

Special condition of contract

1. The work should be completed within DOC.
2. Work will have to be completed as per latest IS and NR/NCR specifications. (As applicable on the date of publishing of tender.)
3. The contractor should submit valid class 'A' Electrical License issued by the state Government otherwise tender shall not be considered. If above license is submitted for renewal, then renewal fees chalan and receiving of license by concerning authority to be uploaded otherwise tender shall not be considered.
4. Within one month of issue of LOA contractor will submit material planning, project execution planning with milestone dates to complete the work within the DOC period. Failure of submission of these details within given time period will be assumed as reluctance in project execution and may lead termination of contract. Additionally, a PERT chart shall be submitted by contractor to assess the performance of project execution.
5. It will be responsibility of firm to get survey done and prepare & submit drawings, wiring diagram, proper cable route plan etc. for the building, halls, sheds, Platform, lighting portal/mast/pole etc. to concerned site in-charge for further processing and approval before execution of the work. **Delay in execution of work due to non-submission /late submission of the drawings by the contractor will be dealt strictly and may lead to severe action.**
6. It will be responsibility of contractor to submit and get all required material approval (Drawing/Specification/make etc.) done well within time. Delay in execution of work due to non-submission /late submission of such proposal for material approval by the contractor will be dealt strictly and accordingly as per GCC severe action may be taken by railways. List of likely sources of supply is attached.
7. **Quality Assurance**
 - (a) **Materials:** -All the equipment's, materials, fittings and component will be subjected to quality control programme of manufacturer, being a part of the Quality Assurance programme of the Contractor. **The materials will be inspected by the Purchaser or his representative either at the manufacturer work or at the Contractor' depot as per following procedure:**
 - i) **Consignee Inspection-** Items with total value of order less than Rs.5 Lakh shall normally be inspected by consignee.
 - ii) **RITES Inspection-**Items with total value of order more than Rs 5 Lakh shall normally be inspected by RITES.
 - Note-** 1. **In case, where due to any special reason, consignee inspection is proposed in cases of ordered value above Rs. 5 Lakh, the same should be done with the approval of the competent authority.**
 2. **Value of order will be the value of supply portion only.**
 - (b) **Erection-**All erection work will also be subjected to the quality assurance programme including inspection by the purchaser or his representative to ensure that the work is done in accordance with the specification and approved drawings and designs and purchaser's prescribed quality assurance standards.
8. Firm will have to provide the Five years warranty or applicable as per latest guideline on LED lights and fittings. Warranty Certificate in this regard issued by OEM's in favour of Railway to be submitted along with materials. SD shall be returned after completion of one year warranty period (After commissioning), firm will submit warranty certificate in original.
9. Contractor should deposit all the release materials in the stores of concerning incharge after proper accountal and it should be submitted along with bill.
10. Railways have right to change scope, layout, design at any stage.
11. In case of any type of conflict in work execution like technical description/specifications/execution etc. the same must be taken in notice of Sr DEE/G for clarification before execution of work. Decision of Sr. DEE/G in this regard will be final and binding on contractor.
12. The contractor should submit progress of work every week just after receiving of acceptance letter. Rates should be inclusive of material, labour charges and all taxes.
13. Balance sheet for the 4th previous year as para 10.2 of GCC-2022 shall be considered in evaluation of financial eligibility criteria only when it is clearly certified in Annx.-VI B or a self-declared certificate duly signed by chartered accountant and the tenderer that the balance sheet of last financial year has not been audited/ yet to be prepared.

14. Payments:

- a) 70% payment of the accepted rate of supply of machinery plant, HT/LT Cables & other high value item against indemnity bond on supply & inspection of the material after deducting SD/ST & I/Tax as per rules. Running payments up to 100% or balance 30% against installation & execution of the work after deducting SD/ST and I/Tax as per rules will be permissible.
- b) No separate/extra payment shall be made by Railways for garbage disposal work by the contractor.
- c) Payment shall be made after deductions of Penalties (as applicable as per penalty clause). If more than one type of penalties is applicable, then simultaneous deduction of all such penalties shall be done (as applicable as per penalty clause).
- d) Security Deposit (SD)/Performance Guarantee (PG) shall be released only in case of satisfactory performance of the Contractor.
- e) Non supply/delivery of Service or Consumable/Tools & Tackle item, even after intimation from Railways shall mean unsatisfactory performance and in such case Security Deposit (SD)/ Performance Guarantee (PG) shall be forfeited.
- f) Payment shall be released after deducting suitable penalties OR suitable deductions for that billing period shall be calculated and marked for deduction from Contractor's SD/PG. Such calculation sheet/note shall be attached with each bill so that necessary deduction as made.

TECHNICAL SPECIFICATION FOR SUPPLY & LAYING OF U/G CABLE

1. SPECIFICATION OF CABLES

1.1 L.T CABLE

Cross linked polyethylene insulated PVC sheathed conductor cable with common covering over cores, provided other by extended inner sheath of thermo plastic vulcanized or invulcanized rubber galvanized single trip armoring suitable for 1100 volts grade conforming to IS 157098 (Pt-I) of 1988 with latest amendments size of cable should be as per requirement shown in plan & scope of work.

1.2 ARMORING

Armoring of cable should be conform to ISS: 3975/79

1.3 INSULATION

The insulation of cable should conform to IS 7098 - Pt. -I –1988 table I.

1.4 ALUMINUM CONDUCTOR

The Aluminum conductor should comply with 8130-1984

1.5 CABLE

It should be ISI marked and should be of the make specified in attached approved list of materials.

1.6 APPROVED MAKES

1.6.1

LT Cable- IS: 7098/pt.-I (1988) with at least amendments	Attached
HT Cable – 7098/pt.-II (1985) latest amendment	-Do-

1.7 Contractor shall produce bills as a proof of buying original approved makes. Wherever cable required are one drum or more than one drum. Test certificate from the manufacturer should also be enclosed.

2.0 LAYING OF CABLES:

The laying of cable shall be in accordance with the latest edition of IS: 185/1983.

2.1 METHODS OF LAYING OF CABLES

2.1.1 The cable shall be directly laid in ground in RCC pipes in open ducts or on surface depending up on the requirement and site conditions.

2.1.2 While deciding the route of the cable at preliminary it should be ensured that the joint in the cable shall be placed at most suitable place. Such inaccessible location like the water logged areas, carriageways; pavements proximate to telecom cables, water mains, and pipelines should be avoided.

2.2 LAYING DIRECTLY IN GROUND

2.2.1 The cable should be laid directly in grounds, wherever it passing open counter, along the roads/planes etc. The area, which is likely to excavated frequently, should be avoided. Care should be taken to select the area where re-excavation is easily possible without affecting the other services in the proximity.

3.0 PROVISION OF TRENCHES

3.1 WIDTH OF TRENCH

3.1.1 The width of trench shall be determined on the following basis.

- 3.1.1.1 The minimum width of cable trench shall be 350 mm.
- 3.1.1.2 Whenever more than one cable is laid in the one trench in horizontal formation the width of trench shall be increased such that inter axial distance between the cable shall be at least 200 mm.
- 3.1.1.3 There shall be clearance of 150 mm between the cables and the sides of the trench.
- 3.1.1.4 In addition, to the protective cover over the cable laid in the underground trench, a brick on edge should be laid in between the two adjacent cables along the direction of the lay of the cable for providing separation.
- 3.1.1.5 Cable should be laid as per drg.No. Sr. DEE/G/ALD/94/112/20 attached.

3.2 DEPTH OF TRENCH

- 3.2.1 The depth of the trench shall be determined on the following guidelines.
- 3.2.2 Normally cables should be laid in single tier formation, wherever the cables are laid in single tier formation, the total depth of the trench should not be less than 750 mm for cables up to 1.1 KV grades and 1200 mm. for cables above 1.1 KV. Depth should be 1000 mm at road crossings & railway level crossings (measured from bottom of sleepers to the top of pipe) for 1.1 KV grade cable.
- 3.2.3 Clearances
 - The desired minimum clearances are as follows -

Power cable to control cable	-	200 mm	Power
cable to communication cable	-	300 mm	Power
cable to gas / water main	-	300 mm	

 - Power to power cable - Clearance not necessary: however, larger the clearance, better would be current carrying capacity.
- 3.2.2.2 Wherever it is unavoidable to lay the cables in more than one tier the depth of trench should be increased by at least 300 mm for each additional tier to be formed.

4.0 EXCAVATION OF TRENCH

- 4.1 To the extent possible the trench should be excavated in straight lines. Wherever change in line is required, suitable curvatures as per clause 4-11/pt-I shall be provided.
- 4.2 In case gradient has to be provided in the depth of the trenches, it should be gradual one.
- 4.3 Manual or mechanical means should be employed for doing excavation. The soil shall be stocked on the side of the trench in such a manner that it should not fall back into the trench.
- 4.4 Due care should be taken to avoid damage to any existing cable pipes or other such installations in the proposed route during excavation while excavating. If route markers bricks, tiles, bare or protective covers are encountered further excavation should not be carried out without the approval of Engineer/Incharge,
- 4.5 In case existing property gets exposed during trenching the same should be temporally supported or proposed adequately case shall as directed by the Engineer Incharge. The trenching in such case shall be limited to short length. Protective pipes should be laid for passing the existing cables therein and the trench should be refilled in accordance with clause-6.0/pt-II. In case there is a danger of collapse or the trench is endangering existing structure the site should be well supported before proceeding with the excavation work.
- 4.6.1 The bottom of the trench should be level, free from sand bricks bats and gravel etc. Sand cushion of at least 75mm. should be provided under the cable.

5. LAYING OF CABLE IN TRENCHED

- 5.1 Before the cable is issued for laying, the individual cores should be tested for continuity and insulation resistance. The cable should be removed from the drum by mounting the drum on jacks and spindles of adequate strength. Care should be taken so that the supporting arrangement does not creep to one side while the drum is in rotation.
- 5.2 The cable should be pulled over rollers in trench, steadily and uniformly and without jerks and strains. The entire cable should be as far as possible be laid off in one straight direction, if this is not possible, the remaining cables length be removed by FLAKING, i.e. one loop in reverse direction. After uncoiling cable and drawing to the trench over rollers. The cable

shall be lifted over the roller by the super standing about 1000 mm apart and drawn straight. The cable shall then be taken off, the rollers by the addition helpers by lifting cable and then laying in reasonably straight line.

- 5.3 In shorter runs and sizes up to 50sq mm of cable and grade up to 1.1kv any other method with the approval of Engineer Incharge may be employed.
- 5.4 After properly straightening the cable, the cores are tested for continuity and insulation resistance as per clause-1.0/Pt-IV and the cable is then measured. The end of cable should be sealed suitably to avoid ingress of moisture
- 5.5 The cable laid in a trench in a single tier formation shall have covering of dry sand of not less than 150 mm above the base cushion of sand before the protection cover is laid.
- 5.6 In case of multi tier formation, after laying the first cable sand cushion of 300 mm shall be provided if following tier are required to be provided. Each of the subsequent tier shall have sand cushion of 300 mm. The top most cable shall have sand cover of not less than 150 mm before the protection cover is laid.
- 5.7 Wherever straight through/ Tee/termination joint is to be provided a surplus length of 3000 mm of cable should be left on both the sides in the formation of loop. Wherever longer run of cable length is provided, balance cable may be left at suitable entrance as specified by the engineer Incharge.
- 5.8 Wherever the cable is entering building, fixed structure line sub station end/ or back trenches, surplus length of 3000 mm. should be left in the shape of loop, otherwise as decided by engineer Incharge. Surplus cable of same location as found suitable should be left in the shape of loop.
- 5.9 FINAL PROTECTION
The cable shall be protected in accordance with clause 5.10/Pt II to providing warning to future excavator and also for avoiding any accidental / mechanical damage by pickaxe blows etc.
- 5.10 The cable should be protected with well-burnt bricks. The bricks on face should be so provided that the width of the bricks in the direction of lay of cable. The bricks should be provided through out the length of the cable to the satisfaction of the engineer in charge. Wherever more than one cable is laid in the same trench the protection cover for cables should protect at least 50 mm on the side of end of cable.
- 6.0 BACK FILLING OF TRENCHES
- 6.1 After excavation and laying cables, the trenches should back filled with excavated earth, free from stone and other sharp edged debris and should be watered if necessary. A crown of earth of 50 mm should be left in center, tapering towards the sides of the trench to allow for absided. The trench should also be inspected at regular intervals particularly during wet weather and any settlement shall be made good by contractor by further filling if required.
- 6.2 Due to cable laying work any disturbance to existing equipment in the area like road. Pavements, garden should be made good after the cable laying work is over.

7 ROUTE MARKER

- 7.1 Route marker should be provided along straight some of cables at locations approved by the engineer in Incharge and generally at intervals not exceeding 100 mtr. Wherever the cable route is changing or it is entering a fined installation, route marker must be provided.
- 7.2 Route marker shall be made out of cement concrete. The said route marker shall be mounted parallel to and at a distance of 500 mm from the edge of the trench
- 7.3 The works cable, the level of voltage, size of cable should be inscribed on the route marker.

7.4 CABLE IDENTIFICATION TAGS

- 7.4.1 Cable marker should be provided where more than one cable is laid in juxtaposed configuration. The marker stages as approved inscribed with cable identification detail shall be permanently attached to all the cables in the map hole pits / interim points in building, through open duct and at suitable interval along the length.

8.0 LAYING OF CABLES IN PIPES/CLOSED DUCTS

- 8.1 Wherever the cable is to cross road, Rly track enter into any building, washing pits be mounted on poles be laid in paved area, the cable shall be laid in pipe or closed ducts. Crossing the track shall conform to "Regulation for Electrical crossing of Railway track 1977" amended up to date.
- 8.2 Hume of GI pipe shall be used for such purposes. The dia meter of such pipes shall be adequate for passing of cables. The pipes shall be laid on suitable bed provided the ground. Sand cushion/bricks/tiles if required can be provided under the pipe. The pipe should be filled with sand after laying the cable inside, the top surface ground level.
- 8.3 The pipe on road crossing should be laid on the skew to reduce the angle of bend, if the cable enters in a level crossing. This is very important for high voltage cables. If the cable is to be laid in the duct suitable manhole cut out inspection and maintenance of cable.
- 8.4 Pipes shall be continuous and clear of any debris. Before drawing of cable all sharp edges at ends should be smoothed to prevent possible damage against insulation and or sheathing.
- 8.5 Wherever pipes are provided for entry of cable into building the same shall slope down ward and other ends shall be sealed to prevent entry of water inside the building.
- 8.6 All chases and passages necessary for the laying of service cable into building the same shall be cut as required and made good to the original finish to the satisfaction of Engineer incharge.
- 8.7 Cable grips/draw wire and winch exerts be employed for drawing. Cables through pipes/close ducts etc. without damaging the conductor and insulation and ensuing proper safety.

9.0 LAYING IN OPEN DUCTS

- 9.1 Open ducts with suitable removable covers should be preferred in sub station, switch rooms, plant rooms' generator rooms and in workshop etc. The cable ducts should suitable direction so that the cable shall be laid conveniently. If required, the cable can be fixed with clamp on the walls of the ducts. The duct shall be covered with removable RCC slab of suitable dimension MS cover chequered plates covers so that cover can be lifted conveniently for maintenance and replacement.
- 9.2 The ducts should be filled with dry sand after the cable is laid and covered or finished with cement plaster especially in high voltage applications.
- 9.3 No Joint/splices should be permitted inside the ducts.
- 9.4 As far as possible, laying of cable with different voltage grades in the same duct should be avoided.
- 9.5 The cable trays, hooks or rakes should be provided for supporting cables in masonry/ concrete cable ducts etc. otherwise the cable can be laid directly in the ducts or trench throughout etc. While laying the cables in ducts due care should be exercised to ensure that unnecessary crossing of cable is avoided.

10.0 LAYING OF SURFACE

- 10.1 In the switching stations, factories, tunnels, washing line, platform and for rising mains through special rack ways, the laying of cable on surface should be done.
- 10.2 The cable shall be laid in troughs or bracket set regular interval or directly cleated to wall/ceilings.
The cable should be laid over bucket support and clamps to prevent under sag.
- 10.3 The cable clamps should be made from material such as mild steel porcelain wood, Alum. PVC Epoxy materials. These should be non-magnetic and non-corrosive in nature.

11.0 DROPPING OF CABLE

- For tapping DG supply to battery charging terminal. The single core PVC insulated sheathed, multistranded unarmored aluminum conductor cable shall be cut into one meter length (As per site requirement).
- At one end of cable crimping socket shall be crimped and shall be connected to battery charging terminals and other end of cable shall be connected to the 120 Sqmm cable using P.G. clamps PVC adhesive tape approved by Engineer-in-charge shall be provided at each tapping points.

- 12.0 CABLE TESTING
- 12.1 TESTING
- All cables before laying should be tested with 500 volts megger up to and including 1.1 kv grade or with 5000 volts megger for cables of higher voltage. The cable cores should be tested for continuity, insulation resistance etc. All cable should be tested during laying and before covering. After laying and jointing the cable should be subject to a 15 minutes pressure test.
- 12.2 After laying cable and jointing, the cables should be subjected to a high voltage test as per guideline of EL: 1955-1985 and the results are received as per annexure –III.
- 12.3 In case high voltage test is not possible at site, the cable should be tested for a minutes with 1000 volts megger up to 1.1 KV grade and width 3500-5000 megger for cables of higher grade.
- 12.4 Annexure I & III shall be filled up by contractor jointly with Engineer - in-charge.
- 13.0 COMPLETION PLAN
- 13.1 The work should be carried out in accordance with the approved drawings. In case there is a deviation the same should be get approved from the Engineer – in – charge before execution of work is taken up. The completion plan should be drawn in a tracing sheet with polyester backing with indication following.
- 13.1.1 Lay out of cable work.
- 13.1.2 Length, size, type and voltage rating of cable.
- 13.1.3 Method of laying i.e. directly in ground / duct/pipes.
- 13.1.4 Location of each joint with joint followed
- 13.1.5 Route marker & joint marker with clearance from permanent land mark available.
- 13.1.6 Name of work etc.
- 14.0 METHOD OF CABLE LAYING
- 14.1 The details shall be submitted by the contractor as per annexure I enclosed.
- 15.0 CABLE JOINTING
- 15.1 Cores shall be provided with following scheme for PVC insulation.
- 15.1.1 1 core Red/Black/Yellow/Blue
- 15.1.2 2 core Red & Black
- 15.1.3 3 core Red Yellow & black
- 15.1.4 4 core Red/yellow/blue and black (Black is for neutral)
- 16.0 CABLE JOINTING
- 16.1 Preferably XLPE jointing kit should be utilized for jointing of cables.
- 16.2 The manufacturer's instructions mentioned in the jointing should be followed.
- 16.3 Insulation resistance of cable to be jointed should be measured with 500-volt megger up to 1.1 KV grade and with 2500-volt megger for cables of higher voltage. Unless insulation resistance value of cables are satisfactory the jointing should not be done.
- 16.4 Before jointing work is taken up safety precautions like insulation earthing etc should be observed to ensure that the cable would not be inadvertently charge, metallic armored and external banding should be connected to earth.
- 16.5 Wherever the system of permit to work is prevalent, this should be followed for cable jointing work.
- 16.6 Identification of cable should be very properly done before jointing is taken up. Proper identification of individual core is also very important to avoid any cross connection and damage to installation.
- 16.7 Complete record of joint etc. shall be maintained as per annexure if in addition to site plan.
- 16.8 Contractor shall fill up Annexure jointly with Engineer – in - charge.
- 17 CABLE LAYING (HT & LT) SHOW N
- SEPARATE Date of test
Voltage of megger used
Location from
to Size in sq
mm Total
length

Megger value at the time of issue
Megger value during laying & before covering

Signature of supervisor

Signature of contractor

18. High voltage testing before commissioning HT/LT cable and overhead lines work

Cable works

- i) Wherever high voltage test was conduct ----- Yes / No
- ii) If conducted, system of supply -----
Test H/V applied -----KV for ----- minutes.
Result of test ----- (Satisfactory / Unsatisfactory)
- iii) If not conducted
Voltage of megger used -- -- -- -- --
Result of megger used -----
Result of megger testing -----
Between R & Y
Y & B
B & R

-do- R & N
Y & N
B & N

-do- R & E
Y & E
B & EN
& E

Signature of supervisor

Signature of contractor's

19 Cable jointing No of joint Location Type of jointing
Size of cable I
II

Clause Nos

Voltage of megger used I
II

i) Insulation resistance before jointing

Cable I	a)	Between	R & Y Y & B B & R
	b)	-do-	R & N Y & N B & N
	c)	-do-	R & E Y & E N & E
Cable II	a)	-do-	R & Y Y & B B & R
	b)	-do-	R & N Y & N B & N
	c)	-do-	R & E Y & E N & E

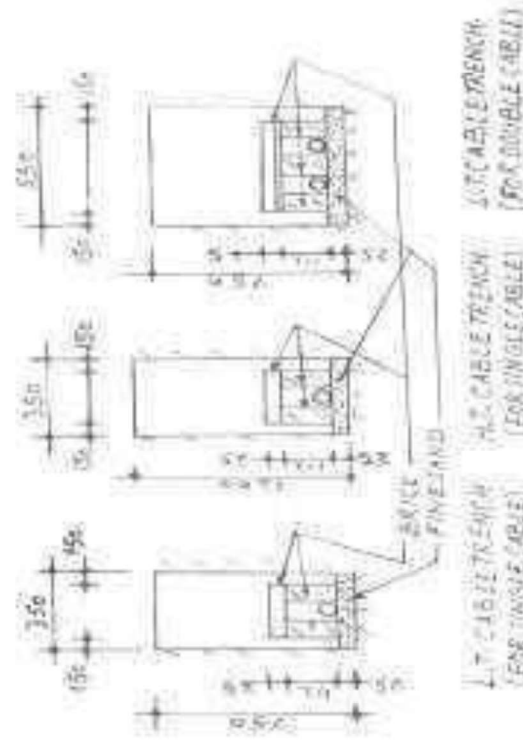
ii) Insulation resistance of jointed cable

a)	Between	R & Y Y & B B & R
b)	-do-	R & Y Y & B B & N
c)	-do-	R & E Y & E N & E

Signature of supervisor

Signature of contractor

A DETAIL OF H.T. AND L.T. CABLE TRENCH WITH BRICK & FINE SAND.



B DETAIL OF CABLE LAYING IN HUME PIPE.



DATE	
DESIGNED BY	
CHECKED BY	
SCALE	
PROJECT NO.	

No - Sr. DEE/G/ALD/ Cu. Plate Earthing/ 95/114

Specification Of Copper Plate Earthing -

1. **EARTHING -**
The earthing shall be conform to the following specification for other details not covered under this specification. The IS: 3043 and National Electric Code 1985 section 12 be referred to. The contractor shall get the Earthing arrangement approved by Sr. DEE/G/ALD.
2. **TYPE -**
Copper plate earth electrode shall be provided for earthing.
3. **ARRANGEMENT -**
Copper earth electrode shall be of high grade Electrolytic Copper plate of size 600X600X3.18 mm. The plate is kept with its face vertical at a depth of 3 Meters (10 Ft) and is so arranged that it is embedded in an alternate layer of coke and salt for a minimum thickness of about 15 cm. The earth wire is securely bolted to the earth plate with the help of nut - bolt and washer, made of copper.
A GI pipe of 19.5mm dia and 2.5 mtr long having funnel of 20 SWG GI sheet with GI mesh on top shall be provided for watering purpose.
The top of the pipe shall be housed in the masonry enclosure of not less than 40X40X30 Cm depth (internal size).
4. **COVER -**
A precast RCC cover of 40 mm thick having lifting arrangement shall be provided to cover the masonry enclosure.
5. **EARTH ELECTRODES AND DESIGN OF EARTHING STATION -**
Copper plate earthing shall be as per chapter 12 of National Electric Code 1985 and ISI. Details of electrode and earthing stations are shown in Drawing No 1/95.
6. **LOCATION FOR EARTH ELECTRODE -**
Normally earth electrode shall be situated less than 1.5 meters from any building. Care shall be taken that the excavation for the earth electrode may not affect the column footings or foundation of the building. In such cases, electrodes may be farther away from the building. The location of the earth electrode will be such where the soil has reasonable chance of remain in moist as far as possible. Entrances, pavements and roadways are definitely avoided for locating the earth electrode.
7. Normally the plate electrode shall be buried at a minimum depth of 3.0 meter from the ground level (measured up to top of the plate electrode). The depth shall be increased in case parent soil is not available at a depth of 2 meter. In such cases, the top of plate electrodes shall be kept at a minimum depth of one meter from the top of the parent soil.
8. **ARTIFICIAL TREATMENT OF SOIL-**
For ensuring the low earth resistance, the soil be subjected to artificial chemical treatment. For this purpose, the most commonly used substances are sodium chloride (common salt) and coke or charcoal in a alternate layers.
9. **SIZE OF EARTHING LEAD -**
Size of earthing lead shall be 8 SWG copper wire.
10. **METHOD OF CONNECTING EARTHING LEAD TO EARTH ELECTRODE -**
The earthing lead of 8 SWG size shall be connected to earth electrodes by means of copper bolt, nuts & washers and thimble / lugs as shown in drawing and to the body of the equipments, all the equipments shall be earthed at two different places with the earth electrodes. Loop earthing shall be provided for all mounting of electrical equipments.
11. **PRECAUTION -**
Water pipes shall not be used under any circumstances as earthing lead or earth conformity conductor.
12. **PROTECTION OF EARTHING LEAD -**
The earthing lead from electrode onwards shall be suitably protected from mechanical injury by a ('B' grade) 15mm dia medium class GI pipe in case of wire. Portion of this, protection pipe with in ground shall be buried at least 30 Cm depth (to be increased to 60 Cm in case of road crossing and pavements) the portion within the building shall be recessed in walls and floors to adequate depth (para 1 to 9 of CPWD General specification for Electrical works Part -I internal 1972).

13. RESISTANCE TO EARTH -

13.1 No earth electrode shall have a greater Ohmic resistance than 5 ohms, in rocky soil the resistance may be up to 8 ohms (para 1.6.11 of CPWD General specification for Electrical works Part -I internal 1972).

13.2 Every individual earth shall be allotted a serial Nos and an earth plate of the size 30X22 Cm approximately of sheet steel (Painted black) shall be fixed in a conspicuous position near the earth. Following information shall be written with white or yellow paint on the earth plate.

- a. Earth No. - _____
- b. Individual Earth Resistance- _____ Ohms
- c. Overall Earth Resistance - _____ Ohms
- d. Date of test - _____

14. EARTH RESISTANCE TEST & EARTH CONTINUITY TEST -

Earth resistance test & earth continuity test shall be carried out with the help of earth tester as per IS specification after completion of job to obtain the desired value of earth resistance and earth continuity.

NOTE -

- 1- During the process of making the earthing stations, each stage, such as digging, fixing the earth electrode, layering of salt and charcoal, connecting earth lead to earth electrode shall be got inspected by the authorized representative of Sr. DEE/G/ALD and shall be recorded by the contractor. due notice shall also be given to Engineer incharge for inspection of earthing stations before back filling.
- 2- Before energization of sub station equipments, the earthing system shall be checked by the contractor in presence of Sr. DEE/G/ALD's authorized representative and test report be submitted to Sr. DEE/G/ALD for his approval on the prescribed proforma.

- TEST REPORT OF EARTHING SYSTEM -

(To be conducted by earth tester)

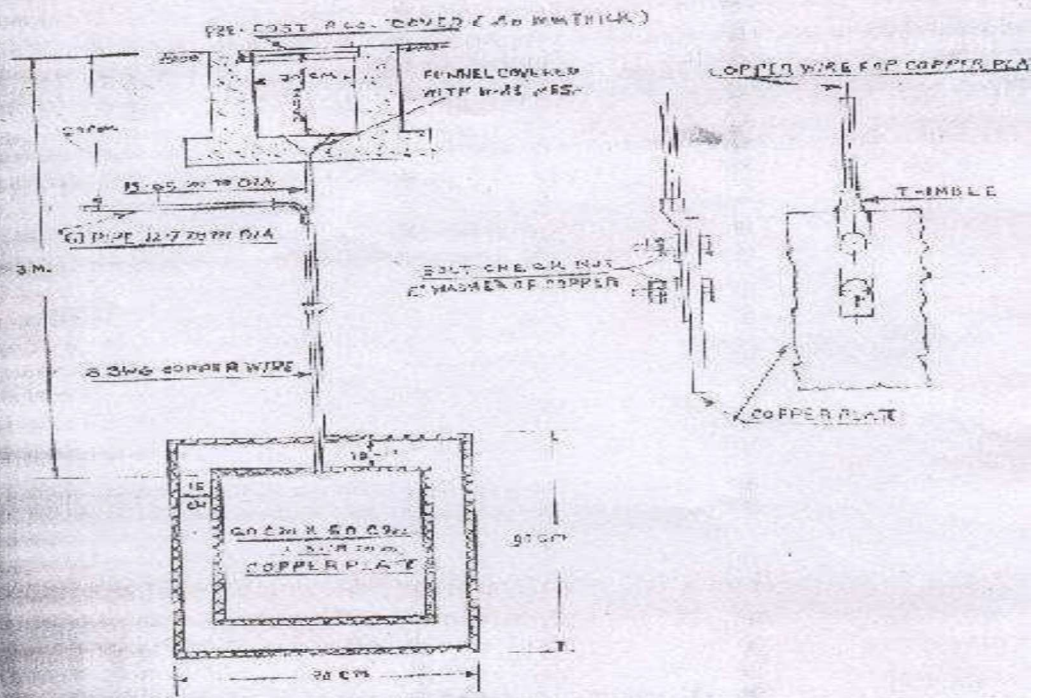
1) Individual Earth Resistance:

Earth Electrode No.	Resistance in Ohm
1	Ohm
2	Ohm
3	Ohm
4	Ohm
5	Ohm
6	Ohm

2) Overall Earth Resistance:

- a) LT Earth Electrode -- Ohm
- b) Neutral Earth Electrode -- Ohm

1. Sign of Contractor



DETAIL OF COPPER PLATE EARTHING STATION

C.E.D. P. V. S. CT/ALD	[Signature] A.E.E.(G) ALD.	[Signature] SR.D.E.E.(G)
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Details of Pipe Earthing

1. Earthing shall conform to following specification. For other details not covered in this specification. Indian Standard IS – 3043:1987 or latest shall be referred.
 - Type: - Pipe earth electrode shall be provided for earthing.
 - Arrangement: GI pipe shall be of medium class 50 mm dia not less than 4.0 Mtrs. in length confirming to relevant Indian Standard specification.

GI pipe electrodes shall be cut tapered at the bottom and provided with holes of 12 mm dia drilled not less than 7.5 cm. from each other up to 3 mtrs. of length from the bottom. The top of pipe electrode shall be housed in a PCC (1:4:8) enclosure of size mentioned in drawing. The pipe electrode shall be buried in the ground vertically, with its top nearly 15 cm below top of enclosure.
 - Cast Iron cover hinged to a Cast iron frame having lifting arrangement shall be provided to cover the PCC enclosure as per attached drawing.
2. **Location for earth electrode-**

Normally an earth electrode shall not be situated less than 1.5 mtrs. from any building. Care shall be taken that the excavation for earth electrode may not affect the column footings or foundation of the buildings. In such cases electrodes may be further away from the building. The location of the earth electrode will be such where the soil has reasonable change of remaining moist as far as possible. Entrances, pavements and roadways are defiantly avoided for locating the earth electrode.
3. **Artificial treatment of soil: -**

The earth electrode resistance shall be reduced, wherever required by artificial chemical treatment of soil. For this purpose, earth enhancing materials like most commonly used substances are sodium chloride (Common salt) mixed with soft cokes or charcoal in suitable proportion.
When this treatment is resorted, the electrode shall be surrounded by charcoal /coke & salt. Arrangement for this treatment, wherever if required, should be as per drawing attached with this spec.
4. **Size of earthing lead -**

Minimum size of main earthing lead shall not be less than 8 SWG G.I wire or 25mm x 4mm G.I strip. The normal minimum cross-sectional area of an earth continuity conductor not contained within a cable or flexible cord shall be 12 SWG GI wire of 4 sqmm wire.

 - 4.1 Method for connecting earthing lead to Earth Electrode:

Earthing lead shall be connected to pipe earth electrode by connecting GI strip or GI wire to a GI Strip Bus-Bar of size 6x25x150mm which is exothermically welded to the earth electrode. Arrangement for which is provided in drawing.
All materials used for connecting the earth lead with electrode shall be of GI.

 - 4.1.1 The earthing lead shall be securely connected at the other end to the main heard.
 - 4.1.2 Funnel with wire mesh should be provided.
 - 4.1.3 Loop earthing shall be provided for all mountings of main board or other metal clad Switches and distribution fuse board with not less than 12 SWG GI or 4 sqmm Alu. wire.

5. Precautions

5.1.1 The neutral conductor shall not be used as earth wire or vice versa.

5.1.2 Water pipes shall not under any circumstances to be used as earth continuity conductors.

6. Protection of earthing lead:

The earthing lead from electrode onwards shall be suitable protected, wherever required, from mechanical injury by a 15 mm dia. GI, pipe in case of wire and by 10 mm dia medium class GI pipe in of strips portion of this protection pipe within ground shall be buried at least 30 cms. deep (to be increased to 60 cms. in case of road crossing and pavements). The portion within the building shall be recessed in walls and floors to adequate depth. No earth electrode shall have a greater ohmic resistance than 5 ohms.

7. Every individual earth shall be allotted a serial number. Following information shall be suitably written with white or yellow paint.

- a) Earth No.
- b) Individual earth resistance..... ohms
- c) Overall earth resistance..... ohms
- d) Date of test

Test report of earthing system (To be connected by earth Tester)

i) Individual Earth Resistance

- Earth Electrode No 1 _____ ohm
- Earth Electrode No 2 _____ ohms
- Earth Electrode No 3 _____ ohms

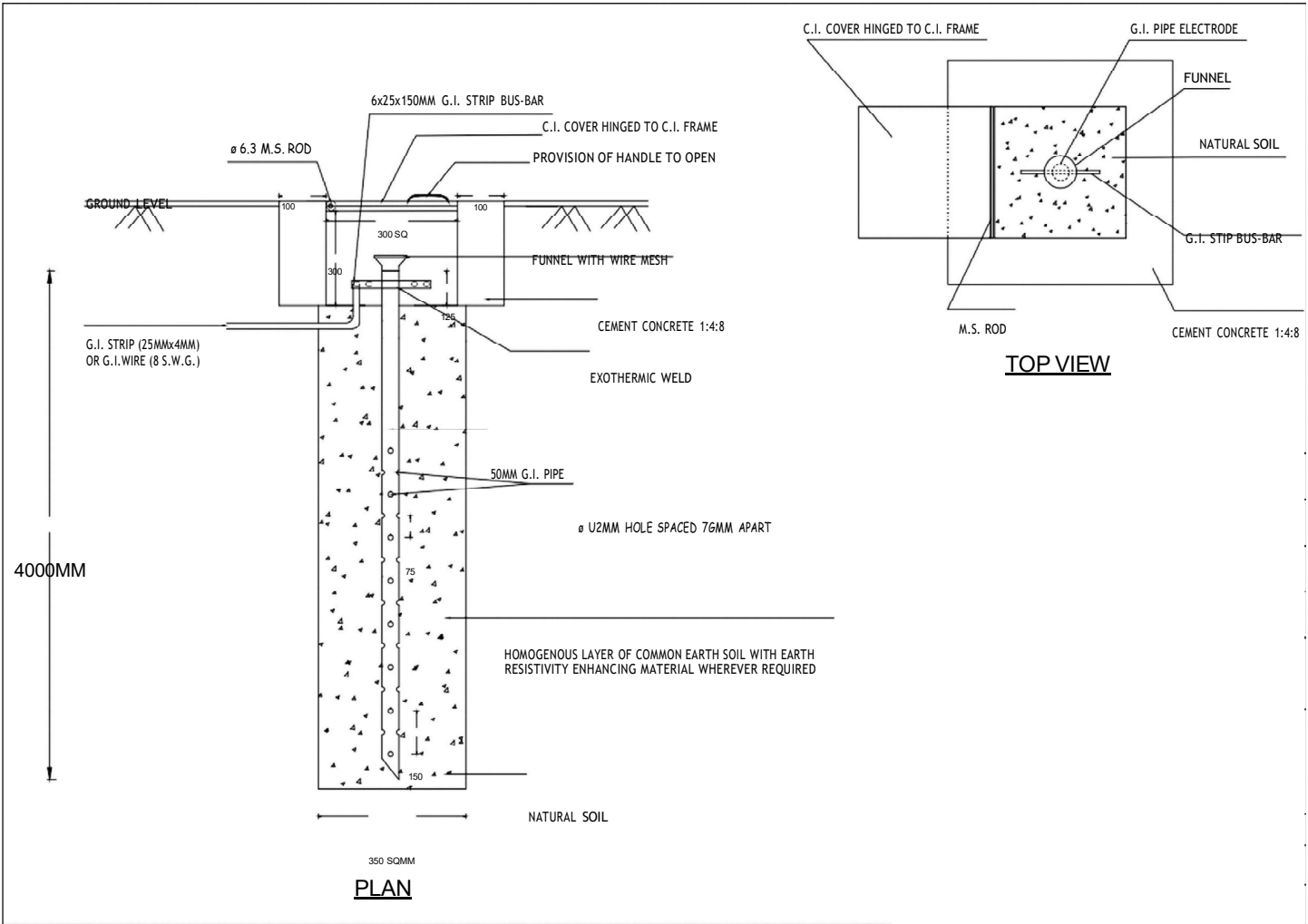
ii) Overall Earth Resistance:

- a) HT earth electrode _____ ohms
- b) LT earth electrode _____ ohms
- c) Neutral earth electrode _____ ohms

Note: Before energization of installation earthing system will have to be checked by contractor in presence of Sr. DEE/G/PRYJ's authorized representative/Site in charge and test report be submitted to Sr. DEE/G/PRYJ for his approval on above prescribed Performa.

Signature of Engineer/In charge

Signature of Tenderer



Technical specification of LT Switchgear Panel

1. **SCOPE –**

The LT panel switchboard cubical type shall be suitable for 3 Phase, 4 wire, 415-volt, 50 C/S AC supply earthed neutral electric supply system complete with accessories inter connection, aluminum earth strips, earthing sockets duly wired with aluminum conductor cable and other accessories though not mentioned here but necessary to complete the supply in all respect.

2. **SITE CONDITION –**

Height above means sea level - below 1000 meter
Maximum ambient temperature - 45 °C
Minimum ambient temperature - 03 °C

3. **PARTICULAR OF ELECTRIC SUPPLY SYSTEM –**

3 Phase, 4 wire, 415-volt, 50 C/S AC solidly earthed neutral system.

4. **TYPE OF SWITCH BOARD**

The switchboard shall be cubical type metal clad, floor mounted, free standing, indoor type dust and vermin proof of uniform height and multi-tier construction so as to occupy minimum floor area.

5. **DETAIL OF SWITCH BOARD –**

The panel board shall be made of 2 mm thick dia pressed CRC sheet steel construction of adequate size having, separate chamber for main bus-bar in horizontal shape and vertical chamber for auxiliary bus bar. Switches and connection boxes should have spaced as per I.E. Rules. Panel should have fixed arrangement for fixing on the pucca floor with the help of grouted bolts, nuts, plain washers & spring washers. Two Nos. of sets of adequate size should be provided for the purpose for earthing. Complete panel should be painted with one coat of anti – corrosive red oxide paint and two coats of gray stove enameled paint after **seven-tank treatment**. Name of feeder to be advised at the time of erection shall be displayed on the covers of individual switches / control gear.

Switchboard shall consist of totally shrouded bus bar. Chamber with screwed covers (screws should remain with the covers when covers are removed for maintenance). Bus bar should be of high conductivity aluminum suitable for electrical purposes and of uniform cross section having rating (1000 Amps/Sq. inch) unless otherwise specified.

Bus bar shall be suitably insulated with heat shrinkable sleeves / Epoxy coating / Insulating taps to withstand the test voltage of 2.5 KV. Bus bar is to be supplied in **two sections** having distribution for feeding the emergency and non – emergency loads.

6. **STANDARD SPECIFICATION –**

The equipment shall conform to latest addition of I.S. specification and of approved makes attached as annexure-III

1.	IS: 2516/85 (Category P2)	AC circuit breaker voltage not exceeding 1000 volts.
2.	IS: 1240	Ammeter, voltmeter accuracy Class 1
3.	IS: 1897	Aluminum bus bar.
4.	IS: 375	Marking and arrangement of switchgear, bus bar, mains connection & auxiliary wiring.

5.	IS: 4064/78	TPN Fuse switch units.
6.	IS: 722 Pt-3/77	KWH Meter.
7.	IS: 9224 Pt-1 &11/79	HRC Fuses.

7. **INDIAN ELECTRICITY ACT & RULE**
The equipment shall comply with the Indian Electricity Act 1910 and rules framed there under.
8. **FINISH -**
Panel shall be treating for anti-corrosion, seven tank treatment and finished with stove enameled smoke gray paint.
9. **TECHNICAL PARTICULAR -**
Tenderer shall supply full description, literature and technical particulars of equipment's offered. All equipment should have test certificate of the recognized/NTHto conform relevant IS specifications.
10. **DRAWINGS -**
General arrangement and wiring drawings shall be supplied by the successful tendererfor approval and records.
11. **SPECIAL TOOLS -**
i) Special tools required if any shall be supplied free of cost with the switchboard.
ii) 'DANGER' notice plate shall be fixed on front and back panels conforming to IS: 2551/63.
12. **GENERAL CONDITION -**
The contractor shall be bound by all Railway General Condition of Contract.
13. **INSPECTION -**
Inspection shall be done by Sr. DEE/G/PRYJ or his authorized representative duringthe various stages of manufacture.
14. **DEVIATION -**
Deviation from any of the clauses of this specification shall be clearly pointed out, clauses not so commented shall be taken as having met with the acceptance of the tenderers and binding on him.
15. ACB should confirm to technical specification attached as Annexure - I.
16. SFU & FSU should conform and CEE Specification No. 55/Elec/P/1989 attached as Annexure - II.

SCHEDULE OF TECHNICAL PARTICULARS OF LT PANEL

1. GENERAL:

Type Of Switchgear: Rated Voltage:

Indicate Conformity to Standard Specification (State 'Yes' or 'No' incase of 'No'

indicate standards to which the equipment conforms):

- i. Circuit Breaker (IS: 2516) -
- ii. Marking & arrangements of bus-bar: Main connection (IS: 375)
- iii. Current Transformer (IS: 2705)
- iv. Switchgear oil (IS: 355)
- v. Meters (IS: 1248)
- vi. Triple pole switch fuse units (IS: 4047)
- vii. Bus-Bar (BS: 159, 2898 & 8897)
- viii. HRC Fuses (IS: 2208)

Overall dimensions (Length, width & Breadth): Weight of switchgears:

2. BUS - BAR:

Material:

Section:

Capacity:

3. Incoming / Outgoing Panels:

Numbers & capacity:

Symmetrical breaking capacity in MVA at _____ volts:

Current Transformer:

- i. Ratio -
- ii. Burden (VA) -
- iii. Accuracy class -

Voltmeter:

- i. Type
- ii. Range

Ammeter:

- i. Type
- ii. Range

Type of overload trips and steps:

Type of overload trips and steps:

4. OUTGOING CIRCUITS:

Numbers & capacity -

Symmetrical breaking capacity in MVA at _____ volts -

Current Transformer:

- i. Ratio -
- ii. Burden (VA) -
- iii. Accuracy class -

Ammeter:

- i. Type
- ii. Range

Cable entry arrangements, for which fuse units if mounted above the bus bars -

- i. Size & type of cable glands provided -
- ii. Whether adequate chamber provided for reverse entry of cables -

Cable entry arrangements for switch fuse units if mounted below the bus bar -

- i. Size & type of cable glands provided -

TECHNICAL SPECIFICATION FOR AIR CIRCUIT BREAKER

1.0 SCOPE

This specification pertains to alternating current. Circuit breaker conforming to IS: 2516 (Pt-1 & 11 Sec. -I)1977 (Voltage not exceeding 1000 volts AC) category P2 for LT power supply system of 415 volts 3 phase 50 c/s.

2.0 ESSENTIAL REQUIREMENT

- 2.1 Continuous rating - as required
- 2.2 Minimum short circuit, breaking capacity - 45 KA (RMS Symmetrical)
at 415 volts, 50 c/s AC at 0.85 PF
- 2.3 Maximum short circuit making capacity - 94.5 KA
- 2.4 Fixed time delay - 20 - 40 millisecond
- 2.5 The air circuit breaker shall be horizontal draw out type manually operated, trip free, front operated with on- Off indication. The breaker mechanism should be robust, quick making breaking.
- 2.6 A heavy-duty plug-in type earth contact to make before and break after engagement and disengagement of isolating contacts of the breaker.
- 2.7 Additional padlocking arrangement shall be provided when the breaker is drawn out in off position.
- 2.8 The circuit breaker shall be fitted with CT operated thermo magnetic releases for over load and short circuit protection. The releases shall be independently adjustable. The adjustment of setting should be possible without disrupting the supply. The releases shall be of ambient temperature compensating type. The presetting should be done at 40 C ambient temperature. The thermo magnetic release setting shall be adjustable from 80-00.
- 2.9 The ACB should be provided with main contacts and arcing contacts with effective extinguishing device.

3.0 GENERAL ARRANGEMENTS & CIRCUIT DRAWING

Successful tenderer shall send 3 copies of drawings/ leaflet showing mounting arrangements.

4.0 SERVICE INSTRUCTION/ MAINTENANCE INSTRUCTION

Successful tenderer shall send 3 copies service instructions/maintenance instructions along with the equipment's.

5. SPECIAL TOOLS

Tenderer shall indicate in the tender special tools, if any required for maintenance of the equipment and shall supply one of the same for circuit breaker along with the equipment at no extra cost.

6.0 INSPECTION & TESTING AS PER IS

Test as per IS: 2516/77 (Latest issue) shall be carried out at site by Sr. DEE/G/ALD or his authorized representative. Full facilities for carrying out the tests shall be made available by the tenderer at their cost. Copy of the type test report from a recognized test house shall be furnished by the tenderer to the inspecting authority.

7.0 INSTRUCTION TO TENDERER

8.1 TECHNICAL LEAFLET

Tenderer shall send illustrated technical leaflets of equipment's along with the tender

8.2 LIST OF ACCESSORIES / SPARE PARTS WITH FIRM NOMENCLATURE, DESCRIPTION & MANUFACTURING IDENTIFICATION -

Tenderer shall supply spare parts catalogues along with the equipment's.

8.3 RECOMMENDED SPARE FOR TWO YEARS MAINTENANCE

Tenderer shall submit a recommended list of spares for 02 years working indicating unit price for each item along with the tender.

SPECIFICATION FOR COMPOSITE SWITCH FUSE AND
FUSE SWITCH UNIT RATING 32A, 63A, 100A & 200 Amps.

1. SCOPE - This specification covers the requirement of Air-Break composite switch fuse and fuse switch units to be used in distribution circuits, motor circuits and sub stations. The rated voltage of switch does not exceed 1000V AC.
2. DESCRIPTION - The description of switch fuse & fuse switch unit for different rating shall be as follows –
 - 2.1 Rating 32A - Heavy duty composite switch fuse unit, un-interrupted duty, triple pole, rewirable type fuses with neutral link, painted with anti-corrosive paint, suitable entry holes for cables, cover and handle interlocked, AC-22 utilization category suitable for used on 415V, 50 C/S AC supply and conforming to IS-4064/78 (Latest), preferably ISI Marked.
 - 2.2 Rating 63A - - - - Do - - -
 - 2.3 Rating 100A - Heavy duty composite switch fuse unit/Fuse switch unit double break type un-interrupted duty, triple pole with ISI marked HRC fuses. Neutral link, weather, dust & vermin proof in metal enclosure painted with anti-corrosive paint, suitable entry holes for cable, cover and handle interlocked, AC-23 utilization categories suitable for used on 415V, 50 C/S AC supply and conforming to IS-4064/78 (Latest), preferably ISI Marked.
 - 2.4 Rating 200A - - - - Do - - -
3. INSTRUCTIONS TO TENDERERS –
 - 3.1 Tenderer should submit technical leaflet, complete test certificate of Govt., approved test house along with their offers.
 - 3.2 Tenderers should submit a copy of ISI License for this ISI marked products.

Annexure -C

2. Request letter from Executive
branch to Accounts Office for
opening of LC

Office of DRM/PRYJ
N. C. Railway

No.

Dated -

The Sr. DFM/PRYJ/ NCR

Sub: - Opening of LC
Ref: - Supply Order/ Contract Agreement No.

It is requested to open a sight LC against the above referred Order/ Agreement in favour of.....The details of beneficiary are as under:

- i. Name of Contractor/Supplier
- ii. Vendor Code
- iii. Address
- iv. Tender No.
- v. Contract Agreement No.
- vi. Description of Goods/ Service
- vii. Value of Contract
- viii. Stages of payment
- ix. Expected payment within 6 months (LC Amount)
- x. Beneficiary bank details:
 - a) Bank name
 - b) Address
 - c) Account No.
 - d) IFSC code
- xi. Validity/period for which LC is to be opened

It is certified that the supplier/ contractor has exercised the option of taking payment due against the tender, through LC arrangement in IREPS portal at the time of bidding itself and the Option has been flagged in the IREPS. This has the approval of

(Signature) Name: Designation: _ (Official Seal)

Annexure-D

LCDA No-(18 DIGIT IPAS GENERATED No.)
Dated:

DOCUMENT OF AUTHORIZATION

Reference: (i) Works Contract/Supply Contract No -----Dated-----
(ii) Inland Letter of Credit No. ----- Dated -----

This document is issued against contract No. -----(FROM IREPS) ----- dated --- for supply/
work of -----(DESCRIPTION OF GOODS/WORK FROM IREPS)-----

The beneficiary of the aforementioned Letter of Credit M/s (NAME AND VENDOR CODE)(Vendor Code as per IRPES) is entitled to receive payment aggregating INR ... \$\$\$ (FROM ABSTRACT BILL PASSED) out of a total LC amount of INR (FROM MASTER TABLE OF LC OPEN ED)against the first/second commercial Invoice No. (FROM IPAS) ----- dated-----FROM IPAS----- for INR (FROM IPAS) raised against the above contract from State Bank of India-----(branch-FROM LC MASTER TABLE) ----- on the strength of this Certificate.

The details of payments already made to the beneficiary under this Letter or Credit are as follows:

SN	Invoice No.	Invoice date	Invoice amount (INR)	LCDA No.	LCDA date	Amount Paid (INR)
Total Paid						

THIS PAYMENT: ----- \$\$\$-----
LC BALANCE AFTER THIS PAYMENT

(Signature of authorized Railway authority)
Name:
Designation:
Official seal:

**FORMAT FOR CERTIFICATE TO BE SUBMITTED / UPLOADED BY TENDERER
ALONGWITH THE TENDER DOCUMENTS**

I.....(*Name and designation*) **appointed as the attorney/authorized signatory of the tenderer (including its constituents), M/s _____ (hereinafter called the tenderer) for the purpose of the Tender documents for the work of _____ as per the tender No. _____ of _____ (*Railway*)**, do hereby solemnly affirm and state on the behalf of the tenderer including its constituents as under:

1. I/we the tenderer (s) am/are signing this document after carefully reading the contents.
2. I/We the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the tender documents from Indian Railway website www.ireps.gov.in . I/we have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy available with the railway Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
5. I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.
6. I/We declare that the information and documents submitted along with the tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents, submitted by us.
7. I/we certify that I/we the tenderer(s) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
8. I/we understand that if the contents of the certificate submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security besides banning of business for a period of upto two year. Further, I/we (*insert name of the tenderer*) ** _____ and all my/our constituents understand that my/our offer shall be summarily rejected.
9. I/we also understand that if the contents of the certificate submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Bid Security/Security Deposit and Performance guarantee besides any other action provided in the contract including banning of business for a period of upto two year.
10. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

SEAL AND SIGNATURE
OF THE TENDERER

Place:
Dated:

This certificate is to be given by each member of JV or Partners of Partnership firm/LLP/etc.

E. New Annexure-V(A), Part I of GCC shall be read as under

ANNEXURE-V(A)
Reference -Para 6.1 of ITT

(This certificate is to be given by attorney/authorized signatory/each member of Partnership firm/Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc.)

I/We.....(Name), attorney/authorized signatory of the.....
(constituent firm/constituent partner) and member/partner of the
.....(tendering firm) hereby solemnly affirm and state as under:

1. I/we certify that (constituent firm/constituent partner) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
2. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed),

SEAL AND SIGNATURE
OF THE CONSTITUENT FIRM/CONSTITUENT PARTNER

Place:
Dated:

(Bid Security)

**1. Bank Guarantee Bond from any scheduled commercial bank of India
(On non-judicial stamp paper, which should be in the name of the Executing Bank).**

Name of the Bank: -----

President of India,
Acting through,
..... Railway,

Beneficiary..... Railway

Date:

Bank Guarantee Bond No.:

Date: -----

In consideration of the President of India acting through -----(*Designation & address of Contract Signing Authority*), Railway,, (hereinafter called "The Railway") having invited the bid for _____ through Notice inviting tender (NIT) No., _____, We have been informed that
[*Insert name of the Bidder*](*hereinafter called "the Bidder"*) intends to submit its bid (hereinafter called "the Bid").

WHEREAS, the Bidder is required to furnish Bid Security for the sum of [*Insert required Value of Bid Security*], in the form of Bank Guarantee, according to conditions of Bid.

AND

WHEREAS, [*Insert Name of the Bank*], with its Branch [*Insert Address*] having its Headquarters office at..... [*Insert Address*], hereinafter called the **Bank**, acting through..... [*Insert Name and Designation of the authorized persons of the Bank*], have, at the request of the Bidder, agreed to give guarantee for Bid Security as hereinafter contained, in favour of the Railway:

1. KNOW ALL MEN that by these present that I/We the undersigned [*Insert name(s) of authorized representatives of the Bank*], being fully authorized to sign and incur obligations for and on behalf of the Bank, confirm that the Bank, hereby, unconditionally and irrevocably guarantee to pay to the Railway full amount in the sum of [*Insert required Value of Bid Security*] as above stated.
2. The Bank undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Bank shall be final, conclusive and binding, absolute and unequivocal on the Bank notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.
3. The Bank shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the Bidder and without the Railway being required to show grounds or give reasons for its demand of the amount so demanded.
4. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.
5. The Bank agrees that no change, addition, modifications to the terms of the Bid document or to any documents, which have been or may be made between the Railway and the Bidder, will in any way absolve the Bank from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification made by Railway at any time.
6. This guarantee will remain valid and effective from..... [*insert date of issue*] till..... [*insert date, which should be minimum 90 days beyond the expiry of validity of Bid*]. Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security.
7. The Bank Guarantee is unconditional and irrevocable.

8. The expressions Bank and Railway herein before used shall include their respective successors and assigns.
9. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the Railway. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No.758.
10. The Bank hereby confirms that it is on the SFMS (Structured Financial Messaging System) and shall invariably send the advice of this Bank Guarantee to the following bank details –

IFSC CODE	SBIN00RAIL
IFSC TYPE	BRANCH
BANK NAME	STATE BANK OF INDIA
BRANCH NAME	RAIL
CITY NAME	NAVI MUMBAI
ADDRESS	SECTOR-11, CBD BELAPUR, NAVI MUMBAI
DISTRICT	NAVI MUMBAI
STATE	MAHARASHTRA
BG ENABLED	YES

11. The Guarantee shall be valid in addition to and without prejudice to any other security Guarantee(s) of Bidder in favour of the Railway. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the Railway.

Date

Place.....

.....

Bank's Seal and authorized signature(s)

[Name in Block letters]

[Designation with Code No.]

[P/Attorney] No.

Witness:

1 Signature, Name & Address & Seal

2 Signature, Name& address & Seal

Bank's Seal

[P/Attorney] No.

Note: All italicized text is for guidance on how to prepare this bank guarantee and shall be deleted from the final document.

Annexure –VIB

Reference -Para 10.2 & 17.15.2 of Tender Form (Second Sheet) of Annexure I of ITT

Each Bidder or each member of a JV must fill in this form separately:

NAME OF BIDDER/JV PARTNER:

Annual Contractual Turnover Data for the Previous 3/4 Years (Contractual Payment only)			
Year	Amount Currency	Exchange Rate	Indian National Rupees Equivalent
Average Annual Contractual Turnover for last 3 years			

1. The average annual contractual turnover shall be calculated as an average of “total contractual payments” in the previous three financial years. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover.
2. The information supplied shall be substantiated by data in the audited balance sheets and profit and loss accounts for the relevant years in respect of the bidder or all members constituting the bidder.
3. Contents of this form should be certified by a Chartered Accountant duly supported by Audited Balance Sheet duly certified by the Chartered Accountant.

SEAL AND SIGNATURE OF THE BIDDER

Certified that all figures and facts submitted in this form have been furnished after full consideration of all observations/notes in Auditor’s reports. _____

(Signature of Chartered Accountant)

Name of CA: _____

Registration No: _____

(Seal)