authorized representative of Sr.DEE(RS&G)/BSP.</p>
7	<p>Supply, installation, testing & commissioning of prepaid cum postpaid Three phase Smart Energy Meter Accuracy Class 1.0, rating: 5-60A/10-60A/10-100A, 50Hz with Display Unit conforming to IS-16444 or latest, with Tamper Proof meter box/ enclosures of suitable size, wireless communication modules conforming to IS16444 part1 compatible with GPRS/Cellular. Configuration & Commissioning with existing system of software for meter data transmission, acquisition & management system for billing application including vending charges, Monthly SIM Charges per meter of Smart Energy Meters for 2 years. Warranty on meter, sim, metering accessories & OEM software: 5years from date of commissioning.</p> <p>Make : Genus/Secure/Lauritz Knudsen E&A (Schneider Electric)/Polaris</p> <p>Make for Meter Box: Make: Sintex, Hensel, Homelite, Schneider Electric or same as meter supplied/OEM make.</p>	<p>Supply, installation, testing & commissioning of prepaid cum postpaid Three phase Smart Energy Meter Accuracy Class 1.0, rating: 5-60A/10-60A/10-100A, 50Hz with Display Unit conforming to IS-16444 or latest, with Tamper Proof meter box/ enclosures of suitable size, wireless communication modules conforming to IS16444 part1 compatible with GPRS/Cellular. Configuration & Commissioning with existing system of software for meter data transmission, acquisition & management system for billing application including vending charges, Monthly SIM Charges per meter of Smart Energy Meters for 2 years. Warranty on meter, sim, metering accessories & OEM software: 5years from date of commissioning with the following specifications:</p> <p>AC three Phase four Wire, Tamper Proof, Static Meter of Class 1.0, -30% to +20% of 230 V, 50 Hz \pm 5%, rating: 5-60A/10-60A/10-100A or above, IP-51 or better, with LED/LCD display. Meter should conform to IS-16444, IS-15959, IS-15884, IS-13779 and relevant IEC standards.</p> <p>Connect-disconnect switch with performance equivalent to UCI or better. Smart meter should have capability of connecting itself with server and the adjacent meter through GPRS/cellular/NBIoT network or equivalent.</p> <p>Meter should have connect / disconnect functionality operable from prepaid billing software.</p> <p>Complete online auto generation of bill remotely using mobile app (Android and IOS) and computer web link.</p> <p>The meter should have in built-in battery for back up of data minimum up-to 1 month. Data storage should be for a minimum period of 12 months.</p> <p>Meter should have provision of local reading in the</p>

		<p>absence of mains. Electric connection should be automatically disconnected as soon as the recharged amount exhaust or the current exceeds the defined load limit (Remote and local de-energization and energization). Buzzer to give alarm in case of low credit/overload.</p> <p>In case of network connectivity failure meter should record reading and send data to the server when network connectivity restore. Meter should have feature of remote re-configuration. Relays to be provided for phase and neutral disconnection. Logging of tamper events and information alerts to the backend system. In case of any tampering information should be sent to the server. Necessary alarm/ indication should be sent to consumer and server before exhausting of recharged amount. Meter should support pre-pay and credit modes.</p> <p>Necessary fixing arrangement/ meter case/ wire/ sealing arrangement should be provided at the time of commissioning by the firm. Mobile app for monitoring payment activation/deactivation to be provided along with meter in free of cost (For both Android and IOS).</p> <p>Make : Genus/Secure/Lauritz Knudsen E&A (Schneider Electric)/Polaris or equivalent makes conforming to BIS standards shall be accepted</p> <p>Make for Meter Box: Make: Sintex, Hensel, Homelite, Schneider Electric or same as meter supplied/OEM make. or equivalent makes conforming to BIS standards shall be accepted</p>
8	AC starter Plug and socket with mcb 25A/16 metal clad/Polycarbonate box with plug and top	Supply of AC starter unit suitable for outdoor/indoor use, comprising 25A/16A, 230V, single-phase industrial type metal clad/polycarbonate plug and socket, complete with 16A/25A SP MCB of reputed make (such as Anchor/Havells/Schneider or equivalent), housed in IP55/IP65 rated weatherproof enclosure, with all necessary accessories, conforming to relevant IS/IEC standards and as per site requirements."
9	Fixing connection & commissioning of above	Installation/fixing of AC starter unit (supplied against item no. 8 of schedule 1A) including mounting on wall/structure, cable termination with glands/lugs, earthing, dressing of wiring, and testing for proper operation, complete as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP
10	Supply of SPN Distribution board confirms to IS-13032 DBs are phosphatised and painted with epoxy polyester based powder paint, neutral link, earth terminal & bus-bar single door 8 way.	Supply of SPN (Single Pole & Neutral) Distribution Board, 8-way, suitable for 240V, single-phase, 50 Hz AC supply, complete with tinned copper busbar, neutral link, and earth terminal. The DB shall be fabricated from CRCA sheet steel, duly phosphatised and finished with epoxy polyester powder coating for corrosion resistance. The enclosure shall be single door type including detachable gland plate,




		and suitable for wall mounting. It shall conform to IS 13032 and relevant IS/IEC standards. Make: – Havells, Anchor, L&T, Sigma, Finolex, Wipro, Schneider Electric, ABB, Legrand, IndoAsian or equivalent makes conforming to BIS standards shall be accepted.
11	Supply of Double pole isolator 40Amp	The price shall cover supply of Double pole isolator 40Amp Conformity of the specification: as per IS/IEC IS/IEC 60947-3 or latest No. of pole: 2 Rated voltage (in Volts): 240 V, AC Rated Current (in Ampere): 40 Instantaneous tripping current type: C Rated Short circuit capacity (in Ampere): 10000 Make: Siemens, Schneider, Havells, GE, Standard, Indoasian, Control & Switchgear, Legrand, HPL, Hager, L&T/ Lauritz Knudsen, ABB, Anchor by Panasonic, Polycab or equivalent makes conforming to BIS standards shall be accepted.
12	Supply of MCB SP 6-32 A capacity.	Supply of Miniature Circuit Breaker (MCB), Single Pole (SP), rated current 6A to 32A, suitable for 240V, single-phase, 50 Hz AC supply, with rated breaking capacity not less than 10 kA at 230V, conforming to IS/IEC 60898-1 (latest). Make: Siemens, Schneider, Havells, Standard, GE, Standard, Indoasian, Control & Switchgear, Legrand, Hager, L&T (Lauritz Knudsen), Sigma, Eaton, ABB or equivalent makes conforming to BIS standards shall be accepted.
13	Fixing, connection & commissioning of DB/bus-bar chamber supplied above.	The DB supplied (against item No: 10 of Schedule 1A) will be fixed with help of fixers supplied by the tenderer. The fixers must be painted with corrosion resistant paint & should have thickness at least 5 mm, & 30 mm wide, suitable length & enough strength to withstand the weight of the DBs for a long period. The nut bolts used for fixing should have 10 mm dia or as per requirement & be strong enough to withstand the load of the DB. The work include termination of the incoming & outgoing cables inside the DB with proper size of lugs supplied & fixed by the contractor. The crimping of lugs must be done using a crimping tool with perfect finish. All the material & labor required to complete the above work shall be supplied by the contractor & as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP
14	Supply of 9W LED retrofit lamp B22 holder base with polycarbonate body.	The price shall cover supply of 9W LED Retrofit Lamp, B22 holder type, rated for 220-240V AC, 50Hz, with polycarbonate diffuser housing and aluminium heat sink, minimum efficacy ≥ 100 lm/W, PF ≥ 0.9 , THD $\leq 20\%$, and average life $\geq 25,000$ burning hours Make – Philips, Osram, Havells, Wipro, Syska, Oreva, Orient, Surya, Halonix or equivalent makes conforming to BIS standards shall be accepted.

15	Supply of ELCB/RCCB 63 amps. 4 pole 300mA sensitivity	<p>The price shall cover supply of RCCB/ELCB (Residual Current Circuit Breaker/Earth Leakage Circuit Breaker), 4 Pole, rated current 63 Amps, suitable for 415V, 3-phase, 50 Hz AC supply, with rated residual current sensitivity of 300 mA, conforming to IS/IEC 61008-1 or (latest). The RCCB shall be of current-operated type, capable of providing protection against earth leakage faults.</p> <p>Make: Siemens, Schneider, Havells, Standard, Crabtree, GE, Indoasian, Control & Switchgear, Legrand, Hager, L&T, Eaton, ABB or equivalent makes conforming to BIS standards shall be accepted.</p>
16	Fixing/Erection/Commissioning of above ELCB/RCCB 63 amps. 4 pole with all required material	<p>The ELCBs/RCCB (supplied against item nos. 15 of schedule-1A) shall be fixed at the location identified by authorized representative of Sr. DEE(RS&G)/BSP by the use of suitable bolts etc. supplied by the contractor. The connection & testing shall be done by contractor. All wires shall be connected with the use of proper lugs and proper connection with earth continuity conductor of 18 SWG PVC copper wire shall be made as per directives of authorized representative of Sr. DEE(RS&G)/BSP.</p>
17	Concealed wiring for the 6 Amps. Light, fan & 5 Amps socket with 1.5 sqmm. FRLS copper wire including supply of all materials	<p>The Concealed wiring for lights & fan, 5Amps socket & 6A plug points shall be through PVC Pipe, heavy type ISI marked of size 20/25/32 mm. The wiring shall be done with PVC insulated stranded copper conductor 1.5 sq. mm 650/1100 volt grade FRLS type ISI marked as per directives of authorized representative of Sr. DEE (RS&G)/BSP. The wiring through walls shall pass through PVC pipes 20/25/32 mm size & heavy type ISI marked. Switch socket and board shall be supplied by the contractor. An earth continuity conductor of 18 SWG PVC copper wire shall be run all along the piping and shall be connected. For convenience, wiring for light & fan points shall be done through common PVC pipe & Earthing should be provided in earth point of 3/5 pin plugpoint.</p> <p><i>Make for PVC pipe- Polycab/Anchor/Finolex/Bajaj/Precision /Richa</i> or equivalent makes conforming to BIS standards shall be accepted.</p> <p><i>Make for Switch/Socket - Havells brands/L&T/ Legrand/Anchor/ ROMA/HPL.</i> or equivalent makes conforming to BIS standards shall be accepted.</p> <p><i>Make for copper</i> or equivalent makes conforming to BIS standards shall be accepted. <i>wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab.</i> or equivalent makes conforming to BIS standards shall be accepted.</p>
18	Concealed Wiring for 6-16Amps plug points with PVC Pipe and PVC insulated copper conductor 2.5 sq. mm. size with supply of all materials	<p>The concealed wiring for 6-16 A plug points, individual or combined switch, socket & fuse shall be through PVC pipe 20/25/32mm size/dia as required. PVC pipe shall be heavy type ISI marked with provision of suitable Tees, bends, elbows, junction boxes as required. The wiring shall be</p>

with PVC insulated stranded individual copper conductor 2.5 sq. mm for one socket, 4 Sq. mm if 2 to 3 sockets, 6 Sq. mm if 4 to 5 sockets in a board. The wires should be 650/1100 volt grade FRLS type of ISI marked with additional properties of FRLS. A separate circuit should be drawn from the main board for the plug point. An earth continuity conductor of 18 SWG PVC copper shall be run from the main board to the plug socket and connected to the earth terminal of the plug socket. Wherever convenient, wiring for light, fan & Plug points shall be done through common pipe. All materials shall be supplied by the contractor.

The work shall be done as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP.

Make for PVC pipe- Polycab/Anchor/Finolex/Bajaj/Precision /Richa or equivalent makes conforming to BIS standards shall be accepted.

Make for Switch/Socket - Havells brands/L&T/ Legrand/Anchor/ ROMA/HPL, or equivalent makes conforming to BIS standards shall be accepted.

Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab, or equivalent makes conforming to BIS standards shall be accepted.

19

Concealed Wiring for Sub-circuits.

The Concealed/Casing capping wiring from main switch boards to distribution switch boards & from one room to another room, from DB supplied & fixed up to the main board is referred to as sub-circuit. The sub-circuits shall be run through Casing capping /PVC Pipe of different size as required. Casing capping /PVC Pipe shall be heavy type ISI marked (Make-

Polycab/Anchor/Finolex/Bajaj/Precision/ Richa or equivalent makes conforming to BIS standards shall be accepted.). The

wiring through walls shall pass through Casing capping /PVC pipes. PVC insulated copper stranded conductor 6.0 sq. mm size, 650 - 1100 volts 7 grade of ISI marked FRLS type shall be used. A number of sub-circuits may be run through one Casing capping /PVC pipe for convenience of wiring. One sub- circuit shall consist of two wires one phase & one neutral. Rate for one meter length of the sub circuit shall be taken 01 meter of phase wire & 01 meter neutral wire. Suitable Tees, bends, elbows, junction boxes etc for both surface & concealed wiring as required shall be supplied & fixed by the contractor. In no case the PVC pipe shall be bend to change the direction of wiring. An earth continuity conductor of 1mm PVC copper wire shall be run along the sub-circuit wires & shall be connected to DBs.

		<p>Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab, or equivalent makes conforming to BIS standards shall be accepted.</p>
20	Supply of LED Inverter Batten 20 W 6500 K Tubelight polycarbonate body	<p>Supply of LED Inverter Batten 20 W, 6500 K (Tube light type) (+/-500 K) with high-efficiency SMD LEDs, polycarbonate body and diffuser, minimum IP65 protection, minimum efficacy ≥ 100 lm/W, CRI ≥ 80, operating voltage 140-270 V AC, with inbuilt rechargeable battery for minimum 3 hours backup during power failure, surge protection ≥ 2.5 kV, power factor ≥ 0.9, THD $\leq 10\%$, complete with mounting accessories. The product shall be BIS/ISI marked and conform to relevant IS standards. Report to be mandatory submitted along with the offer LM 79& Test report in respect of the luminaries test certificates should be from Central Government LAB /NABL/ILAC accredited manufacturer/LAB. LM 80 Test report in respect of the LED used in the offered luminaries should be from Central Government LAB /NABL/ILAC accredited manufacturer/LAB.</p> <p>Make – Philips ,Osram ,Havells ,Wipro, Syska ,Oreva ,Polycab, Orient , Surya, Halonix or equivalent makes conforming to BIS standards shall be accepted.</p>
21	Supply of 20W LED tube light supply voltage 230V 50Hz built in electronic driver.	<p>Supply of 20W LED tube light fittings complete with all accessories. Supply voltage 230V 50Hz built in electronic driver. Detailed technical specification is enclosed as Annexure-I</p> <p>Make – Philips ,Osram ,Havells ,Wipro, Syska ,Oreva ,Polycab, Orient , Surya, Halonix, or equivalent makes conforming to BIS standards shall be accepted.</p>
22	Supply of Electric Ceiling Fan BLDC Type Sweep Size (mm):1200, rating: 5star, type of regulator: Electronic/remote	<p>Supply of Electric Ceiling Fan BLDC Type Sweep Size (mm):1200, rating: 5 star, type of regulator: Electronic/remote, with 5 year warranty.</p> <p>Make: Khaitan, Havells, Crompton Greaves, Usha, Philips ,Halonix,Polycab, bajaj or equivalent makes conforming to BIS standards shall be accepted.</p>
23	Fixing of lights/fans supplied as above with supply of flexible wire to connection the nearest ceiling rose.	<p>The inverter batten,tubelight,ceilingfan,exhaustfan,call bell & other LED light (supplied against item no. 20,21,22,24,29,30 of schedule 1A) shall be fixed at location mentioned by Sr. DEE (RS&G)/ Bilaspur 's authorized representative at site with use of proper size of P.K. screws & PVC sleeves shall be connected to supply through PVC pipe/PVC casing capping wiring piercing across the wall .The fitting shall thus be connected to the nearest ceiling rose by the use of 0.75 sq.mm. FRLS flexible wire The fan regulators shall also be fitted on the switch board. An earth continuity conductor of 18 SWG PVC copper wire shall be run all along the piping and shall be connected to the down rod of the fan. Make for Ceiling</p>

		Rose- Polycab/Anchor/Panasonic/Finolex/ Bajaj / Precision /Richa or equivalent makes conforming to BIS standards shall be accepted . Make for Switch/Socket/modular board- Havells brands/L&T/ Anchor/ Legrand/ ROMA/HPL. Or equivalent makes conforming to BIS standards shall be accepted Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab or equivalent makes conforming to BIS standards shall be accepted
24	Supply of ding dong type call bell.	The ding dong call bell shall be suitable for use with 220 volt ,50 Hz. AC supply , one bell push shall be supplied along with the ding dong bell. Make: Anchor Roma, Legrand, GM Modular,Orient or equivalent makes conforming to BIS standards shall be accepted.
25	Supply of Exhaust fan 300 mm sweep complete with accessories.	Supply of Exhaust Fan non-Capacitor Type Sweep Size (mm):300, No.of pole: 4, Insulation of material class: B or better Make: Khaitan , Havells, Crompton Greaves, Usha, Philips , Polycab or equivalent makes conforming to BIS standards shall be accepted. Warranty period -2 yr
26	Supply of DP MCB 16 A flush mounting MCB complete with sheet steel enclosure , powder painted for use as main switch.	Supply of Miniature Circuit Breaker (MCB) DP 16 Amps penta flush mounting with sheet metal enclosure powder painted for use as main switch with ratings 250 Volts AC 50 Hz with breaking capacity 10 KA as per IS 8828-1996 IEC-60898-1 (To be furnished by manufacturer) having facilities for termination of Aluminum cable, fixing arrangement for mounting on steel/DIN rail. Make: Siemens,Schneider, Havells, Standard, Crabtree, GE, Standard, Indoasian, Control & Switchgear, Legrand, Hager, L&T, Eaton or equivalent makes conforming to BIS standards shall be accepted.
27	Fixing and connection of MCB DB supplied as above with supply of all materail.	The MCB DB supplied (supplied against item no. 26 of Schedule-1A) shall be fixed at the location identified by site engineer by the use by the use of 04 nos. bolts size 100mmx6mm supplied by the contractor. The connection & testing shall be done by contractor. All wires shall be connected with the use of copper lugs & clamping kits.
28	Concealed wiring for 20 Amps plug points with PVC pipe & PVC insulator copper conductor 4 sq mm size with supply of all material.	The concealed wiring for 20A plug points, shall be through PVC pipe of suitable size as required . PVC pipe shall be heavy type ISI marked . The wiring shall be with PVC insulated stranded individual copper conductor 4 sq. mm. The wires should be 650/1100 volt grade FRLS type of ISI marked, conforming to IS-694. A separate circuit should be drawn from the outgoing of a 20Amps F.T. fuse provided on the main board for the plug point. Anearth continuity conductor of 18 SWG PVC copper shall be runfrom the main board to the plug socket and connected to the earth terminal of the plug socket. Suitable Tees, bends, elbows, junctionboxes as required shall be supplied and fixed by the contractor. Wherever required, wiring for light, fan

		<p>& Plug points shall be done through common pipe. All materials shall be supplied by the contractor. In no case the PVC pipe shall be bent to change the direction of wiring. The work shall be done as per the directive of the authorized representative of Sr. DEE (RS&G)/BSP.</p> <p>Make for PVC pipe- Polycab/Anchor/Finolex/Bajaj/Precision/Richa or equivalent makes conforming to BIS standards shall be accepted</p> <p>Make for Switch/Socket - Havells brands/L&T/ Legrand/Anchor/ROMA/HPL or equivalent makes conforming to BIS standards shall be accepted</p> <p>Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab or equivalent makes conforming to BIS standards shall be accepted</p>
29	Supply of 10W-20W BULKHEAD FITTING with LED & enclosure	<p>Supply of 10-20W LED Bulkhead light fitting suitable for 230V AC, 50Hz supply, Power Factor ≥ 0.95, System Efficacy ≥ 100 lm/W, Color Temperature 6500K (+/-500 K), CRI ≥ 80, THD $\leq 10\%$, complete with inbuilt electronic driver, high-efficiency LED module, minimum IP65 protection, polycarbonate housing with opal diffuser, suitable for wall/ceiling mounting, cool white / warm white light as specified, complete with all mounting accessories, conforming to relevant IS standards.</p> <p>Make – Philips, Osram, Havells, Wipro, Oreva, Polycab, Orient, Surya, Halonix, Syska or equivalent makes conforming to BIS standards shall be accepted</p>
30	Supply of Mirror/decorative/bracket light 20W	<p>The cost covers Supply of 20W Mirror / Decorative / Bracket type LED light fitting (as per requirement), Color Temperature 6500K (+/-500 K), System Efficacy ≥ 100 lm/W, Power Factor ≥ 0.95, CRI ≥ 80, THD $\leq 10\%$, Input Voltage 140V-270V AC, 50Hz, with inbuilt electronic driver, high-efficiency LED module, minimum IP20 protection, polycarbonate/metal body, warm white / cool white light as required, complete with all mounting accessories, conforming to relevant IS standards.</p> <p>Make – Philips, Osram, Havells, Wipro, Oreva, Polycab, Orient, Surya, Halonix, Syska or equivalent makes conforming to BIS standards shall be accepted</p>
31	Supply of ELECTRIC WATER HEATER-GEYSER - Tank Capacity 25 Liter, 5star rated Material of Inner Container: Stainless Steel, Material of Outer Container: ABS, warranty: 3year.	<p>The cost covers supply of ELECTRIC WATER HEATER-GEYSER - Tank Capacity 25 Liter, 5star rated Material of Inner Container: Stainless Steel, Material of Outer Container: ABS, warranty: 3year. It should have, thermostat, indicating lamp, thermal cut out, drain plug, provision for vent pipe/pressure relief valve, non return valve & other accessories.</p> <p>Make- Orient, kenstar, Bajaj, Usha, Havells or equivalent makes conforming to BIS standards shall be accepted</p>

32	Fixing of storage type geyser 25litrs capacity	Fixing, installation and connection of 25-litre storage type electric geyser (supplied against item no. 31 of Schedule-1A) including wall mounting with suitable brackets/anchor fasteners, making plumbing and electrical connections with approved materials, testing for proper operation and ensuring leak-free performance, complete in all respects.
----	--	--

B: Other electrical requirements for settlement area of quarters

1	Supply of 7 mtrs height hot deep galvanized octagonal pole (single arm)	The rate includes supply of 7 mtr height hot dip galvanized octagonal pole with single arm bracket as per IS:2629/IS:2633/IS:4759 standards having sheet thickness of 3 MM of make- Vakrangee, Bajaj/ Zenieth/TATA/Arya/Zenco Industrial Corpn/Shah Phylon/Philips orequivalent makes conforming to BIS standards shall be accepted. The single arm bracket of length 1500MM along with spigot shall be hot dip galvanized. The internal and external surface of the pole shall be galvanized with minimum coating thickness of 65 microns. The pole shall have camouflaged junction box having necessary terminal board with compression gland for termination of incoming & outgoing supply cable. The pole shall have approximately top and bottom dia of 70/130 MM respectively and shall also supplied with foundation bolts 04 nos 'J' type of size 20 MM (EN8 grade). Anchor plate shall be of 3MM thickness, base plate of size 220X220X12MM approximate
2	Excavation of earth, provision of Foundation and erection of hot deep galvanized octagonal poles with aluminium& red oxide paint	The price shall cover the cost of transportation of 7 mtr height hot deep galvanized octagonal pole(supplied above) to the work site and casting of concrete foundation for erection of pole with aluminium& red oxide paint. The rate includes excavation of earth pit in any kind of soil and casting of PCC foundation (1000x1000x100 MM) ratio 1:4:8 at the bottom and over which RCC foundation (350x350x1200MM) ratio 1:2:4 shall be done. The top portion of the foundation shall be 300MM above the ground level. The J bolts shall be fixed in the RCC foundation as per the template size of the octagonal pole as per the direction of site in charge. The price shall also include back filling and dressing of earth and debris cleaning after completion of work in all respect.
3	Supply of junction box 300x350x125 mm size material thickness 1.5mm with 1 no. 6A HRC fuse with base and 1 no. TPN terminal block stud type suitable for 25 sqmm cable.	The street light junction box to be supplied shall be made out of 1.5 mm thick CRCA sheet steel powder coated exterior ,with gasket , hinged door with IP-55 protection or better ,mounting plate made of 2mm thick CRCA sheet steel , cable gland plate 2mm thick provided at bottom , with cam type locking arrangement & with brackets for pole mounting . The junction box should contain 1 no. 6A HRC fuse with base and 1 no. TPN terminal block stud type suitable for 25 sq mm cable. The dimension of the DB is 300 mm x350 mm x125 mm (WXHxD).

		The internal wiring shall be done by 2.5 sq-mm FRLS wire.
4	Fixing & connection of junction boxes	The street light junction box (supplied against item no. 3 of schedule-I B) shall be fitted on the street light pole(s) at the place identified by the authorized representative of Sr. DEE(RS&G)/ BSP. The work include connection of incoming & outgoing cables on the terminals of the DB. All materials & labour required for fixing shall be supplied by the contractor. Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab orequivalent makes conforming to BIS standards shall be accepted
5	Supply of LED street light Luminaries 45W complete with all accessories.	Supply of LED street light Luminaries 45W complete with all accessories. Detailed technical specification is enclosed as Annexure- II. Make –Philips ,Osram, Havells,Wipro, Syska, Oreva, Polycab, Orient ,Surya, Halonix, or equivalent makes conforming to BIS standards shall be accepted
6	Fixing & connection of street light luminaire supplied above.	The luminaries (supplied against item No: 5 of schedule-1B) shall be fixed on existing/newly erected Rail poles/SST poles/ wall of service buildings or at place as directed by authorized representative of Sr.DEE(RS&G)/BSP. Connection to the fittings shall be done through 2 core un-armoured 2.5 sq. mm. copper cable or 4 sq. mm aluminium cable drawn from junction boxes or from overhead line as per directives of site engineer. Any other minor items required for execution of above work shall be supplied by the contractor.
7	Supply of class A MS pipe/MS clamp for clamping the light fitting at suitable design and size.	The price shall cover supply of Class A MS pipe of suitable dia. For fixing in street light fittings & Supply of MS clamps size 25mm x 5mm. The quantity of MS pipe of suitable dia. & MS clamps shall be decided by the authorized representative of Sr.DEE (RS&G)/BSPs. The work also includes the fabrication works required for fixing the fittings into poles. After fabrication of pipe & clamps it shall be painted with red oxide primer & Aluminium paint.
8	Trimming of big branches above 15 cm.	Trimming of Big branches above 15 CM Diameter with contractor's labour& tools with sufficient protection not to damage any other railway material. The branches to be cut have to be decided by site engineer. The tree branches to be collected by the contractor & to be deposited at the place identified by the site engineer.
9	Trimming of small branches dia. Above 5 CM & less than 15 cm.	Trimming of small branches diameter Above 5 CM & less than 15 CM with contractor's labour& tools with sufficient protection not to damage any other railway material. The branches to be cut have to be decided by site engineer. The tree branches to be collected by the contractor & to be deposited at the place identified by the site engineer.

10	Disconnection of existing wiring.	The work consists of disconnection and removal of wiring/cable/box etc& handing over the materials to concerned authorized representative of Sr.DEE (RS&G)/BSP. Necessary care should be taken during Disconnection & dismantling work so that the cable may be obtained in its maximum length & in good condition. Boxes, DB shall be removed in such a manner that the usable component may not be damaged.
11	Construction of Cement Concrete foundation containing cement concrete on the proportion 1:3:6 of cement,sand&ballst size of 40mm.	The price shall cover excavation, supply & handling of all materials & accessories temporary arrangement for excavation in hard soil and concrete/masonry drains/walls requiring use of chisel & hammer, shoring where necessary casting concrete including frame work where necessary tamping of concrete, grouting of poles and finishing the top of concrete foundation. The price also includes the dismantling of all connected temporary arrangements, backfilling with earth & compacting the same to required height & width as per directive of authorized representative of SR.DEE (RS&G)/BSP.The authorized representative of SR.DEE (RS&G)/BSP shall certify the use of chisel & hammer if necessary. The price shall be paid on the basis of total volume of the concrete foundation. The depth of excavation shall be measured from the formation level to the maximum excavated point. Cement concrete on the proportion 1:3:6 of cement sand & ballast size of 40mm. The Cement concrete foundations may be for gate support pillars, fencing angle foundations, muffling & concreting of existing structures and foundation for SST pole etc. SST poles/Rail poles as per the directive of the authorized representative of SR.DEE (RS&G)/BSP. The proper curing work shall be done by the contractor. Preferably suitable scroll of PVC pipe or G.I. pipe to be used during foundation casting for pole erection after sufficient time for setting.
12	Supply DB containing one TP MCCB 100 Amps as incoming & 2 nos. 63 Amps. TP MCBs as outgoing complete with neutral bar din rail etc enclosed in a powder painted metallic enclosure.	Supply of DB with enclosure made out of CRCA steel sheet 1.2 mm thick mounting plate made using 2 mm thick CRCA sheet steel, cable gland plate 2 mm thick provided at the bottom , Cam locking arrangement ,Single door, pole mounting bracket supplied separately ,containing one 100 Amps. TP ,MCCB breaking capacity 25 KA as incoming & 2 nos. TP MCB ,63 Amps breaking capacity 10 KA .The DB should have suitable dimension to carry above items. The DB shall contain cable entry holes for cables . The DB shall also contain the cable terminal links, neutral link & earth bar. Make for MCB/MCCB: Siemens, Schneider, Havells, GE, Standard,Indoasian, Control & Switchgear, Legrand, HPL, Hager, L&T or equivalent makes conforming to BIS standards

13	Fixing, connection & commissioning of DB supplied as above.	<p>The DB (supplied under item no. 12 of Schedule-1B) shall be fixed as per directive of authorized representative of Sr.DEE/RS&G/BSP. The incoming cable & outgoing cables shall be connected to the terminals & from the terminals to the incoming of the MCCB/MCBs. The material &labour required for fixing all above items shall be supplied by the contractor. The method of fixing & cable termination shall be done as per the directive of the authorized representative of SR.DEE (RS&G)/BSP.</p> <p>Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab orequivalent makes conforming to BIS standards shall be accepted</p>
14	Supply of outdoor type Feeder pillar panel (for residential quarters distribution) 3 phase, 12 way. Incomer 250A MCCB TPN Outgoing (12+12+12)Nos = 36 Nos 63 A Cam lock fuse , make: Havells/equivalent (12Nos per phase) with busbars of suitable size as per ampere ratings.	<p>Supply of outdoor type Feeder pillar panel (for residential quarters distribution) 3 phase, 12 way. Incomer 250A MCCB TPN Outgoing (12+12+12)Nos = 36 Nos 63 A Cam lock fuse , make: Havells/equivalent (12Nos per phase) with busbars of size 30x6mm or suitable size as per ampere ratings as per the directive of the authorized representative of SR.DEE (RS&G)/BSP.</p> <p>Incomer:</p> <ul style="list-style-type: none"> • 1 No. 250A MCCB TPN (4 Pole). • Breaking capacity minimum 35 kA at 415V AC. • Complete with rotary operating handle and door interlock. <p>Outgoing Feeders</p> <p>The panel shall be provided with: Each outgoing feeder shall consist of: 63A Cam-lock fuse unit complete.Cam-lock fuse units shall be shrouded type suitable for safe operation. Proper phase segregation and labeling shall be provided.</p> <p>Busbars:</p> <ul style="list-style-type: none"> • High conductivity electrolytic grade Copper busbars of size 30x6mm or suitable size as per requirement for 250A rating. • Separate neutral busbar of full size. • Earth busbar extending throughout panel length. • Busbars shall be adequately rated to withstand thermal and short circuit stresses. <p>*Note- Panel dimensions shall be adequate to accommodate all specified components, busbars, cable entries and future maintenance requirements, subject to site conditions and field requirements."</p>
15	Erection & commissioning of Feeder pillar panel (for residential quarters power distribution and other electrical requirements)	Installing, testing and commissioning of weatherproof feeder pillar panel for residential quarters(supplied against item no. 14 of schedule 1B) and allied electrical loads, fabricated from CRCA sheet steel, dust and vermin proof,

complete with incomer/outgoing protection, copper busbars, internal wiring, gland plates, earthing arrangements and all necessary hardware in accordance with relevant IS/IEC standards."

SCHEDULE-2

Electrical portion of works "Bilaspur Division- Const. of 14 Units type-IV Qtr. on replacement account under ADEN/Sett.-I /BSP in the jurisdiction of Sr. DEN/Sett./BSP at BSP.

A: Type-IV quarters (per qtr)

Item No.	Description of Items	Detailed technical specification/ Scope of work of items appearing in schedule- 2
1	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm with Aluminiumconductor , suitable for rated voltage at 1100 volts grade, as per IS:7098 (Part 1): 1988 latest.	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm with Aluminiumconductor , suitable for rated voltage at 1100 volts grade, as per IS:7098 (Part 1): 1988 latest. Make: Polycab, Havells, KEI, Finolex, RR Kabel, Ultracab, Vishal Cables, or equivalent makes conforming to BIS standards shall be accepted.
2	Laying of cable of lower size (upto 4x35 Sq. mm) in Polythene (HDPE) pipe without digging of earth dressing of land including supply of HDPE pipe & all materials [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984 : 2016 or relevant IS standard type: coil/straight as per requirement]	The cable of lower size upto 4x35 sq.mm (supplied by Railway) shall be laid in cable trenches along the road/track/ yard without digging in all sorts of soil with/without HDPE Pipe including supply of HDPE pipe & all materials. [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984: 2016 or relevant IS standard type: coil/straight as per requirement] as per site conditions requirements. The cable laying shall be done and back filling and properly dressing of land there after laying of cable with cement concrete/ Bitumen properly to the original condition. More than one cable be laid on the same trench if required. The path and type of cable to be laid on that path shall be decided by authorized representative of Sr.DEE/ RS&G/BSP' at site. If anything, get damaged/partially damaged the same shall be repaired as far as possible to original by the contractor. Cable shall be supplied by Railway. Cable route marker shall be provided at appropriate distance on cable route by contractor after cable laying.
3	Trenching/Digging of earth 1 mtr deep for cable laying.	The work consists of Trenching/Digging of earth 1mtr deep for cable laying. The trenching /digging shall be done in all sort of soil as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP. If anything gets damaged/partially damaged during trenching /digging the same shall be repaired as far as possible to original. During course of digging if depth of 1 meter is not feasible due to technical reason then the depth may be reduced & payment will be done on pro rata basis
4	Laying of cable of in GI pipe including supply of all materials (including t.G.I. Pipe & except Cable). With supply of G.I. pipe dia. 50mm thickness min. 2mm	This item includes Laying of cable of in GI pipe including supply of all materials. With supply of G.I. pipe dia. 50mm thickness min. 2 mm. The Cable laying across the road /track/yard should be done minimum one-meter-deep trench only through GI pipe of suitable diameter & wall thickness. Each cable should be laid through separate GI pipe. If any road/platform is cut for trenching, the same shall be restored after laying of cable with cement, bitumen properly to the

		original condition. GI pipe shall be used. All supporting materials shall be supplied by the contractor except cable. For underground cable laying cable route marker at appropriate distance shall be provided by contractor after cable laying. The work shall be carried out according to relevant IS std. and as per directive of authorized representative of Sr. DEE(RS&G)/BSP. If anything gets damaged/partially damaged the same shall be repaired as far as possible to original. The depth of cable trench may be varying as per site conditions. During course of digging if depth of 1 meter is not feasible due to technical reason then the depth may be reduced & payment will be done on pro rata basis.
5	Laying of cable in open air/concealed in wall with supply of all material.	Laying of cables (supplied by Railway) in open air/ concealed, should be supported with G.I. wire if laid in between two structure (Pole to Pole), such that there should not be any mechanical load on cable. Laying of cable should be supported with proper size of 'U' clamp & nut bolts, 1mtr apart, if laid with support of walls. Laying of cable should be properly supported if laid under MS structure/Shelter etc. Laying of cable in open air consists of terminating it to the DB fixed on a SST Poles/Mast or any other supporting structure with proper lugs and glands. The cable shall be laid through class A GI pipes (supplied by Railway) of 40mm dia. or other size, 3 Mtr./ 2 mm long on the vertical runs over the pole/walls. The cable & the pipe shall be properly clamped to the pole/walls with clamps made out of MS flat iron of 25mm x 5mm and painted to be supplied by the contractor. All materials shall be supplied by the contractor. The work shall be done as per the directive of the authorized representative of Sr. DEE (RS&G)/BSP.
6	Earthing arrangement	Supply & Laying of earth cone with supply of all materials including GI strip. The earth cone supplied shall be fabricated from Class-B, G.I. pipe conforming to IS: 3043 - 1987 (Reaffirmed 2006) amended up to date or relevant IS standard and as per CEE/GRC drawing No. CEE/A4/P-105. The Earth pipe should have outer dia. 60.2 mm, inner dia. 54.4 mm & thickness 2.9 mm. (aprx.) (Make for GI pipe: SAIL, JINDAL, Surya, TATA, Prakash, PSST or equivalent makes conforming to BIS standards shall be accepted.). The Earth Cone shall be erected as per CEE/GRC's drawing No. CEE/G/A3/P-134 including supply of all materials. The Earth cone shall be connected by the contractor to the DBs / Poles as described in the erection/installation of the respective materials with GI Strip of size 25 mm x 3 mm (minimum) (or as specified) with hot-dip galvanization of uniform coating. Make for GI strip: SAIL/Jindal/Surya/TATA/Prakash/PSST or equivalent approved make. The location for earth cones shall be indicated by the authorized representative of Sr. DEE (RS&G)/ BSP. Earth values after meggering to be written on the earth pit. M.S. Cover plate 3 mm thick/concrete to be provided on earth pit. All joints shall be properly cleaned. The work shall be carried out according to relevant IS std. and as per directive of authorized representative of Sr. DEE(RS&G)/BSP.

Supply, installation, testing & commissioning of prepaid cum postpaid Three phase Smart Energy Meter Accuracy Class 1.0, rating 5-60A/10-60A/10-100A, 50Hz with Display Unit conforming to IS-16444 or latest, with Tamper Proof meter box/ enclosures of suitable size wireless communication modules conforming to IS16444 part1 compatible with GPRS/Cellular. Configuration & Commissioning with existing system of software for meter data transmission, acquisition & management system for billing application including vending charges. Monthly SIM Charges per meter of Smart Energy Meters for 2 years. Warranty on meter, sim, metering accessories & OEM software 5years from date of commissioning.

Make : Genus/Secure/Lauritz Knudsen E&A (Schneider Electric)/Polaris
Make for Meter Box: Make: Sintex, Hensel, Homelite, Schneider Electric or same as meter supplied/OEM make.

Supply, installation, testing & commissioning of prepaid cum postpaid Three phase Smart Energy Meter Accuracy Class 1.0, rating 5-60A/10-60A/10-100A, 50Hz with Display Unit conforming to IS-16444 or latest, with Tamper Proof meter box/ enclosures of suitable size wireless communication modules conforming to IS16444 part1 compatible with GPRS/Cellular. Configuration & Commissioning with existing system of software for meter data transmission, acquisition & management system for billing application including vending charges. Monthly SIM Charges per meter of Smart Energy Meters for 2 years. Warranty on meter, sim, metering accessories & OEM software 5years from date of commissioning with the following specifications:

AC three Phase four Wire, Tamper Proof, Static Meter of Class 1.0, -30% to +20% of 230 V, 50 Hz \pm 5%, rating 5-60A/10-60A/10-100A or above, IP-51 or better, with LED/LCD display. Meter should conform to IS-16444, IS-15959, IS-15884, IS-13779 and relevant IEC standards.

Connect-disconnect switch with performance equivalent to UCI or better. Smart meter should have capability of connecting itself with server and the adjacent meter through GPRS/cellular/NB-IoT network or equivalent.

Meter should have connect / disconnect functionality operable from prepaid billing software.

Complete online auto generation of bill remotely using mobile app (Android and IOS) and computer web link.

The meter should have in built-in battery for back up of data minimum up-to 1 month. Data storage should be for a minimum period of 12 months.

Meter should have provision of local reading in the absence of mains. Electric connection should be automatically disconnected as soon as the recharged amount exhaust or the current exceeds the defined load limit (Remote and local de-energization and energization).

Buzzer to give alarm in case of low credit/overload.

In case of network connectivity failure meter should record reading and send data to the server when network

connectivity restore. Meter should have feature of remote re-configuration. Relays to be provided for phase and

neutral disconnection. Logging of tamper events and information alerts to the backend system. In case of any

tampering information should be sent to the server. Necessary alarm/ indication should be sent to consumer

and server before exhausting of recharged amount. Meter should support pre-pay and credit modes.

Necessary fixing arrangement/ meter case/ wire/ sealing arrangement should be provided at the time of commissioning by the firm. Mobile app for monitoring

		<p>payment activation/deactivation to be provided along with meter in free of cost (For both Android and IOS).</p> <p>Make : Genus/Secure/Lauritz Knudsen E&A (Schneider Electric)/Polaris or equivalent makes conforming to BIS standards shall be accepted</p> <p>Make for Meter Box: Make: Sintex, Hensel, Homelite, Schneider Electric or same as meter supplied/OEM make or equivalent makes conforming to BIS standards shall be accepted</p>
8	AC starter Plug and socket with mcb 25A/16 metal clad/Polycarbonate box with plug and top	Supply of AC starter unit suitable for outdoor/indoor use, comprising 25A/16A, 230V, single-phase industrial type metal clad/polycarbonate plug and socket, complete with 16A/25A SP MCB of reputed make (such as Anchor/Havells/Schneider or equivalent), housed in IP55/IP65 rated weatherproof enclosure, with all necessary accessories, conforming to relevant IS/IEC standards and as per site requirements."
9	Fixing connection & commissioning of above	Installation/fixing of AC starter unit (supplied against item no. 8 of schedule 2A) including mounting on wall/structure, cable termination with glands/lugs, earthing, dressing of wiring, and testing for proper operation, complete as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP
10	Supply of SPN Distribution board confirms to IS-13032 DBs are phosphatised and painted with epoxy polyester based powder paint, neutral link, earth terminal & bus-bar single door 8 way.	<p>Supply of SPN (Single Pole & Neutral) Distribution Board, 8-way, suitable for 240V, single-phase, 50 Hz AC supply, complete with tinned copper busbar, neutral link, and earth terminal. The DB shall be fabricated from CRCA sheet steel, duly phosphatised and finished with epoxy polyester powder coating for corrosion resistance. The enclosure shall be single door type including detachable gland plate, and suitable for wall mounting. It shall conform to IS 13032 and relevant IS/IEC standards.</p> <p>Make: – Havells, Anchor, L&T, Sigma, Finolex, Wipro, Schneider Electric, ABB, Legrand, IndoAsian or equivalent makes conforming to BIS standards shall be accepted.</p>
11	Supply of Double pole isolator 40Amp	<p>The price shall cover supply of Double pole isolator 40Amp Conformity of the specification: as per IS/IEC IS/IEC 60947-3 or latest</p> <p>No. of pole: 2</p> <p>Rated voltage (in Volts): 240 V, AC</p> <p>Rated Current (in Ampere): 40</p> <p>Instantaneous tripping current type: C</p> <p>Rated Short circuit capacity (in Ampere): 10000</p> <p>Make: Siemens, Schneider, Havells, GE, Standard, Indoasian, Control & Switchgear, Legrand, HPL, Hager, L&T/ Lauritz Knudsen, ABB, Anchor by Panasonic, Polycab or equivalent makes conforming to BIS standards shall be accepted.</p>

12	Supply of MCB SP 6-32 A capacity.	<p>Supply of Miniature Circuit Breaker (MCB), Single Pole (SP), rated current 6A to 32A, suitable for 240V, single-phase, 50 Hz AC supply, with rated breaking capacity not less than 10 kA at 230V, conforming to IS/IEC 60898-1 (latest).</p> <p>Make: Siemens, Schneider, Havells, Standard, GE, Standard, Indoasian, Control & Switchgear, Legrand, Hager, L&T (Lauritz Knudsen), Sigma, Eaton, ABB or equivalent makes conforming to BIS standards shall be accepted.</p>
13	Fixing, connection & commissioning of DB/bus-bar chamber supplied above.	<p>The DB supplied (against item No: 10 of Schedule 2A) will be fixed with help of fixers supplied by the tenderer. The fixers must be painted with corrosion resistant paint & should have thickness at least 5 mm, & 30 mm wide, suitable length & enough strength to withstand the weight of the DBs for a long period. The nut bolts used for fixing should have 10 mm dia or as per requirement & be strong enough to withstand the load of the DB. The work include termination of the incoming & outgoing cables inside the DB with proper size of lugs supplied & fixed by the contractor. The crimping of lugs must be done using a crimping tool with perfect finish. All the material & labor required to complete the above work shall be supplied by the contractor & as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP</p>
14	Supply of 9W LED retrofit lamp B22 holder base with polycarbonate body.	<p>The price shall cover supply of 9W LED Retrofit Lamp, B22 holder type, rated for 220-240V AC, 50Hz, with polycarbonate diffuser housing and aluminium heat sink, minimum efficacy ≥ 100 lm/W, PF ≥ 0.9, THD $\leq 20\%$, and average life $\geq 25,000$ burning hours</p> <p>Make - Philips, Osram, Havells, Wipro, Syska, Oreva, Orient, Surya, Halonix or equivalent makes conforming to BIS standards shall be accepted.</p>
15	Supply of ELCB/RCCB 63 amps. 4 pole 300mA sensitivity	<p>The price shall cover supply of RCCB/ELCB (Residual Current Circuit Breaker/Earth Leakage Circuit Breaker), 4 Pole, rated current 63 Amps, suitable for 415V, 3-phase, 50 Hz AC supply, with rated residual current sensitivity of 300 mA, conforming to IS/IEC 61008-1 or (latest). The RCCB shall be of current-operated type, capable of providing protection against earth leakage faults.</p> <p>Make: Siemens, Schneider, Havells, Standard, Crabtree, GE, Indoasian, Control & Switchgear, Legrand, Hager, L&T, Eaton, ABB or equivalent makes conforming to BIS standards shall be accepted.</p>
16	Fixing/Erection/Commissioning of above ELCB/RCCB 63 amps. 4 pole with all required material	<p>The ELCBs/RCCB (supplied against item nos. 15 of schedule-2A) shall be fixed at the location identified by authorized representative of Sr. DEE(RS&G)/BSP by the use of suitable bolts etc. supplied by the contractor. The connection & testing shall be done by contractor. All wires shall be connected with the use of proper lugs and proper</p>

		connection with earth continuity conductor of 18 SWG PVC copper wire shall be made as per directives of authorized representative of Sr.DEE(RS&G)/BSP.
17	Concealed wiring for the 6 Amps. Light, fan & 5 Amps socket with 1.5 sqmm. FRLS copper wire including supply of all materials	<p>The Concealed wiring for lights & fan, 5Amps socket & 6A plug points shall be through PVC Pipe, heavy type ISI marked of size 20/25/32 mm. The wiring shall be done with PVC insulated stranded copper conductor 1.5 sq. mm 650/1100 volt grade FRLS type ISI marked as per directives of authorized representative of Sr.DEE (RS&G)/BSP. The wiring through walls shall pass through PVC pipes 20/25/32 mm size & heavy type ISI marked. Switch socket and board shall be supplied by the contractor. An earth continuity conductor of 18 SWG PVC copper wire shall be run all along the piping and shall be connected. For convenience, wiring for light & fan points shall be done through common PVC pipe & Earthing should be provided in earth point of 3/5 pin plugpoint.</p> <p>Make for PVC pipe- Polycab/Anchor/Finolex/Bajaj/Precision /Richa or equivalent makes conforming to BIS standards shall be accepted.</p> <p>Make for Switch/Socket - Havells brands/L&T/ Legrand/Anchor/ ROMA/HPL. or equivalent makes conforming to BIS standards shall be accepted.</p> <p>Make for copper or equivalent makes conforming to BIS standards shall be accepted. wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab. or equivalent makes conforming to BIS standards shall be accepted.</p>
18	Concealed Wiring for 6-16Amps plug points with PVC Pipe and PVC insulated copper conductor 2.5 sq. mm. size with supply of all materials.	<p>The concealed wiring for 6-16 A plug points, individual or combined switch, socket & fuse shall be through PVC pipe 20/25/32mm size/dia as required . PVC pipe shall be heavy type ISI marked with provision of suitable Tees , bends ,elbows, junction boxes as required . The wiring shall be with PVC insulated stranded individual copper conductor 2.5 sq.mm for one socket, 4 Sq. mm if 2 to 3 sockets, 6 Sq. mm if 4 to 5 sockets in a board. The wires should be 650/1100 volt grade FRLS type of ISI marked with additional properties of FRLS . A separate circuit should be drawn from the main board for the plug point. An earth continuity conductor of 18 SWG PVC copper shall be run from the main board to the plug socket and connected to the earth terminal of the plug socket. Wherever convenient, wiring for light, fan & Plug points shall be done through common pipe. All materials shall be supplied by the contractor.</p> <p>The work shall be done as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP.</p> <p>Make for PVC pipe- Polycab/Anchor/Finolex/Bajaj/Precision /Richa or equivalent makes conforming to BIS standards shall be accepted.</p> <p>Make for Switch/Socket - Havells brands/L&T/ Legrand/</p>

Anchor/ ROMA/HPL, or equivalent makes conforming to BIS standards shall be accepted.

Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab, or equivalent makes conforming to BIS standards shall be accepted.

19	Concealed Wiring for Sub-circuits.	<p>The Concealed/Casing capping wiring from main switch boards to distribution switch boards & from one room to another room, from DB supplied & fixed up to the main board is referred to as sub-circuit. The sub-circuits shall be run through Casing capping /PVC Pipe of different size as required. Casing capping /PVC Pipe shall be heavy type ISI marked (Make- Polycab/Anchor/Finolex/Bajaj/Precision/ Richa or equivalent makes conforming to BIS standards shall be accepted.). The wiring through walls shall pass through Casing capping /PVC pipes. PVC insulated copper stranded conductor 6.0 sq. mm size, 650 – 1100 volts 7 grade of ISI marked FRLS type shall be used. A number of sub-circuits may be run through one Casing capping /PVC pipe for convenience of wiring. One sub- circuit shall consist of two wires one phase & one neutral. Rate for one meter length of the sub circuit shall be taken 01 meter of phase wire & 01 meter neutral wire. Suitable Tees, bends, elbows, junction boxes etc for both surface & concealed wiring as required shall be supplied & fixed by the contractor. In no case the PVC pipe shall be bend to change the direction of wiring. An earth continuity conductor of 1mm PVC copper wire shall be run along the sub-circuit wires & shall be connected to DBs.</p> <p>Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab, or equivalent makes conforming to BIS standards shall be accepted.</p>
----	------------------------------------	---

20	Supply of LED Inverter Batten 20 W 6500 K Tubelight polycarbonate body	<p>Supply of LED Inverter Batten 20 W, 6500 K (Tube light type) (+/-500 K) with high-efficiency SMD LEDs, polycarbonate body and diffuser, minimum IP65 protection, minimum efficacy ≥ 100 lm/W, CRI ≥ 80, operating voltage 140–270 V AC, with inbuilt rechargeable battery for minimum 3 hours backup during power failure, surge protection ≥ 2.5 kV, power factor ≥ 0.9, THD $\leq 10\%$, complete with mounting accessories. The product shall be BIS/ISI marked and conform to relevant IS standards. Report to be mandatory submitted along with the offer LM 79& Test report in respect of the luminaries test certificates should be from Central Government LAB /NABL/ILAC accredited manufacturer/LAB. LM 80 Test report in respect of the LED used in the offered luminaries should be from Central Government LAB /NABL/ILAC accredited</p>
----	--	---

		<p>manufacturer/LAB.</p> <p>Make – Philips ,Osram ,Havells ,Wipro, Syska ,Oreva ,Polycab, Orient , Surya, Halonix or equivalent makes conforming to BIS standards shall be accepted.</p>
21	Supply of 20W LED tube light supply voltage 230V 50Hz built in electronic driver	<p>Supply of 20W LED tube light fittings complete with all accessories. Supply voltage 230V 50Hz built in electronic driver. Detailed technical specification is enclosed as Annexure-I</p> <p>Make – Philips ,Osram ,Havells ,Wipro, Syska ,Oreva ,Polycab, Orient , Surya, Halonix, or equivalent makes conforming to BIS standards shall be accepted.</p>
22	Supply of Electric Ceiling Fan BLDC Type Sweep Size (mm) 1200, rating: 5star, type of regulator: Electronic/remote	<p>Supply of Electric Ceiling Fan BLDC Type Sweep Size (mm):1200, rating: 5 star, type of regulator: Electronic/remote , with 5 year warranty.</p> <p>Make: Khaitan, Havells, Crompton Greaves, Usha, Philips ,Halonix,Polycab, bajaj or equivalent makes conforming to BIS standards shall be accepted.</p>
23	Fixing of lights/fans supplied as above with supply of flexible wire to connection the nearest ceiling rose.	<p>The inverter batten,tubelight,ceilingfan,exhaustfan,call bell & other LED light (supplied against item no. 20,21,22,24,29,30 of schedule 2A) shall be fixed at location mentioned by Sr. DEE (RS&G)/ Bilaspur 's authorized representative at site with use of proper size of P.K. screws & PVC sleeves shall be connected to supply through PVC pipe/PVC casing capping wiring piercing across the wall .The fitting shall thus be connected to the nearest ceiling rose by the use of 0.75 sq.mm. FRLS flexible wire The fan regulators shall also be fitted on the switch board. An earth continuity conductor of 18 SWG PVC copper wire shall be run all along the piping and shall be connected to the down rod of the fan. Make for Ceiling Rose- Polycab/Anchor/Panasonic/Finolex/ Bajaj / Precision /Richa or equivalent makes conforming to BIS standards shall be accepted . Make for Switch/Socket/modular board- Havells brands/L&T/ Anchor/ Legrand/ ROMA/HPL. Or equivalent makes conforming to BIS standards shall be accepted Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab or equivalent makes conforming to BIS standards shall be accepted</p>
24	Supply of ding dong type call bell.	<p>The ding dong call bell shall be suitable for use with 220 volt ,50 Hz. AC supply , one bell push shall be supplied along with the ding dong bell.</p> <p>Make: Anchor Roma, Legrand, GM Modular,Orient or equivalent makes conforming to BIS standards shall be accepted.</p>
25	Supply of Exhaust fan 300 mm sweep complete with accessories.	<p>Supply of Exhaust Fan non-Capacitor Type Sweep Size (mm):300, No.of pole: 4, Insulation of material class: B or better</p> <p>Make:Khaitan , Havells, Crompton Greaves, Usha, Philips , Polycab or equivalent makes conforming to BIS standards shall be accepted.</p> <p>Warranty period -2 yr</p>

26	Supply of DP MCB 16 A flush mounting MCB complete with sheet steel enclosure, powder painted for use as main switch.	Supply of Miniature Circuit Breaker (MCB) DP 16 Amps penta flush mounting with sheet metal enclosure powder painted for use as main switch with ratings 250 Volts AC 50 Hz with breaking capacity 10 KA as per IS 8828-1996 IEC-60898-1 (To be furnished by manufacturer) having facilities for termination of Aluminum cable, fixing arrangement for mounting on steel/DIN rail. Make: Siemens, Schneider, Havells, Standard, Crabtree, GE, Standard, Indoasian, Control & Switchgear, Legrand, Hager, L&T, Eaton or equivalent makes conforming to BIS standards shall be accepted.
27	Fixing and connection of MCB DB supplied as above with supply of all material.	The MCB DB supplied (supplied against item no. 26 of Schedule-2A) shall be fixed at the location identified by site engineer by the use of 04 nos. bolts size 100mmx6mm supplied by the contractor. The connection & testing shall be done by contractor. All wires shall be connected with the use of copper lugs & clamping kits.
28	Concealed wiring for 20 Amps plug points with PVC pipe & PVC insulator copper conductor 4 sq mm size with supply of all material.	The concealed wiring for 20A plug points, shall be through PVC pipe of suitable size as required. PVC pipe shall be heavy type ISI marked. The wiring shall be with PVC insulated stranded individual copper conductor 4 sq. mm. The wires should be 650/1100 volt grade FRLS type of ISI marked, conforming to IS-694. A separate circuit should be drawn from the outgoing of a 20 Amps F.T. fuse provided on the main board for the plug point. An earth continuity conductor of 18 SWG PVC copper shall be run from the main board to the plug socket and connected to the earth terminal of the plug socket. Suitable Tees, bends, elbows, junction boxes as required shall be supplied and fixed by the contractor. Wherever required, wiring for light, fan & Plug points shall be done through common pipe. All materials shall be supplied by the contractor. In no case the PVC pipe shall be bend to change the direction of wiring. The work shall be done as per the directive of the authorized representative of Sr.DEE (RS&G)/BSP. Make for PVC pipe- Polycab/Anchor/Finolex/Bajaj/Precision/Richa or equivalent makes conforming to BIS standards shall be accepted Make for Switch/Socket - Havells brands/L&T/ Legrand/Anchor/ ROMA/HPL orequivalent makes conforming to BIS standards shall be accepted Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab orequivalent makes conforming to BIS standards shall be accepted
29	Supply of 10W-20W BULKHEAD FITTING with LED & enclosure	Supply of 10-20W LED Bulkhead light fitting suitable for 230V AC, 50Hz supply, Power Factor ≥ 0.95 , System Efficacy ≥ 100 lm/W, Color Temperature 6500K(+/-500 K), CRI ≥ 80 , THD $\leq 10\%$, complete with inbuilt electronic driver, high-efficiency LED module, minimum IP65

		<p>protection, polycarbonate housing with opal diffuser, suitable for wall/ceiling mounting, cool white / warm white light as specified, complete with all mounting accessories, conforming to relevant IS standards.</p> <p>Make – Philips ,Osram ,Havells ,Wipro, Oreva ,Polycab, Orient , Surya, Halonix,Syska or equivalent makes conforming to BIS standards shall be accepted</p>
30	Supply of Mirror/decorative/bracket light 20W	<p>The cost covers Supply of 20W Mirror / Decorative / Bracket type LED light fitting(as per requirement) . Color Temperature 6500K(+/-500 K), System Efficacy ≥ 100 lm/W ,Power Factor ≥ 0.95, CRI≥ 80, THD $\leq 10\%$, Input Voltage 140V–270V AC, 50Hz, with inbuilt electronic driver, high-efficiency LED module, minimum IP20 protection, polycarbonate/metal body, warm white / cool white light as required, complete with all mounting accessories, conforming to relevant IS standards.</p> <p>Make – Philips ,Osram ,Havells ,Wipro, Oreva ,Polycab, Orient , Surya, Halonix,Syska or equivalent makes conforming to BIS standards shall be accepted</p>
31	Supply of ELECTRIC WATER HEATER-GEYSER - Tank Capacity 25 Liter, 5star rated Material of Inner Container: Stainless Steel, Material of Outer Container: ABS, warranty: 3year,	<p>The cost covers supply of ELECTRIC WATER HEATER-GEYSER - Tank Capacity 25 Liter, 5star rated Material of Inner Container: Stainless Steel, Material of Outer Container: ABS, warranty: 3year. It should have,thermostat, indicating lamp, thermal cut out, drain plug, provision for vent pipe/pressure relief valve, non return valve & other accessories.</p> <p>Make- Orient, kenstar,Bajaj,Usha,Havells or equivalent makes conforming to BIS standards shall be accepted</p>
32	Fixing of storage type geyser 25litrs capacity.	<p>Fixing, installation and connection of 25-litre storage type electric geyser (supplied against item no. 31 of Schedule-2A)including wall mounting with suitable brackets/anchor fasteners, making plumbing and electrical connections with approved materials, testing for proper operation and ensuring leak-free performance, complete in all respects.</p>
B: Other electrical requirements for settlement area of quarters		
1	Supply of 7 mtrs height hot deep galvanizedoctagonal pole (single arm)	<p>The rate includes supply of 7 mtr height hot dip galvanized octagonal pole with single arm bracket as per IS:2629/IS:2633/IS:4759 standards having sheet thickness of 3 MM of make- Vakrangee, Bajaj/ Zenieth/TATA/Arya/Zenco Industrial Corpn/Shah Phylon/Philips orequivalent makes conforming to BIS standards shall be accepted . The single arm bracket of length 1500MM along with spigot shall be hot dip galvanized. The internal and external surface of the pole shall be galvanized with minimum coating thickness of 65 microns. The pole shall have camouflaged junction box having necessary terminal board with compression gland for</p>

		termination of incoming & outgoing supply cable. The pole shall have approximately top and bottom dia of 70/130 MM respectively and shall also supplied with foundation bolts 04 nos 'J' type of size 20 MM (EN8 grade). Anchor plate shall be of 3MM thickness, base plate of size 220X220X12MM approximate
2	Excavation of earth, provision of Foundation and erection of hot deep galvanized octagonal poles with aluminium& red oxide paint	The price shall cover the cost of transportation of 7 mtr height hot deep galvanized octagonal pole(supplied above) to the work site and casting of concrete foundation for erection of pole with aluminium& red oxide paint. The rate includes excavation of earth pit in any kind of soil and casting of PCC foundation (1000x1000x100 MM) ratio 1:4:8 at the bottom and over which RCC foundation (350x350x1200MM) ratio 1:2:4 shall be done. The top portion of the foundation shall be 300MM above the ground level. The J bolts shall be fixed in the RCC foundation as per the template size of the octagonal pole as per the direction of site in charge. The price shall also include back filling and dressing of earth and debris cleaning after completion of work in all respect.
3	Supply of junction box 300x350x125 mm size material thickness 1.5mm with 1 no. 6A HRC fuse with base and 1 no. TPN terminal block stud type suitable for 25 sqmm cable.	The street light junction box to be supplied shall be made out of 1.5 mm thick CRCA sheet steel powder coated exterior, with gasket, hinged door with IP-55 protection or better, mounting plate made of 2mm thick CRCA sheet steel, cable gland plate 2mm thick provided at bottom, with cam type locking arrangement & with brackets for pole mounting. The junction box should contain 1 no. 6A HRC fuse with base and 1 no. TPN terminal block stud type suitable for 25 sq mm cable. The dimension of the DB is 300 mm x350 mm x125 mm (WXHxD). The internal wiring shall be done by 2.5 sq-mm FRLS wire.
4	Fixing & connection of junction boxes	The street light junction box (supplied against item no. 3 of schedule-2 B) shall be fitted on the street light pole(s) at the place identified by the authorized representative of Sr. DEE(RS&G)/ BSP. The work include connection of incoming & outgoing cables on the terminals of the DB. All materials &labour required for fixing shall be supplied by the contractor. Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab orequivalent makes conforming to BIS standards shall be accepted
5	Supply of LED street light Luminaries 45W complete with all accessories.	Supply of LED street light Luminaries 45W complete with all accessories. Detailed technical specification is enclosed as Annexure- II. Make -Philips ,Osram, Havells,Wipro, Syska, Oreva, Polycab, Orient ,Surya, Halonix, or equivalent makes conforming to BIS standards shall be accepted
6	Fixing & connection of street light luminaire supplied above.	The luminaries (supplied against item No: 5 of schedule-2B) shall be fixed on existing/newly erected Rail poles/SST poles/ wall of service buildings or at place as

		directed by authorized representative of Sr.DEE(RS&G)/BSP. Connection to the fittings shall be done through 2 core un-armoured 2.5 sq. mm. copper cable or 4 sq. mm aluminium cable drawn from junction boxes or from overhead line as per directives of site engineer. Any other minor items required for execution of above work shall be supplied by the contractor.
7	Supply of class A MS pipe/MS clamp for clamping the light fitting at suitable design and size.	The price shall cover supply of Class A MS pipe of suitable dia. For fixing in street light fittings & Supply of MS clamps size 25mm x 5mm. The quantity of MS pipe of suitable dia. & MS clamps shall be decided by the authorized representative of Sr.DEE (RS&G)/BSPs. The work also includes the fabrication works required for fixing the fittings into poles. After fabrication of pipe & clamps it shall be painted with red oxide primer & Aluminium paint.
8	Trimming of big branches above 15 cm.	Trimming of Big branches above 15 CM Diameter with contractor's labour & tools with sufficient protection not to damage any other railway material. The branches to be cut have to be decided by site engineer. The tree branches to be collected by the contractor & to be deposited at the place identified by the site engineer.
9	Trimming of small branches dia. Above 5 CM & less than 15 cm.	Trimming of small branches diameter Above 5 CM & less than 15 CM with contractor's labour & tools with sufficient protection not to damage any other railway material. The branches to be cut have to be decided by site engineer. The tree branches to be collected by the contractor & to be deposited at the place identified by the site engineer.
10	Disconnection of existing wiring.	The work consists of disconnection and removal of wiring/cable/box etc & handing over the materials to concerned authorized representative of Sr.DEE (RS&G)/BSP. Necessary care should be taken during Disconnection & dismantling work so that the cable may be obtained in its maximum length & in good condition. Boxes, DB shall be removed in such a manner that the usable component may not be damaged.
11	Construction of Cement Concrete foundation containing cement concrete on the proportion 1:3:6 of cement, sand & ball size of 40mm.	The price shall cover excavation, supply & handling of all materials & accessories temporary arrangement for excavation in hard soil and concrete/masonry drains/walls requiring use of chisel & hammer, shoring where necessary casting concrete including frame work where necessary tamping of concrete, grouting of poles and finishing the top of concrete foundation. The price also includes the dismantling of all connected temporary arrangements, backfilling with earth & compacting the same to required height & width as per directive of authorized representative of SR.DEE (RS&G)/BSP. The authorized representative of SR.DEE (RS&G)/BSP shall certify the use of chisel & hammer if necessary. The price shall be paid on the basis of total volume of the concrete foundation. The depth of



		excavation shall be measured from the formation level to the maximum excavated point. Cement concrete on the proportion 1:3:6 of cement sand & ballast size of 40mm. The Cement concrete foundations may be for gate support pillars, fencing angle foundations, muffing & concreting of existing structures and foundation for SST pole etc. SST poles/Rail poles as per the directive of the authorized representative of SR.DEE (RS&G)/BSP. The proper curing work shall be done by the contractor. Preferably suitable scroll of PVC pipe or G.I. pipe to be used during foundation casting for pole erection after sufficient time for setting.
12	Supply DB containing one TP MCCB 100 Amps as incoming & 2 nos. 63 Amps TP MCBs as outgoing complete with neutral bar din rail etc enclosed in a powder painted metallic enclosure.	Supply of DB with enclosure made out of CRCA steel sheet 1.2 mm thick mounting plate made using 2 mm thick CRCA sheet steel, cable gland plate 2 mm thick provided at the bottom. Cam locking arrangement, Single door, pole mounting bracket supplied separately, containing one 100 Amps TP MCCB breaking capacity 25 KA as incoming & 2 nos. TP MCB, 63 Amps breaking capacity 10 KA. The DB should have suitable dimension to carry above items. The DB shall contain cable entry holes for cables. The DB shall also contain the cable terminal links, neutral link & earth bar. Make for MCB/MCCB: Siemens, Schneider, Havells, GE, Standard, Indoasian, Control & Switchgear, Legrand, HPL, Hager, L&T or equivalent makes conforming to BIS standards shall be accepted
13	Fixing, connection & commissioning of DB supplied as above.	The DB (supplied under item no. 12 of Schedule-2B) shall be fixed as per directive of authorized representative of Sr.DEE/RS&G/BSP. The incoming cable & outgoing cables shall be connected to the terminals & from the terminals to the incoming of the MCCB/MCBs. The material & labour required for fixing all above items shall be supplied by the contractor. The method of fixing & cable termination shall be done as per the directive of the authorized representative of SR.DEE (RS&G)/BSP. Make for copper wire: Polycab/Havells/KEI/Finolex/RR Kabel/Ultracab or equivalent makes conforming to BIS standards shall be accepted
14	Supply of outdoor type Feeder pillar panel (for residential quarters distribution) 3 phase, 12 way. Incomer 250A MCCB TPN Outgoing (12+12+12)Nos = 36 Nos 63 A Cam lock fuse. make: Havells/equivalent (12Nos per phase) with busbars of suitable size as per ampere ratings.	Supply of outdoor type Feeder pillar panel (for residential quarters distribution) 3 phase, 12 way. Incomer 250A MCCB TPN Outgoing (12+12+12)Nos = 36 Nos 63 A Cam lock fuse. make: Havells/equivalent (12Nos per phase) with busbars of size 30x6mm or suitable size as per ampere ratings as per the directive of the authorized representative of SR.DEE (RS&G)/BSP. Incomer: • 1 No. 250A MCCB TPN (4 Pole).

		<ul style="list-style-type: none"> • Breaking capacity minimum 35 kA at 415V AC. • Complete with rotary operating handle and door interlock. <p>Outgoing Feeders The panel shall be provided with: Each outgoing feeder shall consist of: 63A Cam-lock fuse unit complete. Cam-lock fuse units shall be shrouded type suitable for safe operation. Proper phase segregation and labeling shall be provided.</p> <p>Busbars:</p> <ul style="list-style-type: none"> • High conductivity electrolytic grade Copper busbars of size 30x6mm or suitable size as per requirement for 250A rating. • Separate neutral busbar of full size. • Earth busbar extending throughout panel length. • Busbars shall be adequately rated to withstand thermal and short circuit stresses. <p>*Note- Panel dimensions shall be adequate to accommodate all specified components, busbars, cable entries and future maintenance requirements, subject to site conditions and field requirements."</p>
15	Erection & commissioning of Feeder pillar panel (for residential quarters power distribution and other electrical requirements)	Installing, testing and commissioning of weatherproof feeder pillar panel for residential quarters (supplied against item no. 14 of schedule 2B) and allied electrical loads, fabricated from CRCA sheet steel, dust and vermin proof, complete with incomer/outgoing protection, copper busbars, internal wiring, gland plates, earthing arrangements and all necessary hardware in accordance with relevant IS/IEC standards."

SCHEDULE-3

Electrical portion of works "Bilaspur Division: Provision of new Type-V(SPL) Qrtrs. 05Nos & Type-V Qrtr. 5Nos in Bilaspur Settlement under SrDEN/Settlement/Bilaspur"

A: Type-V and Type-V (SPL) quarters (per qrtr)

Item No.	Description of Items	Detailed technical specification/ Scope of work of items appearing in schedule
1	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm with Aluminiumconductor, suitable for rated voltage at 1100 volts grade, as per IS.7098 (Part 1): 1988 latest.	Supply of Crosslinked Polyethylene Insulated Armoured Cable 4x25sqmm w Aluminiumconductor, suitable for rated voltage at 1100 volts grade, as per IS:71 (Part 1): 1988 latest. Make: Polycab, Havells, KEI, Finolex, RR Kabel, Ultracab, Vishal Cables, equivalent makes conforming to BIS standards shall be accepted.
2	Laying of cable of lower size (upto 4x35 Sq. mm) in Polythene (HDPE) pipe without digging of earth dressing of land including	The cable of lower size upto 4x35 sq.mm (supplied by Railway) shall be laid in ca trenches along the road/track/ yard without digging in all sorts of soil with/with HDPE Pipe including supply of HDPE pipe & all materi [HDPE pipe 50 mm Diameter, PN 6 or above, conforming to IS 4984: 2016 relevant IS standard type: coil/straight as per requirement] as per site condi-