



**REQUEST FOR PROPOSAL
FOR
PROJECT MANAGEMENT CONSULTANCY SERVICES
FOR**

Construction of Double Line Electrified Railway Track with Signalling & Telecommunication system and related infrastructure for Rewari-Dadri and JNPT-Vadodara section (Approx 555 Route Kms) of Phase-2 of the Western Dedicated Freight Corridor and for Procurement of Electric Locomotives.

ICB NO.: PMC-2 (R)

ISSUED ON 04 JUNE 2015

Employer:
DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
MINISTRY OF RAILWAYS

INDIA



REQUEST FOR PROPOSALS

Country : India

PROJECT NAME: CONSTRUCTION OF WESTERN
DEDICATED FREIGHT CORRIDOR,
PHASE-2 (REWARI-DADRI AND
JNPT-VADODARA) AND
PROCUREMENT OF ELECTRIC
LOCOMOTIVES

Loan: **P-229**

Title of Consulting Project Management
Services: Consultancy Services
for Construction of Double Line
Electrified Railway Track with
Signalling & Telecommunication
system and related infrastructure
for Rewari-Dadri and JNPT-
Vadodara section (Approx 555
Route Kms) of Phase-2 of the
Western Dedicated Freight
Corridor and for Procurement of
Electric Locomotives.



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Section 1. Letter of Invitation

HQ/EN/WC/PH – 2/PMC (2 R)

New Delhi, 04 June , 2015

Loan No. P-229

Subject : Project Management Consultancy Services for Western Dedicated Freight Corridor between Rewari-Dadri and JNPT-Vadodara (Phase-2) and for Procurement of Electric Locomotives in India

Attention: Mr./Ms.:

1. The DFCCIL through Ministry of Railways (MOR), Government of India (hereinafter called "Borrower") **has received loan from** Japan International Cooperation Agency (JICA) (hereinafter called "loan") toward the cost of Construction of Western Dedicated Freight Corridor Phase –II between Rewari-Dadri and JNPT-Vadodara. The loan for Phase-II (and for Phase-I received earlier) includes provision for Procurement of Electric Locomotives.
2. The Dedicated Freight Corridor Corporation of India Ltd. now invites proposals to provide the following consulting services: Project Management Consultancy Services for Construction of Western Dedicated Freight Corridor between Rewari-Dadri and JNPT-Vadodara (Phase-2) and for Procurement of Electric Locomotives. More details on the services are provided in the Terms of Reference.
3.
 - a) Your firm is one of Consultants being invited to present a proposal for Consulting Services.
 - b) This RFP has been addressed to the following shortlisted Consultants:



	Consultant Name	Address
i)	ALMEC Corporation	1-19-14 Aobadi, Meguro-Ku, Tokyo 153-0042, Japan
ii)	Japan Railway Technical Services	2-27-8 Hongo, Bunkyo-Ku, Tokyo 113-0033, Japan
iii)	Japan International Consultants for Transportation co.,Ltd.(JIC), Japan	9th floor Shin-Kokusai Building 3-4-1 Marunouchi, Chiyoda-ku, Tokyo 100-0005, Japan
iv)	JR East Consultants Company, Ltd.	Metropolitan Plaza Bldg,1-11-1 Nishi-Ikebukuro, Toshimaku, Tokyo 171-0021, Japan (Overseas Business Department)
v)	Nippon Koei Co., Ltd.	4 Kojimachi 5-chome, Chiyoda-Ku, Tokyo 102-8539, Japan
vi)	OPMAC Corporation	1-13 Kanda Jinbocho, Chiyoda-Ku, Tokyo 101-0051, Japan
vii)	PADECO Co., Ltd.	3-20-12 Yushima, Bunkyo-Ku, Tokyo 113-0034, Japan
viii)	PB Japan Co., Ltd.	5-40, Sanban-Cho, Chiyoda-Ku, Tokyo 102-0075, Japan
ix)	The Japan Electrical Consulting Co., Ltd.	23-14, Ueno 5-chome, Taito-Ku, Tokyo 110-0005, Japan
x)	Tonichi Engineering Consultants, Inc., Japan	1-13-3 Honmachi, Shibuya-Ku, Tokyo 151-0071, Japan
xi)	Oriental Consultants Global Co Ltd.	3-12-1, Honmachi, Shibuya-Ku, Tokyo 151-0071, Japan
xii)	Koken Architects, Inc.	1-10-7 , Hacchobori, Chuou-Ku, Tokyo 104-0032, Japan
xiii)	Dainichi Consultant Inc.	3-1-21, Yabutaminami, Gifu-shi Gifu 500-8384, Japan
xiv)	Japan Bridge & Structure Institute Inc.	2-21-2, Yushima, Bunkyo-Ku, Tokyo 113-0034, Japan
xv)	Yachiyo Engineering Co. Ltd.	2-18-12, Nisichiai, Sinjyuku-Ku, Tokyo 161-8575, Japan
xvi)	Katahira & Engineers International, Japan	Taiko Bldg., 4-2-16 Ginza, Chuoku, Tokyo 104, Japan
xvii)	INGEROSEC Corporation	Shinjuku i-LAND Tower 43 F, 6-5-1, Nishi-Shinjuku, Shinjuku-Ku, Tokyo, 163-1343, Japan
xviii)	Metro Development Co. Ltd, Japan	Nihonbashi Kodenmacho, 11-9, chuo-ku, Tokyo, Japan
Xix)	Chodai Co.Ltd, Japan	20-4, 1-chome, nihonbashi-Kakigaracho, chuo-ku, Tokyo, Japan-103-0014

c) It is not permissible to transfer this invitation to any other firm. You may undertake the work in association with other consultants (not necessarily selected from among the other consultants invited to present proposals) in the form of Joint Venture/ Consortium subject to the conditions described in section 7 and other provisions of this RFP document.

4. A firm will be selected under Quality and Cost Based Selection (**QCBS**) and procedures described in this RFP, in accordance with the policies of JICA.
5. The RFP includes the following documents:

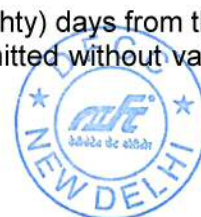


Section 1 - Letter of Invitation
 Section 2 - Instructions to Consultants (including Data Sheet)
 Section 3 - Technical Proposal - Sample Forms
 Section 4 - Financial Proposal - Sample Forms¹
 Section 5 - Terms of Reference
 Section 6 - Sample Forms of Contract
 Section 7 - List of Eligible Countries of Japanese ODA Loans

6. Please note that if a firm combines the functions of consultant with those of contractor and/or a manufacturer, the firm must include in its proposal all relevant information regarding such relationship, along with an undertaking to the effect that the firm agree to limit its role to that of consultant and to disqualify itself, its associates/affiliates and/or parent firm from work in any other capacity on this project other than that of consultant. It is also requested to state in its proposal that the firm will ensure that specifications and designs recommended by the firm will be impartial and in no way limit competitive bidding.

If, in connection with the performance of the consulting services, a firm intends to borrow, or hire temporarily, personnel from contractors and/or manufacturers, the firm must include in its proposal all relevant information about such personnel. In such a case, the firm will be acceptable only if those contractors and/or manufacturers disqualify themselves from work on this project other than that of consultant.

7. Please note that, if your firm (or any joint venture / Consortium partner or associate firm or Sub-Consultant or individual expert nominated in any submitted Technical Proposal for this project) has been previously engaged to prepare the definite Terms of Reference for this assignment, or any part thereof, your firm (and/or any joint venture Consortium partner or associate firm or Sub-Consultant or individual expert so engaged) shall be disqualified from participation in this assignment.
8. It is JICA's policy to require that Consultants, as well as Dedicated Freight Corridor Corporation of India Ltd., under contracts funded with Japanese ODA Loans and other Japanese ODA, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, JICA:
- (a) will reject the result of evaluation of proposals if it determines that the Consultant evaluated as the highest-ranked has engaged in corrupt or fraudulent practices in competing for the contract in question;
 - (b) will recognize a Consultant as ineligible, for period determined by JICA, to be awarded a contract funded with Japanese ODA Loans if it at any time determines that the Consultant has engaged in corrupt or fraudulent practices in competing for, or in executing, another contract funded with Japanese ODA Loans or other Japanese ODA.
9. Bid Security: Your proposal must be accompanied with the Bid Security in the form of Bank Guarantee for a value of **INR 55 million** in favour of Dedicated Freight Corridor Corporation of India Limited payable at New Delhi (India). The Bank Guarantee shall be on prescribed format as given at Appendix J of this RFP and shall be from any Scheduled Commercial Bank Listed in Schedule II of the Reserve Bank of India Act, 1934 and shall remain valid for a period of 180 (one hundred and eighty) days from the date of submission of the Proposal. Kindly note that Proposal submitted without valid bid security shall be liable to be summarily rejected.
10. Please inform us in writing at the following address



Praveen Kumar
General Manager/P-WC,
Dedicated Freight Corridor Corporation of India Ltd.,
Room no 505,Pragati Maidan Metro Station Building Complex, New Delhi-
110001 (India)

Telephone	+91-11-23379815
Facsimile	+91-11-23454701
e-mail	praveenkumar@dfcc.co.in

upon receipt:

- (a) that you received the Letter of Invitation; and
- (b) whether you will submit a proposal alone or in association.

Yours sincerely,

Praveen Kumar
General Manager/P-WC,
Dedicated Freight Corridor Corporation of India Ltd.,
Room no 505 (5th Floor),Pragati Maidan Metro Station Building Complex,
New Delhi-110001 (India)

Telephone	+91-11-23379815
Facsimile	+91-11-23454701
e-mail	praveenkumar@dfcc.co.in

Note-To expedite communication It is essential that your(Authorised representative's) E mail address is conveyed to this office through return Email at the earliest.

¹ Including "Instructions for preparing Financial Proposal Forms FIN-1 to FIN-5



Section 2. - Instructions to Consultants

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Instructions to Consultants

A. General Provisions

1. Definitions

- (a) “Affiliate(s)” means an individual or an entity that directly or indirectly controls, is controlled by, or is under common control with the Consultant.
- (b) “Applicable Guidelines” means the Guidelines for the Employment of Consultants under Japanese ODA Loans, specified in the Data Sheet, governing the selection and Contract award process as set forth in this RFP.
- (c) “Applicable Law” means the laws and any other instruments having the force of law in the Client’s country, or in such other country as may be specified in the Data Sheet, as they may be issued and in force from time to time.
- (d) “Borrower” means the Government, Government agency or other entity that signs the Loan Agreement with JICA.
- (e) “Client” means the executing agency that signs the Contract for the Services with the selected Consultant.
- (f) “Consultant” means any entity or individual including a Joint Venture that may provide or provides the Services to the Client under the Contract.
- (g) “Contract” means a legally binding written agreement signed between the Client and the Consultant and includes all the attached documents listed in paragraph 1 of the Form of Contract.
- (h) “Data Sheet” means an integral part of the Instructions to Consultants (ITC) Section 2 that is used to reflect specific country and assignment conditions to supplement, but not over-write, the provisions of the ITC.
- (i) “day” means calendar day.
- (j) “Experts” means, collectively, Key Experts, Non-Key Experts, or any other professional personnel of the Consultant, Sub-consultant or Joint Venture member(s).



- (k) "Government" means the government of the Client's country.
- (l) "ITC" (this Section 2 of the RFP) means the Instructions to Consultants that provide the shortlisted Consultants with all information needed to prepare their Proposals.
- (m) "JICA" means Japan International Cooperation Agency.
- (n) "Joint Venture" means an association with or without a legal personality distinct from that of its members, of more than one Consultant where one member has the authority to conduct all businesses for and on behalf of any and all members of the JV, and where the members of the JV are jointly and severally liable to the Client for the performance of the Contract.
- (o) "Key Expert(s)" means an individual professional whose skills, qualifications, knowledge and experience are critical to the performance of the Services under the Contract and whose Curricula Vitae (CV) is taken into account in the technical evaluation of the Consultant's Proposal.
- (p) "LOI" (Section 1 of the RFP) means the Letter of Invitation being sent by the Client to the shortlisted Consultants.
- (q) "Non-Key Expert(s)" means an individual professional provided by the Consultant or its Sub-consultant and who is assigned to perform the Services or any part thereof under the Contract and whose CVs are not evaluated individually.
- (r) "ODA" means Official Development Assistance.
- (s) "Proposal" means the Technical Proposal or the Financial Proposal of the Consultant, or both.
- (t) "QCBS" means Quality- and Cost-Based Selection.
- (u) "RFP" means this Request for Proposals to be prepared by the Client for the selection of Consultants, based on the SRFP.
- (v) "Services" means the work to be performed by the Consultant pursuant to the Contract.
- (w) "SRFP" means the Standard Request for Proposals.



- (x) “Sub-consultant(s)” means an entity or an individual to whom/which the Consultant intends to subcontract any part of the Services while remaining responsible to the Client during the performance of the Contract.
- (y) “TOR” (Section 5 of the RFP) means the Terms of Reference that explain the objectives, scope of work, activities, and tasks to be performed, respective responsibilities of the Client and the Consultant, and expected results and deliverables of the assignment.

2. Introduction

- 2.1 The Borrower has received or has applied for an ODA Loan from JICA in the amount and with the signed date of the Loan Agreement specified in the Data Sheet toward the cost of the Project specified in the Data Sheet. The Borrower intends to apply a portion of the proceeds of the loan to eligible payments under the Contract for which the RFP is issued. Disbursement of an ODA Loan by JICA will be subject, in all respects, to the terms and conditions of the Loan Agreement, including the disbursement procedures and the Applicable Guidelines. No party other than the Borrower shall derive any rights from the Loan Agreement or have any claim to loan proceeds. The above Loan Agreement will cover only a part of the Project cost. As for the remaining portion, the Borrower will take appropriate measures for finance.
- 2.2 The Client named in the Data Sheet will select a consulting firm/organization (the Consultant) from the shortlisted Consultants, in accordance with the QCBS method of selection.
- 2.3 The shortlisted Consultants are invited to submit a Technical Proposal and a Financial Proposal, for consulting services required for the assignment named in the Data Sheet. The Proposal will be the basis for contract negotiations and ultimately for a signed Contract with the selected Consultant.
- 2.4 The Consultants should familiarize themselves with the local conditions relevant to the Services and take them into account in preparing their Proposals, including attending a pre-proposal conference if one is specified in the Data Sheet. Attending the pre-proposal conference is optional and is at the Consultants' expense.
- 2.5 The Client will timely provide at no cost to the Consultants the inputs, relevant project data, and



reports required for the preparation of the Consultant's Proposal as specified in the Data Sheet.

3. Conflict of Interest

a. Impartiality 3.1 The Consultant is required to provide professional, objective, and impartial advice, at all times holding the Client's interests paramount, strictly avoiding conflicts with other assignments or its own corporate interests, and acting without any consideration for future work.

b. Conflict of Interest 3.2 The Consultant has an obligation to disclose to the Client any situation of actual or potential conflict that impacts its capacity to serve the best interest of its Client. Failure to disclose such situations may lead to the disqualification of the Consultant or the termination of its Contract.

Without limitation on the generality of the foregoing, and unless stated otherwise in the Data Sheet, the Consultant shall not be hired under the circumstances set forth below:

Conflicting Activities

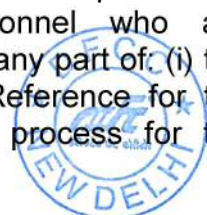
(a) Conflict between consulting activities and procurement of goods or non-consulting services: A Consultant that has been engaged to provide goods or non-consulting services for a project, or any of its affiliates, shall be disqualified from providing consulting services resulting from or directly related to those goods or non-consulting services. Conversely, a Consultant hired to provide consulting services for the preparation or implementation of a project, or any of its affiliates, shall be disqualified from subsequently providing goods or non-consulting services resulting from or directly related to the consulting services for such preparation or implementation.

Conflicting Assignments

(b) Conflict among consulting assignments: Neither a Consultant nor any of its affiliates shall be hired for any assignment that, by its nature, may be in conflict with another assignment of the Consultant.

Conflicting Relationship

(c) Relationship with Borrower's staff: A Consultant that has a close business relationship with the Borrower's professional personnel who are directly or indirectly involved in any part of: (i) the preparation of the Terms of Reference for the assignment, (ii) the selection process for the



Contract, or (iii) the supervision of such Contract, shall be disqualified.

One Bid per Bidder

- (d) Based on the “One Bid per Bidder” principle, which is to ensure fair competition, a Consultant, and any affiliate that directly or indirectly controls, is controlled by, or is under common control with that Consultant shall not be allowed to submit more than one proposal, either individually as a Consultant or as a member of a Joint Venture. A Consultant (including its affiliate), if acting in the capacity of a Sub-consultant in one proposal, may participate in other proposals, only in that capacity.

Others

- (e) Any other form of conflict of interest other than (a) through (d) of this ITC 3.2.

4. Corrupt and Fraudulent Practices

4.1 It is JICA’s policy to require that the Consultant and the Client, as well as the Borrowers under contracts funded with Japanese ODA Loans and other Japanese ODA, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, JICA;

- (a) will reject the result of evaluation of proposals if it determines that the Consultant evaluated as the highest-ranked has engaged in corrupt or fraudulent practices in competing for the contract in question;
- (b) will recognize a Consultant as ineligible, for a period determined by JICA, to be awarded a contract funded with Japanese ODA Loans if it at any time determines that the Consultant has engaged in corrupt or fraudulent practices in competing for, or in executing, another contract funded with Japanese ODA Loans or other Japanese ODA; and
- (c) will recognize a Consultant as ineligible to be awarded a contract funded with Japanese ODA Loans if the Consultant or Sub-consultant, who has a direct contract with the Consultant, is debarred under the cross debarment decisions by the Multilateral Development Banks. Such period of ineligibility shall not exceed three (3) years from (and including) the date on which the cross debarment is imposed.

“Cross debarment decisions by the Multilateral Development Banks” is a corporate sanction in accordance with the agreement among the African

Development Bank Group, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and the World Bank Group signed on 9 April, 2010 (as amended from time to time). JICA will recognize the World Bank Group's debarment of which period exceeds one year, imposed after 19 July, 2010, the date on which the World Bank Group started operating cross debarment, as "cross debarment decisions by the Multilateral Development Banks." The list of debarred firms and individuals is available at the electronic address specified in the Data Sheet.

JICA will recognize a Consultant as ineligible to be awarded a contract funded with Japanese ODA Loans if the Consultant is debarred by the World Bank Group for the period starting from the date of issuance of this Request for Proposals up to the signing of the contract, unless (i) such debarment period does not exceed one year, or (ii) three (3) years have passed since such debarment decision.

If it is revealed that the Consultant was ineligible to be awarded a contract according to above, JICA will, in principle, impose sanctions against the Consultant.

If it is revealed that the Sub-consultant, who has a direct contract with the Consultant, was debarred by the World Bank Group on the sub-contract date, JICA will in principle require the Borrower to have the Consultant cancel the sub-contract immediately, unless (i) such debarment period does not exceed one year, or (ii) three (3) years have passed since such debarment decision. If the Consultant refuses, JICA will require the Borrower to declare invalidity or cancellation of the contract and demand the refund of the relevant proceeds of the loan or any other remedies on the grounds of contractual violation.

5. Eligibility

- 5.1 A shortlisted Consultant shall be incorporated and registered in any of the eligible source countries indicated in Section 7. In case a shortlisted Consultant is a Joint Venture, each Joint Venture member shall be incorporated and registered in any of the eligible source countries indicated in Section 7. In case a shortlisted Consultant forms a Joint Venture with other firms, each Joint Venture member shall be incorporated and registered in any of the eligible source countries indicated in Section 7.



- 5.2 A Consultant that has been determined to be ineligible by JICA in accordance with ITC 3.2 and ITC 4.1 above, shall not be eligible to be awarded a contract.
- 5.3 The Services that may be provided under the Contract and financed by JICA, shall have as their country of origin any of the eligible source countries indicated in Section 7.
- 5.4 Consultants shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.

B. Preparation of Proposals

6. Preparation of Proposals

- 6.1 In preparing the Proposal, the Consultant is expected to examine the RFP in detail. Material deficiencies in providing the information requested in the RFP may result in rejection of the Proposal.
- 6.2 The Consultant shall bear all costs associated with the preparation and submission of its Proposal and contract negotiation. The Client is not bound to accept any proposal, and reserves the right to annul the selection process at any time prior to Contract award, without thereby incurring any liability to the Consultant
- 6.3 The Proposal, as well as all related correspondence exchanged by the Consultant and the Client, shall be written in the language specified in the Data Sheet..

7. Proposal Validity

- 7.1 The Data Sheet indicates the period during which the Consultant's Proposal must remain valid after the Proposal submission deadline
- 7.2 During this period, the Consultant shall maintain its original Proposal without any change, including the availability of the Key Experts, the proposed rates and the total price.

a. Extension of Validity Period

- 7.3 The Client will make its best effort to complete negotiations within this period. However, should the need arise, the Client may request, in writing, all Consultants to extend the validity period of their Proposals. Consultants who agree to such extension shall confirm that they maintain the availability of the Key Experts named in the Proposal.



- 7.4 Consultants who do not agree have the right to refuse to extend the validity of their proposals in which case their Proposals will not be further evaluated.
- b. Substitution of Key Experts at Validity Extension**
- 7.5 If any of the Key Experts become unavailable for the extended validity period, the Consultant shall provide a written adequate justification and evidence satisfactory to the Client together with the substitution request. In such case, a replacement Key Expert shall have equal or better qualifications and experience than those of the originally proposed Key Expert. The technical evaluation score, however, will remain to be based on the evaluation of the CV of the original Key Expert.
- 7.6 If the Consultant fails to provide a replacement Key Expert with equal or better qualifications, or if the provided reasons for the replacement or justification are unacceptable to the Client, such Proposal will be rejected with JICA's prior consultation.
- c. Sub-Contracting**
- 7.7 The Consultant shall not subcontract the whole of the Services.
- d. Delayed Award**
- 7.8 If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial proposal validity, the amounts payable under the Contract shall be determined as follows:
- (a) In the case of fixed price contracts, the amounts payable under the Contract shall be the price of the Financial Proposal adjusted by the factor specified in the Data Sheet.
 - (b) In the case of adjustable price contracts, to determine the amounts payable under the Contract, the fixed portion of the price of the Financial Proposal shall be adjusted by the factor specified in the Data Sheet.
 - (c) In any case, evaluation shall be based on the price of the Financial Proposal without taking into consideration the applicable correction from those indicated above.
- 8. Clarification and Amendments of RFP**
- a. Clarification of RFP**
- 8.1 Consultants may request a clarification of any of the RFP documents up to the number of days indicated in



the Data Sheet before the proposal submission deadline date. Any request for clarification must be sent in writing, or by standard electronic means to the Client's address indicated in the Data Sheet. The Client will respond in writing, or by standard electronic means and will send written copies of the response (including an explanation of the query but without identifying the source of inquiry) to all shortlisted Consultants. Should the Client deem it necessary to amend the RFP as a result of a clarification, it shall do so following the procedure under ITC 8.2.

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|--|-----|--|
| b. Amendment of RFP | 8.2 | The Client may amend the RFP by issuing an addendum in writing or by standard electronic means in sufficient time before the submission of Proposals. The addendum shall be sent to all shortlisted Consultants and will be binding on them. The Consultants shall acknowledge receipt of all amendments. To give Consultants reasonable time in which to take an amendment into account in their Proposals the Client may, if the amendment is substantial, extend the deadline for the submission of Proposals. |
| | 8.3 | The Consultant may submit a modified Proposal or a modification to any part of it at any time prior to the proposal submission deadline. No modifications to the Technical or Financial Proposal shall be accepted after the deadline. |
| 9. Preparation of Proposals – Specific Considerations | 9.1 | <p>While preparing the Proposal, the Consultant must give particular attention to the following</p> <ul style="list-style-type: none"> (i) For the purpose of submitting a proposal, a shortlisted Consultant may enhance its expertise for the assignment either by: <ul style="list-style-type: none"> (a) associating with other firms as Sub-consultants, in which case the Consultant shall be solely liable under the Contract and the other firms shall be not liable for the Contract, or (b) forming a Joint Venture with other firms which substantially perform the Services and/or have experience contributing to the enhancement of the expertise of the Joint Venture, in which case the Consultant shall execute a major portion of the assignment, and the Consultant |

and the members of the Joint Venture shall be jointly and severally liable under the Contract.

- (ii) When associating with non-shortlisted firms in the form of a joint venture or a sub-consultancy, the shortlisted Consultant shall be a lead member.

9.2 In the event that the Consultant constitutes a Joint Venture, the Consultant shall submit (i) a copy of the Joint Venture Agreement with its Technical Proposal, and (ii) a power of attorney (executed by all members) that authorizes the designated lead or managing member of the Joint Venture to act for and on behalf of the Joint Venture and to legally bind such Joint Venture in any contractual or similar documentation. Any Joint Venture agreement and Joint Venture power of attorney shall be attached to TECH-1, Standard Forms (Section 3) and submitted as part of the Technical Proposal of such Consultant.

- (i) The Joint Venture Agreement shall identify the lead member. All members in a Joint Venture shall sign the Proposal unless the lead member is nominated to do so in the power of attorney.
- (ii) Consultants shall not propose alternative Key Experts. Only one CV shall be submitted for each Key Expert position. Failure to comply with this requirement will make the Proposal non-responsive.

10. Technical Proposal Format and Content

10.1 The Technical Proposal shall provide the information indicated in the following paragraphs from (i) to (vii) using the attached Standard Forms (Section 3). The following table summarizes the content and recommended number of pages. A page is considered to be one printed side of A4 or letter size paper.

Voluminous Technical Proposals substantially exceeding the number of pages indicated below may not be evaluated.

Experience of the firm	<ul style="list-style-type: none"> (i) about two (2) pages introducing the Consultant's organization and general experience (Form TECH- 2A). (ii) about twenty (20) pages of relevant completed projects illustrating the Consultant's relevant experience (Form
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	TECH-2B). No promotional material should be included
Comments on terms of reference	no limit, but to be concise and to the point (Form TECH-3A).
Comments on counterpart staff and facility requirements	about two (2) pages (Form TECH-3B).
General approach and methodology, work plan	about fifty (50) pages inclusive of charts and diagrams (Form TECH-4).
List of proposed Key Expert team and Summary of CV particulars	(Form TECH-5)
Key Experts' CVs	about five (5) pages for each Key Expert's CV (Form TECH- 6)
Expert schedule	(Form TECH-7)
Work Schedule	(Form TECH-8)
Acknowledgement of Compliance with the Guidelines for Employment of Consultants	(Form TECH-9)

- (i) A brief description of the Consultants' organization and an outline of recent experience of the Consultants and, in the case of Joint Venture, for each member, on assignments of a similar nature are required in Form TECH-2. For each assignment, the outline should indicate the names of Sub- consultants/ Experts who participated, duration of the assignment, contract amount, and Consultant's involvement. Information should be provided only for those assignments for which the Consultant was legally contracted individually as corporate entity or, as a lead firm or one of members within a Joint Venture. Assignments completed by individual Experts working privately or through other consulting firms cannot be claimed as the experience of the Consultant, or that of the Joint Venture members, but can be claimed by the Experts themselves in their CVs. Consultants should be prepared to substantiate

the claimed experience if so requested by the Client.

- (ii) Comments and suggestions on the Terms of Reference including workable suggestions that could improve the quality/ effectiveness of the assignment; and on requirements for counterpart staff and facilities including: administrative support, office space, local transportation, equipment, data, etc. to be provided by the Client (Form TECH-3). Comments and suggestions on the Terms of Reference and on requirements for counterpart staff and facilities will be evaluated as part of the Technical Proposal and applicable amounts will be included in the Financial Proposal.
- (iii) A description of the approach, methodology and work plan for performing the assignment covering the following subjects: technical approach and methodology, staffing for training, work plan, and organization and Expert schedule. Guidance on the content of this section of the Technical Proposals is provided under Form TECH-4. The work plan should be consistent with the Work Schedule (Form TECH-8) which will show in the form of a bar chart the timing proposed for each activity.
- (iv) The list of the proposed team by area of expertise, the position that would be assigned to each team member, their tasks and a summary of essential CV information (Form TECH-5).
- (v) CVs of the Key Experts signed by the Key Experts themselves or by the authorized representative submitting the proposal (Form TECH-6). In case of CVs signed by the authorized representative, should the firm be ranked first, copies of the same CVs signed by the Key Experts must be submitted to the Client prior to commencement of contract negotiations.
- (vi) Estimates (man-months) of the Experts needed to carry out the assignment (Form TECH-7). The man- months input should be indicated separately for home office and field activities.
- (vii) The Acknowledgement of Compliance with the Guidelines for Employment of Consultants (Form TECH-9). The Consultant's authorized



representative shall sign and date this Form on behalf of the Consultant.

- 10.2 The Technical Proposal shall not include any financial information. A Technical Proposal containing material financial information shall be declared non responsive.

11. Financial Proposals Format and Content

- 11.1 (i) The Financial Proposal shall be prepared using the Standard Forms provided in Section 4 of the RFP.

The minimum number of man-months required to carry out the Services is indicated in the Data Sheet for information. It shall list all costs associated with the assignment, including (a) remuneration for Key Experts and Non-Key Experts, (b) reimbursable expenses indicated in the Data Sheet.

- (ii) The Financial Proposal requires completion of four forms, Forms FIN-1 to FIN-3 and Form FIN-5, shown in Section 4.

a. Form FIN-1 is the Financial Proposal Submission Form.

b. Form FIN-2 summarizes the proposed cost(s) by currency(ies). It shall list all costs associated with the assignment, including remuneration for Experts and reimbursable expenses indicated in the Data Sheet. The total amounts of remuneration and reimbursable expenses in Form FIN-2 shall be consistent with those amounts in Forms FIN-3 and FIN-5.

c. The amounts stated under provisional sums and for contingency in FIN-2 must be the exact amounts and in the same currency as specified in the Data Sheet for such cost. The exact amounts and the currency of provisional sums and contingency, and the applicable payment schedule will be determined during contract negotiations.

d. Form FIN-3 shows the remuneration.

e. Form FIN-5 shows details of reimbursable expenses.

f. All activities and items described in the Technical Proposal must be priced. For non-



remuneration (e.g. reimbursable expenses) related omissions, any activities or items described in the Technical Proposal but not priced, shall be assumed to be included in the prices of other activities or items provided for in the Financial Proposal.

- g. For remuneration related costs, for evaluation purposes only, if less than the minimum number of man-months specified in the Data Sheet is provided in the Technical Proposal, the relevant Financial Proposal will be adjusted to reflect the difference between the so proposed number of man-months and the number of the minimum man-months. Such an adjustment will be made for each of the international Experts and local Experts through adding the amount obtained as follows:

$$A_{ad} = (M_{min} - M_{pro}) \times RR_h \quad \text{where:}$$

A_{ad} : Amount adjusted

M_{min} : Minimum number of man-months as specified in DS 11.1 (i)

M_{pro} : Number of man-months proposed

RR_h : The highest remuneration rate per month in each category (international or local Experts) among all the Proposals

a. Taxes

- 11.2 The Consultant and its Sub-consultants and Experts are responsible for meeting all tax liabilities arising out of the Contract unless otherwise stated in the Data Sheet. Information on taxes in the Client's country is provided in the Data Sheet. Any local taxes will be excluded at financial evaluation, but they will be discussed at Contract negotiations, and applicable amounts will be included in the Contract.

b. Currency of Proposal and Payment

- 11.3 Consultants may express the price of their services in Japanese Yen and/or in the other internationally traded currency(ies) stated in the Data Sheet, singly or in combination. Consultants may state the portion of their price representing local cost in the currency of the Client's country



- 11.4 Payments under the Contract shall be made in the currency or currencies in which the Financial Proposal of the selected Consultant is expressed

C. Submission, Opening and Evaluation

12. Submission, Receipt, and Opening of Proposals

- 12.1 The Consultant shall submit a signed and complete Proposal comprising the documents and forms in accordance with ITC 10 and 11. The submission can be done by mail or by hand.
- 12.2 The original Proposal shall contain no interlineations or overwriting, except as necessary to correct errors made by the Consultants themselves. The person who signed the proposal must initial such corrections. Submission letters for both Technical and Financial Proposals should be in the format of TECH-1 of Section 3 and FIN-1 of Section 4, respectively, including required attachments, if any. [See ITC 9.2 above.]
- 12.3 The Technical Proposal shall be marked "ORIGINAL" or "COPY" as appropriate. Copies of the Technical Proposal shall be prepared in the number indicated in the Data Sheet. All required copies of the Technical Proposal are to be made from the original. If there are discrepancies between the original and the copies of the Technical Proposal, the original governs.
- 12.4 An authorized representative of the Consultants shall initial all pages of Financial Proposals. The authorization shall be in the form of a written power of attorney accompanying the Proposal or in any other form demonstrating that the representative has been duly authorized to sign. The signed Financial Proposal shall be marked "ORIGINAL."
- 12.5 The original and all copies of the Technical Proposal shall be placed in a sealed envelope clearly marked "TECHNICAL PROPOSAL." Similarly, the original Financial Proposal shall be placed in a sealed envelope clearly marked "FINANCIAL PROPOSAL" followed by the Loan number and the name of the assignment, and with a warning **"DO NOT OPEN WITH THE TECHNICAL PROPOSAL."** The envelopes containing the Technical and Financial Proposals shall be placed into an outer envelope and sealed. This outer envelope shall bear the submission address, reference number and title of the Loan, and be clearly marked **"DO NOT OPEN, EXCEPT IN**

PRESENCE OF THE OFFICIAL APPOINTED, BEFORE [insert the time and date of the submission deadline indicated in the Data Sheet]”. The Client shall not be responsible for misplacement, losing or premature opening if the outer envelope is not sealed and/or marked as stipulated. This circumstance may be cause for Proposal rejection. If the Financial Proposal is not submitted in a separate sealed envelope duly marked as indicated above, this will constitute grounds for declaring the Proposal non-responsive

12.6 The Proposals must be sent to the address/addresses indicated in the Data Sheet and received by the Client no later than the time and the date indicated in the Data Sheet, or any extension to this date in accordance with ITC 8.2. Any proposal received by the Client after the deadline for submission shall be returned unopened.

13. Substitution and Modifications

13.1 The Consultants may substitute, or modify their Proposal after it has been submitted by sending a written notice, duly signed by an authorized representative. The corresponding substitution or modification of the Proposal must accompany the respective written notice. All notice must be:

(a) prepared and submitted in accordance with ITC 12.1 through ITC 12.6, and in addition, the respective envelopes shall be clearly marked “SUBSTITUTION,” “MODIFICATION,” and

(b) received by the Client prior to the deadline prescribed for submission of Proposal, in accordance with ITC 12.6.

13.2 The Client shall open the Technical Proposals immediately after the deadline for their submission. The envelopes with the Financial Proposals shall remain sealed and securely stored.

13.3 First, envelopes marked “SUBSTITUTION” shall be opened. The envelopes containing the Substitution Technical Proposal and/or Substitution Financial Proposal shall be exchanged for the corresponding envelopes being substituted, which are to be returned to the Consultant unopened. Only the Substitution Technical Proposal, if any, shall be opened. Substitution Financial Proposal will remain unopened in accordance with ITC 13.2. No envelope shall be substituted unless the corresponding substitution notice contains a valid authorization to request the

substitution and is read out at Technical Proposal opening.

- 13.4 Second, envelopes marked “MODIFICATION” shall be opened. No Technical Proposal and/or Financial Proposal shall be modified unless the corresponding modification notice contains a valid authorization to request the modification and is read out at the opening of Technical Proposal. Only the Technical Proposals, both Original as well as Modification, are to be opened and read out at the Technical Proposal opening. Financial Proposals, both Original as well as Modification, will remain unopened in accordance with ITC 13.2.

14. Proposal Evaluation

- 14.1 Except for the written communications for clarification of the Proposals, from the time the Proposals are opened to the time the Contract is awarded, the Consultants should not contact the Client on any matter related to its Technical and Financial Proposal. Any effort by Consultants to influence the Client in the examination, evaluation, ranking of Proposals, and recommendation for award of Contract may result in the rejection of the Consultants’ Proposal.

The evaluators of Technical Proposals shall have no access to the Financial Proposals until the technical evaluation is concluded and JICA issues its “concurrence.”

a. Evaluation of Technical Proposals

- 14.2 The evaluation committee shall evaluate the Technical Proposals on the basis of their responsiveness to the RFP in particular the Terms of Reference, applying the evaluation criteria, sub-criteria, and point system specified in the Data Sheet. Each responsive Proposal will be given a technical score (St). A Proposal shall be rejected at this stage if it does not respond to important aspects of the RFP, and particularly the Terms of Reference or if it fails to achieve the minimum technical score indicated in the Data Sheet.
- 14.3 After the technical evaluation is completed, the Client will notify those Consultants whose Proposals did not meet the minimum qualifying mark or were considered non-responsive to the RFP, and return their Financial Proposals unopened.

b. Public Opening of Financial Proposals

- 14.4 The Client shall simultaneously notify in writing Consultants that have secured the minimum qualifying mark, informing them of the technical scores obtained by their Technical Proposals, and indicating the date,

time and location for opening the Financial Proposals. The expected date for the public opening of the Financial Proposals is indicated in the Data Sheet; the opening date should allow Consultants sufficient time to make arrangements for attending the opening. Consultants' attendance at the opening of Financial Proposals is optional.

- 14.5 Financial Proposals shall be opened in the presence of the Consultants' representatives who choose to attend. The name of the Consultants; and the technical scores of the Consultants shall be read aloud. The Financial Proposal of the Consultants who met the minimum qualifying mark will then be inspected to confirm that they have remained sealed and unopened. These Financial Proposals shall be then opened, and the total prices read aloud and recorded. Copy of the record shall be sent to all Consultants and JICA.

c. Evaluation of Financial Proposals

- 14.6 The evaluation committee will review the detailed content of each Financial Proposal and the congruency of the Technical and Financial Proposal. Financial Proposals will be reviewed to ensure these are:

- (i) complete (i.e., whether Consultants have priced all items of the corresponding Technical Proposal); in case of material omissions of reimbursable items, the Client will price them by application of the highest unit cost of the omitted item in the Financial Proposals of the Consultant (or an unit cost reasonably estimated by the Client) and the quantity omitted, and add their cost to the offered price, and correct any arithmetical errors. When correcting computational errors, in case of discrepancy between (a) a partial amount and the total amount the partial amount shall prevail; (b) words and figures, the words shall prevail. The evaluated total price (ETP) for each Financial Proposal will be determined. The ETP excludes non-competitive components (i.e. contingencies, provisional sums and local indirect taxes). The ETP will be converted to a single currency using the selling rates of exchange, source and date indicated in the Data Sheet.
- (ii) in compliance with the requirements set forth in the Data Sheet, each Financial Proposal must include provisional sums and contingencies in the amounts specified in the Data Sheet and the

validity period of the Consultants' Proposals must accord with the validity period indicated in the Data Sheet. Provision for a discount in any Financial Proposal is not permissible and the ETP for each Financial Proposal will be determined without applying any discount.

- 14.7 The lowest evaluated Financial Proposal will receive the maximum score of 100 marks. The score for each other Financial Proposal is inversely proportional to its ETP and will be computed as follows:

$S_f = 100 \times F_m / F$ where:

S_f is the financial score of the Financial Proposal being evaluated,

F_m is the ETP of the lowest priced Financial Proposal,

F is the ETP of the Financial Proposal under consideration

- 14.8 Following completion of evaluation of Technical and Financial Proposals, final ranking of the Proposals will be determined. This will be done by normally applying a weight as specified in the Data Sheet respectively to the technical and financial score of each evaluated qualifying Technical and Financial Proposal and then computing the relevant combined total score for each Consultant. After such final ranking, the first-ranked Consultants will be invited for contract negotiations.

D. Negotiations and Award

15. Negotiations

- 15.1 The negotiations will be held at the date and address indicated in the Data Sheet with the Consultant's representative(s) who must have written power of attorney to negotiate and sign a Contract on behalf of the Consultant.
- 15.2 The Client shall prepare minutes of negotiations that are signed by the Client and the Consultant's authorized representative.

Availability of Key Experts

- 15.3 The invited Consultant shall confirm the availability of all Key Experts included in the Proposal as a prerequisite to the negotiations, or, if applicable, a replacement in accordance with ITC-7.5. Failure to confirm the Key Experts' availability may result in the rejection of the Consultant's Proposal and the Client

proceeding to negotiate the Contract with the next-ranked Consultant.

- 15.4 Notwithstanding the above, the substitution of Key Experts at the negotiations may be considered if due solely to circumstances outside the reasonable control of and not foreseeable by the Consultant, including but not limited to death or medical incapacity. In such case, the Consultant shall offer a substitute Key Expert to negotiate the Contract, who shall have equivalent or better qualifications and experience than the original candidate.
- Technical Negotiations**
- 15.5 The negotiations include discussions of the Terms of Reference (TOR), the proposed methodology, the Client's inputs, the special conditions of the Contract, and finalizing the "Description of Services" part of the Contract. These discussions shall not substantially alter the original scope of services under the TOR or the terms of the contract, lest the quality of the final product, its price, or the relevance of the initial evaluation be affected.
- c. Financial Negotiations**
- 15.6 The financial negotiations will include a clarification of the Consultant's tax liability in the Client's country, and how it will be reflected in the Contract; and will reflect the agreed technical modifications in the cost of the services.
- 15.7 The financial negotiations will, as necessary, fine-tune duration of the Expert's inputs and quantities of items of reimbursable expenses that may be increased or decreased from the relevant amounts shown or agreed otherwise in the Financial Proposal but without significant alterations. The unit rate of Expert remuneration and specific unit rates for reimbursable expenses will not be subject to negotiations.
- 16. Conclusion of the negotiations**
- 16.1 Negotiations will conclude with a review of the draft Contract. To complete negotiations the Client and the Consultant will initial the agreed Contract.
- 16.2 If negotiations fail, the Client may, subject to prior consultation with JICA, terminate the negotiations informing the Consultant of the reasons for doing so. The Client will then invite the next-ranked Consultant to negotiate a Contract. Once the Client commences negotiations with the next-ranked Consultant, the Client shall not reopen the earlier negotiations.



17. Award of Contract

- 17.1 After completing negotiations the Client shall award the Contract to the selected Consultant and notify the other Consultants who have submitted proposals that they were unsuccessful.
- 17.2 The Consultant is expected to commence the Services on the date and at the location specified in the Data Sheet.
- 17.3 Consultants who were not awarded the Contract may request a debriefing in writing or in a meeting from the executing agency after Contract award in respect of their Proposal.

18. Publication

- 18.1 After a Contract is determined to be eligible for JICA's financing, the following information may be made public by JICA:
- (i) the names of all Consultants who submitted Proposals,
 - (ii) the technical points assigned to each Consultant,
 - (iii) the offered prices of each Consultant,
 - (iv) the overall ranking of the Consultants,
 - (v) the name and address of the successful Consultant, and
 - (vi) the award date and amount of the Contract.

19. Confidentiality

- 19.1 Information relating to evaluation of Proposals and recommendations concerning awards shall not be disclosed to the Consultants who submitted the Proposals or to other persons not officially concerned with the process, until the publication of the award of Contract. The use by any Consultant of confidential information related to the process may make it subject to JICA's rules related to corrupt or fraudulent practices.




Section 2 - Instructions to Consultants


Data Sheet

Paragraph Reference	
Definitions	<p>"Government" means Government of India "DFCC" means Dedicated Freight Corridor Corporation of India Limited "MOR" means Ministry of Railway "IR" means Indian Railways "IRS" means Indian Railway Standards</p>
1.(b)	The Applicable Guidelines are those published in April-2012.
1.(f)	In the second line, insert 'Consortium' after 'Joint Venture'
1.j	In the third line, insert 'Consortium' after 'Joint Venture'
2.1	<p>Amount of the Loan Agreement: JPY136,119,000,000 Signed date of the Loan Agreement: ID-P229 (28March 2013) Name of project: <u>Construction of Western Dedicated Freight Corridor – Phase-2(Rewari-Dadri and JNPT-Vadodara) and Procurement of Electric Locomotives</u></p>
2.2	<p>Name of the Client: Dedicated Freight Corridor Corporation of India Limited</p>
2.3	<p>Name of the assignment is: <u>Project Management Consultancy Services for (A) Construction of Double Line Electrified Railway Track with Signalling& Telecommunication system and related infrastructure for Rewari-Dadri and JNPT-Vadodara section (Approx 555 Route Kms) of Phase-2 of the Western Dedicated Freight Corridor and (B) Procurement of Electric Locomotives.</u></p> <p>The Contract for PMC services shall be executed in two parts named under (A) and (B) above (hereinafter referred to as Part 'A' and Part 'B' respectively). PMC</p>

	services under Part 'A' of the Contract shall be provided to DFCCIL and those under Part 'B' of the Contract shall be provided to MOR.
2.4	<p>A pre-proposal conference will be held: Yes</p> <p>Venue Board Room, DFCCIL Office, 4th Floor, PragatiMaidan Metro Station Building Complex, New Delhi – 110001, India</p> <p>Date September 06, 2013 (Friday) Time 11.00 AM</p> <p>Client's Representative Praveen Kumar Address Praven kumar General Manager/ Procurement-WC Room no 505, DFCCIL Office, 5th Floor, Pragati Maidan Metro Station Building Complex, New Delhi – 110001, India Telephone ++91-11-23379815 Facsimile +91-11-23454701 e-mail praveenkumar@dfcc.co.in</p>
2.5	The Employer will provide the following inputs, project data, reports, etc. to facilitate the preparation of the Proposals: N/A
3.2.(d)	In the seventh line, insert 'Consortium' after 'Joint Venture'
4.1(c)	<p>A list of debarred firms and individuals is available at the World Bank's website: www.worldbank.org/debarr</p> <p>A List of Firms declared ineligible by JICA is available at ; http://www.jica.go.jp/english/notice/150311_01.html</p>
5.1	In the fourth & seventh line, insert 'Consortium' after 'Joint Venture'
6.3	Proposals shall be submitted in the following languages: English
7.1	Proposal must remain valid up to 120 days after the submission deadline date. 03rd November 2015
7.8	ITC 7.8 deleted



8.1	<p>Clarifications may be requested not later than 21 (twenty one) days before the submission deadline date. Replies to clarifications shall be given not later than 10 (ten) days before submission deadline date.</p> <p>The address for requesting clarifications is:</p> <p style="text-align: center;">Address Praveen Kumar General Manager/ Procurement-WC Room no 505, DFCCIL Office, 5th Floor, Pragati Maidan Metro Station Building Complex, New Delhi – 110001, India</p> <p style="text-align: center;">Telephone +91-11-23379815 Facsimile +91-11-23454701 e-mail praveenkumar@dfcc.co.in</p> <p><i>E Mail followed by affirmation through actual receipt of Hard copy by the addressee (of correspondence) would be acceptable mode of communication</i></p>
9.1.(i).(b)	In the 1 st , 4 th & 7 th line, replace “Joint Venture” with “Joint Venture /Consortium”
9.2	In the 2 nd , 3 rd , 6 th , 7 th , 8 th & 9 th line of Para 9.2 and 1 st & 2 nd line of sub para 9.2.(i) replace “Joint Venture” with “Joint Venture /Consortium”
10.1	<p>Forms TECH-2 to TECH-8 of the Technical Proposal shall be submitted in two parts – separately for Part ‘A’ and Part ‘B’ of the Contract. Form TECH-1 and TECH-9 shall, however, be submitted only for the combined Technical Proposal.</p> <p>Delete 3rd row of the table in ITC 10.1 (Form TECH-3B).</p> <p>Replace Form “TECH-2A”, “TECH-2B” and “TECH-3A” by Form “TECH-2 I”, “TECH-2 II” and “TECH-3 I” respectively.</p>
10.1 (viii)	<p>Add new sub-clause 10.1 (viii) as given below:</p> <p>Training is a specific component of this assignment. This will constitute imparting training to officials dealing with execution of Dedicated Freight Corridor Project in the technologies likely to be adopted on DFC Project. The Consultant will impart training to 24 officials dealing with execution of Dedicated Freight Corridor Project. The training shall be arranged in two stages. In each stage, a 12 member multi-disciplinary team shall be trained for a period of two week in Japan/other foreign countries using technologies likely to be adopted on DFC project. The aim of training is to give exposure to officials in the technologies likely to be adopted on DFC project. The training should include study tours dealing with study of performance of the technologies and its adaptability to DFC project, specialist short courses etc. The cost for the entire training as mentioned above including travel, lodging, and boarding of the officials etc. shall be provided in the financial proposal. In their technical proposal the Consultants will detail the methodology for training, period of training, activities, schedule, expected outcome of the training etc.</p>
11.1 (i)	<p>Minimum numbers of man-months for personnel are:</p> <p style="text-align: center;">Part ‘A’ Part ‘B’</p> 

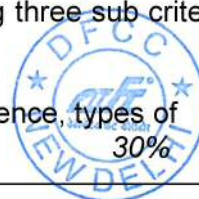
	<p>International experts(ProA) 614 man-months 26 man-months Local experts (Pro B1/B2): 5893 man-months 533 man-months Supervisory/Technical Staff (Pro C) 5750 man-months 43 man-months Non-technical Staff (Pro C): 1736 man-months 273 man-months</p> <p>Total: 13,993 man- 875 man-months months</p> <p>The Consultant shall workout the requirement of man months for both the Parts separately and submit the same in his proposal.</p>
	<p>(1) a per diem allowance in respect of Personnel of the Consultant for every day in which the personnel shall be absent from their home office;</p> <p>(2) cost of necessary international and local air travel, including international travel of the international experts by the most appropriate means of transport and the most direct practicable route;</p> <p>(3) land transportation including vehicle rental;</p> <p>(4) cost of international or local communications such as the use of telephone and facsimile required for the purpose of the Services;</p> <p>(5) cost, rental and freight of any equipment required to be provided by the Consultants for the purposes of the Services;</p> <p>(6) cost of printing and dispatching of the reports to be produced for the Services;</p> <p>(7) miscellaneous administrative and support costs including office operations, support personnel and translation; and</p> <p>(8) Cost of such further items required for purposes of the Services not covered in the foregoing.</p>
11.1 (ii)	Forms FIN-2, FIN-3 and FIN-5, shall be submitted in two parts – separately for Part 'A' and Part 'B' of the Contract. Form FIN-1 shall, however, be submitted only for the combined Financial Proposal.
11.1 (ii) c	<p>Amount for provisional sums: Nil</p> <p>Contingency amount:</p> <p><u>for foreign currency:</u> 2.5% of remuneration and reimbursable component <u>for local currency:</u> 2.5% of remuneration and reimbursable component</p>
11.2	<p>The Service tax shall be borne by the Employer. The Employer shall reimburse the service tax, as payable, to the Consultant against proof of payment. All other taxes and duties shall be borne by the consultant.</p> 

11.3	Consultants may express the price of their services in Japanese Yen and/ or other internationally traded currencies, singly or in combination with a maximum of three currencies.
12.3	Number of copies of the Technical Proposal: <u>One Original Plus Two Hard Copies + Two Soft Copies in CDs</u>
12.5	Time and date of the Proposal submission deadline: Time 15:00 Hrs (3:00 PM) Date 06th July- 2015
12.6	Consultant must submit the original and all copies of the Technical Proposal, and the original Financial Proposal to the Client to the following address: Address Praveen kumar General Manager/Procurement-WC Room no 505, DFCCIL Office, 5th Floor, Pragati Maidan Metro Station Building Complex, New Delhi – 110001, India Proposals must be submitted no later than the following date and time: Date 06th July- 2015 Time 15:00 Hrs (3:00 PM)
14, 15 and 17	Proposals, both Technical and Financial, shall be evaluated after combining Proposals for Part 'A' and Part 'B'. Selection of Consultant for Negotiations or Award of the Contract for PMC services shall be on the basis of the combined offer for the two Parts.

14.2	Criteria, sub-criteria, and point system for the evaluation are:	<u>Points</u>
	(i) Experience of the Consultants relevant to the assignment:	
	a) Experience of international projects of comparable size, complexity and technical specialty	8
	b) Experience of developing countries under comparable condition	5
	c) Experience in Japanese ODA projects	5
	Total points for criterion (i):	18
	(ii) Adequacy of the proposed methodology and work plan in responding to the Terms of Reference:	
	a) Technical approach and methodology	14
	b) Work plan	8
	c) Organization and staffing	8
	Total points for criterion (ii):	30
	(iii) Key Experts' qualifications and competence for the assignment:	



Professionals A (International Personnel)		
1	A01: Project Director	3
2	A04: Chief Safety Expert	2
3	A05: Chief Civil Design Engineer	2
4	A06: Chief Electrical Design Engineer	2
5	A07: Chief Signal Design Engineer	2
6	A12: Chief Contract Admin. Expert	2
7	A16: Chief Engineer (Civil)	1
8	A17: Chief Engineer (Electrical)	1
9	A19: Chief Engineer (Signalling)	1
10	A21: Chief Engineer (Quality)	1
11	A22: Chief Engineer (Environment)	1
12	A24: Electric Design Expert	1
13	A25: Mechanical Design Expert	1
14	A26: Loco System Integration Expert	1
15	A27: EMC Expert	1
16	A29: ELMD Expert	1
Professionals B (Local Personnel)		
1	B01: Deputy Project Director (Civil)	3
2	B02: Coordinating Manager (Civil)	2
3	B03: Coordinating Manager (Elect.)	2
4	B04: Coordinating Manager (S&T)	2
5	B07: Environmental Engineer	2
6	B08: R&R Specialist	1
7	B13: Bridge Design Engineer	2
8	B14: Track Design Engineer	2
9	B17: Electrical Design Engineer	2
10	B18: Design Engineer (Signalling)	2
11	B31: Resident Engineer (Civil)	1
12	B41: Resident Engineer (Traction)	1
13	B8: Resident Engineer (Signalling)	1
14	B74: Electric Design Expert	1
15	B75: Mechanical Design Expert	1
16	B76: Loco System Integration Expert	1
17	B86: ELMD Expert	1
Total points for criterion (iii):		50
The number of points to be assigned to each of the above positions or disciplines shall be determined considering the following three sub criteria and relevant percentage weights:		
1) General qualifications (education , length of experience, types of position held, length of service with the consultant etc.)		



	<p>2) Adequacy for the assignment (experience of performing the duties which will be assigned to them in the project) 60%</p> <p>3) Experience in region and language 10%</p> <p style="text-align: right;">Total weight: 100%</p> <p>Note: Every individual Personnel/ Professional should score not less than 75% of points assigned to his position.</p> <p>(iv) Suitability of the transfer of knowledge (training) program:</p> <p>a) Relevance of training program 0.5</p> <p>b) Training approach and methodology 1.0</p> <p>c) Qualifications of experts and trainers 0.5</p> <p style="text-align: right;">Total points for criterion (iv): 2</p> <p style="text-align: right;">Total points for the five criteria: 100</p> <p>The minimum technical score (St) required to pass is: <u>75</u> Points</p> <p>Note: Joint Venture/Consortium shall be evaluated in the same manner , since they shall function as a unit</p>
14.4	<p>Expected date (month/year) for public opening of Financial Proposals:</p> <p style="text-align: center;">Date 30 July-2015 Location New Delhi</p>
14.6(i)	<p>The single currency for INR (Indian Rupees) price conversion is:</p> <p>The source of exchange Reserve Bank of India rates is:</p> <p>The date of exchange rates 28 (Twenty Eight) days before the latest is: formally required date of Bid Submission</p>
14.8	<p>Quality-Cost Ratio : 80:20</p>
15.1	<p>Expected date and address for contract negotiations:</p> <p style="text-align: center;">Address Board Room, DFCCIL Office, 4th Floor, Pragati Maidan Metro Station Building Complex, New Delhi – 110001, India</p> <p style="text-align: center;">Date October 15,</p>
17.2	<p>Expected date for commencement of consulting services</p> <p style="text-align: center;">Date 31st August 2015 Location New Delhi</p>



Section 3. Technical Proposal - Standard Forms

Notes on Technical Proposal - Standard Forms

Section 3. Technical Proposal – Standard Forms provides Technical Forms that the Client shall include in its Request for Proposals. Consultants shall fill out these Forms and include them in their proposals. As specified in this section, these forms are the Technical Proposal Submission Forms and other relevant Technical Proposal Forms.

The Acknowledgement of Compliance with the Guidelines for Employment of Consultants under Japanese ODA Loans shall be included in the Technical Proposal.

Italicized notes provide guidance to the shortlisted Consultants for the preparation of their Technical Proposals; they should not appear on the Technical Proposals to be submitted.

Refer to ITC 10.1 for Forms required and number of pages recommended.



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Form TECH-1: Technical Proposal Submission Form

[Location, Date]

To: [Name and address of Client]

Dear Sirs:

We, the undersigned, offer to provide the consulting services for [Insert name of assignment] in accordance with your Request for Proposals dated [Insert Date] and our Proposal. [Select appropriate wording depending on the selection method stated in the RFP: “We are hereby submitting our Proposal, which includes this Technical Proposal and a Financial Proposal sealed in a separate envelope” or, if only a Technical Proposal is invited “We hereby are submitting our Proposal, which includes this Technical Proposal only in a sealed envelope.”].

[If the Consultant is a joint venture/Consortium, insert the following: We are submitting our Proposal as a joint venture/Consortium with: [Insert a list with full name and the legal address of each member, and indicate the lead member]. We have attached a copy [insert: “of our letter of intent to form a joint venture/Consortium” or, if a JV/ Consortium is already formed, “of the JV agreement/Consortium Agreement”] signed by every participating member, which details the likely legal structure of and the confirmation of joint and severable liability of the members of the said joint venture.

OR

If the Consultant’s Proposal includes Sub-consultants, insert the following: We are submitting our Proposal with the following firms as Sub-consultants: [Insert a list with full name and address of each Sub-consultant.]

We hereby declare that:

- (a) All the information provided and statements made in this Proposal are true and we accept that any misinterpretation or misrepresentation contained in this Proposal may lead to our disqualification by the Client.
- (b) Our Proposal shall be valid and remain binding upon us for the period of time specified in the Data Sheet, Clause 7.1.
- (c) We have no conflict of interest in accordance with ITC 3.
- (d) We meet the eligibility requirements as stated in ITC 5, and we confirm our understanding of our obligation to abide by JICA’s policy in regard to corrupt and fraudulent practices as per ITC 4.



- (e) We undertake to negotiate a Contract on the basis of the proposed Key Experts. We accept that the substitution of Key Experts for reasons other than those stated in ITC 7.5 and ITC 15.4 may lead to the termination of Contract negotiations.
- (f) Our Proposal is binding upon us and subject to any mutually agreed modifications resulting from the Contract negotiations.
- (g) We are in full comprehension of and agree to comply with RFP Provisions and ‘ addenda issued there after(if any)’ and it is certified that our proposal – except Statement of Clause wise deviation from RFP Provision, enclosed/not enclosed (*strike through whichever is not applicable*) with this proposal-contain no deviation from RFP Provisions and in case of any deviation/mismatch between RFP provision and content of our Proposal- over and above / beyond the aforesaid ‘Statement of clause wise deviation from RFP provision’ - being subsequently noticed, original RFP Provision read with Addenda issued there after (if any) shall prevail.

We understand that the Client is not bound to accept any Proposal that the Client receives.

We remain,

Yours sincerely,

Authorized Signature [*in full and initials*]: _____

Name and Title of Signatory: _____

Name of Consultant [*company’s name or JV’s/Consortium’s name*]: _____

In the capacity of: _____

Address: _____

Contact information [*phone and e-mail*]: _____

[*For a joint venture/Consortium, either all members shall sign or only the lead member, in which case the power of attorney to sign on behalf of all members shall be attached*]



Form TECH-2: Consultant's Organization and Experience

I - Consultant's Organization

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

[Provide here a brief (two pages) description of the organization and general experience of the Consultant and, if applicable, each joint venture/Consortium member for this assignment.]



II - Consultant's Experience

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

[Using the format below, provide information on each assignment for which your firm and each joint venture/Consortium member for this assignment, was legally contracted either individually as a corporate entity or as a lead firm or one of members within a joint venture/Consortium, for carrying out consulting services similar to the ones requested under this assignment. Use about 20 pages.]

Assignment name:	Approx. value of the contract (in current US\$ or Euro):
Country: Location within country:	Duration of assignment (months):
Name of Client:	Total No. of man-months of the assignment:
Address:	Approx. value of the services provided by your firm under the contract (in current US\$ or Euro):
Start date (month/year): Completion date (month/year):	No. of professional man-months provided by the joint venture members or Sub-consultants:
Name of joint venture/Consortium member or Sub-consultants, if any:	
Narrative description of Project:	
Description of actual services provided in the assignment:	

Firm's Name: _____



Form TECH-3: Comments and Suggestions on the Terms of Reference and on Counterpart Staff and Facilities to be Provided by the Client

I - On the Terms of Reference

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

[Present and justify here any modifications or improvement to the Terms of Reference you are proposing to enhance performance in carrying out the assignment (such as deleting some activity you consider unnecessary, or adding others, or proposing a different phasing of the activities).]



II - On Counterpart Staff and Facilities

Deleted



Form TECH-4: Description of Approach, Methodology and Work Plan for Performing the Assignment

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

[Technical approach, methodology and work plan are key components of the Technical Proposal. You are suggested to present your Technical Proposal (about 50 pages, inclusive of charts and diagrams) divided into the following three chapters:

- a) *Technical Approach and Methodology,*
- b) *Work Plan, and*
- c) *Organization and Staffing,*

- a) *Technical Approach and Methodology.* *In this chapter you should explain your understanding of the objectives of the assignment, approach to the services, methodology for carrying out the activities and obtaining the expected output, and the degree of detail of such output. You should highlight the problems being addressed and their importance, and explain the technical approach you would adopt to address them. You should also explain the methodologies you propose to adopt and highlight the compatibility of those methodologies with the proposed approach. Staffing for training should also be explained, if so required in the TOR. Please do not repeat/copy the TOR in here.*
- b) *Work Plan.* *In this chapter you should propose the main activities of the assignment, their content and duration, phasing and interrelations, milestones (including interim approvals by the Client), and delivery dates of the reports. The proposed work plan should be consistent with the technical approach and methodology, showing understanding of the TOR and ability to translate them into a feasible working plan. A list of the final documents, including reports, drawings, and tables to be delivered as final output, should be included here. The work plan should be consistent with the Work Schedule of Form TECH-8.*
- c) *Organization and Staffing.* *In this chapter you should propose the structure and composition of your team. You should list the main disciplines of the assignment, the Key Experts and Non-Key Experts, and proposed technical and administrative support staff. You shall also specify if you will be the lead firm in a joint venture or in an association with Sub-consultants. For joint ventures, you must attach a copy of the joint venture/Consortium agreement or a letter of intention to form a Joint Venture/Consortium, as specified in Form TECH-1.]*





Form TECH-5: Team Composition, Task Assignments and Summary of CV Information

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

Family Name, First Name	Firm Acronym	Area of Expertise	Position Assigned	Task Assigned	Key Expert or Non-Key Expert	Nationality	Employment Status with Firm (full- time, or other)	Education / Degree (Year / Institution)	No. of years of relevant project experience	CV signature (by expert/by other)

Form TECH-6: Curriculum Vitae (CV) for Proposed Key Experts

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

1. General

Position Title and No.	[e.g., K-1, TEAM LEADER] [<i>Note: Only one candidate shall be nominated to each position.</i>]
Name of Key Expert	[Insert full name]
Name of the Firm proposing the Key Expert	
Date of Birth	[day/month/year]
Nationality	
Country of Citizenship/Residence	

2. Education: [List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained]

3. Employment record relevant to the assignment: [Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous clients and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.]

Period	Employing organization and your title/position. Contact information for references*	Country	Summary of activities performed relevant to the Assignment
[e.g., May 2005-present]	[e.g., Ministry of, advisor/consultant to... For references: Tel...../e-mail.....; Mr. Hbbbbbb, deputy minister]		

*Contact information for references is required only for assignments during the last 3 years.

4. Membership in Professional Associations and Publications:



5. Language Skills (indicate only languages in which you can work): _____**6. Adequacy for the Assignment:****Detailed Tasks Assigned on Consultant's Team of Experts:**

[List major deliverables/tasks as in TECH- 5 in which the Expert will be involved]

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks**7. Certification:**

I, the undersigned, certify to the best of my knowledge and belief that:

- (i) This CV correctly describes my qualifications and my experience;
- (ii) In the absence of medical incapacity, I will undertake this assignment for the duration and in terms of the inputs specified for me in the Expert Schedule in Form TECH-7 provided team mobilization takes place within the validity of this proposal or any agreed extension thereof;
- (iii) I am committed to undertake the assignment within the validity of Proposal;
- (iv) I am not part of the team who wrote the terms of reference for this consulting services assignment;
- (v) I am, pursuant to Clauses 3 and 4 of the ITC, eligible for engagement.

I understand that any misstatement described herein may lead to my disqualification or dismissal, if engaged.

[Signature of Key Expert or authorized representative of the firm]² Date: _____
Day/Month/Year

Full name of authorized representative: _____

²This CV can be signed by an authorized representative of the Consultant provided that if the Consultant's proposal is ranked first, a copy of the CV signed by the Key Expert and/or specialist must be submitted to the Client prior to the commencement of contract negotiations.







Form TECH-7: Expert Schedule¹

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

N ^o	Name of Expert /Position /Category(International or Local)	Professional Expert input (in the form of a bar chart) ²													Total man-month input			
		1	2	3	4	5	6	7	8	9	10	11	12	n	Home	Field ^{3, 4}	Total	
Key Experts																		
ex.	Mr. XYZ Project Manager (International)	[Home]																
		[Field]																
1																		
2																		
n																		
														Subtotal				
Non-Key Experts																		
1		[Home]																
		[Field]																
2																		
n																		
														Subtotal				
														Total				

¹ For Key Experts, the input should be indicated individually for the same position as required under Clause 14.2 of the Data Sheet; for Non-Key Experts it should be indicated individually, or, if appropriate, by category (e.g. economists, financial analysts, etc.).



- 2 Months are counted from the start of the assignment. For each Expert indicate separately the input for home and field work.
- 3 Each Expert shall put in a minimum of 48 hours @ not less than 8 hrs/calendar day, work per week and excluding “Sundays” as weekly offs, each month would, thus, be comprised of minimum 26 days.

National Holidays and Gazetted Holidays recognised by DFCCIL and so reflected in DFCCIL’s official Calendar shall be identified as paid holidays. Observance of Sundays and aforesaid paid Holidays shall be solely subject to an overriding condition that no part /element of the Consultant’s assigned Task shall be allowed to go unsupervised. No Claim would be admissible, in this regard.

- 4 Field work means work carried out at a place other than the Expert’s home office; i.e. normal place of business.

■ Full time input

▨ Part time input



FormTECH-8: Work Schedule

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

N ^o	Activity ¹	Months ²												
		1	2	3	4	5	6	7	8	9	10	11	12	n
1														
2														
3														
4														
5														
n														

- 1 Indicate all main activities of the assignment, including delivery of reports (e.g.: inception, interim, and final reports), and other benchmarks such as Client approvals. For phased assignments indicate activities, delivery of reports, and benchmarks separately for each phase.
- 2 Duration of activities shall be indicated in the form of a bar chart.

Form TECH-9: Acknowledgement of Compliance with the Guidelines for Employment of Consultants

- A) I, [name and position of authorized signatory] duly authorized by [name of Consultant/members of joint venture)/Consortium] (“Consultant”) hereby certify on behalf of the Consultant and myself that information provided in the Technical and Financial Proposals (collectively “Proposals”) submitted by the Consultant for [Loan No. and name of the Project] (hereinafter called “the Project”) is true, correct and accurate to the best of my knowledge and belief. I further certify that on behalf of the Consultant that:
- (i) the Proposals have been prepared and submitted in compliance with the terms and conditions set forth in Guidelines for the Employment of Consultants under Japanese ODA Loans (hereinafter called “Guidelines”); and
 - (ii) the Consultant has not taken any action which is or constitutes a corrupt, fraudulent, collusive or coercive practice and is not subject to any conflict of interest as stipulated in the relevant section of the Guidelines.

<If debarment for more than one year by the World Bank Group is NOT imposed, use the following sentence B).>

- B) I certify that the Consultant has NOT been debarred for more than one year by the World Bank Group since the date of issuance of the Request for Proposals³.

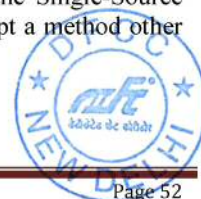
<If debarment for more than one year by the World Bank Group has been imposed BUT three (3) years have passed since such debarment decision, use the following sentence B’).>

- B’) I certify that the Consultant has been debarred by the World Bank Group BUT three (3) years have passed since such debarment decision, on the date of issuance of the Request for Proposals. The profile of the debarment is as follows;

name of the debarred firm	starting date of debarment	ending date of debarment	reason of debarment

- C) I certify that the Consultant will not make a Sub-contract with an entity or individual which is debarred for more than one year by the World Bank Group, unless three (3) years have passed since such debarment decision on the sub-contract date.
- D) I certify that the Experts of the Consultant and either Sub-consultant having a direct contract with the Consultant or Expert nominated by the Consultant, who are assigned to this contract on time basis, will not be engaged in any other assignment which may have time conflict with the Contract.
- E) I further certify on behalf of the Consultant that, if selected to undertake services in

³The starting date should be revised to "appointment", if a consultant is selected through the Single-Source Selection method; or to “commencement of the actual selection process,” if the Borrower adopt a method other than QCBS, QBS, or Single Source Selection.



connection with the Contract, I shall carry out such services in continuing compliance with the terms and conditions of the Guidelines.

- F) If any of the statement, as acknowledged above, proves to contradict the facts subsequently, or is not complied with, I have no objection as to whether (i) the Employer exercises any remedies and/or (ii) JICA imposes sanctions against the Consultant.

Authorized SIGNATORY
For and on behalf of the Consultant

Date: _____



Section 4. Financial Proposal - Standard Forms

Notes on Financial Proposal - Standard Forms

Section 4. Financial Proposal – Standard Forms provides Financial Forms that the Client shall include in its Request for Proposals. Consultants shall fill out these Forms and include them in their proposals.

Financial Proposal Standard Forms shall be used for the preparation of the Financial Proposal according to the instructions provided under ITC 11.1. Forms FIN-1, FIN-2, FIN-3, and FIN-5, are to be used whatever the selection method indicated in Clause 5 of the Letter of Invitation is. However, Form FIN-4 shall only be used when the QBS method is adopted as detailed in Section 2 - Option A, ITC15.7.

This Section 4 includes as well an Appendix providing instructions on how to fill out each specific Form.

Italicized notes provide guidance to the shortlisted Consultants for the preparation of their Financial Proposals; they should not appear on the Financial Proposals to be submitted.



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Form FIN-1: Financial Proposal Submission Form

[Location, Date]

To: [Name and address of Client]

Dear Sirs:

We, the undersigned, offer to provide the consulting services for [insert name of assignment] in accordance with your Request for Proposal dated [insert Date] and our Technical Proposal. Our attached Financial Proposal is for the sum of [insert amount(s) in words and figures¹].

Our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal, i.e. before the date indicated in Clause 7.1 of the Data Sheet.

We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Authorized Signature [*in full and initials*]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Address: _____

¹ Amounts must coincide with the ones indicated under Total in Form FIN-2. This amount is inclusive of the local indirect taxes, which shall be confirmed during negotiations, and included in the Contract price.

Form FIN-2: Summary of Costs

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

Invitation No.:

Competitive Components:	US\$	JPY	Local Currency
-------------------------	------	-----	----------------

Remuneration

Reimbursable Expenses

***Sub-Total*¹**

Non-Competitive Components:

*Provisional Sums*²

Contingencies^{2, 3}

*Indirect Taxes Estimates*⁴

Sub-Total

Total

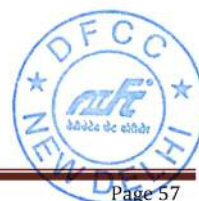
1 Indicate the aggregate costs, which are exclusive of local indirect taxes, to be fixed by the Client in each currency for remuneration and reimbursable expenses. Such aggregate costs must coincide with the sum of the relevant sub-totals indicated in Form FIN-3 and Form FIN-5 provided with the Proposal.

2 The amounts provided for these items must correspond to the exact amount specified in the Data Sheet and these will be discussed during the contract negotiations.

3 In case that provisions on price adjustment are stated in the conditions of contract, contingencies for price escalation must be included in this item.

4 Indirect taxes to be discussed and finalized at the negotiations if the Contract is awarded.

.



**Form FIN-3: Remuneration****[To be submitted in two parts:****Part-A: For PMC services to DFCCIL****Part B: For PMC services to MOR]**

Invitation No:

Key Experts

Name of Expert Position International/Local	Employment Status ¹	Currency	Home Ofc Rate (per mo)	Months	Field Rate (per mo)	Months	Sub- Total
---	-----------------------------------	----------	---------------------------	--------	------------------------	--------	---------------

XXX

*Civil Engineer
(International)*

YYY

*Community Development Specialist
(International)*

ZZZ

*Irrigation Specialist
(International)***Non-Key Experts**

Expert	Employment Status ¹	Currency	Home Ofc Rate (per mo)	Months	Field Rate (per mo)	Months	Sub- Total
--------	-----------------------------------	----------	---------------------------	--------	------------------------	--------	---------------

AAA

*Irrigation Specialist
(Local)*



- 1 Full-time (FT) – employee of the lead firm or joint venture / Consortium member or Sub-consultant; Other Source (OS) – an Expert provided by another source that is not a joint venture /Consortium member or a Sub-consultant firm; Independent Expert (IP) – independent, self-employed Expert.



Form FIN-4: Breakdown of Remuneration (for QBS only)

Invitation No.:

				1	2	3	4	5	6	7	8	9	10
EXPERT				Basic Monthly Salary	Social Charges	Overhead	Sub-Total	Fee	Home Office Rate	Others ^{5/}	Field Rate /Month	Multiplier	Support Documents
Position	Firm ^{1/}	Type ^{2/}	Employment Status ^{3/}	Currency ^{4/}	Amount	Amount	Amount	Amount	/Month	Amount			
Full Name					% of 1	% of 1	(1+2+3)	% of 4	(4+5)	% of 1	(6+7)	(6/1)	

1/ Initials of firm, joint venture / Consortium member or Sub-consultant (please indicate in the box, the firm represented by initials);

2/ K=Key Expert, NK=Non-Key Expert

3/ FT - Full time with firm or joint venture/ Consortium member or Sub-consultant

OS - Expert being provided by other source (other than lead firm or joint venture/Consortium member or Sub-consultant)

IP - Independent, self-employed Expert

4/ Currency of the firm's country

5/ If applicable, please provide explanations.

INITIALS	FIRM NAME

CERTIFIED AS CORRECT

Name _____ : _____

Position in Firm _____ : _____

Date _____ : _____

_____ : _____

Form FIN-5: Breakdown of Reimbursable Expenses

[To be submitted in two parts:

Part-A: For PMC services to DFCCIL

Part B: For PMC services to MOR]

Invitation No.:

Foreign	Unit	Currency	Unit Cost	Qty	Cost
<i>Per Diem</i>	Day	USD	135	90	12,150
<i>International Air Travel</i>					
<i>Communications</i>					
<i>Report Preparation, Production</i>					
<i>Provisional sums</i>					
Equipment					
Local	Unit	Currency	Unit Cost	Qty	Cost
<i>National Air Travel</i>					
<i>Office Operations, LC (Office Supplies, Support Staff) Supporting Staff</i>					
<i>Provisional sums</i>					
Seminars		Workshops			

Appendix: Instructions for Preparing Financial Proposal Forms FIN-1 to FIN-5

- 1 Forms FIN-1 to FIN-4 must be completed and submitted to the Client in hard and soft copies, strictly in accordance with the instructions.
- 2 It is the Consultant's responsibility to ensure the correct Financial Proposal format is used for the selection method indicated in the Data Sheet.
- 3 **Form FIN-1** Financial Proposal Submission Form shall be filled in following the instructions provided in the Form.
- 4 **Form FIN-2** Summary of Costs. Form FIN-2 provides a summary of the elements of estimated costs for implementation of the proposed Consultant services.
- 5 **Form FIN-3** Remuneration
 - (i) The purpose of Form FIN-3 is to identify the monthly billing rates for each Key Expert and Non-Key Expert to be fielded by the Consultant as part of its proposed team of Experts. Please note that, for purposes of computing remuneration payable to Experts, payments for periods of less than one month shall be calculated on an hourly basis for actual time spent in the Consultant's home office and directly attributable to the Services (one hour being equivalent to 1/176th of a month) and on a calendar-day basis for time spent away from home office (one day being equivalent to 1/30th of a month).
 - (ii) The following details shall be shown for each Expert:
 - a. Expert's name
 - b. Key or Non-Key Expert
 - c. International or Local Expert
 - d. Employment status
 - Regular full-time (FT) - employee of the Consultant or the Sub-consultant. [Refer to Form TECH-2, footnote 1 of Section 3].
 - Other source (OS) - an Expert being provided by another source which is not a Consultant or a Sub-consultant.
 - Independent Expert (IP) - independent, self-employed Expert.
 - e. Nominated position; same as that shown on Expert Schedule (Form TECH-7, Section 3).
 - f. Currency; currency or currencies in which payments are to be made to the Experts.
 - g. Home office rate; remuneration rate when the Expert is working in the Consultant's home country office.
 - h. Field rate; remuneration rate when the Expert is working outside the Expert's home country.

- i. Months; number of months input to match that shown on the ExpertSchedule (Form TECH-7, Section 3).

When QCBS is used, support documents relating to remuneration are not required, in general.

6 Form FIN-4 Breakdown of Remuneration

Form FIN-4 shall only be used when QBS is used and full details showing how the remuneration rate was determined must be provided. These include basic salary, social charges, overhead fee and other special loadings to the basic salary that may be applicable, and these shall be shown in complete detail on Form FIN-4.

The following provides guidance as to the meaning of these terms.

- (i) **The Basic Monthly Salary** is the actual base salary payable on a regular basis by the Consultant, or its Sub-consultant to its regular full-time employee based on the employee's contract of employment with the firm. This is before any supplemental payments or any deductions are made to or from the salary. During contract negotiations, the Consultant will be required to provide certified copies of salary slips, contracts of employment or other relevant documents to be regarded as equivalent to the said documents to support salaries the Consultant shows in the Financial Proposal.
- (ii) **Social Charges** represent costs to the Consultant of specific employee benefits such as paid vacation, contributions to pension funds, insurance and similar costs directly attributable to the employee. These costs should be distinguished from the generalized overhead costs of the firm.
- (iii) **The Overhead Cost** represents the Consultant's normal overhead expense at the home office that is attributable to its consulting activity. The Consultant and its joint venture Consortium member or its Sub-consultant should each show one overall average percentage figure to be applied for all of their own experts who are regular full-time employees. In the case of independent individual Experts contracted from outside the Consultant's own regular full time employees, a suitably reduced overhead may be shown as a percentage of their contracted cost.
- (iv) **The Fee**, or profit to be earned by the Consultant is computed as a percentage of the summation of the basic monthly salary, the social charges and the overhead cost.
- (v) **Other Allowances** provide for inclusion of any other payment the Consultant is obligated in accordance with the Consultant's employment policies, to add to the Expert's home office basic monthly salary when the Expert is working outside its home country. For such cases during contract negotiations the Consultant must provide a copy of the Expert's employment conditions showing the Consultant's obligation to make this payment. When this allowance is accepted by the Client, it is

computed at a percentage of the Expert's basic salary and is not subject to social charges, overhead cost or fee additions. The maximum allowance the Client will accept is limited to 20 percent of the Expert's basic salary.

- (vi) **The Multiplier** shows the ratio between the home office rate per month and the basic monthly salary. These multipliers are subject to negotiation.
- (vii) **Support Documentation** in the form of salary slips, contract of employment or other relevant documents to be regarded as equivalent to the said documents to support basic salaries shown by the Consultant in the Financial Proposal and a copy of the Consultant's (or Sub-Consultant's) latest set of annual statement of income and expense will be required for review by the Client during contract negotiations. Annual statement should be a copy certified by an independent auditor.

7 Form FIN-5 Breakdown of Reimbursable Expenses

- (i) The purpose of Form FIN-5 is to identify all reimbursable expenses in foreign and local currencies considered by the Consultant necessary to carry out the assignment. The cost of training of the Client's staff is identified, only if training is a major component of the assignment, specified as such in the TOR.
- (ii) All required reimbursable expense is an international or a local expense.
 - a. Type - whether the expense is an international or local expense.
 - b. Unit - type of unit (monthly, daily lump sum, etc.)
 - c. Currency - currency of expense
 - d. Per unit cost - unit rate for the item
 - e. Quantity - quantity of the item
- (iii) Per Diems
 - a. For International Experts, the weighted average per diems (i.e., one per diem rate for all locations) need to be computed (per diems are calculated on the basis of 30 days per calendar month). The per diem comprises room costs and subsistence allowance for meals and other similar expenses.
 - b. For Local Experts, when the Experts are required to work away from the Consultant's project office, the weighted average per diems (i.e., per diem rate for all locations) of the local Consultants calculated on the basis of 30 days per calendar month need to be shown.
- (iv) International Travel



International travel costs will show the airfares needed by International Experts to travel from their home office, or regular place of work, to the field, by the most appropriate and the most direct practicable route. Air travel shall be by less than first class.

For International Experts spending twenty-four (24) consecutive months or more in the Client's country, one extra round trip will be reimbursed for every twenty-four (24) months of assignment in the Client's country. Such International Experts will be entitled to such extra round trip only if upon their return to the Client's country, such International Experts are scheduled to serve for the purposes of the Project for a further period of not less than six (6) consecutive months.

Air transport for dependents: the cost of transportation to and from the Client's country of eligible dependents who shall be the spouse and not more than two (2) unmarried dependent children under eighteen (18) years of age of those of the International Experts assigned to resident duty in the Client's country for the purpose of the Services for periods of six (6) consecutive months or longer, provided that the stay of such dependents in the Client's country shall have been for not less than three (3) consecutive months duration. If the assignment period for resident staff of the International Experts will be thirty (30) months or more, one extra economy class air trip for their eligible dependents for every twenty-four (24)-month assignment will be reimbursed.

The number of round trips, the cost for each trip and destinations should be shown under "air travel".

(v) Miscellaneous Travel Expenses

A separate item "Miscellaneous Travel Expenses" should be shown to cover a lump sum allowance per round trip for processing necessary travel documents (passport, visas, travel permits), airport taxes, transport to and from airports, inoculations, the cost of excess baggage up to twenty (20) kilograms per person, or the equivalent in cost of unaccompanied baggage or air freight for each International Expert and each eligible dependent, etc.

(vi) Miscellaneous Costs

Miscellaneous costs include, but are not limited to:

- a. The costs of international and local communication reasonably required by the Consultant for the purposes of the Services;
- b. The cost of printing, reproducing and shipping of the documents, reports, drawings, etc.;
- c. The cost of acquisition, shipment and handling of the equipment, instruments, materials and supplies required for the Services;
- d. Miscellaneous administrative and support costs.



(vii) Provisional Sums and Contingency

The amounts indicated as “provisional sums” (e.g. workshop, seminar amounts, etc.), which are reimbursable, and the contingency amount must be the exact amounts and in the same currency as specified in the Data Sheet for such cost.



Section 5. Terms of Reference

The Terms of Reference include the following :

- 1 - Background
- 2 - Objectives of the Assignment
- 3 - Scope of Consultancy Services
- 4 - Role and Functions of PMC
- 5 - Obligations and responsibilities of PMC
- 6 - Reporting Requirement
- 7 - Staffing for Supervising Consultancy Services
- 8 - Authority delegated to PMC and Activities/Issues requiring Specific Approval Of The Employer
- 9 - Deficiencies of Services
- 10 - Engagement of other consultant/ agencies
- 11 - Services and facilities to be provided by DFCCIL / MOR
- 12 - Duration of Consultancy Service.



1. Background

1.1 The Dedicated Freight Corridor (DFC) Project

Ministry of Railway (MOR), Government of India has planned to construct Dedicated High Axle Load Freight Corridor covering about 3,325 kms on two corridors, Eastern Corridor from Ludhiana (Sahnewal) to Sonnagar/Dankuni and Western Corridor from Jawaharlal Nehru Port, Mumbai to Tughlakabad/Dadri near Delhi along with inter-linking of the two corridors at Dadri. All of this will be double line except Khurja-Ludhiana which will be a single line section.

The Dedicated Freight Corridor (DFC) Project entails construction of double track railway Lines capable of handling 25 ton axle load initially and 32.5 ton axle load eventually and longer trains. Up-gradation of transportation technology, increase in productivity and reduction in unit transportation costs have been taken as guiding principles for formulating the project. Various operating systems, motive power, signaling and work processes are planned to conform to this broad objective.

The Dedicated Freight Corridor Corporation India Limited (DFCCIL) is a Special Purpose Vehicle created by the Government of India to implement and operate the Dedicated Freight Corridors – currently comprising the Eastern Corridor and the Western Corridor. The Western Corridor of DFC project covers route length of 1477 km (JNPT – Ahmedabad – Palanpur – Rewari – Asaoti – Dadri). The 1st phase of WDFC consists of 922 km of double line between Rewari and Vadodara. The 2nd phase of the Western DFC consists of 555 km of double line between Rewari-Dadri and JNPT-Vadodara. Procurement of 200 nos Electric Locomotives (120 nos in Phase-1 and 80 nos in Phase-2) is also under the scope of WDFC. **The present assignment is for Construction of Phase 2 of WDFC and for Procurement of Electric Locomotives.**

1.2 Techno-Economic Feasibility Study

Indian Railways (IR) engaged M/s RITES to carry out a feasibility study followed by Preliminary Engineering cum Traffic Survey (PETS) for construction of a Dedicated Multi-Modal High Axle Load Freight Corridor between Sonenagar –Ludhiana on the Eastern Corridor and Mumbai to Delhi on the Western Corridor. The feasibility report was submitted by RITES in January 2006 and the final PETS Report was submitted in January 2007.

1.3 JICA Feasibility Study

Following the request from the Government of India, the Government of Japan decided to provide technical assistance to assess the feasibility of the project. The study was taken up by Japan International Cooperation Agency (JICA) and was carried out from June 2006 till November 2007. The study concluded the engineering feasibility and financial viability, as well as confirmed the environmental issues and impacts of the Project. The Feasibility Study recommended the phased implementation of the Project.

1.4 Detailed Engineering Survey

DFCC appointed a consultant for detailed engineering survey of the entire section to decide the feasible alignment of the corridor by picking up the details of land boundaries, existing structures, power lines, station building, utilities and availability of



the land outside the existing right of way. The project alignment has been finalized based upon the following broad principles:

- (a) Maximum utilization of the existing IR land.
- (b) In parallel alignment, the spacing between IR track and DFC track has been kept so as to have separate embankment for the DFC tracks as far as possible to avoid interference with the existing IR structures.
- (c) Detours have been proposed to avoid heavily populated urban habitations.
- (d) Rail flyovers have been planned wherever DFC crosses existing IR lines (either main line or branch line).
- (e) Minimum dismantling of existing structures.
- (f) Minimum changes to existing yards/running lines.

1.5 Contract Strategy

The Government of India has received a Loan from Japan International Cooperation Agency toward the cost of the DEDICATED FREIGHT CORRIDOR PROJECT (WESTERN CORRIDOR PHASE-2) signed on 28 March 2013.

Phase 2 of the Western Corridor of the Dedicated Freight Corridor consists of two sections Viz. Southern Section and Northern Section. The Southern Section stretches from JNPT to Vadodara (427Km) and Northern Section stretches from Rewari to Dadri (128Km) for a total length of 555 km of double line electrified track with 2x25 kV AC, 50 Hz. Overhead catenary system, and with Automatic Signaling on JNPT-Vadodara section and Absolute Block Signalling on Rewari-Dadri section.

Construction of the 2nd phase of the Western Dedicated Freight Corridor has been planned through ten (10) Contract Packages encompassing the following contract scopes:

- CT P-11 Civil/Building/Track Works JNPT - Vaitarana Section;
- CT P-12 Civil/Building/Track Works Vaitarana - Sachin Section;
- CT P-13 Civil/Building/Track Works Sachin - Vadodara Section;
- CT P-14 Integrated Civil/Building/Track Works , Electrical & mechanical Works, Signalling & telecommunication works Rewari - Dadri Section;
- CT P-15A Special Steel Bridges in JNPT - Vadodara Section;
- CT P-15B Special Steel Bridge across river Narmada;
- CT P-15C Special Steel Bridges in Rewari – Dadri Section;
- EM P-16 Electrical & Mechanical, JNPT - Vadodara Section;
- ST P-17 Signal & Telecommunication, JNPT - Vadodara Section;
- ST P-5A TPWS between Rewari - JNPT Section.

In addition, Contract Package RS P-7 for Procurement of Electric Locomotives and Construction of Maintenance Depot spans both the phases of WDFC for the purpose of financing but is being operated through a single contract. This contract is being managed directly by MOR whereas all other contracts are being managed by DFCCIL.

For procurement of works in Rewari-Dadri and JNPT-Vadodara section of the Western Corridor, Design Build lump-sum contract system has been adopted. DFCCIL/MOR as employer has specified the Employer's Requirement and broad technical specification. Indicative field data have also been provided to the D&B Works Contractor. Verification of data, designing and construction shall be carried out by the D&B Works Contractor as per the provisions of the contract.



The procurement of works is single stage two-packet bidding system after pre-qualification. Pre-qualification of bidders is being done on the basis of standard pre-qualification document of JICA. Bid document is generally as per standard bidding documents for procurement of Supply and Installation of Plant and Equipment issued by JICA in October 2006 with General Conditions based on FIDIC Yellow Book – 1999 edition.

The brief approximate scope of work under different Packages is as under:

1.5.1 Contract Package CT P-11 Civil/Building/Track Works

Structure	Package-11 102 km (JNPT - Vaitarana)
1. Civil Works	
Cutting	5.84 X 10 ⁶ cum
Embankment	7.19 X 10 ⁶ cum
Blanket	0.90 X 10 ⁶ cum
Sub Grade	1.33 X 10 ⁶ cum
Important bridges	—
Viaduct	4 Nos.
Major Bridge	21 Nos.
Rail Flyover	—
Minor Bridge	172Nos
ROB ^{*1}	13Nos
RUB ^{*2}	28Nos
Tunnel	2 Nos.
Level Crossing	—
2. Building Works	
Junction Stations (JS)	2 locations
Crossing Station (CS)	1 location
Maintenance Depot MMU, Sub-Depots	At Junctions and Crossing Stations
Quarters & Offices	At Junctions and Crossing Stations
3. Track Works	
Ballast	0.56 X 10 ⁶ cum
Route Km	102 Km

Notes: ^{*1}: Road-over-bridge (overpass), ^{*2}: Road-under-bridge (underpass)

1.5.2 Contract Package CT P-12 & CT P-13: Civil/Building/Track Works

Structure	Package-12	Package-13
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	186 km (Vaitarana - Sachin)	134 km (Sachin - Vadodara)
1. Civil Works		
Cutting	1.72 X 10 ⁶ cum	0.39 X 10 ⁶ cum
Embankment	6.90 X 10 ⁶ cum	10.51 X 10 ⁶ cum
Blanket	1.58 X 10 ⁶ cum	1.12 X 10 ⁶ cum
Sub Grade	2.21 X 10 ⁶ cum	1.79 X 10 ⁶ cum
Important bridges	–	–
Viaduct	–	–
Major Bridge	–	25 Nos
Rail Flyover	–	3 Nos
Minor Bridge	251 Nos	107 Nos
ROB ^{*1}	4 Nos	–
RUB ^{*2}	56 Nos	83 Nos
Tunnel	–	–
Railway Crossing	–	–
2. Building Works		
Junction Stations (JS)	–	1 Location
Crossing Station (CS)	5 locations	3 locations
Maintenance Depot MMU, Sub-Depots	At Junctions and Crossing Stations	At Junctions and Crossing Stations
Quarters & Offices	At Junctions and Crossing Stations	At Junctions and Crossing Stations
3. Track Works		
Ballast	1.02 X 10 ⁶ cum	0.73 X 10 ⁶ cum
Route Km	186 Km	134 Km

Notes: *1: Road-over-bridge (overpass), *2: Road-under-bridge (underpass)

Major Civil & Track Structural Features of Integrated Package 14

Structural Features	
1. Civil Works	
- Cutting – (Common)	3.26 x10 ⁶ cum
- Cutting (Rock)	0.76 x10 ⁶ cum
- Embankment	18.50 x10 ⁶ cum
- Blanket	1.32 x10 ⁶ cum
- Subgrade	2.19x10 ⁶ cum
- Important bridge	-
- Viaduct	4 nos. (total length 3879m)
- Major bridge	7 nos.



	(total length 444m)
- Railway flyover (RFO)	1 no.
- Minor bridge	67 nos. (total length 506m)
- ROB*¹	14 nos. (total length 360 m)
- RUB*²	161 nos.
- Tunnel	1 no. (total length 1,140m)
- Railway crossing	-
2. Building Works	(Approximate Area 15,000 sqm)
- Junction Station (JS)	2 locations (Approximate Area 6,000 sqm)
- Crossing Station (CS)	3 locations (Approximate Area 4,500 sqm)
- Maintenance Depot, MMU, Sub-Depots etc.	At Junction and Crossing Stations
- Quarters & Offices	At Junction and Crossing Stations (Approximate Area 4,000 sqm)
3. Track Works	
- Ballast	0.74 x10⁶ cum
- Route Length	125 route km

Notes: *¹: Road-over-bridge (overpass), *²: Road-under-bridge (underpass)

Major E&M Features of Package 14

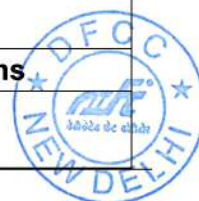


Sl. No.	E&M Features	
1	Nominal Gauge	1676 mm
2	Minimum Horizontal Curve	2.5 ⁰ (main line), 4 ⁰ (siding & connecting lines)
3	Maximum Track Super Elevation	140 mm
4	Axle Load	25 tonne
5	Continuous Power of Locomotive	7,000 kW
6	Maximum Operating Speed	100 kmph
7	Maximum Speed Capability of Locomotive	120 kmph
8	Steepest Gradient	1 in 200
9	Trailing Load	6,000 / 12,000 tonne
10	Dynamic Augment	50% max
11	Nominal Traction Supply Voltage	2 x 25 kV AT System
12	Neutral Sections	25 to 35 km
13	Normal Contact Wire Height	7.54 m from rail level
14	Regenerative Brake Effort	25% (approx.) of gross locomotive weight
15	Route Length	125 route km
16	No. of Junction Stations	2
17	No. of Crossing Stations	3
18	No. of Traction Sub-Stations	2*
19	No. of Sectioning Posts	2*
20	No. of Sub-Sectioning Posts	14*
21	No. AT Stations (ATS)	1
22	Major Maintenance Depot (OHE & PSI)	2
23	Minor Maintenance Depot (OHE)	1

(*Tentative)

Major S&T Features of Package 14

Sl. No.	S&T Features	
1	Route Length	125 km.
2	Electronic Interlocking at Junction Stations	2
3	Electronic Interlocking at Crossing Stations	3
4	Block Proving with Axle Counters	5 Block Sections
5	Track Vacancy Detection System for Stations (Digital Axle Counters)	5 Stations
6	Intermediate Block Signalling (IBS)	3 Block Sections
7	Train Monitoring & Diagnostic System (TMS)	1 lot



8	Backup Control Centre	1 lot
9	Point Machines	1 lot
10	Power Supply System	1 lot
11	Dispatching Telephone System	5 Stations + Controllers
12	Fixed Communication System	5 Stations + Each Maintenance Depot + Controllers
13	GSM-R	125 route km
14	Digital Electronic Exchange System	5 Stations

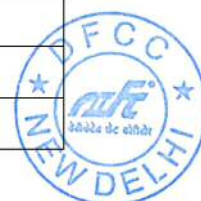


1.5.3 Contract Package CT P-15A, 15B & 15C: Special Steel Bridges

Structural Features	Package 15A (JNPT - Vadodara)	Package 15B (JNPT - Vadodara)	Package 15C (Rewari - Dadri)
No. of Bridges	8	1	3
Total Bridge Length	2109 m	1396 m	776 m
Structural Configuration	Open Web Welded Through Truss + PSC T-Girder + PSC Box Girder + PSC Solid Slab	Underslung Truss with Composite RCC Deck	Open Web Welded Through Truss
Type of Foundation	Open / Well / Piles	Well / Piles	Well / Piles
Type of Bridge Deck	Ballasted + Non-ballasted	Ballasted	Non-ballasted

1.5.4 Contract Package EM P-16: Electrical & Mechanical

S. No.	DESCRIPTION	Approximate Quantity
1	Traction sub station (TSS) with Single transformer	4
2	Traction sub station (TSS) with double transformer	5
3	Switching post (SP) double line	9



4	Sub sectioning post double line on open route	2
5	Sub sectioning post double line at station with AT	5
6	Sub sectioning post double line at station without AT	30
7	Auto transformer station (ATS)	4
8	54/60 MVA SCOTT Connected single transformer	4
9	54/60 MVA SCOTT Connected double transformer	10
10	08/10 MVA Auto Transformer 4 nos. at TSS (single transformer)	16
11	08/10 MVA Auto Transformer 4 nos. at TSS (double transformer)	20
12	08/10 MVA Auto Transformer 4 nos. at SP (double line)	36
13	08/10 MVA Auto Transformer at SSP (double line)	4
14	Auto transformer station (ATS)	8
15	220 Kv Current Transformer at TSS	42
16	220 Kv Lightening arrestor at TSS	96
17	220 Kv TP SF-6 Circuit breaker at TSS	14
18	220 Kv TP Isolator (motor operated) at TSS	37
19	2X25 Kv Shunt capacitor at TSS	28
20	25 Kv DP Vacuum / SF-6 Circuit Breakers	100
21	25 Kv DP Vacuum / SF-6 Interrupters	147
22	25 kv DP Isolator (motor operated)	349
23	25 kv Potential transformers	164
24	42 Kv Lightening arrestor at TSS	286
25	Aluminium (mt)	2224
26	Copper contact wire (km)	1529
27	Copper catenary wire (km)	1529

1.5.5 Contract Package ST P-17: Signal & Telecommunication

Signalling& Telecommunication Items	Approximate quantity
a) Route length	422km
b) Electronic Interlocking at Junction Stations	3
c) Electronic Interlocking at Crossing Stations	9
d) Automatic Block Signalling	422 route km, Block length 2 kms
e) Track vacancy Detection system for stations	12 stations



(Digital Axle counters)	
f) Track vacancy Detection system for Block Section (Digital Axle counters)	422 route km, Block length 2 kms
h) Point machines	1 lot
i) Power supply system	1 lot
j) EMC/EMI studies to determine induced voltages from IR and DFC Traction systems	1 lot
k) Spare parts and tools for Signalling works	1 lot
l) Pre-fabricated structure (Porta huts) for Signalling and Telecommunication equipment as indicated in the bidding document	Auto location hut for Signalling – 1 lot, Telecommunication hut – 1 lot
m) Dispatching Telephone System	12 stations + Controllers
n) Fixed Communication System	12 stations + each maintenance depot + Controllers
o) GSM-R	422 route km
p) Digital Electronic Exchange System	12 stations
q) Spare parts and tools for Telecom works	1 lot
r) Training of DFCCIL maintenance staff	1 lot

1.5.5.A Contract Package ST P-5A (TPWS-Signal & Telecommunication)

Items	Approximate quantity
Train Protection & Warning System (TPWS), (Rewari-JNPT)	1337 route km, 200 locomotives onboard devices of rolling stock

1.5.6 Contract Package RS P-7: Electric Locomotives and Maintenance Depot

The Scope of the Works for P7 will include the design, manufacturing, supply, testing and commissioning and maintenance plus transfer of technology of 200 numbers of Electric Locomotives having power output of 7,000kW. The Scope also includes design and construction of the Electric Locomotive Maintenance Depot (ELMD) with construction of maintenance buildings and procurement of maintenance equipment and tools.

Major Features for Package 7 (RS P-7):

No.	Description	Remarks
1	Electric Locomotives: 7,000kW x 200 nos in Total	
1-1	Prototype in Japan	3 nos.
1-2	Manufacturing in Japan	37 nos.
1-3	Semi-Knock-down/Complete-Knock-down (SKD/CKD)-assembly at IR's facilities	60 nos.



1-4	Indigenous manufacture at IR's facilities	100 nos.
2	Testing/Commissioning	
2-1	Test runs for prototype	500 km approx.
2-2	Service trials with three locomotives	5000 km each.
2-3	Test run and commissioning for whole units before handing over to Employer	Each loco as it arrives at depot.
3	Electric Locomotive Maintenance Depot (ELMD)	
3-1	Construction of ELMD yard, including track, OHE, S&T Systems, roads etc.	18 ha approx.
3-2	Construction of maintenance sheds and buildings in ELMD	33000m ² approx.
3-3	Procurement of maintenance equipment and tools	1 lot
3-4	Construction of Depot Control Centre with provision of required hardware and software for operation and maintenance.	
4	Electric Locomotive Maintenance Satellite Depot (ELSD)	
4-1	Construction of ELSD yard	1 ha approx.
4-2	Construction of shed/buildings in ELSD	1800m ² approx.
4-3	Procurement of maintenance equipment and tools	1 lot
5	Comprehensive maintenance services of all locomotives up to the first major overhaul (POH), including POH of 20nos of electric locomotives, on the basis of guaranteed reliability and guaranteed availability by the contractor during the contractual period.	As per schedules developed by contractor subject to certain minimum requirements.
6	Complete maintenance of the works and all assets of ELMD & ELSD during the contractual period.	

- (a) Indian Railways' works facilities shall be used for assembling sixty locomotives from CKD/SKD kits received from the Contractor from Japan. IR shall be responsible for manufacture all mechanical parts (bogie frame, body etc.) and traction motors for the remaining 100 (one hundred) locomotives. IR shall also assemble these last one hundred locomotives.
- (b) The contractor shall oversee the work done by IR's personnel and be fully liable for the quality of locomotives, compliance to specifications and all other contractual obligations. IR shall provide to the Contractor its 'manufacturing facilities' for assembly of locomotives.
- (c) The Contractor shall provide to IR all raw materials, bought out components/subassemblies.
- (d) The Contractor shall provide training to IR's workers and supervisors to the extent



there is a need for training in order to ensure correct quality of manufacture.

- (e) The Contractor shall be required to ensure that all Quality Standards are maintained at the works of Indian manufacturers/vendors during the course of assembly of CKD/SKD kits and also during indigenous production. The Contractor shall be fully responsible for the quality of work at IR's facility.

2. Objectives of the Assignment

- 2.1 The objective of this consultancy contract is to engage Project Management Consultant (PMC) to obtain Project Management Consultancy Services for

(i) Execution of Phase – 2 of WDFC from Dadri to Rewari and JNPT to Vadodara, being managed by DFCCIL, through Contract Package 11 to 17 and 5A as defined in Clause 1.5 above(**Part 'A' of PMC Contract**);and

(ii)Procurement of Electric Locomotives and Construction of Maintenance Depot,being managed by MOR, through Contract Package 7 as defined in Clause 1.5 above(**Part 'B' of PMC Contract**).

- 2.2 PMC is required to support the Employer in implementation of design, construction, testing &commissioning and their services would include without limitation within the scope of work review and approval of Design prepared by the contractor including drawing and specifications, supervision of the contractors' performance, progress monitoring, technical and quality control, ensuring work site safety, evaluation of construction, certification for completion of various works by the different DB Contractors covered under this for taking over of the Works by the Employer and necessary monitoring and ensuring requisite rectification by various Contractors during Defects Notification period(DNP). PMC shall make itself aware of provisions of respective Contract Agreements of various Contract Packages and shall ensure within its role of Engineer adherence/ compliance to these provisions at all times during currency of the Contract.

- 2.3 The Project Management Consultancy service is to assist the Employer in implementation of the Project which includes:

- Provide right to access to the site to the contractor as per GC Sub Clause 2.1
- Verification of reference points for execution of work by the contractor.
- Review of General Design & Drawings for the approval of the Employer and review and approval of detailed designs/ drawings submitted by Contractors (of various Packages).
- Supervision of works.
- Ensuring Quality of Works.
- Ensuring work site safety
- Inspection/ Testing and Acceptance of material for incorporation in the work.
- Contract management.
- Coordination with other agencies such as Indian Railways, Utility agencies, other interfacing agencies, state government, other government Departments.
- Conducting testing of works including testing for commissioning and taking over.
- Checking, reviewing, certifying and processing of Monthly Interim Payment;Ensuring various, statutory or otherwise, recoveries from the interim payment.

- Processing variation proposals.
- Inspection during defect liability period.
- Monitoring of defect rectification during defect liability period.
- Assist DFCCIL/MOR in DAB and Arbitration proceedings.

2.4 The PMC may from time to time, assign duties and further delegate authority to assistants and may also revoke such assignments and delegations. These assignments may include resident engineer/ deputy team leader, inspectors and test personnel. These assignments, delegations and revocations shall not take effect until they have been duly notified to DFCCIL/MOR and the Contractors. Each assistant shall only be authorised to issue instructions to the Contractors to the extent defined in the notice of delegation. Any approval, instruction, notice, request or similar act by an assistant, in accordance with this delegation, shall have the same effect as though the act had been an act of the PMC.

2.5 Except as otherwise permitted in this Contract/Contracts of various Packages, the PMC shall have no authority to amend the Design-Build Contracts of various Packages covered under this Consultancy, with regard to the Contractors' obligations or terminate these, without written instructions from DFCCIL/MOR.

3. Scope of Consultancy Services

The scope of services of the PMC is as follows:

3.1 Project management support

The PMC shall support DFCCIL/MOR in the Project management and coordination of the project and shall

- Prepare and implement coordination procedures
- Prepare and implement project control procedures
- Prepare and implement document control procedures

3.2 Contract management (see also section 6 Reporting)

The PMC shall support DFCCIL/MOR in the contract management of the project and shall

- Support preparation of correspondence to contractors
- Manage claim control
- Manage change control

3.3 Programme management (see also section 6 Reporting)

To manage the Project Programme, the PMC shall

- Establish Master programme
- Review contractors programmes and associated progress
- Prepare consolidated programme / progress report

3.4 Project budget and cost management (see also section 6 Reporting)

To manage the Project costs, the PMC shall

- Develop Project Budget and cost Plan
- Estimate overall project cost relating to the master implementation schedule.
- Assess the financial position and project long-term financial statements.
- Certify all contract payments required to be made by DFCCIL/MOR and satisfy DFCCIL/MOR in monitoring the same.

3.5 Monitor Safety, Health and Environment (SHE) (see also section 6 Reporting)



PMC shall establish requirements for SHE and overview the contractors' activities. An extract of Employer's Requirements regarding SHE aspects, as stipulated in Bid Documents (Volume-II& III) of Works Contract Packages, is given in Annexure-2 to the Terms of Reference.

3.6 Monitoring and supervision of implementation of updated Environmental Management Plan (EMP)

PMC shall review Environmental Management Plan (EMP) and ensure its implementation through monitoring and supervision of Contractor's activities. Scope and terms for the same are given in Annexure-1 to the Terms of Reference.

3.7 Quality assurance and quality control (QA/QC) (see also section 6 Reporting)

PMC shall implement a quality assurance system for the project.

PMC shall review/ endorse Contractor QA/QC and overview the contractors' activities.

PMC shall review and approve quality assurance program submitted by individual contractors and shall formulate and implement an integrated quality assurance program for the project.

3.8 Stakeholder coordination

During implementation of the project, continuous coordination will be required with Government authorities and various local authorities for resolution of issues related to the project. DFCCIL/MOR will be the main coordinating agency, and PMC shall assist DFCCIL/MOR wherever required, to provide technical support, by way of data, drawings, sketches, and other technical aspects of the issues.

3.9 Review and issue of Engineer's Non-Objection Certificate to Detailed Design Drawings prepared by the Contractors

PMC shall review the General Arrangement Drawings (GADs) prepared by the Contractors under Design & Build Contract, and issue Non Objection Certificate to the GADs after conducting necessary modification and finalization by Contractors and after obtaining approval of DFCCIL/MOR.

PMC shall review the Detailed Design Drawings prepared by the Contractors under Design & Build Contract, and issue Non Objection Certificate to the Detailed Design Drawings after conducting necessary modification and finalization by Contractors.

3.10 Review and issue of Engineer's Non-Objection Certificate to Construction Drawings prepared by the Contractors

PMC shall review the Construction drawings prepared by the Contractors, and issue Non Objection Certificate to the drawings after conducting necessary modification and finalization by Contractors.

3.11 Overall construction supervision for infrastructure

PMC shall monitor all contract works in progress and identify any schedule or co-ordination conflicts, recommend measures to settle or mitigate problems and implement the recommended measures with the approval of DFCCIL/MOR.

During construction stage of the Project, the PMC shall carry out overall construction supervision.

The PMC shall consist of Core Management Team (CMT) and Zonal Management Teams (ZMTs). Separate ZMTs will be deployed for the respective jurisdictions of Contract Package CT P-11, CT P-12 and CT P-13 and CT P-14. The role of CMT and ZMTs will be to accomplish the following Tasks:



A. Tasks of CMT

- i) To advise and assist DFCCIL/MOR in the preparation of procedural system with incorporating the various procedures required for JICA
- ii) To coordinate with DFCCIL headquarter and MoR for overall implementation of the Project
- iii) To monitor overall project cost relating to master implementation program and assess the financial position and project long-term financial statement
- iv) To monitor overall construction schedule and evaluate progress of overall construction work and recommend the countermeasure for recovering the progress, when it is necessary, to DFCCIL/MOR
- v) To examine and approve proposals on additional environmental mitigation measures and monitoring activities prepared by ZMTs.
- vi) To recommend acceptance or rejection of any part or parts of the completed works to DFCCIL/MOR
- vii) To evaluate claims from the Contractors for extension of time, extra work payment, etc. and submit recommendation to DFCCIL/MOR
- viii) To review and recommend for approval of DFCCIL/MOR all GADs and to review and issue Non Objection Certificate to all detail design and drawings for the part of the Project which will be constructed under design & build contract
- ix) To negotiate with contractors and recommend to DFCCIL/MOR on contract variations, if any
- x) To evaluate and recommend to DFCCIL/MOR for approval of any changes in the plans or any effects on the changes of the contract amount and time schedule of the project
- xi) To prepare integrated periodical reports and submit to DFCCIL/MoR
- xii) To integrate as-built drawings prepared by the Contractors and submit to DFCCIL/MOR

B. Tasks of Zonal Management Teams (ZMTs)

- i) To conduct routine field construction supervision works
- ii) To coordinate with respective headquarter and divisions of Zonal Railways and DFCCIL Regional/ Site Offices for implementation of the Project under jurisdiction
- iii) To carry out regular site inspection for monitoring field construction works.
- iv) To confirm stake out furnished by the Contractors for DFC alignment in the field.
- v) To obtain and test, as necessary and as required, material, works and equipment to maintain quality control.
- vi) To examine all field performance test for equipment of Signalling & Telecommunication System, train operation , electrification system and submit the report to the CMT with copy to DFCCIL/MOR
- vii) To inspect testing and monitoring of all material and facilities/devices to ensure that they comply with the specifications and give immediate report to the Contractor, as required, with copy to DFCCIL/MOR.
- viii) To carry out receiving inspections for machinery and equipment for maintenance of DFC infrastructure.



- ix) To recommend to CMT as acceptance or rejection of any part or parts of the completed works
- x) To verify measurement of quantities of works executed and checking of payment certificate to contractors
- xi) To review and issue Non Objection Certificate to all construction drawings and shop drawings prepared and submitted by the Contractors
- xii) To check remaining quantities and forecast final amount of the contract periodically
- xiii) To train personnel of DFCCIL/MOR to enhance their capacity in terms of environmental management
- xiv) To supervise implementation of updated Environmental Management Plan and Monitoring Plan undertaken by the Contractors and report to CMT and DFCCIL/MOR.
- xv) To carry out initial review of claims from the Contractors and submit to DFCCIL/MOR through CMT
- xvi) To prepare, if required, proposal on any changes in the plans or any effects on the changes of the contract amount and time schedule of the project and submit it to CMT.
- xvii) To participate in the final construction inspection and prepare check list for defect items
- xviii) To prepare periodical progress reports and submit to CMT
- xix) To compile and review as-built drawings prepared by the Contractors and submit to CMT

3.12 Verification of testing and approval at all stage of manufacturing of locomotives

During the supervision stage, the PMC shall attend and examine all testing done by the electric locomotive manufacturer, and issue approval based on the examination. All the attendance and examination should be reported to MoR.

3.13 Support testing and Commissioning

PMC shall establish requirements for Testing and Commissioning and overview of the contractors' activities.

PMC shall assist the contractors, giving all necessary advice, to conduct the tests. When shortfalls or defects are found during the tests, PMC shall arrange the rectification by the contractors.

PMC shall keep close co-ordination with the manufacturers who will follow the design, manufacture, installation, testing and commissioning of all plant, equipment, rolling stock, signalling, telecommunication, power supply and control equipment, etc.

PMC shall advise DFCCIL/MOR on the final acceptance of the system based on the results of the prototype, serial and/or system test.

3.14 Support preparation of manuals for operation and maintenance

PMC shall establish requirements for O&M manuals and overview and the contractors' activities. The Manuals to be developed are as follows, but not limited to:

- Track Construction & Maintenance Manual
- Civil Works Construction Manual



- Signalling Operation & Maintenance Manual
- Telecommunication Operation & Maintenance Manual
- Substation Operation & Maintenance Manual
- Traction Power Operation & Maintenance Manual
- Safety Manual
- Accident Manual
- Rolling Stock Operation & Maintenance Manual
- Plant and Equipment Operation & Maintenance Manual

These manuals shall be prepared by contractors and will form the basis of the training of operation and maintenance personnel.

3.15 Support taking necessary measures to assure accessibility for physically challenged people

PMC shall support DFCCIL/MOR for taking necessary measures to assure accessibility for physically challenged people.

3.16 Support to prepare proposal for CDM application

PMC shall support DFCCIL/MOR to prepare proposal for CDM application. The item of CDM is basically same as that of DMRC, energy regeneration of the Project in the braking mode of rolling stock. PMC shall also prepare other such useful proposals.

3.17 Support training of DFCCIL/MOR personnel

PMC shall establish requirements for training and overview and the contractors' activities.

Technical Assistance Consultants may be appointed, supported by PMC, to plan and design the training modules, in cooperation with manufacturers/ suppliers, for personnel of DFCCIL/MOR in operation, maintenance and repair of various equipment and plants supplied by various suppliers at their premises.

Technical Assistance Consultants, supported by PMC will also plan and design training modules for these personnel and their trainers in operation, maintenance and repairs of the system as a whole and will provide training to them in these areas. The training shall be arranged before commencement of trials and will continue up to commissioning of the system.

3.18 Support of implementation of the action plan for labor protection, including HIV/AIDS prevention program, for construction workers

The PMC shall assist DFCCIL/MOR in setting up decent work environment for construction workers with the following activities:

- Implementation of Work place policy, which covers, in consistency with domestic labor laws, protection of construction workers including HIV/AIDS prevention, working hours and minimum age of the workers etc.
- Implementation of the action plan for labor protection, which introduces implementation framework of the labor protection including necessary actions, time schedule for the actions, roles of each stakeholder including TOR for PMC Consultant, monitoring method and necessary resources (cost).
- For above, the Consultant shall consider utilization of existing local framework, such as local labor management authorities for labor protection enforcement and local public health authorities for HIV/AIDS prevention. In addition, the Consultant shall refer to JICA's past experience in implementation of HIV/AIDS prevention activities in infrastructure projects.



4. Role and Functions of PMC

4.1 Part 'A': PMC services to DFCCIL

The works included in the main contracts are to be carried out close to the running tracks and public utilities; therefore, safety of running trains and the public is paramount. The Scope of the works to be executed by the DB Works Contractors are briefly narrated under Para 1.5 of Terms of Reference and mentioned in detail in respective Contracts Documents covered under this Consultancy. PMC shall, inter alia, discharge the duties of Engineer as detailed in TOR under different phases of DB contracts as detailed below:

- (a) Design Phase
- (b) Construction Phase including Testing, Commissioning and Taking over
- (c) Defect liability Phase

Duties of PMC are exhaustive as detailed below but not limited to-

- 4.1.1 **Role and functions of the PMC during design Phase-** Design Phase includes review of Contractors' documents which includes preliminary design and drawings and definitive design and drawings. Design phase begins with commencement date of DB contracts.

During this Phase PMC will review-

(A) Preliminary Design Submission which includes

- (a) Design submission Programme
- (b) Geo technical investigation plan including bore holes, machines, methodology etc. complete.
- (c) The quality assurance plan for design
- (d) Preliminary construction methodology
- (e) Basis of Design, factors influencing the Design and a review of the outline design criteria;
- (f) The identification of design codes and standards;
- (g) Review of technical specifications proposed for the work
- (h) CAD procedures;
- (i) Design Manual;
- (j) Proposed software;
- (k) The preliminary off site(manufacturer's premises) testing recommendations;
- (l) The preliminary testing and commissioning report
- (m) The preliminary maintenance analysis and report
- (n) The preliminary equipment proposals, layouts and details. The utility diversion plan;
- (o) An alignment review;
- (p) Proposed site surveys and other field surveys like geological, hydrological, seismic etc.;
- (q) Topographic survey of the site.
- (r) Preliminary depot layouts;
- (s) Reference pillars.
- (t) Standard details of preliminary alignment like plan and cross section including bench marking, the track alignment, the shape of the earthworks, track layout at Junction Stations, crossing Stations, Maintenance Depots.



the necessary highway/road/track works, identify all bridge structures (ROB, RUB, Culvert, RFO, etc.), location of all utilities whether IR, public or private, temporary works retained level crossings and associated staff shelters, layout of DFCCIL station compounds and associated accesses and outline links to utilities.

- (u) Preliminary geo-technical report including collection of site data, sub-soil investigation required for the design;
- (v) Preliminary design of formation including drainage system – longitudinal and cross drains, diversions of nalla (open drain) etc.;
- (w) Preliminary design of retaining wall wherever required.
- (x) Reports detailing the identification of borrow areas for formation and their soil properties.
- (y) Planning for blanket material, prepared sub-grade along with source of material.
- (z) Existing bridge data like chainage, opening size, bed level, HFL, scour level and protection works if any.
- (aa) Preliminary seismic report;
- (bb) Data for catchment area and hydrological report and geotechnical investigation report for each bridge
- (cc) Preliminary recommendation of opening sizes of DFC corridor based upon cross verification between existing opening sizes, discharge calculations and other site related parameters.
- (dd) Preliminary RUB, Rail Fly Over and modification proposals to ROB;
- (ee) Preliminary GADs
- (ff) Preliminary track structures including rail, sleeper, fitting, SEJ, points and crossings, derailing switches, track on bridge approaches, track on bridge proper, level crossings, etc.,
- (gg) Preliminary cross section in cutting and embankment showing ballast profile on curve and straight,
- (hh) Preliminary track layouts including yard plans,
- (ii) Connectivity details to existing IR yards and modifications there to,
- (jj) Preliminary signage proposals,
- (kk) Preliminary architectural layouts of buildings and main materials,
- (ll) Preliminary construction methodology for buildings
- (mm) S&T Preliminary design document as per system DB Contract
- (nn) Preliminary design of traction power supply system, overhead equipment, SCADA and E&M Works as per System DB Contract.

(B) Definitive Design Submission which includes

- (a) Dimension of all Major features, elements and members
- (b) Schedules of all materials
- (c) Potential forces and movements due to all possible loadings and actions on the structures, and their accommodation;
- (d) All stress calculations due to secondary loading;
- (e) Standard details;
- (f) Proposed Good for Construction drawings pertaining to each component for consideration of the Engineer;
- (g) Electrical and mechanical services and equipment and their interaction with the structures;
- (h) Erection methods;
- (i) Utilities to be diverted /supported;
- (j) Report on interfacing contracts;



- (k) Provisions and proposals for construction interfacing with the Interfacing Contractors;
- (l) Maintenance report;
- (m) Environmental impact correction measures;
- (n) Demolition methodologies.
- (o) Final location survey, geometry (vertical and horizontal) and setting-out of all main elements and features of alignment including horizontal and vertical curves, transitions, grade compensations etc. complete with corresponding calculations and layouts;
- (p) Standard details on updated alignment
- (q) Final hydrology report with field data and samples for general catchment;
- (r) Final geo-technology report with field data and samples;
- (s) Final seismic report;
- (t) Earthwork design including sub-soil suitability/availability, slopes stability analysis, adequacy of blanketing material used and prepared subgrade etc. complete with calculations;
- (u) Cross section of the proposed embankment/cutting at specified intervals (at 20m in straight and 10m on curve) indicating thickness of different layers with specification details;
- (v) Borrow pit locations with lead diagrams of cut/ fill / borrow;
- (w) Schedules of all equipments;
- (x) Testing proposals;
- (y) Updated bridge list for the section.
- (z) Definitive GAD which includes the final drawing and design to be adopted for construction.
- (aa) The locations and nature of all steel structures alongwith relevant joints and connections and details thereof;
- (bb) Final hydrology report with field data and samples for each bridge;
- (cc) Schedules of all equipment;
- (dd) Modifications to existing ROB, plans and detailed scheme;
- (ee) Demolition methodologies.
- (ff) Survey of the existing track layout with recommendations where connections between DFC and Indian Railway track are to be done;
- (gg) Track design including sleepers for all locations, fittings, SEJs, LWR, etc - design and corresponding calculations;
- (hh) Points and crossings, derailing switches with detailing,
- (ii) Level crossing arrangements with detailing.
- (jj) Methodology of Track construction in detail;
- (kk) Signage requirements and plan;
- (ll) Schedules of all machines and equipment;
- (mm) Testing and commissioning proposals;
- (nn) Architectural requirements;
- (oo) Existing building rehabilitation recommendations;
- (pp) Potential forces and movements due to all possible loadings and actions on the structures, and their accommodation;
- (qq) S&T design document as per S&T DB contract.
- (rr) Definitive design of traction power supply system, overhead equipment, SCADA and E&M Works as per System DB Contract.

(C) Technical Specification document

(D) Design manual

(E) Interfacing Contract Report Document



(F) Survey report

(G) Utilities Report

(H) Temporary Work Design Report

(I) Hydrology Report

(J) S&T Management Plans as per S&T DB Contract

(K) Management plans pertaining to electrical works as per System DB Contract

Design submission will be reviewed by the PMC who shall coordinate the design review for the Client and communicate the decision within the duration specified in the respective DB Contract after receipt of complete information on the subject matter. Detailed procedures for submission of data will be as detailed in DB contracts.

PMC shall obtain specific written consent of the Client before communicating clearance for all concept design & drawings and GADs submitted by DB contractor for Alignment, Major bridges, Rail Flyover and work requiring sanction of Commissioner of Railway Safety/ Competent Authority in terms of para 3.1 of GCC.

PMC shall obtain specific written consent of the client for those documents which require prior approval of the client as specified in System DB Contract.

4.1.2 Role and functions of the PMC during Construction Phase: Construction Phase for the whole or a part of the Permanent Works shall commence immediately upon the issue by the PMC, a Notice in respect of the relevant Drawings Submission and shall terminate when the section is taken over by the Employer in terms of GCC clause 10.1. However, construction shall not commence until the original copies of the appropriate Definitive Design and Drawings have been endorsed by contractor as "Good for Construction" and PMC issued Notice that he has no objection to these drawings. The construction Phase includes completion and submission of the Final Design and the preparation and submission of the As Built Drawings and other records as specified in DB contracts and clearance of the same by PMC after review.

- (a) The duties of the PMC during the Construction Period will be that of 'Engineer' and including and encompassing, superintendence of the Contractor's performance of the works on a day to day basis, particularly with regard to quality of materials/construction, execution of work as per approved methodology and work plan, work site safety, removal/relocation of chartered/ unchartered utilities, project monitoring as per approved work plan, compliance to occupational health plan, compliance to environment mitigation plan, interface management with other contractors including DB contractors, inspection and acceptance of work, report submission, record keeping, providing facilities for inspection for PMC/Employer/other consultants/inspecting agencies, testing and commissioning including integrated testing of work as per provision of contract .
- (b) For the Construction Phase, DB contractor shall prepare a comprehensive programme for acceptance tests and shall demonstrate to the PMC how this programme meets provisions under various contracts, in all respects but not limited to, for the specified technical and performance requirements. The PMC shall conduct regular field checks and tests to ensure that work has been carried out as per agreed specifications and standards. PMC's Supervisors shall carry out required field checks for Contractor's Requests for Inspection (RFI) pertaining to various items of works and clear the same. **The RFI procedures to be observed by the Contractor, particularly with regard to inspection and testing shall be as agreed by PMC and DB contractors.**
- (c) The PMC shall clearly specify in its bid proposal, the system of test checks for these RFIs at appropriate levels proposed to be adopted by it with the minimum test check being 100%, 20% and 5% of the value of the work at the level of Supervisor, ARE and

RE respectively. The agreed percentages of test checks shall be made for every individual item of work in every interim payment to the Contractor at the level of Supervisor/ ARE. Test check at the level of RE shall be made in such a way so as to cover all the representative items of work in a contract package every quarter. PMC shall certify conducting of these Test Checks as agreed for every interim payment recommended by it. DFCCIL/MoR may separately undertake Quality Audit Inspections, at periodic intervals or as required, through their own personnel or through a third party. The PMC shall do the repeat tests or measurements, if directed by the CPM/DFCCIL, in the presence of CPM or of any of his representative.

- (d) **Engineer shall, within 14 days after receiving a Statement and supporting documents from the Contractor, issue to the DFCCIL, an Interim payment Certificate which shall state the amount which the Engineer fairly determines to be due, with supporting particulars.**
- (e) In the event that the Contractor is required to carry out any remedial works for removal or rectification of any defects or deficiencies, the PMC shall require the Contractor to prove through appropriate tests that such remedial works have brought the works into conformity with the Contract. The PMC shall take all necessary measures to achieve closure of non-conformances through the Contractor's actions in the shortest possible time, but in no case later than Period of Completion. The PMC shall maintain complete records of all remedial works from their identification to rectification.
- (f) In the event that the Contractor fails to achieve any of the Project Milestones, the PMC shall undertake a review of the progress of construction and identify the causes of delays, if any. If the PMC determines that completion of the works is not feasible within the time specified in the Contract, it shall require the Contractor to indicate, within 15 (fifteen) days of its notice to the Contractor, the steps proposed to be taken to expedite progress, and the period within which the Project Completion shall be achieved. This notice to the Contractor shall be copied to DFCCIL. Upon receipt of the Contractor's response, the PMC shall review the same and send its final determination to DFCCIL and the Contractor forth with.
- (g) If at any time during the Construction Period, the PMC determines that the Contractor has not made adequate arrangements for ensuring safety of workers and users and other legal and statutory obligations mentioned in the contract in the zone of construction or that any work is being carried out in a manner that threatens the safety of the workers and the users or hampers the progress of the work, it shall notify the Contractor forthwith that the whole or part of the Works shall be suspended for ensuring safety thereof. This notice of suspension for reasons of safety shall be promptly communicated to DFCCIL. The suspension shall be lifted by the PMC, only upon its determination that the conditions which caused the suspension have been removed or remedied sufficiently, in the PMC's professional judgment and following its subsequent inspection of the works.
- (h) If the Works are suspended for reasons not attributable to the Contractor, the PMC shall make a determination of these reasons and if necessary, allow for the extension of time set forth in the Project Completion Schedule and compensation to which the Contractor may be entitled as per contract provisions. The PMC shall notify DFCCIL and the Contractor of its determination prior to the onset of the suspension period; and when the reasons for the suspension have subsided and the Works can be resumed.
- (i) The PMC shall carry out, or cause to be carried out, all Tests specified in the related schedules of the Contract and issue a Completion Certificate/ Provisional Certificate, as the case may be as per provision of contract. These functions shall be carried out and communicated to DFCCIL and the Contractor in conformance with the related provisions of the Design-Build contract.



- (j) The PMC shall make fair and reasonable assessments of the payment requests and associated documentation submitted by the Contractor and shall provide its determination, prior to such payments being made by DFCCIL. In its determination, the PMC may certify full or partial payment, depending on its assessment of the Contractor's payment request and documentation.
- (k) The PMC shall review the 'As Built' drawings for each component of the works prepared by the Contractors and determine their acceptability under the terms of the Contracts. The PMC shall communicate its determination to DFCCIL and the Contractors.
- (l) The PMC shall ensure compliance of SHE plan submitted by the Contractor.
- (m) PMC shall determine the disposition of any cost proposals submitted by the Contractor under the Design-Build Contract and their reasonableness. These determinations shall be communicated to DFCCIL and the Contractor.
- (n) PMC shall determine the disposition of any time extensions requested by the Contractor under the Design-Build Contract and their reasonableness. These determinations shall be communicated to DFCCIL and Contractor.
- (o) The PMC shall issue the relevant certificates as may be required in the DB works contracts documents.
- (p) The PMC shall be responsible to obtain all records of completion drawings and completion documents from the contractor and prepare completion estimates in accordance with provisions of Indian Railways Engineering Code. This shall be submitted within six months of issue of taking over certificate.
- (q) The PMC shall prepare an inventory of completed works and inventory of spares to be supplied by DB contractors for use during maintenance.

4.1.3 PMC function during defect liability period

- (a) The PMC shall inspect the works at appropriate intervals during the Defect Liability Period.
- (b) The PMC shall coordinate, review, monitor and ensure that the DB contractors shall replace/remedy the defects occurring under normal usages of works by the Employer, except for normal wear and tear under such usage during the defect liability period.

4.2 Part 'B': PMC services to MOR

4.2.1 General

There will be a common Consultant (Engineer) who shall oversee Project Management of Package-7 (i.e. Procurement of electric Locomotives, construction of ELMD and Maintenance support of Locomotives) as well as execution of all other packages of Western DFC Project. Certain features of PMC requirements of P-7 PMC, which are different from other packages, are listed below:

- I. P-7 Contract shall be managed directly by MOR – while other packages will be under the supervision of DFCC.
- II. Whereas, locomotives too are being procured under two phases of financing, i.e. Phase-1 (120 locos) and Phase-2 (80 locos), procurement of all the 200 locomotives (along with ELMD construction & Maintenance Support) shall be through a single contract. PMC contract has to be tailored to suit.



- III. Schedule of loco manufacture spans 94 months from Notice to Proceed (NTP). Duration of ELMD construction is 54 months and that of Locomotive Maintenance Period is six years with an option of extending it by another six years. However, Project Management Consultancy for Maintenance Support will be required for first 12 months only. Thus the duration of PMC for P-7 will be for a period of 96 months.
- IV. While all work for other packages will be carried out in India only, a part of P-7 work will be carried out in Japan, necessitating deployment of personnel in Japan, whenever necessary for a temporary period.
- V. There may be some need for visiting countries outside India and Japan for the purpose of inspection, whenever there is a need. Exact requirements cannot be anticipated.
- VI. While head office personnel may be based at New Delhi – in the common offices of PMC Consultant, elaborate field offices will have to be set up at Chittaranjan, Kolkata (for Dankuni works) and Rewari (for ELMD works).
- VII. Design approvals will need very close coordination with RDSO/Lucknow. Frequent visits to Lucknow, for several days at a stretch would be essential.

4.2.2 Major activities to be supervised by the PMC are as detailed below:

I. Locomotives Procurement:

1. Approval of Design:		
1.1	Technical Design & Drawings	The Contractor is allowed 6 months (4 th to 9 th from NTP) for submission of design & drawings. Approval has to be given within another two months. RDSO consultation will be involved. Thus experts would be needed for a period of 8 months – although not all at the same time.
1.2	As Built Drawings	This activity will come at the end of contract. It can be performed by the team engaged in Quality Management of the locos manufactured indigenously at Dankuni concurrently with other work. Separate man months need not be provided.
2. Approval of Contractor's Plans:		
2.1	Contractor's Project Plan	Chapters 7, 8 and 14 of G.S. placed in Volume II of bid documents, may be referred to, for details of these plans. These plans are to be submitted over a period of four months, beginning 3 rd month from NTP. The Engineer should scrutinize these plans, discuss if necessary and issue notice of no objection to be contractor. Another two months beyond the
2.2	Interface Management Plan	
2.3	Design Plan	
2.4	Manufacturing & Delivery Plan	
2.5	Commissioning Plan	
2.6	O & M Manuals Plan	

2.7	Training Plan	four months allowed for submission would be needed for scrutiny. Experts would be deployed over a period 6 months.
2.8	TOT Plan	
2.9	Defects Liability Management Plan	
2.10	Transition Plans	
3. Approval of Quality Management Plans:		
3.1	Quality Assurance Plans	Chapters 8, 10, 11 and 16 of G.S. placed in Volume II of bid documents, may be referred to, for details of these plans. These plans are to be submitted at least thirty days before commencement of manufacture. The Engineer should scrutinize these plans, discuss if necessary and issue notice of no objection to the Contractor. Experts would be deployed over a period 4 months.
3.2	RAMS Plan	
3.3	Electro-magnetic compatibility Plan	
3.4	Software Quality Assurance Plan	
3.5	Safety Health & Environment Plan	
4. Quality Management of Prototype Manufacture:		
4.1	Type Tests	The Consultant will assist MOR or its representative in conducting the test.
4.2	Routine Tests	
5. Field Trials:		
5.1	Prototype tests	A scheme of prototype tests and service trials is given in details in particular specifications of testing and commissioning (Ps-5) which is placed in Volume-III of Bid Documents. Experts deployed for this activity shall ensure compliance to these specifications. The Consultant will assist MOR or its representative in conducting the test.
5.2	Service trials	
6. Quality management of 37 Locomotives Manufactured in Japan: The Consultant will assist MOR or its representatives in conducting the test.		
7. Commissioning Tests of 37 Japan Built Locomotives: These tests shall be witnessed by Engineer's representatives posted at Dankuni.		
8. TOT Supervision:		
8.1	TOT for Design	Particular Specification for Transfer of Technology (PS-6) which is placed in volume-III of Bid Documents specifies the requirements as well as methodology to be adopted for transfer of Technology. Experts deployed for thus activity shall ensure compliance to these specifications. In addition they will also check adequacy of training to IR personnel and quality of all manuals.
8.2	Vendor Deployment	
8.3	TOT to Chittaranjan works of CLW	
8.4	TOT to Dankuni works of CLW	
8.5	Maintenance Manuals	
8.6	Operations Manuals	
8.7	Setting up of D&D centre	

8.8	Training of IR staff	
9. Quality Management of 60 SKD/CKD Locos: Two teams shall be needed for this activity – one at Chittaranjan and another at Dankuni.		
10. Quality Management of 100 Indigenized Locos: Two teams shall be needed for this activity – one at Chittaranjan and another at Dankuni		
11. Contract Closure: Routine activities related to closure of the contract.		
12. Administrative Support	The Administrative team will be located at New Delhi. It shall co-ordinate activities of all field teams as well as teams for different specializations who will work from New Delhi itself. This team alone shall deal with MOR. It will be responsible for not just the work of locomotive procurement but also for all other activities under Package-7	

II. Construction of Electric Locomotive Maintenance Depot (ELMD).

13. Approval of inception design		Contractor is required to complete the activity between 4 th to 6 th months from NTP
14. approval of Detailed Design		Contractor is required to complete this activity between 12 th to 14 th months from NTP. These designs would need to be checked by experts in loco maintenance, plant & equipment, building & structures, S&T, OHE & IT.
15. Approval of contractor's plans:		
15.1	Contractor's Project Plan	Chapter 7, 8 and 11 of G.S. placed in volume II of bid documents may be referred to for details of these plans. These plans are to be submitted at different stages as mentioned in the GS. The Engineer should scrutinize these plans, discuss if necessary and issue notice of none objection to the Contractor. Another two months beyond the four months allowed for submission would be needed for scrutiny. Experts would be deployed over a period of 6 months.
15.2	Interface Management Plan	
15.3	Design Plan	
15.4	Procurement, Construction & Delivery Plan	
15.5	Construction & Installation Management Plan	
15.6	O&M Manuals Plan	
15.7	Training Plan	
15.8	Defects Liability Management Plan	
15.9	Transition Plan	
15.10	Quality Assurance Plans	
15.11	Safety Health & Environment Plan	



16. Monitoring of Civil Works for ELMD		Total span of activity is expected to be 12 months
16.1	Clearing, earthwork etc.	Duration of activity is expected to be 3 months
16.2	Roads, Drainage, Surface works etc.	Duration of activity is expected to be 6 months
16.3	Substation & General Lighting	Duration of activity is expected to be 6 months.
17. Monitoring Building facility works		
17.1	Building structure works – stage 1	Duration of activity is expected to be 4 months
17.2	Service facilities, furniture etc. - stage 1	Duration of activity is expected to be 3 months
17.3	Building structure works - stage 2	Duration of activity is expected to be 4 months
17.4	Service facilities, furniture etc. – stage 2	Duration of activity is expected to be 3 months
18. Monitoring Track Works		
18.1	Supply of Rails	Duration of activity is expected to be 1 months
18.2	Completion of track laying	Duration of activity is expected to be 2 months
19. Monitoring Traction Power & OHE works		
19.1	Completion, testing & commissioning	Duration of activity is expected to be 4 months
20. Monitoring Signalling& Telecom Works		
20.1	Signaling testing & commissioning	Duration of activity is expected to be 2 months
20.2	Telecom testing & commissioning	Duration of activity is expected to be 1 months
21. Inspection of Maintenance Equipment & Monitoring Installation		
21.1	Major Loco Maintenance Equipment	Total span of activities is expected to be 12 months
21.2	Paint Shop Equipment	
21.3	Emergency recovery Equipment	
21.4	Lifting Equipment	
21.5	Material Handling Equipment	
21.6	General Equipment & Tools	
21.7	Warehouse & Storage Equipment	
21.8	Washing Plant	
21.9	Minor misc.	
22. Maintenance Management system		



22.1	Installation & Commissioning	Total span of activities is expected to be 6 months
23. Training of IR Maintenance staff		Total span of activities is expected to be 18 months
24. ADMINISTRATIVE SUPPORT		54 Months i.e. during the execution of the works of ELMD

4. Maintenance Support.

Duration of Locomotive Maintenance Period is 6 years out of which Maintenance Support Of Consultant would be required for 12 months only. Consultant would also be required to provide/verify Maintenance Document Procedure Plan for following activities:

PMC Activities:	
25.	Daily monitoring of availability.
26.	Daily monitoring of reliability
27.	Checking work content of un-scheduled maintenance.
28.	Monitoring maintenance support for rapid response teams
29.	Monitoring training obligations of Contractor
30	Monitoring MMS working
31.	Other Contractual certifications

There are other activities too, as listed in the contract documents that would require monitoring and certification by the Engineer. The list of 31 major activities, shown above, is not a list of all duties to be performed by the Engineer. It only enables calculations of personnel and other requirements for a PMC Contract for P-7.

4.2.3 Duties of Engineer under PMC Contract

In addition to all other duties/ functions prescribed for PMC in this document, the PMC shall discharge duties with respect to, but not limited to, the following activities in connection with Contract Package RS P-7 (Electric Locomotives and Depots):

- (i) The Engineer shall monitor the execution of the contract on a daily basis, so as to ensure that the works are carried according to the schedule laid down in the contract and to standards and specifications laid down in the contract agreement between the Contractor and MOR.
- (ii) The Engineer shall deploy professionals who are experts in the relevant engineering discipline to oversee the Contractor's work.
- (iii) The Engineer shall accord all approvals/notices of none objections as specified in the Contract Agreement.
- (iv) The Engineer shall act as an Agent of the Employer. He shall exercise his powers, discretion and functions in independent manner acting with reasonable skill, care and diligence towards all interests involved.



- (v) The Engineer shall not accord approvals/certificates/no objections without prior approval of the Employer wherever such a restriction is mentioned in the Documents of Contract between Contractor and MOR. In addition, he shall not grant any certificate involving additional payments over and above normal payment, without the approval of the employer, unless he is authorized to do so.
- (vi) The Engineer shall strictly adhere to all specifications and schedules specified in the Contract between contractor and MOR. He shall not allow any relaxation or alternatives without prior written approval of the employer.
- (vii) The Engineer shall retain all documents received/issued by him, duly catalogued for ready reference if required.
- (viii) Copy of all communications as sent by the engineer to the Contractor, shall also be sent to the Employer for his record.
- (ix) Engineer shall not issue any payment certificate until the Contractor has provided evidence of Professional Indemnity Insurance and its period of effectiveness as specified in the Contract between Contractor and MOR.
- (x) In case of determination (GC 3.5 of FIDIC Yellow Book), the Engineer shall give notice to both parties of each agreement or determination, with supporting particulars within 28 days from the receipt of corresponding claim.
- (xi) PMC Engineer shall also be responsible to coordinate and supervise interface management among contractors of different Contract Packages. Requirements of interface management are given in Annexures to TOR (Annex-6 & 7).

4.3 Other duties and functions of the PMC

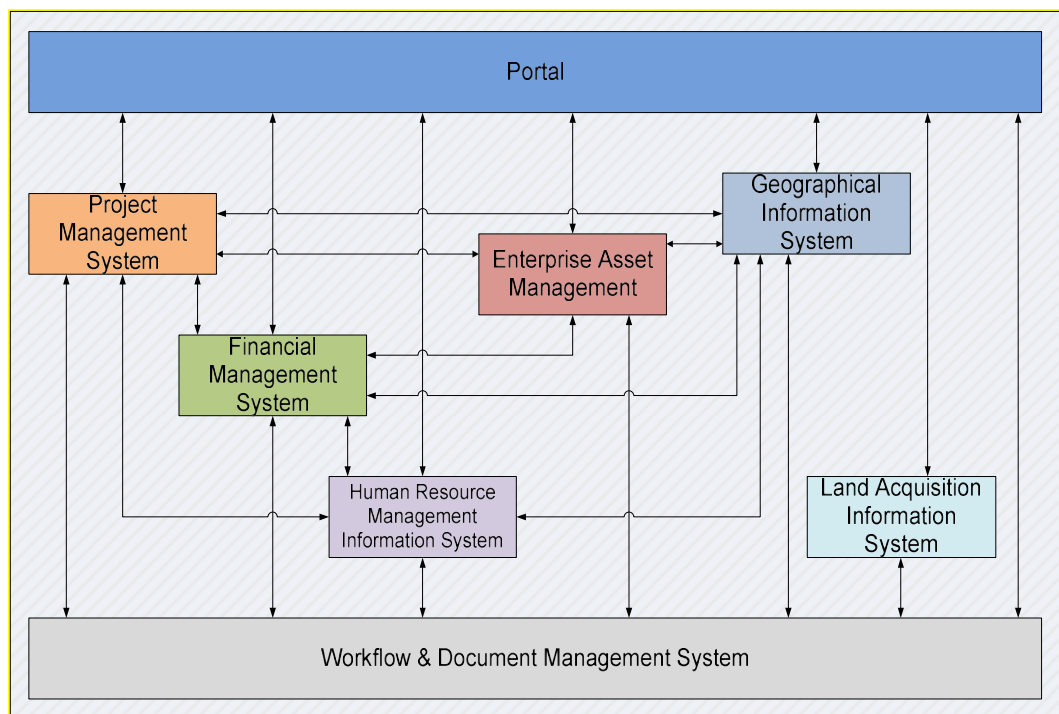
- A. PMC shall review the detailed time program submitted by the contractors in terms of Condition of contract clause 8.3 to ensure that it meets the requirement of contract.
- B. PMC shall review the monthly progress report of works submitted by the contractors and take appropriate action, including apprising DFCC, as deemed necessary.
- C. PMC shall review the Quality Assurance Plan submitted by the Contractors and shall ensure that Quality Assurance Plan meets the objective of the Contract Agreement.
- D. PMC shall review the Contractors Safety Plan and ensure its compliance with the objective of Contract Agreement.
- E. PMC shall review and approve the Environment Management Plan submitted by the contractors and ensure that it is in accordance with contract agreements, Environmental Assessment Report, Government of India legislation etc.
- F. PMC shall review the Reliability, Availability and Maintainability (RAM) Plan submitted by the Contractors.
- G. DFCCIL shall hand over right of access to the site to the contractor as per provision of GC Clause 2.1.
- H. PMC shall give his consent to Key position CV to be provided by the contractors as per provision of the contracts.
- I. PMC shall issue manufacturer's authorisation for procurement of major items required for completion of the project as per provision of the contracts.



J. PMC shall comply with the provision of DFCCIL IT System as detailed below :

1. DFCCIL is in the process of implementing an Enterprise wide IT System through a World Bank Funded Project titled “Supply & Installation of Integrated IT System”. The objective of the IT Plan is to automate core organizational business functions/ processes and develop a working environment that enables higher efficiency and effectiveness, not only in internal functions, but across the entire ecosystem of DFCCIL, including Contractors. A total of eight (8) applications are envisaged for DFCCIL and components of the proposed system include the following elements:

- a) An ERP System for covering Finance & Accounting, HR, Project Managements, General Administration to ensure an integrated management control.
- b) A Document Management System to ensure that all drawings/critical documents related to the construction phase are well documented and archived.
- c) A Geographical Information System that will initially have details of every asset that is created. It will have the entire alignment geo-referenced. The monitoring of various Contracts is proposed to be done through Dashboards that will have a significant component of GIS.
- d) An Enterprise Asset Management that has spatial co-ordinates of every asset.



2. The proposed IT system has been designed for facilitating preservation of important artifacts (plans, drawings, notes, documents, reports etc.) in a secure and manageable environment in digitized format. Appropriate triggers will generate dashboards and management reports every time an event causes a substantial shift in project risk or timeline or is a deviation in processes developed. The envisaged system would expedite decision making, ensure better planning and co-ordination between different functions, better data

management, effective reporting, knowledge management, etc. Program Management will provide senior management with critical information related to various contracts, activities and funds in the form of management dashboards with inbuilt triggers to ensure timely decision making.

3. Since most of the Project related Data creation would happen outside DFCCIL core organization, the proposed IT system is largely dependent on data being created and uploaded by Contractors/PMC.
 4. While DFCCIL would define the data collection templates, PMC would upload actual data into the system. As such, a part of the Scope of Work of the PMC will include the following elements:
 - i) Upload/definition of Project Plans as per the template and using the software defined by DFCCIL
 - ii) Maintenance and updation of uploaded Project Plans in software used by DFCCIL
 - iii) Upload of drawings/designs created by Contractor as per the classification and on the software platform defined by DFCCIL
 - iv) Online MB (Measurement Book) Entry in Project Monitoring System, in a template defined by DFCCIL.
 - v) Asset details needs to be updated in the system in format prescribed by DFCCIL.
 - vi) Geo-referencing of the alignment on WGS 84 Coordinates
 - vii) Capture and upload of geo-referencing coordinates of the assets into GIS
 - viii) Upload of digitally signed invoices for payment processing
 5. It will be the responsibility of the PMC to ensure there is interoperability between the PMC IT System and that being developed by DFCCIL so that movement of information and data across the DFCCIL boundaries is feasible in a seamless manner. This must be factored in, by the bidders, while preparing the price bids.
- K. The PMC shall interact with DFCCIL/MOR's designated officers and staff on a regular basis and attend DFCCIL/MOR's review meeting to monitor and review the Contractor's progress during the preceding month. The PMC shall make available its assistants and other key staff, as required for these reviews. The issues discussed between the PMC and DFCCIL/MOR shall be recorded in the minutes of the meeting and remain on the agenda of subsequent meetings, until they are fully resolved.
- L. The PMC shall be available to attend meetings with JICA missions during their visits to DFCCIL/MOR and on field visits.
- M. The PMC shall make use of Management Information Systems (MIS) in carrying out its assignment and provide read-only remote access to its MIS records and reports to DFCCIL/MOR.
- N. The PMC shall be available within the effective duration of PMC contract as part of its services and cooperate to the full extent of its familiarity with the Design-Build contract during DAB meetings, arbitration proceedings and other hearings held by the statutory and legal bodies. In case the arbitration is set abroad, the reimbursement of associated expenses are not covered under the scope of this work and therefore should be decided when the situation arises.
- O. Upon completion of its assignment, the PMC shall obtain, duly classify and list all Drawings, Specifications, other Documents, results of tests and other relevant records, and transmit the list electronically to DFCCIL/MOR. Concurrently, the PMC shall furnish hard and soft copies of these listed documents to DFCCIL/MOR in an appropriate medium for safekeeping.

- P. The PMC shall ensure that works are carried out as per Employers requirement. Assist the Employer in co-ordination with different agencies and hold meetings for proper and timely implementation of the Project.
- Q. The PMC shall monitor that required liaison with State Electricity Board for modification of overhead power lines and with Railway S&T and other Railway/Central/State Government Departments for shifting/modification of underground wires, OFC cables, Pipes, tree cutting, etc., wherever required, is done by the Design Build works contractors as per the provisions of the contracts.
- R. The PMC shall inspect at regular intervals the contractor's plant and facilities, including the workers' accommodation at site, to ensure conformity with the DB works contracts and all government/state regulations.
- S. The PMC shall inspect the contractor's safety measures, including labour welfare, and immediately notify both the Employer and the contractor of any infringement or violation; including suspension of work, if required, as stated in para 4.2(e) above.
- T. The PMC shall assist the contractor to evolve a system of Quality Assurance for the works, including but not limited to, establishing testing frequencies and acceptance criteria for all materials and construction activities in accordance with the specifications. The system should specify the prescribed quality checks and their frequency to be performed, acceptable limits for each quality check and do's and don'ts for all important activities, in appropriate format acceptable to the DFCCIL/MOR.
- U. The PMC shall inspect the quality of the works with regard to workmanship, compliance with the specifications and all necessary testing required for acceptance of any item of work;
- V. The PMC shall scrutinize/review statutory applications like CRS/ EIG applications and the related follow-up work in this connection.
- W. The PMC shall carryout Testing of complete Signalling and Telecommunication installations as per the various provisions in the codes, manuals and Railways instructions and recording of complete testing data and submission to the client. The testing includes indoor testing like buzzer test of relay wiring, functional test, testing of panel with reference to approved locking table, square sheet, break test of circuits. Outdoor testing includes testing of all cables, its parameters, testing of points for obstructions, track circuits voltages, earthing measurement records, signals, axle counter, block working etc. to ensure safe working. In telecommunication, various parameters of STMs, PDMUXs, fibre losses etc. to be measured and recorded. During testing, consultant shall liaison with Railway for any correction/modification, if required, in the Railways approved drawing to ensure safety in Train operations.
- X. The PMC shall ensure compliance by the DB works contractor to all relevant laws as specified in the works contract including taking measures for alleviation of HIV/AIDS and prevention of human trafficking.
- Y. The PMC shall scrutinize the day to day consumption record of materials like cement, steel, Rail, OHE wire etc. maintained by the contractor. PMC Shall ensure that daily labour register, drawing register, hindrance register, register for payment of advances and recoveries, register for reconciliation of materials to facilitate recoveries, register for movement of field books / measurement books, site instructions book, diary of work, Quality Assurance (QA) records, etc., and any other register required to be maintained by contractor are being maintained and are up-to-date.

- Z. The PMC within its role of Engineer shall be responsible for completion of project as per scheduled time stipulated in agreement with the contractors. PMC shall direct contractor to take all necessary steps to maintain the rate of progress of works as per the approved programme of the contractor on monthly basis, review the deployment of man power, material and machinery by the contractor and assess their efficacy for timely completion of the work. PMC within its role of Engineer shall ensure timely completion of the project.
- AA. The PMC shall coordinate, review, monitor efforts of the contractors for training of personnel of DFCC at the supplier premises and training of the DFCC personnel in operation and maintenance of the system as a whole in the field.
- BB. The PMC shall review training modules for the DFCC personnel including operating and maintenance staff and provide assistance to DFCC in organizing training within and outside India for DFCC personnel in the field of modern technologies and constructions process.
- CC. The PMC shall review comprehensive online asset management system for all types of assets required for operation and maintenance of asset.
- DD. The PMC shall conduct detailed review of S&T drawing and specifications which shall include review of interlocking plan, control tables, panel diagram, signalling circuits, equipment specifications, equipment layout plans, power supply plan, Cable route plan, cable core plan, track circuit plan, cable meggering details, SWR/SWR diagram, EMC management plan, RAMS management plan, telecom channelling plan, CRS / Competent Authority Application and Sanction papers, liaison with Contractor in connection with obtaining Frequency clearance for GSM-R from concerned authorities etc., including review of any other drawing / design as per the requirements of IRSEM.
- EE. PMC shall liaison with Contractor for various tests for Signalling, Telecom and Electrical equipment as per the provisions of DB Contract.

5. Obligations and Responsibility of PMC

The Project Management Consultant shall be responsible for the following:

- a) The PMC shall ensure that all its Personnel are experienced in modern methods of construction management, monitoring and supervision. All the Personnel of the PMC should be fully aware of all relevant management procedures, method statements, work procedures, inspection and testing procedures and Contract requirements/ specifications.
- b) The PMC shall exercise reasonable skill, care and diligences in the execution of his duties.
- c) The PMC shall be responsible for the accuracy and completeness of his works.
- d) The PMC shall be responsible to ensure that the goods and services used for the project are suitable and having reasonable cost. The designs and specifications adopted on the project should not limit the requirements regarding competitive bidding. It is also essential that the PMC shall be demonstrably impartial in the performance of his duties.
- e) The PMC shall pay the most attention for close co-ordination with DFCCIL/MOR in the performance of all services.
- f) The PMC shall advise DFCCIL/MOR for engagement of all contractors, suppliers, manufacturers and other consultants, and then be responsible for coordinating all their activities.



- g) The PMC shall carry out RAMS Assessment applying reliability engineering techniques to evaluate and select alternative process technologies. According to the assessment, the PMC shall specify reliability and maintainability of the equipment, plant and system procurement process.
- h) The PMC shall record all aspects of the work covered by the project in reasonable way. DFCCIL/MOR may inspect these records from time to time during course of the contract. Acceptance of the work by DFCCIL/MOR shall not relieve the PMC of their professional obligations to correct any errors in their work at their own cost.
- i) The PMC will assist DFCCIL/MOR for taking necessary action with regard to various environmental aspects. PMC shall monitor the progress in these matters and report to DFCCIL/MOR.
- j) The activities of PMC will be monitored and quality assurance inspection for the activities will be done by DFCCIL/MOR.
- k) All the plans, drawings, engineering specifications and similar materials, and any data and all records or documents pertaining to the work shall be treated as confidential by PMC and shall not, without written consent DFCCIL/MoR, be made available to any person and shall be delivered to DFCCIL/MoR upon completion of the work and shall become the property of DFCCIL/MoR. However, PMC may retain, for his own record, the copies.

6. Reporting

- 6.1 The PMC shall prepare and deliver reports including but not limited to those provided hereunder. Each of such reports shall be reviewed and commented by the DFCCIL/MOR preferably within 14 days of the receipt of the report. The PMC shall thereafter revise and modify the report to comply with DFCCIL/MOR's observations and resubmit not later than 7 days of the receipt of such observations. Further, during course of the Consultancy, the DFCCIL/MOR may, at any time, instruct the PMC for further changes in these reports which the latter shall comply within 7 days of such instruction.

The PMC shall prepare the following reports and documents in hard / soft copy using relevant software program and submit to DFCCIL/MoR, the required number of copies of the reports, in the format acceptable to DFCCIL/MOR:

6.2 Inception Report

The PMC shall submit an Inception Report (10 copies in English) within 21 days of commencement of services presenting technical appreciation of the service requirement and identifying both the overall work plan and the analytical steps to reach solutions. The report should provide the service methodology, approach and provisional programme for completion of the project.

The Inception Report shall be a further elaboration of the PMC's submissions towards understanding of the Tender, the methodology to be followed and work plan. It shall also include quality assurance plan system of the PMC's own working and including, but not limited to, quality policy, organizational structure, organizational chart, roles and responsibility of various positions, names of personnel proposed to man these positions, list of management procedures and element comparison schedule. Roles and responsibilities of Key Personnel and Other Professional Personnel specified shall be expanded and detailed by the PMC so as to make each Professional Personnel responsible for specific items in a manner that all items of the Terms of Reference are distinctively covered.

Accordingly, as a part of the inception report, the PMC should clearly bring out its plan:

- a. to supervise the contractors on site works, including the site organization proposed to support this activity;
- b. how is it planned to ensure that the desired quality of work is maintained by the contractors;
- c. method of checking contractor's invoices for the works and ensuring its integrity; and
- d. adequacy and verification of the type of equipment brought to site by the Contractor to ensure that works progress as per the agreed schedule

The PMC shall deliver detailed management procedures which will describe how the PMC will carry out the scope of Services and discharge its responsibility contained in the TOR. The management procedures shall be prepared for various Consultancy management activities including but not limited to personnel recruitment, training, document control, work inspections, material inspections, measurement checks, quality control, and design control.

6.3 Daily report

The PMC shall prepare and submit a daily report including significant events, if any, on the previous day. The report shall be sent by e-mail or fax to the Employer's head office and the Employer's representative at site. This report will also include any event/happening which is likely to affect the progress, quality of work and safety.

6.4 Weekly Progress Report

During project execution phase, a weekly progress report will be submitted by the PMC regarding progress of DB contract works. This report will be submitted in soft copy through e-mail.

6.5 Monthly Progress Report

A Monthly Progress Report (20 copies in English) shall be submitted by the PMC to DFCCIL/MOR. This report shall be submitted by the 5th day of each calendar month and shall account for all work actually performed up to the end of the previous month. **The monthly report shall be submitted in a format approved by DFCCIL/MOR and shall contain sections/sub-sections for, but not be limited to, the topics listed below:**

(1) Programme update

The PMC shall maintain the Project programme including:

- The Monthly Programme Update: actual activity completion dates and percentage of activities completed up to the end of the month of the report shall be indicated. The report shall also indicate estimates of remaining duration and expected activity completion based on current progress. The Monthly Programme Update shall be accompanied by an Activity Report and a Narrative Statement.
- The Programme Status: cumulative progress of work up to the end of the month and a forecast of work remained shall be indicated.
- Activity Variance Analysis: activities planned to start prior to or during the report period but not started and activities started and/or completed in advance of the Works Programme shall be analysed.

(2) Milestone status

The PMC shall monitor status of all Milestones due which have been achieved during the month and forecasts of achievement of any missed Milestones, and those due in the next month.

(3) Procurement report



The PMC shall report on procurement, including:

- A summary of all significant procurement activities performed by the contractors during the month and details of outstanding actions.
- A report of plant and materials which will be incorporated into the works. The items shall be classified by type as listed in the specifications and the report should show as a minimum the following activities:
 - Purchase order date – schedule/actual
 - Manufacturers/suppliers and origin
 - Letter of credit issue date
 - Manufacturers/suppliers shipping date – schedule/actual
 - Method of shipment
 - Arrival date in India – schedule/actual
 - Analysis of any delay happened/anticipated with proposal for corrective measures
 - Factory testing report details.

(4) Safety health and environment (SHE) report

The PMC shall report on SHE, including a review of all safety aspects during the month including reports on all accidents and actions proposed to prevent further occurrence.

(5) Environmental Monitoring report

The PMC shall report on Environmental monitoring with up-to-date status and position with respect to the agreed plan.

(6) Quality report

The PMC shall report on quality, including a review of all major non-conformances during the month including reports on actions proposed to prevent further occurrence.

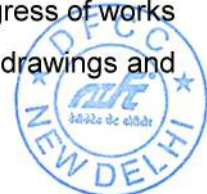
(7) Financial report

The PMC shall report on financial aspects including:

- A report of all significant financial matters, reviewing all payments due and made, and action proposed or taken in respect to any outstanding matters.
- A schedule indicating the status of all variations and expenditure forecast.
- A schedule of outstanding claims (if any). The report shall provide interim updated accounts of continuing claims.

(8) The Monthly report shall also include

- Status of work performed during the previous month, significant accomplishments, including critical items and problem areas, corrective actions taken or planned, and other problems and resolutions
- deployment of technical and supervisory staff by the Contractor and progress of construction work with reference to the targets
- Measures aimed at course corrections – their requirement and their implications
- Unresolved claims, their genesis, justifications and recommendations on the same
- Staffing schedule of PMC, mobilization/demobilization status, comparative statement of payments made to the PMC with respect to the progress of works
- details on progress of checking of designs/drawings/approval of drawings and specifications for construction
- List of approval sought and given



- Interface issues, their resolution and pending issues
- Testing report/ progress of installations.

6.6 Quarterly Report

The PMC shall submit a detailed Quarterly Report(5 copies in English) within 14 days from the end of each quarter. Quarterly reports should include a description of project activities illustrated by progress/completion photographs, status of any delays and detailed plan to make up any shortfall or deficiency, status of contractual claims, and details of all latest financial projections.

6.7 Completion Report

The PMC shall prepare detailed **Work Completion Reports** (5 copies in English), separately for each contract package, inclusive of all data and drawings (including soft copies) pertaining to the execution of the contracts which shall be submitted at the commissioning of the works.

The PMC shall prepare detailed **Contract Completion Reports** (10 copies in English), separately for each contract package, inclusive of all data and drawings (including soft copies) pertaining to the execution of the contracts which shall be submitted at the completion of the contracts. These reports will include experience during the defect liability period.

The PMC shall prepare an Executive Summary Report (15 copies in English, one original, loose set in English), covering in a refined form, the main summary of the material contained in the Completion Reports, which shall be submitted along with Work and Contract completion reports.

6.8 Any other report as sought by the Employer from time to time.

7. Staffing for Supervising Consultancy Services

7.1 PMC shall deploy its personnel Contract package wise and shall regulate their deployment as per the progress of the D&B contracts as mentioned in para 1.5 under the head of 'Contract Strategy'. PMC shall seek and obtain consent of Employer at appropriate level, i.e. not below the level of CPM/ GM of DFCCIL for Part 'A' of Contract and not below the level of ED/ Railway Board for Part 'B', for any mobilization and demobilization of its personnel. Depending on the pace of the progress on the project, DFCCIL/MOR may require PMC to adjust and regulate the deployment of their personnel.

7.2 Considering the multi-disciplinary nature of project, PMC team is required to have expertise in the following disciplines, but not limited to:

- Project management
- Project control
- Programme management
- Cost management
- Safety health and environment management
- Environmental Management and Monitoring Plan (EMMP)
- Quality management
- Technical expertise (design and construction)
 - Civil Engineer
 - Bridge Engineer
 - Structure Engineer
 - Steel Structure Engineer
 - Material Engineer



- Geo-Technical Engineer
- Soil Mechanical Engineer
- Tunnel Engineer
- Survey Expert
- Alignment Engineer
- Track Engineer
- Signal Engineer
- Telecommunication Engineer
- E&M Engineer
- Substation Engineer
- Catenary Engineer
- SCADA Engineer
- Locomotive Expert
- Train Operation Expert
- OCC System Expert
- Manual Expert
- Station Architecture
- Signalling
- Railway operations and maintenance
- Training
- Construction management / supervision

PMC shall provide in the proposal for staffing schedule for the entire period of the implementation of the project including the period of commissioning and defect notification period.

- 7.3 The tentative requirement of experts for supervising the project as per Client's requirement is enumerated below. The PMC shall take this into consideration while preparing his proposal for Organization and Staffing to be submitted with the bid offer.

7.3.1 **Part 'A': PMC services to DFCCIL:**

	Professional-A: Professionals having International experience of working in developed and developing countries.	
A01:	Project Director	
A02:	Chief Finance Manager	
A03:	Chief Environmental Engineer.	
A04:	Chief Safety Expert	
A05:	Chief Civil Design Engineer	
A06:	Chief. Electrical Design Engineer	
A07:	Chief Signal Design Engineer	
A08:	Chief Telecom Design Engineer	
A09:	Chief. Material Engineer (Civil)	
A10:	Chief Material Engineer (Elect.)	
A11:	Chief Material Engineer (S & T)	
A12:	Chief Contract Administration Expert	
A13:	Chief Quality Expert	
A14:	Chief Train Operation Expert	
A15:	Chief Resident Engineer.	
A16:	Chief Engineer (Civil)	
A17:	Chief Engineer (Elect.)	
A18:	Chief E&M Engineer	



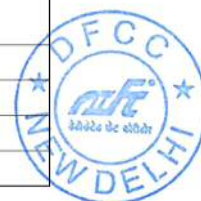
A19:	Chief Engineer (Signalling)	
A20:	Chief Engineer (Telecom)	
A21:	Chief Engineer Quality	
A22:	Chief Engineer (Environment)	
A23:	Chief Engineer (Safety)	
Professional-B1/B2: Professionals having experience of working in the Employer's Country		Proposed Category
B01:	Deputy Project Director	B1
B02:	Coordinating Manager (Civil)	B1
B03:	Coordinating Manager (Elect.)	B1
B04:	Coordinating Manager (S & T)	B1
B05:	Administrator Manager	B1
B06:	Finance Manager	B1
B07:	Environmental Engineer	B1
B08:	R & R Specialist	B1
B09:	Labour Protection Specialist	B1
B10:	Safety Expert	B1
B11:	Alignment Engineer	B1
B12:	Civil Design Engineer	B1
B13:	Bridge Design Engineer	B1
B14:	Track Design Engineer	B1
B15:	Tunnel Design Engineer	B1
B16:	Geotech Design Engineer	B1
B17:	Electrical Design Engineer	B1
B18:	Design Engineer (Signalling)	B1
B19:	Design Engineer (TMS/Control)	B1
B20:	Design Engineer (Telecom)	B1
B21:	Material Engineer (Civil)	B1
B22:	Material Engineer (Elect.)	B1
B23:	Material Engineer (S & T)	B1
B24:	Contract Manager (Civil)	B1
B25:	Contract Manager (Elect.)	B1
B26:	Contract Manager (S & T)	B1
B27:	Quality Expert (Civil)	B1
B28:	Quality Expert (Elect.)	B1
B29:	Quality Expert (S & T)	B1
B30:	Train Operation Specialist	B1
B31:	Resident Engineer (Civil)	B1
B32:	ARE (Earthwork)	B2
B33:	ARE (Bridge)	B2
B34:	ARE (Structure)	B2
B35:	ARE (Track)	B2
B36:	ARE (Geotech)	B2
B37:	ARE (Tunnel)	B2
B38:	ARE (Survey)	B2
B39:	ARE (Lab)	B1
B40:	ARE (Coordination)	B1
B41:	Resident Engineer (Traction)	B1
B42:	Resident Engineer (Non Traction)	B1
B43:	ARE (OHE)	B2
B44:	Resident Engineer (PSI)	B1



B45:	ARE (SCADA)	B2
B46:	CAD Expert (Elect.)	B1
B47:	ARE (RAMS)	B2
B48:	Resident Engineer (Signalling)	B1
B49:	Resident Engineer (Telecom)	B1
B50:	ARE-Track Detection & Interlocking	B2
B51:	ARE-Procurement (S & T)	B2
B52:	ARE (Telecommunication)	B2
B53:	ARE Inspection/Testing/Commissioning-Signaling	B2
B54:	ARE/Inspection/Testing/Commissioning-Telecom	B2
B55:	ARE TMS/Control	B2
B56:	ARE (TPWS)	B2
B57:	ARE-RAMS	B2
B58:	ARE (GSM-R)	B2
B59:	ARE (Interface)	B1
B60:	CAD Expert (S&T)	B1
B61:	ARE Quality (Civil)	B1
B62:	ARE Quality (Structure)	B1
B63:	ARE Quality (Track)	B1
B64:	ARE-Quality-Electric-Traction	B1
B65:	ARE-Quality-Electric-Non Traction	B1
B66:	ARE-Quality-Signalling	B1
B67:	ARE-Quality-Telecom	B1
B68:	ARE-Safety-Civil	B2
B69:	ARE-Safety-S&T	B2
B70:	ARE-Safety Electric	B2
B71:	ARE-Environment	B1
B72:	ARE R & R	B1
B73:	ARE-Labour Issues	B1
B74:	Taxation Expert	B1
B75:	Legal Expert	B1

7.3.2 Part 'B': PMC services to MOR

	Professional-A: Professionals having International experience of working in developed and developing countries.
A24:	Electrical Design Expert
A25:	Mechanical Design Expert
A26:	Quality Management Expert
A27:	EMC Expert
A28:	Technology Transfer Expert
A29:	ELMD Expert
	Professional-B1/B2: Professionals having experience of working in the Employer's Country
B74:	Electrical Design Expert
B75:	Mechanical Design Expert
B76:	Quality Management Expert
B77:	EMC Expert



B78:	Technology Transfer Expert
B79:	IT Expert
B80:	Software Expert
B81:	Field Trial Expert
B82:	Commissioning Expert
B83:	Contract Expert
B84:	Administrative Manager
B85:	Co-ordination Manager
B86:	ELMD Expert

7.4 The qualification of key professionals shall be as given below:

Project Director (Pro-A)	Academic qualification	Minimum Bachelor's Degree in Relevant field.
	General Work Experience	Minimum 20 years
	Experience in Railway/Transport Projects	more than 10 years
	Experience as Project Director/ Project Manager/Project Director / Zonal Project Manager etc.	more than 7 years
	Overseas Project Experience	more than 5 years
Deputy Project Director (Pro-B)	Academic qualification	Minimum Bachelor's Degree in the discipline of Relevant field.
	General Work Experience	Minimum 20 years
	Experience in Railway/Transport Projects	more than 10 years
	Experience as Deputy PD/ Deputy PM/ Deputy TL etc.	more than 5 years
	Experience working with International Organization (Donor/Consultant)	more than 5 years
Other Key Experts (Pro-A)	Academic qualification	Minimum Bachelor's Degree in the relevant field
	General Work Experience	more than 12 years
	Experience in Same/Similar Position	more than 6 years
	Overseas Project Experience	more than 3 years
Other Key Experts (Pro-B1)	Academic qualification	Minimum Bachelor's Degree in the relevant field
	General Work Experience	more than 12 years
	Experience in Same/Similar Position	more than 6 years



Other Key Experts (Pro-B2)	Academic qualification	Minimum Bachelor's Degree	Minimum Diploma Certificate
	General Work Experience	more than 6 years	more than 12 years
	Experience in Same/Similar Position	more than 3 years	more than 6 years
Site Supervisors/ Technical Support Staff (Pro-C)	Academic qualification	Minimum Bachelor's Degree in relevant field	Minimum Diploma Certificate in relevant field
	General Work Experience	-	more than 2 years
Non-technical Support Staff (Pro-C)	Academic qualification	Minimum Bachelor Degree in relevant field for Accountant, Secretaries	
	General Work Experience	Minimum 10 th standard schooling for Office Boy more than 2 years	

Note: The deployment of Site Supervisors/ Technical Support Staff (Pro-C) would be dealt with in the following manner:

(i) Up to 25% of the strength to be deployed would be made up of fresh candidates satisfying the above stipulated respective minimum Academic qualification criteria.

(ii) At least 75% of the strength to be deployed would be made up of candidates possessing the above stipulated respective minimum professional experience.

8. Authority delegated to PMC and Activities/Issues requiring Specific Approval of the Employer

8.1 The Project Director/Team Leader of the PMC shall act as 'Engineer' on behalf of the Employer and exercise such authority as may be delegated by the Employer for day-to-day working. Team Leader may further allocate and delegate such authority, as may be necessary for effective management of the Consultancy, to other Key Personnel in the PMC's organization such as Resident Engineer, Design Engineer etc. The Engineer will be required to obtain the specific approval of the Employer in the matters as specified in construction Contract Agreement. All communication from the PMC shall be carried out by the Team Leader or such Personnel who have been delegated the requisite authority. One copy of all correspondences emanating from the PMC addressed to other than the DFCCIL/MOR shall invariably be marked to DFCCIL/MOR.

8.2 DFCCIL/MOR will authorize the PMC to exercise following powers subject to the overall control and directions of DFCCIL/MOR:

- To exercise the powers of Engineer as stipulated in the contract documents for all contracts and, in particular, to ensure the conformity of the works under execution to the approved designs/drawings/specifications etc.



- To act on behalf of DFCCIL/MOR in coordination and other matters with Government Departments, City Authorities, and other statutory bodies as directed by DFCCIL/MOR.
- To scrutinize and issue Non Objection Certificate to all designs and drawings, except where approval of DFCCIL/MOR has been specified, of structures, Electrical installations, Signal and Telecommunication, Rolling Stock etc., and to enable the work proposals submitted by the contractors, in respect of their adequacy to conform to the design standards approved by DFCCIL/MOR.

8.3 The PMC shall, however, not have any power in respect of the following and shall obtain prior permission and specific approval of DFCCIL before taking appropriate decision in these matters:

- (i) Amending the 'Contract for Works' awarded to the Contractor.
- (ii) Agreeing or determining an extension of time and/or additional cost for any reason.
- (iii) Issue of Performance Certificate.
- (iv) Giving consent to proposed Subcontractors pursuant to Sub-Clause 4.4 of General Conditions
- (v) Approving a proposal for Variation submitted by the Contractor, except
 - a) In an emergency affecting the safety of life or of the works or of adjoining property or track, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk.

In case the emergency mentioned above occurs on account of failure of Contractor, by way of not adhering to the sound industry practice or not taking adequate safety precautions, then no amounts shall be paid to the Contractor for attending to such emergencies.
 - b) If the variation is beyond a limit of 0.05 % of contract price in a single instance and combined with all variation orders previously issued, increase the original Contract Price by more than 2%. The Employer shall, on the best effort basis, give its decision on Engineer's proposal of variation within 21 (twenty one days) of the receipt of the proposal.
- (vi) Agreeing or determining a new rate/extra item
- (vii) Relieving the Contractor of his duties, responsibilities and obligations stated in their contract agreements.
- (viii) Approving concept design & drawings and GADs submitted by the Contractor for Alignment, Major bridges, Rail Fly Over, etc.
- (ix) Approving Design and Drawing for Works requiring sanction of Commissioner of Railway Safety/ Competent Authority.
- (x) Approving Design and Drawings which require Employer's approval as per Employer's Requirement and Specifications
- (xi) Approving S&T drawing viz. Signal Interlocking Plan, Control Table, Typical Wiring Diagrams, Typical cable core plan, Telecom Design, S&T material before dispatch from manufacturer's premises
- (xii) Exercising authority for items other than those provided in these 'Terms of Reference' and stipulated in the PMC's Contract Agreement.



- 8.4 PMC team members under category Professional A, B and C will be fixed as agreed on acceptance of the consultancy bid offer. In general, no changes in the agreed man-months will be desirable. However, for modifications required under exceptional circumstances, prior approval of DFCCIL/MOR will be required.

9. Deficiency of Services

- 9.1 The Consultancy Services shall have to be completed in all respect by the PMC within a time period as specified under Clause 12 of this TOR. PMC shall deploy manpower commensurate with the progress of underlying Contract Packages. Duration of Consultancy Services, if required, shall be extended to the extent considered reasonable by DFCCIL/MOR. In case of any extension of time, the PMC shall complete the Services in all respect within such extended time.
- 9.2 Deficiencies in the services on part of the PMC may attract Liquidated Damages, upto a maximum cumulative amount of 2.5% of PMC contract price and/or debarment etc., by the client. For every week of delay solely attributable to acts of PMC or due to non-deployment or delayed deployment of personnel by PMC with respect to Milestones or Coordinating Events as defined in various Contract Documents covered as per this Consultancy, Liquidated Damage @ 0.05% of the PMC Contract Price, multiplied by the percentage weightage as given below of the contract package in which delay has taken place, shall be imposed on the PMC:

Part 'A'

<u>Contract Package</u>	<u>Weightage</u>
CT P-11	12%
CT P-12	12%
CT P-13	12%
CT P-14	12%
CT P-15A	4%
CT P-15B	4%
CT P-15C	4%
EM P-16	24%
ST P-17	16%
Total	100%

Part 'B'

<u>Contract Package</u>	<u>Weightage</u>
RS P-7	100%

- 9.3 Part 'A' and Part 'B' of the PMC Contract shall be considered separately for imposition of LD as per Clause 9.2 above. For this purpose, Contract Price shall mean price of the concerned part of the Contract i.e. of either Part 'A' or Part 'B'. Similarly, Milestones and Coordinating Events shall refer to these applicable to the concerned part of the Contract.
- 9.4 The following shall constitute deficiency in service but the list is not exhaustive:
- (a) Not acting impartially or acting in collusion with contractor in making remarks on variation statement, fixation of rates of new items, etc.



- (b) Not keeping proper records regarding quality control, inspection, rejection/rectification of work etc.
- (c) Failure to give proper and timely advice to client/contractor to enable correction during execution
- (d) Delay in design review and withholding approvals etc.
- (e) Recommending extension of time of D&B contract with a view to extend duration of supervision services
- (f) Refusing to give reasons for decisions when called for by the client
- (g) Not ensuring safety of work endangering public life/ train movement on adjacent IR track
- (h) Not being fully conversant with manuals, specifications, standards, DFCCIL's/Railway Ministry's guidelines and requirement of the project to be followed during construction
- (i) Certifying substandard work for payment
- (j) Certifying payment for work in excess of the work actually executed
- (k) Not exercising required check on permanent / temporary works
- (l) Lack of proper coordination with contractors and DFCCIL/MOR officials in Headquarters as well as in field thus hampering smooth implementation of Project.
- (m) Permitting subletting of any part/major works without authorization
- (n) Frequent replacement of Personnel/ Professionals of the PMC

10. Engagement of other consultant/ agencies

- 10.1 DFCCIL/MOR may appoint independent Quality and Safety auditing teams for independent auditing of the quality and safety of works.
- 10.2 PMC shall suggest modalities of testing and acceptance for material for Factory Acceptance Test (FAT) required as per approved specifications. This inspection and testing shall be arranged by the PMC through independent specialized inspecting agencies approved by DFCCIL/MOR. The cost incurred on inspection and testing will be reimbursed to the PMC by DFCCIL/MOR on actual basis.

11. Services and facilities to be provided by DFCCIL / MOR

11.1 Part 'A': PMC Services to DFCCIL

- 11.1.1 The construction Contractor(s) shall provide staff and maintain a laboratory for each construction package including testing equipment, hard furnishing, water supply, electricity and cooling/heating equipment, which shall be made available for use by the PMC. Maintenance of the laboratory by the Construction contractor shall include the cost of the electricity, water and all consumable for testing. The construction contractor will be responsible for carrying out quality control tests at site. Material Engineers of the PMC shall be required to monitor lab testing and to carry out test checks as necessary to verify compliance with the construction contract.
- 11.1.2 Power supply for the systems is to be AC 230 volts, 50 Hz from normal building wiring circuit mains. Power regulator, stabiliser or transformer should be supplied by the Contractor for the computer systems such that the systems can function efficiently.
- 11.1.3 The PMC shall detail in his technical proposal, required provision for transport (vehicles and drivers), office space, office equipment and office stationery, which he considers

necessary to successfully carry out the services for implementation of the construction packages for which he is responsible. The Consultant shall also include the price of those items in his Financial Proposal.

- 11.1.4 **Site Offices:** Site office will be provided by the Contractor as listed in Bid document Vol II (Employer's Requirement) in Appendix 9 (Temporary Works). 11.1.5 **Furniture and other Office Equipment:** The consultant shall maintain the following new furniture and equipment in the offices for a period starting within one month of the date of commencement of the works until the defect liability period is over.

SINo.	Description of Item
1	Conference table (2000 x800)
2	Conference chairs
3	Glass-fronted lockable bookcase
4	Swivel office chair with armrests
5	Swivel office chair without armrests
6	Typist chair
7	Visitors chair
8	3-shelf bookcase
9	4-drawer filing cabinet
10	Heavy Duty Paper Shredders
11	Tele-facsimile transmission/reception facility connected to a dedicated line with ISD facility
12	Telephone switchboard connected to 2 external Lines at each office with STD/ISD, and with independent internal communication Facilities with conference facilities.
13	First aid kits for up to 36 persons
14	Safety helmets
15	Safety harness
16	Pairs steel toed construction boots (Sizes to be advised by the Engineer)
17	Day-glow waistcoat
18	Pairs industrial safety goggles
19	Breathing masks and filters
20	Double Pedestal Desk
21	Single Pedestal Desk
22	Plan chest
23	A 0 size drawing hanger for 1000 drawings
24	Floor mounted safe
25	A0 digital document system (xerox 8830 dds or similar) capable of printing, scanning, copying, reduction and enlargement in RE office.
26	Required spares, ink cartridges and papers of sizes and types for Scanner, Printer cum Photocopier as mentioned in items 18 and 10 above including maintenance contract for the machines to ensure defect free operations for the period upto Defect Notification period.

11.2 Part 'B': PMC services to MOR

- 11.2.1 If required, MoR will provide available unfurnished office space for the site office of consultant at Chittaranjan, Kolkata (Dankuni) and Rewari.

12. Duration of Consultancy Service

- 12.1 The estimated duration of consultancy services to DFCCIL(Part 'A') is for a period of 6



years from date of award of consultancy contract including 4 years of Construction Period and 2 years of Defect Notification Period. For ST P-17 except for "Supply, Installation, Testing and Commissioning of TPWS On Board Equipment and Cab Radio on Locomotives", the estimated duration of consultancy services would be 6 years. However, for the above two activities related to Locomotives, the estimated duration of consultancy services would be 96 months in line with the duration of consultancy services for Contract Package Rs P-7 (Procurement of Locomotives and other works). The duration of consultancy services to MOR(**Part 'B'**) for Contract Package RS P-7 (Procurement of Locomotives and other works) is 96 months. PMC shall commence the services on the "Starting Date" to be stipulated in the Notice to Proceed. The Services shall be completed within the tentative time frame for the project, as indicated in the Implementation Schedule.

- 12.2 PMC shall deploy its personnel Contract Package wise and shall regulate their deployment as per the progress of the D&B contracts as mentioned in para 1.5 of TOR under the head of 'Contract Strategy'.
- 12.3 The Consultancy shall be completed on successful commissioning of the Project(s) and submission by the PMC of all as-built drawings and other reports of the Project and the Consultancy to the DFCCIL/MOR. All such drawings and reports shall remain the property of the DFCCIL/MOR and shall not be used for any purpose other than that intended under these Terms of Reference. The Consultancy services shall stand completed on acceptance of all the required deliverables of the PMC by the DFCCIL/MOR and issue of Completion Certificate by the DFCCIL/MOR to PMC. Separate Completion Certificates shall be issued by DFCCIL and MOR for the consultancy services provided to them (for Part 'A' and Part 'B' respectively). 80% of Performance Guarantee (Ref. CI 3.13 of Special Conditions of Contract) shall be released on issue of Completion Certificate by DFCCIL (on completion of Part 'A') and the balance 20% after issue of the same by MOR (on completion of Part 'B').



Annexures to TOR

- Annex 1 Impact assessment for Environmental and Social aspects
- Annex 2 Safety, Health and Environment (SHE) Requirements
- Annex 3 Manufacturing, Installation, Testing and Commissioning requirements
- Annex 4 Inspection and Testing Philosophy for Electrical Works
- Annex 5 Inspection and Testing for S&T Works
- Annex 6 Contractor's Coordination with Others (Interface Management Plan)
- Annex 7 Physical Interface Issues between RS P-7 & EM P-4



Annexure 1**Impact assessment for Environmental and Social aspects**

Impact assessment for the Environmental and Social Issues for execution of Works Contract, for which the present Project Management Consultancy (PMC) Service is called for, may cover all aspects of the natural and social environment so as to take care of the adverse impacts and also to ensure that the project does not create any hazard or affect the quality of life for present and future generation. With the following points to be taken as the base of this;

- Green belt development
- Queries/borrow areas management and rehabilitation
- Noise and vibration management and control
- Appropriate water management including hazardous materials
- Soil erosion control
- Occupational health safety management.
- Good Construction Practices.

The terms for the impact assessment shall be as under:

1. Pollution Control Mechanism

- i) Noise & Vibration
 - Survey of present scenario
 - Impact assessment during Construction Phase
 - Impact assessment during Operation Phase
 - Impact with special reference to existing sensitive receptor/s
 - Measures for environmental impact mitigation and suggestions to counter like construction of sound proof walls, train operation schedule etc.
 - Notify the local people in case of blasting or similar activities.
 - Such activities be done at different time intervals to curtail the noise level.
 - Equipments should have mufflers to reduce the noise level.
 - Equipments should be properly lubricated
 - Honking by trucks and dumpers strictly prohibited.
 - Avoid night time activities as sensitivity to noise increases in the night.
 - Periodic inspection and effective maintenance of vehicle and equipments.
 - Periodic monitoring of noise and vibration level.
- ii) Water Pollution
 - Survey of the major river quality
 - Analysis of results
 - Impact assessment
 - Mitigation measures
 - Periodic monitoring of water quality
 - Required water for construction be drawn from surface water bodies only after obtaining prior permission of appropriate government's department.
 - If groundwater to be drawn, permission from State Groundwater Authority be taken.



- Waste water from construction yard and workers 'camps be treated before being discharged into surface water bodies to avoid siltation.
 - Minimize turbidity in the river water by activities such as major earthwork for important bridges only during the dry period, care during construction of bridge, piers for coffer dams.
 - Comprehensive planning to conserve water using best practices along with artificial recharging mechanism.
 - Water courses not be blocked during construction but suitable culverts and drains be provided for free flow of water.
 - Reduce wastage of the existing water resource.
- iii) Air Pollution
- Survey of the ambient air quality
 - Analysis of results
 - Impact assessment
 - Mitigation measures by consulting the local Pollution Authority for complying with relevant air quality loss.
 - Sprinkling of water at dust prone area.
 - Maintenance of equipments and trucks for better results.
- iv) Soil Contamination
- To adopt all sorts of mitigation measures and also to suggest counter techniques to take care of leakage of asphalt emulsifier at road pavement or to minimize the impact of soil contamination through the leakage of oil from vehicles.
 - Appropriate design of stop pipe to be observed
- v) Waste Disposal
- To study the type of construction waste like asphalt chunk, chunks of concrete, surplus soil and construction scrap materials etc.
 - Planning of reuse of the surplus soil for construction of embankments etc.
 - Compliance with relevant laws pertaining to the disposal of solid waste and hazardous waste.
 - Hazardous waste management plan should be prepared and implemented for disposal of waste oil, batteries etc.
 - Eco sensitive areas and water courses should be kept in mind to avoid disposal therein.
 - Removal of garbage, debris and hazardous materials as per relevant rules.
- vi) Bottom Sediment
- During construction of bridges over the rivers preventive measures like silt fencing etc. may be resorted to.
 - Construction of silt fencing at the base of embankment construction site and around the stockpiles.
 - Construction of enclosures for materials containing fine particles.
 - No dumping of material into natural drains.
 - Provision adequate cross drainage channels for smooth passage surface run-off.



- Suitable drainage at construction site and camp to avoid formation of stagnate pool of water.
- vii) Electromagnetic Radio Wave Interference
 - Measures to avoid negative impact to the residential along the proposed DFC alignment.
- viii) Obstruction of Sunlight
 - Appropriate level designing to avoid negative impact.
- ix) Disasters
 - Seismic factors to be appropriately incorporates in the civil and structural design of the major structures
 - Adequate cross drainage channels (longitudinal and median drains) to be provided.
 - Involvement of specialist to identify any slope in stability potential, any unstable or rock joint rupture hazard, to study bed rock geology along with characterization of weak zones in critical hill blocks.

2. Natural Environment

- i) Flora
 - Loss of forest cover/tree – All legal requirements including formal clearance be ascertained before proceeding
 - Appropriate compensatory plantation be carried out as per the rules in vogue. Reference be given to mixed plantation consisting of flowering shrubs and evergreen ornamental trees with less timber and fruit value.
 - Action Plan be prepared for tree cutting to avoid uncontrolled and indiscriminate cutting.
 - Consult State Wildlife Warden and key officials for clearance under Wildlife Protection Act, 1972 for the protected area.
 - Consult State FD and submit any application for Forest Clearance under the FCA.
 - Comply with all stipulated condition of forest clearance when granted.
 - Special care be taken of eco sensitive area like Gulistanpur and Aravali Regions.
 - Green Belt development at container terminals and at sensitive locations such as residence areas.
- ii) Fauna
 - Fencing and development of safe passage for wildlife and local residence.
 - Detailed study of SGNP to ascertain future development aspects.
 - Study of Gulistanpur Reserve Forest Area to minimize the loss of habitat.
 - No hunting, poaching or unnecessary habitat destruction.
 - No construction camps or quarries in Wildlife Habitat areas e.g. eco sensitive zones.

3. Aravali Eco Sensitive Area

- i) Geotechnical and Slope Stability Study – Study on rock slope stability with suitable expertise like CBRI, CSMRS and GSI.



- ii) Standard Penetration Test Borings – Detailed study for assessment for liquefaction potential to be taken up during pre-construction stage.
- iii) Hydro-geological Investigation and Permeability Tests – Detailed study for characterization and assessment of groundwater flow in the underline aquifers to establish groundwater recharge rates and their mechanism as well as changes in the post project scenario.
- iv) Safeguard of Groundwater Dependent Ecosystems – To conduct study with an objective to work out strategies and technical measures to safeguard the discharge of the springs.
- v) Groundwater use in the Construction Phase – To undertake detailed studies to establish the geochemical profile of the groundwater as well as the environmental impact of any further groundwater withdrawal also with an idea to develop a comprehensive plan for rain water harvesting.
- vi) Hydrological Studies – Detailed hydrological studies be taken up in the area at micro watershed level to plan the diversion and drainage system at the detailed engineering or pre-construction stage.
- vii) Groundwater Monitoring – Optimum number of purpose built groundwater observation wells be constructed and a baseline data set be established for regular monitoring through the construction period via specially built piezometer wells at designated sites. An optimal monitoring network to continue to monitor impacts on groundwater sources at a specify frequency throughout the pre-construction, construction and post project period.

4. Soil Erosion

- Appropriate measures for borrow area management should be taken.
- Management of tree cutting, excavation of borrow area, oil spills from the operation of pumps and storage and diesel genset etc. should be taken care of to minimize impact.
- Proper drainage system be provided
- Reuse of top soil from the construction sites for construction of embankments
- Use of fly-ash and its products as a substitute of top soil.

5. Groundwater

- Formation level in the tunnel section to be considered to minimize the impact on the hydrological conditions in each watershed resulting from seepage on both side of the tunnel.
- Co-relation between rainfall and groundwater level be adequately analyzed.
- Geological structure investigation through field reconnaissance of surface condition and aerial photo analysis be conducted.
- Water to be adequately treated to the level of same or better quality and water recharge to the local community be considered.

6. Hydrological Situation

- Adequate drainage system be considered to allow surface water flow in the water shed upstream of the Railway construction area based on hydrological analysis of the area.

7. Landscape



- Suitable landscaping and plantation activities and slope protection activities be considered to minimize the aesthetic impacts.

8. Social Environment

- i) Local economy
 - Priority employment to the local people as skilled/unskilled workers
 - Employment of people affected by the land acquisition on priority.
 - Restoration of Agriculture land and irrigation sources be replaced
 - Regional severance be regained through alternative passage.
 - Equitable opportunity for ethnic and vulnerable groups to participate in consultation process.
 - Proper sanitation facilities be installed.
 - Mass awareness campaign for hazardous diseases
- ii) Occupational Safety
 - Handling and implementation be taken care of to avoid accidents. Proper warning/alarm system/safety walls/fences etc. be provided.
 - Safety rules be followed along with provision of personal protective equipments, safe stocking of materials, ban on smoking, first aid kits, regular medical facilities with the list of nearby hospitals
 - Locate Labourer camps away from inhabited areas and river or streams. Secure all construction sites with tamper proof fence with security lighting and regular security patrol.
 - Safe storage and stacking of materials.
- iii) Other Environmental Issues
 - Borrow Pits and Quarries – All construction materials to be obtained from existing licensed quarries as far as possible, otherwise adhere to necessary approval process. Such areas should be away from human settlements and sensitive receptors.
 - Temporary use of land – Inform proposed use of land to the owner and reinstate it after use to owner's satisfaction.
 - Accommodation camp management – Provide proper accommodation, canteen, bathrooms for men and women separately, garbage bins etc. Waste water be suitably treated and disposed as per applicable standards.
 - Contractor's demobilization – All garbage, debris and hazardous materials be removed, filling up all trenches and remove all equipments, plants and materials from the site.
 - Traffic diversion and detours – Temporary traffic detours be kept free of dust by sprinkling water.
 - Transporting construction materials and haul road management. Vehicles should be properly maintained and spill proof with trained drivers.
 - Petroleum, Oil and Lubricants (POL) – POL products be handled with special care. Accidental spillage be cleared immediately. Washing of trucks and dumpers in construction yards only and waste water be collected for treatment and reuse.



- Public health and safety risks – Barriers / Fencing at construction areas. General Public not to be allowed at construction site. Speed restrictions to be imposed on project's vehicles and equipments.
- Risk from electrical equipments – All electric sub-stations, high tension towers and other areas be protected from electrocution risk by providing security fencing and lights, warning signs and security patrol.
- General safety – Provision of properly maintained fire-fighting equipments at construction camps, asphalt plants, storage areas and other areas where fire hazard are found.
- Only suitably protected electrical installation and equipments to be allowed.
- Proper inspection of all electrical equipments with adequate training to handling persons

9. Statutory Provisions for Environment

- i) Knowledge and application of entire relevant rules and regulations as and when required e.g
 - Wildlife (Protection) Act, 1972 & its Amendments, 2003
 - Noise Pollution Regulation and Control Rules, 2000
 - Air (Prevention & Control of Pollution) Act, 1981
 - Water (Prevention & Control of Pollution) Act, 1974.
 - MOEF Eco-Sensitive Area Notifications
 - National Environmental Policy (NEP), 2006 etc.
- ii) Interface with relevant authorities e.g.
 - State Pollution Control Board.
 - State Department of Mines and Minerals.
 - State Department of Irrigation
 - State Groundwater Authority
 - State Forest Department
 - State Department of Explosives
 - State Transport Department
 - State Police and Medical Department etc.

10. Engagement of Field Staff for Research and Implementation

Officials to be engaged for all the various tasks should be very qualified as well as having adequate experience of their field and be of International/National level with separate expertise/specialization of their respective fields with a proper hierarchy if required.



Annexure -2**Safety, Health and Environment (SHE) Requirements**

Employer's requirements regarding SHE aspects specified for execution of Works Contracts, for which present Project Management Consultancy Service (PMC) is called for, are stipulated in the Bid Documents (Volume-II& III) of the respective Contract Packages. An extract of the relevant Employer's requirements is as given below:

1 The Site and the Work Areas

- 1.1 The Work Areas, Site including timings, sequence and conditions relating to the Contractor's Possession of the Site during the Construction Phase, his access to the Site prior to the Site possession, and his acquisition of the Work Areas outside Right of Way are detailed in Appendix 1 [Alignment of Trackways and Work Areas] and Appendix 15 [Requirements for Construction] to the Employer's Requirements.
- 1.2 The availability of the traffic possession , if required to execute the Permanent Works infringing the IR operations shall be as specified in Appendix 1 [Alignment of Trackways and Work Areas] to the Employer's Requirements and shall be in accordance with Appendix 17 [Railway Envelope Hand Over and Access] to the Employer's Requirement

2 Safety, Health and Environment (SHE) Requirements

- 2.1 The Contractor shall comply with all the requirements as specified in the Employer's Requirement - General and Appendix 3 [Safety, Health and Environment Requirements]
- 2.2 The Contractor shall prepare and submit to the Engineer for review his proposed SHE plan including Site Safety Plan and Programme within the period as specified in Appendix 3 [Safety Health and Environment Requirements] to the Employer's Requirements. It shall, as a minimum, meet the requirements as specified in Appendix 3 [Safety Health and Environment Requirements] to the Employer's Requirements. The Contractor's SHE Policy, SHE Plan and Site Safety Plan shall be consented by the Engineer and other concerned authorities before start of the Work at Site.
- 2.3 The Contractor's Site Safety Plan shall cover the following aspects
 - (a) Statement of Contractor's Safety Policy
 - (b) Senior management responsibility for safety
 - (c) Appointment, duties and responsibilities of Site safety staff
 - (d) Policy for identifying Hazards
 - (e) Safety training
 - (f) Safety equipment
 - (g) Safety of the Contractor's construction and office equipment
 - (h) Safety of the workmen and staff at site
 - (i) Safety procedures for sub-contractors
 - (j) Disciplinary procedures
 - (k) Accident reporting
 - (l) First aid and emergencies
 - (m) Safety promotion and awareness
 - (n) Site security
 - (o) Labour safety
- 2.4 The Contractor's Site Safety Plan shall also incorporate the requirement of Safety while



having interface with the running tracks of Indian Railways and complying with

- (a) Indian Railway's rules and regulations for track, signalling and operations possessions
- (b) operating a system of permit to work for all works which may affect the operations of the existing railway and
- (c) requirements of safety aspects for working near the running tracks of Indian Railways as specified herein below

- 2.5 Engineer reserves the right to order (in writing) the immediate removal and replacement of any of the Contractor's equipment or temporary works which in his opinion is unsatisfactory or not required for the Work for its purpose and / or is in unsafe condition.
- 2.6 Contractor shall be fully responsible for safety of the Works and shall treat safety measures as a priority in all his activities throughout the execution of the Works.
- 2.7 Contractor shall have full regard for the safety of all his personnel, sub-contractor's personnel, the public and all the personnel directly or indirectly associated with the Works on or in the vicinity of the Site and the Work Areas (including without limitation to the persons to whom access to the Site has been allowed by the Contractor), to comply with all relevant safety regulations, including provision of safety gear, and insofar as the Contractor shall be in occupation or otherwise is using areas of the Site and the Work Areas, to keep the Site and the Work Areas (so far as the same are not completed and occupied by the Employer) in an orderly state appropriate to the avoidance of injury to all persons and shall keep the Engineer/ Employer indemnified against all the injuries to such persons.
- 2.8 Contractor shall provide and maintain all lights, guards, fences and warning signs and watchmen when and where necessary or required by the Engineer or by laws or by any relevant authority for the protection of the Works and for the safety and convenience of the public and all persons on or in the vicinity of the Site and the Work Areas.
- 2.9 When the Work would otherwise be carried out in darkness, the Contractor shall ensure that all parts of the Site and the Work Areas where the Work is being carried out are so lighted as to ensure the safety of all the persons on or the vicinity of the Sites, the Work Areas and of such Work to the satisfaction of the Engineer.
- 2.10 Contractor shall be required to take note of all the necessary provisions in the Employer's Safety, Health and Environment requirements as specified in Appendix 3 [Safety Health and Environment Requirements] and the Contract Price shall be deemed to be inclusive of all the necessary costs to meet the standards and requirements as prescribed therein. In case the Contractors fails to meet the above requirements, the Employer shall provide the necessary arrangements and recover its costs from any bills due to the Contractor.

3 Safety Requirements for Working Near Running Tracks of Indian Railways

3.1 Operational Safety

Where the work to be executed is in proximity of the running railway track, the Contractor shall be required to observe all precautions and carryout all works that may be necessary to ensure the safety of the running track/trains etc. without imposition of any speed restriction thereon as may be directed by the Engineer. No claim whatsoever shall be entertained for either any inconvenience caused to the Contractor or for the re-scheduling of the operations or for any other reasons on this account. The Contractor shall ensure that the materials are not stacked close to the railway track, which may endanger the safety of trains and workmen.

- 3.2 Where the Schedule of Dimensions of Indian Railways for the running tracks of IR are likely to be infringed by the Contractor, the following safety measures shall be ensured
 - 3.2.1 Measures prior to start of the Work:
 - (i) Contractor to provide necessary training to their supervisors and staff and shall ensure that they know about the safety norms to be followed for working in the premises of IR and in the vicinity of running tracks and electrified territories
 - (ii) Inform the Engineer / Employer about :



- (a) Name and address of the Contractor's supplier / sub-contractor assigned to execute the work
- (b) Name of the vehicle drivers / equipment operators identified for the work
- (c) Location, duration and timings during which the SOD of IR is to be infringed
- (iii) Provide the Engineer / Employer with
 - (a) copy of detailed planning of work including protection of IR track and safety measures proposed (duly consented by the Engineer and approved by the Employer)
 - (b) copy of the competency certificate of the Contractor's Supervisor incharge of the work (to be issued by the Engineer)
- (iv) Demarcate the working area at site in consultation with the Engineer / Employer
- (v) Barricade / temporary fencing along the stretch of the concentration of the work area along the IR track, as consented by the Engineer
- (vi) Provide adequate watch and ward, flagmen, lighting etc. including signage boards

3.2.2 Measures during execution of Work

- (i) It shall be ensured that no workmen and staff is working on line / trackside unless proper 'Permit to Work' shall be issued for those lines by the Indian Railways and Engineer.
- (ii) It shall be ensured that the moving dimensions of IR shall not be infringed. In case of track crossing, the work is required, the same shall not be carried out without permission from the Engineer and IR. Safety of all the existing fixed structures near the vicinity of the Site shall also be ensured.
- (iii) No vehicles shall be plied within 6m of the centre of the IR track without the specific approval from Engineer / Employer. Individual vehicle / construction equipment shall not be left unattended. No vehicle shall ply from sun-set to sunrise and during the period when the visibility is impaired, except in case of emergency and with the consent of the Engineer
- (iv) Where the construction vehicles are required to ply along the existing running tracks of IR, the Contractor shall deploy the adequate patrolmen to prevent tendency of the vehicle drivers to come close to the tracks and infringe
- (v) All the drivers of the road vehicles / machines plying near the running tracks of IR shall be provided with a red flag / red lamp so that in the event of any obstruction, they shall stop the incoming train,
- (vi) It shall be ensured that the line of demarcation shall not be infringed by the road vehicles / construction equipment
- (vii) It shall be ensured that only eligible and competent staff shall be employed for the work and they must wear identity card while working near running tracks of IR
- (viii) For working during night, sufficient illumination shall be provided for the entire work area for safety of the workmen and public
- (ix) Temporary Engineering signals as required shall be provided
- (x) Existing engineering indicator boards shall be lit as per Permanent Way Manual (PWM) of Indian Railways.
- (xi) Lookout man with red and green flags / hand signals and whistle shall be deployed wherever required
- (xii) No part of the stacked material shall infringe the moving dimensions of IR. Material shall be stacked to such a height that it does not lead to infringement of SOD in case of accidental toll off.
- (xiii) Any temporary arrangement shall not infringe with the moving dimensions of IR
- (xiv) Where the work is planned to be done within 3.5m from the centre of the IR tracks, it shall require traffic block and all the necessary safety precautions shall be ensured as per the requirements of Para No. 806 and 807 of PWM of Indian Railways.



- (xv) First aid kit shall be readily available at the site
- (xvi) In case any cable / utility is found while working, the Contractor shall inform the Engineer immediately. In case a large number of cables / utilities are found during excavation, the work shall be carried out in the presence of representative from the concerned owning agency of the utility / cable.
- (xvii) It shall be ensured that the existing emergency sockets of IR are not damaged

3.2.3 Additional measures required during traffic block

- (i) Any work when infringing the moving dimensions of IR shall be started only after traffic block has been imposed and IR track is protected
- (ii) All the work intended to be completed during traffic block shall be completed within the duration of the traffic block and the duration of the traffic block shall not be exceeded.
- (iii) Traffic block shall be considered as cleared only when all the temporary arrangements / machinery are cleared of the moving dimensions and the IR track is left with proper track geometry to allow IR trains to run safely.

3.2.4 Safety measures while working in OHE area

- (i) While working near the OHE area, the safety guidelines as specified in para 20301, 20327, 20334, 20335, 20529, 20612, 20614, 20714, 20825, 20833, 21206 and 21207 of Volume II, Part 1 of AC Traction Manual of Indian Railways shall be followed
- (ii) No electric work close to the live OHE shall be carried out without power block and specific approval from Engineer / Employer
- (iii) A minimum distance of 2m shall be maintained between live OHE wire and any body part of the workmen or tools or metallic support etc.
- (iv) No electric connection shall be tapped from OHE

3.3 Excavation Affecting Existing Tracks

While doing excavation near the vicinity of the existing tracks including for bridges and other structures, special care has to be taken to ensure that formation of the existing Railway line is not excavated, for that matter any activity involved in construction / execution of the project shall not endanger the safety of existing running line of Indian Railways. If excavation or any other activity involving working and or modification and or alteration of the existing permanent way then, before execution of such work, the Contractor shall prepare a drawing clearly indicating such alternation / modification of the existing permanent way, and the protection measure intended to be taken by the Contractor to ensure safety of the existing running line. The effectiveness of design of such protection measures is the sole responsibility of the Contractor and the Contractor shall indemnify the Engineer / Employer towards the losses incurred due to failure of such protection measure. These protection measures duly indicating the extent of alternation / modification to the existing formation shall be incorporated in the design and drawing submitted during preliminary design submission as per the Contract. Such work shall not be undertaken unless and until these drawings are consented by the Engineer

- 3.4 The Contractor shall indemnify the Engineer / Employer against any damage to the existing tracks / structures / utilities etc. caused by the actions of the Contractor or his Sub-contractors, and shall make good the same, as directed by the concerned authorities, at his own cost and shall also pay any penalty(ies) / demurrages if levied by the concerned authorities

4 Safety Requirements for Electrical Works

- (i) The Indian Electricity Rules 1956, as amended up to date, shall be followed. The detailed instructions on safety procedures given in I.S.S. and Indian Electricity Rules, respective State Electricity Authorities' regulation with up to date amendment shall be applicable.
- (ii) The LT/HT distribution diagrams of sub stations shall be prominently displayed. The substation premises, main switch rooms and D.B. enclosure shall be kept clean whenever works are carried either inside or outside.
- (iii) No inflammable materials shall be stored in places other than the rooms specially

constructed for this purpose in accordance with the provisions of Indian Explosives Act

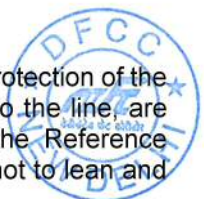
- (iv) Rubber insulating mats of suitable size and thickness shall be provided in front of the main switch boards of sub-station or any other control equipments of medium voltage and above
- (v) Protective and safety equipment such as rubber gauntlets or gloves, earthing rods, linemen's belt, portable artificial respiration apparatus, safety goggles etc., shall be provided as per the requirement of the Work
- (vi) Necessary number of caution boards such as "Man working on line, Don't switch on" shall be readily available in the vicinity of electrical installation
- (vii) Standard first aid boxes containing materials as prescribed by the St. John's Ambulance Brigade or Indian Red Cross shall be made available
- (viii) Charts displaying methods of giving artificial respiration to a recipient of electrical shock (one in English and another one in the regional language) shall be prominently displayed at appropriate places
- (ix) No work shall be undertaken on live installations, or on installation, which could be energized unless one another person is present to immediately isolate the electric supply in case of any accident and to render first aid, if necessary
- (x) No work on live L.T. bus bar or pedestal switch board in the sub stations shall be handled by a person below the rank of a Licensed Wireman and such a work shall preferably be done in the presence of a qualified engineer
- (xi) When working on or near live installations, suitable insulated tool shall be used, and special care shall be taken to see that those tools accidentally do not drop on live terminals causing shock or dead short.
- (xii) The electrical switch controls in distribution boards shall be clearly marked to indicate the areas being controlled by them
- (xiii) Before starting any work on the existing installation, it shall be ensured that the electric supply to that portion is cut off. Precautions, like displaying "Men at Work" caution boards on the controlling switches, removing fuse carrier from these switches shall be taken against accidental operation. Caution boards shall be kept with the person working on the installation,
- (xiv) All electrical panels & switchgear shall conform to relevant IEC standard.
- (xv) All external enclosures shall have degree of protection not less than IP-54
- (xvi) All equipment/system shall conform to relevant IEC standard on Electromagnetic Compatibility (EMC).
- (xvii) Cable routes of all the newly laid cables by the Contractor shall be identified with electronic or concrete markers.

5 Legislation and Codes of Practice

- 5.1 The Contractor shall comply with all the safety and industrial health legislation including without limitation to the Rules and Regulations of National Safety Council of India. The Contractor shall keep at each site office sufficient copies of Safety and Industrial Health Regulations and related documents.
- 5.2 All regulations and documents as referred above shall be translated in to languages which are understood by the operators engaged by the Contractor or sub-contractor and such translations shall be displayed or kept along side those in Hindi, English and Regional language.

6 Protection For Indian Railway Lines

The Contractor shall design and install the temporary fencing / barricades for protection of the existing Indian Railway (IR) lines where the construction activities, adjacent to the line, are taking place. The fencing / barricades shall be installed as indicated in the Reference Drawings and the fencing shall be movable and reusable and stable enough not to lean and



infringe the structure gauge of the IR lines. The fencing pole / barricades shall be colored to enhance visual precautionary effects. The Contractor shall develop the design of the temporary fencing / barricades as part of the Technical Design and submit the Engineer for consent.

7 Damage and Interference

7.1 Works shall be carried out in such a manner that there shall be no damage to or interference with:

- (a) watercourses or drainage systems;
- (b) public utilities;
- (c) structures (including foundations), roads, including street fixtures, or other properties;
- (d) public or private vehicular or pedestrian access,
- (e) monuments, graves or burial grounds other than to the extent that shall be necessary for them to be removed or diverted to permit the execution of the Works, and
- (f) Existing tracks, Bridges, Fixtures / OHE Masts of the existing tracks of Indian Railways

7.2 Heritage structures shall not be damaged or disfigured on any account. The Contractor shall inform the Engineer as soon as practicable of any items which are not stated in the Contract to be removed or diverted but which the Contractor considers necessary to be removed or diverted to enable the Works to be carried out. Such items shall not be removed or diverted until the consent of the Engineer to such removal or diversion has been obtained.

7.3 Assets / items of the Employer, Indian Railway, Other Contractors and any other entities which are damaged due to Contractor's operations / negligence during construction or are interfered with or removed to enable the Works to be carried out shall be replaced / reinstated by the Contractor at his own cost to the same condition as existed before the Work started and to the satisfaction of the Engineer and the concerned entity .

In case of damage to the existing cables, the Contractor shall have suitable arrangement of joining the cable under technical supervision of IR / relevant authority .In addition to this, the Contractor shall also be responsible for any penal action or any claim as a result of the damage and shall indemnify the Engineer, Employer, Indian Railway, Other Contractors and any other entities in this regard.

7.4 In case of obstructions due to interference, the Contractor shall comply with the requirements described in Appendix 15 [Requirements for Construction]. Followings are the major required items as detailed therein;

- (a) Uncharted Public utilities
- (b) Alternative Access
- (c) Protection of Trees
- (d) Removal of trees, graves and other obstructions
- (e) Protection of adjacent structures

8 Care of Works

Care of Works, including protection of Works from weather and protection of finished Works shall be as specified in Appendix 15 [Requirement for Construction] to the Employer's Requirements.

9 Handling of Public Utilities and Interferences

9.1 The existing public utilities identified within the Right of Way shall, in principle, be relocated and/or diverted by the relevant public utility agencies at their risk and responsibility prior to the Contractor's possession of the Site except for those overhead power lines of 33kV and below, which are listed in the Scope of Works included in Employer's Requirements - Functional and diversion of which is in the Scope of Work for the Contractor. The costs of relocation and/or diversion of all the other utilities, which are not in the Scope of Work of the Contractor and as having been done prior to the Contractor's possession of the Site shall be

paid by the Employer to the relevant public utility agencies separately.

- 9.2 Alternative access which may be needed for all public or private premises when interference with the existing access occurs to enable the Works to be carried out shall be arranged by the Contractor as described in Appendix 15 [Requirements for Construction] to the Employer's Requirements.
- 9.3 Trees, graves and other obstructions which may remain at the Site or the Work Areas shall be appropriately removed as described in Appendix 15 [Requirements for Construction] to the Employer's Requirements.
- 9.4 Identification of uncharted public utilities within ROW shall be undertaken by the Contractor by trial trenching and / or using cable locator as consented by the Engineer. The results shall be summarized in 'Uncharted Utility Report' and submit as part of the Technical Design as specified in Appendix 14 [Requirements for Design]. The diversion of the identified un-charted utilities shall be handled as specified in Appendix 15 [Requirements for Construction]

10 Use of Roads

The Contractor shall comply with the requirements as described in Sub-clause 4.14 [Avoidance of Interference] of General Conditions in Volume I of the Bid Documents, Appendix 3 [SHE Requirements] and Appendix 15 [Requirements for Construction] to the Employer's Requirements.

11 Security

The Contractor shall comply with the requirements described in Sub-clause 4.22 [Security of the Site] of General Conditions in Volume I of the Bid Documents and Appendix 15 [Requirements for Construction] to the Employer's Requirements.

12 Site Establishments

- 12.1 The Contractor shall provide and maintain the Temporary Facilities and Temporary Utility Services, which comprise part of the Temporary Works for use of the Employer and Engineer as specified in Appendix 9 [Temporary Works] of the Employer's Requirements.
- 12.2 The Contractor shall provide and maintain all Temporary Works as required by him and as specified but not limited to those detailed in Appendix 9 [Temporary Works] of the Employer's Requirements, for execution of the Works

12.3 Latrines and wash places:

Contractor shall provide latrines and wash places for the use of his personnel and all persons who will be on the site as per the requirements specified in Appendix 3 (Safety Health and Environment Requirements] to the Employer's Requirements and in accordance with the local laws and regulations.

13 Testing of Works

- 13.1 The Contractor shall be responsible for all on-site and off-site testing and for all in-situ testing. Daily on-site testing shall be coordinated with the Engineer. A programme of proposed tests shall be provided on a weekly basis, at least one week in advance of such events.
- 13.2 Notification of required Factory testing shall be made in writing to the Engineer, including full details of test requirement, at least 15 days in an advance of the test.
- 13.3 The Contractor shall comply with all requirements described in Employer's Requirements - Manufacturing, Installation, Testing and Appendix 7 [Quality Assurance] and Appendix 5 [Project Programme Requirements] and Appendix 15 [Requirements for Construction] to the Employer's Requirements.

14 Provisions for Other Contractors

- 14.1 The Contractor shall construct the Works in full coordination with the Other Contractors and shall comply with the requirements described in Appendix 10 [Contractor's Coordination with Others] to the Employer's Requirements.
- 14.2 Provision of Masts for OHE



For the mast installation to be done by the Other Contractor on bridges, the Contractor shall prepare all necessary provisions as part of the Permanent Work. The Contractor shall ensure that this provision and the masts to be installed by the Other Contractor do not infringe the Structure Gauge as specified in the Specifications. This provision is not indicated in the Reference Drawings. Prior to design of the provision, the Contractor shall take all necessary steps to ensure that the provisions of the mast installation is coordinated and integrated with the works to be done by the Other Contractor(s) as described in Appendix 10 [Contractor's Coordination with Others] to the Employer's Requirements.

15 Restoration of Work Areas Disturbed by Construction

Unless otherwise directed by the Engineer, any areas disturbed by the construction activity, either inside or outside the Right of Way, shall be reinstated as follows:

All areas affected by the construction work shall be reinstated to their original condition, with new materials, including but not necessarily limited to, sidewalks, parking lots, access roads, adjacent roads, properties and landscaping. Grass cover shall be provided for any bare earth surface areas, along with proper provisions for surface drainage.



Annexure -3**MANUFACTURING, INSTALLATION, TESTING AND COMMISSIONING**

Employer's requirements regarding Manufacturing, Installation, Testing and Commissioning aspects specified for execution of Works Contracts, for which present Project Management Consultancy Service (PMC) is called for, are stipulated in the Bid Documents (Volume-II& III) of the respective Contract Packages. An extract of the relevant Employer's requirements is as given below:

1 General

- 1.1** Within 60 days of the Commencement Date of the Works, the Contractor shall submit for review by the Engineer a Design, Procurement and Manufacturing Programme that shall be an integrated part of the overall Works Programme.
- 1.2** The Design, Procurement and Manufacturing Programme shall show the interdependencies between engineering disciplines as well as between the Contractor and its sub-contractors and suppliers. This programme shall demonstrate compliance with the requirements of the overall Submissions Programme and commissioning of the system.
- 1.3** The Contractor shall submit a weighted bar chart of the Contractor's design, procurement and manufacturing activities. Each activity weight shall normally not be more than 5% of the total man-hour content or value of the respective work.
- 1.4** The Design, Procurement and Manufacturing Programme shall include a separate breakdown, supported by the material control schedule, which shall be a complete amplification of the Contractor's programme and equipment list, including those items which are subject to long lead time or component parts which are manufactured from countries outside the country of assembly and testing.
- 1.5** The material control schedule shall be automated, and shall detail the following information for each permanent major and minor material and significant component. The format of such a schedule shall include:
 - (1) name, description, supplier/sub-supplier details;
 - (2) drawing information (where appropriate), title, drawing status, submission dates, shop drawings/ fabrication drawing preparation, etc.;
 - (3) the manufacturing process, manufacturing of test pieces, trial production, Engineer's inspection, monthly production of components and monthly supply of components;
 - (4) the assembly process, erection and assembly sequences (particularly for the first pieces) prior to shipment, test assemblies, monthly assembly requirement, Engineer's inspection, testing of assemblies; and
 - (5) transportation process, quality release from factory, factory storage, transport to dock, shipment.
- 1.6** The Contractor shall continuously maintain this schedule and report upon the status of each item as part of the Contractor's regular progress reporting.
- 1.7** From this base data, the Contractor shall prepare an exception report detailing all components that are in delay. This report shall be annotated with the reason for the delay and indicate what action the Contractor shall be taking to recover the lost time.
- 1.8** The Contractor shall submit, as part of the Design, Procurement and Manufacturing Programme, a Factory Testing Programme that shall support all aspects of the Factory Testing Plan. This Programme shall clearly demonstrate the logic and include the topics listed in Clause 5.6 of Employer's Requirements – Manufacturing, Installation, Testing and Commissioning



2 Manufacturing

2.1 Management

The Contractor shall establish procedures and controls that govern the procurement, integration, manufacture and testing, quality assurance and delivery of Plant & equipment, manufactured items and spares to be supplied under the Contract. This shall include the administration and supply of spare parts and warranty in accordance with the Contract.

The procedure for manufacturing management of the track components including but not limited to PSC sleepers, rubber pads, track fittings, SEJs, turnouts, glued joints, ballast etc. shall be as specified in Clause 13 of specifications (Volume III of the Bid Documents).

The Contractor's Manufacturing Management and Quality Assurance Plans shall be submitted to the Engineer for consent within 42 days after the Commencement Date as a preliminary plan and as part of the Technical Design for the final Plans for each plant, equipment and manufactured item as described in Appendix 7 [Quality Assurance] to the Employer's Requirements.

2.2 Procurement and Subcontract Management

The Contractor's management systems and procedures shall be based on ISO 9000-2000 standards and shall incorporate procedures for materials procurement and sub-contracting, sufficient to ensure technical, administrative, quality and contractual controls consistent with those under this contract. The Contractor's management system shall be auditable for materials sources, lot numbers, serialized equipment, etc. Sub-contract amendments shall be effected whenever contractual changes are made bi-laterally by the parties involved subject to consent of the Engineer.

2.3 Manufacturing and Production Management

The Contractor's manufacturing and production management system shall encompass all points of receiving, raw material and components processing, fabrication, assembly, test and all points of in-process inspections. The Contractor shall submit manufacturing data as part of the Manufacturing Management and Quality Assurance Plans as specified in Appendix 7 [Quality Assurance] of the Employer's Requirements, which shall contain but not limited to:

- (a) a brief description of all inspection hold points and test points, and a correlation with the Programme Schedule;
- (b) a list of all sub-contractors; and
- (c) a delivery schedule of each item of equipment to match installation plan

The manufacturers shall have the qualification and experience in the design, assembly and testing of the similar equipment / material, as being offered, complying with the Specifications and shall be subject to the consent of the Engineer

2.4 Testing

A Comprehensive Testing Programme shall be provided by the Contractor that shall include the works equipment, their subsystems and components and material to assure conformance with the Specifications. The testing Programme shall be subject to the consent of the Engineer and shall be submitted as part of Technical Design Submission. The purpose of the Comprehensive Testing Programme shall be to:

- (a) substantiate design and performance characteristics;
- (b) ensure operational compatibility;
- (c) complete equipment verification and acceptance requirements; and
- (d) complete all reliability, maintainability and safety demonstration requirements.

Testing shall comply with the requirements as specified herein in this Employer's Requirements



2.5 Inspection by Engineer

The Contractor shall prepare an inspection programme which shall be consented by the Engineer and shall provide the opportunity for the Engineer and Employer to have access at key hold points during the production and manufacture of items / materials and Plant & equipment to examine, inspect, measure, and test the materials and workmanship, and check progress, as necessary.

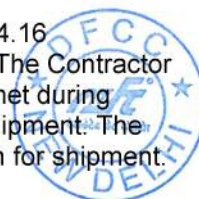
Where such an inspection takes place on completion of production or manufacture this may be combined with the testing programme.

2.6 Quality Assurance and Controls

- (1) The Contractor's management systems shall emphasize quality assurance and controls and shall be based on ISO 9000-2000 standards. The Manufacturing Management and Quality Assurance Plan together with the Comprehensive Testing Programme, shall adequately ensure an acceptable level of quality of the manufactured items and equipment supplied. The concept of total quality assurance shall be based on the principle that quality shall be a basic responsibility of the Contractor's organization and system employed, and shall be evidenced by:
 - (a) producible and inspectable designs;
 - (b) firm procurement and job performance specifications;
 - (c) firm procedures for transmission of information and data to sub-contractors and ensuring their compliance;
 - (d) adequate testing to ensure repetitive product conformity to design requirements; and
 - (e) Total programme of surveillance and verification of physical performance and configuration accountability.
- (2) Adequate records shall be kept by the Contractor to provide evidence of quality and accountability. These records shall include results of inspections, tests, process controls, certification of processes and personnel, discrepant material; and other quality control requirements.
- (3) Inspecting and testing records shall, as a minimum indicate the nature of the observations made, and the number and types of deficiencies found and action proposed to correct deficiencies. Also, records for monitoring work performance and for inspecting and testing shall indicate action taken for the correction of deficiencies.
- (4) All the requirements for testing for acceptance in respect of bridge bearings shall be as specified in Clause 14.1.3 of specifications included in Volume III of the Bid Documents
- (5) The Contractor shall submit to the Engineer a request for a "Notice of No Objection to Supply" for all manufactured items along with all the manufacturer's test certificates and inspection certificates including but not limited to those stated in sub-para (2) & (3) above, prior to shipping / transporting. This shall be accompanied by a Verification Submission which shall provide sufficient documentary demonstration of the suitability of the Plant & equipment and manufactured items for supply. Such Notice shall be issued by the Engineer in respect of the completion of manufacturing of a major and distinctive element comprising part of the Permanent Works. However, supply shall not be commenced until the original copies of the appropriate Submission have been endorsed:
 - (a) by the Contractor as "Good for Supply"; and
 - (b) by the Engineer that he has no objections to the supply.

2.7 Shipping / Transporting

The Contractor shall comply with the requirements as described in Sub-clause 4.16 [Transport of Goods] of General Conditions in Volume I of the Bid Documents. The Contractor shall safeguard the material / Plant & equipment against likely damages to be met during transit on account of environmental conditions and climatic influences during shipment. The Contractor's quality control personnel shall verify the inspection and preparation for shipment.



2.8 Handling, Storage and Delivery

The Contractor shall provide adequate storage facilities by way of covered areas (to the extent specified by the manufacturer) at his own cost for storing all the Plant, Material & equipment and manufactured items to be supplied as part of the Contract. Employer shall not provide any storage facility. Means shall be provided for protection against deterioration or damage to Plant & equipment in storage. Where shelf life of the Plant & equipment / Material is limited, this shall be clearly stated on the shipment.

3 Manufacture and Supply Verification Submission

3.1 On completion of the manufacture of Plant & equipment and manufactured items, and the associated testing, and quality assurance and control processes, a 'Manufacture & Supply' Verification Submission' shall be prepared which shall provide sufficient documentary demonstration of the suitability of the Plant & equipment and manufactured items for subsequent installation, this shall include, but not be limited to:

- (a) confirmation that the Plant & equipment and manufactured items produced fully comply with the Working Drawings relating to manufacture;
- (b) confirmation that all relevant testing has been successfully completed, with supporting completed test documentation;
- (c) confirmation that all Quality Assurance and Controls processes have been completed with the required level of satisfaction, with supporting completed quality assurance documentation;
- (d) confirmation that the Plant & equipment and manufactured items have not suffered damage or deterioration during transit to site.

3.2 The Contractor shall not commence the subsequent installation until he has received a Notice of no Objection from the Engineer in respect of the Manufacture & Supply Verification Submission.

3.3 Such Notice may be issued by the Engineer in respect of completion of the manufacturing and supply of a major and distinctive element comprising part of the Permanent Works.

4 Installation

4.1 Installation Plan and Programme

The Contractor's installation plan which shall be part of Comprehensive Testing Programme and shall be consented by the Engineer. It shall show how the Contractor proposes to organise and carry out the Installation and complete the whole of the Works by the given Coordinated Dates .

The Contractor shall submit the installation plan for the review of the Engineer at least 90 days prior to the start of installation on site.

Contractor shall attend meetings with the Engineer to finalise the work details prior to the start of the installation at site

4.2 Installation Method Statement

- (1) Installation Method Statements which shall be part of the Construction Method Statement shall be submitted to the Engineer for review at least 30 days prior to the installation activity commencing on site . This shall show in particular the loadings and modes and delivery routes of the Plant & equipment and manufactured items.
- (2) Prior to proceeding with installation, the Contractor shall submit, for the Engineer's consent, six copies of drawings showing all installations including dimensions, supports, hardware, installation methods and documents confirming the availability and location of special installation tools and equipment and all other pertinent data.
- (3) The manufacturer's rigging or erection instructions shall be carefully followed.
- (4) The Contractor shall make certain that the installation of all supports, gaskets, hardware, etc., are accomplished so as to assure safe, accurate and trouble-free installation.



Installation shall be undertaken preferably in the presence of the manufacturer's field service representative.

- (5) Equipment that is improperly installed shall be removed, checked / tested and reinstalled. Any damage caused due to improper installation and removal shall be rectified before reinstallation at no extra cost to the Employer.

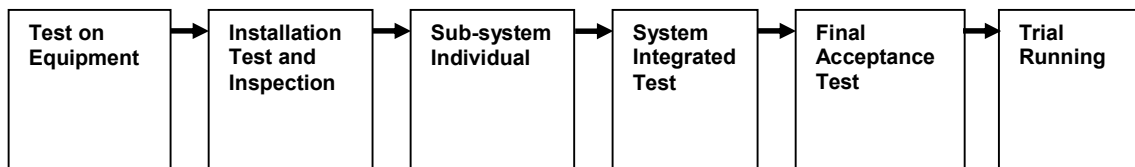
4.3 Asset Identification

- (1) The Contractor shall submit an asset database for review by the Engineer. The database shall contain the complete asset listing for all aspects of the Contract Works.
- (2) The database shall provide the minimum information as follows:
 - (a) asset details;
 - (b) failure history;
 - (c) date installed; and
 - (d) date(s) tested.
- (3) All equipment and software shall have a unique identification number that shall be identified electronically and manually.

5 Testing and Commissioning

5.1 General

- (1) The Contractor shall provide and perform all forms of testing procedures applicable to the Works relating to Plant & equipment and manufactured items and various components and the interfacing of the Works relating to Plant & equipment and manufactured items with the Other Contractors and shall conduct all necessary factory, site and acceptance tests.
- (2) The commissioning activity shall include a period of the Integrated System testing followed by a period of Trial Running attended by the Commissioner of Railway Safety (CRS) or other Authorized Official and for staff training and familiarisation and timetable proving purposes. Accordingly a typical test sequence shall be as indicated below :



- (4) 6 months from the Commencement Date , the Contractor shall submit a comprehensive Testing and Commissioning programme, which shall be part of Comprehensive Testing Programme defining the personnel, procedure and format of testing
- (5) All testing procedures shall be submitted at least thirty(30) days prior to conducting any Test. The testing procedures shall show unambiguously the extent of testing covered by each submission, the method of testing, the acceptance criteria, the relevant drawing (or modification) status and the location.
- (6) The testing procedures shall be submitted by the Contractor and amended, if required subsequently by the Contractor during the duration of the contract to reflect changes in design for track works, interface systems or the identification of additional testing requirements, if needed.
- (7) The Engineer shall have the facilities for monitoring all tests and have access to all testing records.
- (8) Sufficient time shall be allowed within the testing programmes for necessary alterations to equipment, sub-systems and designs to be undertaken, together with re-testing prior



to final commissioning.

- (9) The Contractor is reminded that at some point of time, the electric Traction System shall be energized and the additional precautions for the safety and co-ordination of the activities after 'power-on' shall be anticipated in his installation, testing and commissioning programmes
- (10) All costs associated with the testing shall be borne by the Contractor, unless otherwise specified, including the services of any specialised personnel or independent assessors. The Contractor shall also bear any expenses incurred due to resetting / retesting caused by defects or failure of equipment to meet the requirements of the Contract in the first instance.
- (11) In the event of any tests being performed in the countries other than India, the Contractor shall give sufficient notice to the Engineer for witnessing the tests. The Contractor shall not be required to bear the cost of the Engineer's visit.
- (12) Unless agreed in writing by the Engineer, the personnel engaged on testing shall be independent of those directly engaged in the design or installation of the same equipment.
- (13) All testing equipment shall carry an appropriate and valid calibration labels. They shall be periodically checked for calibration accuracy
- (14) All reports of the tests shall be signed by the Contractor's Representative

5.2 Testing of Track Components

Testing of the track components including but not limited to PSC sleepers, rubber pads, track fittings, SEJs, turnouts, glued joints, ballast etc. shall be as specified in Clause 13 of specifications (Volume III of the Bid Documents)

5.3 Inspection and Testing Philosophy For Electrical works

- (1) The inspection of various items shall be carried out by the agencies as consented by the Engineer in the following manner:

Sl. No.	Description	Location
1	Major equipment	The Contractor shall arrange type testing at recognized labs & routine tests at OEM's premises.
2	Minor equipment / sub-assemblies	At site at the time of final testing & commissioning.

- (2) All field tests shall be witnessed by authorized representative of the Engineer / Employer & recorded. The Contractor shall give due prior notice. An appropriate format shall be prepared by the Contractor for this purpose. The test format shall have prior consent from Engineer. All tools & instruments for carrying out the tests shall be arranged by the Contractor to the satisfaction of the Engineer. Test results shall be witnessed and signed by the Contractor and the Engineer.
- (3) Test Schedules and Procedures are to be submitted for consent of the Engineer and are to include details of testing equipment to be provided..
- (4) All switchboards shall be factory inspected by Engineer before finishing and dispatch.
- (5) Certificate for all routine and type tests in accordance with the relevant IS shall be furnished.
- (6) All panels/cables shall be meggered phase to phase and phase to neutral using a 1000/500V megger with all outgoing feeders in closed position. The megger value shall not be less than 2.5 MΩ between phases and 1.5 MΩ between phases and neutral. All meters and relays shall be calibrated and tested through secondary injection tests.
- (7) Prior to shipment of equipment, the Engineer reserves the right to inspect the equipment at the manufacturers' works and the Contractor shall provide and secure every reasonable access and facility at the manufacturers' works for such inspection by the

Engineer.

- (8) Test Certificates and Reports: The Contractor shall submit manufacturer's type and routine test certificates and reports for each equipment and devices. Complete test results are to be submitted in clearly identified and organized booklets, indicating item of equipment, make, model, type, date of tests, type of tests, descriptions and procedures. Test reports shall also include the Quality Assurance Certification, the standards to which the equipment comply, and the standards to which the equipment was tested

5.4 Sequence of Tests

The sequence of tests shall comprise as appropriate the following:

- (a) type tests;
- (b) factory acceptance tests (FAT) or works test;
- (c) installation tests;
- (d) partial acceptance tests (PAT)
- (e) functional tests;
- (f) integration tests;
- (g) dynamic tests;
- (h) system / sub-system acceptance tests (SAT);
- (i) tests on completion (integrated System tests); and
- (j) tests after completion (Trial Running).

5.5 Type Tests

- (1) Should the Contract include any equipment not previously proven in service or of any modified design, the Contractor shall undertake thorough testing of pre-production units to the satisfaction of the Engineer.
- (2) The Contractor shall identify in the Contractor's Proposal any equipment in this category, or equipment that differs significantly from that already in service elsewhere.
- (3) Type tests including prototype testing shall be performed prior to full production and before FAT.
- (4) Type testing shall be used to confirm that the proposed equipment complies with the design criteria specified and meets the requirements of the Contract.

5.6 Factory Acceptance Test (FAT)

- (1) Works Tests shall include but not be limited to:
 - (a) Physical inspection;
 - (b) Dimension check;
 - (c) Electrical check;
 - (d) Calibration;
 - (e) Output check;
 - (f) Operational performance;
 - (g) Full Load test;
 - (h) Flash-over test;
 - (i) Insulation test;
 - (j) Soak test; and
 - (k) Any other test required as per relevant standards or codes.
- (2) A Factory Test Plan shall be submitted for the Engineer's review within six (6) months.



from the Date for Commencement of the Works.

- (3) All materials, components, sub-assemblies, unit assemblies (including software, cables and wiring) shall be subject to testing and certification. Notification of these Tests shall be submitted to the Engineer thirty (30) days in advance of carrying out any Test, the Engineer shall then determine which, if any, items that shall be accepted based on previous supply or experience.
- (4) The FAT shall demonstrate that each equipment / sub-system meet its functional specification.
- (5) No equipment or software shall be delivered to the Site until the Contractor has demonstrated to the satisfaction of the Engineer that the equipment or software conforms to the specification by carrying out the FAT.
- (6) Where processor based equipment shall be used, the Works Tests shall include also verification of software used in this application.

5.7 Installation Tests

- (1) Prerequisites for Installation:
 - (a) Prior to installation, the Contractor shall ensure that equipment delivered to Site has not been damaged in transit and ensure for their dimensional accuracy.
 - (b) Designs for the Sections under test shall be completed and submitted to the Engineer for review prior to Installation.
- (2) Inspection:
 - (a) The inspection shall verify that equipment has been installed to the procedures and design that have been reviewed without objection by the Engineer and that equipment is correctly located and labelled.
 - (b) The inspection shall verify that any false feed, temporary wiring and redundant items have been removed and that equipment is correctly protected against interference, damage and deterioration.
 - (c) The Contractor shall maintain inspection records to demonstrate that each item of equipment has been inspected and found to be satisfactory, and attach to this record a detailed list of any discrepancies found and remedial work carried out.
 - (d) As defects are rectified, these shall be recorded on the appropriate inspection record.
- (3) Installation Tests
 - (a) The Contractor shall carry out installation tests for each sub-system following Installation but before Functional Testing to demonstrate that the installation has been carried out correctly and equipment is properly housed and fixed.
 - (b) During and on completion of installation, the Contractor shall undertake testing of all cables, wiring and equipment, instrumentation and protection devices, in a progressive sequence and in accordance with the overall-testing programmes.
 - (c) These tests shall culminate in Functional Tests to verify the correct operation of all apparatus and, where appropriate, correct response to the respective control commands or monitored function.
- (4) Partial Acceptance Tests (PAT)
 - (a) Installation work shall be completed and inspection records submitted to the Engineer for review before the commencement of each PAT.
 - (b) The PAT Plan shall be submitted for the Engineer's review at least one hundred and twenty (120) days before the commencement of each PAT.
- (5) Functional Tests



- (a) The functional tests of the PAT shall be carried out on installed equipment before system / sub-system acceptance tests (SAT) to demonstrate that the Section of the Works operates correctly in accordance with the Specifications.
- (b) The functional tests shall sequence through all required operations to prove that the system / sub-system performs in accordance with the Specification and that the local configuration data (for example, control tables) is correct.
- (c) Where necessary, input conditions shall be simulated.
- (d) The functional tests shall be specified and carried out by Contractor's personnel independent of design and installation.
- (6) Testing & Commissioning of Track Work
Testing & commissioning of the completed track work shall be as specified in Clause 13.12.5 of the specifications included in Volume III of the Bid Documents
- (7) Integration Tests
 - (a) Partial Acceptance Test (PAT) shall include integration tests to integrate the various sub-systems of the system and demonstrate correct operation of all internal and external interfaces.
 - (b) Following satisfactory completion of these Tests, the Contractor shall prepare the installation for formal demonstration in the presence of the Engineer.
- (8) System Acceptance Tests (SAT)
 - (a) The Contractor shall prepare and organise a comprehensive programme of Tests to demonstrate to the Engineer that all systems, sub-systems and apparatus defined under the Contract, when installed, connected and configured as a complete system meet the specified performance requirements in all respects.
 - (b) Prerequisites and requirements for SAT to be satisfied before the commencement of the system acceptance tests (SAT) shall be as follows:
 - i. All documentation for the system safety report shall be submitted to the Engineer for review;
 - ii. All PAT shall be completed and test records submitted to the Engineer for review;
 - iii. Facilities for the maintenance of the system shall be in place; and
 - iv. The SAT Plan shall be submitted to the Engineer for review at least one hundred and twenty (120) days before the commencement of the SAT.
 - (c) The system acceptance tests for the Electrification System shall include, but not be limited to, verification activities which demonstrate that the required criteria have been met for normal and credible failure modes in respect of:
 - i. The control of the electrification system;
 - ii. Electrical sectioning;
 - iii. System voltages and currents;
 - iv. Accessible and touch voltages; and
 - v. Switchgear and protection operation under load and short circuit conditions;
 - (d) All the tests shall be conducted by the Contractor in the presence of the Engineer

5.8 Samples for Testing

- (1) Samples that have been tested shall be incorporated in the Works provided that:
 - (a) the sample complies with the specified requirements;
 - (b) the sample is not damaged;



- (c) the sample is not required to be retained under any other provision of the Contract; and
- (d) Consent of the Engineer has been obtained
- (2) Additional samples shall be provided for testing if in the opinion of the Engineer:
 - (a) material previously tested no longer complies with the specified requirements; or
 - (b) material has been handled or stored in such a manner that it does not comply with the specified requirements.
- (3) Unless agreed otherwise, all Tests shall be carried out by the Contractor in the presence of the Engineer.
- (4) Attendance on Tests, including that by Engineer / Employer, and the Contractor, shall be as laid down in the Quality Assurance procedures.

5.9 Records of Tests

Records of Tests carried out shall be kept by the Contractor and a report and all Test results shall be submitted to the Engineer no later than 15 days after completion of the Test, in addition to any other requirements, the report shall contain the following details:

- a) material or part of the Works tested;
- b) location of the part of the Works;
- c) place of testing;
- d) date and time of tests;
- e) technical personnel supervising or carrying out the tests;
- f) equipment used and method of testing;
- g) readings and measurements taken during the tests;
- h) test results, including any calculations and graphs;
- i) specified acceptance criteria;
- j) other details stated in the Contract or as required by the Engineer.

5.10 Integrated System Tests

- (1) Tests on Completion shall include Integrated Testing including but not limited to the work of Civil, Building & Track Work and the Work of Other Contractors as specified in sub-clause 1.2 above. The Contractor shall, following satisfactory completion of tests on his works, equipment, sub-systems or system, perform, at the direction of the Engineer, programme of tests to verify and confirm the compatibility and complete performance of his works, equipment, sub-systems or system with the works, equipment, sub-systems or system provided by others.
- (2) The Contractor shall submit to the Engineer requirements and procedures, in respect of the Contractor's scope of work, for Integrated System Tests in conjunction with the Other Contractors to demonstrate that the complete system provided under the Contract is fully operational and meets the specified performance criteria.
- (3) The integrated tests shall be undertaken at an operating speed of 110 kmph for the Main Line. The tests shall be as identified by the Contractor and consented by the Engineer vide Sub-clause 1.2 above and shall include but shall not be limited to the following
 - a) Measurement of track geometry by track recording car (gauge, unevenness, twist, and alignment).
 - b) The vertical and lateral acceleration by oscillograph car / Portable Accelerometers



The total number of vertical and lateral accelerations peaks of greater than 0.2g should be less than 1.5 peaks per km, as specified in para 618 of IR Permanent Way Manual .

- c) Differential settlement as specified in Clause 16.10.5 of Design Criteria included in the Employer's Requirements – Design (Volume II of the Bid Documents) and shall be within the tolerance limits
- d) Maximum deflection and percentage of recovery in respect of the individual pre-cast units for Important Bridges, Major Bridges and Rail Flyovers (RFOs) as specified in Clause 9.20 of Volume III of the Bid Documents and same shall be within the limits as specified therein.
- e) Electrical insulation properties of track form for the Main Line and loop lines and shall meet the requirements of Signalling and Power Supply System as specified in Clause 13.1.2 of Volume III of the Bid Documents
- f) Loop lines, connections with IR and connection up to factory sidings for the respective speed

- (4) The conducting of these Integrated System Tests, by the Contractor and the Other Contractors, shall include a period of Trial Running.

- (5) Completion of Test Results

The results of the Integrated Testing and Commissioning shall be compiled and evaluated by the Engineer and the Contractor.

- (6) Retesting

If the Works, or a part thereof, or a Section, or a Plant & equipment and manufactured items fail to pass the Integrated Testing and Commissioning, the Engineer shall require such failed Tests, to be repeated under the same terms and conditions. If such failure and retesting result from a default of the Contractor and cause the Employer to incur additional costs, the same shall be recoverable from the Contractor by the Employer, and shall be deducted by the Employer from any monies due, or to become due, to the Contractor.

- (7) Failure to pass Test

If the Works, or a part thereof, or a Section, or a Plant & equipment and manufactured item fail to pass Integrated Testing and Commissioning and the Contractor in consequence proposes to make any adjustment or modification to the Works or a part thereof, or a section, or the Plant & equipment and manufactured item, the Engineer shall, with the approval of the Employer, instruct the Contractor to carry out such adjustment or modification, at his own cost and to satisfy the requirements of Integrated Testing and Commissioning within such time as the Employer / Engineer may deem to be reasonable.

- (8) Statutory Requirements

The Contractor along with others shall carry out all statutory tests and trials, under the supervision of the Engineer, necessary for obtaining sanction of the competent authority, if required, for opening the railway system.

5.11 Trial Running and Commissioning

- (1) Following satisfactory completion of the acceptance Tests and the Integrated System Test the Employer shall commence an extended period of trial running to prove all technical systems, to the satisfaction of the Engineer and CRS or any other Authorized Official, and to allow all technical systems to settle and to train staff in working procedures.
- (2) For the purpose of assessing the riding quality of the track and recording combined values of various track parameters an electronic track recording car will be arranged and run by Employer. This run will be scheduled after the floating parameters recorded

in Table 13.6 of specifications, included in Volume III of the Bid Documents, are found to be within acceptable limits. The readings of this trial run shall fall within the following category limits (specified in Chapter VI of IR Permanent Way Manual for electronic recording car) to qualify the track for acceptance.

- a) Track length outside Station limits – Minimum 90% length in Category A as defined in Para 607 of IR Permanent Way Manual
- b) Track length with in Stations limits - Minimum 90% length in Category B (as defined in Para 607 of IR Permanent Way Manual) and above

Station limits for this purpose shall mean the length between the two outermost stop signals. In case the track fails to qualify within the respective categories then a return of the recording car will be scheduled after a month to record these parameters.

- (3) The Contractor shall allow for attendance in respect of the Contractor's scope of work over the whole of this period, which shall be expected to include maintenance and repair activities and also further opportunity for technical staff training.



Annexure 4**Inspection and Testing Philosophy for Electrical Works****(Employers Requirements Manufacturing, Installation, Testing and Commissioning)****1.1 General**

The Contractor shall develop a full test plan including Integrated, commissioning & performance verification and submit for review by the Engineer at least 2 months before any on site tests are to be performed based on the relevant standards/specifications.

1.2 Test Certificates

Three sets of all principal test records and test certificates are to be submitted by Contractor for the review by the Engineer in accordance with the specifications relating to the item, component or equipment of this contract. These test records and certificates shall be supplied for all tests, whether or not the Engineer has witnessed them. The information given on such test certificates shall be sufficient to identify the materials or equipment to which the certificate refers.

1.3 Factory Acceptance Tests

- a. FAT shall comprise Type Tests, Sample Tests, Routine Tests, Life, Endurance and Destruction Tests, and any additional tests requested by the Employer's Personnel.
- b. The testing shall be conducted such as to simulate the working conditions as closely as possible.
- c. Upon the request of the Engineer, destructive tests shall be got carried on components and assemblies to verify the design loading as required according to the relevant specification and factory acceptance test.
- d. Type tests and Factory Acceptance Tests shall be witnessed by independent specialized inspection agencies. Employer may also witness the test, if needed. The test program shall be prepared by D&B Contractor, reviewed by engineer and accepted by DFCCIL.

1.4 Contractors Responsibilities for on-site Testing**General**

- a. The Contractor shall be responsible to carry out all tests as required by the Engineer, in conformity with requirements of international standards and railway practices. During the course of erection, the Employer's Personnel shall have full access for inspecting the progress of work.

On completion of erection and prior to commissioning, all equipment shall be tested and test plan to demonstrate that it is entirely suitable for commercial operation.

- b. The Contractor shall be responsible for providing temporary electricity supply, all instruments, gauges, test equipment, tools, accessories, Personnel, services and any other facilities required for the execution of all tests and inspection. Wherever necessary, the Contractor shall provide two or more sets of testing equipment.

tools, etc. to expedite testing process. All test equipment shall be accompanied with the appropriate calibration certificates from an approved testing authority.

- c. The Contractor shall be responsible for surveillance and security of the power supply systems maintaining control of the substation, padlocking of Switchgear and circuit breaker units, distribution switchboards, power panels, etc. throughout all energisation stages of the installation.

The Contractor shall interface with the other Contractors to assure no downstream cables or other electrical equipment is energised before it has been tested and before other involved Contractors facilities are ready and secured.

The Contractor's responsibility for surveillance and security of the system shall remain in force for each part of the system until such a time that the Employer takes over the System

- d. The Contractor shall submit details of all tests prior to testing and all tests scheduled to be carried out in the presence of the Employer's Personnel and to his complete satisfaction; in event of the Employer's Personnel not being present on schedule, tests may proceed with condition that records shall be put up to the Employer Personnel.

1.5 System Acceptance Tests

1.5.1 Energisation

- a. The Contractor shall submit operation safety rules and procedures to Employer's Personnel before Energisation.
- b. All power equipment shall be subject to inspection by inspectors from the Electrical Inspectorate of Employer before Energisation. The Contractor shall ensure all Employer's requirements are met.
- c. The Contractor shall be responsible for the operation of traction and auxiliary power equipment. Upon request by the Employer's Personnel, the Contractor shall be responsible for the disconnection and the subsequent reconnections of the power equipment or of overhead equipment or connections of traction lines.

1.5.2 Tests

SAT shall include but not be limited to:-

- a. Functional tests of SCADA system.
- b. Integrated Tests with Employers Train Operator.
- c. Short Circuit Tests on OHE: Short Circuit Tests on 25kV overhead lines shall be carried out to prove correct operation of protection equipment and to ensure that the dynamic strength requirements of overhead equipment are met. Short Circuit Tests shall be carried out on every overhead equipment line feeder.
- d. Current Collection test: The Contractor shall conduct current collection tests as per EN 50317 to demonstrate that a newly installed overhead contact line satisfies the quality requirement for 100 kmph speed.

1.6 Integrated Testing and Commissioning

- a. Integrated Testing and Commissioning refers to those tests undertaken in order to demonstrate that the various components of the railway systems operate satisfactorily between one another and meet all specified requirements for design, operability, safety, and integration with other works and systems.

These tests shall be entirely within the requirements of one or more of the Project Contracts or they shall involve a multiplicity of Contract procedure. The final

Integrated Testing and Commissioning shall be carried out after the SCADA system and RCC have become operational.

- b. Those systems that can be tested without depending on the running of trains, such as SCADA system, etc will have their integration tests scheduled to commence as early as possible. It is preferable that any interface problems associated with these “trainless” system tests be identified and resolved prior to the commencement of test running.

1.7 Performance Verification

- a. The Contractor shall carry out all Performance Tests to verify that the performance of the System meets the Employer’s Requirements
- b. The measurement of EMI levels at locations to be specified by the Engineer. Such measurements shall be carried out by Contractor and witnessed by PMC prior to energisation of the Traction Power System, and then during Service Trials and commercial operation of the train services to ensure that the EMI levels comply with the requirements of this Specification.
- c. Should the performance of the System deviate from the Particular Specification, the Contractor shall make every effort to rectify the deviation in the shortest possible time, and to the satisfaction of the Employer’s Personnel.

1.8 Testing and Commissioning of Non-Traction Installations

These shall prove that:

- a) All equipment cabling and distribution is electrically and mechanically safe.
- b) All cables, cores and terminations are properly made off, secure, supported and correctly identified and coloured.
- c) All phases, polarities, neutral and common connections are correctly marked as required, that power is correctly available at all points and that voltage and frequency at all equipment is correct.
- d) All supplies are properly provided with fuse, or otherwise protected to give satisfactory discrimination and safe disconnection under fault conditions.
- e) Batteries are properly ventilated, installed, connected and fitted, and that battery chargers are working correctly.
- f) Insulation resistance of all cabling and equipment is not less than that required by the requirements of the appropriate Statutory Authorities.
- g) All instruments and meters are energized with the correct polarity and working properly.
- h) All fault indications and alarms are working correctly.
- i) All essential equipment fed from battery systems continues to function correctly and without disturbance during all supply failures, restoration and standby sequences.
 - 1) Cables
 - i) Continuity Test.
 - ii) Insulation Resistance Test.
 - iii) Earth Test.
 - iv) Polarity Test.
 - 2) The Fire Detection & Alarm Systems shall be tested in accordance with NFPA 70 & 72. Each component and assembly shall be type tested and



functionally tested before installation, and the entire system functionally tested for correct operation including all interfaces with the other systems.

3) Minimum required tests are as follows:

- i) Test initiating and indicating circuits for proper signal transmission under open circuit conditions. One connection each shall be opened at not less than 10 percent of the initiating and indicating devices. Observe proper signal transmission according to class of wiring used.
- ii) Test each initiating and indicating device for alarm operation and proper response at the control unit. Test smoke detectors with actual products of combustion.
- iii) Test the system for all specified functions according to the approved operation and maintenance manual. Systematically initiate specified functional performance items at each area, including making all possible alarm and monitoring initiations and using all communications options.
 - a) Complete testing of automatic and manual fire alarm system.



Annexure-5**Inspection and Testing for S&T works****1.1 General**

- (1) The Contractor shall provide and perform all types of tests applicable to the Works.
- (2) All materials, goods, equipment and manufacturing processes for the Works shall be subjected to inspection and the witnessing of tests by the Engineer/ RDSO/ RITES and/or employer unless otherwise agreed in writing by the Engineer.
- (3) The Employer, Engineer and/or any of their staff shall have the facility to monitor all tests and have access to all test records. Sufficient time shall be allowed within the testing programmes for necessary alternations to equipment, systems and designs to be undertaken, together with re-testing prior to final commissioning.
- (4) Tests to be conducted by the Contractor shall be carried out in accordance with the requirements of the Contract.
- (5) The inspection and passing of work or equipment by the Engineer shall not relieve the Contractor from his obligations, responsibilities and liabilities to complete the Works in accordance with the Contract nor relieve him of any of his obligations, responsibilities and liabilities under the Contract.

1.2 Test Plan and Procedures

- (1) All test plans and procedures shall be submitted by the contractor for the review of the Engineer at least 30 days prior to conduction of any test together with the exact time and date of such test.
- (2) Test procedures may be amended during the duration of the Contract to reflect changes in design or the identification of additional testing requirements.

1.3 Records of Tests

- (1) Within fourteen (14) days after completion of any test, all necessary information regarding the test shall be submitted in a report for the Engineer's review. If required by the Engineer, a manuscript copy of the test record shall be made at the time of the test and given to the Engineer or at the earliest opportunity if the test has not been witnessed.

1.4 Types of tests**General**

- (1) All equipment, materials and software shall be tested during manufacture and before delivery.
- (2) Following types of tests are required to be conducted but not limited to:
 - a) Type tests;



- b) Factory Acceptance Tests (FAT);
- c) Environmental (EMC/EMI) tests;
- d) Installation tests;
- e) Software tests;
- f) System Acceptance Tests ;
- g) Integrated testing and commissioning;
- h) Trial runs.

1.5 Compatibility test of TPWS

Compatibility between On board TPWS of DFCCIL with Line side TPWS of IR and vice versa shall be tested.

1.6 GSM(R) Radio Network RF Measurement, Drive test & Optimization of Radio Parameters and Engineering Parameters. Key Performance Indicators (KPI) to include but not limited to

- (1) Call Drop Rate
- (2) Handover Success Rate
- (3) TCH Utilization
- (4) Call Setup success rate
- (5) Coverage
- (6) Quality



Annexure-6**CONTRACTOR'S COORDINATION WITH OTHERS (INTERFACE MANAGEMENT PLAN)****1 General**

- 1.1 The Contractor (RS P-7 Contractor) shall interface with Other Contractors (Contractors of CT P-1 & P-2, CT P-3, CT P-3A, EM P-4, ST P-5 packages), Interfacing Parties, relevant authorities and agencies to ensure the effective and compatible coordination of all aspects of design, installation, testing and commissioning of Works. The interface described in this document is for reference of the Contractor. This list does not in any way relieve the Contractor and the interfacing contractors of their obligations to resolve the interface issues which may be called for.

2 Contractor's Responsibility

- 2.1 The Contractor shall ensure that all the interface items as listed in this Specification, shall be included in the Interface Management Plan.
- 2.2 Other items not mentioned in the interface items but being relevant to the design, installation, testing and commissioning of the Permanent Works, shall also be included in the Interface Management Plan.

3 Physical Interface with Other Contractors, Interfacing Parties, relevant authorities and agencies

A number of interfaces identified during Outline Designs that shall require particular attention by the Other Contractors / Interfacing Parties, relevant authorities and agencies are given in appendices listed below:

(i)	Appendix	6-1	EM P-4/ CT P-1, CT P-2, CT P-3, CT P-3A, ST P-5, PE P-6 and RS P-7 and Indian Railways (General Issues).
(ii)	Appendix	6-2	EM P-4/ST P-5 (Specific Issues)
(iii)	Appendix	6-3	EM P-4/RS P-7 (Specific Issues)

4 General Definitions and Scope

- 4.1 This Appendix covers the interface requirements between Contractor and Other Contractors/ Interfacing Parties, relevant authorities and agencies.
- 4.2 This Appendix is common to all the interfacing contracts.
- 4.3 This document shall be read in conjunction with the relevant paragraphs of the General Specification. The contractors (the Contractor and Other Contractors) shall ensure that all requirements of the General Specification and Particular Specification pertaining to interfaces are fully resolved and implemented.
- 4.4 In the event of a conflict between the Particular Specification and this Appendix, the requirements of the Particular Specification shall prevail.



- 4.5 "Project Wide" for the purpose of this Appendix is defined as the complete Scope of Work to be executed under Contracts CT P-1, CT P-2, CT P-3, CT P-3A, EM P-4, ST P-5, PE P-6, RS P-7 including other obligations of the Employer for successful commissioning of DFC Western Corridor Phase-I .
- 4.6 The "Project Wide" scope for the Contractor and Other Contractors shall include both internal and external interfaces including but not limited to Indian Railways, State Electricity Authorities and other Utility Agencies.
- 4.7 The term "Third Parties" for the purposes of this document means all affected infrastructure owners, whose equipment is directly or indirectly affected by the Project Wide Scope of Works. This shall include Indian Railways, State Electricity Authorities, telecom operators, water and gas pipe line owners, emergency services, hospitals etc.

5 Contractors' Responsibilities

- 5.1 This Appendix outlines the contractor's interface requirements which are based on the Technical Studies carried out during the early stages of the Project (DFC Western Corridor Phase 1). However, the requirements herein specified are by no means exhaustive and it remains the Contractor's responsibility to develop, update an "Interface Management Plan" and it shall be the responsibility of the respective Other Contractors to execute the same jointly during currency of their respective Contracts, to ensure that:
- (1) All interface issues between the Contracts are satisfactorily resolved;
 - (2) Supply, installation testing & commissioning, operation and maintenance of Plant & equipment are fully co-ordinated; and
 - (3) All Plant & equipment and facilities supplied under the contracts are fully compatible with each other, whilst meeting the requirements of the respective specifications.
- 5.2 The contractors (Contractor and Other Contractors) shall jointly prepare an Interface Management Plan for exchange of information to achieve the interface requirements at an early stage in the Project, a copy of which shall be submitted to the Engineer for his consent and approval by the Employer.



Annexure-7**PHYSICAL INTERFACE ISSUES BETWEEN RS P-7 & EM P-4****1. INTERFACES**

Interfaces between RS P-7 and EM P-4 Contracts may include but shall not be limited to the following for main line OHE:

Item No	Subject	RS P-7 Responsibilities	EM P-4 Responsibilities
1	Size and types of wires overhead	RS P-7 to take into consideration for design of the Pantograph	EM P-4 shall provide information to RS P-7 Contractor
2	Contact and catenary wire tension	RS P-7to take into Consideration for the design of the Pantograph	EM P-4 shall provide information to RS P-7 Contractor.
3.	Arrangement of the Over-head Line System and Sectioning	RS P-7 to take into consideration for the design of the Pantograph	EM P-4 shall provideInformationtoRSP-7Contractor.
4.	Detailed drawings of pantograph and pantograph head	RS P-7 shall provide information to EM P-4Contractor	EM P-4 to take into consideration for the design of the CJHE System to ensure smooth OHE Panto-graph interactions.
5.	Material of pantograph contact strip	RS P-7 shall provide information to EM P-4Contractor	EM P-4 to take into consideration for the design of the OHE system
6.	Detailed masses,springing and damping of pantograph	RS P-7 shall provide information to EM P-4Contractor	EM P-4 to take into consideration for the design of the OHE System
7.	Pantograph sway calculations	RS P-7 shall provide information to EM P-4Contractor	EM P-4 to take into consideration for the design of the OHE System
8.	Maximum traction return Current	RS P-7shall provide information to EM P-4 Contractor	EM P-4 to take into consideration for the design of the OHE earthing and bonding system
9.	Hanmonic Limitations of power supply.	RS P-7to incorporate into the design of the equipment	EM P-4 to take into consideration for the design of the OHE system



10.	Static uplift force of Pantograph and maximum aerodynamic Force	RS P-7 shall provide information to EM P-4 Contractor	EM P-4 to take into consideration for the design of the OHE system for better contact and current collection between the contact wire and pantograph strip.
11.	Switching off of locomotives at neutral section and then switching on and resuming traction sequentially.	RS P-7 shall design the switching off of its circuit breaker and resuming traction on the other phase safely, for leading and following locomotives.	EM P-4 to take it, in the designs in its protection scheme strategy.

2. INTERFACE MATRIX

In addition to the interface requirements as brought out above, an interface matrix is attached which specifies broadly, interface between RS P-7 and all the Other Contractors for the construction of electric locomotive maintenance depot at Rewari, the following table shall be applicable for EM P-4 and RS P-7 contractors as well.





INTERFACE MATRIX FOR DEPOT DESIGN AND BUILT CONTRACTOR AND DESIGNATED CONTRACTORS						
		PACKAGE 1	PACKAGE 4	PACKAGE 5	P- 6	PACKAGE 7
S.No.	Item of work					
1	Earth Work in depot and construction of access Road to depot	Furnish details of formation level at Ch. 14.449 and on either side of the depot for tracks going towards Dadri and Hisar and also the connecting line between the two.	x	X	x	Design and Build earth work inside the depot area such that formation level inside the depot area shall be not less than 100mm above the formation level at Ch. 14.449 as shown in the indicative alignment drawings of Package-CTP1. Rate for variation in the quantities, if any from those considered by the EM-P7 contractor in his bid (w.r.t. formation level indicated in the tender paper) and as finalized by the Contractor during interface with the CTP1 Contractor shall also be specified in the tender for Contract Package EM-P-7 and the bid price of EM-P-7 adjusted accordingly. Tenderer for EM-P-7 package will be required to submit the design of formation level of the depot in his bid such that any variation in future can be assessed based on the variations for finalisation of the formation level w.r.t. the level specified in the tender submission.
2	Construction of cable trough and trenches including pull pits	X	x	X	x	Shall Design and construct all power cable troughs, trenches inside the depot for HT, LV, 25kV, communication and signalling cables including point machine motors.



3	Construction of Fencing boundary wall and gate	xx	xx	Xx	xxx	Design and construct including earthing of the fencing, if required.
4	Water supply system	xx	xx	Xx	xxx	Design and construct Water supply system for the entire depot requirement
5	Construction of Drainage,Waste water, disposal and sewerage	xx	xx	Xx	xxx	Design and construct the system
6	Design and Track Layout	Provide information on Rewari Yard and main line formation level track design details and construct track including cross-overs upto Depot entry at Ch. 14.449	Shall interface with package-7 Contractor regarding continuity of traction return current.	Xx	xx	Design and construct including track bonding and earthing from Ch. 14.449 to the entire Depot area including auto-wash plant, pit type wheel lathe area etc. He shall also ensure flow of traction return current especially in inspection bay and workshop areas back to traction substation. The track level in the inspection bay shall be at least 100 mm above the Rewari yard track level.
7	Construction of OHLE from Ch. 14.449 to the entire depot	xx	Will install OHE upto Ch. 14.449 at the entracne of the depot and suitably anchor. Also furnish information on vendors of OHE fitting &conductros etc. to EM P-7		xx	Design and build OHE from Ch. 14.449 to the entire shed including proper sectioning and earthing system for safety and ease of operation. Install section insulators and circuit breakers (25kV) at the interchange point so that in case of any fault inside depot, main line power supply is not affected. All the OHE fittings etc. shall be obtained from vendors approved for EM P-4 contractor. The circuit breakers shall be controlable on SCADA from OCC.



8	Low voltage power supply inside depot area	xx	xx	Xx	xx	Shall assess electrical load for the entire depot including D.C.C. and maintenance rooms, construct double circuit HV/MV Cable from nearest power supply sub-station of the utility, install HV/MV to 415 V transformer of adequate capacity (one working and one standby) and make connections to loads including all rooms, service rooms and equipment, inside the depot boundry wall. Design and install energy efficient airconditioning system in office rooms, D.C.C.
9	Signalling and interlocking system - Track side	xx	xx	(i) Will install Signalling and interlocking system upto Ch. 14.449 at the entrance of the depot. (ii) Furnish information on vendors of Signaling equipments to EM P-7. (iii) Provide TPWS on the test track. (iv) Provide details of power supply requirements for TPWS on Test Track to EM P7. (v) Interface with EM P7 for Depot Entry/Exit signals. (vi) Provide interference current limits to EM P7 and test the same.	xx	(i) Design and Build signaling and interlocking system in the depot as per GS and PS of EM P5. Special features required for Depot as given for EM P7 tender shall be followed. (ii) All the Signalling equipments shall be obtained from vendors approved for EM P-5 contractor. (iii) Provide detailed track layout plan of Depot entry track and Test Track to EM P-5 Contract. (iv) Provide rooms for TPWS maintenance and store room including lights, fans, Air Conditioning, computer table, tables, chairs, cupboards etc. (v) Interface with EM P5 for Depot Entry/Exit signals. (vi) Ensure that interference currents are within limits. Associate in its measurement by EM P5. (vii) Provide Depot Radio and EPABX communication to TPWS maintenance staff.



10	Signalling and interlocking system - On Board	xx	xx	<p>(i) Provide space requirements to EM P-7 for fixing On-Board TPWS equipments (cabinet, DMI, Antenna, Axle mounted odometer etc.) in the Locomotive</p> <p>(ii) Supply all On-Board TPWS equipments and those special electrical cables and the associated terminals, including plugs and sockets that are directly connected</p> <p>(iii) If the cable, the associated terminals and the electrical connections provided by EM P-7 do not satisfy the requirements of TPWS, all those cables and accessories shall be provided by EM P-5 himself</p> <p>(iv) Provide details of power supply requirements for On-Board TPWS equipments to EM P-7</p> <p>(v) Train P7 staff for fitting and carrying out preliminary testing of On-Board TPWS equipments during Loco manufacturing</p> <p>(vi) Provide Braking interace from TPWS to Locos</p> <p>(vii) Carry out compatibility testing of TPWS with IR's TPWS</p> <p>(viii) Carry out full testing of On-Board TPWS equipments provided on every loco jointly with EM P-7.</p>	xx	<p>(i) Provide required space to EM P-5 for fixing On-Board TPWS equipments in the Locomotive</p> <p>(ii) Except connections to the On Board equipment supplied by EM P-5, all cables and associated terminals and electrical connections for the On Board equipment shall be provided by EM P-7</p> <p>(iii) Fix and wire all On-Board TPWS equipments in the Locos</p> <p>(iv) Provide required power supply for On-Board TPWS equipments to EM P-5</p> <p>(v) Provide Braking interace to TPWS</p> <p>(vi) Associate with EM P-5 for carrying out compatibility testing of TPWS with IR's TPWS</p> <p>(vii) Associate with EM P-5 for carrying out full testing of On-Board TPWS equipments provided on every loco.</p>
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11	Communication Facilities 1) Train Radio	xxx	xxx	Shall interface with EM P-7 and furnish a list of vendors and specification for inter-operability of the system	xx	Design and install mobile radio communication system on the locomotives. He will also provide additional back-up hand portable radio on each working locomotive.
	2) Ground Communication in the depot	xx	xx	Will provide connectivity of ELMD, PABX System with PABXs at Rewari in order to ensure connectivity of depot with areas outside depot.	xx	Design, procure, install test and commission telephone communication system within ELMD. Shall interface with EM P-5 for junction/ tie lines between depot PABX and PABXs of DFCCIL at Rewari junction and OCC
	3) Laying of optic fibre	xx	xx	Provide for termination of optic fibre at TER, Rewari and connect it to OFC between ELMD and Rewari, to be installed by EM P-7	xx	Design and instal optic fibre cable from TER at Rewarito ELMD.

Section 6. Form of Contract



ANNEX – I

Contractors' Services: Time-Based Contracts



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Preface

1. This Contract for Consulting Services has been prepared by JICA for use by its borrowers and their implementing and executing agencies (referred to hereinafter as Clients) when they hire a consulting firm (referred to hereinafter as the Consultant) for complex assignments for which remuneration is being determined on the basis of the time actually spent by the Consultant in carrying out the services. Its use is encouraged under the circumstances described.
2. The Contract consists of four parts: the Form of Contract to be signed by the Client and the Consultant, the General Conditions of Contract, the Special Conditions of Contract, and the Appendices. Parties using this Contract for services financed by JICA should note that the General Conditions must not be modified. Clauses in the Special Conditions should be dealt with as specified in the notes in *italic* provided for the individual clauses.
3. Time-based contracts are recommended when the scope of the services cannot be established with sufficient precision, or the duration and quantity of services depends on variables that are beyond the control of the Consultant. In time-based contracts the Consultant provides services on a timed basis according to quality specifications, and the Consultant's remuneration is based on (i) agreed upon unit rates for Consultant staff multiplied by the actual time spent by the staff in executing the assignment, and (ii) reimbursable expenses using actual expenses and/or agreed unit prices. This type of contract requires the Client to closely supervise Consultant and to be involved in the daily execution of the assignment.



CONTRACT FOR CONSULTANTS' SERVICES

Time-Based

between

Dedicated Freight Corridor Corporation of India Limited

and

[name of the Consultant]

Dated: _____



I. Form of Contract

TIME-BASED

This CONTRACT (hereinafter called the "Contract") is made the [day] day of the month of [month],[year], between, on the one hand, [name of Client] (hereinafter called the "Client") and, on the other hand, [name of Consultant] (hereinafter called the "Consultant").

[Note: *If the Consultant consists of more than one entity all of which are liable under the contract, the above should be partially amended to read as follows: "... (hereinafter called the "Client") and, on the other hand, a Joint Venture/Consortium consisting of the following entities, each of which will be jointly and severally liable to the Client for all the Consultant's obligations under this Contract, namely, [name of Consultant] and [name of Consultant] (hereinafter collectively called the "Consultant").]*

WHEREAS

- (a) the Client has requested the Consultant to provide certain consulting services as defined in this Contract (hereinafter called the "Services");
- (b) the Consultant, having represented to the Client that it has the required professional skills, and personnel and technical resources, has agreed to provide the Services on the terms and conditions set forth in this Contract;
- (c) by an Agreement dated [day, month, year] (hereinafter called the Loan Agreement) between the [name of Borrower] (hereinafter called the Borrower) and Japan International Cooperation Agency (hereinafter called JICA), JICA has agreed to make a loan to the Borrower for the purpose of financing [name of the Project] (hereinafter called the Project);

NOW THEREFORE the parties hereto hereby agree as follows:

1. The following documents attached hereto shall be deemed to form an integral part of this Contract:
 - (a) The General Conditions of Contract;
 - (b) The Special Conditions of Contract;



(c) The following Appendices:

- Appendix A: Description of Services
- Appendix B: Reporting Requirements
- Appendix C: Personnel Schedule
- Appendix D: Cost Estimates in Foreign Currency
- Appendix E: Cost Estimates in Local Currency
- Appendix F: Summary of Cost Estimates
- Appendix G: Services, Facilities and Equipment to be provided by the Client
- Appendix H: Form of Advance Payments Security
- Appendix I: Acknowledgment of Compliance with Guidelines for the Employment of Consultants under Japanese ODA Loans
- Appendix J: Form of Bank Guarantee for Bid Security
- Appendix K: Form of Bank Guarantee for Performance Guarantee

2. The mutual rights and obligations of the Client and the Consultant shall be as set forth in the Contract, in particular:

- (a) the Consultant shall carry out the Services in accordance with the provisions of the Contract;
- (b) the Client shall make payments to the Consultant in accordance with the provisions of the Contract;
- (c) Subject to subparagraph (d) hereunder, and notwithstanding any other provisions of this Contract, payments under this Contract shall not exceed [amount] in foreign currency/currencies, and [amount] in local currency. Except as otherwise agreed between the Client and the Consultant:
 - (i) Foreign currency payments to the Consultant hereunder will be made in [currency];
 - (ii) Local currency payments to the Consultant hereunder will be made in [currency].
- (d) The maximum amount specified in subparagraph (c) here above has been fixed on the understanding that the Client will make available free of charge to the Consultant the exemptions, assistance, services and facilities provided for under Clause 5 of the General Conditions of Contract and in Appendix G as required for the purposes of the Services. If any such exemptions, assistance, services and facilities are not supplied, the parties shall consult regarding what additional allowance (if any) should be made to the Consultant as a result thereof to cover necessary additional expenditures not envisaged in the cost estimates in Appendices D and E.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.

For and on behalf of [name of Client]

[Authorized Representative]



For and on behalf of [*name of Consultant*]

[*Authorized Representative*]

[Note: *If the Consultant consists of more than one entity, all these entities should appear as signatories, e.g., in the following manner:*]

For and on behalf of the Consultant

[*name of Joint Venture/Consortium Partner*]

[*Authorized Representative*]

[*name of Joint Venture/Consortium Partner*]

[*Authorized Representative*]



II. General Conditions of Contract

1. GENERAL PROVISIONS

- 1.1 Definitions** Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:
- (a) “Applicable Law” means the laws and any other instruments having the force of law in the Client’s Country, or in such other country as may be specified in the Special Conditions of Contract (SC), in force from time to time.
 - (b) “Client” means the agency with which the selected Consultant signs the Contract for the Services.
 - (c) “Client’s Country” means the country of the borrower.
 - (d) “Consultant” means any entity including a Joint Venture that will provide the Services to the Client under the Contract.
 - (e) “Contract” means the Contract signed by the Parties and all the attached documents listed in its Clause 1, that is these General Conditions (GC), the Special Conditions (SC) by which the GC may be amended or supplemented, and the Appendices.
 - (f) “Day” means calendar day.
 - (g) “Effective Date” means the date on which this Contract comes into force and effect pursuant to Clause GC 2.1.
 - (h) “Foreign Currency” means any currency other than the currency of the Client’s Country.
 - (i) “Government” means the Government of the Client’s Country.
 - (j) “JICA” means Japan International Cooperation Agency.
 - (k) “Joint Venture” means a Consultant which comprises two or more Partners each of which will be jointly and severally liable to the Client for all the Consultant’s obligations under the Contract.
 - (l) “Local Currency” means the currency of the Client’s Country.
 - (m) “Partner” means any of the entities that make up the Joint Venture; and “Partners” means all these entities.
 - (n) “Party” means the Client or the Consultant, as the case may be, and “Parties” means both of them.
 - (o) “Personnel” means qualified persons provided by the Consultant and assigned to perform the Services or any part thereof.



- (p) "Reimbursable expenses" means all assignment-related costs other than Consultant's remuneration.
- (q) "Services" means the work to be performed pursuant to this Contract, as described in Appendix A hereto.
- (r) "Sub-Consultant" means any person or entity to whom/which the Consultant subcontracts any part of the Services and for whom/which the Consultant is fully responsible.
- (s) "Third Party" means any person or entity other than the Government, the Client, the Consultant or a Sub-Consultant.
- (t) "In writing" means communicated in written form with proof of receipt.

- 1.2 Relationship between the Parties** Nothing contained herein shall be construed as establishing a relationship of master and servant or of principal and agent as between the Client and the Consultant. The Consultant, subject to this Contract, has complete charge of Personnel and Sub-Consultants, if any, performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder.
- 1.3 Law Governing Contract** This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law.
- 1.4 Language** This Contract has been executed in the language specified in the SC, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract. Furthermore, all reports and correspondence required during implementation of the Services shall be in the language specified in the SC.
- 1.5 Headings** The headings shall not limit, alter or affect the meaning of this Contract.
- 1.6 Notices**
- 1.6.1 Any notice, request or consent required or permitted to be given or made pursuant to this Contract shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent to such Party at the address specified in the SC.
 - 1.6.2 A Party may change its address for notice hereunder by giving the other Party notice in writing of such change to the address specified in the SC.
- 1.7 Location** The Services shall be performed at such locations as are specified in Appendix A hereto and, where the location of a particular task is not so specified, at such locations, whether in the Client's Country or elsewhere, as the Client may approve.



- 1.8 Authority of Lead Partner** In case the Consultant consists of a Joint Venture of more than one entity, the Partners hereby authorize the Lead Partner specified in the SC to act on their behalf in exercising all the Consultant's rights and obligations towards the Client under this Contract, including without limitation the receiving of instructions and payments from the Client.
- 1.9 Authorized Representatives** Any action required or permitted to be taken, and any document required or permitted to be executed under this Contract by the Client or the Consultant may be taken or executed by the officials specified in the SC.
- 1.10 Taxes and Duties** Unless otherwise specified in the SC, the Consultant, Sub-Consultants and Personnel shall pay such taxes, duties, fees and other impositions as may be levied under the Applicable Law.
- 1.11 Fraud and Corruption** JICA requires that Consultants, as well as the Client, under contracts funded with Japanese ODA Loans and other Japanese ODA, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, JICA:
- (a) will reject the result of evaluation of proposals if it determines that the Consultant evaluated as the highest-ranked has engaged in corrupt or fraudulent practices in competing for the contract in question;
 - (b) will recognize a Consultant as ineligible, for period determined by JICA, to be awarded a contract funded with Japanese ODA Loans if it at any time determines that the Consultant has engaged in corrupt or fraudulent practices in competing for, or in executing, another contract funded with Japanese ODA Loans or other Japanese ODA.
- 1.12 Eligibility** The Consultant represents and warrants that it is a legal entity of, or legally established in, an eligible source country specified in the SC and that the Services will be wholly and substantially supplied from an eligible source country specified in the SC.
- 1.13 Sanctions** The Consultant represents and warrants that it, and any Sub-Consultants, as well as any of the Personnel of the Consultant or Sub-Consultant, are not sanctioned by JICA.
- 1.14 High Standard of Conduct** The Client and JICA require that the Consultant and its Personnel maintain a high standard of conduct when carrying out their functions under this Contract. Accordingly, the Consultant and its Personnel are expected to recognize the contribution of others, regardless of their nationality, gender, religion, seniority or contractual status. The Client will take prompt action to address incidents involving conduct that does not live up to these standards, which may result in replacement of any individual expert, Consultant, or contractual staff involved in such incidents pursuant to Clause GC 4.2(b).



- 1.15 Monitoring by JICA** Without assuming the responsibilities of the Client or the Consultant, JICA may monitor the Services as necessary in order to satisfy itself that it is being carried out in accordance with appropriate standards and is based on acceptable data. As appropriate, JICA may take part in discussions between the Client and the Consultant. However, JICA shall not be liable in any way for the performance of the Services by reason of such monitoring or participation in discussions. Neither the Client nor the Consultant shall be released from any responsibility of this Contract by reason of JICA's monitoring or participation in discussion.

2. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

- 2.1 Effectiveness of Contract** This Contract shall come into force and effect on the date (the "Effective Date") of the Client's notice to the Consultant instructing the Consultant to begin carrying out the Services. This notice shall confirm that the effectiveness conditions, if any, listed in the SC have been met.
- 2.2 Termination of Contract for Failure to Become Effective** If this Contract has not become effective within such time period after the date of the Contract signed by the Parties as specified in the SC, the Consultant or the Client may, by not less than twenty one (21) days written notice to the other Party, declare this Contract to be null and void, and in the event of such a declaration by either Party, neither Party shall have any claim against the other Party with respect hereto.
- 2.3 Commencement of Services** The Consultant shall begin carrying out the Services not later than the number of days after the Effective Date specified in the SC.
- 2.4 Expiration of Contract** Subject to sub-Clause GC 2.7.3(c) and unless terminated earlier pursuant to Clause GC 2.9 hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SC.
- 2.5 Entire Agreement** This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.
- 2.6 Modifications or Variations** Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties and shall not be effective until the concurrence of JICA has been obtained. However, any change which does not constitute an important modification of the Contract and which does not affect the amounts payable under the Contract concurred by JICA shall not require a new concurrence of JICA for effectuation. Pursuant to Clause GC 7.2 hereof, however, each Party shall give due

consideration to any proposals for modification or variation made by the other Party.

2.7 Force Majeure

2.7.1 Définition

- (a) For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party, is not foreseeable, is unavoidable, and which makes a Party's performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible in the circumstances, and includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions, strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are within the power of the Party invoking Force Majeure to prevent), confiscation or any other action by Government agencies.
- (b) Force Majeure shall not include (i) any event which is caused by the negligence or intentional action of a Party or such Party's Sub-Consultants or agents or employees, nor (ii) any event which a diligent Party could reasonably have been expected both to take into account at the time of the conclusion of this Contract, and avoid or overcome in the carrying out of its obligations hereunder.
- (c) Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

2.7.2 No Breach of Contract

The failure of a Party to fulfill any of its obligations hereunder shall not be considered to be a breach of this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures, all with the objective of carrying out the terms and conditions of this Contract.

2.7.3 Measures to be Taken

- (a) A Party affected by an event of Force Majeure shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall take all reasonable measures to minimize the consequences of any event of Force Majeure.
- (b) A Party affected by an event of Force Majeure shall notify the other Party of such event as soon as possible, and in any case not later than fourteen (14) days following the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give written notice of the restoration of normal conditions as soon as possible.
- (c) Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal



to the time during which such Party was unable to perform such action as a result of Force Majeure.

- (d) During the period of their inability to perform the Services as a result of an event of Force Majeure, the Consultant, upon instructions by the Client, shall either:
 - (i) demobilize, in which case the Consultant shall be reimbursed for costs they reasonably and necessarily incurred, and, if required by the Client, in reactivating the Services; or
 - (ii) continue with the Services to the extent possible, in which case the Consultant shall continue to be paid under the terms of this Contract and be reimbursed for additional costs reasonably and necessarily incurred.
- (e) In the case of disagreement between the Parties as to the existence or extent of Force Majeure, the matter shall be settled according to Clause GC 8.

2.8 Suspension

The Client may, by written notice to the Consultant, suspend in whole or part, the Services if an event shall have happened and be continuing, in which the Consultant fails to perform any of its obligations under this Contract, including the carrying out of the Services.

2.9 Termination

2.9.1 By the Client

The Client may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (h) of this Clause GC 2.9.1. In such an occurrence the Client shall (except in the case of paragraph (h) below) give not less than thirty (30) days' written notice of termination to the Consultant.

- (a) If the Consultant fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension pursuant to Clause GC 2.8 hereinabove, within thirty (30) days of receipt of such notice of suspension or within such further period as the Client may have subsequently approved in writing.
- (b) If the Consultant becomes (or, if the Consultant consists of more than one entity, if any of its Partners becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary.
- (c) If the Consultant fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause GC 8 hereof.



- (d) If the Consultant submits to the Client a false statement which has a material effect on the rights, obligations or interests of the Client.
- (e) If the Consultant is held by the Client to have a conflict of interest in performance of the Contract, or any portion thereof.
- (f) If, as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than sixty (60) days.
- (g) If the Client, in its sole discretion and for any reason whatsoever, decides to terminate this Contract.
- (h) If the Consultant, in the judgment of the Client has engaged in corrupt, fraudulent, collusive or coercive practices in competing for or in executing this Contract in such a case the Contract shall be terminated on the date Consultant is notified of such breach.

2.9.2 By the Consultant

The Consultant may terminate this Contract, by not less than thirty (30) days' written notice to the Client, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause GC 2.9.2.

- (a) If the Client fails to pay any money due to the Consultant pursuant to this Contract and not subject to dispute pursuant to Clause GC 8 hereof within forty-five (45) days after receiving written notice from the Consultant that such payment is overdue.
- (b) If, as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than sixty (60) days.
- (c) If the Client fails to comply with any final decision reached as a result of arbitration pursuant to Clause GC 8 hereof.
- (d) If the Client is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Consultant may have subsequently approved in writing) following the receipt by the Client of the Consultant's notice specifying such breach.

2.9.3 Cessation of Rights and Obligations

Upon termination of this Contract pursuant to Clauses GC 2.2 or GC 2.9 hereof, or upon expiration of this Contract pursuant to Clause GC 2.4 hereof, all rights and obligations of the Parties hereunder shall cease, except (i) such rights and obligations as may have accrued on the date of termination or expiration, (ii) the obligation of confidentiality set forth in Clause GC 3.3 hereof, (iii) the Consultant's obligation to permit inspection, copying and auditing of their accounts and records set forth in Clause GC 3.6 hereof, and (iv) any right which a Party may have under the Applicable Law.



- 2.9.4 Cessation of Services** Upon termination of this Contract by notice of either Party to the other pursuant to Clauses GC 2.9.1 or GC 2.9.2 hereof, the Consultant shall, immediately upon dispatch or receipt of such notice, take all necessary steps to bring the Services to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum. With respect to documents prepared by the Consultant and equipment and materials furnished by the Client, the Consultant shall proceed as provided, respectively, by Clauses GC 3.9 or GC 3.10 hereof.
- 2.9.5 Payment upon Termination** Upon termination of this Contract pursuant to Clauses GC 2.9.1 or GC 2.9.2 hereof, the Client shall make the following payments to the Consultant:
- (a) remuneration pursuant to Clause GC 6 hereof for Services satisfactorily performed prior to the effective date of termination, and reimbursable expenditures pursuant to Clause GC 6 hereof for expenditures actually incurred prior to the effective date of termination; and
 - (b) except in the case of termination pursuant to paragraphs (a) through (e) and (h) of Clause GC 2.9.1 hereof, reimbursement of any reasonable cost incidental to the prompt and orderly termination of this Contract including the cost of the return travel of the Personnel and their eligible dependents.
- 2.9.6 Disputes about Events of Termination** If either Party disputes whether an event specified in paragraphs (a) through (f) of Clause GC 2.9.1 or in Clause GC 2.9.2 hereof has occurred, such Party may, within forty-five (45) days after receipt of notice of termination from the other Party, refer the matter for dispute settlement in accordance with the procedures stated in Clause GC 8 hereof, and this Contract shall not be terminated on account of such event except in accordance with the terms of any resulting arbitral award.

3. OBLIGATIONS OF THE CONSULTANT

3.1 General

- 3.1.1 Standard of Performance** The Consultant shall perform the Services and carry out their obligations hereunder in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Consultant shall always act, in respect of any matter relating to this Contract or to the Services, as faithful adviser to the Client, and shall at all times support and safeguard the Client's legitimate interests in any dealings with Sub-Consultants or third parties.



- 3.1.2 Law Governing Services** The Consultant shall perform the Services in accordance with the Applicable Law and shall take all practicable steps to ensure that any Sub-Consultants, as well as the Personnel of the Consultant and any Sub-Consultants, comply with the Applicable Law. The Client shall notify the Consultant in writing of relevant local customs, and the Consultant shall, after such notification, respect such customs.
- 3.2 Conflict of Interest**
- 3.2.1 Consultant Not to Benefit from Discounts**
- (a) The payment to the Consultant pursuant to Clause GC 6 hereof shall constitute the Consultant's payment in connection with this Contract and, subject to Clause GC 3.2.2 hereof, the Consultant shall not accept for its own benefit any discount or similar payment in connection with activities pursuant to this Contract or in the discharge of its obligations hereunder, and the Consultant shall use its best efforts to ensure that any Sub-Consultants, as well as the Personnel and agents of either of them, similarly shall not receive any such additional payment.
- (b) Furthermore, if the Consultant, as part of the Services, has the responsibility of advising the Client on the procurement of goods, works or services, the Consultant shall comply with the JICA's *Procurement Guidelines*, as amended from time to time and shall at all times exercise such responsibility in the best interest of the Client. Any discounts obtained by the Consultant in the exercise of such procurement responsibility shall be for the benefit of the Client and shall be credited to the account of the Client.
- 3.2.2 Consultant, and Sub-Consultants Not to Engage in Certain Activities** The Consultant agrees that, during the term of this Contract and after its termination, the Consultant as well as any Sub-Consultant, shall be disqualified from providing goods, works or services (other than consulting services) for any project resulting from the Services.
- 3.2.3 Prohibition of Conflicting Activities** The Consultant shall not engage, and shall cause their Personnel as well as their Sub-Consultants and their Personnel not to engage, either directly or indirectly, in any, personal, business or professional activities that would represent a conflict with the activities assigned to them under this Contract.
- 3.3 Confidentiality** Except with the prior written consent of the Client, neither the Consultant, the Sub-Consultant nor their Personnel shall at any time communicate to any person or entity any confidential information acquired in the course of the Services, nor shall the Consultant, the Sub-Consultant or their Personnel make public the recommendations formulated in the course of, or as a result of, the Services.



- 3.4 Liability of the Consultant**
- (a) Subject to Clause GC 5.2, the Consultant shall be responsible for, and shall indemnify the Client, in respect of loss of or damage to equipment and materials furnished by the Client, or purchased by the Consultant in whole or in part with funds provided by the Client.
 - (b) The Consultant undertakes full responsibility in respect of life, health, and accidents for the Personnel and for the dependents of any such Personnel.
 - (c) The Consultant shall indemnify the Client from and against any and all claims, liabilities, obligations, losses, damages, penalties, actions, judgment, suits, proceedings, demands, costs, expenses and disbursements of whatsoever nature that may be imposed on, incurred by or asserted against the Client during or in connection in the Services by reason of: (i) infringement or alleged infringement by the Consultant of any patent or other protected right; or (ii) plagiarism or alleged plagiarism by the Consultant.
 - (d) The Consultant shall ensure that all goods and services (including without limitation all computer hardware, software and systems) procured by the Consultant out of funds provided or reimbursed by the Client or used by the Consultant in the carrying out of the Services do not violate or infringe any industrial property or intellectual property right or claim of any Third Party.
 - (e) Subject to Clause GC 5.2, the Consultant shall indemnify, protect and defend at their own expense the Client, and its agents and employees from and against any and all actions, claims, losses or damages arising out of Consultant's failure to exercise the skill and care required under Clause GC 3.1.1 provided, however:
 - (i) that the Consultant is notified of such actions, claims, losses or damages not later than the number of months after conclusion of the Services indicated in the SC;
 - (ii) that the ceiling on Consultant's liability shall be limited to the amount indicated in the SC, except that such ceiling shall not apply to actions, claims, losses or damages caused by Consultant's gross negligence or reckless conduct;
 - (iii) that Consultant's liability under Clause GC 3.1.1 shall be limited to actions, claims, losses or damages directly caused by such failure to exercise the said skill and care, and shall not include liability for any actions, claims, losses or damages arising out of occurrences incidental or indirectly consequential to such failure.
 - (f) In addition to any liability the Consultant may have under Clause GC 3.1.1, the Consultant shall, at its own cost and expense, upon request of Client, re-perform the Services in the event of Consultant's failure to exercise the skill and care required under Clause GC 3.1.1.

- (g) Notwithstanding the provisions of paragraph (a) of this Clause 3.4, the Consultant shall have no liability whatsoever for actions, claims, losses or damages occasioned by: (i) Client's overriding a decision or recommendation of Consultant or requiring Consultant to implement a decision or recommendation with which Consultant does not agree; or (ii) the improper execution of Consultant's instructions by agents, employees or independent Contractors of the Client.

3.5 Insurance to be Taken Out by the Consultant

The Consultant (i) shall take out and maintain, and shall cause any Sub-Consultants to take out and maintain, at their (or the Sub-Consultants', as the case may be) own cost but on terms and conditions approved by the Client, insurance against the risks, and for the coverages specified in the SC, and (ii) at the Client's request, shall provide evidence to the Client showing that such insurance has been taken out and maintained and that the current premiums therefore have been paid.

3.6 Accounting, Inspection and Auditing

The Consultant (i) shall keep accurate and systematic accounts and records in respect of the Services hereunder, in accordance with internationally accepted accounting principles and in such form and detail as will clearly identify all relevant time changes and costs, and the bases thereof, and (ii) shall periodically permit the Client or its designated representative, and up to five years from the expiration or termination of this Contract, to inspect the same and make copies thereof as well as to have them audited by auditors appointed by the Client, if so required by the Client as the case may be.

3.7 Consultant's Actions Requiring Client's Prior Approval

The Consultant shall obtain the Client's prior approval in writing before taking any of the following actions:

- (a) Any change or addition to the Personnel listed in Appendix C.
- (b) Subcontracts: the Consultant may subcontract work relating to the Services to an extent and with such experts and entities as may be approved in advance by the Client. Notwithstanding such approval, the Consultant shall retain full responsibility for the Services. In the event that any Sub-Consultants are found by the Client to be incompetent or incapable in discharging assigned duties, the Client may request the Consultant to provide a replacement, with qualifications and experience acceptable to the Client, or to resume the performance of the Services itself.
- (c) Any other action that may be specified in the SC.

3.8 Reporting

3.8.1 Reporting Obligations

- (a) The Consultant shall submit to the Client the reports and documents specified in Appendix B hereto, in the form, in the



numbers and within the time periods set forth in the said Appendix. Final reports shall be delivered in CD ROM in addition to the hard copies specified in said Appendix.

- (b) The Consultant shall on a monthly basis, submit to the Client, in a format acceptable to the Client, a report stating personnel movements and inputs in the previous month compared to those specified in Appendix C. In the event the forecast of progress as anticipated in Appendix C is substantially changed due to variations pursuant to GC Clause 2.6, the Consultant may request the Client to revise the Payment Schedule specified in Appendices D & E, to reflect such change.

3.8.2 Serious Hindrances

The Consultant shall report to the Client and JICA promptly the occurrence of any event or condition which might delay or prevent completion of any significant part of the project in accordance with the schedules and to indicate what steps shall be taken to meet the situation. Where the Client receives such a report from the Consultant, the Client shall immediately forward a copy of it to JICA, together with its comments on the report and an outline of the steps the report proposes shall be taken.

3.9 Documents Prepared by the Consultant to be the Property of the Client

- (a) All plans, drawings, specifications, designs, reports, other documents and software prepared by the Consultant for the Client under this Contract shall become and remain the property of the Client, and the Consultant shall, not later than upon termination or expiration of this Contract, deliver all such documents to the Client, together with a detailed inventory thereof. The Client in its sole discretion may make such documents available to the public.
- (b) The Consultant may retain a copy of such documents and software, and use such software for their own use with prior written approval of the Client. If license agreements are necessary or appropriate between the Consultant and third parties for purposes of development of any such computer programs, the Consultant shall obtain the Client's prior written approval to such agreements, and the Client shall be entitled at its discretion to require recovering the expenses related to the development of the program(s) concerned.

3.10 Equipment, Vehicles and Materials Furnished by the Client

Equipment, vehicles and materials made available to the Consultant by the Client, or purchased by the Consultant wholly or partly with funds provided by the Client, shall be the property of the Client and shall be marked accordingly. Upon termination or expiration of this Contract, the Consultant shall make available to the Client an inventory of such equipment, vehicles and materials and shall dispose of such equipment and materials in accordance with the Client's instructions. While in possession of such equipment, vehicles and materials, the Consultant, unless otherwise instructed by the Client in



writing, shall insure them at the expense of the Client in an amount equal to their full replacement value.

3.11 Equipment and Materials Provided by the Consultant

Equipment or materials brought into the Client's Country by the Consultant and the Personnel and used either for the Project or personal use shall remain the property of the Consultant or the Personnel concerned, as applicable.

3.12 Specifications and Designs

- (a) The Consultant shall prepare all specifications and designs that may be required under the Contract using the metric system and so as to embody the latest design criteria and the Consultant shall specify standards that are accepted and well known among industrial nations.
- (b) The Consultant shall ensure that the specifications and designs and all documentation relating to procurement of goods and services provided under the Services are prepared on an impartial basis so as to promote international competitive bidding.

4. CONSULTANTS' PERSONNEL AND SUB-CONSULTANTS

4.1 General

The Services shall be carried out by the Personnel specified in Appendix C for the respective periods of time indicated therein.

4.2 Replacement of Personnel

- (a) In the event that any of the Personnel is found by the Client to be incompetent, guilty of misbehavior or incapable in discharging the assigned responsibilities, the Client may request the Consultant, at the expense of the Consultant, to forthwith provide a replacement with suitable qualifications and experience acceptable to the Client and the Consultant shall provide such replacement.
- (b) Should it become necessary for the Consultant to replace any of the Personnel specified by name in Appendix C, the Consultant shall forthwith provide a replacement acceptable to the Client with comparable or better qualifications. In the event that the Personnel replaced are, at the time of replacement, in the field, the Consultant shall bear the travel and other related costs arising out of or incidental to the replacement. The rate of remuneration and reimbursable expenses allowable for such replacement shall be the same as agreed between the Client and the Consultant for the Personnel being replaced. For any additional Personnel proposed by the Consultant and approved by the Client, the relevant remuneration rate(s) and estimated reimbursable expenses will be as negotiated between the Client and the Consultant.

4.3 Working Hours, Overtime, Leave

- (a) Working hours and holidays for Personnel are set forth in Appendix C hereto. To account for travel time, International

Personnel carrying out Services inside the Client's Country shall be deemed to have commenced, or finished work in respect of the Services such number of days before their arrival in, or after their departure from the Client's Country as is specified in Appendix C hereto.

- (b) The Personnel shall not be entitled to be paid for overtime nor to take paid sick leave or vacation leave except as specified in Appendix C hereto, and except as specified in such Appendix, the Consultants' remuneration shall be deemed to cover these items. All leave to be allowed to the Personnel is included in the staff-months of service set forth in Appendix C. Any taking of leave by Personnel shall be subject to the prior approval by the Consultant who shall ensure that absence for leave purposes will not delay the progress and adequate supervision of the Services.

4.4 Adjustments to Appendix C – Personnel Schedule

Subject to the prior approval of the Client in accordance with Clause GC 3.7 (a), the Consultant may make adjustment in the periods of time indicated in Appendix C, as may be appropriate to ensure the efficient performance of the Services and provided that such adjustments will not cause payments made under the Contract to exceed the maximum amount payable as specified in Clause GC 6.1.

4.5 Resident Project Manager

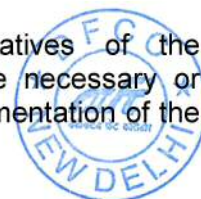
When Services are carried out in the Client's country, the Consultant shall, at all times, ensure that there is a Project Manager acceptable to the Client to supervise and coordinate the operations of the Personnel in the field and to be responsible for liaison between the Consultant and the Client.

5. OBLIGATIONS OF THE CLIENT

5.1 Assistance and Exemptions

Unless otherwise specified in the SC, the Client shall use its best efforts to ensure that the Government shall:

- (a) Provide the Consultant, Sub-Consultants and Personnel with work permits and such other documents as shall be necessary to enable the Consultant, Sub-Consultants or Personnel to perform the Services.
- (b) Arrange for the Personnel and, if appropriate, their eligible dependents to be provided promptly with all necessary entry and exit visas, residence permits, exchange permits and any other documents required for their stay in the Client's Country.
- (c) Facilitate prompt clearance through customs of any property required for the Services and of the personal effects of the Personnel and their eligible dependents.
- (d) Issue to officials, agents and representatives of the Government all such instructions as may be necessary or appropriate for the prompt and effective implementation of the Services.



- (e) Exempt the Consultant and the Personnel and any Sub-Consultants employed by the Consultant for the Services from any requirement to register or obtain any permit to practice their profession or to establish themselves either individually or as a corporate entity according to the Applicable Law.
- (f) Grant to the Consultant, any Sub-Consultants and the Personnel of either of them the privilege, pursuant to the Applicable Law, of bringing into the Client's Country reasonable amounts of foreign currency for the purposes of the Services or for the personal use of the Personnel and their dependents and of withdrawing any such amounts as may be earned therein by the Personnel in the execution of the Services.
- (g) Provide to the Consultant, Sub-Consultants and Personnel any such other assistance as may be specified in the SC.

5.2 Access to Land

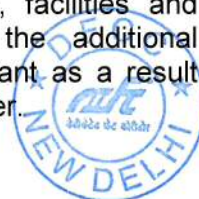
The Client warrants that the Consultant shall have, free of charge, unimpeded access to all land in the Client's Country in respect of which access is required for the performance of the Services. The Client will be responsible for any damage to such land or any property thereon resulting from such access and will indemnify the Consultant and each of the Personnel in respect of liability for any such damage, unless such damage is caused by the default or negligence of the Consultant or any Sub-Consultants or the Personnel of either of them.

5.3 Change in the Applicable Law Related to Taxes and Duties

If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost incurred by the Consultant in performing the Services, then the remuneration and reimbursable expenses otherwise payable to the Consultant under this Contract shall be increased or decreased accordingly by agreement between the Parties hereto, and corresponding adjustments shall be made to the ceiling amounts specified in Clause GC 6.1(b).

5.4 Services, Facilities and Equipment of the Client

- (a) In addition to the assistance to be provided to the Consultant under Clause GC 5.1, the Client shall make available to the Consultant and the Personnel, for the purposes of the Services and free of any charge, the services, facilities and equipment described in Appendix G at the times and in the manner specified in said Appendix G.
- (b) In case that such services, facilities and equipment shall not be made available to the Consultant as and when specified in Appendix G, the Parties shall agree on (i) any time extension that it may be appropriate to grant to the Consultant for the performance of the Services, (ii) the manner in which the Consultant shall procure any such services, facilities and equipment from other sources, and (iii) the additional payments, if any, to be made to the Consultant as a result thereof pursuant to Clause GC 6.1(c) hereinafter.



- 5.5 Payment** In consideration of the Services performed by the Consultant under this Contract, the Client shall make to the Consultant such payments and in such manner as is provided by Clause GC 6 of this Contract.
- 5.6 Counterpart Personnel**
- (a) The Client shall make available to the Consultant free of charge such professional and support counterpart personnel, to be nominated by the Client with the Consultant's advice, if specified in Appendix G.
 - (b) If counterpart personnel are not provided by the Client to the Consultant as and when specified in Appendix G, the Client and the Consultant shall agree on (i) how the affected part of the Services shall be carried out, and (ii) the additional payments, if any, to be made by the Client to the Consultant as a result thereof pursuant to Clause GC 6.1(c) hereof.
 - (c) Professional and support counterpart personnel, excluding Client's liaison personnel, shall work under the exclusive direction of the Consultant. If any member of the counterpart personnel fails to perform adequately any work assigned to such member by the Consultant that is consistent with the position occupied by such member, the Consultant may request the replacement of such member, and the Client shall not unreasonably refuse to act upon such request.
- 5.7 Difference of Opinion** In the case of a difference of opinion between the Client and the Consultant on any important matters involving professional judgement that might affect the proper evaluation or execution of the project, the Client shall allow the Consultant to submit promptly to the Client a written report and, simultaneously, to submit a copy to JICA. The Client shall forward the report to JICA with its comments in time to allow JICA to study it and communicate with the Client before any irreversible steps are taken in the matter. In cases of urgency, the Consultant has the right to request the Client and/or JICA that the matter be discussed immediately between the Client and JICA.

6. PAYMENTS TO THE CONSULTANT

- 6.1 Cost Estimates; Ceiling Amount**
- (a) An estimate of the cost of the Services payable in foreign currency is set forth in Appendix D. An estimate of the cost of the Services payable in local currency is set forth in Appendix E.
 - (b) Except as may be otherwise agreed under Clause GC 2.6 and subject to Clause GC 6.1(c), payments under this Contract shall not exceed the ceilings in foreign currency and in local currency specified in the SC. Whenever it shall be necessary to evaluate one currency in terms of another for the purpose of checking that the ceilings in foreign currency specified in the SC has not been exceeded, the conversion shall be made on the basis of exchange rates as reasonably determined by the Client at the time of each disbursement having regard to the currencies utilized, and the date and place of the expenditure or transaction.

- (c) Notwithstanding Clause GC 6.1(b) hereof, if pursuant to any of the Clauses GC 5.3, 5.4 or 5.6 hereof, the Parties shall agree that additional payments in local and/or foreign currency, as the case may be, shall be made to the Consultant in order to cover any necessary additional expenditures not envisaged in the cost estimates referred to in Clause GC 6.1(a) above, the ceiling or ceilings, as the case may be, set forth in Clause GC 6.1(b) above shall be increased by the amount or amounts, as the case may be, of any such additional payments.

6.2 Remuneration and Reimbursable Expenses

- (a) Subject to the ceilings specified in Clause GC 6.1(b) hereof, the Client shall pay to the Consultant (i) remuneration as set forth in Clause GC 6.2(b) hereunder, and (ii) reimbursable expenses as set forth in Clause GC 6.2(c) hereunder. Unless otherwise specified in the SC, said remuneration and reimbursable expenses shall be fixed for the duration of the Contract.
- (b) Payment for the Personnel shall be determined on the basis of time actually spent by such Personnel in the performance of the Services after the date determined in accordance with Clause GC 2.3 and Clause SC 2.3 (or such other date as the Parties shall agree in writing), at the rates referred to in Clause SC 6.2(b), and subject to price adjustment, if any, specified in Clause SC 6.2(a).
- (c) Reimbursable expenses actually and reasonably incurred by the Consultant in the performance of the Services, as specified in Clause SC 6.2(c), and subject to price adjustment, if any, specified in Clause SC 6.2(a).
- (d) The remuneration rates referred to under paragraph (b) here above shall cover: (i) such salaries and allowances as the Consultant shall have agreed to pay to the Personnel as well as factors for social charges and overhead (bonuses or other means of profit-sharing shall not be allowed as an element of overhead), (ii) the cost of backstopping by home office staff not included in the Personnel listed in Appendix C, and (iii) the Consultant's fee.
- (e) Any rates specified for Personnel not yet appointed shall be provisional and shall be subject to revision, with the written approval of the Client, once the applicable salaries and allowances are known.
- (f) Payments for periods of less than one month shall be calculated on an hourly basis for actual time spent in the Consultant's home office and directly attributable to the Services (one hour being equivalent to 1/176th of a month) and on a calendar-day basis for time spent away from home office (one day being equivalent to 1/30th of a month).

6.3 Currency of Payment

Foreign currency payments shall be made in the currency or currencies specified in the SC, and local currency payments shall be made in the currency of the Client's Country.



6.4 Mode of Billing and Payment

Billings and payments in respect of the Services shall be made as follows:

- (a) Within the number of days after the Effective Date specified in the SC, the Client shall cause to be paid to the Consultant advance payments in foreign currency and in local currency as specified in the SC. When the SC indicate advance payment, this will be due after provision by the Consultant to the Client of an advance payment security acceptable to the Client in an amount (or amounts) and in a currency (or currencies) specified in the SC. Such security (i) to remain effective until the advance payment has been fully set off, and (ii) to be in the form set forth in Appendix H hereto, or in such other form as the Client shall have approved in writing. The advance payments will be set off by the Client in equal installments against the statements for the number of months of the Services specified in the SC until said advance payments have been fully set off.
- (b) As soon as practicable and not later than fifteen (15) days after the end of each calendar month during the period of the Services, or after the end of each time intervals otherwise indicated in the SC, the Consultant shall submit to the Client, in duplicate, itemized statements, accompanied by copies of invoices, vouchers and other appropriate supporting materials, of the amounts payable pursuant to Clauses GC 6.3 and GC 6.4 for such month, or any other period indicated in the SC. Separate statements shall be submitted in respect of amounts payable in foreign currency and in local currency. Each statement shall distinguish that portion of the total eligible costs which pertains to remuneration from that portion which pertains to reimbursable expenses.
- (c) The Client shall pay the Consultant's statements within sixty (60) days after the receipt by the Client of such statements with supporting documents. Only such portion of a statement that is not satisfactorily supported may be withheld from payment. Should any discrepancy be found to exist between actual payment and costs authorized to be incurred by the Consultant, the Client may add or subtract the difference from any subsequent payments. Interest at the annual rate specified in the SC shall become payable as from the above due date on any amount due by, but not paid on, such due date.
- (d) The final payment under this Clause shall be made only after the final report and a final statement, identified as such, shall have been submitted by the Consultant and approved as satisfactory by the Client. The Services shall be deemed completed and finally accepted by the Client and the final report and final statement shall be deemed approved by the Client as satisfactory ninety (90) calendar days after receipt of the final report and final statement by the Client unless the Client, within such ninety (90) day period, gives written notice to the Consultant specifying in detail deficiencies in the Services, the final report or final statement. The Consultant shall thereupon

promptly make any necessary corrections, and thereafter the foregoing process shall be repeated. Any amount, which the Client has paid or caused to be paid in accordance with this Clause in excess of the amounts actually payable in accordance with the provisions of this Contract, shall be reimbursed by the Consultant to the Client within thirty (30) days after receipt by the Consultant of notice thereof. Any such claim by the Client for reimbursement must be made within twelve (12) calendar months after receipt by the Client of a final report and a final statement approved by the Client in accordance with the above.

- (e) All payments under this Contract shall be made to the accounts of the Consultant specified in the SC.
- (f) Payments in respect of remuneration or reimbursable expenses, which exceed the cost estimates for these items as set forth in Appendices D and E, may be charged to the respective contingencies provided for foreign and local currencies only if such expenditures were approved by the Client prior to being incurred.
- (g) With the exception of the final payment under (d) above, payments do not constitute acceptance of the Services nor relieve the Consultant of any obligations hereunder.

7. FAIRNESS AND GOOD FAITH

7.1 Good Faith

The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.

7.2 Operation of the Contract

The Parties recognize that it is impractical in this Contract to provide for every contingency which may arise during the life of the Contract, and the Parties hereby agree that it is their intention that this Contract shall operate fairly as between them, and without detriment to the interest of either of them, and that, if during the term of this Contract either Party believes that this Contract is operating unfairly, the Parties will use their best efforts to agree on such action as may be necessary to remove the cause or causes of such unfairness, but no failure to agree on any action pursuant to this Clause shall give rise to a dispute subject to arbitration in accordance with Clause GC 8 hereof.

8. SETTLEMENT OF DISPUTES

8.1 Amicable Settlement

If either Party objects to any action or inaction of the other Party, the objecting Party may file a written Notice of Dispute to the other Party providing in detail the basis of the dispute. The Party receiving the Notice of Dispute will consider it and respond in writing within 14 days after receipt. If that Party fails to respond within 14 days, or the dispute cannot be amicably settled within 14 days following the response of that Party, Clause GC 8.2 shall apply.

8.2 Dispute Resolution

Any dispute between the Parties as to matters arising pursuant to this Contract that cannot be settled amicably according to Clause GC 8.1 may be submitted by either Party for settlement in accordance with the provisions specified in the SC.



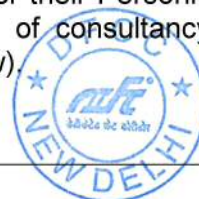
III. Special Conditions of Contract

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
1.1(a)	<p>The words “in the Client’s Country” are amended to read “in India.”</p> <p>Add sub-clause ‘u’ as given below:</p> <p>(u) “Jurisdiction of PMC Services” means area from Rewari to Dadri, from JNPT to Vadodara and relevant offices of DFCCIL/ MOR.</p>
1.4	<p>The Contract has been executed in: English</p> <p>Reports and correspondence shall be in: English</p>
1.6	<p>The addresses are:</p> <p>Client</p> <p style="text-align: right;">Address Group General Manager/ Procurement-WC Room no 505, DFCCIL Office, 5th Floor, Pragati Maidan Metro Station Building Complex, New Delhi – 110001, India</p> <p style="text-align: right;">Attention Praveen Kumar Facsimile +91-11-23454701 Email praveenkumar@dfcc.co.in</p> <p>Consultant:</p> <p style="text-align: right;">Address</p> <p style="text-align: right;">Attention</p> <p style="text-align: right;">Facsimile</p> <p style="text-align: right;">Email</p>
1.8	<p>The Lead Partner is [<i>insert name of partner</i>]</p> <p>Note: If the Consultant consists of a Joint Venture/Consortium the name of the entity whose address is specified in Clause SC 1.6 should be inserted here. If the Consultant consists only of one entity, this Clause SC 1.8 should be deleted from the SC.</p>
1.9	<p>The Authorized Representatives are:</p> <p style="text-align: right;">Client General Manager/ Procurement-WC</p>




	Consultant
1.10	<p>The Sub Clause may be supplemented with the following;</p> <p>The Consultants, Sub Consultants and the Personnel shall pay the corporate income tax and personal income tax payable by them under the Contract and applicable laws.</p> <p>The Employer;</p> <ol style="list-style-type: none"> shall effect Tax deduction at source (TDS) as per the applicable rates in respect of payments made to the Consultants; shall arrange to deposit the above TDS with the Govt/Tax Authorities within the time stipulated under the relevant Act. Certificates evidencing such deposits shall be forwarded by the Employer to the Consultants; shall pay to the Consultants Services Taxes payable as per applicable valuation rules as are determined by service tax authorities from time to time. The Employer shall compensate the Consultants for any further service tax payable occasioned due to subsequent changes in valuation rules if any; <p>shall reimburse to the Consultants any additional taxes that may become payable due to change in applicable law or that may get enacted during the tenure of the Contract from the date such taxes become payable. Such payments shall be made by the Consultants within the time specified in the law and reimbursed on satisfactory production of the evidence thereof to the Employer.</p>
1.12	The eligible source country is: Japan
2.1	<p>Add the following text to the beginning of the sub clause</p> <p>The Contract shall be effective after submission of Bank Guarantee for Performance Guarantee as per Clause GC 3.13.</p>
2.2	The time period shall be 2 (two) months or such other time as the parties may agree in writing.
2.3	The time period shall be 15 (Fifteen) days after the notice to proceed by the Employer or such other time period as the parties may agree in writing.
2.4	<p>The estimated duration of consultancy services to DFCCIL(Part 'A') is for a period of 6 years from date of award of consultancy contract including 4 years of Construction Period and 2 years of Defect Notification Period.</p> <p>For STP-17 except for "Supply, Installation, Testing and Commissioning of TPWS On Board Equipment and Cab Radio on Locomotives", the estimated duration of consultancy services would be 6 years. However, for the above two activities related</p>

	<p>to Locomotives, the estimated duration of consultancy services would be 96 months in line with the duration of consultancy services for Contract package RS P-7 (Procurement of Locomotives and other works).</p> <p>The duration of consultancy services to MOR(Part 'B')for Contract Package RS P-7 (Procurement of Locomotives and other works)is 96 months.</p>
3.4 (e) (i)	The number of months shall be 3 (Three) months
3.4 (e) (ii)	<p>Replace the sub Clause as under;</p> <p>Limitation of the Consultants' Liability towards the Employer</p> <p>(a) Except in case of gross negligence or willful misconduct on the part of the Consultants or on the part of any person or firm acting on behalf of the Consultants in carrying out the Services, the Consultants, with respect to damage caused by the Consultants to the Employer's property, shall not be liable to the Employer:</p> <p>(i) for any indirect or consequential loss or damage; and</p> <p>(ii) for any direct loss or damage that exceeds (A) the total payments for professional fees and reimbursable expenditures made or expected to be made to the Consultants hereunder, or (B) the proceeds the Consultants may be entitled to receive from any insurance maintained by the Consultants to cover such a liability, whichever of (A) or (B) is higher.</p> <p>This limitation of liability shall not affect the Consultants' liability, if any, for damage to Third Parties caused by the Consultants or any person or firm acting on behalf of the Consultants in carrying out the Services."</p>
3.5	<p>In the fifth line Delete the text beginning with " (ii) at the client's request..." and ending with "...have been paid"</p> <p>The GC Sub Clause shall be supplemented with the following;</p> <p>The risks and the coverage shall be as follows:</p> <p>a. Third Party motor vehicle liability insurance in respect of motor vehicles operated in the Employer's country by the Consultants or their Personnel or any SubConsultants or their Personnel for the period of consultancy, as required under Indian Motor Vehicles Act (applicable Law)</p>



	<p>b. professional liability insurance, with a minimum coverage of 300 million Japanese Yen (as required under Clause SC 3.4(e) (ii)) or its equivalent in INR with exchange rate taken as RBI Reference rates corresponding to the Working day 28 Days prior to Proposal submission deadline</p> <p>c. employer's liability and workers' compensation insurance in respect of the Personnel of the Consultants and of any SubConsultant, in accordance with the relevant provisions of the Applicable Law, as well as, with respect to such Personnel, any such life, health, accident, travel or other insurance as may be appropriate; and</p> <p>d. insurance against loss of or damage to (i) equipment purchased in whole or in part with funds provided under this Contract, (ii) the Consultants' property used in the performance of the Services, and (iii) any documents prepared by the Consultants in the performance of the Services.</p> <p>Relevant Insurance Policies shall be submitted with Employer within 90 days of Contract being effective in terms of GC 2.1</p>
3.13 (Add a New Clause)	<p>Performance Guarantee</p> <p>The Performance Guarantee will be in the form of Bank Guarantee for an amount equivalent to 1% of the contract value plus 1.5% of the total payment to be made to the Consultants. Immediately, but in any case not later than twenty eight (28) days from the date of issue of the letter of award, the Consultants will submit a Performance Guarantee in the form of Bank Guarantee for an amount equivalent to 1% of contract value from an Indian scheduled commercial bank. The balance amount of Performance Guarantee will be built up through pro-rata deductions @ 1.5% from each payment to be made to the Consultants in cash both in Indian Rupees and Japanese Yen, which can be refunded against Bank Guarantee for an equal amount. Alternatively the Performance Guarantee will in the form of Bank Guarantee for an amount equivalent to 2.5% of the contract value in equivalent currency. Immediately, but in any case not later than twenty eight (28) days from the date of issue of the letter of award, the Consultant will submit a Performance Guaranty in the form of Bank Guaranty for an amount equivalent to 2.5% of contract value from an Indian Scheduled Commercial Bank. The prescribed form for Bank Guarantee is provided in Appendix K. Performance Guarantee would be valid for 3 months beyond the date of completion of consultancy services. Non Performance of contract by Consultant shall attract forfeiture of Performance security.</p>
4.2	<p>Delete GCC Clause 4.2 and substitute with the following:</p> <p>4.2 Change of Personnel</p> <p>4.2.1 Normally no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of PMC (e.g. death or physical disability), it becomes necessary to replace any of the Personnel, the PMC shall forthwith provide a person of equivalent or better qualifications with prior approval of the Employer.</p>

	<p>4.2.2 If the Employer</p> <p>(i) finds that any of the Personnel has committed serious misconduct or has been charged with having committed a criminal action, or</p> <p>(ii) has reasonable cause to be dissatisfied with the performance of any of the Personnel,</p> <p>then the PMC shall, at the Employer's written request specifying the grounds thereof, forthwith provide as replacement a person with qualifications and experience acceptable to the client.</p> <p>4.2.3 If it becomes necessary to replace any of the Personnel for reasons other than those under 4.2.1 and 4.2.2 above, the PMC shall forthwith provide a person of equivalent or better qualifications with prior approval of the Employer in case of evaluated positions and for non-evaluated positions, the minimum qualification requirement as per the RFP will be applicable.</p> <p>4.2.4 (i) For any of the Personnel provided as replacement under clause 4.2.1 above, the billable monthly rate applicable to such person shall not be affected by replacement.</p> <p>(ii) For any of the Personnel under category of Professional C provided as replacement under clause 4.2.3 above, the billable monthly rate applicable to such person shall not be affected by replacement.</p> <p>(iii) In all other cases of replacement of Personnel i.e. replacement of any Personnel under clause 4.2.2 above, or replacement of Personnel under category of Professional A and B under clause 4.2.3 above,</p> <p>(a) there will be no change in the billable monthly rate for the first replacement against any position provided total replacements for that category of Professionals are within 40% of the original strength of the respective category.</p> <p>(b) for second or subsequent replacement against any position or for total replacement under a particular category beyond 40% of the original strength of that category, the billable monthly rate to be paid to any of the Personnel/ Professional provided as a replacement shall be 90% of the billable monthly rate which would have been payable to the Personnel/ Professional replaced.</p> <p>(c) if the new Personnel/ Professional coming as a replacement remains in service for a continuous period of six months or more, the billable monthly rate to be paid to him shall be restored to the billable monthly rate which would have been payable to his predecessor.</p>
<p>4.3</p>	<p>Delete the last sentence of sub-clause 4.3(b) and substitute with the following:</p> <p>Any taking of leave by Personnel shall be subject to the prior approval by the Consultant and prior consent of the Employer and the PMC shall ensure that absence for leave purposes will not delay the progress and adequate supervision of the Services.</p> <p>Insert a new sub-clause 4.3(c) as given below:</p> 

	<p>4.3(c) In case, a PMC team member is required outside the Jurisdiction of PMC Services (as defined in Clause 1.1(u)) for inspection of material etc., the expert will be entitled for reimbursement of expenses. However, personal approval of an officer not below the rank of, CPM/GM of DFCCIL in case of Part 'A' of Contract and ED/Railway Board in case of Part 'B' of the Contract, will be required for this reimbursement. The Consultant shall submit per-diem rate of reimbursement separately for different categories of cities and personnel with their proposal.</p>
6.1(b)	<p>The ceiling in foreign currency or currencies is: <i>[insert amount and currency for each currency]</i></p> <p>The ceiling in local currency is: <i>[insert amount and currency]</i></p>
6.2(a)	<p>{1. <u>Adjustment of remuneration</u></p> <p>Payments for remuneration made in accordance with Clause GC 6.2(a) in foreign and local currency shall be adjusted as follows:</p> <p>(a) Remuneration paid in foreign currency pursuant to the rates set forth in Appendix D shall be adjusted every 12 months (and, the first time, with effect for the remuneration earned in the 13th calendar month after the date of the Contract) by applying the following formula:</p> $R_f = R_{fo} \times \frac{I_f}{I_{fo}}$ <p>where R_f is the adjusted remuneration, R_{fo} is the remuneration payable on the basis of the rates set forth in Appendix D for remuneration payable in foreign currency, I_f is the official index for salaries in the country of the foreign currency for the first month for which the adjustment is supposed to have effect, and I_{fo} is the official index for salaries in the country of the foreign currency for the month of the date of the Contract.</p> <p>(b) Remuneration paid in local currency pursuant to the rates set forth in Appendix E shall be adjusted every 12 months (and, for the first time, with effect for the remuneration earned in the 13th calendar month after the date of the Contract) by applying the following formula:</p> $R_l = R_{lo} \times \frac{I_l}{I_{lo}}$



	<p>where R_i is the adjusted remuneration, R_o is the remuneration payable on the basis of the rates set forth in Appendix E for remuneration payable in local currency, I_i is the relevant index for salaries in the Client's Country for the first month for which the adjustment is to have effect and, I_o is the official index for salaries in the Client's Country for the month of the date of the Contract.</p> <p>2. Adjustment of reimbursable expenses</p> <p>Payments for reimbursable expenses made in accordance with Clause GC 6.2(a) in foreign and local currency shall be adjusted as follows:</p> <p>Reimbursable expenses pursuant to the rates set forth in Appendices D and E shall be adjusted every 12 months (and, for the first time, with effect for the reimbursable expenses in the 13th calendar month after the date of the Contract) by applying the following formula for each of the currencies of payment under the Contract:</p> $P = P_o \times \frac{I}{I_o}$ <p>where P is the adjusted reimbursable expenses, P_o is the reimbursable expenses payable on the basis of the rates set forth in Appendices D and E for reimbursable expenses, I is the relevant official index in the country of the currency for the first month for which the adjustment is to have effect and, I_o is the relevant official index in the country of the currency for the month of the date of the Contract.</p> <p>The Index I for each of the currencies of payment under the Contract shall be the official consumer price index (CPI) in the Client's Country (India) and equivalent index for yen (Japan i.e. the country of foreign currency.) <i>[insert indices]</i>.</p> <p><i>[These proxy indices shall be proposed by the Consultant, subject to acceptance by the Client.]</i></p>
6.2(b)	The rates for International Personnel are set forth in Appendix D, and the rates for Local Personnel are set forth in Appendix E. Attachment of attendance sheet would be required while submitting claim for remuneration in support of time actually spent by the respective professionals with reference to 6.2(b) and 6.4(b) of General Conditions of Contract.
6.2(c)	The Reimbursable expenses to be paid in foreign currency are set forth in Appendix D, and the Reimbursable expenses to be paid in local currency are set forth in Appendix E.
6.3	The foreign currency shall be the following:



	(i) Japanese Yen and / or other internationally traded currencies
6.4(a)	<p>The following provisions shall apply to the advance payment and the advance payment security:</p> <p>(1) An advance payment of 10 (Ten) percent of the contract value (in foreign currency and in local currency), as an interest-free loan for mobilization and cash flow support, shall be made within 30 (Thirty) days after the Effective Date. The advance payment will be set off by the Client in equal installments against the statements for the first 15 (Fifteen) months of the Services commencing in the 3 (Third) month until the advance payment has been fully set off.</p> <p>(2) Bank Guarantee for advance payment shall be in the amount and in the currency of the foreign and local currency portions of the advance payment.</p>
6.4(b)	Attachment of attendance sheet would be required while submitting claim for remuneration in support of time actually spent by the respective professionals with reference to 6.2(b) and 6.4(b) of General Conditions of Contract.
6.4(c)	The interest rate is: 5% (Five Percent) per annum (simple interest)
6.4(e)	<p>The accounts are:</p> <p>for foreign currency: <i>[insert account]</i>.</p> <p>for local currency: <i>[insert account]</i>.</p>
8.2	<p>Disputes shall be settled by arbitration in accordance with the following provisions:</p> <p>If the dispute or disagreement cannot be settled amicably pursuant to clause GCC 8.1, such dispute or disagreement shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce – Delhi Seat (“ICC Rules of Arbitration”) by Arbitrators appointed in accordance with said Rules. Matters to be arbitrated upon shall be referred to a sole Arbitrator where the total value of the dispute does not exceed Rs 15 million. For disputes where the total value of the arbitration exceeds Rs 15 million, there shall be a panel of Arbitrators (three).</p> <p>Arbitration proceedings shall be held in New Delhi, India. The English language shall be the official language for all purposes.</p>



IV. Appendices

Appendix A – Description of Services

Note: This Appendix will include the final Terms of Reference worked out by the Client and the Consultant during technical negotiations, dates for completion of various tasks, place of performance for different tasks, specific tasks to be approved by Client, etc.

Appendix B – Reporting Requirements

Note: List format, frequency, and contents of reports; persons to receive them; dates of submission; etc. If no reports are to be submitted, state here “Not applicable.”

Appendix C – Personnel Schedule

Appendix D – Cost Estimates in Foreign Currency

Note: List hereunder cost estimates in foreign currency:

1.
 - (a) Monthly rates for International Personnel
 - (b) Monthly rates for Local Personnel.
[This should be added if Local Personnel is also being paid in foreign currency]
2. Reimbursable expenses [items that are not applicable should be deleted; others may be added]:
 - (a) Per diem allowances for each of the International or Local Personnel for every day in which such Personnel shall be absent from his home office and shall be outside the Client's country.
 - (b) Air transport for Foreign Personnel:
 - (i) the cost of international transportation of the International Personnel by the most appropriate means of transport and the most direct practicable route to and from the Consultants' home office; in the case of air travel, this shall be by less than first class;
 - (ii) for any foreign Personnel spending twenty-four (24) consecutive months or more in the Client's country, one extra round trip will be reimbursed for every twenty-four (24) months of assignment in the Client's country. Such Personnel will be entitled to such extra round trip only if upon their return to the Client's country, such Personnel are scheduled to serve for the purposes of the Project for a further period of not less than six (6) consecutive months.
 - (c) Air transport for dependents: the cost of transportation to and from the Client's country of eligible dependents who shall be the spouse and not more than two (2) unmarried dependent children under eighteen (18) years of age of those of the Foreign Personnel assigned to resident duty

in the Client's country for the purpose of the Services for periods of six (6) consecutive months or longer, provided that the stay of such dependents in the Client's country shall have been for not less than three (3) consecutive months duration. If the assignment period for resident staff of the International Personnel will be thirty (30) months or more, one extra economy class air trip for their eligible dependents for every twenty-four (24)-month assignment will be reimbursed.

- (d) *Miscellaneous travel expenses*
 - (i) *for the air travel of each of the International Personnel, and each eligible dependent, the cost of excess baggage up to twenty (20) kilograms per person, or the equivalent in cost of unaccompanied baggage or air freight;*
 - (ii) *the fixed unit price per round trip for miscellaneous travel expenses such as the cost of transportation to and from airports, airport taxes, passport, visas, travel permits, vaccinations, etc.*
- (e) *International communications: the cost of communications (other than those arising in the Client's country) reasonably required by the Consultant for the purposes of the Services.*
- (f) *The cost of printing, reproducing and shipping of the documents, reports, drawings, etc.*
- (g) *The cost of acquisition, shipment and handling of the following equipment, instruments, materials and supplies required for the Services, to be imported by the Consultants and to be paid for by the Client (including transportation to the Client's country).*
- (h) *The cost of transport of personal effects.*
- (i) *The rate for the programming and use of, and communication between, the computers for the purpose of the Services.*
- (j) *The cost of laboratory tests on materials, model tests and other technical services authorized or requested by the Client.*
- (k) *The foreign currency cost of any subcontract required for the Services and approved in writing by the Client.*
- (l) *The cost of training of the Client's staff outside the Client's country, if training is a major component of the assignment, specified as such in the TOR.*
- (m) *The cost of such further items not covered in the foregoing but which may be required by the Consultants for the purpose of the Services, subject to the prior authorization in writing by the Client.*



Appendix E – Cost Estimates in Local Currency

Note: List hereunder cost estimates in local currency:

1. Monthly rates for Local Personnel
2. Reimbursable expenses [items that are not applicable should be deleted; others may be added]:
 - (a) Per diem rates for subsistence allowance for Foreign short-term Personnel:
 - (i) per diem allowance in local currency equivalent to [name agreed foreign currency specified in Clause SC 6.1(b)] per day, plus estimated totals, for each of the short-term Foreign Personnel (i.e., with less than twelve (12) months consecutive stay in the Client's country) for the first ninety (90) days during which such Personnel shall be in the Client's country;
 - (ii) per diem allowance in local currency equivalent to [name agreed foreign currency specified in Clause SC 6.1(b)] per day, plus estimated totals, for each of the short-term Foreign Personnel for each day in excess of ninety (90) days during which such Personnel shall be in the Client's country.
 - (b) Per diem allowance for each of the long-term Foreign Personnel (twelve (12) months or longer consecutive stay in the Client's country, plus estimated totals.
 - (c) The cost of local transportation.
 - (d) The cost of the following locally procured items: office accommodations, camp facilities, camp services, subcontracted services, soil testing, equipment rentals, supplies, utilities and communication charges arising in the Client's country, all if and to the extent required for the purpose of the Services.
 - (e) The cost of equipment, materials and supplies to be procured locally in the Client's country.
 - (f) The local currency cost of any subcontract required for the Services and approved in writing by the Client.
 - (g) The cost of training of Client's staff in the Client's country, if training is a major component of the assignment, specified as such in the TOR.
 - (h) The cost of such further items not covered in the foregoing but which may be required by the Consultant for the purpose of the Services, as agreed in writing by the Client.



Appendix F– Summary of Cost Estimates

Appendix G–Services, Facilities and Equipment to be provided by the Client



Appendix H – Form of Advance Payment Security

Note: See Clause GC 6.4(a) and Clause SC 6.4(a).

Bank Guarantee for Advance Payment

_____ [Bank's Name and Address of Issuing Branch or Office]

Beneficiary: _____ [Name and Address of Client]

Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

We have been informed that [name of Consulting Firm] (hereinafter called "the Consultants") has entered into Contract No. [reference number of the contract] dated [date] with you, for the provision of [brief description of Services] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum of [amount in figures] ([amount in words]) is to be made against an advance payment guarantee.

At the request of the Consultants, we [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [amount in figures] ([amount in words])¹ upon receipt by us of your first demand in writing accompanied by a written statement stating that the Consultants are in breach of their obligation under the Contract because the Consultants have used the advance payment for purposes other than toward providing the Services under the Contract.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Consultants on their account number _____ at [name and address of Bank].

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Consultants as indicated in copies of your certified statements to such effect which shall be presented to us by the Consultants. This

¹ The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Client.

guarantee shall expire, at the latest, upon our receipt of the certified payment certificate issued by you indicating that the Consultants have made full repayment of the amount of the advance payment, or on the ____ day of [month][year] whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed one year, in response to the Client's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

[signature(s)]

Note: *All italicized text is to assist in preparing this form and shall be deleted from the final product.*



APPENDIX I – ACKNOWLEDGEMENT OF COMPLIANCE WITH GUIDELINES FOR THE EMPLOYMENT OF CONSULTANTS UNDER JAPANESE ODA LOANS

As per Form TECH – 9 given in Section 3 (Technical Forms) of this RFP Document.



APPENDIX J – FORM OF BANK GUARANTEE FOR BID SECURITY

(Note: See para 9 of Letter of Invitation)

*[Insert bank's name, and address of issuing branch or office]***Beneficiary:** *[insert name and address of Employer]***Date:** *[insert date]***BID GUARANTEE No.:** *[insert number]*

1. KNOW ALL MEN by these presents that we _____
(name of bank) having our registered office at _____
(Name of Country) (hereinafter called "the bank" which expression shall unless it be repugnant to the subject or context hereof be deemed to include its successors and assigns) are bound unto DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LIMITED, having Corporate office at _____ (herein after called "the employer") in the sum of Rs. _____ for which payment will and truly to be made to the said employer, the bank binds itself, its successors and assigns by these presents.
2. WHEREAS _____ (Name of Consultants), hereinafter called "the Consultants" has desired to submit its proposal dated _____ for _____
AND WHEREAS the Consultants is/are required to furnish a Bank Guarantee for the sum of Rs. _____ as Tender/Bid Security against the Consultants proposal as aforesaid.
AND WHEREAS _____ (Name of Bank) have, at the request of the Consultants, agreed to give this guarantee as hereinafter contained.
3. We further agree as follows:
 - a. that the Employer may without affecting this guarantee grant time or other indulgence to or negotiate further with the Consultants in regard to the conditions contained in the said RFP document and thereby modify these conditions or add thereto any further conditions as may be mutually agreed upon between the Employer and the Consultants.
 - b. That the guarantee hereinbefore contained shall not be affected by any change in the constitution of our Bank or in the Constitution of the Consultants.
 - c. That this Guarantee commences from the date hereof and shall remain in force till _____ (as prescribed in the terms and conditions of the RFP Document).
 - d. That the expression 'the Consultants and 'the bank' herein used shall, unless such an interpretation is repugnant to the subject or context, include their respective successors and assigns.



4. THE CONDITIONS OF THIS OBLIGATION ARE :

- (a) If the Consultants has/have withdrawn its Bid during the period of Bid validity specified in the RFP Document; or
- (b) If the Consultant(s) does not accept the correction of errors in accordance with the Instructions to Consultants (hereinafter "the ITC") of the RFP; or
- (c) having been notified of the acceptance of its Bid by the Employer during the period of Bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the Performance Security, in accordance with the conditions of the RFP document.

We absolutely, irrevocably undertake to pay to the Employer mere on demand without any protest or demur upto the above amount upon receipt of his written demand, without having to substantiate his demand provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of any one or more of the conditions (a), (b), (c) mentioned above, specifying the occurred condition or conditions.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

Signature of
Authorized official of the Bank

Name of Official
Designation
Stamp/seal of the bank



APPENDIX K - FORM OF BANK GUARANTEE FOR PERFORMANCE GUARANTEE

(Note: See Clause SC 3.13.)

TO: [Name and Address of Employer]

Whereas (Name & Address of the Consultants, hereinafter called "the Consultants"), has/have undertaken, in pursuance of (Name and Number of the proposal) a contract for _____.

And whereas it has been stipulated by DFCCIL in the said RFP Document that the Consultant shall furnish a Bank Guarantee by a Scheduled Commercial Indian Bank for the sum specified therein as security for compliance with his obligation in accordance with the conditions of this document.

And whereas we (Name and Address of the Bank) have agreed to give the Consultant such a Bank Guarantee.

Now therefore we hereby affirm that we are the Guarantor and responsible to you on behalf of the Consultant, upto a total of Rs. _____ such sum being payable in type and proportions of currencies in which the contract price is payable and we undertake and guarantee unconditionally and irrevocably to pay you, upon first written demand without cavil or argument, any sum or sums within the limits of Rs. _____ as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Consultant before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract or of the services to be performed thereunder or of any of the contract documents which may be made between you and the Consultant shall in any way release us from any liability under this guarantee, and we hereby waive notice of such change, addition or modification.

This guarantee shall be valid upto _____ (three months beyond the scheduled/extended date of completion of services).

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

Signature and Seal of the Guarantor

Name of Bank

Name and Designation of the person signing

Address

Date



Section 7. List of Eligible Countries of Japanese ODA Loans

Eligibility for the Provision of Goods, Works and Services in JICA-Financed Procurement

- (1) The Eligible Nationality of the Supplier(s)/ Applicant and all partners constituting the Applicant shall be the following:
 - (a) Japan in the case of the prime Consultant; and
 - (b) All countries and areas in the case of the sub-Consultant(s).
- (2) With regard to (1) above, in case where the prime Consultant is a joint venture Consortium, such joint venture/Consortium will be eligible provided that the nationality of the lead partner is Japan, that the nationality of the other partners is Japan and/or India and that the total share of work of Japanese partners in the joint venture / Consortium is more than fifty percent (50%) of the contract amount.
- (3) With regard to (1) and (2) mentioned above,
 - (a) When consulting firms are employed, the prime contractor or, in the case of a joint venture / Consortium, the lead partner and other partners regarded as Japanese Partners shall satisfy all of the following conditions:
 - (i) A majority of the subscribed shares shall be held by Japanese nationals;
 - (ii) A majority of the full-time directors shall be Japanese nationals; and
 - (iii) Such firms shall be incorporated and registered in Japan.
 - (b) When consulting firms are employed, the partners except Japanese partners of a joint venture, / Consortium shall satisfy all of the following conditions:
 - (i) A majority of the subscribed shares shall be held by nationals of Japan or India;
 - (ii) A majority of the full-time directors shall be nationals of Japan or India; and
 - (iii) Such firms shall be incorporated and registered in Japan or India.

