

LETTER OF ACCEPTANCE (LoA)

NO. IRCON/2046/NFR-SRRP/SIG./258/9988

Date: 05/09/2024

MRT Signals Limited,
2, Raja Woodmunt Street,
3rd Floor, Kolkata-700001

Sub: - Supply, Installation, Testing and Commissioning of MACLS including Indoor & Outdoor works at 03 Stations (Riyang, Melli & Rangpo stn) and alteration at 01 Station (Sivok) in Sivok-Rangpo new BG Single Rail line section of APDJ Divn of NF Railway.- **Letter of Acceptance**

- Ref:** 1. NIT No. IRCON/2046/NFR-SRRP/SIG./258 Dtd: 14.06.2024
2. Corrigendum No. 01 dated 04.07.2024.
3. Your Technical bid opened on dtd 13.07.24 and financial bid opened on Dtd. 13.08.24
4. Your forwarding letter no. MRT/TENDER/EI/NFR-SRRP/IRCON/24-25 Dtd. 11.07.24
5. Your email Dtd. 04.09.2024

With reference to above this is to inform you that your quoted offer for the subject work of "Supply, Installation, Testing and Commissioning of MACLS including Indoor & Outdoor works at 03 Stations (Riyang, Melli & Rangpo stn) and alteration at 01 Station (Sivok) in Sivok-Rangpo new BG Single Rail line section of APDJ Divn of NF Railway" has been accepted by Competent Authority at a total cost of Rs. 31,39,93,949.21/- (Rupees Thirty-One crores Thirty-Nine lakhs Ninety-Three thousand Nine hundred Forty-Nine and Twenty-One paise only) inclusive of all statutory taxes & GST @18% and duties as per BOQ enclosed herewith as an **Annexure**. The summary of BOQ accepted by the competent authority is enclosed herewith.

1. SCOPE OF WORK:

The scope of work shall be read as mentioned under Clause No. 02 of Special Conditions of Contract.

2. PAYMENT TERMS:

The payment will be released as per clause no. 27 and 28 of Special Condition of Contract.

3. QUANTITY VARIATION

The quantities of items shown in the Bill of Quantities are approximate and liable to vary during the actual execution of the work. The Contractor shall be bound to carry out and

complete the stipulated work, irrespective of the variations in individual items, specified in the Bill of Quantities. Such variations in quantities shall be paid for in the manner laid down under clause no. 41 and 42 of Indian Railway GCC April 2022 (up to date advance correction slip 06) and as mentioned in the clause no. 21 of SCC of tender document.

4. Taxes and duties:

The quoted rates shall include all the taxes, duties etc. income tax and Trade Tax on works contract shall be deducted from the payments to the contractors as per prevailing tariff for which necessary TDS Certificate shall be issued. The taxes and duties shall be dealt under clause no. 07 of SCC.

5. Completion Period

The work is required to be completed within a continuous period of **18 months** including monsoon period from the date of issue of letter of acceptance as per the clause no. 10 of SCC. The work has to be executed in co-ordination with other agencies working on or near the project.

6. Defect liability period:

Defect liability Period shall be dealt as per clause no. 11 of SCC. The contractor has to maintain, rectify and make good at his own cost any defect / deficiencies, which may develop in the work or as notified by the Engineer during Defect Liability Period of **12 months** from the certified date of completion. However, maintenance during Defect Liability Period shall not include day to day upkeep, cleaning, custody and security of the work. Any defect arising due to defective construction / material / workmanship in any structure(s) during the period(s) specified above and due to causes enumerated above, the contractor shall rectify the same at no extra cost.

7. Insurance:

As per the clause no. 12 of SCC, the agency has to obtain contractors All Risk policy for the works in the joint name of IRCON & agency and other policies to be obtained by the agency as stipulated in tender document.

8. Performance Security & Retention money:

Performance Security & Retention money shall be dealt as per clause no. 13 of SCC.

As per sub-clause no. 13.1 of SCC, **Performance Security of Rs. 1,56,99,698/- (Rupees One Crore Fifty-Six Lakh Ninety Nine Thousand Six Hundred Ninety Eight Only)** [@ 5% of Contract value i.e. Rs. 31,39,93,949.21/- is to be submitted within 21 days from date of issue of Letter of Acceptance.

 05/09/24

9. Contract Agreement:

In terms of clause no. 16 of Special Condition of Contract, you will enter and execute the contract agreement within 28 days from the date of issue of this letter.

10. All the terms & condition will remain same as per tender document. This letter of acceptance along with your submitted offer shall constitute a legal and binding contract between **IRCON International Limited** and **M/s MRT Signal Limited.**, till such time the formal contract agreement is signed.

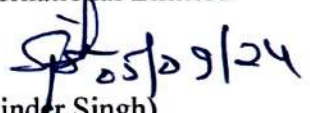
11. Conditions mentioned above in this LOA are a brief reference of the terms of Tender document. Detailed Terms & conditions other than above shall also be as per NIT / Tender document & corrigendum, which shall be an integral part of this contract and shall be binding on you.

Earlier Letter of acceptance issued vide letter no. **NO. IRCON/2046/NFR-SRRP/SIG./258/9960 Dtd: 03.09.2024** stands cancelled and the new letter of acceptance is being sent in duplicate. One copy may please be signed, stamped and returned to this office as a token of your unconditional acceptance.

Thanking You,

Encl: Bill of Quantity (Indoor Sch.- Pages 1 to 8, Outdoor Sch.- Pages 1 to 9)

For & on behalf of
IRCON International Limited


(Mohinder Singh)
Project Director/SRRP

Copy to:

1. CGM/S&T/New Delhi- for kind information please.
2. CGM/PH/Sivok - for kind information please.
3. GM/PH/Sivok-I- for kind information please.
4. GM/Fin/SRRP - for kind information please.

Percentage BoQ

Validate Print Help

Tender Inviting Authority: Chief General Manager/SnT, IRCON International Limited

Name of Work: Supply, installation, testing and commissioning of Multiple Aspect Colour Light Signalling System Including all Indoor and Outdoor works at 03 stations (Riyang, Mail & Rangpo) and alteration at 01 station (Sivok) in Sivok-Rangpo New BG Single Rail Line section of Alipurdwar Division of NF Railway

Contract No: IRCON/2046/NFR-SRRP/SIG/758 Dated 14/06/2024

Name of the Bidder/ Bidding Firm / Company : MRT Signals Limited, 2, Raja Woodmunt Street, 3rd Floor, Kolkata - 700001

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	TEXT #	NUMBER	NUMBER	NUMBER	NUMBER #	TEXT #
Sl. No.	Item Description	Units	Total Cost as per Schedule Without GST in Rs.	GST 18%	TOTAL AMOUNT With GST in Rs.	TOTAL AMOUNT In Words	TEXT #
1	2	4	5	20	6	7	
1.01	Indoor Schedule NON - SOR Schedule - A Supply and Execution of EI and other related works	Lumpsum	67333222.03	12119879.97	79453202.00	INR Seven Crore Ninety Four Lakh Fifty Three Thousand Two Hundred & Two Only	
1.02	Indoor Schedule NON - SOR Schedule - B Supply of Other INDOOR Signalling Works	Lumpsum	12766363.79	2297945.482	15064309.27	INR One Crore Fifty Lakh Sixty Four Thousand Three Hundred & Nine and Paise Twenty Seven Only	
1.03	Indoor Schedule NON - SOR Schedule - C Execution of Other Indoor Signalling Materials	Lumpsum	2803360.20	504604.836	3307965.04	INR Thirty Three Lakh Seven Thousand Nine Hundred & Sixty Five and Paise Four Only	
1.04	Indoor Schedule NON - SOR Schedule - D Supply and Installation of UFSBI	Lumpsum	4529229.07	815261.2326	5344490.30	INR Fifty Three Lakh Forty Four Thousand Four Hundred & Ninety and Paise Thirty Only	
1.05	Indoor Schedule NON - SOR Schedule - E Supply and Installation of Fire alarm system	Lumpsum	3152797.81	567503.6058	3720301.42	INR Thirty Seven Lakh Twenty Thousand Three Hundred & One and Paise Forty Two Only	
1.06	Indoor Schedule NON - SOR Schedule - F Supply and Execution of Predictive Maintenance for S&T assets Items	Lumpsum	10452125.91	1881382.664	12333608.57	INR One Crore Twenty Three Lakh Thirty Three Thousand Five Hundred & Eight and Paise Fifty Seven Only	
1.07	Outdoor Schedule NON - SOR Schedule - A Supply of Outdoor Signalling materials	Lumpsum	101272069.87	18228972.58	119601042.45	INR Eleven Crore Ninety Five Lakh One Thousand & Forty Two and Paise Forty Five Only	
1.08	Outdoor Schedule NON - SOR Schedule - B Execution of Outdoor Signalling Materials	Lumpsum	11636144.67	2094506.041	13730650.71	INR One Crore Thirty Seven Lakh Thirty Thousand Six Hundred & Fifty and Paise Seventy One Only	
1.09	Outdoor Schedule NON - SOR Schedule - C Supply and Installation of MSDAC	Lumpsum	39721576.19	7149883.714	46871459.90	INR Four Crore Sixty Eight Lakh Seventy One Thousand Four Hundred & Fifty Nine and Paise Ninety Only	
Total in Figures					299326929.66	INR Twenty Nine Crore Ninety Three Lakh Twenty Six Thousand Nine Hundred & Twenty Nine and Paise Sixty Six Only	
Quoted Rate in Figures		Excess (+)	4.90%		313993949.21	INR Thirty One Crore Thirty Nine Lakh Ninety Three Thousand Nine Hundred & Forty Nine and Paise Twenty One Only	
Quoted Rate in Words						INR Thirty One Crore Thirty Nine Lakh Ninety Three Thousand Nine Hundred & Forty Nine and Paise Twenty One Only	

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Bill of Quantity (BoQ)

Name of Work: Supply, Installation, testing and commissioning of Multiple Aspect Colour Light Signalling System including all Indoor works at 03 stations (Riyang, Meli & Rangpo) and alteration at 01 station (Sivok) in Sivok-Rangpo New BG Single Rail Line section of Alipurduar Division of NF Railway.

Sl. No.	Description	Quantity	Unit	Rate (Excl. GST)	Amount (Excl. GST)
Indoor Schedule A-Supply and Execution of EI and other related works					
1	Description:- Design, manufacture and supply of Electronic interlocking hot standby suitable for 25 KV RE Area system complete as per Special condition of contract and technical specifications enclosed mainly consisting of micro-processor equipments, interface equipments, PC based operator's console with DUAL (MAIN+STANDBY)VDU(minimum 42" Size), rack, relays, interlocking cables, maintenance terminals for EI (42" for all station 03 Locations), Power supply equipments racks, fixture mounting arrangement and accessories necessary to make the system functional for following stations as per RDSO Specification RDSO/SPN/192/2019 Ver.2.0 or latest:- (i) Riyang (Centralised) - 162 Functions (ii) Melli (Centralised) - 162 Functions & (iii) Rangpo (Centralised) - 262 Functions (iv) Sivok (Centralised) = 95 Functions (Alteration) [Per Unit Means Per Function] This item also includes Supply of essential spares (Consisting of 10 % of the Input Cards, Output cards, PSU Card, CPU Card, DC-DC converter of each Type, VDU with Industrial Grade PC of all Type/Size(Operator +Maintenance VDU), Relay Rack, fuses of each Type, all type of Relays subject to minimum one). Spares will be calculated as per the Total actual Hardware supplied as above against this item. The above components of spares are compulsory against this item. If any other material certified by OEM as Essential Spare other than above, then the same will be supplied free of cost by the contractor. NOTE: 1. Successful Bidder has to give breakup of E.I Cards/Modules Station-wise duly certified by OEM at the time of undertaking from RDSO Approved EI OEM. Also he has to submit Rate of each E.I Cards/Modules as above for part Payment Purpose. 2. The Tenders cater for functions as stated in Qty column. In case of decrease of function, the Contractor will be Paid fully for	681.00	Per function	75024.31	51091552.93
2	Description:- PC based portable workstation for data input and configuration, simulation and functional testing, diagnostic and troubleshooting and commissioning of SSI system.	3.00	System	150285.79	450857.38
3	Description:- "Supply, installation and commissioning of suitable test jigs, fixture and simulation system for testing, configuration checking, validation, trouble shooting of EI cards etc at suitable location as directed by Engineer In-Charge. NOTE: It should be compatible with above supplied EI equipment."	2.00	System	1108921.44	2217842.87
4	Description:- COMPLETION DOCUMENTS/DRAWINGS: Supply of completion documents/drawings (six sets of hard copies along with soft copy in pen-drive for each station) and also includes supply (in A3 size) and fixing of laminated maintenance flowchart, Do's & Don't and Bit Chart (in Relay room and Maintenance room or as per instruction of site in charge). In phased commissioning, completion documents should be supplied for each phase and shall also be paid for each phase Completion documents / drawings. Completion documents, to be supplied, has been enlisted in Technical Specification - Completion documents (hard copy in 6 sets along with soft copy).	4.00	Station	27392.29	109569.16
5	Description:- Supply of insulated Tools kits and measuring instruments for testing, maintenance and repair at site, as per Technical Specification.	4.00	Set	155054.06	620216.23
6	Description:- Installation, testing and commissioning of EI equipments supplied as per items no.1 of Schedule A, as per RDSO Specifications RDSO/SPN/192/2019 ver 2.0 or latest. NOTE: 1. Relay Test Jigs to be provided in Relay Room for 24 V (DC) ,50 V (DC) & 110 V (AC) separately. 2. All 24 Fibers to be spliced for VDU and sufficient number of spare patch cords to be made available. 3. Ladders having minimum width 200 mm and iron angle of size 25mmX25mm with Grey Sigma Coating to be supplied by contractor. 4. Close slotted duct of Blue colour or any other as instructed along with other accessories (end cap, T-bend etc) to draw flexible cables, wires, power cable etc to be supplied by contractor. " NOTE: In case of Phased Commissioning of a Station, this item will be paid extra for each Phase.This also includes the redesigning, Rewiring and testing Including FAT & SAT for alteration of EI at Sivok station.	4.00	Station	627330.51	2509322.02
7	Description:- Addition and alteration to EI in cases of phased commissioning of stations including design, installation, testing and commissioning of EI equipments- includes addition/altertion to data logger wiring. (For Sivok Station)	1.00	Station	321532.79	321532.79
8	Description:- "Earthing (Ring earth with minimum Ten earth Electrodes) of Electronic Interlocking Equipment as per RDSO's drawing (enclosed herewith) along with supply of all required materials. Painting of earthing diagram as replica of the ground on backside wall of relay room and if not possible on wall then a board to be provided dipalying earthing arrangement, as per the instruction of Site In charge. NOTE: Materials used for earthing to be inspected by Railway representative before use. " [Refer Technical Specification for additional details]"	3.00	Numbers	525549.05	1576647.14
9	Description:- Training on EI system at Site / Field / HQ office of CSTE (Construction) MLG: for Technician, Supervisors & Officers. [Refer Technical Specification for additional details]	4.00	Man-Month	80434.61	321738.45

10	Supply of SMPS based Integrated Power supply system including supply of 110 volt /300AH Low Maintenance Lead Acid (LMLA) stationary Battery for S&T installation as per IRS: S/88/2004 and with SMPS Charger as per RDSO Specification Nos. RDSO/SPN/165/2012 with latest ammendments, Remote indication panel, 05 Nos spare battery and spares with tool kits as per RDSO list. Tentative drawing of IPS is attached with the tender documents but current / voltage rating of different modules may change as per actual load requirement and NFR practice. NFR PO No. 04225042100368 Dt. 09/08/2022 including freight @ 75000 Per Unit	3.00	Numbers	1576994.92	4730984.75
11	Description: Supply of High Availability single section digital axle counter (HASSDAC) system with dual track sensor devices (Relays, Surge protection devices, clamping and mounting arrangement, cable and other accessories) conforming to RDSO Specification No. RDSO/SPN/177/2012 (Ver-3) or latest guidelines by RDSO letter No TE/E/SE/Digital/Genl. Dt. 27.08.2011. Dual redundant should be done as per dual track sensor input fed to different channel of HASSDAC as per latest guideline issued by RDSO for the same.	3.00	Set	943075.42	2829226.27
12	TX Coil for digital Axle counter as per Spec No. RDSO/SPN/177/2012 Ver-3 or latest	6.00	No.	37996.98	227981.90
13	RX Coil for digital Axle counter as per Spec No. RDSO/SPN/177/2012 Ver-3 or latest	6.00	No.	37996.98	227981.90
14	door	1.00	Set	97768.24	97768.24
	Total of Indoor Schedule A.				6,73,33,222.03
Indoor Schedule B-Supply of Other INDOOR Signalling Works					
1	Description:- Supply and installation of ISI marked Anti Electrostatic mat of standard size having 2 mm in thickness Blue colour or any other colour as per instruction.	900.00	Square Foot	151.65	136485.31
2	Description:- "Supply of Optical Fiber Distribution Management System for 24 Core OFC suitable for termination of 01 nos 24 fibres. Make: Commscope or superior."	8.00	Numbers	7863.82	62910.54
3	Description:- Supply of 6U rack (wall mounted type) 19 inch nominal.	8.00	Numbers	3416.75	27334.03
4	Description:- Supply of Class B and C Surge Protection Device suitable for 230 V for single phase power supply as per RDSO Specification No. RDSO/SPN/165/2012 Ver 3.0 or latest. Make: Phoneix,OBO or similar.	8.00	Numbers	15332.46	122659.68
5	Description:- Supply of Key locked rotary relay (KLCR) working on 24V DC as per latest RDSO Spec. RDSO/SPN/219/2016 Ver 1.0 with Amendment-1 or latest	20.00	Numbers	10638.37	212767.44
6	Description:- "Supply and installation of KLCR box as per the design approved by engineer in-charge. with locking arrangement & front glass cover. All the materials required shall be supplied by the contractor. NOTE: All boxes essential to commissioning of EI system should be of teakwood or superior quality, as directed by Engineer in charge."	18.00	Numbers	3678.03	66204.46
7	Description:- "Supply, installation of glass fronted key box/crank handle lock up box as per Technical Specification. NOTE: All boxes essential to commissioning of EI system should be of teakwood or superior quality, as directed by Engineer in charge"	3.00	Numbers	2213.66	6640.97
8	Description:- Supply Program switches, snap action, base mounting type along with cover and mounting bracket 63A - 9 pole (packet) 3 position, make: Siemens or similar.	8.00	Numbers	6246.95	49975.60
9	Description:- Distilled Water Plant complete with accessories, wall mounting, heating element type with stainless steel body, capacity 4-5 litre/hr, rating 3-4 KW.	2.00	Numbers	12946.17	25892.33
10	Description:- Eco Fire Co2 Type Fire Extinguisher 4.5KG	21.00	Numbers	8053.57	169124.94
11	Description:- Supply of Active lightning arrestor of Class A for building protection as per Standard NFC 17-102, It shall work on Early Streamer Emission principle and shall be made of Stainless Steel with a Delta(T) of 60 micro Sec. Along with non resettable type counter to count the number of lightning occurrences. The dimensions of the device shall be 590mm x 120mm. [Refer Technical Specification for additional details]	3.00	Numbers	95547.45	286642.34
12	Description:- Supply of Door proximity switches along with 2 way rigid connector for wire termination between proximity switches and dataloger tagblocks as per specification.	3.00	Numbers	707.85	2123.54
13	Description:- Supply & laying of 25 X 3 mm pure electrolytic copper tape through suitable class B G.I pipe for loop earthing and bonding as per site requirement	200.00	Metre	482.20	96440.40
14	Description:- Supply of a set of complete Earthing (Tripod type) and Bonding system as per RDSO Specification No. RDSO/SPN/197/2016 Ver.1.0 or latest consisting of earth pit, mainly consisting of Copper bonded Steel earth electrode of minimum 3.0 meter length, 17 mm diameter with copper strip of 150 mm x 25 mm x 6 mm exothermically welded to earth electrode as per drawing No. SDO/RDSO/E&B/001 or latest, with set of stainless steel nut & bolts for earth cable connection and Earth enhancement compound of RDSO approved brand supplied in sealed bag of minimum 10kg.	15.00	Set	46443.62	696654.31

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15	Description:- Supply of paints, primers, varnish and other painting material, complete painting and varnishing, lettering, numbering of all signaling gears, including signal posts and fittings, apparatus cases, point machines, junction boxes, signal machine, rail post, other gears etc. complete at a station/mid section gates/huts, letter writing on terminal Nos. apparatus cases, point machine, Signal Nos. and other details as per S.E.M., Instructions of Engineer at site and as per Technical specifications. (I) 3 line to 5 line station/yard/Junction Cabin.	3.50	Station	61281.12	214483.92
16	Description:- DRAWING: Design, Preparation and supply of AS PLANNED AND AS LAID Outdoor signaling documents in AUTOCAD (5 Sets each) for installations as per details and schedule inclusive of Location Huts and Location Boxes.[Refer Technical Specification for additional details]	3.50	Station	63164.17	221074.59
17	Description:- Supply of PVC insulated Railway signaling Indoor 60 core x 0.6 mm cables as per IRS-S-76/89 amendment II or with latest amendment/ specs.	3.00	Kilometre	91079.03	273237.09
18	Description:- Supply of PVC insulated Railway signaling Indoor 40 core x 0.6 mm cables as per IRS-S-76/89 amendment II or with latest amendment/ specs. Accepted Rate vide CA No. SCA-3 Dtd. 24.01.2019 of CA No. Dy.CSTE/CON/NJP/2014/02/EI(Indoor) JPE-NMX dt. 30.09.2014, SCH.-B, Item No.-02	3.00	Kilometre	77825.18	233475.55
19	Description:- Supply of 1" PVC conduit pipe / Casing capping superior quality with ISI mark including Laying and drawing of communication cable /power cable along with 1" PVC pipe/casing capping under the platform shed, on wall, roof as per instruction of site in-charge. All consumable materials like clamp, screw, angular portion etc. are to be supplied by the contractor.	200.00	Metre	36.75	7350.87
20	Description:- Supply and installation of Workspace new Modular(Make Pyrotech Workspace or superior/similar) control desk for 2 monitors (42"/56"), 2 operators and 1 module will be provided for storage make in SLAT System this includes space for housing 2 Nos. embedded PC, two FDMS & their power supply arrangement with proper ventilation. Two chairs of make Methodex/Zuari/Godrej Model PCH-7002 or better for operators to be supplied. [Refer Technical Specification for additional details]	3.00	Numbers	515815.29	1547445.88
21	Please see Break up Details :- Description:- Supply of Power wire (Copper, Multi strand) PVC Insulated unsheathed single core bright annealed bare copper conductor flexible cable for voltage grade up to 1100V conforming to IS 2465/1984 & IS:694/1990 or latest	1		865975.66	865975.66
22	Description:- Supply of 16/0.2 mm size tinned flexible single core indoor wire to IRS-S-76/89, PVC coated in different colours as per site requirement and to be supplied in coils of 100 meters. (Per Unit means Coil of 100 Mtr).	500.00	Coil	718.79	359394.44
23	Description:- Supply and filling of High Speed Diesel Oil in signaling DG Sets at Station for Operation of DG Set.	15000.00	Litre	70.26	1053925.93
24	Description:- Diesel Generator - Air cooled silent genset - 230 V/50Hz/ 15 KVA Single Phase, with minimum of 20 BHP (Approx) diesel engine along with acoustic proof enclosure with panel & push button start assembly, rotary switch 100 A [4] pole 4 way, L&T make or superior, remote operation panel, Kirloskar make engine / alternator, low maintenance battery of 12V/80AH [as per IRS-S-88/2004 or latest, of Standard/ Exide/UBMEL / Amco make] with hour meter and voltmeter assembly, push button starting arrangement (to be provided in ASM office or as directed by Engineer-in charge) - Original Manufacturers' certificate to be submitted as per IRS-S-69/86 or latest	6.00	Set	307807.18	1846843.07
25	Description:- Supply of Battery charger self-regulating type 230V AC/12V DC, 10 Amps. as per IRS : S-86/2000 with Amdt.-4 or latest.	6.00	Nos.	12351.10	74106.58
26	Description:- Supply of signaling Circuit Fuse Blowing Audio Visual Alarm System as per RDSO Spec RDSO/SPN/209/2012 (VER.2) or latest for relay room fuses of 4 to 16 Amp capacity for point machine operation with standby fuse having automatic switching over complete set and each set consisting of electronic circuit to monitor the fuses of various voltages and current provided for various signaling functions, Audio Visual alarm monitoring system to indicate blowing of fuses, standby fuse of 10 Amp capacity or of lower capacity depending upon type of fuse and automatic changeover system to switchover system to switchover the load of the blown fuse to the standby fuse and terminal strips of approved type for terminating wire from signaling fuse to the fuse Alarm system, all equipment housed in a adequate size M.S. enclosure of approved type and configured in number of rows as per site requirement of station. (Per Unit means Set of each Fuse).	40.00	Set	1949.71	77988.30

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27	Description:- Supply of Fuse Blowing Alarm System as per RDSO Spec RDSO/SPN/209/2012 (Rev.1) or latest for relay room fuses 0.6 Amp to 4 Amp capacity, with standby fuse having automatic switching over complete set and each set consisting of electronic circuit to monitor the fuses of various voltages and currents provided for various signaling functions, Audio Visual alarm monitoring system to indicate blowing of fuses, standby G type fuse of 1.6 Amp capacity or of lower capacity depending upon type of fuses and automatic changeover system to switchover the load of the blown fuse to the standby fuse and terminal strips of approved type for terminating wire from signaling fuse to the fuse alarm system, all equipments housed in a adequate size M.S. enclosure of approved type and configured in number of rows as per site requirement of each station. (Per Unit means Set of each fuse).	400.00	Set	1518.11	607244.44
28	Description:- Supply of Extension Unit for Fuse Blowing Audio Visual Alarm System in ASM Room.	3.00	Nos.	6974.01	20922.02
29	Description:- Supply of (NDT) Non deteriorating non indicating type fuse 16 A along with base as per specification IRS(S)-78/92 with latest amendments.	40.00	Nos.	211.85	8474.17
30	Description:- Supply of Non deteriorating non indicating type fuse 6A along with base as per specification IRS(S)-78/92 with latest amendments.	60.00	Nos.	192.28	11536.64
31	Description:- Supply of (NDT) Non Deteriorating type low voltage cylindrical head cartridge fuse 2A along with base as per Specification No IRS/S/78/92 with latest amendments along with PPTC fuse.	60.00	Nos.	99.73	5983.81
32	Description:- Fuse Block made of PBT/POLYCARBONATE as per IRS:S-75/2006 or latest & RDSO Drg No SA- 23748 Alt-4 suitable for Cartridge fuse block cylindrical head fuse links.	180.00	Nos.	105.89	19060.47
33	Description:- Supply of Earth Leakage Detector comprising of 4 (four) channels: 2 channel 110VAC and channel 24/60V DC as per RDSO specification No.RDSO/SPN/256/2002 or latest.	12.00	Nos.	60638.57	727662.87
34	Description:- Supply and installation of Fault Diagnostic Software as per specifications No IRS 99/2006 (Amdt-3) latest amendment specification with monitoring unit consisting of a PC as per technical specifications along with supply of min 750 VA UPS for 1/2 Hr and PC table and a revolving chair of approved make.	3.00	Set	124644.96	373934.87
35	Description:- Microprocessor based networked data logger system as per RDSO spec. no. IRS S-99/2001 with latest amendment with 512 digital and 32 analog inputs including in built 64 Kbps leased line modem with Opto converter box and printer Laser printer for printing of Data logger reports. Make: HP or similar.	3.00	Set	446086.05	1338258.16
36	Description:- Laser printer for printing of Data logger reports. Make: HP or similar.	3.00	Nos.	9744.93	29234.80
37	Description:- Supply of Protocol Converter interface with EI	3.00	Nos.	77652.61	232957.83
38	Description:- "Tag block 200 way/160 way with PVC covers as per (IRS:S-77/91 or latest & Drg.no.SA-24751 & 52. Requirement of each type shall be specified by Engineer-in-charge. NOTE: In case tag block with less way like 100/96 way, block quantity shall be proportionately increased and proportionate payment will be made."	14.00	Nos.	1615.51	22617.18
39	Description:- Supply of Dual modem E1 card	4.00	Nos.	51800.85	207203.39
40	Description:- Provision of work station including safety seating arrangement at Maintainer room of Godrej/Reputed make, as directed by Engineer in-charge. NOTE :- It includes i) Seating arrangement for Electrical Signal Maintainer ornate red & black chair of Supreme /Godrej/ZUARI make. - 02 Nos. ii) Writing Desk for ESM for writing of Records, Parameters, Drawing etc. Godrej model T9 or Similar type in ZUARI/ONAMA - 01 Nos.. Workstation equipment should be able to cater for terminals as well printers of both centralized EI and Data logger	6.00	Nos.	43878.60	263271.60
41	Description:- Supply of Metallic Shelf arrangement to keep the safety related Document by ESM in filed. Model Godrej Slimline 4S WDXH 900X507X1950 mm or better. For keeping tools, documents, spares, drawings etc.	9.00	Nos.	17871.53	160843.76
	Total of Indoor Schedule B				1,27,66,363.79
Indoor Schedule C-Execution of Other Indoor Signalling Materials					
1	Description:- Installation of Key Transmitter rotary type/KLCR and its wiring, etc. [Refer Technical Specification for additional details]	18.00	Numbers	931.16	16760.84
2	Description:- Installation and wiring of Power Supply arrangement including laddering and drawing of wires etc. as per Technical Specification. Note:-All IPS related works, except installation of IPS, is to be carried out, as per directions of Engineer in Charge and ladders to be supplied by contractor having minimum width 200mm and iron angle shall be 25mmX25mm with Grey Sigma Coating. Ring Arrangement for 110V & 24V and other supplies be provided, as per directions of Engineer in Charge. Close slotted duct of Blue colour or any other as instructed along with other accessories (end cap, T-bend etc) to draw flexible cables, wires, power cable etc to be supplied by contractor. All these wirings will conform to latest guidelines by RDSO as specified in Technical Specification.	3.00	Station	56940.28	170820.85
3	Description:- Installation and wiring of DG set in the Generator room, with push button starting and stopping arrangement including change-over switches in ASM's room respectively and preparation of installation/wiring drawings as per Technical specifications. (Per unit means Per DG set)	6.00	Per Unit	9711.23	58267.37

4	Description:- Installation of Battery charger 230VAC/12VDC near DG control panel, in the Generator room, fixing wiring with contractors' own material. (Per Unit means Per DG set).	6.00	Per Unit	1673.52	10041.11
5	Description:- Fortnightly preventive Upkeep of diesel generators including replacement of lube oil 1 Litre in each generator fortnightly, Cleaning of Battery terminal, testing of various parameter of DG battery (voltage, current) etc, clearing of filter so as to keep the Diesel Generator in Healthy condition for running of S&T Electrical Load. (Per Unit means Per DG Per Month).	36.00	Per Unit	3037.12	109336.21
6	Description:- Installation, wiring testing & commissioning of Distil Water Treatment Plant including supply of wiring materials.	2.00	Numbers	3878.36	7756.73
7	Description:- Installation, wiring and commissioning of the signaling Circuit Fuse Blowing Audio Visual Alarm System for relay room fuses of all capacity with standby fuse complete system all with contractor's materials. Per Unit means Set of each fuse.	440.00	Per Unit	244.07	107392.88
8	Description:- Installation of Alarm Extension Unit of Fuse Blowing Audio Visual Alarm System in ASM room.	3.00	Numbers	1095.32	3285.97
9	Description:- Installation of Earth Leakage Detector comprise of 4 (four) channels: 2 channel 110VAC and 2 channel 24/60V DC as per RDSO specification No.RDSO/SPN/256/2002 or latest.	12.00	Numbers	1943.17	23318.07
10	Description:- Digital and analog signal wiring of data logger between relay to intermediate tag block and intermediate tag block to Data logger tag block in relay room .	3.00	Station	153320.15	459960.44
11	Description:- "Installation, Validation, Networking, Testing and commissioning of Data logger including report generation as per Technical specification. Item includes installation and wiring of door proximity switch and its input to datalogger. NOTE :- In case of phase wise commissioning this activity shall be carried out for each phase and paid for each phase."	3.00	Station	44178.02	132534.07
12	Description:- Termination of Power cable/wire as per Technical Specification.	450.00	CORE	14.81	6664.65
13	Description:- Termination of signaling cable/wire as per Technical Specification.	15000.00	CORE	9.92	148737.39
14	Description:- Supply and installation of Fault diagnostic software cum NMS as per technical specifications, minimum configuration with monitoring unit (Make Dell/HP/ASUS) consisting of a 8th Generation Intel Core™ i5- 6100U Processor (3M Cache, 2.30 GHz), 4GB RAM, 2TB smart HDD, Intel 854 G or latest chipset, CD/DVD ROM, Intel 10/100 LAN Card, JBL speaker, window 10 Home version with recovery CD, 2 serial/4 USB ports, scroll mouse/keyboard, 21" colour monitor, Norton anti virus along with 750 VA UPS for 1/2 Hr. and PC table of Make: Godrej /Zuari/Methodex and a revolving chair of make: Godrej/Methodex/Zuari. Note : Any changes in configuration will be approve by Engineer In-Charge.	1.00	Set	195369.28	195369.28
15	Please see Break up Details :- Description:- Hiring and operating Multi-Utility vehicle - of loading capacity One MT, sitting capacity of 4/6 persons, 4 stroke 4 Cylinder engine, factory-built metal body, cargo box type or passengers cabin type or both, with 24 hour availability - Including cost of lubricants, major/minor repairs, salary of driver, toll tax, all other taxes - operation and maintenance vehicle shall run on pucca / kutcha road and along the track the contractor shall arrange road permit for vehicle for all the states of operation, as per instructions of Engineer-in-charge for testing and supervision of characteristics of signalling gears. The Mobile Platform will carry measuring and testing instruments to be made available by Railway .All other materials, maintenance and accessories along with required manpower to be supplied by the contractor.			1313916.47	1313916.47
16	Description:- Installation of Class A Lightning Arrester device on the top of the building. The device shall be installed at a height of about minimum 3 Mtrs. from the roof of the building or above any nearby structure whichever is higher; using a GI mast. The device shall be connected to the Earth pit using the copper Cable or similar. This copper cable shall be run firmly along the side of the mast with the help of the spacers. It shall also be ensured that this down conductor shall not touch the building throughout. The down conductor shall be connected to the earth Electrode using Exothermic Welding. A counter shall be installed at an appropriate place to count the number of occurrences. All the accessories like spacers, welding materials etc. required for the installation shall be arranged by the contractor only. [Refer Technical Specification for additional details]	3.00	Numbers	13065.96	39197.87
Total of Schedule C					28,03,360.20
Indoor Schedule D- Supply and Installation of UFSBI					

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1	Description:- UFSBI: Supply, installation & commissioning of block proving with axle counter (BPAC) using UFSBI (single line) suitable for 25 KV electrified area as per RDSO specification No. IRS:S-105/2012(Ver.0) or (latest). ELECTRONIC SIGNALLING EQUIPMENTS : Universal Fail Safe Block Interface for single line complete with all accessories as per RDSO's specification No. IRS:S-104/2012 Ver.0 or latest. (2 (two) numbers per block section. Item includes automatic media changeover system 2 Nos. Relay rack with door locking & sealing arrangement including relays (QN1 = 44 Nos., QNA1 = 12 Nos., QL1=4 Nos, Timer=2 Nos.) and wiring as per wiring diagram RDSO's drawing No. RDSO/S/32020 (latest amendment)-02 Nos. per block section Block panel complete with accessories as RDSO Drg. No. RDSO/S/32019 (latest amendment)- 02 Nos. per block section Block telephone with accessories as per RDSO's specification No. RDSO/SPN/191/2006.- 02 Nos per block section	3.00	Per Block Section	1121122.15	3363366.46
2	Please see break up details:- Description:- Spares for UFSBI using BPAC			512325.20	512325.20
3	Please see break up details:- Description:- LED suitable for Block Panel			1092.16	1092.16
4	Description:- Providing of suitable arrangement with locking facility for UFSBI block instrument in SM's room. (Per Unit means Per Block Panel)	6.00	Numbers	36893.49	221360.94
5	Description:- Supply of CAT-6 cable for Data connection between UFSBI and SSDAC to OFC room.	600.00	Metre	36.95	22171.41
6	Description:- 20 pair switch board cable and interconnection between different instruments like UFSBI and other equipment.	1500.00	Metre	195.22	292823.20
7	Description:- Wiring of UFSBI from Relay Rack to UFSBI (Each station means 02 Nos of UFSBI) (02 nos. of UFSBI for Riyang & Melli station, 1 no. of UFSBI for Rangpo)	2.50	Station	46435.88	116089.71
	Total of Indoor Schedule D				45,29,229.07
Indoor Schedule E-Supply and Installation of Fire alarm system					0.00
1	Description:- SITC of Intelligent Addressable Aspiration type Smoke Detector - covers area up to 50 sq. meter with a programmable sensitivity range of 0.5 - 2% obs/m and duly approved as per RDSO specification no. RDSO/ SPN/ 217/ 2016 version 1.0 or latest - for Relay Room with A/C - Includes SITC of following items: 1. Capillary Sampling Connector for capillary tubes, 2. Capillary tube 5.2mm dia ID 8mm OD per meter, 3. Sampling point for capillary tube end, 4. sampling point label RED (ea), 5. Trunk adaptor for capillary tubes, 6.Xtrails inline filter (grey) (external filter), 7. 25mm dia pipe for VESDA system NOTE: 1.Procurement of Automatic Fire Alarm System' to be done from RDSO Approved Sources.2.Scope of work of Schedule includes provision of remote monitoring of 'Automatic Fire Alarm system' at locations approved by Engineer-incharge.	3.00	Set	278724.58	836173.74
2	Description:- SITC(Supply, Installation, Testing and Commissioning) of networkable 2 loops, micro processor based, 2 wire fault tolerant loop, with optional redundant network module 1. Each loop shall have the capability of connecting adequate number of devices 2. Fire alarm control panel shall have built in degrade mode function 3. Panel shall have in-built TCP/IP communication for panel program and remote monitoring option through LAN or WAN communication 4. Panel shall have GSM interface for SMS generation 5. Panel shall be able to give location of all fire and fire/fault and isolation condition of addressable units via the address codes 6. Panel shall have the capacity of storing up to 2000 events. 7. Panel must be able to automatically switch ON/OFF respective control module whenever any alarm is triggered 8. Panel should have in-built common alarm, fault and monitored sounder output 9. Panel shall have a LCD/LED display and alphanumeric key board and analog output external/in-built printer to log all fire or fault events complete in all respects 10. Panel shall have protection category of IP30 11. Panel shall have the option to operate in manned and unmanned mode 12. Panel shall have a built in power supply and battery charger along with maintenance free 24V battery capable of running for a minimum of 24 hours with battery charger - complete, as required and as per RDSO specification and duly approved and as per RDSO/SPN/217/2016 Ver. 1.0 or latest.	6.00	Numbers	202482.15	1214892.88
3	Description:- SITC of Intelligent Analog Addressable Multi Sensor type smoke Detector with Inbuilt fault isolator and Integral response indicator with 360 degree viewing angle. Detector shall communicate 3 danger levels for differentiated alarm activation and high tolerance to dust, dirt, temperature fluctuations and air currents. Detector should have unique address for communication and assigned through panel with Mounting Base as required with the protection category of IP40. All items as per RDSO/SPN/217/2016 Ver 1.0 (FOR IPS Room, Battery Room, Relay Room non A/C,ASM Room)	60.00	Numbers	4693.91	281634.86
4	Description:- SITC of Intelligent Addressable manual call point with inbuilt fault isolator suitable for wall or surface mounting, call point shall include test key feature without removing the glass. Also should have protection category of IP44 and extra accessories as required, duly approved and as per RDSO/SPN/217/2016 Ver. 1.0 or latest.	6.00	Numbers	7190.26	43141.54
5	Description:- SITC of Intelligent Addressable loop powered sounder cum beacon with base inbuilt fault isolator with protection category of IP42 and duly approved as per RDSO/SPN/217/2016 Ver. 1.0 or latest.	6.00	Numbers	11668.29	70009.71

6	Description:- SITC Addressable Input/output module with Inbuilt isolator and shall have the LED indication for Normal, Fault test activation. The module shall have the option for configuration as fail safe operation and duly approved and as per RDSO/SPN/217/2016 Ver. 1.0 or latest.	3.00	Numbers	8059.84	24179.52
7	Description:- Supply and laying of 2C X 1.5 sq mm LSZH (Low Smoke Zero Halogen) Cable, 1000V rated twisted.	600.00	Metre	161.64	96982.09
8	Description:- Supply and laying of 25 mm diameter GI conduit - medium grade, thickness 1.3mm-1.6mm as per ISI Standard BS-4568	600.00	Metre	95.98	57590.54
9	Description:- Supply and installation of LHS(Linear Heat Sensor) cable as per RDSO/SPN/217/2016 VER 1.0 or latest.	300.00	Metre	1059.32	317795.73
10	Description:- Supply and installation of LHS(Linear Heat Sensor) interface module as per RDSO/SPN/217/2016 VER 1.0 or latest.	3.00	Numbers	44532.58	133597.73
11	Description:- Supply & fixing of 1 inch PLB conduit/Casing Capping	600.00	Metre	29.64	17785.59
12	Description:- Training on Automatic Fire Alarm System at site/ field/ office for officers/ supervisors.	1.00	Man-Month	59013.87	59013.87
Total of Indoor Schedule-E					31,52,797.81

Indoor Schedule F-Supply and Execution of Predictive Maintenance for S&T assets Items

1	Description:- "Supply of Edge PC for Data receiving and routing from stn to the central processing and storage system at Zonal HQ and Central cloud as per TS"	4.00	Numbers	245662.63	982650.51
2	Description:- Supply of station Gateway equipment system to receive the data from various IoT devices at field, relay room, equipment room as per TS	4.00	Numbers	143303.20	573212.80
3	Description:- Supply of IoT device for various S&T gears and transmit the data to the station gateway system as per TS	120.00	Numbers	57321.28	6878553.56
4	Description:- Supply of IoT device for sensing 110 V DC Battery Bank parameters and transmit the data to the station gateway system as per TS	4.00	Numbers	147397.58	589590.31
5	Description:- Supply of Voice Modem to connect IoT devices to station Gateway	8.00	Numbers	20471.89	163775.08
6	Description:- Supply of External voice modems in location box to connect field IoT device to the station gateway via copper cable	16.00	Numbers	18015.26	288244.15
7	Description:- Supply of Dual serial to E1 converter card to connect station gateway to Central system at Zonal HQ	4.00	Numbers	36030.52	144122.07
8	Description:- Configuration and mapping of gear wise signalling information in remote diagnostic software, testing and Commissioning.	120.00	Numbers	818.88	98265.05
9	Description:- Installation, testing & commissioning of IoT Devices as per TS	120.00	Numbers	4094.38	491325.25
10	Description:- Installation, testing & commissioning of IoT Devices for IPS Battery Bank as per TS	4.00	Numbers	20471.89	81887.54
11	Description:- Installation Gateway -Station as per TS	4.00	Numbers	40124.90	160499.58
Total of Schedule F					1,04,52,125.91
Grand Total of Indoor Sch (A+B+C+D+E+F)					10,10,37,098.81

3. ITEM BREAKUP

Indoor Schedule B-Supply of Other INDOOR Signalling Works					
Item-21	Supply of Power wire (Copper, Multi strand) PVC insulated unsheathed single core bright annealed bare copper conductor flexible cable for voltage grade up to 1100V conforming to IS 2465/1984 & IS:694/1990 or latest				
Item No.	Description of Item	Qty.	Unit		
1	Size 16.0 Sqmm.	3	Km	134878.44	404635.31
2	Size 10.0 Sqmm.	3	Km	101916.88	305750.64
3	Size 6.0 Sqmm.	3	Km	51863.24	155589.71
Total					865975.66

Indoor Schedule C-Execution of Other INDOOR Signalling Works

Item-15	Hiring and operating Multi-Utility vehicle - of loading capacity One MT, sitting capacity of 4/6 persons, 4 stroke 4 Cylinder engine, factory-built metal body, cargo box type or passengers cabin type or both, with 24 hour availability - including cost of lubricants, major/minor repairs, salary of driver, toll tax, all other taxes - operation and maintenance vehicle shall run on pucca / kutcha road and along the track the contractor shall arrange road permit for vehicle for all the states of operation, as per instructions of Engineer-in-charge for testing and supervision of characteristics of signalling gears. The Mobile Platform will carry measuring and testing instruments to be made available by Railway .All other materials, maintenance and accessories along with required manpower to be supplied by the contractor.				
Item No.	Description of Item	Qty.	Unit		
1	Charges Per day	720	Day	1051.40	757007.15
2	Fueling Charges per KM run	72000	KM	7.73	556909.32
Total					1313916.47

Indoor Schedule D- Supply and Installation of UFSBI

Item-2	Spares for UFSBI using BPAC				
1	CCC Card Control Communication card for block proving with axle counter UFSBI as per RDSO/SPN/147/97.	3.00	Nos.	20174.79	60524.36
2	CPU card for block proving with axle counter using UFSBI as per RDSO/SPN/147/97.	3.00	Nos.	22348.76	67046.27
3	MODEM compatible with existing UFSBI system of DES or similar make as per Specification No. RDSO/SPN/147/2005 with amendment-1 or latest.	3.00	Nos.	19127.24	57381.71
4	Input card compatible with existing UFSBI system of DES make or similar.	3.00	Nos.	8413.55	25240.65

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5	Output card compatible with existing UFSBI system as per Specification No. RDSO/SPN/147/2005 with amendment-1 or latest...	3.00	Nos.	19961.25	59883.76
6	Key switch with 1 NO+1NC or 2 NO configuration of ESBEE make, suitable to work with Block panel	3.00	Nos.	544.75	1634.25
7	Key switch with 1 NO+1NC or 2 NO configuration of SIEMENS make, suitable to work with Block panel	3.00	Nos.	544.75	1634.25
8	DC-DC Converter input 24 V DC, 10A for block proving with axle counter using UFSBI.	3.00	Nos.	36366.65	109069.95
9	SAM (Surge Arrester Module) of DES make or similar as per RDSO Specification Nbo. RDSO/SPN/147/2005 or latest.	3.00	Nos.	3701.67	11105.02
10	Mother card fitted in 6U rack compatible with existing UFSBI system of DES make or similar.	3.00	Nos.	30069.98	90209.95
11	Flat cable set	3.00	Nos.	1862.58	5587.73
12	Reset card set as per specification No. RDSO/SPN/147/2005 with Amendment-1 or latest.	3.00	Nos.	7669.10	23007.30
Total					512325.20
Item-3	LED suitable for Block Panel				
1	RED	16.00	Numbers	23.50	375.95
2	Yellow	16.00	Numbers	23.50	375.95
3	Green	16.00	Numbers	23.50	375.95
Total					1127.86

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Name of Work: Supply, Installation, testing and commissioning of Multiple Aspect Colour Light Signalling System including all Outdoor works at 03 stations (Riyang, Meli & Rangpo) and alteration at 01 station (Sivok) in Sivok-Rangpo New BG Single Rail Line section of Alipurduar Division of NF Railway.

Sl. No.	Description	Quantity	Unit	Rate (Excl. GST)	Amount (Excl. GST)
Outdoor Schedule A- Supply of Outdoor Signaling materials					
1	Supply of Thermo shrink Jointing Kit for 6 - QUAD jelly filled cable as per spec. no. IRS:TC-77-2000 (Amend - I) or latest amendments for derivation 2-T joints/Straight through joint.	50.00	Numbers	2334.06	116702.87
2	Supply of G.I. pipe with thread collars of 100mm nominal bore, specification No. IS-1239 medium grade, to be perforated after supply for required length as per technical specification.	400.00	Metre	702.98	281191.85
3	Supply of Galvanised Iron trunking with cover of same materials as per DRG No. SGW/MGS/C7/91 including supply of channel, angle iron, brackets unit, nuts and bolts of proper size.	500.00	Metre	1368.39	684193.53
4	Supply of permanently lubricated HDPE pipe of size 63/50 mm dia as per Specification No: RDSO/SPN/TC/45/2013 Rev.2.0 or TEC/GR/FA/CDS-008/04, Aug-2019 or latest from the TEC approved firms suitable for HDD.	5.00	Kilometre	216637.22	1083186.08
5	Cable route tracer cum RFID marker locator with GPS tagging facility Model 2273 MID(3M make) or superior along with GPS device of Garmin or superior].	1.00	Numbers	443770.05	443770.05
6	Supply of RFID based Electronic Cable Marker. (Make -3M, Model-1401-XR or superior)	225.00	Numbers	1602.21	360498.12
7	Supply and Installation of signalling cable route marker at site as per drawing including painting, lettering and transportation as per instruction of site-in-charge.	200.00	Numbers	723.71	144741.82
8	Supply of 16/0.2 mm size tinned flexible single core indoor wire to IRS:S-76/89, PVC coated in different colours as per site requirement and to be supplied in coils of 100 meters. (Per Unit means Coil of 100 Mtr).	300.00	Per Unit	839.93	251979.93
9	Supply of Polyolefin cable channel of size width 240/340 mm height 155/340 mm internal/external length, one meter produced of polyolefin with fire protection K-1 in accordance with DIN 53438 Part II for laying Signalling/Telecom cables, channel attachable to each other with male-Female swallow tail connectors and having suitable detachable cover.	3000.00	Meter	2283.24	6849727.32
10	Description:- Supply of Self - Propelled light weight trolley comprises of a light metallic tubular frame With two sets of axles powered by an engine mounted on the frame. The trolley has Seating arrangement in front & rear As per RDSO Specification no. TM/SM/28 Rev.01 of 2004 amended on 15.09.2010 with latest amendment if any.	1.00	Numbers	116776.18	116776.18
11	Please see break up for details:- Description:- Supply of Colour light signal unit complete.			996651.32	996651.32
12	Description:- Supply of 4.6 mtr. Post with base, ladder, ladder base, platform, Anchor bolt with nuts & washers for CLS unit to RDSO Drg. no. SA-23002A/M (Adv) without unit.	21.00	Numbers	12868.06	270229.33
13	Description:- Supply of 3.6 mtr. Post with base, ladder, Ladder base, platform, Anchor bolt with nuts & washers for CLS unit to RDSO Drg. no. SA-23002A/M (Adv) without unit.	13.00	Numbers	11443.94	148771.19
14	Description:- Supply of Shunt signal position light type to Drg. No. SA-23840(Adv) Alt-2 for independent type complete with signal unit, bracket, Post as per IRS-S 6 - 81 or latest having 4.5 mm thickness & minimum 1m length, surface base, terminals etc. but without lenses, lamps and lamp holders.	8.00	Numbers	14015.84	112126.71
15	Description:- Supply of Shunt signal position light type to Drg. No. SA-23840(Adv) Alt-2 for dependent type complete with signal unit, bracket, terminals etc. but without lenses, lamps and lamp holders.	16.00	Numbers	7735.40	123766.47
16	Description:- Supply of Offset bracket for colour light signal with fixing U clamps & nuts etc. (Main Signal)	5.00	Numbers	1362.01	6810.05
17	Description:- Supply of Off set bracket for colour light signal with fixing U clamps & nuts etc. (Shunt /Co-On)	21.00	Numbers	1088.67	22862.04
18	Description:- Calling-On signal unit FRP type - complete with fixing clamps, terminals etc - as per RDSO/SPN/194/2006 or latest - but without lamp, lamp holder and lens - Fixing arrangement shall be as per RDSO drawing SA-24352 (Adv) or latest.	5.00	Numbers	8440.97	42204.87
19	Description:- Supply and Installation of Stop Board or Calling On Board or other boards, making foundation, complete with contractor's material, supply and painting the board & post as per approved colour scheme complete installation as per Technical specifications.	6.00	Numbers	5624.07	33744.41

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20	Fibreglass moulded location box (Full) both sides smooth finish Ramble moulder make or similar of size 980 x 810 x 1415 mm height conforming to RDSO Spec No. RDSO/SPN/151/1997 moulded in silver color with E type lock fitted on both doors with FRP angles i	6.00	Numbers	8774.25	52645.49
21	Description:- Supply and Installation of colour display station yard diagram - printed in colour with pasting in massainde, board covered with 2mm clear aqualic sheet - includes framing and hinge arrangement for fixing on ASM room wall - size 5.0 Ft X 3.0 Ft for 3/4 lines station /yard or as per instructions of Engineer-in-charge.	3.00	Numbers	25139.69	75419.07
22	Description:- Supply and Installation of colour display station slogan boards - printed in colour with pasting in massainde board covered with 2mm clear aqualic sheet - includes framing and hinge arrangement for fixing in ASM room wall size 2 Ft X 2 Ft for 3/4 lines station /yard or as per instructions of Engineer-in-charge.	15.00	Numbers	7461.09	111916.35
23	Description:- Supply and fixing of Universal Lock suitable for fixing on CLS units, MACLS calling on signal unit, route indicator unit and Position light type Shunt Signal units & sufficient no. of Keys.	120.00	Numbers	129.29	15514.91
24	Description:- Supply, Fabrication and fixing of 'P', 'C', 'A', 'G' etc. marker disk painted and lettered with enamelled paint of approved colours, on signals, conforming to RDSO Drg. No.SA - 23456, as per standard practice, with contractor's complete material including fixing clamps.	10.00	Numbers	830.66	8306.60
25	Description:- Supply & fixing of Retro-Reflective number plates of approved type. (Contractor has to arrange all hardware & other requirement to fix the plate on signal at his own cost.)	58.00	Numbers	349.70	20282.55
26	Description:- Supply of Earth electrode for outdoor equipment consisting of 2.5 meter G.I pipe medium grade having internal dia of above 38 mm GI pipe shall consist of spike at one end and a lug at the other for connecting the earth lead wire.	120.00	Numbers	1829.13	219495.33
27	Please see the break up for details :- Description:- "Supply:- "Provision of Earth connection to Location boxes and signals with MS flat as per RE Drg. No. CORE/S&T/ALD/SK/593/2008 or latest for location box and Drg. No. CORE/S&T/ALD/SK/592/2008 or latest for signals (for 1.25 Station)"			88113.51	88113.51
28	Description:- Supply of 25 x 3 mm Copper Strip to be used as bus bar for each Location Box.	150.00	Metre	575.15	86272.63
29	Electric point machine 220mm throw with lock and detector slides including cable termination box and clamp lock arrangement with ground connections for thick web switch.	27.00	Numbers	152757.63	4124455.93
30	Description:- Supply of Points gauge tie plate insulation complete set as per CSTE's Drg. No. SK/85/25 complete with nut bolts etc.	27.00	Set	269.92	7287.80
31	Description:- Supply of distilled water (after commissioning of stations)	400.00	Litre	18.51	7403.39
32	Description:- "Supply and installations of wooden plank of size 305 mm (width) x approximately 25 mm (thickness), made from Sal wood or similar good quality commercial hard wood duly painted on all the surfaces, with two coats of acid proof paint for Battery racks in Battery room, at Location huts and locations, complete with contractor's material. Note: In case of change in size to suit local conditions, the proportionate payment will be made in unit of cubic meter for the supplied quantity." (Per Unit means Per Meter of running Length)	90.00	Metre	231.50	20835.36
33	Description:- Supply of Stand made of Teak or superior wood for hydrometer as approved by Engineer Incharge.	6.00	Numbers	1459.21	8755.25
34	Description:- Supply of Hydrometer, Make: Thimson or similar.	6.00	Numbers	210.47	1262.81
35	Please see item breakup for details :- Description:- Miniature tractive armature DC neutral plug in type Q series 24v signalling relays complete with plug board and connector to specification BRS : 930 A			2058144.09	2058144.09
36	Description:- Supply of Earth Resistance Tester Model Motwane 0-2000 DET-20 or similar. MAKE:Motwane/Fluke/Stanone521 or similar.	2.00	Numbers	20929.74	41859.49
37	Description:- Supply of Digital multimeter for diagnosis & measuring parameter; Make FLUKE-115/MOTWANE/Stanone/SMM606 or similar.	3.00	Numbers	14066.07	42198.21
38	Description:- Supply of Digital Insulation Tester fluke 1507/ Stanone SIT 500 or similar. Make FLUKE/Stanone/Megger or similar.	2.00	Numbers	35874.09	71748.18
39	Description:- Supply of digital clamp tester meter for measuring parameter of various electronic equipment. model Fluke 317/Stanone SCM 222/Kyrotsu or similar.	3.00	Numbers	25056.71	75170.12

40	Description:- Supply of standard Tool kits for CLS as per the technical specifications.	3.00	Set	72935.27	218805.82
41	Description:- Apparatus case (Full) made of 10 SWG sheets with miniature E-Type Locks of same wards as that available on existing location box of station without keys as per spec. No IRS S 30/64 & RDSO Drg. No. SA 3376 with latest amendments and as per Technical Specifications..	105.00	Numbers	13996.65	1469647.75
42	Description:- Supply of Junction Box 24 Way as per IRS Drg No-SA-20115	15.00	Numbers	3675.09	55126.33
43	Description:- Supply and erection of Cable Termination Rack, Frame, scaffolding/ladder/angle, oven baked and Powder Coated with Biscuit matt colour. corrosive resistant and final finish with Siemens Grey (Sigma) enamelled paint, complete as per Drg. No. CSTE/Con/04/PL/98 with insulators, grouting bolts, tripods, rack fittings. ladder arrangement, Hylam sheet board of 10mm thickness covering complete rack, all necessary fittings, supports, insulators, string rods to support cable, and other accessories etc as per Drawing and Tech Specs. and erection with scaffolding arrangement, fixing of tag block and all types of terminals on cable termination racks as per technical specification, in Relay Room and Location Huts.	22.00	Numbers	25242.66	555338.58
44	Description:- Supply of ARA terminal block 6 Way, PBT, as per IRS:S-75/2006 Rev.2.0 and Drg. No.SA-23756 or latest.	150.00	Numbers	346.83	52024.55
45	Description:- Supply of Disconnect Terminal block for Four conductor with screw less Cage Clamp type/sliding switch disconnect as per RDSO Specification No. RDSO/SPN/189/2004 version 1.2 or latest, for each conductor size up to 2.5 sq. mm. Equivalent of M6 Terminals. Each Terminal block equipped with two markers on top and bottom, an end plate, 2 end clamps & adequate length rails for fitting terminal blocks.	12000.00	Numbers	166.37	1996472.14
46	Description:- Supply and Installation of board for termination i.e Hylum Sheet of MINIMUM 10 mm thickness having minimum grade P2 for main/tail cable including supply of terminal board as per TS	300.00	Square Foot	550.21	165063.20
47	Description:- Supply of (NDT) Non deteriorating non indicating type fuse 16 A along with base as per specification IRS(S)-78/92 with latest amendments.	30.00	Numbers	247.56	7426.80
48	Description:- Supply of Non deteriorating non indicating type fuse 6A along with base as per specification IRS(S)- 78/92 with latest amendments.	100.00	Numbers	224.68	22468.36
49	Description:- Supply of (NDT) Non Deteriorating type low voltage cylindrical head cartridge fuse 2A along with base as per Specification No IRS/S/78/92 with latest amendments along with PPTC fuse.	270.00	Numbers	116.54	31465.42
50	Description:- Fuse Block made of PBT/POLYCARBONATE as per IRS:S-75/2006 or latest & RDSO Drg No SA- 23748 Alt-4 suitable for Cartridge fuse block cylindrical head fuse links.	400.00	Numbers	123.74	49495.36
51	Please see the break up for details. Description: Supply of Various type Signalling cables;			75361584.75	75361584.75
52	Please see break up for details. Supply of LED signal lighting unit for main and subsidiary signals			2060129.58	2060129.58
Total of Outdoor Schedule -A					10,12,72,069.87
Outdoor Schedule B :- Execution of Outdoor Signaling Materials					
1	Description:- Fitting and Fixing of ARA Battery Terminal on standard size Hylam sheet as approved by Engineer Incharge. Supply of ARA Terminal is not included in this item. The Battery terminal must be terminated with suitable lug on ARA Terminal. (unit Number denotes for 01 station.)	12.00	Numbers	1285.37	15424.48
2	Description:- Transportation to site and installation of Electronic cable Route Marker for route, track and road crossing marking along the route of cable laying.	225.00	Numbers	108.30	24367.63
3	Description:- Installation of system connectivity for BPAC working on OFC.Unit is one pair.	3.00	Numbers	17333.08	51999.24
4	Description:- Laying and drawing of communication cable /power cable along with 1" PVC pipe/casing capping under the platform shed, on wall, roof as per instruction of site in-charge. All consumable materials other than items covered under schedule A are to be supplied by the contractor.	450.00	Metre	32.87	14792.05

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5	Description:- Final testing including individual testing of each installation and in correspondence of other installation and commissioning of complete outdoor signaling installation at station/mid section gate/Jn. cabins, as per Technical specifications and testing protocol including, arranging simulation panel and testing indoor/outdoor gear through it, rack, lamps with holders all instruments and apparatus as necessary for conducting such tests and all the tools necessary for outdoor gear testing shall be arranged by contractors. (i) 3 line to 5 line station/yard/Junction Cabin.	4.00	Station	12114.47	48457.87
6	Description:- MAINTENANCE: Upkeep of Safety and Reliability Parameters on round the clock basis after commissioning of the system including supply of all required materials (waste cotton, Point machine oil SAE 30, Point Gauge adjustment, lubricant oil, Distil water etc.). (Per DAY means Per day Per Station).	960.00	Day	1098.15	1054227.56
7	Please see item break up for details:- Description:- Hiring and operating Multi-Utility vehicle - of loading capacity One MT, sitting capacity of 4/6 persons, 4 stroke 4 Cylinder engine, factory-built metal body, cargo box type or passengers cabin type or both, with 24 hour availability - including cost of lubricants, major/minor repairs, salary of driver, toll tax, all other taxes - operation and maintenance vehicle shall run on pucca / kutcha road and along the track the contractor shall arrange road permit for vehicle for all the states of operation, as per Instructions of Engineer-in-charge for testing and supervision of characteristics of S & T Cable, signal inspection of signalling gears in tunnels, BPAC etc. The Mobile Platform will carry measuring and testing instruments to be made available by Railway. All other materials, maintenance and accessories along with required manpower to be supplied by the contractor.			1466121.05	1466121.05
8	Please see item break up for details:- Description:- Supervision of Site with Motor Trolley			195839.24	195839.24
9	Description:- Excavation, ramming, Casting Cement Concrete foundation for Colour Light Main Signal Post in the ratio of 1:3:6 Aggregate not exceeding 3 : 8 cum, as per Drg. No. CSTE/CON/SK/05/99 and technical specifications using standard size galvanized Anchor bolts & nuts (also referred to as foundation bolts) conforming to IRS Drg. No. SA-116A/M, for erection of colour light signal post, plastering with 1 : 4 cement - sand mixture all the surfaces up to 75 mm below ground level, complete with contractor's material including cement, sand, aggregate, anchor bolts and nuts and curing of casted foundation, refilling & ramming of loose soil around foundation and disposal of loose dug soil from site. [Refer Technical Specification for additional details]	33.00	Numbers	7633.87	251917.67
10	Description:- Footing for Main Line Signal post as per RDSO Drg. No. RDSO/M-00011/R2. [Refer Technical Specification for additional details]	33.00	Numbers	10752.71	354839.49
11	Description:- Excavation, ramming, Casting Cement Concrete foundation for Position Light Shunt Signal Post in the ratio of 1:3:6 aggregate not exceeding 3 : 8 cum, as per Drg. No. CSTE/CON/SK/06/99 and technical specifications using standard size galvanized Anchor bolts & nuts (also referred to as foundation bolts) conforming to IRS Drg. No. SA-116A/M, for erection of colour light signal post, plastering with 1 : 4 cement - sand mixture all the surfaces up to 75 mm below ground level, complete with contractor's material including cement, sand, aggregate, anchor bolts and nuts and curing of casted foundation, refilling & ramming of loose soil around foundation and disposal of loose dug soil from site. [Refer Technical Specification for additional details]	8.00	Numbers	3205.75	25646.01
12	Please see item break up for details :- Description :- "Assembling, erection, installation, taking of cable inside unit through post, termination and wiring of CLS (Colour light Signal) complete with all accessories of CLS unit, post, base, ladder, ladder guards, platform and MS supporting bracket in the middle of the ladder, hoods, pinnacles, offset brackets, Junction/stencil type route indicators (if any) - 1 way to 6 way, etc. including fixing & wiring of LED units lamps with contractor's wiring material. Note-Anchor bolt with nuts & washers are supplied by the contractor." [Refer Technical Specification for additional details]			309216.73	309216.73

13	Description:- Closing of gap between signal post and surface base with lead wool packing all with contractor's material.	41.00	Numbers	122.57	5025.43
14	Description:- Fixing of Electrical Point Machine on the extended sleepers at points as per std. practice with contractor's long fixing bolts, nuts and as per RDSO Drg No. SA 9151-52 or 9710 or 9161 as per section of rails used, fixing ground connections & Insulations, wiring inside the point machine with contractor's wiring material, supply and fixing of GI pipes (Gland pipe) with flange for taking cable into point machine, termination of tail cable in point machine and junction boxes, adjusting opening of the switches and adjusting the point machine with crank handle including all smithy & fitting works required at site for complete installation and fitting insulation for Gauge Tie Plate & William Stretcher Bar etc., the complete work of Electric point machine Installation as per Technical specifications.	24.00	Numbers	8489.28	203742.84
15	Description:- Installation of Earth electrode for outdoor equipment as per technical specifications. Note:- Installation of earth electrode includes the construction of the surrounding earth pit using contractor's own material.	120.00	Numbers	2178.67	261440.30
16	Please see the item break up for details. :- Description:- "Execution":- "Provision of Earth connection to Location boxes and signals with MS flat as per RE Drg. No. CORE/S&T/ALD/SK/593/2008 or latest for location box and Drg. No. CORE/S&T/ALD/SK/592/2008 or latest for signals (for 1.25 Station)"			24817.82	24817.82
17	Description:- Installation of complete earthing and Bonding System as per RDSO specification RDSO/SPN/197/2016 Ver.1.0 or latest for BPAC/Signalling equipment, to construct earthing as per standard code of practice including auguring hole of 100-125 mm dia and minimum 2.8 meter depth for earth electrode , carrying out necessary digging work and to make 300X300X300 mm (inside dimensions) concrete box with lid approx.50 mm thickness and painted black on top, with contractor's material, fixing earth electrode in the augured hole, filling Earth enhancement material around earth electrode in the hole in slurry form and allowing to set, back filling of excavated soil after sieving, measurement of earth value, carrying out interconnection between unit earths installed as per requirement of site and all other work of earthing as per standard code of practice and connecting it to equipments to be earthed, construction of surrounding earth-pit, etc. as per site requirements and Technical specifications (At Location hut).The installation is to be done OEM or its Authorised representative only. If required by Engineer Incharge, necessary certificate from OEM to be given.	15.00	Set	7853.29	117799.35
18	Description:- Excavation, ramming, Casting Cement Concrete foundation for Junction box in the ratio of 1:3:6 Aggregate not exceeding 3 : 8 cum, , plastering with 1 : 4 cement - sand mixture all the surfaces up to 75 mm below ground level, complete with contractor's material including cement, sand, stones, anchor bolts and nuts and curing of casted foundation, refilling & ramming of loose soil around foundation and disposal of loose dug soil from site. Junction box 12/24 way	15.00	Numbers	1706.11	25591.60
19	Description:- Installation of Junction box on CC foundation on grouted bolts, including filling the space enclosed below the location box with contractor's sand. Junction box 12/24 way	15.00	Numbers	184.03	2760.48
20	Please see the item break up for details. :- Description:- Excavation, ramming, Casting Cement Concrete foundation for Apparatus cases/Location boxes in the ratio of 1:3:6 Aggregate not exceeding 3 : 8 cum, as per Drg. No.-LB1-LD-TYP-NR No.MT/L-45 SH No.LB1 (for Apparatus Case full size) and Drg.No.-LB2-LD-TYP-NR No.MT/L-45 SH No.LB2 (for Apparatus Case half size) using standard size galvanized Anchor bolts & nuts (also referred to as foundation bolts) conforming to IRS Drg. No. SA-116A/M, for erection of Apparatus cases/Location boxes, plastering with 1 : 4 cement - sand mixture all the surfaces up to 75 mm below ground level, complete with contractor's material including cement, sand, stones, anchor bolts and nuts and curing of casted foundation, refilling & ramming of loose soil around foundation and disposal of loose dug soil from site. [Refer Technical Specification for additional details]			638505.40	638505.40

21	Please see the item break up for details :- Description:- Installation of Apparatus cases/Location Boxes on CC foundation on grouted bolts, including filling the space enclosed below the location box with contractor's sand, as per technical specifications.			65335.27	65335.27
22	Please see the item break up :- Description:- Digging of 1.0 Meter deep and 0.3 Meter wide trenches including clearing of roots of trees and bushes and temporary obstruction on the selected route and back filling & restoration of the disturbed soil as per technical specifications and cable route plan.			540547.12	540547.12
23	Description:- Excavation by Machine (JCB) for cable trenches in normal soil, depth up to 1.0 Mtr and width 0.3 Mtr, including getting out the excavated soil.	5000.00	Metre	81.54	407706.99
24	Description:- Excavation of trench to a depth of 1.0 Mtr. for track crossing of cables, laying of DWC/ RCC pipes with collar/coupling, refilling of trench by ramming and consolidating it as per the instructions of Railway representative at site. During excavation of trench it has to be ensured that the excavated soil does not mix with the ballast available. The depth of 1.0 m trench shall be from the bottom of sleepers for track crossings. Laying of cables is not included in this schedule.(Supply of DWC/RCC pipes with couplers/ collars is not included in this schedule). [Refer Technical Specification for additional details]	600.00	Metre	300.32	180192.81
25	Description:- All works of excavation of cable trench 1.0 Meter deep, 0.3 Meter wide on pucca platform/on Road for road crossing and restoration of the platform/Road surface to original condition with contractor's material, after laying of GI/DWC pipes and then re-filling the trench as per Technical Specifications.	400.00	Metre	663.90	265558.03
26	Description:- Back filling of cable trench after laying of cables and then complete back filling & ramming of loose soil as per the technical specifications.	7200.00	Metre	2.08	14940.61
27	Please see the item break up for details :- Description:- Transportation of HDT machine with accessories including handling of stores materials preparation of site and boring for placing of different size of signaling cables together at bridges/ culverts/ track/ pucca road crossing / Yard area / Station area / boring trench shall be minimum 3(three) meter below the river bed and minimum 1.5 (One point five) meter below surface in other patches. This item includes supply of HDPE pipe (minimum 160mm inner diameter (ID), as applicable) with RDSO/SPN/TC/45/2013 Rev. 2 or latest or TEC Specification TEC/ GR/ TX/ CDS-008/ 03, Mar-11 specification, minimum wall thickness 3mm with IP 67 protection with socket or coupler, having anti rodent properties and should be fire retardant to TEC specification with accessories for HDPE pipe. Cost of fuel, jointing of pipes, if required and all other items which will be required for laying cable through HDPE pipe is included. Only coils of HDPE pipes to be used for boring. This also includes laying/ pulling of cables through boring. NOTE: 1. Work to be carried out as per instruction of site engineer. 2. HDPE pipe will be inspected by RITES (for value of materials equal or more than 5 Lakh Rupees) or Consignee (for value of materials less than 5 Lakh Rupees). Contractor shall submit Test Certificate from Original Manufacturer of HDPE pipes. 3. Payment will be made as per actual work done. Amount as per break up.			2857565.21	2857565.21
28	Description:- Taking the all types of cables inside cable entry points at station building, Relay room, battery cum generator room, location huts, apparatus cases, junction boxes etc. must be closed with suitable masonry works and the pit must be covered with sand, closed with concrete slabs and plastered to avoid entry of snakes/rats/water. All masonry materials including cement are to be supplied by the contractor as per instruction of representative of Engineer In-Charge, complete with contractor's material.	3.00	Station	6632.07	19896.20
29	Please see the item break up for details :- Description:- Laying of Signal Cable of different sizes as per cable route plan in the already dug trench with or without DWC pipe / in G.I. pipes of bridges, culverts and tunnels etc / in Cable trays of tunnels (Laying of DWC Pipe, G.I. pipe, Cable trays are not included in this item)			867137.02	867137.02
30	Description:- Quad Cable Laying	42.00	Kilometre	4756.05	199753.98
31	Description:- Cutting of DWC pipe, of various size, into 2 No of split DWC pipe - includes transportation and loading / unloading (to/from BPG store or any other location advised by Engineer-In-charge).	2000.00	Metre	40.02	80041.68

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32	Description:- Placing of half round (Split DWC) pipe over the laid cable in open trenches	4.00	Kilometre	48006.19	192024.76
33	Description:- Protection of under ground cable by provision of concrete layer in the ratio 1:2:4 having minimum thickness 100 mm and minimum width of 200 mm.	500.00	Metre	308.58	154291.98
34	Description:- "Cement concrete work for miscellaneous items in the ratio 1 : 3 : 6, aggregate not exceeding 3 : 8 cum including excavation, ramming, curing and plastering with 1 : 4 cement - sand mixture complete with contractor's material including cement, sand, aggregate and curing of casted foundation, refilling & ramming of loose soil around foundation and disposal of loose dug soil from site. NOTE: Due to local condition in very special circumstances if the size of the foundation for all the above items is required to be increased/decreased, the extra payment /deduction for variation of the CC work shall be calculated on volumetric basis as per rate of this item.	15.00	cum	2572.07	38581.01
35	Description:- Fixing of G.I. pipe/DWC pipes of all sizes & diameters troughing on culverts, bridges & any other location etc. complete with contractor's material including clamps, nuts and bolts and other fixing arrangements as directed by Engineer in charge.	600.00	Metre	164.32	98591.05
36	Description:- Execution of galvanised iron trunking with cover of same materials as per DRG No.SWG/MGS/C7/91. Fitting of support at an interval of 1mtr including laying of cables inside the trough and other materials as required for the work shall be supplied by the contractor.	500.00	Metre	408.57	204282.66
37	Description:- Laying of Double Wall Corrugated (DWC) pipe with socket, coupler and T Joint etc. by digging of trench 0.3 Meter width, 1.2 Meter depth from rail flange under track for track crossing and refilling after laying of pipes, as per technical specifications etc.	600.00	Metre	56.59	33955.93
38	Description:- "Laying of HDPE pipe with pipe of all sizes with socket, coupler and T Joint etc. for passing through the cable at normal soil etc."	500.00	Metre	56.30	28150.41
39	Description:- Supply of system connectivity for BPAC working on OFC with track mountable devices, V.21 interface module etc. Unit is one pair.	3.00	Numbers	98353.24	295059.71
	Total of Outdoor Schedule -B				1,16,36,144.67
Outdoor Schedule C-Supply and Installation of MSDAC					
40	Description:- (Goods, Supply, installation, testing and commissioning of Multi Section Digital Axle Counter (MSDAC) in dual detection in connection with signalling works complete with all accessories, track device and cards viz. axle detector, track side Electronics/DAC field units, Central Evaluator (Central Evaluator unit should be housed in a pre-fabricated Rack to be supplied along with the system), Reset unit, final track clearance relay for each track section, Event logger & Diagnostic terminal etc. as per RDSO Specification No. RDSO/SPN/176/2013, Ver 3.0 or latest including General, technical & specific functional configuration requirements attached as TS. The configuration shall be used to ensure redundancy with DC Track Circuit in Yards and will be used for BPAC in Block Section in redundancy with DPs and Evaluators. Note: The DP will cater for track sections for stations namely Riyang (28DP), Melli (28DP) and Rangpo (42DP)	120	Numbers	328942.42	39473089.93
41	Supply of MSDAC tool kit each set will consists of a) Portable data analyser.(Downloading even logger data for analysis and report generation) -1 No. b) Pure sine wave digital multimeter Fluke make (model 1871) or Rishab make (Model 28S)-1 No. c) Train simulator (Model 11TS267P)-1 No. d) Extender card - 1 No. e) Dummy wheel - 1 No. f) Ring spanner -1 No each g) Open end spanner -1 No each. h) Socket spanner with handle- 1 No i) Torque wrench (Jaycon JPR 65 or equivalent 88NM)-1 No. j) Screw driver No 902-1 No. k) Screw driver No. 935 -1 No l) Making Jig for drilling as applicable. m) Dummy load to check power supply (Resistive) - 1 No.	1	Set	248486.25	248486.25
	Total of Outdoor Schedule -C				3,97,21,576.19

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ITEM BREAKUP					
Schedule		Outdoor Schedule A-Supply of Outdoor Signalling Materials			
Item- 11		Supply of Colour light signal complete.			
1	With 3 aspect CLS unit to RDSO Drg. no. SA-23002A/M(Adv) FRP type without CLS transformer, Lens, lamps , ELSUs etc.	15.00	Numbers	27408.01	411120.11
2	With 2 aspect CLS unit to RDSO Drg. no. SA-23002A/M(Adv) FRP type without CLS transformer, Lens, lamps , ELSUs etc.	19.00	Numbers	22825.95	433693.05
3	Supply of non metallic FRP 1 way Dirrection type Route Indicator suitable to RE area as per RDSO Specification No. RDSO/SPN/194/2006 ver 1 or latest without lenses and lamps. FRP materials as per RDSO Spn No. RDSO/SPN/151/1997 or latest. All Drg as per RDSO No SA-23401 with latest amendments.	4.00	Numbers	29546.66	118186.64
4	Direction type route indicator, 3. way, complete with fixing arrangement, clamps etc.FRP Type.	1.00	Numbers	33651.51	33651.51
		Total			996651.32
Item- 27	"Supply":- "Provision of Earth connection to Location boxes and signals with MS flat as per RE Drg. No. CORE/S&T/ALD/SK/593/2008 or				
1	"Supply of MS flat of size 40x6mm at site which includes loading, unloading, transporting and fixing"	600.00	Metre	139.45	83667.20
2	"Supply of GI bolts of size M20x40mm with two nuts along with two plain washers and one spring washer."	120.00	Set	23.88	2865.97
3	"Supply of GI bolts of size M12x25mm with two nuts along with two plain washers and one spring washer."	120.00	Set	13.17	1580.34
		Total			88113.51
Item- 35	Miniature tractive armature DC neutral plug in type Q series 24v signalling relays complete with plug board and connector to specification				
1	Supply of AC immunised plug in type QNA1 DC neutral line relay,24V,8F.8B contact.	300	Numbers	2989.77	890932.12
2	Relay, Point Contactor Unit, 24V DC, plug-in type complete with base plate as per spen no. IRS-S-46, IRS- S@45"44@ IRS-S-23	15	Numbers	28543.31	428149.60
3	Universal plug in type, AC lamp proving Relay (Metal to Carbon contacts for LED signal lamp, QECX61, 4F/4B	140	Numbers	5279.02	739062.37
		Total			2058144.09
Item- 51	Supply of various type of signalling cables.				
1	Supply of PVC insulated armoured unscreened, undergorund Railway Signalling cable 12 core x 1.5 Sq. mm coper conductor as per RDSO Specification No. IRS: S: 63/2014 (Rev- 4.0 or latest.				
a	Normal cable	185.00	Kilometer	189500.00	35057500.00
b	FRLS Cable	60.00	Kilometer	217925.00	13075500.00
2	Supply of PVC insulated armoured unscreened, undergorund Railway Signalling cable 6 core x 1.5 Sq. mm coper conductor as per RDSO Specification No. IRS: S: 63/2014 (Rev- 4.0 or latest.				
a	Normal cable	6.00	Kilometer	118000.00	708000.00
b	FRLS Cable	3.00	Kilometer	135700.00	407100.00
3	Supply of PVC insulated armoured unscreened, undergorund Railway Signalling power cable 2 core x 25 Sq. mm Aluminium conductor as per RDSO Specification No. IRS: S: 63/2014 (Rev- 4.0 and IS : 1554 (Part-I) including latest ammendments.				
a	Normal cable	22.00	Kilometer	97000.00	2134000.00
b	FRLS Cable	8.00	Kilometer	111550.00	892400.00
4	Supply of undergorund jelly filled 6 quad cable of size 0.9 mm dia for signalling and telecom installation as per RDSO Specification No. IRS: TC-30/2005 (Ver-I) with ammendment No 5 or latest.				
a	Normal cable	60.00	Kilometer	275600.00	16536000.00
b	FRLS Cable	20.00	Kilometer	316939.83	6338796.61
5	Supply of 24 Fibre armoured Optic Fibre Cable (OFC) as per Specification IRS:TC:55/2006 with Rev-1 Amd. 1.1, 2.0 & 3.0 or with latest ammendment.	3.00	Kilometer	70762.71	212288.14
		Total			7,53,61,584.75
Item- 62	Supply of LED signal lighting unit for main and subsidiary signals				

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1	Supply of LED signal lighting unit (Red) for main signals as per RDSO Specification No. RDSO/SPN/199/2010 (Rev.-1.0) Dt. 11.04.2014 or latest.	36	Number	10807.14	389057.19
2	Supply of LED signal lighting unit (Yellow) for main signals as per RDSO Specification No. RDSO/SPN/199/2010 (Rev.-1.0) Dt. 11.04.2014 or latest.	36	Numbers	11013.39	396482.03
3	Supply of LED signal lighting unit (Green) for main signals as per RDSO Specification No. RDSO/SPN/199/2010 (Rev.-1.0) Dt. 11.04.2014 or latest.	30	Numbers	14433.93	433017.97
4	Supply of LED signal lighting unit for Route Indicator as per RDSO Specification No. RDSO/SPN/153/2011 (Rev.-4.1) or latest.	45	Numbers	6547.32	294629.49
5	Supply of LED signal lighting unit for Calling On signal as per RDSO Specification No. RDSO/SPN/153/2011 (Rev.-4.1) or latest.	7	Numbers	7984.82	55893.75
6	Supply of LED signal lighting unit for Shunt signal as per RDSO Specification No. RDSO/SPN/153/2011 (Rev.-4.1) or latest.	75	Numbers	6547.32	491049.15
	Total				20,60,129.58
Outdoor Schedule B-Execution of Outdoor Signalling Materials					
Item- 7	Hiring and operating Multi-Utility vehicle - of loading capacity One MT, sitting capacity of 4/6 persons, 4 stroke 4 Cylinder engine, factory-				
1	Charges Per day	720	Day	1173.14	844663.42
2	Fueling Charges per KM run	72000	Kilometre	8.63	621457.63
	Total				1466121.05
Item- 8	Supervision of Site with Motor Trolley				
1	Upkeep of Moped trolley so as to keep the Motor Trolley in Running Condition for Railway officials.	18	Month	1644.32	29597.72
2	Running charges per day of above mention item.	180	Day	657.73	118390.88
3	Fuelling Charges	7500	Kilometre	6.38	47850.64
	Total				195839.24
Item- 12	"Assembling, erection, installation, taking of cable inside unit through post, termination and wiring of CLS(Colour light Signal) complete				
1	For 2 Aspect CLS	16.00	Numbers	6596.12	105537.88
2	For 3 Aspect CLS	15.00	Numbers	6603.48	99052.15
3	For 2/3/4 Aspect CLS with 1/2/3/4 way route indicator (Junction type/Stencil type)	5.00	Numbers	9061.40	45307.01
4	For calling-on signal below main home signal complete with all fittings.	5.00	Numbers	2709.99	13549.94
5	For independent shunt signal	8.00	Numbers	2291.10	18328.80
6	For dependent shunt signal	16.00	Numbers	1715.06	27440.95
	Total				309216.73
Item- 16	"Execution"-:"Provision of Earth connection to Location boxes and signals with MS flat as per RE Drg. No. CORE/S&T/ALD/SK/593/2008 or				
1	"Drilling of holes of MS flat of different sizes at site"	250.00	Numbers	14.91	3728.39
2	"Cutting bending and twisting of MS flat (Per Cut/ Bend/ Twist)"	400.00	Numbers	19.85	7940.85
3	"Painting of MS flat with one coating of Red oxide as primary and two coating of anti corrosive black"	720.00	Metre	13.96	10052.24
4	Drilling of holes in Location boxes	105.00	Numbers	29.49	3096.34
	Total				24817.82
Item- 20	Excavation, ramming, Casting Cement Concrete foundation for Apparatus cases/Location boxes in the ratio of 1:3:6 Aggregate not				
1	Apparatus case (Full)	105.00	Numbers	6081.00	638505.40
Item- 21	Installation of Apparatus cases/Location Boxes on CC foundation on grouted bolts, including filling the space enclosed below the location				
1	Apparatus case (Full)	105.00	Numbers	622.24	65335.27
Item- 22	Digging of 1.0 Meter deep and 0.3 Meter wide trenches including clearing of roots of trees and bushes and temporary obstruction on the				
1	(a) In all type of soils including soft rock	200.00	Metre	43.03	8606.44
2	(b) In rocky soil including ballast and hard rock	1000.00	Metre	531.94	531940.68
	Total				540547.12
Item- 27	Transportation of HDT machine with accessories including handling of stores materials preparation of site and boring for placing of				
1	160mm boring up to the length of 150mtr	1200	Metre	1474.56	1769467.12
2	160mm boring above the length of 150mtr	500	Metre	2176.20	1088098.09
	Total				2857565.21
Item- 29	Laying of Signal Cable of different sizes as per cable route plan in the already dug trench with or without DWC pipe / in G.I. pipes of bridges,				
1	2 Core to 12 core signaling cable	185.00	Kilometre	4229.92	782534.48
2	Power cable	19.00	Kilometre	4452.77	84602.54
	Total				867137.02

Signature Not Verified

Digitally Signed by Nitesh Kumar Upadhyay

Date: 2024.09.11 16:03:47 IST

Location: eProcurement System for Central PSUs