South Central Railway

Tender Document

Name of the Work:

Comprehensive Signalling and Telecommunication works for provision of Automatic Block Signalling system in Ghatkesar - Wangapalli sections of Secunderabad division in South Central Railway

Tender Notice No. C_SG_C_36_5_416 Dated: 25.02.26

Office of Dy. CSTE/Projects/SC

INDEX

Part -A

Notice Inviting Tender

The Particulars can be obtained from Indian Railways website www.ireps.gov.in. Tenderers who wish to participate in tenders invited on www.ireps.gov.in have to register on the website mandatorily. Please refer website for more details.

Part -B

Instructions & Guidelines for Submitting e-Tenders

INSTRUCTIONS & GUIDELINES FOR SUBMITTING E-TENDERS
REVISED AS PER GCC APRIL 2022

A. All information and documents submitted by the tenderer shall be complete and legible. In case of any information/document submitted by the tenderer, as visible/downloaded from IREPS portal, being incomplete or illegible, the offer shall be evaluated based on the information/document submitted by the tenderer and legible to Railway. Decision of Railways in this regard shall be final and binding on the tenderer.

B. Tenderers shall go through the entire tender documents and familiarize themselves with schedule of work, scope of work, conditions of contract, technical specifications, regulations of the tender etc. and submit their offer complete in all respects, duly furnishing all the documents and details required for a valid offer. Railway reserves the right to evaluate the tenders as per their own standards/practices. No claim of the tenderer shall be entertained/accepted on account of any ignorance of the tenderer, any information/document not submitted by them or any incomplete/illegible document submitted by them.

C. Tenderers/are advised to read the instructions given below and strictly ensure that all the compulsory & important documents as mentioned herein, are uploaded before submitting their tender. No document submitted after Tender Closing Time shall not be considered for evaluation of tender, unless specifically mentioned in this tender document.

1. Submission of tenders shall be **ONLY** through e-tendering on the website www.ireps.gov.in
2. **The tenderer shall clearly specify whether the tender is submitted on his own (proprietary Firm) or on behalf of a Partnership Firm/Company/Joint Venture (JV)/Registered Society/Registered Trust/Hindu Undivided Family (HUF)/Limited Liability Partnership (LLP), etc.** The tenderer(s) shall enclose the attested copies of the constitution of their concern, and copy of PAN Card along with their tender. Tender Documents in such cases are to be signed by such persons as may be legally competent to sign them on behalf of the firm, company, association, trust or society, as the case may be.

   If it is NOT mentioned in the submitted tender that tender is being submitted on behalf of a Sole Proprietorship firm/Partnership Firm/Joint Venture/Registered Company, etc., then the tender shall be treated as having been submitted by the individual who has signed the tender.

   The tenderer whether sole proprietor/a company or a partnership firm/joint venture (JV)/registered society/registered trust/HUF/LLP, etc., if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, specifically authorizing him/them to sign the tender, submit the tender

and further to deal with the Tender/Contract up to the stage of signing the agreement except in case where such specific person is authorized for above purposes through a provision made in the partnership deed/Memorandum of Understanding/Article of Association/ Board resolution, failing which tender shall be summarily rejected.

A separate power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, shall be submitted after award of work, specifically authorizing him/them to deal with all other contractual activities subsequent to signing of agreement, if required.

Note: *If the Power of Attorney is executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille Certificate.*

(Ref: Clause 14(i), 14(iii) & 15 of TENDER FORM (Second Sheet) of GCC APRIL 2022).

3. **The tender must be accompanied by a Bid Security as mentioned in Para 5 of Part-1, Instruction to Tenderers (ITT) of GCC APRIL 2022, Para 6(a), 17.5 & 18.6 of TENDER FORM (Second Sheet) along with Annexure-VIA of GCC APRIL 2022, failing which the tender shall be summarily rejected.**

4. Following documents mentioned at (a) to (h) below, should be furnished along with tender and should be submitted online at the time of tender bidding. **Tenders not accompanied by these documents will be summarily rejected.** No post tender communication, in any form will be made or entertained, after opening of tenders, in this regard. Railways may however call for the originals of the credentials for verification or any clarifications/confirmations on the contents of the documents submitted.

i. **TENDER FORM (First Sheet) (Ref: Annexure-I to Part-I of GCC APRIL 2022).**
ii. **Works(s) completion certificate(s) as per the requirement of Technical eligibility criteria (Ref: Clause 10.1 and for tenderer participating as JV firm Clause 17.15.1 of TENDER FORM (Second Sheet) of GCC APRIL 2022 as modified vide Special Conditions of Contract and Appendix-IIA of Tender Document.**
iii. **Documents as per the requirement of financial eligibility criteria (Ref: Clause 10.2 and for tenderer participating as JV firm Clause 17.15.2 of TENDER FORM (Second Sheet) along with Annexure-VIB of GCC APRIL 2022)**
iv. **Documents for evaluating the Bid Capacity, for tenders having advertised value more than Rs.20.00 crore (Ref: Clause 10.3 and for tenderer participating as JV firm Clause 17.15.3 of TENDER FORM (Second Sheet) along with Annexure-VI of GCC APRIL 2022 and Appendix-III).**
v. **Certificate**, stating that the tenders/s are liable to be disqualified and all their statements/documents submitted along with bid are true and factual, as per **Annexure-V (Ref: Para 6.1 of Part-1, Instruction to Tenderers (ITT) of GCC APRIL 2022).**

vi. In case the tenderer is **other than Joint Venture (JV) firm**, tenderer has to submit all the documents as mentioned below **(Ref: Clause 14(ii) (a) to (c), (e) to (g), (iv) and 18.10 of TENDER FORM (Second Sheet) of GCC APRIL 2022).**

Type of Firm	Documents to be submitted
(a)Sole Proprietorship Firm:	All documents in terms of **Para 10 of the Tender Form (Second Sheet) of GCC APRIL 2022.**
(b) HUF:	(i) A copy of notarized affidavit on Stamp paper declaring that he who is submitting the tender on behalf of HUF is in the position of Karta of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF. (ii) All other documents in terms of **Para 10 of the Tender Form (Second Sheet) of GCC APRIL 2022.**
(c) Partnership Firm:	(i) A notarized copy of the Partnership Deed or **a copy of the Partnership deed registered with the Registrar.** (ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement, etc. and create liability against the firm. (iii) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry/Department of the Govt. of India from participation in tenders/contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were/are partners/members. Any concealment/wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract. **(NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM)** (iv) All other documents in terms of **Para 10 of the Tender Form (Second Sheet) of GCC APRIL 2022.**
(d) Company registered under Companies Act-2013:	(i) The copies of **MOA (Memorandum of Association)/ AOA (Articles of Association) of** the company. (ii) A copy of Certificate of Incorporation. (iii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.

	<u>Note</u>: In case of submission of a "Specific Resolution of Board of Directors" related to the instant tender, then it should be supported by a Specific Authorization/Power of Attorney." (iv) All other documents in terms of **Para 10 of the Tender Form (Second Sheet) of GCC APRIL 2022.**
(e) LLP (Limited Liability Partnership) registered under LLP Act 2008:	(i) A copy of LLP Agreement. (ii) A copy of Certificate of Incorporation. (iii) A copy of Power of Attorney/ Authorization issued by the LLP in favour of the individual to sign the tender on behalf of the LLP and create liability against the LLP. (iv) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry/Department of the Govt. of India from participation in tenders/contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were/are partners/members. Concealment/wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract. **(NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM)** (V) All other documents in terms of **Para 10 of the Tender Form (Second Sheet) of GCC APRIL 2022.**
(f)Registered Society & Registered Trust:	(i) A copy of Certificate of Registration. (ii) A copy of Memorandum of Association of Society/Trust Deed. (iv) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust. (v) A copy of Rules & Regulations of the Society. (vi) All other documents in terms of **Para 10 of the Tender form (Second Sheet) of GCC APRIL 2022.**

After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm/Partnership Firm/Registered Company/Registered Trust/ Registered Society/ HUF/LLP etc. shall be neither asked nor considered, if submitted after closing of tender.

vii. In case the tenderer is a Joint Venture (JV) firm, tenderer has to submit all the documents as mentioned below:

i. Copy of Memorandum of Understanding (MoU) duly executed by the JV members on a stamp paper, shall be submitted by the JV along with the tender. The complete details of the members of the JV, their share and responsibility in the JV etc. particularly with reference to financial, technical and other obligations shall be furnished in the MoU. (Ref: Clause 17.6 of TENDER FORM (Second Sheet) of GCC APRIL 2022 & Appendix-VIII of the Tender Document).

ii **Documents of JV Members:**

(Ref: Clause 17.14 of TENDER FORM (Second Sheet) of GCC APRIL 2022).

In case one or more of the members of the JV is/are:

Type of Firm	Documents to be submitted
(a) Partnership Firm:	(i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar. (ii) A copy of consent of all the partners or individual authorized by partnership firm, to enter into the Joint Venture Agreement on a stamp paper. (iii) A notarized or registered copy of Power of Attorney in favour of the individual to sign the MOU/JV Agreement on behalf of the partnership firm and create liability against the firm. (iv) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry/Department of the Govt. of India from participation in tenders/contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were/are partners/members. Any concealment/wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract. **(NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM)**
(b) Proprietary Firm or HUF:	A copy of notarized affidavit on Stamp paper declaring that his Concern is a proprietary Concern and he is the sole proprietor of the Concern OR he who is signing the affidavit on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.
(c) Companies:	(i) A copy of resolutions of the Directors of the Company permitting the company to enter into a JV Agreement, (ii) The copies of MOA (Memorandum of Association)/AOA (Articles of Association) of the company (iii) A copy of Certificate of Incorporation

	(iv) A copy of Authorization/copy of Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender, sign MOU/JV Agreement on behalf of the company and create liability against the company. **<u>Note</u>: In case of submission of a "Specific Resolution of Board of Directors" related to the instant tender, then it should be supported by a Specific Authorization/ Power of Attorney."**
(d) LLP firm/s:	(i) A copy of LLP Agreement (ii) A copy of Certificate of Incorporation of LLP. (iii) A copy of resolution passed by partners of LLP firm, permitting the Firm to enter into a JV Agreement. (iv) A copy of Authorization/copy of Power of Attorney issued by the LLP firm (backed by resolution passed by the Partners) in favour of the individual, to sign the tender and/or sign the MOU/JV agreement on behalf of the LLP and create liability against the LLP. (v) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry /Department of the Govt. of India from participation in tenders/contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were/are partners/members. Any concealment /wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract. **(NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM)**
(e) Society/s or Trust/s:	(i) A copy of certificate of Registration (ii) A copy of Memorandum of Association of Society/Trust Deed (iii) A copy of Rules & Regulations of the Society (iv) A copy of Power of Attorney, in favour of the individual to sign the tender documents and create liability against the Society/Trust.

ii. All other documents in terms of Para 10 of the Tender Form (Second Sheet) of GCC APRIL 2022.

5. Compliance of **Employment/Partnership, etc. of Retired Railway Employees as per Clause 16 of TENDER FORM (Second Sheet) of GCC APRIL 2022,** failing which contract is liable to be dealt in accordance with provision of **Clause 62 of Standard General Condition of Contract of GCC APRIL**

2022 (Note: Information/Certification should be given as per 'Appendix-IV' of the Tender/Technical Bid Document).

6. Tenderers shall note that the submission of other following supporting documents, **is important and they shall ensure the same at the time of online bidding of tender**. However, Railways may seek clarifications/details/documents in this regard.

(a) Copy of **Vendor Mandate Form as per Appendix-VII** of the Tender Document. All payments to the agency (including the refund of the Earnest Money (EMD) of the unsuccessful bidder) will be remitted through NEFT. The Tenderer is required to declare Bank details and A/C No. etc.in Vendor Mandate Form.

(b) Copy of the **complete details of the firm as per Appendix-I** of the Tender/Technical Bid Document, to which all correspondences shall be made by the Railway.

(c) Copy of **Goods and Services Tax (GST) Registration Certificate containing GST Registration Number.**

(d) Copy of Certificate by tenderer for **site visit and familiarization** as **per Appendix-VI** of the Tender/Technical Bid Document.

(e) Copy of the **list of the Personnel/Organization of the tenderer on hand and proposed to be engaged for this tender as per Appendix-IV** of the Tender/Technical Bid Document.

(f) Copy of **list of the plants & machinery of tenderer available on hand and proposed to be inducted and hired for this tender as per Appendix-V** of the Tender/Technical Bid Document.

7. The Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall when so be required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the Railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the Railway there under.

8. Any clarification submitted by a Bidder that is not in response to a request by the Railway shall not be entertained or considered

9. All correspondence regarding the tender shall be addressed to:

Office of Dy.CSTE (Project) Secunderabad
1st Floor Microwave Building,
Adjacent to Rail Nilayam,
Secunderabad 500003.
dycstepsc@gmail.com

Part -C

Checklist for tenderer

Checklist for Tenderers			
Sl. No	**Requirements**	**Documents required/Remarks**	**Mandatory /Desirable**
1	Tenderer shall download and submit Tender Document with the Digital Signature Certificate (DSC) in the name of participating Tendering Firm (Proprietorship/Partnership Firm / Company / Joint Venture (JV) / Registered Society /Registered Trust / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc., as applicable) or the person authorized to submit the Tender.		Mandatory
2	Digital Signature of Tenderer/Authorized Signatory on Tender Document & Supporting Document along with addresses and phone no. for communication.		Mandatory
3	Whether the tender is submitted on his own (Proprietary Firm) /Partnership Firm / Company / Joint Venture (JV) / Registered Society / Registered Trust / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc.	Attested copies of the constitution of their concern, and copy of PAN Card along with their tender. Tender Documents to be signed by a person legally competent to sign them. If it is NOT mentioned in the submitted tender that the tender is being submitted on behalf of a Sole Proprietorship firm / Partnership Firm / Joint Venture / Registered Company etc., then the tender shall be treated as having been submitted by the individual who has signed the tender. A copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, specifically authorizing him/them to sign the tender etc.	Mandatory
4	The tender must be accompanied by a Bid Security		Mandatory
5	TENDER FORM (First Sheet)		Mandatory
6	TENDER FORM (Second Sheet)		Desirable
7	Work(s) completion certificate(s) as per the requirement of technical eligibility criteria		Mandatory

8	Documents as per the requirement of financial eligibility criteria		Mandatory
9	Documents for evaluating the Bid Capacity, *for tenders having advertised value more than Rs.20.00 crore*		Mandatory
10	Certificate, stating that the tenderer/s are liable to be disqualified and all their statements / documents submitted along with bid are true and factual		Mandatory
	In case the tenderer is other than Joint Venture (JV) firm, tenderer has to submit all the documents as mentioned below		
11	**Type of Firm**	**Documents to be submitted**	
(a)	**Sole Proprietorship Firm:**	All documents in terms of Para 10 of the Tender Form (Second Sheet)	Mandatory
(b)	**HUF:**	i. A copy of notarized affidavit on Stamp Paper declaring that he who is submitting the tender on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF. ii. All other documents in terms of Para 10 of the Tender Form	Mandatory
(c)	**Partnership Firm:**	i. A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar. ii. A notarized or registered copy of Power of Attorney iii. An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm / LLP in which they were / are partners /members. *NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.* iv. All other documents in terms of Para 10 of the Tender Form	Mandatory

(d)	**Company registered under Companies Act-2013:**	i. The copies of MOA (Memorandum of Association) / AOA (Articles of Association) of the company ii. A copy of Certificate of Incorporation. iii. A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company. iv. All other documents in terms of Para 10 of the Tender Form (Second Sheet) of GCC APRIL 2022.	Mandatory
(e)	**LLP (Limited Liability Partnership) registered under LLP Act-2008:**	i. A copy of LLP Agreement ii. A copy of Certificate of Incorporation iii. A copy of Power of Attorney/ Authorization issued by the LLP in favour of the individual to sign the tender on behalf of the LLP and create liability against the LLP. iv. An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders /contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. *NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.* v. All other documents in terms of Para 10 of the Tender Form (Second Sheet)	Mandatory
(f)	**Registered Society & Registered Trust:**	i. A copy of Certificate of Registration. ii. A copy of the Memorandum of Association of Society / Trust Deed. iii. A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust. iv. A copy of Rules & Regulations of the Society. v. All other documents in terms of Para 10 of the Tender Form (Second Sheet)	Mandatory
12	In case the tenderer is a Joint Venture (JV) firm, tenderer has to submit all the documents as mentioned below.		

13	Copy of Memorandum of Understanding (MoU) duly executed by the JV members on a stamp paper, shall be submitted by the JV along with the tender. The complete details of the members of the JV, their share and responsibility in the JV etc. particularly with reference to financial, technical and other obligations shall be furnished in the MoU.		Mandatory
14	<u>Documents of JV Members:</u>		
	Type of Firm	**Documents to be submitted**	
a)	**Partnership Firm:**	i. A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar. ii. A copy of consent of all the partners or individual authorized by partnership firm, to enter into the Joint Venture Agreement on a stamp paper, iii. A notarized or registered copy of Power of Attorney in favour of the individual to sign the MOU/JV Agreement on behalf of the partnership firm and create liability against the firm. iv. An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. *NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.*	Mandatory
b)	**Proprietary Firm or HUF:**	A copy of notarized affidavit on Stamp Paper declaring that his Concern is a proprietary Concern and he is sole proprietor of the Concern OR he who is signing the affidavit on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.	Mandatory
c)	**Companies**	i. A copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement;	Mandatory

		ii. The copies of MOA (Memorandum of Association) / AOA (Articles of Association) of the company; iii. A copy of Certificate of Incorporation; and iv. A copy of Authorization / copy of Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender, sign MOU / JV Agreement on behalf of the company and create liability against the company.	
d)	**LLP firm/s**	i. A copy of LLP Agreement ii. A copy of Certificate of Incorporation of LLP iii. A copy of resolution passed by partners of LLP firm, permitting the Firm to enter into a JV agreement iv. A copy of Authorization /copy of Power of Attorney issued by the LLP firm (backed by resolution passed by the Partners) in favour of the individual, to sign the tender and/or sign the MOU/ JV agreement on behalf of the LLP and create liability against the LLP. v. An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / Contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. *NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.*	Mandatory
e)	**Society/s** **or Trust/s**	i. A copy of Certificate of Registration ii. A copy of Memorandum of Association of Society/Trust Deed iii. A copy of Rules & Regulations of the Society iv. A copy of Power of Attorney, in favour of the individual to sign the tender documents and create liability against the Society/Trust.	Mandatory
15	All other documents in terms of Para 10 of the Tender Form (Second Sheet)		Mandatory
	Following Documents is also to be submitted by the bidder		

16	Compliance of Employment / Partnership etc. of Retired Railway Employees as per Clause 16 of TENDER FORM (Second Sheet)	Desirable
17	Tenderers shall note that the submission of other following supporting documents, *is important and they shall ensure the same at the time of online bidding of tender*. However, Railways may seek clarifications / details / documents in this regard.	Desirable
18	Copy of Vendor Mandate Form	Desirable
19	Copy of the complete details of the firm to which all correspondences shall be made by the Railway.	Desirable
20	Copy of Goods and Services Tax (GST) Registration Certificate containing GST Registration Number.	Desirable
21	Copy of certificate by tenderer for site visit & familiarization as per Appendix-VI of the Tender / Technical Bid Document.	Desirable
22	Copy of the list of the Personnel / Organization of the tenderer on hand and proposed to be engaged for this tender as per Appendix-IV of the Tender / Technical Bid Document.	Desirable
23	Copy of list of the plants & machinery of tenderer available on hand and proposed to be inducted & hired for this tender as per Appendix-V of the Tender / Technical Bid Document.	Desirable
24	Declaration of Local Content as per 'Public Procurement (Preference to Make in India) Order 2017 or latest issued by Department of Industrial Policy and Promotion under Ministry of Commerce and Industry	Mandatory
25	The Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall when so be required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the railway thereunder.	

APPENDICES

e-Tender Notice No.: **Appendix-I**

Name of Work:

PARTICULARS OF TENDER(S)

1. Full name of Contractor / Construction firm

2. Year of Establishment of Firm

3. Registered head office Address Telephone no, Fax no, E-mail address

4. Branch office Address, Telephone no, Fax no, E-mail address

5. Details of Constitution of firm, Names of Partners/ Executive/ Power of Attorney holders, etc.

6. Particulars of Registration with Government Semi-Govt. Organization, Public Sector Undertaking & Local Bodies etc.

Appendix-II

e-Tender Notice No.:

Name of Work:

LIST OF WORKS COMPLETE in last 07 (seven) years, ending last day of month previous to the one in which tender is invited

Sr. No.	Name of work	Name of Organization for whom executed and Contract awarding authority	Contract agreement No and Date of Award	Approx. Value of Contract		Date of Commencement	
				Agreement Value	Final Value	Scheduled	Actual
1	2	3	4	5	6	7	8

Date of Finish		Period of Completion		Main features of the work	Remarks
Scheduled	Actual	Scheduled	Actual		
9	10	11	12	13	14

Note:

i. *Supporting documents / certificates (duly attested) from the organization with whom worked or working should be enclosed.*
ii. *Certificate from private individuals for whom such works are executed / being executed shall not be accepted.*

Appendix II A

Work Completion certificate (Issued by Organization)

Name of Organization-

Postal address, Phone No., Email ID, Fax No-

Letter No. Date: -…….

1.	Name of work	
2.	Contract Agreement(C/A) No. and date	
3. (i)	Name of Contractor with address	
(ii)	In the case of JV……. Name and % share of individual firms.	
4.	Original value of contract agreement.	
5.	Date of award of contract	
6.	Has the work physically been completed in all respect, If yes, then actual date of physical completion.	
7.	Work completion date as per contract agreement.	
8.	Total payment made in above contract till the date of Issue of certificate.	
9.	Value of contract as completed final value if final bill prepared	
10.	In case of composite work: Scope of work covered in the Agreement such as Civil work, Signalling work, Telecom work etc. with details of Signalling & Telecom works and payments paid towards S&T works	
11.	Performance of the contractor:	

I hereby certify that above mentioned work has been physically completed/substantially completed in all respects per contract agreement.

(Signature)
Name and Designation of officer
Mobile No. of officer
Seal of officer

Appendix-III

Details as part of Annexure VI of Part-I of GCC

e-Tender Notice No.:

Name of Work:

LIST OF WORKS ON HAND: DETAILS OF EXISTING COMMITMENTS.
BALANCE AMOUNT OF ONGOING WORKS AND WORKS AWARDED NOT YET STARTED

All works in progress and also the works which are awarded to tenderer but yet not started up to the date of opening of tender. In case of no works in hand, a 'NIL' Statement should be furnished. This statement should be submitted duly verified by Chartered Accountant. Any certificate issued by Statutory Auditor / CA must include Unique Document Identification Number (UDIN)

Sr. No.	Name of work	Name of Organization for whom executed and Contract awarding authority	Contract agreement No and Date of Award	Approx. Value of Contract			Date of Commencement	
				Agreement Value	Payment received	Approx. balance to be received	Scheduled	Actual
1	2	3	4	5	6	7	8	9

Date of Finish		Period of Completion		%age Progress		Reasons for Delay, if any	Main features of the work	Remarks
Scheduled	Expected	Scheduled	Expected	Physical	Financial			
10	11	12	13	14	15	16	17	18

Note :

i. Supporting documents / certificates (duly attested) from the organization with whom working or has been awarded work should be enclosed.

ii. Certificate from private individuals for whom such works are being executed or has been awarded work shall not be accepted.

Appendix-IV

e-Tender Notice No.:

Name of Work:

LIST OF PERSONNEL / ORGANISATION AVAILABLE ON HAND AND PROPOSED TO BE ENGAGED FOR THE SUBJECT WORK

Sr. No.	Name & Designation	Qualification	Professional Experience	Remarks

Note: - Supporting documents should be attached

I hereby certify that no retired Engineer/Gazetted Officer of the Railways who has retired within 1 year of date of submission of tender and has not obtained permission of competent authority has been engaged by me/our firm. I also certify that none of my relative is engaged in Engineering or any other Department in South Central Railway.

Signature of Tenderer(s)

Appendix-V

e-Tender Notice No.:

Name of Work:

A. LIST OF PLANT & MACHINERY (OWNED) AVAILABLE ON HAND AND PROPOSED TO BE INDUCTED ON THE SUBJECT WORK

S.No.	Particulars of equipment's	No. of units	Kind/Make	Capacity	Age and condition	Remarks

B. LIST OF PLANT & MACHINERY PROPOSED TO BE HIRED FOR THE WORK

S.No.	Particulars of equipment's	No. of units	Capacity	Remarks

Appendix-VI

e-Tender Notice No.:

Name of Work:

DECLARATION FOR SITE VISIT

I/We hereby solemnly declare that I /We visited the sites of work personally and have made myself/ourselves fully conversant of the conditions therein and in particular the following:

i) Topography of the area
ii) Soil strata at site of work
iii) Sources and availability of construction materials
iv) Rates for construction materials, water, electricity including all local takes, royalties, octroi, etc.
v) Availability of local labour (both skilled and unskilled) and relevant labour rates and labour laws
vi) Existing roads, approaches, pathway to site of work
vii) Space for stacking of materials, stores, offices etc.
viii) Availability and rates of private land, etc. required for various purposes
ix) Trees, shrubs, bushes, debris etc. required to be removed for site clearance
x) Need of dewatering / pumping etc.
xi) Climate conditions and availability of working days and working hours
xii) Frequency / pattern of rail traffic, electrified tracks, road traffic etc.
xiii) Availability of rail/road traffic block
xiv) Law and order situation.
xv) Any other conditions, which may affect rates.
xvi) Signalling and Telecom installations including stations, Huts and LC Gates and Signal and Telecom gears connected thereto.

I/We have quoted my/our rates for various items in the tender schedule taking into account all the above factors likely to be encountered during execution of work. I/We shall not be entitled for any claim against the Railway on account of the above factors.

I/We hereby declare that no such retired engineer or Gazetted Officer (as defined in clause 17.1 of this tender document) retired from government service within one year prior to opening of this tender is working or associated with us.

Signature of Tenderer(s)

Appendix-VII

e-Tender Notice No.:

Name of Work:

MANDATE FORM FOR PAYMENT THROUGH ECS/NEFT

Firm's Name		
Firm's address/ Tel. No. /FAX no. /Email.ID		
Name of the bank		
Bank Branch Name Address / Tel. No. /Fax No. /Emial.ID		
Account no. (as per Core Baking)		
Type of Account		Saving / Current / others (please specify)
MICR Code & IFSC Code		

IMPORTANT NOTE:

Tenderer/s should ensure that they attach a copy of this **'Mandate Form', duly verified & signed by the Bank Officials** along with the EMD instruments, in order to enable Railway to release the EMD amount quickly to the unsuccessful tenderers through ECS/NEFT.

Signature of Tenderer(s)

Appendix-VIII

On non-judicial stamp as per extant rules

MEMORANDUM OF UNDERSTANDING

FOR JOINT VENTURE AGREEMENT

1. This Memorandum of understanding executed this _____day of _____20_____ between _____(Name of Co.)_____ a company registered under the Companies Act 1956 having in registered office at _____ represented through its Director / Authorized Representative_____ (hereinafter referred to as _____which expression shall unless repugnant to the context thereof includes its successors) of the **FIRST PART**.

OR

M/s._____ a partnership firm registered under the Indian Partnership Act 1932, having its registered office at _____ represented through its Partner Shri_____/ Authorized Representative _____ (hereinafter referred to as _____which expression shall unless repugnant to the context thereof includes its successors) of the **FIRST PART.**

AND

2. M/s._____ (Name of Co.) _____ a company registered under the Companies Act 1956 having in registered office at _____ represented through its Director or Authorized Representative_____ (hereinafter referred to as _____which expression shall unless repugnant to the context thereof includes its successors) of the **SECOND PART.**

OR

M/s._____ a partnership firm registered under the Indian Partnership Act 1932, having its registered office at _____ (hereinafter referred to as _____which expression shall unless repugnant to the context thereof includes its successors) of the **SECOND PART.**

AND

3. This Memorandum of understanding executed this _____day of _____20_____ between _____ (Name of Co.)_____ a company registered under the Companies Act 1956 having in registered office _____ through its Director or Authorized Representative _____ (hereinafter referred to as _____which expression shall unless repugnant to the context thereof includes its successors) of the **THIRD PART.**

OR

M/s._____ a partnership firm registered under the Indian Partnership Act 1932, having its registered office at_____through its Partner or Authorized Representative_____ (hereinafter referred to as

_____which expression shall unless repugnant to the context thereof includes its successors) of the **THIRD PART.**

AND

4. This Memorandum of understanding executed this _____day of _____200_____ between _____ (Name of Co.)_____ a company registered under the Companies Act 1956 having in registered office_____ through its Director or Authorized Representative_____ (hereinafter referred to as _____which expression shall unless repugnant to the context thereof includes its successors) of the **FOURTH PART.**

OR

M/s._____ a partnership firm registered under the Indian Partnership Act 1932, having its registered office _____through its Partner or Authorized Representative _____ (hereinafter referred to as _____which expression shall unless repugnant to the context thereof includes its successors) of the **FOURTH PART.**

AND

5. This Memorandum of understanding executed this _____day of _____20_____ between _____ (Name of Co.)_____ a company registered under the Companies Act 1956 having in registered office_____ through its Director or Authorized Representative_____ (hereinafter referred to as _____which expression shall unless repugnant to the context thereof includes its successors) of the **FIFTH PART.**

OR

M/s._____ a partnership firm registered under the Indian Partnership Act 1932, having its registered office at_____through its Partner or Authorized Representative_____ (hereinafter referred to as _____which expression shall unless repugnant to the context thereof includes its successors) of the **FIFTH PART.**

Whereas, South Central Railway, Secunderabad (SC) hereinafter referred to as Owner/Customer has invited Tender No/s._____hereinafter referred to as the SCR Tender for the work of _____hereinafter referred to as the said work.
Whereas, the party of the first part i.e.

M/s. _____(details to be supplied of the expertise in their field).

Whereas, the party of the second part i.e.

M/s. _____(details to be supplied of the expertise in their field).

Whereas, the party of the third part i.e.

M/s. _____(details to be supplied of the expertise in their field).

Whereas, the party of the fourth part i.e.

M/s. _____(details to be supplied of the expertise in their field).

Whereas, the party of the fifth part i.e.

M/s. _____(details to be supplied of the expertise in their field).

AND whereas parties to this MOU, have agreed to co-operate with each other to associate jointly and to form a Joint Venture Firm to participate in the SCR Tender of Indian Railways.

Now, therefore, in consideration of the premises and mutual promises and of the undertaking contained herein, it is hereby agreed as follows: -

1. **The purpose of MOU –**

M/s._____ and _____ agree to co-operate with each other for the purpose of joint participation in the SCR Tender and in the event, the contract is awarded, to jointly execute the contract. The board interface and scope of work of each party is set forth below: -

_____

_____

1. The Name of the Jt. Venture firm shall be _____

2. The parties, hereto, represent that:

a) They are in possession of all approval's valid authorization for the purpose of the executive of this MOU.
b) They have not entered into any agreement/MOU of equal or similar nature with any third for the SCR Tender.

That each of the parties of the JV, agrees and undertake to place at the disposal of the JV, benefits of its individual experience, technical knowledge and skill and shall in all respects bear its share of the responsibility, including the provision of information advice and other assistance required in connection with the works. The share and the participation of the partners in the JV shall broadly be follows:

M/s. _____%

M/s. _____%

M/s. _____%

M/s. _____%

M/s. _____%

Lead Member:

That one of the members of the JV shall be its lead member who shall have a majority (at least 51%) share of interest in the JV. The other members shall have a share of not less than 20% each in case of JV with up to three members and not less than 10% each in case of JV with more than three members. In case of JV with Foreign member(s), the Lead Member has to be an Indian firm/company with a minimum share of 51%.

And all rights, interest, liabilities, obligation, work experience and risks (net profits or net losses) arising out of the contract shall be shared or borne by the Parties in proportionate to these shares. Each of the parties shall bound by guarantees, sureties required for the work as well as its proportionate share in working capital and other financial requirements.

3. The Parties to this MOU undertake:

a) That after submission of the tender, the MOU shall not be modified / altered / terminated during the validity of the tender except when modification becomes inevitable due to succession laws etc., provided further that there is no change in qualification of minimum eligibility criteria by JV after change of composition. The parties to this MOU further agree that, the Lead Member shall continue to be the Lead Member of the JV.

b) That after the contract is awarded the constitution of the J.V. firm shall not be altered during the currency of contract except when modification becomes inevitable due to Succession Law etc. but no case the minimum eligibility criteria should get vitiated.

4. JOINT & SEVERAL LIABILITY:

In respect of the SCR Tender, all terms shall be complied by each party on back-to-back basis as per specifications of the SCR Tender or any other mutually agreed terms with the Owner/Customer. The Parties hereto shall, if awarded the contract for the project for which the Joint Venture is formed, be jointly and severally liable to the Indian Railways for executive of the project in accordance with the contract. The Parties hereto also undertake to be liable jointly and severally for the loss, damages caused to the Indian Railways in course of execution or due to non-execution of the contract or part thereof or arising out of the contract.

5. Shri _____ shall be authorized partner/person on behalf of the Joint Venture to deal with tender, to sign the agreement or enter into contract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books, and similar such action in respect of SCR tender/Contact. All notices/correspondence with respect to the contract would be sent only to this authorized member of the JV Firm.

6. Notwithstanding anything contained herein, in respect of the SCR Tender with regard to the internal relationship, the inter se liabilities between the parties shall be in proportion to their respective scope of work and shall be subject to the provisions of this MOU.

7. The parties agree that with respect of the SCR Tender neither Party, nor any subsidiary company of either Party, nor any joint venture company or any other entity, in which the Party/ies, is or are in any way interested, shall complete together with or through any third party, nor shall the partied advise, consult for, engage in or otherwise assist in any way any person or entity or any affiliate thereof in respect of any orders or contracts related to the SCR Tender.

8. Responsibility

Each party shall assume and accept full responsibility for its Scope of Work and the obligations imposed in the Contract and in this MOU as if it was, with regard to its Scope of Work, an independent partner contracting individually with the Customer. In the event of any third party in relation to or as

a consequence of any failure to meet the performance specification the Party, within whose Scope of Work the claim arises, shall be entirely responsible for the claim and shall indemnify and hold harmless the other Party from any liability, demand, claim burden cost, expense attorney's fees and costs arising from thereof.

9. Assignability

No Party to the Joint Venture has right to assign or transfer the interest, right or liability in the contract without the written consent of the other party and that of the Railway.

10. Use of Machinery, Instruments, Labour Force etc.

The Parties here to undertake that whatever the machinery, instruments, Labour force (including unskilled, skilled, inspectors, Engineers etc.) they possess at the time of entering into Joint Venture Agreement or which subsequently shall come in their possession and if such machinery, instruments, labour force is required for the speedy and efficient executive of the work, the Party/Parties having the control over the said machinery, instruments, labour force etc. without having any regard to their share of profit and loss agreed to between the Parties in Joint Venture Agreement shall hand over the same at the disposal of the other party who is actually executing the work for purpose of execution of the contract without any hindrances and obstacle.

11. Duration of MOU: It shall be valid during entire currency of contract including the period of extension, if any and also till the maintenance period is over or till all the contractual liabilities including warranty/guarantee obligations are discharged completely.

12. Applicable law: This MOU and any arrangement/agreements regarding the performance shall be construed and interpreted in accordance with and governed by the Laws of India and shall be subject to the exclusive jurisdiction of the courts at SECUNDERABAD.

13. Settlement of Disputes: In the event of disputes arising from this MOU, the Parties to the MOU undertakes to endeavour to settle the said disputes amongst them amicably. However, if the parties fail to resolve the disputes amongst them amicably, the said disputes arising out of or in connection with the present MOU shall be resolved through Arbitration as per the provisions enshrined under the Arbitration and Conciliation Act, 1996 or/and amendments thereof.

14. All communication or notices provided for herein shall be in English Language and be delivered, mailed, or Tele-faxed to the parties addresses as indicated below: -

M/s._____

_____

M/s._____

_____

All correspondence and notices to the Joint Venture shall be addressed to the Lead Member, i.e. M/s._____/ Shri _____at the address stated herein below:-M/s._____

Such communication or notices shall be deemed to have been duly given when so delivered or, if mailed, when received at destination.

15. Each shall have full and sole responsibility to bear the expenses of and effect the payment of any taxes, duties, special insurance, fees or assessments of any nature whatsoever (including personal income taxes level or imposed on any of its employees or personnel or any of its sub-contractor's

employees or personnel) including penalties and interest, if any, levied in connection with the execution of this MOU.

16. The Parties to this MOU declare and certify that they have not been black listed or debarred by Railways or any other Ministry/Department of the Govt. Of India/State Govt. from participation in tender/contract on or before the date of opening of bids either in their individual capacity or the JV firm or partnership firm in which they were member/partners.

In witness whereof, the Parties have caused this MOU to be executed by their respective authorized representative on the date and year mentioned herein above.

Signature:- Signature:- Signature:-
Shri_____of Shri_____ of Shri_____of
M/s._____ M/s._____ M/s._____
Signature: - Signature:-
Shri_____of Shri_____of
M/s._____M/s._____
Witnesses: -
1. Name: Address: -
2. Name: Address: -

** The contents in italics are only for guidance purpose. Details as appropriate are to be filled in suitably by tenderer.

Appendix-IX

e-Tender Notice No.:

Name of Work:

STATEMENT OF DEVIATIONS FROM TENDER DOCUMENT

S.No.	Part and Clause no. of Tender Document	Stipulation of Railway	Deviation proposed by Contractor	Financial Implication of Deviation on Railways

Signature of Tenderer(s)

Part -D

Special Conditions of Contract

I	General
II	Construction of ABS huts
III	Design of ABS system
IV	List of annexures for execution of work

I. General:

Sl. No	Description
1	The contract shall be governed by Indian Railways Standard General Conditions of Contract April 2022 as amended/corrected from time to time (GCC).
2	These special conditions supplement the Regulations for tenders and contracts, the General Conditions of Contract (April 2022 with latest ACS) and the notes appearing under the relevant chapters and sub-chapters of the Standard Schedule of Rates, 2024 and should be considered a part of the contract document
3	The General Conditions of Contract (GCC) shall mean the Indian Railways Standard General Conditions of Contract April 2022 as amended and/or corrected from time to time at the date of opening of tender.
4	**Definition of Similar Nature of Work: (Ref: Lr No. SCR-HQOSNT(TEND)/6/2019 (e 15262) dated 12.08.2025 from Office of the Principal Chief Signal & Telecom Engineer)** "Supply, Installation, Testing and Commissioning of Panel Interlocking / Route Relay Interlocking / Electronic Interlocking, Indoor and/or Outdoor works or IBS works or BPAC works or Digital Axle Counter works or interlocking of LC gates or Double Distant Signal works or Automatic Block Signalling works or TCAS / KAVACH works or CBTC works or S&T works in connection with Railway Electrification or Telecommunication work."
5	Various designs & documents attached with the tender document are tentative and for guidance to the agency. Approvals shall be taken for the same before supply of material and execution of work.
6	**SCOPE OF WORK**: ➢ Construction of Automatic block signalling huts of masonry type ➢ Trenching, laying and termination of various cables and all associated works ➢ Foundation, erection and wiring of location boxes and signals, earthing arrangements ➢ Fabrication and fixing of various boards, painting of all signalling gears with particulars. ➢ Supply and erection of relay racks, supply and wiring of relays, circuit alterations, testing, commissioning and any other works required for commissioning of automatic block signalling

	➢ Supply installation and commissioning of new electronic interlocking ➢ Alterations in the existing electronic interlocking system to integrate the same with automatic signalling system ➢ Provision of Fire Alarm & security cameras. ➢ supply, installation, wiring, testing of MSDAC and integrating them with ABS system ➢ Provision of power supply system in ABS huts and augmentation of existing power supply systems in stations ➢ Provision of fire alarm and security cameras. ➢ Supply, installation, integration, testing, validation, networking and commissioning of Data loggers. The work also involves augmentation, alteration and validation of existing Data Logger at stations, LC Gates and any other locations ➢ supply, installation and wiring of earthing arrangements for all new equipment installed as per OEM recommendations, RDSO Code of Practice and Zonal Railway practice. ➢ Supply, installation and commissioning of Display System of Automatic Signals and track occupation status at Station & ABS huts ➢ System Integration, Testing and commissioning of both indoor and outdoor installations of Automatic Block Signalling system along with all associated works. ➢ Submission of as Made documents ➢ Releasing of unused Material. ➢ Any other signalling and telecommunication works required for making the automatic block signalling system functional
7	The Railway reserves the right to supply its own materials if the contractor fails to supply within a reasonable period and the contractor will execute the labour portion as directed by the Engineer. Liquidity damages will be imposed for non-supply of material. Thus, if the material is used from railway stocks due to non-supply from the contractor, a deduction of 21.5% of the contracted amount for the corresponding item for quantity used for the work but defaulted by the contractor as applicable at the time of execution will be made from \contractor's bills. The engineer's interpretation regarding quantities used is final
8	The contractor shall be liable to render full accountal for all the materials issued by the Railway. If any quantity of Railway materials is consumed in excess or wasted or damaged or lost or otherwise not satisfactorily accounted for, recovery shall be made from the contractor at twice the issued rate prevailing at the time of last issue of the materials consumed in excess or wasted or damaged or lost or not satisfactorily accounted for.
9	The work shall be carried out as per the drawings approved by the Railways duly using guidelines mentioned in the booklet as supplementary to existing provisions in Codes, Indian Railways Signal Engineering Manual July 2021 with latest correction slips, Indian Railways Telecom Manual 2021 with latest correction slips, RDSO Specifications, latest related RDSO TANs, OEM's Installation guidelines (if better than Rlys), Railway Board guidelines, RE Manual, Block Manual, Schedule of Dimensions and policies & instructions issued from time to time by the HQrs, are deemed to be part of the Contract Agreement.

10 **TIME OF COMPLETION**:

a. All works including documentation shall be completed within the period as mentioned in NIT inclusive of the intervening monsoon period from the date of issue of acceptance letter, excluding Training of staff. The contractor should adhere to the progress of works as per the accepted completion period. Liquidated damages as per rules in force will be levied on the belated supply of materials and execution of work in the event of failure on part of the contractor to complete the supplied and execution of work within the period of completion of work as stated.

b. In the event of failure of the part of the contractor for maintaining the progress. Thoroughly/commensurate progress with reference to time limit given in contract, the Railway reserves the right to terminate or to withdraw the whole balance work or part thereof at the discretion of the engineer-in-charge the security deposit and performance guarantees shall be forfeited by them as per relevant clauses.

c. The work shall be completed as per the following milestones.

Milestone	Milestone Period from Date of LOA (Days)	Duration (Days)	Activity
Milestone – I	0 – 60	60	Design & Documentation
Milestone – II	61 – 300	240	Commissioning of GT–PGDP Section
Milestone – III	301 – 480	180	Commissioning of PGDP–WP Section
Milestone – IV	481 – 540	60	Completion of All Pending Works
Total		**540**	

11 **Payment terms**:

(a) The following table shows the schedule wise payment conditions.

	Schedule A: Supply (SOR)	• **90%** on supply and acceptance of material at Railway Stores/site. • **10%** on commissioning
	Schedule B: Labour (SOR)	a. **Payment for Composite Items in Labour Portion:** Where labour items are composite in nature, such as "Supply and Laying/Installation/Fixing etc.": • 70% payment on supply and acceptance of material at Railway Stores/site. • 20% on satisfactory installation of the material with OEM certification (wherever required). • 10% on commissioning of the station. b. **Items with complete Labour portion: 100%** on Installation
	Schedule C: Supply (Non SOR)	a. **90%** on supply and acceptance of material at Railway Stores/site. **10%** on commissioning
	Schedule D: Labour (Non SOR)	a. **Payment for Composite Items in Labour Portion:** Where labour items are composite in nature, such as "Supply and Laying/Installation/Fixing etc.": • **70%** payment on supply and acceptance of material at Railway Stores/site. • **20%** on satisfactory installation of the material with OEM certification (wherever required). • **10%** on commissioning of the station. b. Items with complete Labour portion :**100%** on Installation
	Schedule E (Power supply items)	• **90**% Payment on Supply and Submission of test certificates • **10%** on commissioning of the station.
	Schedule F: Supply of Cables	• **90**% Payment on Supply and Submission of test certificates • **10%** on commissioning
	Schedule G: MSDAC	• **70%** payment on supply and acceptance of material at Railway Stores/site. • **20%** on satisfactory installation of the material with OEM certification (wherever required). • **10%** on commissioning
	Schedule H: Electronic interlocking	• **70%** payment on supply and acceptance of material at Railway Stores/site. • **20%** on satisfactory installation of the material with OEM certification (wherever required). • **10%** on commissioning
	Sch I & Sch J (Engineering & Electrical Portion)	**100%** on Completion of Specific Item
b	"ON Account Payment": On account payment made to the contractor shall be without prejudice to the final making up of the accounts (except where measurements are specifically noted in the measurement book is final measurements and such have been signed by the contractor) and shall	

	in no respect be considered or used as if evidence of any particular quantity, of work having been executed nor of the manner of its execution being satisfactory. Each on account bill/final bill shall invariably be accompanied by the joint material statement (materials drawn from the stores vs. Material utilized at site on the work for which materials have been drawn from Railway Store). Contractor shall intimate at least one month in advance in writing of his intention to claim any Bill exceeding Rs. 10 lakhs either for supply or for labour Portion so as to plan Finances. Without such notice, his bill is liable to be withheld for want of funds. Billing Cycle-Odd months or Even months will be followed (as per contractor's choice) except in March Month.
c	In case of any dispute in interpretation of Payment clauses, the decision of Railways is final and binding on the Tenderer.
d	The contractor shall submit bills/gate passes/ invoices for the materials purchased by them to Railways at the time of supplying the materials to nominated Railway Stores Depot or nominated Railway site
e	RDSO/RITES inspection charges shall be borne by the contractor. For the signalling materials to be inspected by the RDSO/RITES, the contractor shall pay directly to RDSO/RITES their inspection charges at the rate of 1% of the rate accepted under the agreement
f	No stores will be considered ready for delivery until RDSO/RITES have certified in writing they have been inspected and approved by them. Facilities must be given by the contractor to the Railway or their nominee for inspection of stores, manufacturer and fabrication. The materials mentioned with RDSO Specification implies that the item to be referred with the existing latest Specification.
g	PFA/Construction, Secunderabad, South Central Railway will be the accounts officer-in- charge of payment etc., under this contract.
h	**Warranty & Maintenance Period:** The warranty for this tender will be for a period of 12months from the date of commissioning. Maintenance Period for a period of 12 months shall be applicable from the date of issue of Final Completion Certificate. Since the essence of the equipment being provided is the reliability & proneness for trouble free working at site, the Contractor shall confirm that in case the equipment provided do not meet the Railways requirement and end objective, they shall replace and take away the equipment at no cost to the Railways. Any payment done by Railways shall be refunded back.
12	**DESIGNs, DRAWINGs AND DOCUMENTs:** Any drawing/document required can be obtained from the Dy. Chief Signal and Telecom. Engineer (Project), Secunderabad South Central Railway. Tentative Signalling Plans of station(s) are attached in the Tender Booklet
13	Approved Signal Interlocking Plans (SIPs) and Table of Control (TOC) and Typical circuits will be issued in due course, and within 02 months of supplying above documents Contractor is required to provide Application Logic Circuit and Interface Circuit to Railway for approval.
14	**Deploying Qualified / Trained Manpower:**
a	Tenderer shall deploy an adequate number of competent and trained personnel for work as per instructions of Engineer in charge of Railways. It is the responsibility of the contractor to deploy skilled staff. The number of personnels to be deployed will be decided by the officer in charge.
b	All contractors' staff & Supervisors must display Identity Badges while working in Railway Premises and put on Helmets & Fluorescent coloured Safety Jackets while working on Tracks duly name of Firm/Contractor labeled on Rear side. No extra payments will be made for the above Items. OEM`s

	authorized Installation Engineers must be mobilized well in advance for commissioning of E.I. Dataloggers, BPAC etc as the case may be, without fail. Safety at work Site to be ensured as per (Chief admin. Officer/Con/Sc's letter No. W.Con/496/PL/C/T&C/XIX(Safety), dated 29.02.2016).
15	**Executive authority in charge of the work:** The Deputy Chief Signal & Telecom Engineer, (Project), South Central Railway, Secunderabad or any other officer nominated by CSTE/P-II/SC Railway, will be the Engineer -in- charge of this work. He shall nominate a field officer who shall be the Executive Engineer for the work and shall coordinate for day-to-day execution of the work and any clarifications or instructions given by the said engineer/executive engineer shall be final and binding on the contractor. Regarding alterations & Interpretations to the contents of the contract or any other matter connected with the contract, the Chief signal & telecom. Engineer (Projects.) or Dy. Chief Signal &Telecom. Engineer (Projects), Secunderabad, South Central Railway, will be the final authority and his decision shall be final and binding on the contractor.
16	**Functional requirements**
a	Pre-commissioning check list of supplied equipment duly certified by OEM, shall be provided by the tenderer before commissioning. Tenderer is responsible for certification of OEM' that this equipment has been installed as per OEM/RDSO checklist. The commissioning support by OEM for all items supplied by the tenderer shall be ensured at least one month before and after commissioning. Tenderer is responsible for obtaining technical system application approval from RDSO/SCRly HQs vide railway board lr.No.2012/Sig/ATSS dtd 03.05.2012 or as per latest instructions/guidelines. All teething troubles post commissioning (up to 1 month) must be attended within 6 Hrs.
b	For EI works, **OEM** shall prepare and submit floor drawings, equipment layout drawings and any other drawings required for execution of work and shall get approved by railways.
c	Certificates and Documents confirming RDSO approval for software and hardware versions shall be enclosed with tender documents.
17	**Inspection of material**
a	The material having value more than Rs. 5,50,000/-or critical items asper RailwayBoardletterNo.74/RS(G)/379/2Pt.dated4/3/91and18/6/91shallbe supplied duly inspected by RDSO/RITES. .All the inspection charges shall be borne by the contractor. The inspection charges for material to be inspected by RITES will be as per Railway Board letter No.2022/RS(G)779/9 Dated.01.12.2022orlatestRailwayBoardguidelines. Normally, the inspecting agency shall not be changed. However, in case the nominated inspecting agency is not in a position to carryout inspection due to policy changes/or any other reason, the inspection shall be carried out asper Authority's decision. In such a case, cost of inspection charges as applicable for RDSO/RITES shall be deducted from the contractor's bills
b	Material with RDSO specifications shall be procured from RDSO approved vendors only. If no RDSO approved vendor is available, material shall be procured from other sources as approved by Authority.
c	Notwithstanding any approval which the inspecting officer may have given in respect of the stores or any materials or the work or work man ship in volved in the performance of the contract (Whether with or without any test carried out by the contractor or the Inspecting officer or under the direction of the Inspecting officer) and not withstanding delivery of the stores where so provided to the interim consignee, it shall be lawful for the consignee, on behalf of the purchaser ,to reject the stores or any part, portion of consignment thereof within are as on able time after actual delivery thereof to him at the place or destination specified in

	the contract if such stores or part, portion of consignment thereof is notinallrespectsinconformitywiththetermsandconditionsofthecontract whether on account of any loss, deterioration damage before dispatch or delivery or during transit or otherwise whatsoever.
18	**Execution of work:**
a	The work shall be executed as per the standard drawings and approved drawings & in compliance with 25 kV RE standards
b	Material with RDSO specifications shall be procured from RDSO approved vendors only. If no RDSO approved vendor is available, material shall be procured from other sources as approved by Authority.
c	All the equipment shall be installed and commissioned by OEM's authorized Engineers. OEM Installation certificates, testing certificates, Pre- commissioning checklists etc., shall be arranged by the contractor. Procedures specified in the latest RDSO TAN shall be followed
d	All tools & plants, measuring instruments etc. required for inspection, installation, testing & commissioning shall be arranged by the contractor and shall be the property of the contractor.
e	The contractor shall fill the salient details of contract labourers engaged in the contract and ensure updating of each wage payment to them on Shramik Kalyan portal on monthly basis and the record shall be made available for the inspection.
e	The contractor shall fill the salient details of contract labourers engaged in the contract and ensure updating of each wage payment to them on Shramik Kalyan portal on monthly basis and the record shall be made available for the inspection.
f	**Augmentation/Alterations and Interfacing with Existing Equipment:** The existing working equipment such as EI, IPS, Data loggers, etc. shall be augmented as per the requirement of project scope duly supported by technical details and calculation. The contractor shall arrange for all the necessary hardware, software, interfaces, alterations in the existing equipment viz EI, IPS, data logger etc. for commissioning of Automatic Block Signalling. The contractor shall arrange and coordinate with the OEMs of existing system for interfacing with hardware / software with necessary alterations
g	**Installation and Commissioning:** All the equipment shall be installed and commissioned by OEM's authorized Engineers. OEM Installation certificates, testing certificates, Pre commissioning checklists etc., shall be arranged by the contractor. Procedures specified in the latest RDSO TAN shall be followed.
h	**Tools &Plants:** All tools &plants, measuring instruments etc. required for inspection, installation, testing & commissioning shall be arranged by the contractor and shall be the contractor's property.
i	**Safety &Security at Work Sites:** Contractor shall adhere to all safety instructions, circulars and norms issued by Railway when working close to the track to ensure safety of trains as well as staff working in the vicinity of the track. Contractor shall deploy adequate lookout men while working on track with all necessary safety devices, tools and gadgets.

	Instructions laid down in PCE/SCR Engineering Standing Orders No. 89 dated 29.07.2020 and No. 65 dated 05.07.2010 or latest are to be followed and shall be the basis of the safety plan.
J	Penalties as listed below will be imposed for various deficiencies and discrepancies in the work/ services executed.

S.No.	Nature of Discrepancy/ Deficiency	Penalty to be Imposed
1	Indoor/ outdoor relays with wrong coding pin configuration	Rs 10,000/- Per relay
2	Design mistake in the circuits submitted for approval	Rs 2,500/- for each mistake
3	Mistakes in as made documents	Rs 10,000/- per mistake
5	Non-Deployment of Site Engineer	Rs. 1,000/- per day
8	Non-deployment of semi-skilled manpower	Rs 1,000/day

II. Design of ABS system & scheme

Sl. No	Description
a	The design of automatic block signalling system will be EI based as per TPC-07_2025_ Scheme for Automatic Block Signalling and as per RDSO approved STANDARD TYPICAL CIRCUITS FOR AUTOMATIC BLOCK Report no. SIGNALLING SS/164/2024 Dated 08th July, 2024/Signal Directorate.
b	The tentative scheme plan for automatic block signalling is attached along with tender document as drawing no S.C.R.DRG NO.P/SC/ABS/2026/1.
c	The proposed cable route path for trenching shall be prepared by carrying out a site survey. The survey report shall be prepared in a diagrammatic representation, showing the existing cable paths, distances of various cable paths from the nearest track centre, railway land boundary etc. for both main and redundant paths. Both Cable paths i.e. main & redundant shall be preferably planned at a distance of one metre inside the railway boundary.
d	Cable Route plan, Cable Core plan, Cable Termination details in relay room and location boxes, location wiring plan, Fuse particulars, Power supply scheme, equipment disposition / floor plan, indoor circuits both logic and interface, shall be designed and checked as per SCR practice / Typical circuits and submitted for approval.
e	The signalling cables shall be planned in such a way that a minimum of 20% of working conductors are kept as spare. In station yards, the cables shall be planned as described below. i. For Home Signal - One no of new 1.5 sq mm X 24 Core copper cable and Two nos of new 1.5 sq mm X 12 Core copper cables shall be laid. ii. For Main line starter/Last Stop Signal- Three nos of new 1.5 sq mm X 12 Core copper cables shall be laid. iii. In the Block Section, beyond the home signal of one station to the home signal of adjacent station, the cables shall be planned and laid as per SC.RLY. DRG.NO.C5755. iv. Loading of functions in 6Q cables shall be planned in such a way that minimum two quads must be kept spare in each 6Q cable
f	For ease of maintenance and cost-effective inventory management, MSDAC, IPS, batteries, Data logger, Relays, ELD's, Changeover modems, Telecom equipment and other equipment of uniform make shall be used for the entire project.
g	The work needs to be commissioned in phase manner with phase working at PGDP station
h	The reference drawings required for execution of the work are attached with tender document.

III. Construction of ABS huts

Sl. No	Description
a	**Scope of the work**: Design & construction of Automatic Block Signalling huts as per the layout plan attached as Annexure 14 with Bid document and construction as per the approved drawings at the specified location along with supply of all electrical fittings & carrying out necessary electrical wiring with all the related works as per approved designs and drawings.
b	ABS huts shall be masonry structures of approved design. The layout plan, all types of designs shall be checked and approved by a qualified proof checker by the executing agency before submitting to railways for approval.
c	The flooring shall be provided with double vitrified tiles of size not less than 600 mm x 600 mm.
d	Cable duct of size 300 mm x 300 mm shall be provided as indicated in the layout plan. Arrangements shall be made inside the ABS hut to fix cable trays, supporting angles of cable termination racks, relay racks and supports for various equipment. After completion of cable laying, cable ducts shall be provided with matching tiles.
e	Arrangements shall be made on the roof of the ABS huts to erect Class A protection system as per SCR Drawing No. 5777. Base plate for installation of the mast for Class A protector as per the drawing shall be embedded in the roof while casting Slab. Hooks for connecting stay wires of class A protection mast shall be provided in the slab as per SCR Drawing No. 5777.
f	Provision for Cable entry shall be provided in ABS hut for not less than 60 cables as close as possible to CT rack and OFC rack as per layout plan.
g	The contractor is responsible for loading, unloading and transportation of all construction material of ABS hut to site.
h	Fencing as per Annexure 17 shall be provided around the hut leaving a minimum 1500 mm gap from the building. Earth work with protection shall be done to level the earth around the building inside the fencing.
i	All the materials used shall be as per the approved list issued by PCE vide Lr No. SCR-HQ0ENGG(SOR)/1/2020-Dy. CE/WORKS/SCR dt. 24.05.2022.
j	All the new ABS huts both at stations and block sections shall be provided with double locking arrangements and door sensor arrangement. Closing/Opening of ABS hut door should be monitored through door sensor connected with Data logger
k	All the huts shall be provided with electrical arrangements as per Annexure 16.

IV. List of annexures:

Annexure no	Description of the annexure
1	Modified Signal Foundation in Between Tracks
2	Drawing for Main signal foundation
3	Typical drawing for RCC Cable Duct .pdf
4	Cable laying when rock faced at 600mm depth
4A	Drawing for Cable laying when rock faced at 300mm depth from ground level
4B	Cable laying when rock faced at 400mm depth .pdf
5	Cable laying on the bed of culvert or under culvert .pdf
6	Cable laying on culverts with high flood level
7	Typical drawing for Cable chamber
8	Typical drawing for Protection of cable at Less depth
9	Typical details of clamping arrangement for passing of service cables on open web Girder
10	Typical drawing for Full location box foundation
11	Typical drawing for location box and signal earthing
12	Typical Horizontal Boring
13	Drawing for track road crossing
14	ABS Hut Layout Plan .pdf

Annexure no	Description of the annexure
15	ABS HUT Earthing arrangement .pdf
16	ABS HUT Electrical arrangement.pdf
17	ABS HUT FENCING RDSO DRG .pdf
18	Typical Drawing for Upright and anticlimbing Fencing.pdf
19/1-5	Tie bar fencing .pdf
20	Railing for ABS HUT .pdf
21	IPS scheme for ABS HUT .pdf
22	Typical drawing for Class A protection system
23	Drawing for RE protection scheme
24	Bracket arrangement for passing of signal telecom cables parallel to track over steel girder .pdf
25	Cable trough for metallic bridge pdf
26	Signalling legend boards Drg
27	Typical drawing for Gland plate
28	Scheme for Automatic Block Signalling
29	ABS_VDU layout at Station
30	Typical Cable Distribution Plan for ABS at station double line pdf
31	LC GATE Panel Diagram for ABS double line pdf
31A	AWS scheme for Mid-Section LC gates
32	Typical drawing for Automatic fire detection alarm system .pdf
33	Relay rack assembly
34A	Ladder for indoor wiring
35	Telecom Circuits Channelling Plan.pdf
35A	Telecom Circuits Connectivity Diagram .pdf

Part -E

Technical Guidelines for S&T Works

1.0	**GENERAL:**
1.1	The detailed Specification for the work which is to be carried out by the contractor are as stipulated here under. Not with standing whatever contained in the specifications, the field supervisor/Executive engineer for the work shall decide as per site conditions and shall be binding on the contractor. In case of any dispute regarding soil condition/type of trenching and other conditions the decision of the Engineer for the work shall be final and binding.
1.2	The work shall be carried out according to the drawings approved by the Railways and shall confirm to the provision of Codes, Signal Engineering Manual, RE Manual, Block Manual and Schedule of Dimensions are deemed to be a part of the Contract Agreement. The contractor shall be solely responsible for the proper execution of the work as per specification.
1.3	The respective drawings can be obtained from the office of the Dy. CSTE/Proj./SC.
1.4	The Earthing, Bonding, Surge & Lightning Protection System for S&T Installation shall be as per TAN STS/E/TAN/3006 Ver.3.1 dated 30/06/2025
1.5	The Automatic Fire Detection & Alarm System for signalling and Telecom installations shall be RDSO/SPN/217/2021 Ver 3.0 or latest and RDSO TAN No.STS/E/TAN/3009 Ver 1.0 dated 20.11.2025 or latest.
1.6	The Digital Axle Counters shall be as per RDSO TAN No.STS/E/TAN/7010 dated 20.11.2024 or latest.
1.7	The Electronic Interlocking system supply and installation shall comply all the TANs issued on Electronic Interlocking. (a)Technical Advisory Note (TAN) on Guidelines regarding Installation of Electronic Interlocking (Centralized and Distributed) STS/E/TAN/3012 version 4.0 dated 23-07-2025 or latest (b) As per RDSO Ltr No. RDSO-SIG0MISC(GEN)/1/2021 Part(I) dated 17.08.2024 or latest for Provision of Kavach Interfaces in Electronic Interlocking. (C) RDSO Technical Advisory Note No.EI/TAN/Security Ver 1.0 dated 01.03.2023 or latest including correction slips up to date of opening of tender on Cyber security aspects of Electronic Interlocking system. (d) RDSO Technical Advisory Note No.STS/E/TAN/3007 Ver 1.0 dated 02.11.2012 or latest, Maintenance terminal (Industrial grade embedded Fan less PC).
1.8	The scheme for automatic signalling scheme shall be as per Technical Policy Circular No.07/2025,dt 11.08.2025. EI/OC based Automatic Signalling shall be as per RB Lr No. 2018/Sig/36-SD-1 New Delhi, dated 02.08.2024 and as approved by Zonal Railways.
2.0	**CABLE LAYING:**
2.1	**CABLE PLAN:**

	Cable route plan and cable distribution chart for each cable shall be prepared by contractor for each station and block section leaving adequate spare conductors overall i.e., 20% of working conductors overall shall be left spare up to outer most points and 10% beyond outer most points. These plans shall be approved by railways before starting the cable laying works.
2.2	**CABLE TRENCHING:**
2.2.1	The entire process of trenching and cable laying shall be video recorded and a soft copy in pen drive or hard disc shall be submitted.
2.2.2	Trenching and laying of cable ducts, Signalling, telecommunication, Power cables, termination of cable on terminals with supply of all necessary fixtures and material, blowing of OFC, splicing, jointing, provision of joint chambers and loop chambers, termination of fibres on FDMS of OFC and testing of cables and fibres and associated works is in the scope of the work. Practices as specified in IR Telecom Manual, guidelines issued by RDSO for signal cable laying vide RDSO/SI/G/2010 Ver 1.1 or latest, SCR technical guidelines shall be followed. In the RE area special precautions laid down in RDSO guidelines shall be followed.
2.2.3	Requirements of micro-tunnelling / trenchless laying, laying of RCC duct / Polyolefin Duct / HDPE pipe / RCC pipes / GI Pipe and protection arrangements etc. shall be assessed based on site survey and shall be indicated in the cable route plan and submitted for approval of Authority Engineer. Cable shall be laid as per approved cable route plan and cable core / distribution plan. An extra cable loop of 6 to 8 meters shall be kept at each end of the main cable / tail cable / power cables / 6Q cable, at apparatus cases, at signal foundations, ABS huts / Relay rooms, major bridges and culverts. If the cables are to be laid in the station area/ circulating area by breaking concrete/ road/ platform/ any other surface, the work area shall be brought back to its original state after completion of cable laying

2.2.4	Trenching and cable laying shall be carried out in Two paths. One is called the main path and another one is called the redundant path. Main and Redundant path for cable laying shall be on the opposite side of tracks. a) The main path must be with an RCC duct from one station to another adjacent station. b) In the main path, the duct shall be laid at a depth not less than 600 mm. All signalling, Power, HDPE duct shall be drawn in the duct. c) The RCC duct shall be laid for the main cable path and also for the tail cables trench that is from main cable path up to the function. d) RCC duct shall be filled with River sand / Sieved quarry dust not less than 50 mm above the cable top. The joints of RCC duct covers shall be sealed with cement mortar. The trench shall be refilled after closing of the duct e) 230V power cables shall be laid in a separate trench drawing the cables through HDPE duct. f) RCC duct (as per SCR drawing no: 5778A) has to be used. g) When cables are to be laid in rocky areas, in the path nominated for RCC duct, the rock shall be cut to a depth of not less than 400 mm, place the RCC duct and concrete the remaining portion up to ground level, with 1:3:6 concrete mix after laying of cables h) In areas where continuous sheet rock is encountered, the cables shall be laid in GI pipes of adequate diameter and complete length of the GI pipe shall be clamped and concreted with 1:3:6 concrete mix up to the height/width of 300 mm above /adjacent to the GI Pipe. i) In the redundant path, signalling, telecom and power cables shall be buried directly at a depth not less than 1.0 mtrs. Wherever the above-mentioned depth of 1.0 mts cannot be achieved due to site conditions, protection arrangements as per SCR Drawing No. 5771 shall be provided. A minimum depth of 600 mm shall be dug for the above protection arrangement. j) The trench path shall be straight as far as possible. The trenching shall be carried out without causing damage to the working cables. A qualified engineer shall be deployed at the work spot continuously. The guidelines issued vide Railway Board Lr No.2021/Tele/5(2)/3-Part (1) (3425647) dated 12.06.2023 for taking up digging activity near S&T cables shall be followed. Necessary bushes/trees/jungle shall be cleared before taking up the trenching. k) When rock is encountered, the cable laying shall be done as per Drawing Nos.15-D2 of IRSEM l) Trenching and cable laying shall be carried out in one path for short distance only, where it is not feasible to provide in two separate paths duly taking approval from Engineer In charge.
2.2.5	a) Track Crossings, Road crossings, Platform crossings, Trenching in Circulating area, shall be carried out by Micro tunneling / Trench less digging to the extent possible. Micro tunneling / trenchless digging shall also be adopted in difficult terrains/marshy areas/water logged areas if it is found advantageous for quick delivery of the project but not envisaged during the survey shall be decided by the Authority Engineer. Micro tunnelling shall be carried out at a depth of not

	less than 1.5m from rail level. Microtunneling / trenchless digging shall include supply and insertion of HDPE duct of Dia 110 mm, PE 80 (IS 4984). b) If micro tunnelling is not feasible for track crossings / Road crossings, horizontal boring method vide SCR Drawing No. 5770 shall be followed. For track crossings, micro tunnelling/ horizontal boring shall be done at a depth not less than 1.0 mts from the bottom of the sleeper. c) If both the above-mentioned methods are not feasible, manual track crossing / road crossing shall be done as per SCR Drawing No. 5768A as decided by the Authority Engineer. d) RCC pipe used for manual crossing shall be of non-pressure NP2 class (light duty) of 150 mm dia. with collars joined with a stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc. e) The surface area shall be brought back to its original state after completion of cable laying. f) Wherever the above three options are not feasible, cables shall be taken over the foot over bridge in lieu of track crossing as decided by the Authority Engineer. Cable shall be laid inside HDPE pipe of Dia 110 mm, PE 80 (IS 4984) of suitable diameter properly clamped to the FOB structure. g) A cable chamber as per SCR Drawing No. 5766 shall be constructed near the Relay room, ABS Hut, LC Gate and cable coil loops shall be kept in this chamber duly filled in with sand and sealed with RCC slab.
2.2.6	Cable Laying on Bridges: a) Cable laying on important/ major bridges having steel girders shall be either through GI trough vide DRG No.15-D6 of IRSEM (Supporting channels vide DRG No. S&T/RE/78/2/76 page 1, galvanized to Spec IS 2629-1985) or through Medium class GI pipe conforming to lS.1239 (part-I) 1990 and galvanized to specification IS.4736 1986 of adequate diameter supported by 'C' Channels of size not less than 100mm x 50mm x 1200 mm thickness 5mm galvanized to specification IS 2629-1985. GI Pipe shall be perforated at regular intervals. No drilling of holes on girders is permitted. b) Cable laying on important/ major Bridges with concrete girders and having built in duct shall be laid through HDPE pipe of Dia 110 mm, to specification PE 80 (IS 4984). Masonry brick blocks of size 500 x 500 mm (width X height) shall be provided at either end of the bridge to cover exposed HDPE pipe completely. c) Cable laying on important/ major Bridges with concrete girders without built in duct shall be done through GI pipes of adequate diameter. Concrete masonry of 300X300X300 mm above GI pipes shall be provided at every 2 mts. The GI pipes shall be clamped at every 1 mt. The GI pipes and concrete masonry shall not infringe as per IRSOD. Both ends of the GI pipes are to be closed with brick masonry. d) Cable laying on all minor bridges / culverts shall be as per DRG No. 15-D8 of IRSEM. Medium class GI Pipes of adequate diameter for laying cable on the culvert shall be used. When the cables are to be laid on the bed of culverts or under culvert, the laying shall be done as per IRSEM drawing no DRG No. 15-D7. This procedure shall be adopted for minor bridges/culverts where there is no perennial water flow. The pipe shall be of non-pressure NP2 class (light duty) of 150mm dia R.C.C. pipes with collars jointed with a stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand).
2.2.7	When the cables have to be taken inside a relay room / ABS hut / Dy. SS room / LC gate hut etc, the cables shall be laid & bunched over powder coated MS ladder of appropriate width made of angle of size 38mm X 38 mm X 3 mm and taken inside the relay room. The base of the ladder shall be properly concreted

	with 1:3:6 concrete. The above arrangement shall be protected by constructing a brick masonry block around the ladders.
2.2.8	When the cables are required to be taken inside working location boxes / Signal Post, the cable shall be taken from underneath the location box foundation. Inside of the location box shall be sand filled, plastered after taking the cables inside. For working functions, the planning shall be such that it is possible to change over without disconnection of working function or with bare minimum disconnection. Wherever there is paucity of space in the existing locations, new wired location with foundation shall be done and existing cables shall be jumpered from the existing location to the new wired location and existing location shall be converted into Junction Box.
2.2.9	6 Quad cable laying: (a) Separate 6Q cables shall be laid for main & redundant DPs. 6 quad cables for main and redundant DPs shall be laid in separate paths. (b) 6Q cable shall be jointed using jointing kits to specification IRS TC 77/2012 Rev 3 with latest amendments. These joints shall be kept in a separate new Full Location Box duly fixing with teak wood reapers on both ends of the joint without any sharp bends. (C) 6 Q cable shall be terminated on WAGO / Phoenix terminals which shall confirm to RDSO Specification No. 189/2004 or latest at location boxes near DPs of MSDAC. 6Q cable pairs shall be twisted before termination.
2.2.10	OFC Cable Laying: a) Laying of HDPE duct and blowing of OFC Cable shall be done as per guidelines given in Section VIII of Chapter 13 of IR Telecom Manual. OFC cable shall be blown through HDPE duct confirming to specification RDSO/SPN/TC/45/2013. HDPE duct shall be laid in both main and redundant paths as required. Both Main & Redundant OFC cables shall be blown through HDPE duct using a blowing machine and no manual pulling is permitted. Before blowing of OFC cable, Duct Integrity test shall be carried out on HDPE duct as per procedure laid down in Para Annexure-I Chapter 13 of IR Telecom Manual and readings shall be recorded before blowing OFC cables. OFC cable shall be jointed as detailed in Section X Chapter 13 of IR Telecom Manual. After splicing OFC shall be tested and readings recorded as per format in Para 13.10.23 of IR Telecom Manual / South Central Railway formats. b) All the fibres of OFC shall be terminated in FDMS in LC Gates / ABS huts / Stations / Cabins as per system requirement. These FDMS shall be housed in a suitable standard make 42U rack such as Vero President / Rittal / AEW etc. at the ABS Huts / Stations and rack of suitable size in LC Gates. The rack shall have cooling fans, Power managers, cable managers, equipment trays of adequate numbers. OFC Patch cords of adequate length shall be provided to connect OFC cables to Equipment. c) A total of 4 Numbers of 48 Fiber OFC cables, two in each, main and redundant paths from station to station shall be laid. d) The existing OFC in the sections shall be terminated at all ABS huts / LC Gates, two numbers of 48F OFC cables shall be laid in HDPE duct and spliced at the nearest joint chamber and terminated at FDMS in ABS Huts / LC Gates. e) Provision of FRP Loop chambers at every one Km, on both ends of track

	crossing, both ends of major bridges etc. are in the scope of work. f) RFID markers shall be of STANLEY/3M/LEGRAND or any other reputed make are to be provided as per approved specifications. RFID markers shall be programmed with details approved by Authority Engineer. It shall support web based/smart phone-based viewing of cable path and other details
2.2.11	The entire cable path (both main and redundant paths) shall be provided with cable route markers as per DRG. No. 15-D1 of IRSEM. The cube test reports of each sample of the concrete batch shall be submitted. The Cable markers shall be provided at an interval of 50 mtrs. Additional cable markers shall also be provided at every cable joint/cable diversion. Cable markers shall be painted with standard colour code. RFID Cable route markers shall be provided in both main and redundant trenches at every 100 mts and at the locations of Track crossing and OFC Loop Chamber.
2.2.12	The complete trenching, cable laying activity shall be video recorded and submitted in CD / Pen drive along with stage payment certificate.
2.2.13	a) 6 Quad Cable for signalling applications available in the section shall be brought to the ABS Huts and terminated for emergency use. b) 6 Quad Cable used for block, BPAC, EC and LC Gates communication shall also be brought and terminated at ABS Huts.
3.0	**Location Box/apparatus case foundations**
3.1	The apparatus case shall be installed as per cable core plan by Excavation of Pit, Casting foundation as per SCR Drawing No. 5781. The top surface of the foundation shall normally be at rail level in a plain area. For all location box foundations strengthening of foundation with stone pitching shall be done up to a height of 40 cm covering an area of one meter around the Location box foundation. The foundation shall be lime washed with two coats after completion of erection of location box.
3.2	New separate location boxes shall be cast for each new signal location. Where two new signals of the same direction are located at a distance less than 10 mts , the same location box can be used for both signals. Separate Location Boxes shall be provided for each Home Signal. New separate location box shall be cast for each MSDAC DP location. Where MSDAC DPs are located at a distance more than 20 mts
3.3	The apparatus case shall be painted with one coat of primer after preparing the surfaces smooth by emery paper polishing. The apparatus case shall be painted with two coats of aluminium paint on outer surface and two coats of white paint inside. The paints shall be of make Berger / Asian / British / JSW etc.
3.4	Supply & Fixing of Teak wood Reapers / Teak wood Block / 10 mm hylam sheet, Cable termination, Supply and fixing of 1 Way / 6 Way terminal / WAGO Terminal, Supply and fixing of Fuse blocks and fuses, wire coils, relays, earthing and earth connections. All signalling cables shall be terminated on ARA terminals. For terminating the cables, a hylam sheet of 10 mm thickness / teak wood reapers of size 75mm x 20mm, 25mm x 20mm, 50mm x 50mm with two coats of wood primer as per requirement shall be provided inside the location box. The size of the hylam sheet shall be such that it covers the full open space below the relay frames in the location box. Gland Plate as per SCR Drawing no. 5774, earthing of Location Box / equipment, anti-tilting arrangement for

	equipment and all other associated work required to complete the work is in the scope of work.
3.5.	All the underground cables shall be provided with punched name plates showing Drum No, total no. of cores, and from and to details etc. Location box particulars in prescribed format, shall be printed on a good quality flute board and fixed in the location box.
3.6	The apparatus case in which any equipment like MSDAC / DCDP / Charger need to be kept shall be provided with teak wood planks of size 940 X 470 X 20 mm neatly finished and applied with two coats of wood primer.
3.7	The apparatus case in which any relays need to be fixed shall be provided and fixed with powder coated relay fixing frame of size 940mm x 150mm and made of MS angle of 25mm x 25mm x 3mm. the frame shall be painted with two coats of paint.
3.8	A cable loop pit of size not less than 1mtr depth and 1.5 mtr diameter shall be made near every location box and a loop of 6 to 8 mtr of each cable shall be coiled and kept in the pit. Individual cable coils shall be tied with released cable pieces and kept in the pit on top of the other, if multiple cables are to be terminated in the same location box. The loop pit shall be refilled and rammed. In any case the depth of the top most cable shall not be less than 1 mtr
3.9	Stone pitching around all location boxes, tie bar fencing in urban areas and miscreant activity prone areas as decided by authority engineer is in the scope of the project.
3.10	The location box shall be painted and numbered as per the existing practice of SCR. To the extent possible, location Boxes shall be pre-wired at a central location and erected on foundations. For ease of maintenance, the wiring and terminations shall be uniform throughout the section. Infringement particulars, earth resistance particulars of Location box shall be painted on the track side of the location box.
4.0	**Signal foundations**
4.1	New foundations shall be cast for all the automatic/semi-automatic signals, including existing 4 aspect signals.
4.2	The signal foundation shall be casted as per SCR DRG No. 5772 for signal on one side of the track and as per DRG No. RDSO/M-00011/R4 for signals in between tracks which are likely to infringe as per IRSOD. The top surface of the signal foundation shall normally be at rail level. Strengthening of signal foundation shall be done for all those signals whose foundation is not surrounded by rammed earth on all four sides for at least 40 cms width
4.3	The complete signal unit with all accessories like ladder, stage, ladder shoe and signal hood etc., shall be erected duly taking all safety precautions and adhering to IRSOD. The signal unit shall be fixed with a "X" marker (signal not in use indication) made of hardwood of size 1000mm x 100mm x 20mm till it is commissioned. The cross bar shall be painted white as per IRSEM and fixed with suitable MS flat clamp.
4.4	The signal post shall be suitably plumbed to make it straight. The Gap between CLS Base and Signal Post shall be filled with glass wool and lead sealed.
4.5	The complete signal shall be painted with two coats of Enamel / Aluminum paint after preparing the surfaces smooth by emery paper polishing. The signal

	infringement distance shall be painted on the signal surface base towards the track side. The paints shall be of make Berger / Asian / British / JSW etc.
4.6	Signal post height shall be 3.6 mtrs or higher as per site conditions to achieve required visibility. Necessary offset brackets shall be provided wherever required to achieve visibility as per IRSEM.
4.7	A cable loop pit of size not less than 1 mtr depth and 1.5 mtrs diameter shall be made near every signal and a loop of 6 to 8 mtrs of each cable shall be coiled and kept in the pit. Individual cable coils shall be tied with released cable pieces and kept in the pit on top of the other, if multiple cables are to be terminated in the same signal. The loop pit shall be refilled and rammed. In any case the depth of the top most cable shall not be less than 1 mtr. The tail cables shall be taken through the foundation, signal post and terminated in the signal unit using 6 way terminals. The wiring from 6 way terminal to signal LED shall be carried out using adequate dia. flexible PVC pipe and 28/0.3 mm copper wire with lugs of suitable size
4.8	For the Colour Light signals in the RE area which are coming in the infringing zone, screening arrangement as per SCR Drawing No.5767 shall be provided. The screen shall be made of MS wire-mesh and shall be fixed on MS angles of size 25mm x 25mm x 6mm with suitable fixing clamps, bolts and nuts and painted with one coat of red oxide and two coats of black paint of make Berger / Asian / British / JSW etc.
4.9	Route Indicators shall be mounted on the top of the signal post firmly. The tail cables for route indicators shall be taken through signal post without any damage to the insulation and armour, skinned and terminated on route indicators. Route indicators shall be wired with 28/0.3mm copper wire as per the approved circuit diagram. Hoods shall be fixed properly and examined during day time and if required extension of hoods shall be made to have proper visibility.
4.10	Calling on signals/ 'A' marker/'AG' marker/ Shunt signals shall be fitted on the signal posts at required height using suitable off-set brackets. Suitable hole shall be drilled on the signal post to bring the cable/jumper wires with minimum outside exposure. The cable/ jumper wires shall be taken to calling on signal/ 'A' marker/'AG' marker/Shunt signal through suitable steel hose pipes and wired. The calling on signals shall be provided with 'C' marker and 'Automatic signals with 'A'/'AG' marker. Number plates to be fixed and painted as per the standard practice of South-Central Railway
4.11	In Case of signals with horizontal clearance less than 2.36 mtrs from the nearest track centre, blanking arrangement shall be provided as per IRSOD. The ladder of the signal shall be blanked off to a height of 300 mm between 2060 mm and 2360 mm above rail level using MS plate not less than 8 mm thickness. The end portions of the plate shall be rounded off and no sharp edges shall be protruding. The plate shall be painted with two coats of black colour. The signal post shall be painted as per Annexure 19-A1of IRSEM. The paints shall be Berger/ Asian/ British/ JSW make.
4.12	"Entering into Automatic Block Territory" & "Entering into Absolute Block Territory" boards of size 1000mm X 600mm X 3mm shall be provided as per SIP.

5	**Power supply arrangements**
5.1	Integrated power supply (IPS) shall be supplied and installed as per scheme attached as annexure 21 attached with tender document.
5.2	The existing power supply arrangements need to be augmented to suit the requirements for commissioning ABS system.
6	**LC gates**
6.1	The existing interlocked gates are to be integrated with ABS system by carrying out necessary circuit alterations in the existing LC gate circuits.
6.2	Approach Warning System as per Annexure 31 A shall be provided for all LC gates in the block section to warn the Gateman of the approaching trains. The AWS system shall be designed to give audio warning & visual indication of any approaching train to the Gateman. The AWS system shall be effective for both UP & DN directions. System shall trigger an audio buzzer and indication at a distance of 4.0 Kms from the LC Gate.
7	**Indoor wiring**
7.1	The contractor shall submit equipment disposition plan / floor plan of the ABS hut, Relay room, LC gate hut indicating the position of various equipment and racks for the approval of Authority Engineer. Equipment layout, relay positioning, cable terminations, fuse positioning and wiring shall be identical in all ABS huts and location boxes throughout the project.
7.2	All the contacts of relay shall not be used, at least one front contact and one back contact shall be kept as spare for future requirements.
7.3	Relay bases of only the correct configuration shall be used. Under no circumstances, configuration of bases shall be disturbed.
7.4	The material required for carrying out indoor wiring at ABS huts, Panels and existing relay rooms such as Q-style / metal to metal relays, wiring material, Automatic Fuse changeover system, relay racks, cable termination racks, power Racks, ladders, 6 way / 1 way / WAGO terminals, wire coils, lugs, indoor cable, fuse blocks, fuse links, LVR etc. shall be supplied and installed as per the standard practice.
7.5	Wiring shall be done as per approved circuits and practices adopted in South Central Railway. All the wiring should comply with the EI / ABS (equipment) OEM checklist, latest RDSO TANs. All wiring is to be properly bunched with lacing twine or cable ties.
7.6	Newly laid outdoor signalling cables shall be terminated on cable termination racks of approved design in the ABS huts / relay rooms / LC

	gates.
7.7	Details of wires / cables to be used for various types of indoor wiring is listed below: a) Relay to relay, relay to cable termination rack, relay to fuse blocks: 16/0.2mm wire coils ATC as per IRS S76/89 Amendment No.2 or latest. b) Power supply wiring: 35 sq.mm (277/0.4 mm)/10 sq.mm wire coils (140/0.3 mm) as per IRS S76/89 Amendment No.3 or latest according to load calculations / OEM recommendation. c) Relay rack to panel: 60 core indoor cable as per IRS-S-76/89 Amendment- 2 or latest / signalling cable as per specification IRS 63/2014 Rev 4 or latest. d) Earthing: Multistrand copper conductor of appropriate dia. shall be used for connection of equipment / earth bus bar as per RDSO code of practice for earthing. e) Data logger wiring: i) Tag Block to data logger: 60 core indoor cable as per IRS-S-76/89, Amendment-2 or latest. ii) Relay to Tag Block 16/0.2mm wire coils ATC as per IRS.S76/89 or latest. f) MSDAC, EI: as per OEM recommendations.
7.8	All the flexible wires shall be terminated using suitable size lugs. These lugs shall be crimped and soldered. Wire identification tags / sleeves / Ferrules of insulation material shall be provided at both ends of the wire with terminal particulars printed on it. Soldering shall be carried out as per Para 19.1.2 of IRSEM.At fuses i.e., on busbar side, wiring shall be in ring fashion.
7.9	Relay name and number shall be painted / printed on the relay racks as per the standard practice (both in front and rear side of each relay) and CT rack termination particulars, fuse particulars shall be painted / printed on the CT rack / power rack in addition to the details displayed on the nearby wall.
7.10	Relays flashing shall be done before plugging in the relays and flashing readings shall be recorded.
7.11	Testing of wiring shall be in accordance with the IRSEM Para 19.8.5. First testing shall be carried out by the Competent Engineer of the contractor before offering for testing to railways. Testing shall be offered to railways at two stages: Stage 1: Wire to wire test with buzzer before soldering Stage 2: Wire to wire test with buzzer after soldering

	The wiring will be tested separately by SSE & Officer nominated by Authority Engineer at each stage. Different colour ink shall be used for marking during testing at different stages. Necessary manpower required for testing of circuits by SSE & Officer shall be arranged by the contractor.
7.12	Supply, wiring, testing and commissioning of Fuse Auto Changeover system at ABS huts as per RDSO specification RDSO/SPN/209/2012 Ver. 2 or latest. Potential free contacts of remote sensor / alarm unit of the fuse automatic changeover unit shall be wired to datalogger.
7.13	Earth Leakage Detectors as per RDSO specification RDSO/SPN/256/2002 or latest shall be provided at each ABS hut and all external power cables shall be connected to Earth Leakage Detector. The power cables of either side of the ABS hut shall be connected to different channels. Pre commissioning checklist and OEM installation certificate shall be prepared and submitted. All the power cables shall be in healthy condition as per earth leakage detector set values. Potential free contacts of Earth Leakage Detector shall be wired to data logger.
7.14	All the cable entries shall be closed properly using concrete / Silica Gel or any other compound to avoid entry of rodents or cable theft.
7.15	Arrangement shall be made by way of proximity switch or any other means to monitor the opening of ABS hut through data logger.
7.16	Required alterations in the existing knob type panels / push button panels shall be carried out to suit Automatic Block Signalling in the section and in the scope of the work.
7.17	Powder coated Aluminium ladder as per SCR Drawing No. 5769 required for drawing different types of cables shall be supplied and installed by the contractor. In case of alterations at EI stations, the ladder shall match with the already available ladder in the relay room.
7.18	Suitable arrangements shall be made in the relay rack for fixing condenser and resistance units as per the circuit design requirement. Letter painting shall be made against each unit to identify the circuit for which it is used.
8	**Outdoor wiring**
8.1	The contractor shall submit location box particulars with equipment disposition, fuse, termination details and outdoor wiring diagrams for the -approval of Authority Engineer. Equipment layout, relay positioning, cable terminations, fuse positioning and wiring shall be identical in all location boxes throughout the project. Wiring shall be designed to improve the reliability by paralleling of contacts.

8.2	The installation in location boxes and wiring shall be done as per the approved wiring diagrams. First testing shall be carried out by the Competent Engineer of the contractor before offering for testing to railways for final testing. The contractor has to arrange for necessary manpower for the testing of circuits / functional testing by railway officials.
8.3	Wherever necessary, the existing tail cables of signals/Location Boxes shall be released from the existing signals / Location Boxes and new tail cables shall be drawn to the functions and terminated as per approved scheme. This work shall be planned in such a way that disconnection required is either nil or bare minimum. If felt advantageous, new foundations shall be casted for signals to eliminate the need for disconnections.
8.4	All the flexible wires shall be terminated using suitable sized lugs. These lugs shall be crimped and soldered. Wire identification tags / sleeves / Ferrules of insulation material shall be provided at both ends of the wire with terminal particulars printed on it. Soldering shall be carried out as per Para 19.1.2 of IRSEM. At fuses i.e., on the busbar side, wiring shall be in ring fashion. All cables to be clamped properly using Cable Gland Plates.
8.5	Consequent to introduction of new circuits or alterations to existing circuits in apparatus cases / CTBs, new nomenclature should be painted on the cable sleeve. And also, the new particulars / corrections to existing particulars shall be painted/ printed/ displayed on the inner side of the doors.
9	**Electronic interlocking**
9.1	**Scope of the work**: Supply, installation, testing commissioning of new electronic interlocking and alterations in existing EI system should be carried out to integrate the EI system with automatic block signalling works. EI works as specified in the Scope and tender shall be executed in close coordination with the outdoor works. The scope of the work includes Supply of hardware, alteration of Interface Circuits / Application Logic / VDU layout duly certified by OEM, wiring, loading of the software, FAT, SAT and commissioning of alteration in EI system for Automatic Block Signalling. The logic and interface circuits of the alterations duly certified by OEM shall be submitted for approval.
9.2	The material required for carrying out alterations shall be supplied as per RDSO Specifications No. RDSO/SPN/192/2019 VER 2.0 OR Latest

9.3	Supply of Relay racks, fixtures, mounting arrangements, Ladder, runway and accessories is also part of this item. Relay racks which are being supplied shall have 25% spare capacity for future use. All the RDSO part listed items shall be got inspected by RDSO
9.4	All interface relays in the relay room except QSPA1, required lamp proving relays and point operation relays in the relay room required for commissioning of the electronic interlocking are to be supplied under this item. All Point Operation Relays in Relay Room like QBCA1 & QL1 relays are also to be supplied under EI scope for outdoor point operation as per RDSO Standard diagram. All these relays are to be got tested by RDSO
9.5	Supply, wiring and installation of Protective devices like fuses, lightening protectors, fuse links, fuse blocks, all terminals used for connecting wires/cables in indoor including those used for cable termination racks), Tag blocks with covers etc. as per requirement and recommended by manufacturer and RDSO is in the scope of the item. All the RDSO part listed items to be inspected by RDSO.
9.6	Supply of Wiring Materials, wire coils, all connecting material, 6-way terminals/ wago terminals/phoenix terminals, indoor signalling cables required for EI system, is covered in this item. All the RDSO part listed items to be inspected by RDSO.
9.7	Design, wiring, testing, energisation, preparation of pre-commissioning checklists and commissioning involved in the alterations of EI shall be executed by Competent Engineers of OEM
9.8	Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) are to be conducted as per RDSO's guidelines. On receiving Head Quarter approved Drawings, Internal FAT including square sheet testing to be conducted by the Contractor. Qualified Team and clear Documentary proof/Log to be maintained for the same
9.9	Design, Drawing, Installation, Wiring, testing, soldering of all EI equipment with contractor's material including wiring & soldering of relays, in Goomties (where ever provided) as well as central EI location and bring the functions up to cable termination Rack is in the scope of the item
9.10	Supply of all related consumable materials like rosin core, lacing thread, PVC bunching tape and buttons eyelets of sizes, etc. required for the work is part of this item.
9.11	**Testing of the system**: The testing which is part of the item includes -Functional testing, selection table testing with contractor's simulation panel (Both FAT & SAT)
9.12	Any other petty items required for making the EI system functional shall be arranged by the contractor

9.13	Any other related work required for bringing the electronic interlocking system to functional and integrate with the new ABS system is in the scope of the work
9.14	**Submission of as Made Documents**: - Preparation and supply of 4 sets of as made documents in hard and soft copies for each station as per the practice of south-central railway is in the scope of the item. After execution of the work, the tenderer has to supply four sets of documents listed in the table below along with system details, site installation details/drawing, maintenance manual, and operation procedure in a bound book as per practice of S.C. Railway consisting of the following shall be submitted. 1. Wiring diagrams. 2. Application programme listing. 3. Relay / Cable termination particulars. 4. Input / Output Assignment details. 5. Relay lay out and contact analysis chart. 6. Equipment deposition layout. 7. Details of Power Supply arrangement. 8. Any other document as the existing practice of railways. These drawings shall be prints taken from original drawings arranged in plastic folders. Each sheet shall be put in a separate plastic folder. All the other documents are to be supplied as per clause 10.1 of RDSO Specifications or latest. A full record of tests conducted shall be maintained by the tenderer and handed over to the railway along with the installation. Only signalling plans and table of control will be issued by railways. All indoor work details shall be prepared by the tenderer and submitted to railways for approval
9.15	All the necessary arrangements for FAT, SAT such as wiring, interface equipment, simulation panel, manpower needed for testing shall be arranged by the contractor.
9.16	The EI alteration shall be carried out in the working electronic interlocking system and these alterations need to be carried out in the Traffic blocks / Disconnection. The contractor has to arrange for sufficient manpower required to complete the work within the allotted time.
9.19	The work is planned to be commissioned in different phases. Phase alterations shall be required to be carried out in the Electronic Interlocking at following stations. Alterations to be carried out in both the phases is part of the work.

10	**Multi Section Digital Axle Counters (MSDAC):**
10.1	The System architecture for MSDAC shall be with line wise redundancy having separate evaluators for main & redundant systems of UP and DN as per Drg C/P/MISC/02/2026 attached with tender document. The system architecture showing the locations of evaluators, power supply arrangement, and placement of DPs shall be submitted by the contractor for approval of railways.
10.2	Installation of Central Evaluator in the relay room / ABS hut and wiring from CT rack to Central Evaluator, installation of the reset box, LV box, power supply, all other materials and work required to make the system functional and to integrate with the ABS system is in the scope of work. Separate track clearance relay shall be picked up for each main and redundant track section. Evaluators shall be interconnected with main and redundant OFC with auto changeover facility. However, during emergencies it shall be possible to connect these evaluators on 6 Quad cable also. Necessary hardware required for auto changeover from OFC to OFC and for manual changeover from OFC to 6 Quad is in the scope of work.
10.3	MSDAC Evaluators shall be networked to monitor from divisional signal control room. All hardware & software required for networking shall be in the scope of the project.
10.4	The resetting provision for MSDAC shall be as per the approved design. It shall have both auto reset, supervisory reset & manual reset provision. All resets shall be of preparatory type only. Common reset box for all track sections kept at the dispatch station and a co-operation button kept in the reception station shall enable this operation.

	Supervisory Reset: a) Supervisory Reset shall be as per Annexure 20 -A1 of IRSEM and configured as per the Approved SIP. Successful bidder shall submit the scheme of supervisory reset and Circuits for the approval of Authority Engineer. b) Supervisory sections shall be configured for main and redundant DPs independently. c) Supervisory sections shall be configured independently for UP line and Down Line in case of Double line Sections and UP line, Down Line and U/D line for triple line sections. d) SUPR shall be picked up separately or can be programmed in the MSDAC Evaluator as per OEM requirements and SUPR relays (if picked up externally) shall be proved in the datalogger. e) Two Automatic Block Sections shall be Configured as one Supervisory section after LSS and In the remaining Automatic Block Signalling Sections Maximum of Three Automatic Block Signalling sections shall be configured in one supervisory section for reset. f) There should be an overlap of one Automatic Block Signalling section in each supervisory section. g) LC gate holding DP's shall be covered in the concerned Supervisory section.
10.5	Separate quad cable shall be laid for Main & Redundant DPs, in UP line &DN Line .
10.6	Earthing arrangements for MSDAC Evaluators and DPs shall be as per OEM recommendations.
10.7	Deflector plates are to be installed on both sides of detectors for protection.
10.8	Event logger with diagnostic feature shall be provided at each station of the Project and signal control room of the division. Details of Event logger (In-Built) & portable diagnostic terminal with monitoring software shall be as below: a) Event logger Diagnostic software for each station / auto section. b) Event logger Diagnostic PC as per following specification: (i) Processor: Intel Core i7, 3.1GHz Processor or Higher (ii) RAM: 8 GB (iii) HDD: 1 TB SATA (Minimum) (iv) Ports: 2 USB-2, 2 PCI slot (v) Screen: 15.4" 1920 x 1080 LED or better. (vi) Network interface: Integrated 10/100/1000 Gb E LAN (vii) Wireless: 802.11a/b/g/n Wi-Fi and Bluetooth (viii) Keyboard & Optical mouse

	(ix) Built in camera and Bluetooth (x) RS-232 Compatible in-built Modem OS: Windows 11 or better
10.9	Wiring, installation and commissioning shall be carried out by Competent Engineers of OEM. Pre-Commissioning checklists and OEM installation certificates shall be prepared and submitted.
10.10	Warning boards with Retro Reflective High intensity film (IS 9002 certified for consistent quality with minimum guarantee life of 5 years) of yellow background and Black letters of suitable size reading "Un insulated Trolleys & DIP Lorries Prohibited. TT Machine Driver! Beware of Axle Counter" in bilingual format of size 1000mm X 600mm X 3 mm shall be provided on either side of each MSDAC DP with concrete base of size 300mm X 300mm X 300mm. This board shall be made up of Aluminium alloy sheet of thickness 0.25 to 0.30mm with 3mm x 25mm M.S flat welded at the borders and fixed to MS angle of size 75mm x 75mm x 6mm of 3 mts length with nut and bolt. Minimum reflectivity of Retro Reflective High intensity film shall be 250 for black / yellow and must be able to withstand the climatic tests as per IS9000.
11	**Functional Requirements of Networking of MSDAC:** 1. All MSDAC evaluators shall be networked and shall be able to monitor from Divisional test room. 2. MSDAC Evaluators shall have unique addressing scheme for both main and redundant systems. 3. DP's shall have unique addressing scheme/identification as per approved SIP/Scheme plans. There shall be provision for Future DP's in the addressing scheme. 4. Section Lay out shall be shown in graphical manner in the diagnostic PC. Graphical User Interface shall be provided in the Diagnostic PC with customizable dash board. 5. It shall be possible to view entire block section or a particular track section as per selection or any combinations thereof. 6. Main and redundant track sections shall be shown with different colors in the yard layout provided for the diagnostic terminal. 7. It shall be possible to extract following exception reports track section wise, block section wise or any combinations there of a. Number of soft resets initiated b. Number of hard resets initiated c. Number of supervisory resets initiated d. Alarms generated in the evaluators e. Event logs Supervisory resetting data shall be visible supervisory section wise, block section wise and any combinations there of 8. Exceptional Reports for supervisory section wise, track section wise, main/redundant DP wise, block section wise or any combination thereof shall be generated. 9. Failure of Main/redundant DP shall be shown graphically with different color.

	10. Parameters of individual DP's shall be visible through selection. If any parameter is out of limits, it shall be shown with orange/Red depending upon severity. 11. It shall be possible to monitor health of network devices through their PFC contacts. 12. It shall be possible to monitor whether the system is working on main or standby fiber. 13. It shall not be possible to configure the parameters of MSDAC Evaluators from Remote place 14. It shall be possible to access the network from anywhere on rail net with valid credentials 15. It shall not interfere with working of MSDAC system. 16. It shall be possible to access data from any number of terminals simultaneously. 17. The data shall be stored in a server with minimum back up of at least 3 months. 18. It shall be possible to calculate/arrive at MTBF of various components of MSDAC such as DP's,various cards, power supply, networking devices etc. automatically. 19. It shall be possible to generate SMS alerts to maintainers and supervisors when a failure occurs. These failures shall be configurable. e.g: 1. If auto resetting is happening continuously for more than 3 times 2. if supervisory reset is happening continuously for more than three times 3. if OFC is cut in one path 4. If one evaluator fails. 5. If one power supply fails And any other failures as advised by Authority Engineer. 20. It shall be possible to generate exceptional reports about Hard resets. 21. Any configuration changes shall be able to be monitored with time and date stamps. 22. Age profile of equipment shall be mapped. It shall be possible to enter new details if a particular equipment/module is replaced. 23. A Pop-up window with audio/visual alarms shall be generated in case of the following catastrophic failures. a) Any one of the evaluators b) Any detection point c) Any networking device. 24. It shall be possible to view the track occupancy status in the diagnostic PC of central control on real time basis. Latency shall be less than 2 Sec. 25. ACPRs, PPRs (Q Series Relays) shall be picked up at both entry and exit end DPs side for Proving in indication panels in ABS huts and stations.

12	**Earthing:**
12.1	All the equipment viz. apparatus cases, signal posts, MSDAC, Power supply equipment, IPS, Power panels, outdoor cables, all indoor equipment and LC gate equipment etc. shall be earthed as per OEM recommendations, SCR practice, IRSEM, IR Telecom Manual and ACTM.

12.2	**Earthing of Location boxes & Signals** a) Earths as per SCR Drawing No. 5775 shall be provided for all Signals, Location boxes. All nuts / bolts used to connect MS Flat to function and MS Flat welded to earth electrode shall be galvanized. b) The earth resistance achieved shall not be more than 10 Ohm. Additional Earths shall be provided and paralleled if required to achieve final earth resistance of less than 10 ohms. c) Earth Chamber shall be filled with River sand / Robo sand. d) Earth resistance value shall be painted on the function with date of measurement
12.3	**Earthing of Cables**
	All the signalling and telecommunication cable armours shall be earthed properly. Both Sheath & Armour of Main cables are to be earthed. All cable armours shall be soldered with released cable copper conductors of required length and the other end of the conductors shall be connected to Cable gland plate. Armour of OFC shall be earthed at both ends. 6Q cable armour, sheath and screen shall be earthed at both ends.
12.4	**Earthing at ABS Huts**
	One ring earth, containing not less than four maintenance free earths as per SCR Drawing No. 5776 and 5777 shall be provided at each ABS hut. All four earth pits shall be interconnected using 35 x 6 mm GI flat duly welded. The earth resistance of ring earth shall be less than 1 ohm. If the desired earth resistance is not achieved, additional earth pits shall be provided till earth resistance of less than one ohm is achieved. The distance between two earth pits shall not be less than 3 mtrs in any case. Internal and external connections to earth pits, earth bus bars and various equipment in ABS hut shall be as per SCR Drawing No. 5776 and 5777. All materials viz. wire coils, copper bus bar, copper strip, exothermic welding materials etc. is in the scope of the project.
12.5	**Class A Lightning Protection**
	The class A protection shall be given by installation of "FRANKLIN ROD" as per NFPA-780 Standards. Installation to be done as per SCR Drawing No.5777. It also includes connection of down conductor with Franklin Rod and running of down conductor through PVC pipes and connecting the same to nearby earth electrode. All material required for installation to be supplied by the contractor.
12.6	**Electrical Earth:** Separate earths for electrical wiring of ABS hut and ATs shall be provided as per code of earthing for electrical installations.

13	**Indications display systems in station & ABS huts**
13.1	**(i)** Indications of signals aspects, track occupation, incoming and outgoing YR's status of entire automatic block sections adjoining the station shall be displayed on a separate VDU of size 55" for each block section at station. **(ii)** Indications of signals aspects, track occupation, incoming and outgoing YR's status of block section controlled by the ABS hut shall be displayed on a VDU of size 55" in each ABS hut. Indications of supervisory sections shall be provided on the indication panel. **(iii)** VDU shall be a commercial grade LED screen of Sony / LG / Samsung / Toshiba / Panasonic make along with an industrial grade PC. VDUs shall be fixed at a visible distance from the point of operation of signalling gears by making suitable fixing arrangements preferably by a floor mounted stand/wall mounted arrangement. **(iv)** The scheme for the above display system shall be submitted for approval. Indication at Station/ABS hut shall be provided as described below:

SNo	Indication required	Purpose
1	All The aspects of the signals controlled from the hut including A /AG markers	For the maintainer to have information during failure rectification
2	Track sections (main & Redundant)	For the maintainer to have information about the track section failures
3	Resetting indications of main and redundant track sections	For maintenance

13.2	All software, hardware, networking equipment, cables, power supply etc. required to make the display system functional and to integrate with the ABS system shall be arranged by the contractor.
14	**Fire Alarm & Detection System**
14.1	The fire alarm and detection system must be supplied as per RDSO Spec. No. RDSO/SPN/217/2025 ver. 3.1 or latest. Fire aspiration system complying to RDSO/SPN/217/2021 Ver 3.0 or latest shall be supplied and installed.
14.2	Supply must be done through RDSO approved vender only. Inspection of materials to be done by RDSO.

14.3	Firm must supply all sensors and equipment listed in para 2.1 of the RDSO specification. This includes Multi Sensor, Aspirating type smoke detector, Linear Heat Detector, manual call point, Control unit, GSM/cellular module, cables, relay, audio visual alarm etc. as per the specification.
14.4	The installation of equipment is to be done by OEM or its authorized representative only. RDSO pre-commissioning Checklist to be prepared with Railway Representative and is to be submitted before commissioning.
14.5	All the accessories and material required for installation & commissioning of Fire Alarm System shall be arranged by contractor
14.6	Fire Extinguisher of CO2 type (Capacity Minimum 5 KG) shall be supplied and installed at all ABS Huts both at Station Section & Block Section
15.0	**OEM'S SITE INSTALLATION CERTIFICATE:** OEM certification for the installation before commissioning to be issued for each of the equipment meticulously: (as applicable) (a) EI; (b) SSDAC / MSDAC/HA-SSDAC; (c) BPAC; (d) AFTC; (e) IPS; (f) DATA LOGGER ,(g) Class A Protection /Ring Earth (b) OEM is required to issue "Site Installation Certificate" addressed to CSTE of the Railway, as per standard format.

Part -F

Indian Railways Standard General Conditions of Contract

GCC April 2022

(Uploaded along with Tender Documents)

G. Abbreviations

In this document, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them.

ABS	Automatic Block Signalling	ACTM	AC Traction Manual
AT	Auxiliary Transformer	AWS	Approach Warning System
BIS	Bureau of Indian Standards	BZA	Vijayawada
	left blank intentionally	CRS	Commissioner of Railway Safety
CT	Cable Termination	CTC	Centralized Traffic Control
CTB	Cable Termination Box	DL	Data logger
DN line	Down Line	DP	Detection Point
DVD	Digital Versatile Disc	EI	Electronic Interlocking
ELD	Earth Leakage Detector	EOLB	Electrically Operated Lifting Barrier
FACS	Fuse Auto Changeover System	FAT	Factory Acceptance Test
FDMS	Fibre Distribution Management System	FN MUX	Fail Safe Network Multiplexer
GAD	General Arrangement Drawing	G&SR	General & Subsidiary Rules
GI	Galvanized Iron	HDPE	High Density Polyethylene
HDN	High Density Network	IRSTE	Institution of Railway Signal & Telecommunication Engineers
IIT	Indian Institute of Technology	IPS	Integrated Power Supply System
IRPWM	Indian Railways Permanent Way Manual	IRS	Indian Railway Specifications
IRSE	Institution of Railway Signal Engineers	IRSEM	Indian Railway Signal Engineering Manual

IRSOD	Indian Railway Schedule of Dimensions	IS	Indian Specification
KVA	Kilo Volt Ampere	LUX	Luminous Flux
LC	Level Crossing	LED	Light Emitting Diode
LTE	Long Term Evolution	MUX	Multiplexer
MSDAC	Multi Section Digital Axle Counter	NVR	Network Video Recorder
NI	Non-Interlocking	NP2	Non-Pressure 2
OFC	Optical Fibre Cable	OEM	Original Equipment Manufacturer
PI	Panel Interlocking	PA	Public Address
PCB	Printed Circuit Board	QAP	Quality Assurance Plan
RTU	Remote Terminal Unit	RCC	Reinforced Cement Concrete
RDSO	Research Designs and Standards Organization	RITES	Rail India Technical and Economic Services
RRI	Route Relay Interlocking	SWR	Station Working Rules
SAT	Site Acceptance Test	SC	Secunderabad
SCR	South Central Railway	SWRD	Station Working Rule Diagram
SIP	Signalling Interlocking Plan	SMPS	Switch Mode Power Supply
SMS	Short Messaging Service	TAN	Technical Advisory Note

TCAS	Train Collision Avoidance System (KAVACH)	TOC	Table of Control
TSAA	Technical System Acceptance Approval	UD line	UP & DN Bi-Directional line
UP Line	UP Line	USFBI	Universal Fail Safe Block Interface
VDU	Visual Display Unit	VRLA	Valve Regulated Lead Acid
XLPE	Cross Linked Polyethylene	6Q	6 Quad

Station Codes

GT	Ghatkesar	BG	Bhongir
BN	Bibinagar	WP	Wangapalli
PGDP	Pagidipalli	-	-

End of Tender Document