

**Office of the Chief Engineer,
National Highway Zone,
Public Works Department,
NH Campus, Pension Bada, Raipur (CG)
(Government of Chhattisgarh)**

**CONSULTANCY SERVICES FOR FEASIBILITY STUDY AND
COMPARATIVE STUDY OF DIFFERENT ALTERNATIVES FOR WIDENING
OF 4-LANE TO 6-LANE / PROVISION OF ELEVATED CORRIDOR /
CONSTRUCTION OF NEW EXPRESS HIGHWAY OF RAIPUR DURG
SECTION IN KM. 281.000 TO 307.600 = 26.60 KM. OF N.H. 06 (NEW
N.H. 53) IN THE STATE OF CHHATTISGARH**

REQUEST FOR PROPOSAL

(RFP)

(International Competitive Bidding)

NH Campus, Pension Bada, Raipur, Chhattisgarh

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(PWD NATIONAL HIGHWAY ZONE, RAIPUR)
Government of Chhattisgarh
NOTICE INVITING TENDER (NIT)

NIT No. 24/CE/NH/TC/44-20/2016/III/28230

Raipur Dated 27-09-2016

Ministry of Road Transport & Highways has been assigned to take up the Consultancy Services for feasibility study and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/construction of new expressway of Raipur-Durg section in Km. 281.000 to 307.600 = 26.60 Km. Of NH 006 (New N.H. 53) in the State of Chhattisgarh. The detail is as under:

S. No.	State	Stretch	Package No.	Approx. Length (kms)	Period of assignment
1.	Chhattisgarh	Consultancy Services for feasibility study and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/construction of new expressway of Raipur-Durg section in Km. 281.000 to 307.600 = 26.60 Km. Of NH 006 (New N.H. 53) in the State of Chhattisgarh.	CE/NH/FSR 4/6Lane /01	26.60 Kms.	5 months.

2. PWD N.H. Zone, Raipur (Govt. of Chhattisgarh) hereby invites proposals from eligible Consultancy Services for project preparation and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/construction of new expressway of Raipur-Durg section in Km. 281.000 to 307.600 = 26.60 Km. Of NH 006 (New N.H. 53) in the State of Chhattisgarh. The Letter of Invitation (LOI) and Terms of Reference (ToR) including Request for Proposal (RFP) is available online on e-tender portal of MORT&H <https://morth.eproc.in>. Cost of the Document in the form of a Non- refundable document fee of Rs. 10,000 (Rupees Ten Thousand only) in the form of Demand Draft favouring "**Executive Engineer, P.W.D. N.H. Division, Raipur**" and payable at Raipur must be furnished in a separate envelop while submitting the proposal.

Bid must be submitted online at e-tender portal of MORT&H <https://morth.eproc.in> on or before **20-10-2016 (upto 1700 hrs IST)**

3. The RFP has also uploaded on "**INFRACON**" (www.infracon.nic.in). As such before submitting the proposal the Consultant shall mandatorily register and enlist themselves (the firm and all key personnel), on the MoRTH portal "INFRACON" and furnish registration details along with its RFP.

4. The following schedule is to be followed for this assignment:

- i) Deadline for downloading of bid **17-10-2016 (17:00 hrs)**
- ii) Last date for submission of queries **10-10-2016**
- iii) Pre bid meeting in CE NH Zone, PWD, Pension bada, Raipur **13-10-2016 (12:00 hrs)**
- iv) Deadline for Submission of bids : **20-10-2016 (17:00 hrs)**
- v) Date of Physical Submission of Bids : **28-10-2016 (17:00 hrs)**
- vi) Opening of Technical Bids : **29-10-2016 (12:00 hrs)**

Chief Engineer (NH)
National Highway Zone,
P.W.D. Raipur (CG)
Tel: 0771-4051075, 4062744, Fax: 0771-4051076
E-mail: cenhr@rediffmail.com, cenhraipur@gmail.com

Letter of Invitation (LOI)

No. CE/NH/FSR/6Lane /01

Dated:

Dear Sir,

Sub: Consultancy Services for feasibility study and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/construction of new expressway of Raipur-Durg section in Km. 281.000 to 307.600 = 26.60 Km. Of NH 006 (New N.H. 53) in the State of Chhattisgarh.

1. Introduction

- 1.1 Govt. of Chhattisgarh through its representative Chief Engineer, NH Zone, PWD, Raipur has been entrusted with the assignment of preparation of feasibility study and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/construction of new expressway of Raipur-Durg section in Km. 281.000 to 307.600 = 26.60 Km. Of NH 006 (New N.H. 53) in the State of Chhattisgarh. Govt. of Chhattisgarh now invites proposal from Technical consultants Consultancy Services for feasibility study and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/construction of new expressway until declaration of Appointed date of projects as per details given in Annex-1.
- 1.2 A brief description of the assignment and its objectives are given in the Appendix-I, "**Terms of Reference**".
- 1.3 The Govt. of Chhattisgarh invites Proposals (the "**Proposals**") **through e-tender** (on-line bid submission) for selection of Technical Consultant (the "Consultant") who shall prepare Feasibility Study Report and then render consultancy services for proper structuring and implementation of project on EPC Mode. Consultants are hereby invited to submit proposals in the manner as prescribed in the RFP. While submitting the proposal two separate envelope containing "Proof of Eligibility (Part I)" and "Technical proposal (Part II)" shall be submitted. The envelope containing the "Proof of Eligibility" and "Technical Proposal" shall be marked "Envelope containing Proof of Eligibility" and "Envelope containing Technical Proposal" respectively and separately. **Financial proposal is to be submitted online only and no hard copy of the financial proposal should be submitted. The most preferred bidder would be determined on the basis of Quality and Cost as mentioned in the RFP.**
- 1.4 The Consultants either in sole capacity or in JV may include an Associate. **Joint Venture shall not have more than two firms.**
- 1.5 To obtain first hand information on the assignment and on the local conditions, the Consultants are encouraged to pay a visit to the client, local State PWD and the project site before submitting a proposal and attend a pre-proposal conference. They must fully inform themselves of local and site conditions and take them into account in preparing the proposal.

- 1.6 Financial Proposals will be opened only for the firms found to be eligible and scoring qualifying marks in accordance with Para 5 hereof. The consultancy services will be awarded to the highest ranking consultant on the basis of Quality and Cost.
- 1.7 Please note that (i) costs of preparing the proposal and of negotiating the contract, including visits to the Client, etc., are not reimbursable as a direct cost of the assignment;
- and (ii) Client is not bound to accept any of the proposals submitted and reserve the right to reject any or all proposals without assigning any reasons.
- 1.8 The proposals must be properly signed as detailed below:
- 1.8.1 *i. by the proprietor in case of a proprietary firm*
- ii. by the partner holding the Power of Attorney in case of a firm in partnership (A certified copy of the Power of Attorney on a stamp paper of Rs. 100 and duly notarized shall accompany the Proposal).*
- iii. by a duly authorized person holding the Power of Attorney in case of a Limited Company or a corporation (A certified copy of the Power of Attorney on a stamp paper of Rs. 100 and duly notarized shall accompany the proposal).*
- iv. by the authorized representative in case of Joint Venture.*
- 1.8.2 In case a Joint Venture/Association of firms, the proposal shall be accompanied by a certified copy of legally binding Memorandum of Understanding (MOU) on a stamp paper of Rs.100, signed by all firms to the joint venture confirming the following therein:
- i. Date and place of signing;*
- ii. Purpose of Joint Venture/Association (must include the details of contract works for which the joint venture has been invited to bid)*
- iii. A clear and definite description of the proposed administrative arrangements for the management and execution of the assignment. Name of Lead Firm and other partner of JV should be clearly defined in the MOU.*
- iv. Delineation of duties/ responsibilities and scope of work to be undertaken by each firm along with resources committed by each partner of the JV/Association for the proposed services;*
- v. An undertaking that the JV firms are jointly and severally liable to the Employer for the performance of the services;;*
- vi. The authorized representative of the joint venture/Association*
The Association firm shall give a Letter of Association, MOU as in (i) to (vi) above except (v), letter of Authorization, copies of GPA/SPA for the person signing the documents and a certificate of incorporation.

1.8.3 In case of Joint venture, one of the firms which preferably have relatively higher experience, will act as the lead firm representing the Joint Venture. The duties, responsibilities and powers of such lead firm shall be specifically included in the MOU /agreement. It is expected that the lead partner would be authorized to incur liabilities and to receive instructions and payments for and on behalf of the Joint Venture. Payment to be made to the JV can also be made to the account of the JV. For a JV to be eligible for bidding, the experience of lead partner and other partner should be as indicated in data sheet.

1.8.4 A firm can bid for a project either as a sole consultant or in the form of joint venture with other consultant or in association with any other consultant. However, alternative proposals i.e. one as sole or in JV with other consultant and another in association / JV with any other consultant for the same package will be summarily rejected. In such cases, all the involved proposals shall be rejected.

1.9 Pre-proposal conference shall be held on the date, time and venue given in Data Sheet.

1.10 **Bid Security**

1.10.1 The applicant shall furnish as part of its Proposal, a Bid Security of Rs 2,00,000 (Rupees two lakhs only) in the form of a Bank Guarantee issued by one of the Nationalized/Scheduled Banks in India in favour of the Executive Engineer, **National Highway Division, P.W.D. Raipur** payable at Raipur (the **"Bid Security"**) **valid for a minimum period of 150 days (i.e.30 days beyond the validity of the bid) from the last date of submission of proposals.** This Bid Security is returnable not later than 30 (thirty) days from the date of Opening of the Financial proposals except in case of to highest ranked Applicant. Bid Security of the Selected Applicant and the Second ranked Applicant shall be returned, upon the selected Applicant signing the Agreement.

1.10.2 Any Bid not accompanied by the Bid Security of the required value and minimum required validity shall be rejected by the Authority as non responsive.

1.10.3 The Govt. of Chhattisgarh shall not be liable to pay any interest on the Bid Security and the same shall be interest free.

1.10.4 The Applicant, by submitting its Application pursuant to this RFP, shall be deemed to have acknowledged that without prejudice to the Govt. of Chhattisgarh any other right or remedy hereunder or in law or otherwise, the Bid Security shall be forfeited and appropriated by the Authority as the mutually agreed pre-estimated compensation and damage payable to the Authority for, *inter alia* the time, cost and effort of the State Government in regard to RFP including the consideration and evaluation of the Proposal under the following conditions:

- (a) If an Applicant withdraws its Proposal during the period of its validity as specified in this RFP and as extended by the Applicant from time to time;
- (b) In the case of the Selected Applicant, if the Applicant fails to reconfirm its commitments during negotiations as required vide Para 6;
- (c) In the case of a Selected Applicant, if the Applicant fails to sign the Agreement.

2 Documents

- 2.1 To enable you to prepare a proposal, please find and use the attached Documents listed in the Data Sheet.
- 2.2 Consultants requiring a clarification of the Documents must notify the Client, in writing, by **(1500Hrs)**. Any request for clarification in writing or by tele-fax/e-mail must be sent to the Client's address indicated in the Data Sheet. The Client will upload replies to pre-bid queries on its website i.e. **MORTH.org.in**
- 2.3 At any time before the submission of proposals, the Client may, for any reason, whether at its own initiative or in response to a clarification requested by a Consulting firm, modify the Documents by amendment or corrigendum. The amendment will be uploaded on **MORTH and MORT&H website..** The Client may at its discretion extend the deadline for the submission of proposals and the same shall also be uploaded on **MORTH and MORT&H website.**

3. Preparation of Proposal

The proposal must be prepared in three parts viz.,

Part 1: Proof of eligibility

Part 2: Technical Proposal

Part 3: Financial Proposal

- 3.1 Document in support of proof of eligibility
- 3.1.1 The minimum essential requirement in respect of eligibility has been indicated in the Data Sheet. The proposal found deficient in any respect of these requirements will not be considered for further evaluation. The following documents must be furnished in support of proof of eligibility as per Formats given in Appendix-II:

(i) **Forwarding letter for Proof of Eligibility in the Form-E1.**

(ii) **Firm's relevant experience and performance for the last 7 years:** Project sheets in support of relevant experience as per Form-E2/T3 **supported by the experience certificates from clients** in support of experience as specified in data sheet for the project size preferably in terrain of similar nature as that of proposed project shall be submitted. Certificate should indicate clearly the firms Design/FSR experience for the Major bridges,, Viaducts, tunnels, hill slope stabilization, rock bolting, ground improvement, etc. Scope of services rendered by the firm should be clearly indicated in the certificate obtained from the client. The information given in Form E2/T3 shall also be considered as part of Technical Proposal and shall be evaluated accordingly. The Consultants are therefore advised to see carefully the evaluation criteria for Technical Proposal and submit the Project Sheets accordingly.

(iii) **Firm's turnover for the last 5 years:** A tabular statement as in Form E3 showing the turnover of the applicant firm(s) for the last five years beginning with the last financial year certified by the Chartered Account along with **certified copies of the audit reports** shall be submitted in support of the turnover.

(iv) **Document fee:** The fee for the document amounting to Rs. 10,000 (Rupees Ten Thousand only) in the form of Demand Draft favoring **Executive Engineer, P.W.D. N.H. Division, Raipur (C.G.)** payable at Raipur must be furnished in a separate envelope while submitting the proposal.

(v) **Bid Security:** Bank Guarantee in support of bid security for an amount specified in Data Sheet and having validity for a **minimum period of 150 days (i.e 30 days beyond the validity of the bid) from the last date of submission of proposals** in the Form E4.

The experience certificate from clients in support of having completed detailed project report of highway projects of minimum length as specified in data sheet for the project size preferably in terrain of similar nature as that of proposed project. Certificate should indicate clearly the firms Design/FSR experience for major bridges, Viaducts, hill slope stabilization, rock bolting, ground improvement etc. Scope of services rendered by the firm should be clearly indicated in the certificate obtained from the client.

(vi) Power of Attorney on a stamp paper of Rs.100 and duly notarized authorizing to submit the proposal .

(vii) In case a Joint Venture/Association of firms, the proposal shall be accompanied by a certified copy of legally binding Memorandum of Understanding (MOU) on a stamp paper of Rs.100 signed by all firms to the joint venture/Association as detailed at para 1.8.2 above

3.1.2 The minimum essential requirement in respect of eligibility has been indicated in the data sheet, the proposal found deficient in any respect of these requirements will not be considered for further evaluation.

3.2 Technical Proposal

3.2.1 You are expected to examine all terms and instructions included in the Documents. Failure to provide all requested information will be at your own risk and may result in rejection of your proposal.

3.2.2 During preparation of the technical proposal, you must give particular attention to the following:

*Total assignment period is as indicated in the enclosed TOR. **A manning schedule in respect of requirement of key personnel is also furnished in the TOR which shall be the basis of the Financial proposal.** You shall make your own assessment of support personnel both technical and administrative to undertake the assignment. Additional support and administrative staff need to be provided for timely completion of the project within the total estimated cost. **It is stressed that the time period for the assignment indicated in the TOR should be strictly adhered to.***

3.2.3 The technical proposal shall be submitted strictly in the Formats given in Appendix- III and shall comprise of following documents:

i) Forwarding letter for Technical proposal duly signed by the authorized person on behalf of the bidder, as in Form-T-1.

ii) Details of projects for which Technical and Financial Proposals have been submitted by a Consultant with a particular Team as in Form-T-2

iii) Firm's references - Relevant Services carried out in the last seven years as per Form-E2/T-3. This information submitted as part of Proof of Eligibility shall be evaluated and need not be submitted again as a part of the Technical Proposal.

iv) Site Appreciation: limited to four A4 size pages in 1.5 space and 12 font including photographs, if any (Form-T-4).

v) Comments on Terms of Reference: limited to two A4 size pages in 1.5 space and 12 font (Form-T-5).

vi) The composition of the proposed Team and Task Assignment to individual personnel: Maximum three pages (Form-T-6).

vii) Proposed methodology for the execution of the services illustrated with bar charts of activities, including any change proposed in the methodology of services indicated in the TOR, and procedure for quality assurance: Maximum 4 pages (Form-T-7)

viii) The proposal should clearly identify and mention the details of Material Testing LAB FACILITIES to be used by the Consultants for the project (Form-T-8). In this connection, the proposals of the Consultants to use in-house LAB FACILITIES up to a distance of maximum 400 km. from the project site being feasible would be accepted. For all other cases suitable nearby material Testing Laboratory shall be proposed before Contract Agreement is executed.

ix) The proposal shall indicate as to whether the firm is having the facilities for carrying out the following field activities or these are proposed to be outsourced to specialized agencies in the Form- T-9.

a) Topographic Survey

b) Pavement Investigation

c) Geo-technical Investigation

In case the consultant envisages to outsource any or all of the above services to the expert agencies, the details of the same indicating the arrangement made with the agencies need to be furnished. These agencies would however, be subject to approval of the client to ensure quality input by such agencies during technical negotiation before award of the work. For out-sourced services, proposed firms/consultants should have such experience on similar projects

x) Details of office equipment and software owned by the firm in Form-T10

xi) CVs of Key Personnel in Form-T11.

3.2.4 CVs of Key Persons:

ij) The CVs of the key personnel in the format as per Form T-11 is to be furnished. It may please be ensured that the format is strictly followed and the information furnished therein is true and correct. The CV must indicate the work in hand and the duration till which the person will be required to be engaged in that assignment. Experience certificates shall also

be submitted. If any information is found incorrect, at any stage, action including termination and debarment from future The Govt. of Chhattisgarh/MORTH/Ministry projects upto 2 year.

- ii. No alternative to key personnel may be proposed and only one CV may be submitted for each position. The minimum requirements of Qualification and Experience of all key personnel are listed in Enclosure-II of TOR. CV of a person who does not meet the minimum experience requirement as given at enclosure-II of TOR shall be evaluated and the marks obtained shall be taken into consideration during evaluation of Technical Proposal(except Team leader).However if a firm with such key personnel is declared the “most preferred bidder” , such key personnel should be replaced at the time of Contract Negotiations with a person meeting requirements of Qualification and Experience as given at enclosure-II of TOR and whose CV secures 75 % marks and above. If a proposed key personnel does not possess the minimum (essential) educational qualification as given at enclosure-II of TOR ,Zero marks shall be assigned to such CV and such CV shall not be evaluated further . **The CV of the proposed Team Leader should score at least 75 % marks otherwise the entire proposal shall be considered to have failed in the evaluation of Technical Proposals** and shall not be considered for opening of Financial Proposals.
- iii. Sr. Bridge Engineer cum Team Leader, Highway cum Pavement Engineer, Bridge Engineer, Geo-technical cum material engineer and Senior Survey Engineer should be available from beginning of the project. Key Personnel namely Environmental Specialist and Quantity Surveyor / Documentation expert are allowed to be deployed/proposed in 2 teams at a time .**If same CV is submitted by two or more firms, zero marks shall be given for such CV for all the firms.**
- iv. The availability of key personnel must be ensured for the duration of the project as per proposed work programme.
- v. The age limit for key personnel will be as per the enclosure-II attached. The proof of age and qualification of the key personnel must be furnished in the technical proposal.
- vi. An undertaking from the key personnel must be furnished that he/she will be available for entire duration of the project assignment and will not engage himself/herself in any other assignment during the currency of his/her assignment on the project. After the award of work, in case of non availability of key personnel in spite of his/her declaration, he/she shall be debarred for a period of two years for all projects of The Govt. of Chhattisgarh and MoRT&H Projects.
- vii. Age limit for supporting staff to be deployed on project is 65 years as on the date of bid submission.
- viii. A good working knowledge of English Language is essential for key professional staff on this assignment. Study reports must be in ENGLISH Language.
- ix. Photo, contact address and phone/mobile number of key personnel should be furnished in the CV.
- x. Availability of few key personnel engaged for preparation of Feasibility Study Report for the envisaged project may be ensured during first 3 to 4 months after start of the civil work at

site during the period of survey and review of Feasibility Study Report by the Supervision consultant/Authority Engineer. For this purpose, payment shall be made as per actual site deployment of the key personnel at the man month rates quoted by the firm in their financial proposal.

- xi. *It may please be noted that in case the requirement of the 'Experience' of the firm/consortium as mentioned in the "Proof of Eligibility" is met by any foreign company, their real involvement for the intended project shall be mandatory. This can be achieved either by including certain man-months input of key experts belonging to the parent foreign company, or by submitting at least the draft feasibility report and draft Feasibility Study Report duly reviewed by the parent firm and their paying visit to the site and interacting with CG NH PWD. In case of key personnel proposed by the foreign company, they should be on its pay roll for at least last six months (from the date of submission).*
- xii. *In case a firm is proposing key personnel from educational/research institutions, a 'No Objection Certificate' from the concerned institution should be enclosed with the CV of the proposed key personnel committing his services for the instant project.*
- xiii) *Original Curriculum Vitae (CV) and photocopies of certificates shall be recently signed in blue ink by the proposed key professional staff on each page and also initialed by an authorized official of the Firm and each page of the CV must be signed. The key information shall be as per the format. Photocopy of the CVs will not be accepted. Unsigned copies of CVs shall be rejected.*

3.2.5 The technical proposal must not include any financial information.

3.3 Financial Proposal

- 3.3.1 The Financial proposal should include the costs associated with the assignment. These shall normally cover: remuneration for staff (foreign and local, in the field, office etc), accommodation, transportation, equipment, printing of documents, surveys, geotechnical investigations etc. This cost should be broken down into foreign and local costs. Your financial proposal should be prepared strictly using, the formats attached in **Appendix – IV**. Your financial proposal should clearly indicate the amount asked for by you without any assumptions of conditions attached to such amounts. Conditional offer or the proposal not furnished in the format attached in *Appendix-IV* shall be considered non-responsive and is liable to be rejected.
- 3.3.2 The financial proposal shall take into account all types of the tax liabilities and cost of insurance specified in the Data Sheet.
- 3.3.3 **Costs shall be expressed in Indian Rupees in case of domestic Consultant and in Indian Rupees and US Dollars in case of foreign Consultant.** The payments shall be made in Indian Rupees by CG NH PWD and the Consultant themselves would be required to obtain foreign currency to the extent quoted and accepted by CG NH PWD Rate for foreign exchange for payment shall be at the rate established by RBI applicable at the time of making each payment instalment on items involving actual transaction in foreign currency. No compensation done to fluctuation of currency exchange rate shall be made.

- 3.3.4 Consultants are required to charge only rental of equipments/ software(s) use so as to economize in their financial bid.

4 Submission of Proposals

- 4.1 ***The Applicants shall submit the proposal (Proof of Eligibility and Technical Proposal) in hard bound form with all pages numbered serially and by giving and index of submissions.*** Applications submitted in other forms like spiral bound form; loose form etc shall be rejected. Copies of Applications shall not be submitted and considered. **A Consultant may submit only one hard copy (in original) of “proof of eligibility (Part 1)” and “Technical Proposal (Part II)” to Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.) on or before the deadline of submission of bids. Financial proposal are only to be submitted online and no hard copy of the financial proposal should be submitted.**
- 4.2 You must submit **original proposal** as indicated in the Data Sheet. **“Proof of Eligibility” in original and hard bound should be enclosed in an envelope which should be marked as “Part-I – Proof of Eligibility”. Similarly, “Technical Proposal” in original and hard bound should be enclosed in an envelope which should be marked as “Part-II – Technical Proposal”** The proposal will be sealed in an outer envelope which will bear the address and information indicated in the Data Sheet and shall be submitted to **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** on or before the deadline for submission of bids. The envelope must be clearly marked:

Consultancy Package Nos. Project Name

Do not open, except in presence of the evaluation committee

- 4.2.1 This outer envelope will contain three separate envelopes. The first envelope containing “Proof of Eligibility” (which should be clearly marked), the second envelope containing “Technical Proposal” (which should be clearly marked) and the third envelope containing a **demand draft of Rs. 10,000/- (cost of RFP)**, Bid Security of required amount and validity as mentioned in the RFP and Proof of Payment of application processing fees amounting to **Rs. 1295/- to M/s. C-1 India Pvt. Ltd.**
- 4.2.2 The proposal must be prepared in indelible ink and must be signed by the authorized representative of the consultants. The letter of authorization must be confirmed by a written power of attorney accompanying the proposals. All pages of the Proof of Eligibility and Technical Proposal must be initialled by the person or persons signing the proposal.
- 4.3 The proposal must contain no interlineations or overwriting except as necessary to correct errors made by the Consultants themselves, in which cases such corrections must be initialled by the person or persons signing the proposal.
- 4.4 Your completed Proof of eligibility and Technical proposal (in hard copy) must be delivered on or before the time and date at the address stated in Data Sheet. Proof of Eligibility, Technical Proposal and Financial Proposal for each package shall have to be submitted online also on or before the time and date at the address stated in Data Sheet.
- 4.5 Your proposal must be valid for the number of days stated in the Data Sheet from the closing date of submission of proposal.

5 Proposal Evaluation

5.1 The proposals would be evaluated by a Committee constituted by the Chief Engineer, National Highway Zone, Raipur. A three-stage procedure will be adopted in evaluating the proposal. In the first stage- Proof of Eligibility, it will be examined as to whether:

- i) The proposal is accompanied by Document fee
- ii) The Proposal is accompanied by Bid Security of required value and of validity equal or more than the minimum required validity
- iii) The firms(s) have required experience
- iv) The firms(s) have required turnover
- v) The documents are properly signed by the authorized signatories and whether the proposal contains proper POA as mentioned at para 1.8.1 above
- vi) The proposals have been received on or before the dead line of submission.
- vii) In case a Joint Venture/Association of firms, the proposal shall be accompanied by a certified copy of legally binding Memorandum of Understanding (MOU) on a stamp paper of Rs. 100, signed by all firms to the joint venture/Association as detailed at para 1.8.2 above

In case answers to any of the above items is 'No' the bid shall be declared as non-responsive and shall not be evaluated further.

A Consultant satisfying the minimum Eligibility Criteria as mentioned in the Data sheet and who had submitted the above mentioned documents shall be declared "pass" in Proof of Eligibility and the Technical Proposals of only those consultants shall be opened and evaluated further.

5.2 I In the second stage the Technical proposal shall be evaluated as per the detailed evaluation criteria given in Data Sheet.

A proposal securing 75 points shall be declared pass in the evaluation of Technical Proposal. **The technical proposal should score at least 75 points out of 100 to be considered for financial evaluation. The CV of the proposed Team Leader should score at least 75 % marks otherwise the entire proposal shall be considered to have failed in the evaluation of Technical Proposals** and shall not be considered for opening of Financial Proposals.

5.2 Evaluation of Financial Proposal

5.3.1 In case for a **particular** package, only one firm is eligible for opening of Financial Proposals, the Financial Proposal shall not be opened, the bids for that package shall be cancelled and **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** shall invite fresh bids for this package. For financial evaluation, total cost of financial proposal excluding Service Tax shall be considered. Service Tax shall be payable extra.

- 5.3.2 The evaluation committee will determine whether the financial proposals are complete (i.e. whether they have included cost of all items of the corresponding proposals ; if not, then their cost will be considered as NIL but the consultant shall however be required to carry out such obligations without any compensation. In case, if client feels that the work cannot be carried out within overall cost of financial proposal, the proposal can be rejected. The client shall correct any computational errors and correct prices in various currencies to the single currency specified in Data Sheet. The evaluation shall exclude those taxes, duties, fees, levies and other charges imposed under the applicable law & applied to foreign components/ resident consultants.
- 5.3.3 For a package, the procedure as mentioned at Clauses 5.3.4, 5.4 and, 5.5 as mentioned below shall be followed for determining the “most preferred bidder (H-1 bidder)” for this package.
- 5.3.4 The lowest financial proposal (FM) will be given a financial score (SF) of 100 points. The financial scores of other proposals will be computed as follows:

$$SF = 100 \times FM / F$$
(SF = Financial Score, FM= Amount of lowest bid, F= Amount of financial proposal converted in the common currency)
- 5.4 Combined evaluation of Technical and Financial Proposals. Proposals will finally be ranked according to their combined technical (ST) and Financial (SF) scores using the weights indicated in the Data Sheet:
- S= STxT + SFxf**
Where,
S= Combined Score,
ST= Technical Score out of 100
SF= Financial Score out of 100
- T and f are values of weightage for technical and financial proposals respectively as given in the Data Sheet.
- 5.5 For a particular package, a Consultant with a “particular Team ”having the maximum Combined score (S) shall be declared as the **most preferred bidder** (H-1).
- 5.6 In case work has to be awarded for multiple packages, award of work to a Consultant with “a Particular Team ”either as sole or as in JV/Association shall be limited to one package only. At first, Consultants who become H-1 in one package each shall be assigned the respective package. Then packages in which a Consultant with “a Particular Team” turns out to be the most preferred bidder (H-1) in more than one package shall be considered. In case, a Consultant with “a Particular Team” turns out to be the most preferred bidder (H-1) in more than one package, the package which is to be awarded to this team of a consultant shall be

determined on the basis of least cost to **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** considering the Financial Quote of H-1 bidder and H-2 Bidder limited to those packages. Procedure to be followed for awarding work based on QCBS including assessment of least cost to **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** under special circumstances i.e. When a Consultant with “a Particular Team” turns out to be the most preferred bidder (H-1) in more than one package is given at given at Annex-II.

6 Negotiations

- 6.1 Prior to the expiration period of proposal validity, the Client will notify the most preferred Consultant/Bidder i.e. the highest ranking consultant in writing by registered letter, e-mail, or facsimile and invite him to negotiate the Contract.
- 6.2 **Before the start of negotiations, the most preferred Consultant/Bidder (H-1) shall be asked to give justification for the cost quoted by them to the full satisfaction of MORTH.** Each key personnel of the preferred consultant shall be called for interview at the time of negotiation at the cost of consultant before the award of work.
- 6.3 Negotiations normally take two to three days. The aim is to reach agreement on all points and initial a draft contract by the conclusion of Negotiations.
- 6.4 Negotiations will commence with discussion on technical proposal, the proposed methodology (work plan), staffing and any suggestions made to improve the TOR, the staffing and bar charts, which will indicate activities, periods in the field and in the home office, staff months, logistics and reporting. The financial proposal is subject to rationalization. Special attention will be paid to optimize the required outputs from the Consultants within the available budget and to define clearly the inputs required from the Client to ensure satisfactory implementation of the Assignment.
- 6.5 Changes agreed upon will then be reflected in the financial proposal using proposed unit rates.
- 6.6 Having selected Consultants, among other things, on the basis of an evaluation of proposed key professional staff, the Client expects to negotiate, within the proposal validity period, a contract on the basis of the staff named in the proposal and, prior to contract negotiations, will require assurances that the staff will be actually available. **The Client may ask to give a replacement for the key professional who has scored less than 75% marks by a person of at least 75% score. No reduction in remuneration would be made on account of above change.**

The Client will not consider substitutions during contract negotiations except in cases of incapacity of key personnel for reasons of health. Similarly, after award of contract the Client expects all of the proposed key personnel to be available during implementation of the contract. The client will not consider substitutions during contract negotiations/ contract implementation except under exceptional circumstances. For the reason other than death/ extreme medical ground, where replacement is proposed by the Consultant due to non availability of the originally proposed key personnel or in cases where replacement has become necessary as a key personnel proposed by the Consultant has been found to be unsuitable for the project by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** during contract negotiations / contract implementation , the following shall apply (i) for total replacement upto 33% of key personnel, remuneration shall be reduced by 5% (ii) for total replacement between 33% to 50%, remuneration shall be reduced by 10% (iii) for total replacement beyond 50% and 66% remuneration shall be reduced by 15% (iv) for total replacement beyond 66% of the total key personnel, the Client may initiate action for debarment of such consultant for future projects of CG NH PWD/MORT&H/MORTH for a period of 6 months to 24 months. **If for any reason beyond the reasonable control of the consultants, it becomes necessary to replace any of the personnel, the consultants shall forthwith provide as a replacement a person of equivalent or better qualification and experience.**

- 6.7 The negotiations will be concluded with a review of the draft Contract Agreement attached at Appendix-V. The Client and the Consultants will finalize the contract to conclude negotiations.
- 6.8 If a Consultant fails to conclude the negotiations with **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** or in case a consultant withdraws without starting /completing the negotiations with **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**, it shall attract penalty – encashment of Bid Security submitted by the Consultant

7. Performance Security

The consultant will furnish within 15 days of the issue of Letter of Acceptance (LOA), an unconditional Bank Guarantee from a Nationalised Bank, IDBI or ICICI/ICICI Bank/Foreign Bank/EXIM Bank / Any Scheduled Commercial Bank approved by RBI having a net worth of not less than 500 Crore as per latest Annual Report of the Bank. In the case of a Foreign Bank (issued by a Branch in India) the net worth in respect of Indian operations shall only be taken into account. In case of Foreign Bank, the BG issued by Foreign Bank should be counter guaranteed by any Nationalised Bank in India. In case of JV, the BG shall be furnished on behalf of the JV or by the lead member of the JVs for an amount equivalent to **10 %** of the total contract value to be received by him towards Performance Security valid for a period of **three years** beyond the date of completion of services. **The Bank Guarantee will be released by Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.) upon expiry of 3 years beyond the date of completion of services provided rectification of errors if any, found during implementation of the contract for civil work and satisfactory report by Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.) in this regard is issued.** If a Consultant fails to submit the Performance Security (as specified above), it shall attract penalty –encashment of Bid Security submitted by the Consultant,

8. Penalty

The consultant will indemnify for any direct loss or damage that accrue due to deficiency in services in carrying out Feasibility Study Report. Penalty shall be imposed on the consultants for poor performance/deficiency in service as expected from the consultant and as stated in General Conditions of Contract.

9. Award of Contract

After successful Negotiations with the selected Consultant the Client shall issue letter of award and ask the Consultant to provide Performance Security as in Para 7 above. If negotiations (as per para 6 above) fail or the selected Consultant fail to provide performance security within the prescribed time or the Consultant fail to sign the Contract Agreement within prescribed time the Client may invite the 2nd highest ranking bidder Consultant for Contract negotiations and follow the procedure outlined in Para 6, 9 and 10 of this Letter of Invitation.

10. Signing of Contract Agreement

After having received the performance security and verified it, the Client shall invite the selected bidder for signing of Contract Agreement on a date and time convenient to both parties within 15 days of receipt of valid Performance Security.

11. The Client shall keep the bidders informed during the entire bidding process and shall host the following information on its website:

- i) Notice Inviting Tender (NIT)
- ii) Request For Proposal (RFP)
- iii) Replies to pre-bid queries, if any
- iv) Amendments/corrigendum to RFP
- v) List of bidders who submitted the bids up to the deadline of submission
- vi) List of bidders who did not pass the eligibility requirements, stating the broad deficiencies
- vii) List of bidders who did not pass the Technical Evaluation stating the reasons.
- viii) List of bidders along with the technical score, who qualified for opening the financial bid
- ix) Final Score of qualified bidders
- x) Name of the bidders who is awarded the Contract

12. Confirmation

We would appreciate you informing us by facsimile/e-mail *whether or not you will submit a proposal.*

Thanking you.

Yours sincerely,

Chief Engineer, NH Zone, Raipur

Encl. as above

Details of Stretch for preparation of Feasibility Study Report

S. No.	State	Stretch	Package No.	Approx. Length (Kms)	Period of assignment
1.	Chhattisgarh	Consultancy Services for project preparation of feasibility study report and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/ construction of new expressway of Raipur-Durg section in Km. 281.000 to 307.600 = 26.60 Km. Of NH 006 (New N.H. 53) in the State of Chhattisgarh.	CE/NH/FSR-4/6 Lane/01	26.60 Kms.	5 Months

**Empanelment of consultants
for Highway Projects and Bridge Projects under CG NH PWD**

The consultants should be necessarily empanelled in the below category:-

CATAGORY – I(B) Feasibility Study for all type of Highway Projects consisting of all types of bridges/grade separators except bridges with innovative design such as cable stayed, suspension bridge, etc.

DATA SHEET

(References to corresponding paragraphs of LOI are mentioned alongside)

1. **The Name of the Assignment and description of Project** is as mentioned in **Annex-I** (Ref. Para 1.1) (The Name of project should be indicated in the format given in the technical proposal)

2. **The name of the Client is :** Chief Engineer, National Highway Zone, Raipur (Chhattisgarh)

3. **Duration of the Project –** 5 months

4. **Date, Time and Venue of Pre-Proposal Conference**

Date:

Time: 1100 Hrs

Venue: Office of the Chief Engineer, National Highway Zone, P.W.D. N.H. Campus Pensionbada, Raipur (Chhattisgarh) India
(Ref.Para 1.9) Tel: 0771-4051075 Fax: 0771-4051076
E-mail:cenhr@rediffmail.com

5. **The Documents are:**

- i. Appendix-I: Terms of Reference (TOR)
- ii) Appendix-II Formats for Proof of Eligibility
- iii. Appendix-III: Formats for Technical Proposal
- iv. Appendix-IV: Formats for Financial Proposal
- v. Appendix -V Draft Contract Agreement (Ref. Para 2.1)

6. **Bid Security: Rs 2.0 Lakhs (Ref Para 1.10)**

7. **Tax and Insurance** (Ref. Para 3.3.2)

(i). The Consultants and their personnel shall pay all taxes (including service tax), custom duties, fees, levies and other impositions levied under the laws prevailing seven days before the last date of submission of the bids. The effects of any increase / decrease of any type of taxes levied by the Government shall be borne by the Client / Consultant, as appropriate.

(ii). Limitations of the Consultant's Liability towards the Client shall be as per Clause3.4 of Draft Contract Agreement.

(iii). The risk and coverage shall be as per Clause 3.5 of Draft Contract Agreement.

8. **The number of copies of the proposal required to be submitted: 1 no.**
(ref. para 4.1)

9. The address is --- (Ref. para 4.2) The envelopes must be clearly marked:

i. ORIGINAL PROPOSAL;

ii. DOCUMENTS IN PROOF OF ELIGIBILITY & TECHNICAL PROPOSAL as
Appropriate; and,

i. DO NOT OPEN, EXCEPT IN PRESENCE OF THE EVALUATION COMMITTEE
on the outer envelope.

ii. Consultancy Package No. :-----

vi. Project Name :-----

vii. Name and Address of Consultant

10. The date, time and Address of proposal submission are:

Date

Time upto 1500hrs

Address

Chief Engineer, National Highway Zone, P.W.D.

N.H. Campus Pensionbada, Raipur (Chhattisgarh) India

(Ref. Para 1.9) Tel: 0771-4051075 Fax: 0771-4051076

E-mail: cenhr@rediffmail.com

(Ref. Para 4.4)

11. Proposal Validity period (Number of days): 120 days (Ref. Para 4.5)

12. Evaluation criteria: (Ref. Para 3 & 5)

12.1 First stage evaluation – eligibility requirement. (Ref. Para 3.1 & 5.1)

Table-1: Minimum Eligibility Requirements

S.No.	Minimum experience and performance of preparation of Feasibility Study Report of Highways/Bridges in the last 7 years (NH/SH/Equivalent) (for past performance attach undertaking for any litigation history/ and arbitration).	Annual average turnover
1	<p>A Firm applying for a package should have experience of preparation of Feasibility Study of four/six lane / Feasibility of four/ six lane projects of aggregate length equal to the indicative length of the package (i.e. 100km if the indicative length of the package is 100 km) .Firm should have also prepared Feasibility Study for at least one project of 2/4/6 laning of minimum 40% of the indicative length of the package (i.e. 40 km if the indicative length of the package is 100 km) or Feasibility Study of four/six laning of minimum 60% of the indicative length of the package (i.e. 60 km if the indicative length of the package is 100 km) and Feasibility Study of Elevated corridor of 5.00 Km</p> <p>Note: The experience of a firm in preparation of Feasibility Study for a private concessionaire/contractor shall not be considered</p>	<p>Annual average turnover for last 5 years of the firm should be equal to or more than Rs. 3.00 Crores.</p>

- i) The sole applicant shall fulfil all the requirements given in Table-1**
- ii)** Regarding minimum experience, in case of JV, lead partner must fulfil the above requirements and the other partner should also possess the Feasibility Study Report experience of at least one Elevated corridor of 2000 m length.
- iii)** Regarding turnover, in case of JV, the Lead Partner should fulfil at least 75% of eligibility requirements and the other partner shall fulfil at least 50% of eligibility requirements.
- iv)** If the applicant firm has / have prepared the FS projects solely on its own, 100%weightage shall be given. If the applicant firm have prepared the FS projects as a lead partner in a JV, 75% weightage shall be given. If the applicant firm have prepared the FSR projects as the other partner (not lead partner) in a JV 50% weightage shall be given. If the applicant firm have prepared the FS projects as an associate , 25% weightage shall be given.

12.2 Second stage technical evaluation (Refer 5.2)

S.No.	Description	Points
1	Firm's relevant experience in last 7 years	25
2	Adequacy of approach and methodology	5
3	Material testing, survey & investigation, equipment and software proposed to be used	20
4	Qualification and relevant experience of the proposed key personnel	50
	Total	100

Further break-up of each criteria has been detailed out below:

A. Firm's relevant experience in last 7 years

For standard highways, the following is the break-up:

S.No	Description	Maximum Points	Sub-Points
1	Specific experience of the DPR consultancy related to the assignment for eligibility	15	
1.1	Aggregate Length of DPR / Feasibility study of 2/4/6 lane projects	7.5	
1.1.1	More than the indicative Length of the package applied for		5.5
1.1.2	More than 2 times the indicative length of the package applied for		6.5
1.1.3	More than 3 times the indicative length of the package applied for		7.5
1.2	DPR for 2/4/6 laning projects each equal to or more than 40 % of indicative length of a package applied for (or Feasibility Study for 2/4/6 laning projects each equal to or more than 60 % of indicative length of a package applied for)	7.5	
1.2.1	1 project		5.5
1.2.2	2 projects		6.5

S.No	Description	Maximum Points	Sub-Points
1.2.3	3 or more projects		7.5
2	DPR of Bridge having length more than 200 m	5	
2.1	1 bridge		2
2.2	2 bridges		3
2.3	3 bridges		4
2.4	4 or more bridges		5
3	Specific experience of firms in terms of turnover	5	
3.1	Firm's Average Turn over		5
3.2	Firm Average Turnover of last 5 years > = 5 crore but < 10 crore		4
3.3	Firm Average Turnover of last 5 years < 5 crore		0

For special projects such as special bridges, tunnels and expressways that require specialized capabilities and skill sets, the following is the break-up:

S.No	Description	Maximum Points	Sub-Points
1	Specific experience of the DPR consultancy related to the assignment for eligibility	12	
1.1	Aggregate Length of DPR / Feasibility study of 2/4/ 6 lane projects	6	
1.1.1	More than the indicative Length of the package applied for		4
1.1.2	More than 2 times the indicative length of the package applied for		5
1.1.3	More than 3 times the indicative length of the package applied for		6

S.No	Description	Maximum Points	Sub-Points
1.2	DPR for 2/4/6 laning projects each equal to or more than 40 % of indicative length of a package applied for (or Feasibility Study for 2/4/6 laning projects each equal to or more than 60 % of indicative length of a package applied for)	6	
1.2.1	1 project		4
1.2.2	2 projects		5
1.2.3	3 or more projects		6
2	DPR of Bridge having length more than 200 m	4	
2.1	1 bridge		1
2.2	2 bridges		2
2.3	3 bridges		3
2.4	4 or more bridges		4
3	Specific experience of firms in terms of turnover	4	
3.1	Firm's Average Turnover		4
3.2	Firm Average Turnover of last 5 years > = 5 crore but < 10 crore		3
3.3	Firm Average Turnover of last 5 years < 5 crore		0
4	DPR for special category projects (Special bridges/ tunnels or expressways, whichever applicable). It is to be noted that either 4.1 or 4.2 shall be applicable, and not both.	5	
4.1	DPR of number of special bridges/ tunnels (if applicable)	5	
4.1.1	1 project		1
4.1.2	2 projects		2

S.No	Description	Maximum Points	Sub-Points
4.1.3	3 projects		3
4.1.4	4 projects		4
4.1.5	5 or more projects		5
4.2	Aggregate length of DPR/ Feasibility study for expressways	5	
4.2.1	Upto 50km		2
4.2.2	50km to 100km		3
4.2.3	100km to 150km		4
4.2.4	More than 150 km		5

Note: In case feasibility study is a part of DPR services the experience shall be counted in DPR only. In case bridge is included as part of DPR of highway the experience will be (1) and (2)

B. Adequacy of approach and methodology

S.No	Description	Points
1	Site appreciation	2
2	Comments on TOR	1
3	Team composition and task assignment	1
4	Methodology	1
	Total	5

C. Material testing, survey and investigation, equipment and software proposed to be used

S.No	Description	Maximum Points	Sub-Points
1	Availability of in-house material testing facility	2	
1.1	Available		2
1.2	Outsourced		1

S.No	Description	Maximum Points	Sub-Points
1.3	Not Available		0
2	Field Investigation Facilities	3	
2.1	Available		3
2.2	Outsourced		1.5
2.3	Not Available		0
3	Office Equipment and Software	3	
3.1	Available		3
3.2	Outsourced		1.5
3.3	Not Available		0
4	Experience in LiDAR or equivalent technology for topographic survey	4	
4.1	1 project		1
4.2	2 projects		2
4.3	3 projects		3
4.4	4 or more projects		4
5	Experience in using GPR and Induction Locator or equivalent technologies for detection of sub-surface utilities	4	
5.1	1 project		1
5.2	2 projects		2
5.3	3 projects		3
5.4	4 or more projects		4
6	Experience in digitization of cadastral maps for land acquisition	4	

S.No	Description	Maximum Points	Sub-Points
6.1	1 project		1
6.2	2 projects		2
6.3	3 projects		3
6.4	4 or more projects		4

D. Qualification and relevant experience of the proposed key personnel

The weightage for various key staff is as under:

S.No	Key personnel	Points
1	Senior Bridge Engineer cum Team Leader	10
2	Bridge Engineer	7
3	Highway cum Pavement Engineer	7
4	Material-cum-Geo-technical Engineer- Geologist	7
5	Senior Traffic and Safety Expert	6
6	Senior Survey Engineer	5
7	Environment Specialist	5
8	Quantity Surveyor/Documentation Expert	3
	Total	50

The number of points assigned during the evaluation of qualification and competence of key staff are as given below:

S.No	Description	Maximum Points	Sub-Points
1	General Qualification	25	
1.1	Essential education qualification		20
1.2	Desirable education qualification		5
2	Relevant experience and adequacy for the project	65	
2.1	Total professional experience		15 (max)
2.2	Experience in Highway Projects (Bridge Projects for Senior Bridge Engineer)		25 (max)
2.3	Experience in Similar Capacity		25 (max)
3	Employment with the Firm	10	
3.1	Less than 1 year		0
3.2	1 year to 2 years		5
3.3	> 2 years		10

12.3 Detailed evaluation criteria which is to be used for evaluation of technical bids is as indicated as below:

"While submitting the self-evaluation along with bid, Consultant shall make references to the documents submitted in their proposal which have been relied upon in self-evaluation Result of technical evaluation shall be made available on the website giving opportunity to the bidders to respond within 7 days in case they have any objection."

(A) TEAM LEADER cum SENIOR BRIDGE ENGINEER

S. No.	Description	Max. Points
I	General Qualification	25
i)	Degree in Civil Engineering or equivalent	20
ii)	Post Graduation in Highway Engg./Structures/Traffic and Transportation/Soil Mechanics and Foundation Engineering/Construction Management/Transportation	5
II	Relevant Experience & Adequacy for the Project	65
a)	Total Professional Experience	14
	<20 years	0
	20-25 years	11
	>25-28 years	13
	>28 years	14
(b)	Experience in Highway Projects- Experience in Planning, project preparation and design of Highway Projects (2/4/6 laning of NH/SH/Expressways)	23
	<15 years	0
	15-20 years	17
	>20 -25 years	21
	>25 years	23
c)	Experience in Similar Capacity	28
(i)	In Feasibility of 2/4/6 laning works or DPR/IC/Construction Supervision of major highway projects i.e. 2/4/6 laning of NH/SH/Expressways in Similar Capacity (Minimum Aggregate length of 80 km)	19
	< 80km	0
	80 km-150km	14
	> 150km-250km	17
	> 250km	19
(ii)	In Feasibility of 2/4/6 laning works or DPR/IC/Construction Supervision of major highway projects i.e. 2/4/6 laning of NH/SH/Expressways in Similar Capacity- Number of Projects	9
	2 projects	7
	3- 5 projects	8
	More than 5 projects	9
III	Employment with Firm	10
	Less than 1 Year	0
	1-2 years	5
	more than 2 years	10
	Total	100

(B) BRIDGE ENGINEER

S. No.	Description		Max. Points
I	General Qualification		25
	i)	Degree in Civil Engineering or equivalent	20
	ii)	Post Graduation in Structural Engineering/ Bridge Engineering	5
II	Relevant Experience & Adequacy for the Project		65
	a)	Total Professional Experience	14
		<15 years	0
		15-20 years	11
		>20 -25years	13
		>25years	14
	b)	Experience in Bridge Projects	23
	(i)	Experience in project preparation and design of bridge projects	18
		<10 years	0
		10-15 years	13
		>15 -20years	16
		>20years	18
	(ii)	Experience of 2/4 lane configuration bridges	5
		<2 Projects	0
		2-4 Projects	4
		> 4 projects	5
	c)	Experience as Senior Bridge Engineer or Similar Capacity in Highway Design Consultancy Projects (2/4/6 laning of NH/SH/Expressways) involving design of Major Bridges (minimum 2 nos. of length more than 200m)	28
		<2 numbers	0
		2-4 numbers	22
		5-6 numbers	25
		> 6 numbers	28
III	Employment with Firm		10
		Less than 1 Year	0
		1-2 years	5
		more than 2 years	10
	Total		100

(C) TRAFFIC AND SAFETY EXPERT

S. No.	Description	Max. Points
I	General Qualification	25
	i) Degree in Civil Engineering	20
	ii) Post graduation in Traffic Engineering /Transportation Engineering / Transportation Planning	5
II	Relevant Experience & Adequacy for the Project	65
	a) Total Professional Experience	14
	<10 years	0
	10-15 years	11
	>15-20 years	13
	>20years	14
	b) Experience in Highway Projects –Experience on Similar Projects (2/4/6 laning of NH/SH/ Expressways)	23
	<5 years	0
	5-7 years	17
	>7-10 years	21
	>10years	23
	c) Experience as Traffic and Safety Expert / Traffic Engineer or in Similar Capacity in Highway Projects (2/4/6 laning of NH/SH/Expressways) (Minimum aggregate length 80 km)	28
	<80km	0
	80km-150km	22
	>150km -250km	25
	>250km	28
III	Employment with Firm	10
	Less than 1 Year	0
	1-2 years	5
	more than 2 years	10
	Total	100

(D) HIGHWAY cum PAVEMENT ENGINEER

S. No.	Description	Max. Points
I	General Qualification	25
i)	Degree in Civil Engineering or equivalent	20
ii)	Post graduation in Highway Engg/ Transportation Engineering	5
II	Relevant Experience & Adequacy for the Project	65
a)	Total Professional Experience	14
	<15 years	0
	15-20 years	11
	>20 -25years	13
	>25 years	14
(b)	Experience in Highway Projects - Experience in Design/ Pavement Design of Highway Projects (2/4/6 laning of NH/SH/Expressways)	23
	<10 years	0
	10-15 years	17
	>15-20 years	21
	>20years	23
c)	Experience in Similar Capacity	28
(i)	In Design/ Pavement Design of Highway Projects (2/4/6 laning of NH/SH/Expressways) in Similar Capacity (Minimum aggregate length 80 km)	19
	<80km	0
	80km-150km	14
	>150km-250km	17
	>250km	19
(ii)	In Design/Pavement Design of Highway Projects (2/4/6 laning of NH/SH/Expressways) in Similar Capacity –Number of Projects	9
	2 projects	7
	3- 5 projects	8
	More than 5 projects	9
III	Employment with Firm	10
	Less than 1 Year	0
	1-2 years	5
	more than 2 years	10
	Total	100

(E) MATERIAL ENGINEER cum GEOTECHNICAL ENGINEER

S. No.	Description	Max. Points
I	General Qualification	25
i)	Degree in Civil Engineering /M. Sc. in Geology	20
ii)	Post graduation in Foundation Engineering / Soil Mechanics / Geo Tech Engineering or Phd in Geology	5
II	Relevant Experience & Adequacy for the Project	65
a)	Total Professional Experience	14
	<15 years	0
	15-20 years	11
	>20-25 years	13
	>25 years	14
b)	Experience in Highway Projects – In Similar Projects (2/4/6 laning of NH/SH/Expressways) in design and or Construction/ Construction Supervision	23
	<8 years	0
	8-10 years	17
	>10 -12 years	21
	>12years	23
c)	Experience as Material cum Geo-technical Engineer or in Similar capacity on Highway Projects (2/4/6 laning of NH/SH/Expressways) (Minimum aggregate length 80 km)	28
	<80km	0
	80km-150km	22
	>150km –250km	25
	>250km	28
III	Employment with Firm	10
	Less than 1 Year	0
	1-2 years	5
	more than 2 years	10
	Total	100

(F) SENIOR SURVEY ENGINEER

S. No.	Description	Max. Points
I	General Qualification	25
	i) Degree or equivalent in Civil Engineering / Diploma in Civil Engineering / Diploma in Surveying	20
	ii) Post Graduation in Survey Engineering / Surveying / Remote Sensing	5
II	Relevant Experience & Adequacy for the Project	65
	a) Total Professional Experience	14
	>15 years	0
	15-20 years	11
	>20-25 years	13
	>25 years	14
	b) Experience in Highway Projects	23
	i) Experience in Similar Projects (2/4/6 laning of NH/SH/Expressways) in project preparation/ Construction / Construction Supervision	18
	<5years	0
	5 -7 years	13
	>7-10 years	16
	>10 years	18
	ii) Knowledge and understanding of Modern Computer based method of Surveying	5
	Yes	5
	No	0
	c) Experience as Survey Engineer or in Similar Capacity for project preparation of highway project (2/4/6 laning of NH/SH/Expressways) (Minimum Aggregate Length of to 80km)	28
	>80km	0
	80km-150km	22
	>150km-250km	25
	>250km	28
III	Employment with Firm	10
	Less than 1 Year	0
	1-2 years	5
	more than 2 years	10
	Total	100

(G) ENVIRONMENTAL SPECIALIST

S. No.	Description	Max. Points
I	General Qualification	25
	i) Degree in Civil Engineering / Environmental Engineering or Post Graduate in Environmental Sciences	20
	ii) Post Graduation in Environmental Engineering	5
II	Relevant Experience & Adequacy for the Project	65
	a) Total Professional Experience	14
	<10 years	0
	10-15 years	11
	>15-20 years	13
	>20 years	14
	b) Experience in Highway Projects- Experience in Environment impact assessment of Highway Projects (2/4/6 laning of NH/SH/Expressways)	23
	<5 years	0
	5 -7 years	17
	>7-10 years	21
	>10 years	23
	c) Experience as Environmental Specialist or in Similar Capacity in Highway Projects(2/4/6 laning of NH/SH/Expressways)	28
	<2 projects	0
	2- 4 projects	22
	5-7 projects	25
	>7 projects	28
III	Employment with Firm	10
	Less than 1 Year	0
	1-2 years	5
	more than 2 years	10
	Total	100

(H) QUANTITY SURVEYOR/DOCUMENTATION EXPERT

S. No.	Description	Max. Points
I	General Qualification	25
i)	Graduation or equivalent in Civil Engineering / Certificate course from 'Institution of Quantity Surveying'	20
ii)	Graduation or equivalent in Civil Engineering	5
II	Relevant Experience & Adequacy for the Project	65
a)	Total Professional Experience	14
	<15 years	0
	15-20 years	11
	>20-25 years	13
	>25 years	14
b)	Experience in Highway Projects- Experience in preparation of Bill of Quantities, Contract documents and documentation for major highway projects (2/4/6 laning of NH/SH/Expressways)	23
	>5 years	0
	5 -7 years	17
	>7-10 years	21
	>10 years	23
c)	Experience as Quantity Surveyor / Documentation Expert or in Similar Capacity in Highway Projects (2/4/6 laning of NH/SH/Expressways) (Minimum Aggregate length of 80km)	28
	>80km	0
	80km-150km	22
	>150km –250km	25
	>250km	28
III	Employment with Firm	10
	Less than 1 Year	0
	1-2 years	5
	more than 2 years	10
	Total	100

Assumptions to be made regarding Similar Capacity for various positions

1. Team Leader cum Senior Bridge Engineer

- i) On behalf of Consultant / Contractor: Team Leader/Senior Bridge Engineer.
- ii) In Government Organizations: Superintending Engineer (or equivalent) and above

2. Bridge Engineer

- i) On behalf of Consultant: Senior Bridge Engineer/Bridge Engineer/Bridge Design Engineer
- ii) In Government Organizations: Executive Engineer (or equivalent) and above

3. Highway cum Pavement Engineer

- i) On behalf of Consultant: Highway Engineer/Highway Design Engineer/Pavement Engineer.
- ii) In Government Organizations: Executive Engineer (or equivalent) and above

4. Material Engineer cum Geo Technical Engineer

- i) On behalf of Consultant: Material Engineer/Material Expert/Geo Technical Engineer
- ii) In Government Organizations: Executive Engineer (or equivalent) and above
- iii) On behalf of Contractor: Material Engineer/Material Expert/Geo Technical Engineer/Manager (Material)

5. Traffic and Safety Expert

- i) On behalf of Consultant: Safety Traffic Engineer/Transportation Engineer/Road Expert
- ii) In Government Organizations: Executive Engineer (or equivalent) and above
- iii) On behalf of Contractor : Traffic Engineer/Transportation Engineer/ Road Safety Expert

6. Senior Survey Engineer

- i) On behalf of Consultant: Senior Survey Engineer/ Survey Engineer/ Senior Surveyor
- ii) In Government Organizations : Surveyor/Engineer (or equivalent)
- iii) On behalf of Contractor: Senior Survey Engineer/Survey Engineer/ Senior Surveyor

7. Environmental Specialist

- i) On behalf of Consultant /Contractor: Environmental Engineer/ Environmental Specialist/
- ii) In Government Organisation: Environmental Expert Officers who has dealt environment/forest matter.

8. Quantity Surveyor/Documentation Expert

- i) On behalf of Consultant /Contractor: Quantity Surveyor
- (ii) In Government Organizations : Assistant Engineer (or equivalent)

12.3 Third stage – Evaluation of Financial proposal

Financial Proposals of all Qualified Consultants in accordance with clause 5.2 and 5.3 of Letter of Invitation shall be opened.

The consultancy services will be awarded to the consultant scoring highest marks in combined evaluation of Technical and Financial proposals in accordance with clause 1.3, 5.3, 5.4 and 5.5 hereof.

The Factors are:

The weight given to Technical Proposal (T) = 0.80

The weight given to Financial Proposal(f)= 0.20

13. The common currency is “Indian Rupee”. (Ref. Para 3.3.3)

Fixed Exchange rate for conversion (for bid evaluation purpose only):

1 US \$=Rs. 63.00.

14. Commencement of Assignment (Date, Location): The Consultants shall commence the services within fifteen days of the date of effectiveness of the contract at locations as required for the project stretch stated in TOR. (Ref. Para 1.2 of LOI and 2.3 of GCC/SC)

TERMS OF REFERENCE (TOR)

TERMS OF REFERENCE FOR SUBMISSION OF EXPRESSION OF INTEREST FOR CONSULTANCY SERVICES FOR PROJECT PREPARATION OF FEASIBILITY STUDY AND COMPARATIVE STUDY OF DIFFERENT ALTERNATIVES FOR WIDENING OF 4-LANE TO 6-LANE / PROVISION OF ELEVATED CORRIDOR / CONSTRUCTION OF NEW EXPRESS HIGHWAY OF RAIPUR DURG SECTION IN KM. 281.000 TO 307.600 = 26.60 KM. OF N.H. 06 (NEW N.H. 53) IN THE STATE OF CHHATTISGARH

1. **BACKGROUND**

- 1.1 National Highway No. 06 (New NH-53) Raipur-Durg section is passing through Raipur-Durg Town. Both Towns are very important of the Chhattisgarh State and industrial area of both Town.
- 1.2 This stretch of National Highway starts from Raipur (Tatibandh) in Km. 281.00 to Durg at Km. 307.600 = 26.60 Km.
- 1.3 National Highway No. 06 is having high volume of traffic and it is increasing day by day due to both city is very important of Chhattisgarh State and industrial area of both city is very connecting the Bhilai Industrial area. The traffic intensity of Road between Raipur-Durg is 92912 PCUs as per traffic survey conducted by State PWD in the month of May 2014.
- 1.4 The existing National Highway is good case for capacity augmentation.

2. **PROPOSAL**

Having realized a need to find out a long lasting solution to traffic and inconvenience to free flow of traffic on Raipur-Durg section of National Highway No. 6 (New N.H. 53)

The MoRT&H/CG NH PWD is contemplating to augment capacity of this stretch by widening or construction of elevated corridor or alternate alignment expressway in between Raipur and Durg Towns. The Government has therefore decided to engage the services of suitable consultant for preparation of the project based on detailed survey and investigation and feasibility study report with cost estimate government intended to have various alternate option and finalize one after detailed cost benefit completion.

The maximum time period for completion of feasibility study and survey shall be 4 months.

3. **SCOPE OF WORK**

The project preparation will be carried out in phases:

Phase-I (Inception Report)

The Phase I will focus on selection of suitable option for capacity augmentation viz. widening of existing road to six lane with service road or construction elevated corridor or alternate alignment expressway or mix thereof for Raipur-Durg section of N.H. 06 (New N.H. 53) on the basis of traffic pattern, construction cost, and right of way/availability of land and environmental considerations. Consultant shall develop widening of existing road to six lane with service road / Elevated corridor with interchange and ramp / loop to connect level street to Elevated road at important junctions, improvement options considering the various medium term and long term projects under consideration for the area in specific. Consultants shall prepare preliminary cost estimates including cost of land required for the considered alternatives including appropriate construction methodology. The options shall be presented to Expert/Technical Advisory committee (**Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**) for Project with their merit & demerit and cost benefit analysis of each option. The expert/Technical advisory committee shall decide the suitable option as per recommendation of the consultant may suggest necessary refinements if any before selection of the preferred alternative;

Phase-II (Feasibility Studies)

The Phase II will consist of feasibility study of selected option (may be one or more) Widening/ Elevated corridor/Expressway under alternative toll rate scenarios based on open or closed system as applicable. It is envisaged that consultant shall have wide experience in the field of transport economics and planning environmental impact assessment, social impact assessment, highway and bridge engineering photogrammetric techniques, highway appurtenance traffic projection etc. which will be needed for investigations and studies. The proposal for feasibility study and survey shall be finalized by the **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**

SURVEY AND INVESTIGATIONS

*"Detailed topographic survey using mobile/ aerial LiDAR or equivalent technology"
(Detail given in GC 4.0)*

The activities to be carried out include survey investigations will, inter alia, includes the following:-

1. Road Survey
2. Traffic Survey
3. Origin and Destination Survey
4. Traffic Projection
5. Financial viability
6. Soil and Material Survey

7. Detailed Investigation for flexible as well as Cement Concrete pavement Design.
8. Detailed sub soil Investigations for Elevated Road .
9. Availability of Construction Material.
10. Drainage study
11. Cross Drainage Structure
12. Design Survey Data for Major and Minor Bridges.
13. Estimates.

4.0 TOPOGRAPHIC SURVEYS

1. The basic objective of the topographic survey would be to capture the essential ground features along the alignment in order to consider improvements and for working out improvements, rehabilitation and upgrading costs. The detailed topographic surveys should normally be taken up after the completion of reconnaissance surveys.
2. The carrying out of topographic surveys will be one of the most important and crucial field tasks under the project. Technologies which can meet the following accuracy levels shall be adopted. For land based surveys (a) Fundamental horizontal accuracy of 2 cm or better (b) Fundamental vertical accuracy of 2 cm or better (c) More than 50 points shall be measured per sq. m and for aerial based surveys (a) Fundamental horizontal accuracy of 5 cm or better (b) Fundamental vertical accuracy of 5 cm or better (c) More than 10 points shall be measured per sq. m. To establish accuracy, a check point survey using DGPS (for horizontal accuracy) and Auto Level (for vertical accuracy) shall be carried out to establish the fundamental horizontal and vertical accuracy. A minimum of 25 check points, or check points once every 4 km should be established, and these should be strictly different from any geo-referencing or control network points.
3. The following are the set of deliverables which should be submitted after completion of survey: (a) Raw DGPS data for the entire highway length and adjoining areas of interest (b) Point cloud data/ Data of points captured for the entire highway length and adjoining areas of interest (c) Topographic map of scale 1:1000 of the entire highway length and adjoining areas of interest (d) Contour map of 50 cm of entire highway length and adjoining areas of interest (e) Cross section of the highway at every 1 m in *.dwg format.
4. For land based surveys, Mobile LiDAR (Light Detection and Ranging) or equivalent technology that can meet above requirements shall be adopted. For aerial based surveys, Aerial Mobile LiDAR (Light Detection and Ranging) or equivalent technology that can meet above requirements shall be adopted. In shadow areas such as invert levels below culverts, where LiDAR or equivalent technologies cannot survey accurately, traditional methods of Total Station/ Auto Level shall be used to complete the study.

5. In case of mobile LiDAR or equivalent technology, 360 degree panoramic images of the entire highway length and adjoining areas of interest shall be submitted. In case of aerial LiDAR or equivalent technology, ortho-images of the entire highway length and adjoining areas of interest shall be submitted.
6. The detailed field surveys would essentially include the following activities:
 - i. Topographic Surveys along the Existing Right of Way (ROW): Carrying out topographic survey using LiDAR or equivalent technology along the existing road and realignments, wherever required and properly referencing the same with reference pillars fixed on either side of the centre-line at safe places within the ROW
 - ii. The detailed field surveys would essentially include the topographic surveys along the proposed location of bridge and alignment of approach road.
 - iii. The detailed topographic surveys should be carried out along the approach roads alignment and location of bridge approved by Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)
 - iv. Collection/ Extraction of details for all features such as structures (bridges, culverts etc.) utilities, existing roads, electric and telephone installations (both O/H as well as underground), huts, buildings, fencing and trees (with girth greater than 0.3metre) oil and gas lines etc. falling within the extent of survey.
7. The width of survey corridor will generally be as given under:
 - i. The width of the survey corridor should take into account the layout of the existing alignment including the extent of embankment and cut slopes and the general ground profile. While carrying out the field surveys, the widening scheme (i.e. right, left or symmetrical to the centre line of the existing carriageway) should be taken into consideration so that the topographic surveys cover sufficient width beyond the centre line of the proposed divided carriageway. Normally the surveys should extend a minimum of 30 m beyond either side of the centre line of the proposed divided carriageway or land boundary whichever is more
 - ii. In case the reconnaissance survey reveals the need for bypassing the congested locations, the traverse lines would be run along the possible alignments in order to identify and select the most suitable alignment for the bypass. The detailed topographic surveys should be carried out along the bypass alignment approved by Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.) . At locations where grade separated intersections could be the obvious choice, the survey area will be suitably increased. Field notes of the survey should be maintained which would also provide information about traffic, soil, drainage etc.
 - iii. The width of the surveyed corridor will be widened appropriately where developments and / or encroachments have resulted in a requirement for adjustment in the alignment, or where it is felt that the existing alignment can be improved upon

through minor adjustments.

- iv Where existing roads cross the alignments, the survey will extend a minimum of 100 m either side of the road centre line and will be of sufficient width to allow improvements, including at grade intersection to be designed.

8. The surveyed alignment shall be transferred on to the ground as under:

- i. Reference Pillar and Bench Mark / Reference pillar of size 15 cm X 15 cm X 45cm shall be cast in RCC of grade M 15 with a nail fixed in the centre of the top surface. The reference pillar shall be embedded in concrete upto a depth of 30cm with CC M10 (5 cm wide all around). The balance 15 cm above ground shall be painted yellow. The spacing shall be 250m apart, incase Bench Mark Pillar coincides with Reference Pillar, only one of the two need be provided.
- ii. Establishing Bench marks at site connected to GTS Bench marks at a

interval of 250 metres on Bench mark pillar made of RCC as mentioned above with RL and BM No. marked on it with red paint.

- iii. Boundary Pillars- Wherever there is a proposal of realignment of the existing Highway and/or construction of New Bypasses, Consultant shall fix boundary pillars along the proposed alignment on the extreme boundary on either side of the project Highway at 50 m interval.

4.1 ROAD SURVEY

- 4.1.1 Review of available reports on the possible alignment and traffic volume. The Government of Chhattisgarh will furnish available traffic records. The remaining data will have to be collected by the consultant.
- 4.1.2 Assess the alignment/site option on the basis of Potentially divertible traffic determined from available data, land acquisition cost, shifting of electric poles, transformer, restrictions on the alignment due to forest reserves, mines, military defence lands preliminary cost of major and minor bridges, road construction cost tentatively calculated on per Kilometer basis and environmental consideration. The consultant shall therefore obtain details of various developments from respective development authorities so as to study the likely traffic and arrive at realistic traffic projections.
- 4.1.3 Recommend the most suitable option for further studies on the basis of 4.1.2 above.
- 4.1.4 The consultant shall recommend the option/alignment/ route selection keeping in view the intension to achieve the least overall cost of transportation, having regard to the cost of initial construction of highway facility, its periodic maintenance and vehicle operation, while at the same satisfying the social and environmental requirements.
- 4.1.5 In order to achieve the objective of selection of alignment, the consultant shall make detailed investigation before the location is finally decided.
- 4.1.6 The proposed alignment for recommendation by consultant shall result in minimum interference to the agriculture industry. The alignment shall as far as possible facilities easy grades and curvature. The alignment shall be such that there are no objections such as cemetery, burning ghats, places of worships, archeological and historical monuments and as far as possible public facilities like hospital, schools, playgrounds etc.
- 4.1.7 Where the proposed location interface with utility services, overhead transmission lines, water supply lines, etc. decision between changing the highway alignment of shifting the utility services shall be based on study of the relative economics and feasibility.
- 4.1.8 An important obligatory point in the selection of route is the location of connectivity to Raipur & Durg. The crossing of Major River shall be preferably at right angle to the river flow with highway alignment subordinated to considerations of the bridge sitting.

- 4.1.9 the location shall be such that the highway is fully integrated with surrounding landscape of the area. In this connection, it would be necessary to study the environmental impact of the highway and ensure that the adverse effects of its are kept to the minimum.
- 4.1.10 The location shall be one, which passes through areas having better type of soil and permits a balancing of the cost of cut and fill for formation.
- 4.1.11 Marshy and low-lying land and areas having poor drainage and very poor embankment material shall be avoided as far as possible.
- 4.1.12 Areas liable to the flooding shall be avoided as far as possible.

In case of widening to 6 lane / Express way.

- 4.1.13 The consultant will carry out preliminary survey on at least three alternative routes and shall examine the merits and demerits of the alternative to decide the best alternative.
- 4.1.14 The consultant shall explore the possible of taking the alignment through mining zone and obtaining permission from the authorities before deciding the alternative alignment.
- 4.1.15 The consultant shall carry out reconnaissance survey to examine the general character of the area of the purpose of determining the most possible route or routes for further more detailed investigation.
- 4.1.16 The reconnaissance survey shall be conducted following sequence:-
 - (a) Study of Survey sheets maps etc.
- 4.1.17 Ground reconnaissance:-

the various alternative routes located at as a result of map study shall be further studied in the field by ground reconnaissance.
- 4.1.18 The consultant shall conduct preliminary survey for purpose of collecting of all the physical information, which affects the proposed location. Consultant shall also run an accurate traverse line along the route previously selected on the basis of the reconnaissance survey. During this phase of survey, topographic features and other features like houses and monuments, places of worships, cremations or burial grounds, utility lines etc. are tied to the traverse line-Longitudinal sections and cross sections are taken and bench marks established.
- 4.1.19 The traverse shall consist of establishing of straight lines with their distance and intermediate angles measures very carefully. The traverse shall preferably be done by theodolite and all angles measured with double reversal method.
- 4.1.20 Distances along the traverse lines shall be measured with metallic tape or chain. An accuracy of at least 1 in 2000 shall be aimed at in all distance measurements.

- 4.1.21 The transit stations shall be marked by means of stakes and numbered in sequence, which shall be protected and preserved till the final location survey.
- 4.1.22 Physical features such as building, monuments, burial grounds, burning, places, places of worships, posts, pipelines, existing roads and railway lines, stream/river/canal crossings, cross drainage structures etc. that are likely to affect the project proposals shall be located by means of offsets measured from the traverse line.
- 4.1.23 The land width requirement shall be minimum 60 meters, the survey shall cover the entire right of way of the road.
- 4.1.24 The consultant shall establish bench marks either temporary or permanent at intervals of 250 to 500 meters along the alignment. The levels shall be connected to GTS datum.
- 4.1.25 Fly levels shall be taken along the traverse line at 50 meter intervals and at all the intermediate breaks in ground. To draw contours of the strip of land surveyed, cross sections shall be taken a suitable intervals, generally 100-250 m in plain terrain upped 50 m in rolling terrain.
- 4.1.26 Along the traverse survey, general information about soil, drainage etc. shall be collected, while the traverse being run.
- 4.1.27 Plans and longitudinal sections (tied to run accurate base line) prepared as sequed to the preliminary survey shall be prepared for detailed study to determine the final center line of the road. Such plans shall also be drawn on the village maps also decide the extent of land acquisition involved. The consultant shall also prepare land acquisition utilities shifting and tree cutting proposals for submission to revenue authorities and other authorities, including land required for quarries approach road to quarries if required, and road side amenities etc.
- 4.1.28 The scale adopted shall be 1 in 2500 for horizontal scale and 1 in 250 for vertical scale.
- 4.1.29 The consultant shall recommend the best alignment marking use of the maps from preliminary survey, showing the longitudinal profile, cross sections and contours, satisfying the engineering, aesthetic and economic requirements.
- 4.1.30 The consultant shall decide the grade lines for the selected alignment, taking into account the controls, which are established by intersections, railway crossings, streams and other drainage requirements.
- 4.1.31 For selected alignment, a study of the horizontal alignment in conjunction with the profile shall be carried out and adjustments made in both as necessary for achieving proper coordination.
- 4.1.32 Horizontal curves including spiral transitions shall designed based on IRC 73, Geometric Design standards for rural (Non-urban) Highways and IRC 38 Designed for horizontal curves.

- 4.1.33 The vertical curves shall be designed and the profile determined based on IRC-Design for vertical curves.
- 4.1.34 Once the centre line of road is determined in design office, the consultant shall translate the same on the ground by means of a continuous transit survey and staking of the centre line as the survey proceeds. All angles shall be measured with a transit. Double reversal method shall be adopted at all horizontal intersection points (H.I.P.) and intermediate point of transit (POT) on long tangents. The H.I.P.s shall be fixed on the hubs driven flush with the ground and suitably referenced so that they may be relocated readily. These shall be serially numbered for easy identification. On long tangents the intermediate points of transit (POTs) shall also be fixed on hubs similar to HIPs.
- 4.1.35 The reference points shall be so located that these will not be disturbed during construction. Description and location of the reference points shall be noted for reproduction on the final plan drawing.
- 4.1.36 All the curve points, namely the beginning of the spiral transition curves (B.S.) beginning of circular curves (BC), end of circular curves (EC) and the end of spiral transition (ES) shall be fixed and referenced in the same manner.
- 4.1.37 The final centre line of the road shall be suitably staked. Stacks shall be fixed at 50 m intervals.
- 4.1.38 Levels along the final centre line shall be taken at all stacked stations and at all breaks in the ground.
- 4.1.39 Cross section shall be taken at 50 m intervals. In addition, cross section shall be taken at points of beginning and end of spiral transition curves, at other critical locations. All cross sections shall be with reference to the final centre line, extend upto the right of way limit, and show levels at every 2-5 meters intervals and at all breaks in the profile.
- 4.1.40 Centre line profile shall be continued at least 200 meters beyond the limit of the project. This is intended to ensure proper connecting grades at both the ends. Profile along all intersecting roads shall be measured upto a distance of about 150 meters.
- 4.1.41 The consultant shall give details of road junction at the meeting points with the existing National Highway of the four lane to six lane and shall also design junction with the secondary road meeting or crossing the four lane and six lane alignment.

In case of Elevated Road (Additional Indicative Requirements)

- 4.1.42 CBR test for pavement design if any.

Conducting **soil investigation** at the site: The location and no. of bore holes will be decided by the consultant in consultation with the Engineer in Charge (Preferably one bore hole in every 500m). The subsoil investigation will be required to be carried out **through a firm of repute**. Consultant will get the report vetted from the Proof Consultant. The technical Proposal shall indicate the name of the agency to be

engaged for subsoil investigation. Subsoil investigation will be as per IRC 78 – 2014 and include :

- (a) Boring will be done with shell and auger equipment in sand, silt, clay, gravel and all soils to a depth of 20m from the ground level.
- (b) Conducting standard penetration tests at 1.5m intervals or at every identifiable change of strata, whichever is met earlier.
- (c) Collection of undisturbed soil samples at every identifiable change of strata, or as required using straight edged open end sampling tubes / piston samples.
- (d) Conducting laboratory tests on soil samples to decide necessary shear strength parameters of soil as well as compression index and coefficient of consolidation. These tests include natural moisture content, bulk and dry density, liquid and plastic limits, particle size distribution, and specific gravity, unconfined compression tests, tri-axial shear tests and consolidation tests on specimen from collected undisturbed soil samples and particle size distribution, liquid limit, plastic limit etc. on specimen from collected disturbed soil samples.
- (e) Conducting chemical analysis of subsoil water samples for evaluation of pH value, sulphate content, calcium content, chloride content and total dissolved solids in water for each borehole.
- (f) Preparation and submission of soil investigation Report (6 hard copies in bound form and three soft copies in Compact disc format) giving complete and comprehensive record of field and laboratory investigations and interpretation of test results to determine necessary recommendations for design of foundations for various components of elevated roads, flyovers, ramps, Underpass, pedestrian subways, foot over bridge etc.

4.1.43 Field investigation in rock: - The field investigation shall include drilling with heavy duty rotary type drilling machine, NX size casing and double diamond tipped core barrels in bore-holes where rock is encountered including hard rock up to the depth of 12m below rock level including refilling, sealing and re-instating surface and disposing off surplus material.

- (a) Laboratory Tests for Rocky Strata: - All tests shall be conducted in an approved, fully equipped laboratory capable of carrying out the various tests contemplated under the contract. The Engineer-in-Charge or his representatives shall have free access to the same for inspection of any test, during the contract period.

(b) Laboratory test on rock samples: - The main tests in the laboratory shall include the determination of Core Recovery, RQD and Unconfined Compression test / point load strength index tests on rock samples. The item also includes preserving and maintaining rock core samples in approved core boxes for a period of at least 24 months after approval of the soil investigation report for inspection by Engineer-in-Charge or his representative.

(c) The report shall also include:-

Recommendation for foundations in rock:

1. Rocky strata RQD and core recovery of rock at various levels.
2. Result of unconfined compression strength tests and/or Point Load Strength Index.
3. Estimation of spacing of joints, condition of joints, and, strike and dip orientation.
4. Rate of penetration for each drill run.
5. Plotting of a compiled subsurface profile in depth, or deciding the type of foundation and to access the excavation difficulties in reaching the required levels.

4.1.44 In addition to the soil investigation done by the agency, the consultant will also analyze the pile test data and recommend safe carrying capacity of the piles for approval by department.

4.2 TRAFFIC SURVEYS

The consultant shall conduct traffic surveys to form basic for design of the pavements, fixing of number of traffic lanes, economical appraisal of the project. Traffic survey shall be conducted in accordance with IRC-9-1972 "Traffic census on Non-Urban Roads". The consultant shall examine the available traffic data if any which of relevance to the project in order to assess the rate of growth traffic per annum. The consultant shall also take videos of the traffic survey conducted.

4.3 ORIGIN & DESTINATION SURVEY

As the project is going to serve as a four lane to six lane/ Elevated corridor/Mix thereof/Express Highway , the amount of traffic likely to use it can not be ascertained from a simple census and as such it will be necessary to collect information about the origin and destination of traffic passing the area in which the road is situated. The origin & destination data shall be comprehensive enough to cover all roads like to be affected by the proposed scheme.

4.4 TRAFFIC PROJECTION

The consultant shall provide the information about present traffic on the road and the possible diverted traffic. The minimum forecast shall be 25 years for traffic projection.

The consultant shall also indicate the estimation of generated traffic that may probably be induced due to four lane to six lane facility/ Elevated corridor/ Mix thereof.

The consultant shall conduct Traffic survey for the junction and traffic network study and analysis of the surrounding area. Traffic survey shall cover all the approaching junctions and influencing network as per clause 5.6 and 5.7 of IRC SP – 90 – 2010. Estimate the traffic in the project area for the period upto 2040 via-a-vis the expected Land Use and Development.

4.5 FINANCIAL VIABILITY

The task to be undertaken during this phase will inter alia, include the following:

Carry out financial evaluation for the project including Financial Internal Rate of Return and other proper financial indications over 5,10 and 20 years franchise periods respectively, under various toll rate alternatives. If the project is not found to be financially viable based on toll alone the consultant may suggest alternatives to make the project financial viable.

Assess the requirements of road side facilities including rest areas, gas (petrol) stations, toll plazas and indicate their locations and cost.

4.6 SOIL AND MATERIAL SURVEYS

The consultant shall conduct investigations for soil and other materials required for constructions in respect of likely sources and the availability and suitability of materials.

The soil and material surveys shall be required:-

- * To determine the nature and physical characteristics of soil and soil profile for design of embankment and pavement.
- * To determine the proper methods of handling soils.
- * To classify the earth work involved into various categories such as rock excavation, earth work in hard soil etc.
- * To gather general information regarding sub soil water level and flooding.
- * To locate sources for pavement construction materials and to ascertain their availability and suitability for use in different pavement courses.

The consultant shall suggest possible borrow areas along or off the road, while demarcating borrow areas within the road land, the directions contained in IRC-10-1961 “Recommended practice for borrow pits for road embankment constructed by manual operation” shall be kept in view. The extent of borrow areas shall commensurate with the volume of work involved in the embankment.

Test pits 0.5 to 1.0 meters shall be dug in the borrow areas from where the embankment materials is suggested. For borrow pits along the road land, the test pits shall be at an interval

of 200 meters which may be varied depending on the uniformity or variability of soil. In case of off road borrow pit areas adequate number of samples can be taken from each such area. The depth of test pits shall not exceeds the likely depth of borrow pits by more than 15 cm.

The consultant shall record the material excavated from the test pits and conduct tests in the laboratory on mentioned further on. Where the type of material varies in a single pit, the test shall be conducted on each type of soil separately and the horizon of occurrence noted. Similar test should be carried out on materials from cuts for ascertaining the suitability of its use in the embankment.

- (I) Gradation Test (IS-2720 Part-IY)
- (II) Liquid Limit and plastic limit (IS-2720 Part-IV)
- (III) Standard Proctor Density and optimum moisture content (IS-2720)
- (IV) Shrinkage limit tests.

The consultant shall furnish the test results based on the tests, sand content, and classification of the soil (voids PRA system, or alternatively IS system as per provisions contained in IRC-36-1970). The final selection of borrow areas, whether for body of embankment or sub grade could then be made in accordance with the norms recommended in IRC-36-1970. Grade cautions shall be exercised to ensure and mark as far as possible. Homogeneous soils only for this purpose.

The consultant shall provide the borrow area charts.

The consultant shall carry special investigations for high embankment designs. The basic properties to be investigated are shear parameter, unit weight and moisture conditions for checking stability against slip failures. The consultant shall give high embankment design. Reference may also be made to IRC-75-1979.

4.7 DETAIL INVESTIGATION FOR PAVEMENTDESIGN

The consultant shall give the flexible pavement design in accordance with IRC-37-1986 and “Guidelines for the design of Flexible Pavement” and IRC - 58 - 2011 “Guidelines for the design of Rigid Pavement”

For pavement design, apart from the general soil tests referred to earlier, (CBR test shall be conducted depending on the design requirements spelt out in IRC — 37 — 1986), frequency of CBR tests shall normally be such that roughly one set of results) each consisting of three samples vide IRC-37- 1986) is available for every one half to one kilometer section of the road. The interval could however be increased or decreased depending on the discretion of the Engineer-in-Charge. Soil investigations data for flexible pavement design shall be furnished.

4.8 AVAILABILITY OF CONSTRUCTION MATERIAL

Naturally occurring aggregates for pavement courses.

The consultant shall give details of the suitable quarries from where it is proposed to use the naturally occurring materials like stone aggregates, moorum, gravel, kankar etc. for construction. The consultant shall also give the amount of material likely to be available from each such quarry physical strength, characteristics of the materials. The test to be conducted and the test results are to be furnished by the consultants. For every quarry source, at least three specimens shall be tested for each type of material met with. Samples for the test shall be representative and collected in accordance with the procedure set forth in IS:2430.

The consultant shall also prepare quarry charts showing the location of quarry and the average lead of materials.

The consultant may also suggest use of manufactured aggregates such as furnace slag, if found feasible and suitable depending upon the availability, practicability and overall economy.

MANUFACTURED ITEMS

The consultant shall give information on items like cement, steel, and bitumen as regards their sources of supply and the distance of the nearest rail head from the location of works.

WATER FOR CONSTRUCTION PURPOSES

Information shall also be gathered by the consultant about the availability of water near the work site and its suitability for construction purposes.

4.9 DRAINAGE STUDY

The consultant shall provide effective drainage system within the highways. Construction of highway embankment may sometime block the natural drainage paths and cause a heading up of the water on upstream side. The consultant in finalizing H.F.L. shall give due allowance for the possible afflux.

4.10 CROSS DRAINAGE STRUCTURES

The consultant shall carry out surveys and investigations for cross drainage structures having waterway of 6 m or less (i.e. culverts). The sitting of culverts shall generally be governed by the geometric of the road alignment unless there are special problems of location and design. The following points shall be kept in mind while deciding sitting the cross drainage work.

- (a) The site shall be on straight reach of the stream sufficiently below bends.
- (b) The location shall be as far away from the confluence of the large tributaries as possible, so as to be beyond their disturbing influence.
- (c) The site shall enable straight alignment and a square crossing as far as possible.

For designing culverts, the consultant shall collect certain hydrological, physical and foundation data. The consultant shall make local enquiry and a study of the nearby road and

railway culverts on the same stream to obtain useful information about H.F.L., afflux, tendency to scour, the probable maximum discharge, the likelihood of collection of brush wood during the floods, foundation problems etc.

The following essential data is needed for design new culverts:

- (i) Catchments area : where the catchment area as seen from the topo sheet, is less than about 1.25 Sq. Km. in area, traverse shall be made along the watershed with chain and compass.

Where the area is flat, without watershed, it will first be necessary to conduct a local contour survey to identify the watershed before taking up the traverse. For large catchment the area can be measured from the 1:50,000 topo maps by planimeter.

The consultant shall take at least three cross-sections one at the selected site, one at the upstream and another downstream of the site, all to the horizontal scale of not less than 1/1000 and exaggerated vertical scale of not less than 1/100. Approximate distances upstream and downstream of the selected site where cross section may be taken are as shown in table below.

TABLE

S.N o.	Catchment Area	Distance (U/s & D/s of the crossing at which cross sections shall be taken)
(1)	2.5 Sq. Km.	150 m
(2)	From 2.5 to 10 Sq. Km.	300 m
(3)	Over 10 Sq. Km.	400 m to 1600 m

The cross section at the proposed site of the crossing shall show levels at close intervals and indicate out crops of rock, pools etc. Where an existing road or a cart track crosses the stream at the selected site, the cross section shall not be taken along the centre line of the road or the track as that will not represent the natural shape and size of the channel. Instead, the cross section shall be taken a short distance upstream or downstream.

In case of a very small stream (catchments of 40 hectares or less), one cross section may do but it shall be carefully plotted so as to represent truly the normal size and shape of the channel on a straight reach.

- (ii) The maximum H.F.L. :- The maximum High Flood Level shall be ascertained by intelligent local observation, supplemented by local enquiry, and marked on the cross section.

- (iii) Longitudinal section :- The longitudinal sections shall be extended upstream and downstream of the proposed site upto the cross sections mentioned in Table-S and shall show levels of the bed, low water level and the H.F.L.

(iv) Trial Pits :- The consultant shall take trial pits upto the rock or firm soil, where rock or firmed undisturbed firm soil strata is not likely to be far below the bed of the stream. In case there is no rock or undisturbed firm soil close to the stream bed level, then the trial pit shall be taken down roughly upto twice the maximum depth of the existing or anticipated scour line. The location of each trial pit shall be shown in the cross section of the proposed site. Where trial pits are not possible because of longer depths otherwise, trial bores shall instead be made. For every small culvert, one trial pit will be sufficient.

(v) Design of the cross drainage structure:- The consultant shall provide the following information supplementing to the design cross drainage structure.

(a) Estimation of the design discharge.

(b) Determination of waterway and vent height.

(c) Structural design of foundations, sub-structure & superstructure.

The consultant can use type-drawing sections of M.O.S.T. available for the substructure and the super structuring.

For details of the design procedure reference may be made to IRC special publications 13 “Guidelines for the design of small bridges and culverts”.

4.11 DESIGN SURVEY DATA FOR BRIDGES

The consultant shall carry out detail survey and investigation for the proposed bridges for the bypass. The consultant shall prepare report on design data for bridges, which shall cover the following requirements.

(A) GENERAL

1. Road and its classification.
2. Name of the stream.
3. Road chainage at centre line of the stream.
4. What arrangement exists for crossing the river at present.
 - (a) During Monsoon
 - (b) During dry season.
5. Has earthquake ever occurred in the region of the bridge site ? If so what was its intensity?
6. Special requirement:
 - i) Proximity of a bridge to a town or a village and need for footpath.

- ii) Provision on the bridge for carrying utilities such as telephone/ Telegraph lines, electric lines, water lines etc.
- iii) Electrification of the bridge.
- iv) Special precautions against marine or other aggressive atmospheres.
- v) Proximity of bridge to weirs/dams either upstream or downstream and special provision therefore.
- vi) Defence requirements in respect of its minimum distance from a Railway bridge or for provision of demolition chambers.
- vii) Location in a coastal belt requiring special provision for wind forces.
- viii) Additional design loads near pilgrim centres.
- ix) Location in a municipal area, if any.
- x) Provision for increasing the bridge length in future, if required.
- xi) Provision for special floating debris or impact from barges.
- xii) Difficulties of bailing out water in open foundation.
- xiii) Use of locally available material.

(B) CATCHMENT AREA AND RUN-OFF

7. Catchment area
 - a) In hilly pars.
 - b) In plains Total Sq. Kms.....
8. Maximum recorded intensity of rainfall in catchment.
9. Rainfall in centimetres per year in the region.
10. Length of catchment in kilometres.
11. Width of catchment in kilometres.
12. Longitudinal slope of catchment.
13. Cross slope of catchment.
14. Indicate broadly the nature of catchment.
15. Are there any artificial or natural storage such as lakes etc. in the catchment.

16. Is the catchment likely to change such as due to afforestation.

(C) NATURE OF STREAM

17. Is the stream:

a) Alluvial (with erodible banks), or

b) Quasi-Alluvial (with more or less fixed bed but erodible banks), or

c) Rigid (with in-erodible banks and bed)

18. Is the stream:

a) Perennial, or

b) Seasonal

19. Does the stream meander or change course?

If so, the extent of meander experienced in the past be shown on the site plant. (In case of major bridges, the courses of the river, particularly during various years, may be shown in different colours on the large-scale plan for sufficient distance upstream and downstream of the proposed bridge site).

20. Are the banks at the proposed site?

a) Firm and steep

b) Firm but gently sloping.

c) Erodible and not defined

d) Does the stream confined itself within banks, or overtops the banks in floods.

21. Nature of the stream in vicinity of the proposed site.

a) Clean bed, straight banks of rifts or deep pools.

b) As in (a) but with some weeds or stones.

c) Winding, some pools and shoals, but clean.

d) As in C but some weeds or Stones.

e) Stony section with ineffective slopes and shoals.

f) Sluggish rive reaches, rather weedy or with deep pools.

g) With very weedy reaches.

22.
 - a) Lower water level.
 - b) Surface velocity at LWL, meter per second.
 - c) Water surface slope at LWL, meter/kilometre
 - d) Bed Slope at LWL, meter/kilometre.
23.
 - a) Ordinary Flood Level (OFL)
 - i) At site
 - ii) At upstream cross section
 - iii) At downstream cross section.
 - b) Surface velocity at OFL meter/second.
 - c) Water surface slope at OFL, meter/kilometre.
 - d) Area of cross section at site at OFL: Sq. meters.
 - e) Discharge at OFL, Cum/second.
24.
 - a) High Flood Level (HFL)
 - i) At site
 - ii) At upstream cross section.
 - iii) At downstream cross section.
 - b) Surface velocity at HFL meter/second.
 - c) Water surface slope at HFL, Meter/Kilometre
 - d) Area of cross section at site at HFL: Sq. Meters.
 - i) At site
 - ii) At upstream cross section.
 - iii) At downstream cross section.
 - e) Discharge at HFL, Cum/second.
25. R.L. and location of maximum recorded scour below H.F.L.
26. R.L. of maximum anticipated scour below H.F.L.

27. Location of the plan of boring taken in the bed of the river proposed bridge site and other locations if available.
28. Test results of the samples of the bores, giving therein the values obtained of the soil available at different depths in respect of the following:
 - a) Mean diameter of the particle in mm.
 - b) Value of the Lecy's silt factor. c) Angle of internal friction. d) Cohesion (C)
 - e) Angle of wall friction (S)
29. Allowable bearing capacity of the strata at foundation level, in tones per Sq. meters.
 - a) Calculated theoretically
 - b) Calculated by conducting standard test (if carried out).
30. Does stream carry drifting matter in floods ? If so, state its nature, such as bushes, tree branches, boulders, etc.
31. Are banks susceptible to scour? If so, indicate the extent cutting of banks occurred in the past.
32. Is the stream navigable ? If so, the clearance required.
33. Are large-scale rivers training work necessary ? If so, give the following detailed plans:
 - a) Course of the stream for sufficient distance upstream and downstream of the bridge site indicating in different colour courses adopted by the river in different years.
 - b) Contour survey plan of the bed river both on the upstream and downstream of the bridge extending to a distance beyond the location of the proposed guide bunds or other protection.
 - c) a plan showing the maximum loop chord ratio attained by the stream In the vicinity of the bridge site.
 - d) Any other plans considered necessary for proper appreciation of the proposal for protective works. If any model experiments have been carried out, a copy of the report to be attached.

(D) ALIGNMENT AND APPROACHES

34. Is the proposed alignment of the bridge skew or normal to the channel? If skew, give the angle of skew.
35. Will approaches be straight? If not, give radius of curves on:

- a) Right approach
 - b) Left approach
36. Proposed gradient in approaches:
- a) Right approach
 - b) Left approach
37. Will visibility of bridge be unobstructed upto 50 meter on either side of the bridge? If not, give details.
38. Proposed type of surface of approaches.

(E) LOADING

39. Designs loading.
40. Seismic factor

(F) SUPERSTRUCTURE

41. Proposed clear roadway over the bridge.
42. Proposed width of footpaths.
43. a) Proposed formation level o the road over the bridge at the centre.
b) Gradient, if any, in the road formation along the length of the bridge.
c) Camber in the road formation.
44. Is the proposed bridge to be designed to pass:
- a) Maximum floods.
 - b) Ordinary floods with dips to pass excess discharge in high floods.
 - c) Only dry season discharge (submersible bridge).
45. Number of size and span recommended.

(G) FOUNDATIONS

46. A) What types of foundations are recommended.
- i) Open foundations.
 - ii) Well foundations.

iii) Pile foundations.

B) Probable cost of dewatering in case of open foundations/raft foundations.

(H) EXISTING STRUCTURES

47. Do any bridges on the stream in its vicinity? If so, have their positions been marked on the index plan.

48. Loads for which designed:

i) Details of existing bridges:

a) Size and number of spans

b) Width and carriageway

c) Type of structure

d) Type of superstructure

e) Type and foundations

i) X-sectional area at HFL under bridges.

g) Is the waterway found to be adequate or excessive or inadequate.

h) Whether the foundations have been troubled free and depth provided is adequate or inadequate.

i) Any other information.

49. ii) Other details:

a) The existing road level connected to survey datum of the crossing and details of interruption.

b) Existing and expected traffic intensity of the bridge.

c) In which seismic zone the bridge site is located.

d) Authority for taking up project.

e) Whether the bridge site is railway affected.

f) Whether the bridge site is affected by any Irrigation Project.

g) Whether high level or submersible bridge is required.

h) If submersible bridge is proposed whether O.F.L. is reported.

- i) Whether details of existing or proposed road or railway bridges on the same river in the vicinity including details of waterway and foundation conditions and other details linked up with survey datum are furnished.
- j) Give nature and location of bench mark.
- k) Nature of soil crust, in the catchment, whether porous or rocky.
- l) Is there any stagnant water pool near the site.
- m) What is coefficient of rugosity in the bed or spill.
- n) Are there any active spills? If yes, what are the nature, cross-section and bed slopes of the spills.
- o) If there is considerable water spread, is the ground level low on U/s as well as D/s and whether it is effective discharging section.
- p) Nature of river bed strata below, based on trial pits or bore result.
- q) If tests are taken on the samples of bore or pit for strata available at different depth, state the type of test and properties ascertained (Give the detailed results separately).

(I) MISCELLANEOUS

- 50. Name the nearest town/village and its distance from the site.
- 51. Is accommodation available at site or in the neighbourhood for construction staff.
- 52. Nearest railway station and its distance from site.
- 53. Cost at site of following materials:
 - a) Bricks
 - b) Masonry Stones
 - c) Stone ballast
 - d) Dressed stone for arches.
 - e) 20 mm size grit
 - f) Sand for masonry work
 - g) Sand for RCC work
 - h) Cement

- i) Mild steel and HYSD bars, M.S. structural and H.T. steel
 - j) Sal wood
 - k) Boulders for pitching.
54. Plans:
- a) Key map-scale 1 cm : 50 M
 - b) Index map
 - c) Contour survey plan
 - d) Site Plan
 - e) Three X-sections
 - f) Longitudinal section
 - g) Trial boring charts
 - h) Drawing of bridge showing general arrangement on the cross section at site, details of foundation, sub-structure and superstructure.
 - i) Elevation, sections and plans of existing bridges including foundation details.

In case of Elevated Road (Additional Indicative Requirements)

Consultant shall prepare the Alternate proposals for Elevated corridor with Interchanges , Loop , Ramps at important junctions and submit to authority and detailed Engineering shall be conducted on the proposal suggested by competent authority.

- (i) Consultant shall work out architectural form for various components like elevated roads, flyovers, , Interchange , Loop , Ramps , pedestrian subways, , Flyovers traffic islands and surface level roads, Surface level road junction development , drainage, Signage, Road Marking etc. and getting it approved from competent authorities. This also includes the preparation of the working drawings for the same.
- (ii) Working out Design Alternatives for the conceptual design including that for the Elevated corridor. The Design Alternatives shall give alternative layouts and designs for the foundation system, substructures, superstructure and architecture including sequence of construction activities at the proposed locations

Each design alternative including that for the Elevated corridor shall be presented in sufficient detail including the sequence of construction activities to clearly define the proposed design alternative including:

- a) A description of the difference between the conceptual design and the proposed design alternative and the comparative advantages and disadvantages of each including that for the Flyovers. Clearly illustrated sketches, drawings, diagrams, calculations, published reports or other means that allow evaluation shall accompany the written description clearly illustrated 3D models of alternative design proposals for Flyovers with walk through simulation will be prepared and presented.
- b) A detailed estimate of the amount of savings in construction cost.
- c) If the design alternative including that for the Flyover is approved by the Expert/ Technical Advisory committee, all further work of detailed design, drawings etc. will be done as per the approved alternative without any extra cost.
- d) A scale model [complete Flyovers in 1:250 scale and part of Flyovers showing detailed design in 1:100 scale] for the approved design of the Flyovers shall be prepared and submitted within 30 days of approval of the design alternative. The scale model and architectural design drawings of the Flyovers shall be got approved by the Engineer-in-Charge / any other public authority as required by the Engineer-in-charge.

All costs associates with this shall be included in the quoted rates and will be borne by the consultant and nothing extra shall be paid on this account.

- (iii) Finalising the concept Design Philosophy and to work out the structural system including foundations for various components of the scheme. The system should suitably account for the utilities encountered in the alignment of the structures and their shifting if required. The design and details of supporting arrangements for utilities, if required shall also be furnished by the Consultant.
- (iv) Preparation of general arrangement drawings executable at site for elevated roads, flyover, surface level roads , ROBs, Flyovers, Footpaths, Cycle Track, Drainage, Signage, Road Marking, Green Belt, Central Verge etc. and detailed structural designs, drawings, construction drawings for elevated roads, flyover, , ROBs, Flyovers, Drainage, Earthen Embankment including its components and sub-components such as foundation system, sub-structures, earth retaining structures and arrangements, super- structures, bearing system, expansion joint etc., pre-stressing and post-tensioning details, surface level roads, footpaths, service roads and other ancillary & related structures including the detailed design and drawings for complete drainage scheme, fixing arrangement for light fittings.

Before the general arrangement drawings are finalised, consultant will be required to satisfy himself with the accuracy and adequacy of the topographic survey and layout

at the site. It will be responsibility of the consultant to make sure that the layout at site is accurately done as per the approved general arrangement drawings. In order to ensure the accuracy of the general arrangement drawings, Consultant may conduct topographic survey, if required, along the alignment of complete corridor..

- (v) Working out the various traffic signage requirement as per IRC specifications and submit the detailed drawings as per IRC specifications and also submit the Bill of quantities separately.
- (vi) Working out detailed electrical requirements in consultation with electrical consultant. The electrical requirement will include complete cabling scheme, lighting arrangement including that for the Flyovers, pumping arrangement, generators, electric substation etc. etc. as per the prevailing rules, specifications and prevalent practice. Consultant will also submit the specifications, bill of quantities and tender documents for calling the tenders for various electrical works separately. The electrical consultant shall be appointed with prior approval of Engineer-in-Charge.

Detailed Engineering Design and Drawings/Tender Drawings; with 30 % detailing and good for tendering purpose. He will make the Design Basis Report (DBR) for this purpose.

Structural Design: The Consultant will complete 30% structural detailing and write the criteria for detailed structural designs.

Aesthetic Design: The Consultant will complete 30% detailing and write the aesthetic criteria for further detailing.

Durability Design: The consultant will define the durability criteria for the project.

Construction method: The consultant will suggest a construction sequence and define the criteria for selection of construction method.

(xii) Finalisation of the tender drawings, work out the bill of quantities, frame the Detailed Estimate. Consultant shall prepare draft bid document in consultation with Expert/ Technical Advisory committee. The conditions of contract in the tender/bid document will be on the lines of FIDIC (Federation International des Ingenieurs Conseil model document used by PWD for item rate, applicable to all ADB works. These should also include

1. standard Bid Document
2. Detailed Technical Specifications
3. Design and geometric design
4. Aesthetic design criteria

5. Durability Design criteria
6. Quality control and Quality Assurance manual
7. Safety Health and Environment Manual

selection of equipment, detailed Planning/ scheduling of various construction activities and maintenance plan.

- (xiii) Preparation of suitable scheme for traffic diversion during construction to ensure smooth traffic flow during construction keeping in view the construction activities of Other Government agency also, if any. Required NOC would be obtained from the same or other bodies in this regard as required. Although General Arrangement Drawing has been finalised and approved in competent authority but consultant should may also suggest the alternatives to save the adjoining structure from the demolishing, if required. Required NOC would be obtained from the other bodies in this regard, as required.

1. Project Funding, Economic Analysis and Sensitivity Analysis;

The consultants in close liaison with CE (NH) PWD Raipur (C.G.) shall finalise the Techno Economic Feasibility Report.

4.12 ESTIMATES

The consultant shall prepare the project estimate, work out bill of quantities. The estimate shall give a clear picture of financial commitment involved and shall be realistic. The items of work shall be carefully listed and the quantities determined to reasonable degree of accuracy. The rates shall be the prevailing schedule of rates for National Highway & Bridge Zone, P.W.D Chhattisgarh where the items are covered in schedule of rates for N.H. & Bridge Zone, PWD Chhattisgarh where the items are not covered in schedule of rates for N.H. & Bridge Zone, PWD, Chhattisgarh, market rates prevailing shall be adopted.

The estimate shall consist of :-

- (i) General abstract of the cost.

This shall give the total cost of the scheme with a general break up under major head with further sub-divisions as necessary e.g. land acquisition, site clearance, earth work, sub-bases, bituminous works/cement concrete pavement, cross drainage structure, bridges other miscellaneous structures, miscellaneous items, percentage charges for contingencies, W.C. establishment, quality control etc.

- (ii) Detailed estimate for major head:

These shall consist of:-

- (a) Abstract of cost.
- (b) Estimate quantities.
- (c) Analysis of rates for items not covered by relevant schedule of rates.
- (d) Quarry/material charts.

5. REPORTS

The following reports comprising data of suitable survey and investigation relevant to the phases of scope of work all in English language will be submitted by the consultants to the Chhattisgarh Government (PWD).

5.1 PHASE-I REPORT

Draft inception report including QAP will be submitted within 10 days after commencement of services and final inception report including QAP within 21 days after commencement of services. It will outline a detail work programme including locations and duration of traffic surveys and will briefly describe the methodology proposed to meet the terms of reference. The report will also include the design standards proposed geometric standards being applied.

5.1.1 Quality Assurance Plan (QAP) Document

1. Immediately upon the award, the Consultants shall submit four copies of the QAP document covering all aspects of field studies, investigations design and economic financial analysis. The quality assurance plans/procedures for different field studies, engineering surveys and investigation, design and documentation activities should be presented as separate sections like engineering surveys and investigations, traffic surveys, material geo-technical and sub-soil investigations, road and pavement investigations, investigation and design of bridges & structures, environment and R&R assessment, economic & financial analysis, drawings and documentation; preparation, checking, approval and filing of calculations, identification and traceability of project documents etc. Further, additional information as per format shall be furnished regarding the details of personnel who shall be responsible for carrying out/preparing and checking/verifying various activities forming part of feasibility study and project preparation, since inception to the completion of work. The field and design activities shall start after the QAP is approved by CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.).
2. The data formats proposed by the Consultants for use in field studies and investigations shall be submitted within 14 days after the commencement of

services and got approved by CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.) .

5.1.2 Inception Report (IR)

1. The report shall cover the following major aspects:
 - i. Project appreciation;*
 - ii. Detailed methodology to meet the requirements of the TOR finalised in consultation with the CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.) officers; including scheduling of various subactivities to be carried out for completion of various stages of the work; stating out clearly their approach & methodology for project preparation after due inspection of the entire project stretch and collection/ collation of necessary information;*
 - iii. Task Assignment and Manning Schedule;*
 - iv. Work programme;*
 - v. Proforma for data collection;*
 - vi. Design standards and proposed cross-sections;*
 - vii. Key plan and Linear Plan;*
 - viii. Development plans being implemented and / or proposed for implementation in the near future by the local bodies and the possible impact of such development plans on the overall scheme for field work and design for the study;*
 - ix. Quality Assurance Plan (QAP) finalised;*
 - x. Draft design standards.*

2. The requirements, if any, for the construction of bypasses should be identified on the basis of data derived from reconnaissance and traffic studies. The available alignment options should be worked out on the basis of available maps. The most appropriate alignment option for bypasses should be identified on the basis of site conditions and techno-economic considerations. Inception Report should include the details regarding these aspects concerning the construction of bypasses for approval by CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.).

5.2 PHASE-II REPORT

Draft Feasibility Study Report will be submitted within 60 days after commencement of services. The employer should give comment within 15 days and then after Final Feasibility Study Report will be submitted within 90 days after commencement of services. As per requirement of employer presentation should be made at **site/MoRTH** Consultant shall present the options to the expert committee within 7 days of the submission of Report.

5.2.1 Feasibility Report

1. The Consultant shall commence the Feasibility Study of the project in accordance with the accepted IR and the report shall contain the following:
 - *Executive summary*
 - *Overview of CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.) organization and activities, and project financing and cost recovery mechanisms*
 - *Project description including possible alternative alignments/bypasses and technical/engineering alternatives*
 - *Methodology adopted for the feasibility study*
 - *Socioeconomic profile of the project areas*
 - *Indicative design standards, methodologies and specifications*
 - *Traffic surveys and analysis*
 - *Environmental screening and preliminary environmental assessment*
 - *Initial social assessment and preliminary land acquisition/resettlement plan*
 - *Cost estimates*
 - *Economic and financial analysis*
 - *Conclusions and recommendations*
2. In view of para 1 above the consultant has to submit the following documents:
 - i. **Technical Specifications: The Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** *Technical Specifications for Road and Bridge works shall be followed for this study. However Volume - IV: Technical Specifications shall contain the special technical specifications which are not covered by Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.) Specifications for Roads and Bridges (latest edition / revision) and also specific quality control norms for the construction of works.*
 - ii. **Rate Analysis:** *This volume will present the analysis of rates for all items of works. The details of unit rate of materials at source, carriage charges, any other applicable charges, labour rates, machine charges as considered in arriving at unit rates will be included in this volume.*
 - iii. **Cost Estimates :** *This volume will present the each item of work as well as a summary of total cost.*
 - iv. **Civil Work Contract Agreement:** *A civil works contract agreement shall be submitted.*
3. The basic data obtained from the field studies and investigations shall be submitted in a separate volume as an Appendix to Feasibility Report.
4. The Final Feasibility Study Report incorporating comments, revisions and modifications suggested by CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.) shall be submitted within 15 days of receipt of comments from CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.) on draft feasibility study report.

5.2.2 Strip Plan and Clearances

1. The Consultants shall submit the following documents:
 - i. *Details of the centre line of the proposed widened NH along with the existing and proposed right-of-way limits to appreciate the requirements of land acquisition;*

- ii. *The information concerning the area including ownership of land to be acquired for the implementation of the project shall be collected from the revenue and other concerned authorities and presented along with the strip plans;*
 - iii. *Strip plans showing the position of existing utilities and services indicating clearly the position of their relocation;*
 - iv. *Details for various clearances such as environment and forest clearances;*
 - v. *Separate strip plan showing shifting / relocation of each utility services in consultation with the concerned local authorities;*
 - vi. *The utility relocation plans should clearly show existing right-of-way and pertinent topographic details including buildings, major trees, fences and other installations such as water-mains, telephone, telegraph and electricity poles, and suggest relocation of the services along with their crossings the highway at designated locations as required and prepare necessary details for submission to the Service Departments;*
 - vii. *Detail schedules for acquisition of additional land and additional properties in consultation with the revenue authorities; and*
 - viii. *Land Acquisition Plan.*
2. The strip plans and land acquisition plan shall be prepared on the basis of data from reconnaissance and detailed topographic surveys.
 3. The Report accompanying the strip plans should cover the essential aspects as given under:
 - i. *Kilometre-wise Land Acquisition Plan (LAP) and schedule of ownership thereof and Costs as per Revenue Authorities and also based on realistic rates.*
 - ii. *Details of properties, such as buildings and structures falling within the right-ofway and costs of acquisition based on realistic rates.*
 - iii. *Kilometre-wise Utility Relocation Plan (URP) and costs for relocation per civil construction package as per concerned authorities.*
 - iv. *Kilometre-wise account in regard to felling of trees of different type and girth and value estimate of such trees based on realistic rates obtainable from concerned District forest office.*
 4. The strip plans shall clearly indicate the scheme for widening. The views and suggestions of the concerned State PWDs should be duly taken into account while working out the widening scheme (left, right or symmetrical). The widening scheme shall be finalised in consultation with CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.).
 5. Kilometre-wise Strip Plans for section (Package) shall be prepared separately for each concerned agency and suggested by CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.).

5.2.3 Land Acquisition Report

1. The Land acquisition report shall be prepared and submitted for section(package). The report shall include detail schedules about acquisition of landholdings as per revenue records and their locations in a strip plan and also the costs as per district authorities. Details shall be submitted in land acquisition proforma to be supplied by

CHIEF ENGINEER, P.W.D. N.H. ZONE, RAIPUR (C.G.). The land acquisition report shall be submitted in both Hind and English languages.

2. The land acquisition report should be prepared in consultation with affected persons, non-governmental organisations and concerned government agencies and should cover land acquisition and resettlement plan and costs of resettlement and rehabilitation of such affected persons. It should also include plan of compensating a forestation, its land requirement with specific locations and cost involved for undertaking all activities in this regard.

5.3 ROAD FEATURES

Description under this head should inter alia cover:

- i) Route selection:- Considerations governing the route selection and the effect of the proposed route of the overall transportation pattern of the area with respect to the other facilities like railways, (in the case of new roads). Discuss the merits and demerits of alternative routes investigated and reasons for selecting the proposed route.
- ii) Alignment : The general alignment of the roads and its details, section by section, with reference to topographical and geological features, obligatory points such as bridge sites, important population centers, existing or prospective industrial centers etc. Also discuss points of general importance like high banks, heavy cuttings, nature of gradient, radius of curves, sight distance, nature of soil along that alignment etc.
- iii) Environmental Factors: Significant beneficial and detrimental impact of the proposed works on the environment in terms of air populations, damage to life system, stream pollution, soil erosion, drainage pattern, land scaping etc. Discuss the planning and designed measures proposed to minimize/eliminate the adverse effects.
- iv) Road, land, roadway, carriageway and other cross sectional elements: Discuss the proposals regarding right of way acquisition of structures alongside roadway, carriageway width etc. In the case of existing roads, compare the cross sectional elements with the widths existing.
- v) Traffic : Discuss the type of traffic surveys conducted for various sections, the data collected and the results of future growth. Present the design traffic figures separately for each element of the project e.g. width of carriageway, pavement, intersections, railway crossing etc. For existing roads, discuss the accident data with special reference to the known accident — prone — locations.

Selection of site for C.D. works & Bridges : The report shall discuss the sitting of the culverts and bridges. The preliminary report shall be submitted within three months from the award of the contract. The first interim report shall be submitted in ten copies.

5.4 REPORT ON FINANCIAL ANALYSIS

5.4.1 The consultant shall submit the financial analysis report based on the first interim report. This shall include the financial evaluation report, sensitivity analysis, Financial Internal Rate of Return with decision of mobility of the resources for the work. This report will be submitted giving consultants recommendations for taking up this work on B.O.T. basis. The report shall also include the details of toll plaza and its location.

5.5 TECHNICAL PROPOSED REPORT

The consultant shall submit technical proposal for the project giving final design of the road works including that of C.D. works and preliminary design of bridges (Major and minor) and also provide G.A.D. for the major and minor bridges. Detailed Engineering drawings for the road, C.D. work bridge (Major and minor) work shall also be supplemented with the report. The technical proposal shall include the following reports and drawings.

(a) ROAD DESIGN AND SPECIFICATION

(i) Road Design: Bring out the special features of road design e.g. fixation of grade line vis-à-vis HFL / Water table, high embankments, treatment of cut sections, design of road junctions, removal of geometric deficiencies in the case of existing roads, remedial measures for land side prone locations etc. Attach design calculations where necessary. Discuss any deviations from the prescribed standards with reasons for the same.

(ii) Pavement Design : Present the soil investigation data for pavement design in a tabular form discuss the methodology of collecting these data and bring up the pavement design proposals with respect to the alternatives considered.

(iii) Masonry works (Other than cross-drainage works) : Bring out the proposal or retaining walls, breast walls, pitching, parapet walls, railings etc. Attach design calculations where required.

(iv) Specifications : Give reference to the standard specifications in accordance with which the works are proposed to be executed. Highlight where modifications are proposed or special specifications are advocated:

- i) Discuss the investigations carried out for designing the drainage measures and bring out the salient points in respect of H.F.L. water table, ponded water level, seepage flow etc.
- ii) Give the details of the surface/sub-surface drainage measures proposed e.g. longitudinal side drains, catch water drains longitudinal traverse sub-drains, blanket courses etc. Attach design calculations/drawings as necessary.
- iii) Highlight if any special measures are proposed to check soil erosion and assist soil conversations.

- iv) Discuss the proposals regarding cross-drainage structures i.e. culverts. Give details of the proposed structures in a tabular form with cross-reference to the standard designs adopted or the detailed drawings enclosed. The table should also indicate special features of each structure like design H.F.L. deck level, waterway etc. Attach waterway calculations.
- v) The consultant shall arrange to obtain approval to detailed engineering for road work from Ministry of Road Transport & Highways, Government of India, New Delhi.

(b) MAJOR AND MINOR BRIDGES

The report shall include the design survey data of major and minor bridges as per the requirements explained under bridge survey including report on sub-soil exploration. The GAD proposed based on design survey data shall be included in the report. The consultant shall arrange to obtain approval to the GAD of major and minor bridges.

(c) LAND ACQUISITION PROPOSAL

The land acquisition proposal shall be submitted with the report as per the requirement of the Revenue Department, Government of Chhattisgarh.

The Land acquisition report shall be prepared and submitted for section (package).The report shall include detail schedules about acquisition of landholdings as per revenue records and their locations in a strip plan and also the costs as per district authorities. Details shall be submitted in land acquisition proforma to be supplied by PWD. The land acquisition report shall be submitted in both Hind and English languages. The land acquisition report should be prepared in consultation with affected persons, non-governmental organisations and concerned government agencies and should cover land acquisition and resettlement plan and costs of resettlement and rehabilitation of such affected persons. It should also include plan of compensating aforestation, its land requirement with specific locations and cost involved for undertaking all activities in this regard.

(d) MATERIALS, LABOUR AND EQUIPMENT

(i) Materials : Present the results of the soil and materials survey with reference to various sections of the road. Bringing out clearly the sources from which the materials are to be obtained and their suitability for use in the works. Attach borrow area charts, quarry charts, results of tests on materials etc. Discuss the facilities for transport of materials, and how these are to be provided.

(ii) Labour :- Discuss the requirements of labour for the work whether it is to be imported, skilled labour needed, housing facility etc.

(iii) Equipment :- List the total equipment required for the project.

(e) DRAWINGS

(i) General :- Project drawings should depict the proposed works in relation to the existing features, besides other information necessary for easy and accurate translation of the proposals in the field. For easy understanding and interpretation, it is desirable that the

drawings should follow a uniform practice with regard to size, scales and the details to be incorporated.

(ii) Drawing Size :- Drawings should be of adequate size to accommodate a reasonable length of the road to a structural unit in full details. At the same time, these should not be inconveniently large to necessitate several folds, from this angle it is recommended that preferably the size may be 594 mm x 420 mm. Corresponding to the size A-2 of IS:696-1960 drawings of this size could be stitched in a folder with flexible covers so that the folio can be rolled for convenient handling. On one sheet of this size, it will be possible to accommodate the plan and L-section of one Km. length of the road, with sufficient overlap on either side, if drawn to the horizontal scale of 1:2500 (1:2500). A wider margin of 40 mm may be kept on the left hand side of the drawing to facilitate stitching into folio.

Component parts of Highway project Drawing: The drawings usually required for a road project include the following:

(i) Locality map-cum-site plan :- This is combination of a key map and index map drawn on a single sheet. This will be the first sheet in folio of drawings for a particular section of the road. However, where the length of a section is substantial, it may become necessary to separate out the locality map and the site plan, the former being accommodated in one sheet and the later on a series of sheets.

The locality map (same as key map) should show the location of the road with respect to the important towns and industrial centres and the existing means of communication in the neighbourhood so as to give a bird's eye view of the proposed work. The map may be to a scale of 1:25,000 which are one of the common scales used in survey of India maps.

The site plan (same as index map) should show the project road and its immediate neighbourhood covering the important physical features such as hills, rivers, banks, railway lines etc. It may be to a scale of 1:50,000 and should show the kilometrage from beginning to end.

The sheet containing the locality map cum-site plan should have a legend to explain the abbreviations and symbols used in subsequent drawing sheets.

(ii) Land Acquisition Plans :- These should be prepared on existing village maps or settlement maps giving the details of property boundaries and their survey numbers. A scale in the range of 1:2000 to 1:8000 depending on available maps will be suitable. If for any reason detailed land acquisition plans are not possible then rough plans should be prepared. Inter alia the plans should show the final centre line of the road, the right of way limits, buildings, wells, monuments, trees etc. affected by the road alignment, type of land i.e. irrigated, wet, dry, barren, forest etc. and the nature of crops.

iii) Plan and Longitudinal section :- Plan and longitudinal section for one Km. length of the road should be shown on a single drawing sheet as far as possible. The plan should be at the

top and the longitudinal section at the bottom. Common scale adopted is 1:2500 for the horizontal, and 1:250 for the vertical.

The plan among the other things, should show the final centre of the row, right-of-way limits, roadway of the existing road where applicable, existing structures, drainage courses, intersecting roads, railway lines, electric and telephone lines/cables, location of cross drainage structures design details of horizontal curves, bench marks, position of POTs HIPs, locations of cross- sections, contours, north direction etc.

The longitudinal section should show the profile of the proposed road, the general ground, and the existing road where applicable. In addition, it should show details such as the gradients, location and set out data for vertical curves, super elevation, details of horizontal alignments, the design HFL, location of drainage crossings and intersecting road, pavement design features, continuous chainage etc.

(iv) Typical cross section sheet :- In a highway project, cross-section elements like width of the carriageway and roadway, side slopes, and pavement cross fall will generally remain constant for most of the road length. Instead of repeating this details for every cross section sheet. The number of typical cross-sections to be drawn will depend on the type of project, the terrain transverse etc. Generally it may be necessary to at least one cross-section each for road in fill, cut and curve.

(v) Detailed Cross-sections: The cross-sections should be presented serially along the continuous chainage. These should show the ground levels, existing road levels where applicable, and the proposed road levels. The area of cut and/or fill involved should be indicated as also the type and thickness of different pavement courses.

(vi) Drawings for cross drainage structures: In a highway project, large number of small cross drainage structures (i.e. culverts) will require to be constructed. Unless there is a special problem, it should normally be convenient to adopt standard designs for these if a standard design is not used for any reason, a separate drawing should be prepared for each cross drainage structure. A convenient scale is 1:50

(vii) Road Junction drawings : The junction drawing should show the existing features of the intersecting roads, the proposed improvements, and traffic control devices like signs, pavement markings etc. A scale of 1:500or 1:600 will be found convenient for this purpose.

(viii) Drawings for retaining walls and other structures: These drawing should clearly show the foundation and structural details as also the materials proposed to be used. The scale chosen should be large enough to show all the details comprehensively.

(ix) Drawing for Major and Minor Bridges : - The drawing for major and minor bridges shall be as per the requirements mentioned in Para 4.11.

5.6 ESTIMATES

- 5.6.1 The consultant shall work out the bill of quantities and cost estimates based on the technical proposal.
- 5.6.2 Give reference to the schedule of rates adopted and the year of its publication. Indicate whether the schedule is current or any correction has to be applied.
- 5.6.3 Bring out the items for which suitable rates are not available in the Schedule and for such items given reference to the analysis of rates attached to the estimate.
- 5.6.4 The report shall include the bill of quantities and specifications of works with detail estimate.

5.7 FINAL REPORT

This report will incorporate all revisions deemed relevant by the consultants following receipts of comments from the State Government. This report will be submitted within the receipt of comments to the earlier reporting.

MISCELLANEOUS

Make mention about the miscellaneous items of work like:

- (i) Rest Houses and temporary work sheds.
- (ii) Diversions and haul roads
- (iii) Arrangements for water supply and other site amenities.
- (iv) Traffic control devices e.g. signs, pavement markings, guard stones, kilometer stones etc.
- (v) Road side plantations, turfing, landscaping, way side amenities etc. (vi) Tourist facility items such as parking/scenic lay byes.

Note:- Reports shall also be submitted in floppy diskettes / CD's in addition to the hardcopies as mentioned in Enclosure-III.

Document to be submitted as per TOR

FSR Checklist - Stage-I

S. No.	SECTION OF THE REPORT
1	Executive Summary
2	Project Appreciation
2.1	Location of site office
2.2	Review of scope of ToR and gap identification
2.3	Key departments identified for various documents
2.4	Start and end location of project verified with client (Mention details)
2.5	Project description
	Start and End Chainage Village/District
2.6	Project location map
	On State Map
	On District Map
2.7	Site photos and data of project alignment
2.8	Overview of land use plans
	Overview of existing pavement conditions
2.9	Number of Lanes
	Type of Pavement
	(Flexible/Rigid/Surfaced/ Unsurfaced)
2.1	Existing right of way details
2.11	Number/ Location of major and minor bridges
2.12	Number/ Location of level crossings
2.13	Number/ Location of ROB and RUB
2.14	Any other details relevant to the project
3	Approach Methodology
3.1	Engineering survey and investigations
3.2	Design of road, pavements and structures
3.3	Environment and social impact assessment
3.4	Estimation of project cost, viability and financing options
3.5	Any other details relevant to the project
4	Task Assignment and Manning Schedule
4.1	Number of key personnel provided
4.2	Specific tasks assigned to each key personnel
4.3	Manning schedule for key personnel
4.4	Number of key personnel deployed at site
5	Performa for data collection

6	Indicative design standards and cross sections
7	Development plans
7.1	Overview of development plans being implemented/ proposed by local bodies
7.2	Overview of impact of such development plans
8	Quality Assurance Plan
8.1	Engineering surveys and investigation
8.2	Traffic surveys
8.3	Material geo-technical and sub-soil investigations
8.4	Road and pavement investigations
8.5	Investigation and design of bridges and structures
8.6	Environment and R&R assessment
8.7	Economic and financial analysis
8.8	Drawing and documentation
8.9	Any other details relevant to the project
8.1	Discussion of draft QAP document with client
8.11	Approval of final QAP document by client
9	Draft design Standards
9.1	Geometric design standards of highway (Plain)
9.2	Geometric design standards of highway (Hilly)
10	Conclusions and recommendations
10.1	Conclusions and recommendations
10.2	Report fulfils project objectives and scope as per RFP
10.3	Report reviewed for errors and omissions
10.4	Compliance report prepared on client observations

FSR Checklist - Stage-II

S.No	SECTION OF THE REPORT
1	Executive Summary
2	Overview of client organization / activities
3	Methodology adopted for feasibility study
4	Socioeconomic profile of the project areas
4.1	Regional economic profile basis last 10 years data as per IRC
4.2	Economic profile of project influence area basis last 10 years data as per IRC
4.3	Socio Economic status of project influence area
5	Indicative design standards, methodologies, and specifications
6	Traffic surveys and analysis
6.1	Classified traffic volume counts using IHMCL data (7 day data)
6.2	Traffic projection methodology as per IRC:108
6.3	Projected Traffic data for 20 years

6.4	Current and Projected PCU
6.5	Current and Projected TVU
6.6	Origin destination surveys as per IRC: 102
6.7	Speed and delay studies as per IRC:102
6.8	Traffic surveys for the design of road junctions as per data in IRC: SP:41
6.9	Analysis for replacing railway level crossings with over bridges/ subways
6.1	Axle load survey as per IRC:SP:19
6.11	Any other details relevant to the project
6.12	Traffic surveys monitored and reviewed by the client
7	Reconnaissance survey
7.1	Road Inventory Survey as per IRC:SP:19
7.2	Review of Road Inventory survey by client
7.3	Chainage wise details of pavement composition survey
7.4	Geological Survey
	Geological Map of the Area
	Seismicity
7.5	Climatic Conditions
	Temperature
	Rainfall
	Wind
7.6	Pavement composition and condition survey as per IRC:SP:19
7.7	Review of pavement composition and condition survey by client
7.8	Pavement roughness survey as per IRC:SP:16
7.9	Review of pavement roughness survey by client
7.1	Pavement structural strength survey as per IRC:81
7.11	Review of pavement structural strength survey by client
7.12	Sub grade characteristics and strengths Topographical survey as per IRC:SP:19
7.13	using LiDAR
	Gradient
	Terrain
7.14	Review of topographical survey by client
7.15	Inventory of bridges, culverts and structures
7.16	Condition survey for bridges, culverts and structures
7.17	Review of condition survey for bridges, culverts and structures by client
7.18	Any other details relevant to the project
8	Geotechnical Survey
8.1	Geo-technical and sub-soil explorations as per IRC:78
8.2	Bore holes dug for every pier and abutment
8.3	Review of geo-technical and sub-soil explorations by client
8.4	Field testing, soil sampling, laboratory testing in accordance with BIS/ AASHTO/ BS
8.5	Recommendation of Foundation Type and Depth

8.6	Any other details relevant to the project
9	Hydraulic and Hydrological Survey
9.1	Hydraulic and hydrological Survey investigations as per IRC:SP:13 and IRC:5
9.2	High Flood Level specified
9.3	Depth of Water Table specified
9.4	Ponded Water Level specified
9.5	Any other details relevant to the project
9.6	Review of hydrological investigations by client
10	Materials Survey
10.1	Materials Survey conducted as per IRC:SP:19
10.2	Sources of Naturally Occurring Aggregates specified Details of Borrow Pits with Distance from Project Site Cost of Material/ Transportation
10.3	Sources of Manufactured Items specified Details of suppliers with distance from project site Cost of material/ transportation
10.4	Sources of water for construction specified as per IS: 456
10.5	Any other details relevant to the project
11	Environmental screening/ preliminary environmental assessment
11.1	Analysis basis Initial Environment Examination in IRC: SP: 19
11.2	Recommended feasible mitigation measures
12	Initial social assessment/ preliminary LA resettlement plan
12.1	Analysis basis Initial Environment Examination in IRC: SP: 19
12.2	Details of consultation with potentially affected persons
12.3	Names/ Details of consultation with local NGOs
12.4	Names/ Details of consultation with municipal authorities
12.5	Preliminary resettlement plan
12.6	Any other details relevant to the project
13	Cost estimates
13.1	Item rates and rate analysis
13.2	Escalation
14	Economic and financial analysis
14.1	Estimated cost details
14.2	Projected revenues details
14.3	Assumptions stated
14.4	Analysis and results (IRR, Sensitivity Analysis, Financial Viability)
15	Strip plan and Alignment
15.1	Details of center line of proposed highway
15.2	Details of existing RoW

15.3	Details of proposed RoW
15.4	Details about ownership of land to be acquired
15.5	Strip plan basis reconnaissance and topographic surveys
15.6	Strip plan reviewed and approved by the client
16	Alignment Options Study
16.1	At least two alignments proposed
	Details of Alignments on Map
16.2	Review of options with client
16.3	Length of the project along proposed alignment options
16.4	Land Acquisition required along alignment options
16.5	Cost Estimates of alternatives
16.6	Recommended Alignment with Justification
16.7	Any other details relevant to the project
17	Technical Specifications
17.1	MoRTH technical specifications for Roads and Bridge works followed
17.2	Details of technical specifications
18	Rate Analysis
18.1	Rate analysis for all relevant items as per latest SoR
19	Cost Estimates
19.1	Cost estimates for all relevant items as per latest SoR
20	Bill of quantities
21	Conclusions and recommendations
21.1	Conclusions and recommendations
21.2	Report fulfils project objectives and scope as per RFP
21.3	Report reviewed for errors and omissions
21.4	Compliance report prepared on client

FSR Checklist - Stage-III

S.No	SECTION OF THE REPORT
1	Executive Summary
2	Environment Clearance
2.1	Requirement for environment clearance identified
2.2	Date/ Details of Initial consultation with competent authority
2.3	Date of submission of draft EIA report/ proposal for clearance
2.4	Review of proposal/ EIA report by client
3	Forest Clearance
3.1	Requirement for forest clearance identified
3.2	Date/ Details of initial consultation with competent authority
3.3	Details/cost of trees being felled basis concerned District Forest Office

3.4	Date of submission of proposal for forest clearance
3.5	Review of proposal by client
4	Wildlife Clearance
4.1	Requirement for wildlife clearance identified
4.2	Date/ Details of initial consultation with competent authority
4.3	Details/cost of trees being felled basis concerned District Forest Office
4.4	Date of submission of proposal for wildlife clearance
4.5	Review of proposal by client
5	Utility Clearances (Electricity)
5.1	Identification of over ground utilities
	Identification of underground utilities
5.2	using GPR, Induction Locator or equivalent technologies
5.3	Name/ Details of consultation with local authority/ people
5.4	Utility relocation plan with existing / proposed location showing existing RoW and topographic details
5.5	Cost for relocation as per authority
5.6	Date of proposal submission to competent authority
5.7	Review of utility relocation plan/ proposal by client
6	Utility Clearances (Water)
6.1	Identification of overground utilities in RoW
	Identification of underground utilities
6.2	using GPR, Induction Locator or equivalent technologies
6.3	Name/ Details of consultation with local authority/ people
6.4	Utility relocation plan with existing / proposed location showing existing RoW and topographic details
6.5	Cost for relocation as per authority
6.6	Date of proposal submission to competent authority
6.7	Review of utility relocation plan/ proposal by client
7	Utility Clearances (Others)
7.1	Identification of over ground utilities in RoW
	Identification of underground utilities
7.2	using GPR, Induction Locator or equivalent technologies
7.3	Name/ Details of consultation with local authority/ people
7.4	Utility relocation plan with existing / proposed location showing existing RoW and topographic details
7.5	Cost for relocation as per authority
7.6	Date of proposal submission to competent authority
7.7	Review of utility relocation plan/proposal by client
8	Railway Clearances
8.1	Identification of ROB/ RUB on project corridor
8.2	Initial consultation with competent authority

8.3	Date of proposal submission to competent authority
8.4	Review of GAD/ proposal by client
9	Other Clearances
9.1	Requirement for other clearances identified
9.2	Date of proposal submission to competent authority
9.3	Review of proposal by client
10	Land Acquisition
10.1	Detailed schedule about acquisition of landholdings as per land records
10.2	Consultation with affected persons
10.3	Name/ Details of consultation with NGOs
10.4	Name/ Details of consultation with concerned government agencies
10.5	Total land required, land area already available , land to be acquired identified
10.6	Review of land acquisition using digital cadastral map by client
10.7	Draft 3a notification submitted
10.8	Review of 3a notification by client
10.9	Date of 3a gazette notification
10.1	Draft 3a notification submitted
10.11	Review of 3A notification by client
10.12	Date of 3A gazette notification
11	Conclusions and recommendations
11.1	Conclusions and recommendations
11.2	Report fulfils project objectives and scope as per RFP
11.3	Report reviewed for errors and omissions
11.4	Compliance report prepared on client

SUPPLEMENT-I

ADDITIONAL REQUIREMENT FOR SAFETY AUDIT

Checklists

The use of checklists is highly recommended as they provide a useful “aide memoire” for the audit team to check that no important safety aspects are being overlooked. They also give to the project manager and the design engineer a sense of understanding of the place of safety audit in the design process. The following lists have been drawn up based on the experience of undertaking systematic safety audit procedures overseas. This experience indicates that extensive lists of technical details has encouraged their use as “tick” sheets without sufficient thought being given to the processes behind the actions. Accordingly, the checklists provide guidelines on the principal issues that need to be examined during the course of the safety audits.

Stage F-During Feasibility Study

1. The audit team should review the proposed design from a road safety perspective and check the following aspects

CONTENTS	ITEMS
Aspects to be checked	A. Safety and operational implications of proposed alignment and junction strategy with particular references to expected road users and vehicle types likely to use the road. B. Width options considered for various sections. C. Departures from standards and action taken. D. Provision of pedestrians, cyclists and intermediate transport E. Safety implications of the scheme beyond its physical limits i.e. how the scheme fits into its environs and road hierarchy
A1 : General	<input type="checkbox"/> Departures from standards <input type="checkbox"/> Cross-sectional variation <input type="checkbox"/> Drainage <input type="checkbox"/> Climatic conditions <input type="checkbox"/> Landscaping <input type="checkbox"/> Services apparatus <input type="checkbox"/> Lay-byes <input type="checkbox"/> Footpath <input type="checkbox"/> Pedestrian crossings <input type="checkbox"/> Access (minimize number of private accesses) <input type="checkbox"/> Emergency vehicles
A2 : Local Alignment	<input type="checkbox"/> Visibility <input type="checkbox"/> New/Existing road interface <input type="checkbox"/> Safety Aids on steep hills
A3 : Junctions	<input type="checkbox"/> Minimise potential conflicts <input type="checkbox"/> Layout <input type="checkbox"/> Visibility
A4 : Non-Motorised road users Provision	<input type="checkbox"/> Adjacent land <input type="checkbox"/> Pedestrians <input type="checkbox"/> Cyclists

	☐ Non-motorised vehicles
A5 : Signs and Lighting	☐ Lighting ☐ Signs/Markings
A6 : Construction and Operation	☐ Buildability ☐ Operational ☐ Network Management

Stage 1 – Completion of Preliminary Design

1. The audit team should review the proposed check the following aspects design from a road safety perspective and check the following aspects

CONTENTS	ITEMS
Aspects to be checked	<p>A. Safety and operational implications of proposed alignment and junction strategy with particular references to expected road users and vehicle types likely to use the road.</p> <p>B. Width options considered for various sections.</p> <p>C. Departures from standards and action taken.</p> <p>D. Provision of pedestrians, cyclists and intermediate transport</p> <p>E. Safety implications of the scheme beyond its physical limits i.e. how the scheme fits into its environs and road hierarchy</p>
B1 : General	<p>☐ Departures from standards</p> <p>☐ Cross-sectional variation</p> <p>☐ Drainage</p> <p>☐ Climatic conditions</p> <p>☐ Landscaping</p> <p>☐ Services apparatus</p> <p>☐ Lay-byes</p> <p>☐ Footpaths</p> <p>☐ Pedestrian crossings</p> <p>☐ Access (minimize number of private accesses)</p> <p>☐ Emergency vehicles</p> <p>☐ Public Transport</p> <p>☐ Future widening</p> <p>☐ Staging of contracts</p> <p>☐ Adjacent development</p>

B2 : Local Alignment	<input type="checkbox"/> Visibility <input type="checkbox"/> New/Existing road interface <input type="checkbox"/> Safety Aids on steep hills
B3 : Junctions	<input type="checkbox"/> Minimise potential conflicts <input type="checkbox"/> Layout <input type="checkbox"/> Visibility
B4 : Non-Motorised road users Provision	<input type="checkbox"/> Adjacent land <input type="checkbox"/> Pedestrians <input type="checkbox"/> Cyclists <input type="checkbox"/> Non-motorised vehicles
B5 : Signs and Lighting	<input type="checkbox"/> Lighting <input type="checkbox"/> Signs/Markings
B6 : Construction and Operation	<input type="checkbox"/> Buildability <input type="checkbox"/> Operational <input type="checkbox"/> Network Management

Enclosure-I

Manning Schedule

SI.No	Key Personnel	Total Project Assignment (Three months)		
		At site (mm)	At design office (mm)	Total Time Period (mm)
1	Sr. Bridge Engineer-cum-Team Leader	2	3	5
2	Bridge Engineer	2	3	5
3	Sr. Traffic and Safety Expert	2	2	4
4	Highway cum Pavement Engineer	3	2	5
5	Material-cum-Geo-technical Engineer	2	1	3
6	Senior Survey Engineer	2	3	5
7	Environmental Specialist	1	1	2
8	Quantity Surveyor/ Documentation Expert	2	3	5
	Total	16	17	34

Note:

1. Consultants have to provide a certificate that all the key personnel as envisaged in the Contract Agreement have been actually deployed in the projects. They have to furnish the certificate at the time of submission of their bills to Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.) from time to time.
2. In case Tunnels are to be constructed, necessary input of Tunnel Experts shall be provided in addition to above mentioned Manpower requirement.

**Qualification and Experience Requirement of Key Personnel
Senior Bridge Engineer-cum-Team Leader**

i)	Educational Qualification	
	Essential	Graduate in Civil Engineering
	Desirable	Post graduate in Civil Engineering (highways/structures/traffic and transportation/soil mechanics and foundation engineering/ Construction Management /Transportation)
ii)	Essential Experience	
	a) Total Professional Experience	Min. 20 years
	b) Experience in Bridge projects	Min. 15 years in Planning, project preparation and design of Bridge/Highway projects , including 2/4/6 laning of NH/ expressways.
	c) Experience in similar capacity	In Feasibility study of two / Four/Six Laning works/ Elevated Road and detail project report/ feasibility cum detailed project report of two/ four laning Elevated Corridor projects of minimum aggregate length of 80 km.
iii)	Age Limit	70 years on the date of submission of proposal

QUALIFICATION AND EXPERIENCE REQUIREMENT OF KEY PERSONNEL
Highway cum Pavement Engineer

i)	Educational Qualification	
	Essential	Degree in Civil Engineering
	Desirable	Masters in highway engineering/ Transportation Engineering
ii)	Essential Experience	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Highway Projects	Minimum 10 years experience in pavement design and maintenance of highways
	c) Experience in similar capacity	Pavement design for major highway projects (2/4/6 lane NH/Expressways) of minimum aggregate length of 80 km.
iii)	Age Limit	70 years on the date of submission of proposal

QUALIFICATION AND EXPERIENCE REQUIREMENT OF KEY PERSONNEL

Bridge Engineer

i)	Educational Qualification	
	Essential	Graduate in Civil Engineering or equivalent
	Desirable	Masters in Bridge Engineering / Structural Engineering
ii)	Essential Experience	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Bridge projects	Min. 10 years in project preparation and design of bridge projects.
	c) Experience in similar capacity	Bridge Engineer in highway design consultancy projects (2/4/6 lane NH/SH/Expressways) involving design of minimum two major bridges (Span 40 M. each & Pile foundation on NH/SH)
iii)	Age Limit	70 years on the date of submission of proposal

QUALIFICATION AND EXPERIENCE REQUIREMENT OF KEY PERSONNEL

Sr. Traffic and Safety Expert

i)	Educational Qualification	
	Essential	Graduate in Civil Engineering
	Desirable	Masters in Traffic Engineering / Transportation Engineering / Transport Planning
ii)	Essential Experience	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Similar type of work in infrastructure projects	5 years on similar projects.
	c) Experience in similar capacity	Traffic Engineer in highway Projects (NH/SH/Expressways) involving 2/4/6 laning of minimum aggregate length of 80 km.
iii)	Age Limit	70 years on the date of submission of proposal

QUALIFICATION AND EXPERIENCE REQUIREMENT OF KEY PERSONNEL

Material Engineer – cum – Geotechnical Engineer cum Geologist

i)	Educational Qualification	
	Essential	Graduate in Civil Engineering or M.Sc. Geology
	Desirable	Masters in Foundation Engineering / Soil Mechanics / Phd in Geology /Geo Tech Engineering
ii)	Essential Experience	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Highway projects	Min. 8 years on similar projects in design and/or construction
	c) Experience in similar capacity	Material cum Geo-technical Engineer on highway projects (2/4/6 lane NH/SH/Expressways) of minimum aggregate length of 80 km.
iii)	Age Limit	70 years on the date of submission of proposal

QUALIFICATION AND EXPERIENCE REQUIREMENT OF KEY PERSONNEL***Senior Survey Engineer***

i)	Educational Qualification	
	Essential	Graduate or equivalent in Civil Engineering or Diploma in Civil Engg. or Diploma in Surveying
	Desirable	Masters in Survey Engineering/ Surveying / Remote Sensing
ii)	Essential Experience	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Highway projects	Min. 5 years on similar projects in project preparation and construction & thorough understanding of modern computer based methods of surveying
	c) Experience in similar capacity	Survey Engineer for projects preparation of highway project (NH/SH/Expressways) involving 2/4/6- laning of minimum aggregate length of 80 km.
iii)	Age Limit	65 years on the date of submission of proposal

QUALIFICATION AND EXPERIENCE REQUIREMENT OF KEY PERSONNEL

Environmental Specialist

i)	Educational Qualification	
	Essential	Graduate in Civil Engineering / Environment Engineering / Masters in Environment Science
	Desirable	Post Graduate in Environmental Engineering
ii)	Essential Experience	
	a) Total Professional Experience	Min. 10 years
	b) Experience in Highway projects	Min. 5 years in environment impact assessment of highway projects (2/4/6 laning)
	c) Experience in similar capacity	Environmental Specialist in at least two highway projects (2/4/6 laning)
iii)	Age Limit	70 years on the date of submission of proposal

QUALIFICATION AND EXPERIENCE REQUIREMENT OF KEY PERSONNEL

Quantity Surveyor/Documentation

i)	Educational Qualification	
	Essential	Graduate or equivalent in Civil Engineering /Certificate course from 'Institution of Quantity Surveying'
	--	--
ii)	Essential Experience	
	a) Total Professional Experience	Min. 15 years
	b) Experience in Highway projects	Min. 5 years in Preparation of Bill of Quantities, Contract documents and documentation for major highway projects involving two/ four laning.
	c) Experience in similar capacity	Quantity Surveyor / Documentation Expert in highway projects (NH/SH/Expressways) involving two/four/six laning of minimum aggregate length of 80 km.
iii)	Age Limit	70 years on the date of submission of proposal

Schedule for submission of Reports and Documents

Stage No.	Phase No.	Activity	No. of copies	Time Period in days from date of commencement
1	2	3	4	5
1	-	Monthly Reports	3	by 10 th day of every month
2	Phase-I	Inception Report		
		(i) Draft Inception Report including QAP document	3	10
		(ii) Inception Report including QAP document	3	21
3	Phase-II	F.S. REPORT		
		i) Draft Feasibility Study Report including option study report	4	60
		ii) Comments of client	1	75
		iii) Final Feasibility Study Report incorporating compliance of comments of Client.	4	90
4	Phase-II	Project Clearances from concerned agencies e.g. from MOEF; Rly for approval of GAD and detail engineering drawing of ROB/RUB; irrigation Dept., Land acquisitions-3(a), 3(A), 3(D) notifications	Original letters from the concerned agencies and 5 photocopies of each.	150

**Proof of Eligibility
Form-E1**

Letter of Proposal (On Applicant's letter head)

(Date and Reference)

To, *****

Sub: Appointment of Consultant for preparation of Feasibility Report for

Dear Sir,

With reference to your RFP Document dated, I/we, having examined all relevant documents and understood their contents, hereby submit our Proposal for selection as Consultant for [WIDENING OF 4-LANE TO 6-LANE / PROVISION OF ELEVATED CORRIDOR / CONSTRUCTION OF NEW EXPRESS HIGHWAY OF]. The proposal is unconditional and unqualified.

2. All information provided in the Proposal and in the Appendices is true and correct and all documents accompanying such Proposal are true copies of their respective originals.
3. This statement is made for the express purpose of appointment as the Consultant for the aforesaid Project.
4. I/We shall make available to the Authority any additional information it may deem necessary or require for supplementing or authenticating the Proposal.
5. I/We acknowledge the right of the authority to reject our application without assigning any reason or otherwise and hereby waive our right to challenge the same on any account whatsoever.
6. I/We certify that in the last three years, we or any of our Associates have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Applicant, nor been expelled from any project or contract by any public authority nor have had any contract terminated by any public authority for breach on our part.
7. I/We understand that you may cancel the Selection Process at any time and that you are neither bound to accept any Proposal that you may receive nor to select the Consultant, without incurring any liability to the Applicants in accordance with Clause 2.8 of the RFP document.
8. I/We declare that we/any member of the consortium, are/is not a Member of any other Consortium applying for Selection as a Consultant.
9. I/We certify that in regard to matters other than security and integrity of the country, we or any of our Associates have not been convicted by a Court of Law or indicated or adverse orders

passed by a regulatory authority which would cast a doubt on our ability to undertake the Consultancy for the Project or which relates to a grave offence that outrages the moral sense of the community.

10. I/We further certify that in regard to matters relating to security and integrity of the country, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law for any offence committed by us or by any of our Associates.

11. I/We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our Directors/Managers/employees.

12. I/We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority [and/ or the Government of India] in connection with the selection of Consultant or in connection with the Selection Process itself in respect of the above mentioned Project.

13. The Bid Security of Rs. ***** (Rupees *****) in the form of a Bank Guarantee is attached, in accordance with the RFP document.

14. I/We agree and understand that the proposal is subject to the provisions of the RFP document. In no case, shall I/we have any claim or right of whatsoever nature if the Consultancy for the Project is not awarded to me/us or our proposal is not opened or rejected.

15. I/We agree to keep this valid for 120 (One hundred and twenty) days from the Proposal Due Date specified in the RFP.

16. A Power of Attorney in favour of the authorized signatory to sign and submit this Proposal and documents is attached herewith.

17. In the event of my/our firm/consortium being selected as the Consultant, I/we agree to enter into any Agreement in accordance with the form Appendix V of the RFP. We agree not to seek any changes in the aforesaid form and agree to abide by the same.

18. I/We have studied RFP and all other documents carefully and also surveyed the Project site. We understand that except to the extent as expressly set forth in the Agreement, we shall have no claim, right or title arising out of and documents or information provided to us by the Authority or in respect of any matter arising out of or concerning or relating to the Selection Process including the award of Consultancy.

19. The Proof of Eligibility and Technical proposal are being submitted in separate covers in hard copy and they are being submitted online also. Financial Proposal is being submitted online only .This Proof of Eligibility read with Technical Proposal and Financial Proposal shall constitute the Application which shall be binding on us.

20. I/We agree and undertake to abide by all the terms and conditions of the RFP Document. In witness thereof, I/we submit this Proposal under and in accordance with the terms of the RFP Document.

Yours faithfully,
(Signature, name and designation of the authorized signatory)
(Name and seal of the Applicant/Lead Member)

Form-E2/T3

FIRM'S REFERENCES

Relevant Services Carried out in the Last Seven Years (2008-09 onwards)
which Best Illustrate Qualifications

The following information should be provided in the format below for each reference assignment for which your firm, either individually as a corporate entity or as one of the major companies within a consortium, was legally contracted by the client:

Assignment Name:		Country:
Location within Country :		Professional Staff Provided by your firm:
Name of Client :		No. of Staff :
Address :		No. of Staff :
Start Date (Month / Year)	Completion Date (Month / Year)	Approx. Value of Services : (in INR/current USD) :
Name of JV/Association Firm(s) if any :		No. of Months of Professional Staff provided by Associated Firm(s)
Status of your Company in the Assignment i.e., Sole/Lead Member/Other Member/Associate		
Narrative Description of Project :		
Description of Actual Services Provided by your Company:		

Signature of Authorised Representative

(Certificate from Employer regarding experience should be furnished)

Form- E3**Financial Capacity of the Applicant**

Name of Applicant:

S.No.	Financial Year	Annual Revenue (Rs/US \$ in million)
	2014-15	
	2013-14	
	2012-13	
	2011-12	
	2010-11	

Certificate from the Statutory Auditors

This is to certify that -----(name of the Applicant) has received the payments shown above against the respective years on account of Consultancy Services.

Name of the audit firm

Seal of the audit firm

Date

(Signature, name and designation of the authorized signatory)

§In case the Applicant does not have a statutory auditor, it shall provide the certificate from its chartered accountant that ordinarily audits the annual account of the Applicant.

Note:

Please do not attach any printed Annual Financial Statement.

Form- E4
BANK GUARANTEE FORMAT FOR BID SECURITY

(To be stamped in accordance with Stamp Act if any, of the country of issuing bank)

Ref.: **Tender No.** _____, **dated** _____

Bank Guarantee:

Date:

WHEREAS, _____ (Name of Bidder) __ (hereinafter called "the bidder") has submitted his bid dated _____ (date) for the **Tender No.** _____, **dated** _____ (hereinafter called "the Bid").

KNOW ALL MEN by these presents that We, _____ [Name of Bank] of _____ [Name of Country] having our registered office at _____ (hereinafter called "the Bank") are bound unto

_____ [Name of Employer] (hereinafter called "the Employer") in the sum of Rs. _____ (Rupees _____ Lakhs Only) for which payment will and truly to be made to the said Employer the Bank binds himself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 201..

THE CONDITIONS of this obligation are:

1. If the Bidder withdraws his Bid during the period of bid validity specified in the Bid document; or
2. If the Bidder does not accept the correction of arithmetical errors of his Bid Price in accordance with the Instructions to Bidder; or
3. If the Bidder having been notified of the acceptance of his Bid by the Employer during the period of bid validity,
 - a. fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
 - b. fails or refuses to furnish the Performance Security, in accordance with the letter of invitation, we undertake to pay the Employer up to the above amount upon receipt of his first written demand, without the Employer 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 one or any of the conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date 120 (one hundred and twenty) days after the deadline for submission of bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

Notwithstanding anything contained herein before, our liability under this guarantee is restricted to

Rs. _____ (Rs. _____) and the guarantee shall remain valid till _____.

Unless a claim or a demand in writing is made upon us on or before _____ all our liability under this guarantee shall cease.

DATE _____

SIGNATURE OF THE BANK _____

SEAL OF THE BANK _____

SIGNATURE OF THE WITNESS _____

Name and Address of the Witness _____

The bank guarantee shall be issued by a bank (Nationalized/ Scheduled) located in India

(Form-T1)

TECHNICAL PROPOSAL

FROM: TO:

Sir:

Subject Consultancy Service for

Regarding Technical Proposal

I/We _____ Consultant/ Consultancy firm herewith enclose
Technical Proposal for selection of my/our firm/organization as Consultant for
_____.

Yours faithfully,

Signature _____

Full Name _____

Designation _____

Address _____

(Authorized Representative)

Details of projects for which Technical and Financial Proposals have been submitted

Sl.No.	<i>Name of Project</i>	Consultancy Package No.	Names of Proposed Key Personnel
1			
2			
3			
4			

FIRM'S REFERENCES**Relevant Services Carried out in the Last Seven Years which Best Illustrate Qualifications**

The following information should be provided in the format below for each reference assignment for which your firm, either individually as a corporate entity or as one of the major companies within a consortium, was legally contracted by the client:

Assignment Name:		Country:
Location within Country :		Professional Staff Provided by your firm:
Name of Client :		No. of Staff :
Address :		No. of Staff :
Start Date (Month / Year)	Completion Date (Month / Year)	Approx. Value of Services : (in INR/current USD) :
Name of JV/Association Firm(s) if any :		No. of Months of Professional Staff provided by Associated Firm(s)
Status of your Company in the Assignment i.e., Sole/Lead Member/Other Member/Associate		
Narrative Description of Project :		
Description of Actual Services Provided by your Company:		

Signature of Authorised Representative

(Certificate from Employer regarding experience should be furnished)

SITE APPRECIATION

Shall give details of site as per actual site visit and data provided in RFP and collected from site supported by photographs to demonstrate that responsible personnel of the Consultant have actually visited the site and familiarized with the salient details/complexities and scope of services.

COMMENTS/ SUGGESTIONS OF CONSULTANT ON THE TERMS OF REFERENCE

1.

2.

3.

4.

5.

....

....

**Composition of the Team Personnel and the task
Which would be assigned to each Team Member**

I. Technical/Managerial Staff

S.No.	Name	Position	Task Assignment
1.			
2.			
3.			
4.			
....			
....			
....			

II. Support Staff

S.No.	Name	Position	Task Assignment
1.			
2.			
3.			
4.			
....			
....			

APPROACH PAPER ON METHODOLOGY PROPOSED FOR PERFORMING THE ASSIGNMENT

The approach and methodology will be detailed precisely under the following topics.

- 1) Composition of the team [not more than 1 page]
- 2) Methodology for services, surveying, data collection and analysis [min. 10 page & max. 20 page]
- 3) Quality Assurance system for consultancy assignment [max. 5 page]

Details of Material Testing Facility

1. State whether the Applicant has in-house Material Testing Facility Yes/No
2. In case answer to 1 is Yes attach a list of Lab equipment and facility for testing of materials and location of laboratory
3. In case laboratory is located at a distance of more than 400 km from the project site, state arrangements made/proposed to be made for testing of materials
4. In case answer to 1 is No state arrangements made/proposed to be made for testing of materials.

Facility for Field investigation and Testing

1. State whether the Applicant has in-house Facility for

a) Geo-technical investigation Yes/No

b) Pavement investigation Yes/No

c) Topographic Survey Yes/No

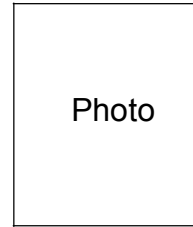
2. In case answer to 1 is Yes attach a list of field investigation and testing equipments available in-house

3. In case answer to 1 is No state arrangements made/proposed to be made for each of above Field investigation and testing

Office Equipment and software

Attach a list of office equipment and software owned by the Applicant

Form- T11



Format of Curriculum Vitae (CV) For Proposed Key Staff

1. Proposed Position:
2. Name of Staff:
3. Date of Birth: **(Please furnish proof of age)**

4. Nationality:

5. Educational Qualification:

(Summarize college/university and other specialized education of staff member, giving names of schools, dates attended and degrees obtained). (Please furnish proof of qualification)

Contact Address with Phone and mobile numbers:

3. Membership of Professional Societies:

4. Publication:

(List of details of major technical reports/papers published in recognized national and international journals)

5. **Employment Record:**

(Starting with present position, list in reversed order, every employment held. List all positions held by staff member since graduation, giving dates, names of employing organization, title of positions held and location of assignments. For experience ***period of specific assignment must be clearly mentioned***, also give client references, where appropriate).

9. Summary of the CV

(Furnish a summary of the above CV. The information in the summary shall be precise and accurate. The information in the summary will have bearing on the evaluation of the CV).

A) Education:

- i) Field of graduation and year
- ii) Field of post-graduation and year
- iii) Any other specific qualification

B) Experience

- i) Total experience in highways: ___ Yrs.
 - ii) Responsibilities held: a) ___ Yrs.
b) ___ Yrs.
c) ___ Yrs.
- 5.1 Relevant experience: ___ Yrs.

C) Permanent Employment with the firm:
___ Yrs. If yes, how many years:

If no, what is the
employment: Arrangement
with the firm?

Certification:

- 1 *I am willing to work on the project and I will be available for entire duration of the project assignment and I will not engage myself in any other assignment during the currency of this assignment on the project*
- 2 I, the undersigned, certify that to the best of my knowledge and belief, this biodata correctly describes myself my qualification and my experience.

Signature of the Candidate _____

Place _____
Date _____

Signature of the Authorized Representative of the firm _____

Place _____
Date _____

Note: Each page of the CV shall be signed in ink by both the staff member and the Authorized representative of the firm. Photocopies will not be considered for evaluation.

UNDERTAKING FROM THE PROFESSIONAL

I, (Name and Address) have not left any assignment with the consultants engaged by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** for any continuing works of **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** without completing my assignment. I will be available for the entire duration of the current project (named.....). If I leave this assignment in the middle of the completion of the work, I may be debarred for an appropriate period to be decided by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**. I have also no objection if my services are extended by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** for this work in future.

UNDERTAKING FROM CONSULTING FIRM

The undersigned on behalf of (name of consulting firm) certify that Shri.....(name of the proposed personnel and address) to the best of our knowledge has not left his assignment with any other consulting firm engaged by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** for the ongoing projects. We understand that if the information about leaving the past assignment with **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** without completing his assignment is known to **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** would be at liberty to remove the personnel from the present assignment and debar him for an appropriate period to be decided by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**.

(Form-I)

FINANCIAL PROPOSALS

FROM: _____ TO: _____

Sir:

Subject: Consultants' Services for

Regarding Price Proposal

I/We _____ Consultant/consultancy firm herewith enclose
*Price Proposal for selection of my/our firm/organization as Consultant for _____

Yours faithfully,
Signature _____
Full Name _____
Designation _____
Address _____

(Authorized Representative)

***The Financial proposal is to be filled strictly as per the format given in RFP.**

Format of Financial Proposal
Summary of Cost in Local Currency

No.	Description	Amount (LC)* (INR)
I	<u>Local Consultants</u> Remuneration for Local Staff (inclusive of per diem allowance)	
II	Support Staff (inclusive of per diem allowance)	
III	Per diem allowance of expatriate personnel	
IV	Transportation	
V	Duty Travel to Site	
VI	Office Rent	
VII	Office Supplies, Utilities and Communication	
VIII	Office Furniture and Equipment (Rental)	
IX	Reports and Document Printing	
X	Surveys & Investigations	
A	Topographical Survey	
B	Investigations	
	Subtotal Local Consultants :	
	Foreign Consultants	
F-I	Remuneration for Expatriate Staff	
F-II	Mobilization and Demobilization	
	Total Cost Net of Tax :	
Taxes and Duties	I. Income Tax (Expatriate) II. Import duties III. Value added tax Total cost net of service tax**	
	Service Tax	
	TOTAL COSTS (Including Service Tax)	

LC* Local Currency

** Total Cost Net of Service Tax shall be considered for financial evaluation

Note: No escalation will be payable during the services

Insurances shall not be allowed separately .These will be incidental to main items.

Rates for all items shall be quoted in figures as well as in words.

Estimate of Local Currency Costs

I. Remuneration for Local Staff (including per diem allowance)

I(a) Package No. CE/NH/FSR 4/6Lane /01

S.No.	Position	Name	Rate (INR)	SM	Amt.(INR)
	Professional Staff				
1	Team Leader cum Senior Highway Engineer			7	
2	Senior Bridge Engineer			3	
3	Highway cum Pavement Engineer			3.5	
4	Material-cum-Geotechnical Engineer- Geologist			5	
5	Senior Survey Engineer			5	
6	Traffic and Safety Expert			3.5	
7	Environmental Specialist			2.5	
8	Quantity Surveyor/ Documentation Expert			4.5	
	Sub-Total:				
	Sub-Professional Staff	(To be assessed by Consultant as per requirement of assignment)			
1					
2					
3					
4					
5					
6					
7					
	Sub-Total:				
	TOTAL				

II.Support Staff

No.	Position	Name	Staff Months	Billing Rate(INR)	Amount (INR)
1	Office Manager				
2	Typist				
3	Office Boy				
4	Night Watchman				
				Total :	

8. Transportation (Fixed costs)

S.No	Description	Qty.	Nos. of months	Rate/ Month (INR)	Amount (INR)
1	The vehicles provided by the Consultants shall include the cost for rental, drivers, operation, maintenance, repairs, insurance, etc. A. For use of consultants				
	Total				

IV. Duty Travel to Site (Fixed Costs)

Trips	NO	Rate (INR)	Amount (INR)

V. Office Rent (Fixed Costs)

The rent cost includes maintenance, cleaning, repairs, etc. months x
Total__

VI. Office Supplies, Utilities and Communication (Fixed Costs)

No.	Item	Months	Monthly Rate (INR)	Amount inINR.
1	Office Supplies Drafting			
2	Supplies Computer			
3	Running Costs			
4	Domestic and International Communication			

TOTAL :-----

VII. Office Furniture and Equipment (Rental)

No	Description	Unit	Quantity	Rate (INR)	Amount (INR)
1	Office Furniture and Equipment		LS		
				Total	

VIII. Reports and Document Printing

No.	Description	No. of Copies	Rate per Copy (INR.)	Amount (INR.)
1	Monthly Report	4 Per Month		
2	Inception Report & QAP	4		
3	Environment and Social Impact Screening Report	4		
4	Draft Feasibility Report	6		
5	Final Feasibility Report	6		
6	Strip Plan with L.A. Reports	6		
7	Draft Environmental Assessment report & RAP	6		
8	Draft 3(a), 3(A) and 3(D) notification for land acquisition (3 copies each)	10		
			Total	

IX. Survey and Investigation

A. Topographical Survey (Fixed Rate)

Item	Kms	Rate per Km. (INR)	Amount (INR)
Topographic Survey including hire charges for equipment(GPS, Total Station, Auto Level etc.,) and supply of survey Teams comprising of project survey filed staff etc. inclusive of cost of materials , labourer and construction of BM,(satellite imaginary, aerial photogrammetry if considered necessary) etc. complete			

B. Investigation (Fixed cost)

No.	Description	Quantity	Amount (INR)	
1	Road and Bridge Inventory			
2	BBD Test and Pavement Evaluation			
3	Roughness Survey			
4	Axle Load Survey			
5	Material Survey and Investigation			
6	Sub-grade Investigation			
7	Traffic Survey			
8	Socio-economic & Census Survey/Studies			
9	Land Acquisition Studies			
10	Any other investigations/surveys			
11	* Sub-Soil Investigation (Boring)	Rate	Qty	Amount (Rs)
	a) Boring in all type of soils (other than hard rock)		2500 m	
	b) Boring in hard rock		100 m	
	Total			

Note: * Quantities of borings shall be taken from Financial Proposal Form No.V. For financial evaluation, these quantities and rates quoted by the consultant will be considered. However, Payment shall be made on the actual quantity of boring at rates quoted above by the Consultant. which may be substantially more or less than the estimated quantities.

(Form-IV)

Estimate of Costs for Expatriate Consultants

I. Remuneration of Expatriate Staff including per diem allowances

No.	Positions	Name	Rate ()	SM	Amount ()
			Total :		

II. Mobilization and Demobilization

1. International Airfares (Fixed costs)

Position	Round Trips	Rate	Amount
		Total	

II.2 Inland Travel in Home Country (Fixed Costs)

Lump Sum

2. **Other Miscellaneous expenses (like DA, internal travel expenses other incidentals)(fixed cost)**

Lum Sum

TENTATIVE QUANTITIES FOR SUB-SOIL INVESTIGATIONS (BORING)

(Form –V)

S. No.	Stretch Proposed for Feasibility Study Report	Approximate Length (in Km)	Package No.	State	Cumulative Tentative Quantities (in m)	
					In soils other than rock	In hard rock
1	Consultancy Services for feasibility study and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/ construction of new expressway of Raipur-Durg section in Km. 281.000 to 307.600 = 26.60 Km. Of NH 006 (New N.H. 53) in the State of Chhattisgarh.	26.60 Km	CE/NH/FSR 4/6Lane /01	Chhattisgarh	2500	100

***DRAFT
CONTRACT AGREEMENT***

Between

Chief Engineer, National Highway Zone, P.W.D. Raipur (Chhattisgarh)

and

**M/sin JV
M/s.....
in Association with M/s.....**

For

Consultancy Services for feasibility study and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/construction of new expressway of Raipur-Durg section in Km. 281.000 to 307.600 = 26.60 Km. Of NH 006 (New N.H. 53) in the State of Chhattisgarh.

(From Km. 281.00 to Km. 307.600 of N.H. 53 (Old N.H.006))

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DRAFT CONTRACT FOR CONSULTANT'S SERVICES

INDIA

CONTRACT FOR CONSULTANT'S SERVICES

Consultancy Services for Feasibility Study and comparative Study of different alternatives for widening of 4-lane to 6-lane/provision of elevated corridor/construction of new expressway of Raipur-Durg section in Km. 281.000 to 307.600 = 26.60 Km. of NH 006 (New N.H. 53) in the State of Chhattisgarh.

This CONTRACT (hereinafter called-----dayof the “Contract month of -----2016 , between, on the one hand, **Ministry of Road Transport & Highways through its representative the Chief Engineer, National Highway Zone, PWD Raipur** (hereinafter called the “Client”) on the other hand, M/s ----- in JV with ----- and in Association with ----- (here in called the “Consultants”).

WHEREAS

- (A) the Client has requested the Consultants to provide certain consulting services as defined in the General Conditions attached to this Con
- (B) the Consultants, having represented to the Client that they have the required professional skills, personnel and technical resources, have agreed to provide the Services on the terms and conditions set forth in this Contract;

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 (hereinafter called “GC
- (b) The Special Conditions of contract (hereinafter called “SC”
- (c) The following Appendices:

Appendix A: Terms of reference containing, inter-alia, the Description of the Services and Reporting Requirements

Appendix B: Consultants’ Sub consultants, Key Personnel, Task assignment, work programme, manning schedule, qualification requirements of key personnel, schedule for submission of various report.

Appendix C: Hours of work for Consultants’ Person

Appendix D: Duties of the Client

Appendix E: Cost Estimate

Appendix F: Minutes of Financial/ Contract Negotiations with the Consultant

Appendix G: Copy of letter of invitation

Appendix H: Copy of letter of acceptance

Appendix I: Copy of Bank Guarantee for Performance Security

Appendix-J: Minutes of the pre-bid meeting

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

(a) The Consultants shall carry out the Services in accordance with the provisions of the Contract; and

(b) Client shall make payments to the Consultants in accordance with the provisions of the Contract.

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
(National Highways Authority of India)

Witness

1. Signature
Name
Address

By
Authorised Representative

2. Signature
Name
Address

FOR AND ON BEHALF OF
(Consultant)

Witness

1. Signature
Name
Address

By
Authorised Representative 2. Signature Name Address

GENERAL CONDITIONS OF CONTRACT

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 Government's country as they may be issued and in force from time to time;
- (b) "Contract" means the Contract signed by the Parties, to which these General Conditions of Contract are attached, together with all the documents listed in Clause 1 of such signed Contract;
- (c) "Effective Date" means the date on which this Contract comes into force and effect pursuant to Clause GC 2.1;
- (d) "foreign currency" means any currency other than the currency of the Government;
- (d) "GC" means these General Conditions of Contract;
- (f) "Government" means the Government of India;
- (g) "local currency" means the currency of the Government;
- (h) "Member", in case the Consultants consist of a joint venture or consortium of more than one entity, means any of these entities, and "Members" means all of these entities;
- (i) "Personnel" means persons hired by the Consultants or by any Sub-consultant as employees and assigned to the performance of the Services or any part thereof; "foreign Personnel" means such persons who at the time of being so hired had their domicile outside India; and "local Personnel" means such persons who at the time of being so hired had their domicile inside India;
- (j) "Party" means the Client or the Consultants, as the case may be, and Parties means both of them;
- (k) "Services" means the work to be performed by the Consultants pursuant to this Contract for the purposes of the Project, as described in Appendix A hereto;
- (l) "SC" means the Special Conditions of Contract by which these General Conditions of Contract may be amended or supplemented;

(m) “Sub consultant” means any entity to which the Consultants subcontract any part of the Services in accordance with the provisions of Clause GC 3.7; and

(n) “Third Party” means any person or entity other than the Government, the Client, the Consultants or a Sub consultant.

1.2 **Relation between the Parties**

Nothing contained herein shall be construed as establishing a relation of master and servant or of agent and principal as between the Client and the Consultants. The Consultants, subject to this Contract, have complete charge of Personnel performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder.

1.3 **Governing Law and Jurisdiction**

This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Laws of India and the Courts atshall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

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.

1.5 **Table of Contents and Headings**

The table of contents, headings or sub-headings in this agreement are for convenience for reference only and shall not be used in, and shall not limit, alter or affect the construction and interpretation 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 by registered mail, facsimile or e-mail to such Party at the address specified in the SC.

1.6.2 Notice will be deemed to be effective as specified in the SC.

1.6.3 A party may change its address for notice hereunder by giving the other Party notice of such change pursuant to the provisions listed in the SC with respect to Clause GC 1.6.2.

1.7 **Location**

The Services shall be performed at such locations as are specified in **Letter of Acceptance (Appendix-I)** hereto and, where the location of a particular task is not so specified, at such locations, whether in India or elsewhere, as the Client may approve.

1.8 **Authority of Member in Charge**

In case the Consultants consist of a joint venture of more than one entity, with or without an Associate the Members hereby authorize the entity specified in the SC to act on their behalf in

exercising all the Consultants' 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 Consultants may be taken or executed by the officials specified in the SC.

1.10 Taxes and Duties

Unless otherwise specified in the SC, the Consultants shall pay all such taxes, duties, fees and other impositions as may be levied under the Applicable Law.

2. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

2.1 Effectiveness of Contract

This Contract shall come into force and effect on the date of the Client's notice to the Consultants instructing the Consultants 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 shall be specified in the SC, either Party may, by not less than four (4) weeks' 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 Consultants shall begin carrying out the Services at the end of such time period after the Effective Date as shall be specified in the SC.

2.4 Expiration of Contract

Unless terminated earlier pursuant to Clause GC 2.9 hereof, this Contract shall expire when services have been completed and all payments have been made at the end of such time period after the Effective Date as shall be 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 Modification

Modification of the terms and conditions of this Contract, including any modification of the scope of the Services, may only be made by written agreement between the Parties. Pursuant

to Clause GC 7.2 hereof, however, each party shall give due consideration to any proposals for modification made by the other Party.

2.7 Force Majeure

2.7.1 Definition

(a) For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party, 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 Subconsultants or agents or employees, nor (ii) any event which a diligent Party could reasonably have been expected to both (A) take into account at the time of the conclusion of this Contract and (B) 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 fulfil any of its obligations hereunder shall not be considered to be a breach of, or default under, 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 take all reasonable measures to remove such Party's inability to fulfil its obligations hereunder with a minimum of delay.
- (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 event 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 notice of the restoration of normal conditions as soon as possible.
- (c) The Parties shall take all reasonable measures to minimize the consequences of any event of Force Majeure.

2.7.4 Extension of Time

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.

2.7.5 **Payments**

During the period of their inability to perform the Services as a result of an event of Force Majeure, the Consultants shall be entitled to be reimbursed for additional costs reasonably and necessarily incurred by them during such period for the purposes of the Services and in reactivating the Services after the end of such period.

2.7.6 **Consultation**

Not later than thirty (30) days after the Consultants, as the result of an event of Force Majeure, have become unable to perform a material portion of the Services, the Parties shall consult with each other with a view to agreeing on appropriate measures to be taken in the circumstances.

2.8 **Suspension**

The Client may, by written notice of suspension to the Consultants, suspend all payments to the Consultants hereunder if the Consultants fail to perform any of their obligations under this Contract, including the carrying out of the Services, provided that such notice of suspension (i) shall specify the nature of the failure, and (ii) shall request the Consultants to remedy such failure within a period not exceeding thirty (30) days after receipt by the Consultants of such notice of suspension.

2.9 **Termination**

2.9.1 **By the Client**

The Client may, by not less than thirty (30) days' written notice of termination to the Consultants (except in the event listed in paragraph (f) below, for which there shall be a written notice of not less than sixty (60) days), such notice to be given after the occurrence of any of the events specified in paragraphs (a) through (f) of this Clause 2.9.1, terminate this Contract:

(a) if the Consultants fail to remedy a failure in the performance of their obligations hereunder, as specified in a notice of suspension pursuant to Clause 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 Consultants become (or, if the Consultants consist of more than one entity, if any of their Members 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 Consultants fail to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause 8 hereof;

(d) if the Consultants submit to the Client a statement which has a material effect on the rights, obligations or interests of the Client and which the Consultants know to be false;

- (e) if, as the result of Force Majeure, the Consultants are unable to perform a material portion of the Services for a period of not less than sixty (60) days; or
- (f) if the Client, in its sole discretion and for any reason whatsoever, decides to terminate this Contract.

2.9.2 **By the Consultants**

The Consultants may, by **not less than thirty (30) day's written notice to the Client, such** notice to be given after the occurrence of any of the events specified in paragraphs through (d) of this Clause 2.9.2, terminate this Contract:

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

2.9.3 **Cessation of Rights and Obligations**

Upon termination of this Contract pursuant to Clauses 2.2 or 2.9 hereof, or upon expiration of this Contract pursuant to Clause 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 3.3 hereof, (iii) the **Consultant's obligation to permit** inspection, copying and auditing of their accounts and records set forth in Clause 3.6 (ii) 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 2.9.1 or 2.9.2 hereof, the Consultants 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 Consultants and equipment and materials furnished by the Client, the Consultants shall proceed as provided, respectively, by Clauses 3.9 or 3.10 hereof.

2.9.5 **Payment upon Termination**

Upon termination of this Contract pursuant to Clauses 2.9.1 or 2.9.2 hereof, the Client shall make the following payments to the Consultants (after offsetting against these payments any amount that may be due from the Consultant to the Client):

- (i) Remuneration pursuant to Clause 6 hereof for Services satisfactorily performed prior to the effective date of termination.

- (ii) Reimbursable expenditures pursuant to Clause 6 hereof for expenditures actually incurred prior to the effective date of termination; and
- (iii) except in the case of termination pursuant to paragraphs (a) through (d) of Clause 2.9.1 hereof, reimbursement of any reasonable cost incident to the prompt and orderly **termination of the Contract including the cost of the return travel of the Consultants' 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 (e) of Clause 2.9.1 or in Clause 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 to arbitration pursuant to Clause 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 CONSULTANTS**

3.1 **General**

3.1.1 **Standard of Performance**

The Consultants shall perform the Services and carry out their obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional techniques and practices, and shall observe sound management practices ,and employ appropriate advanced technology and safe and effective equipment ,machinery, materials and methods. The Consultants shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers 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 Consultants 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 and agents of the Consultants and any Sub-consultants, comply with the Applicable Law. The Client shall advise the Consultants in writing of relevant local customs and the Consultants shall, after such notifications, respect such customs.

3.2 **Conflict of Interests**

3.2.1 **Consultants not to Benefit from Commissions, Discounts, etc.**

The remuneration of the Consultants pursuant to Clause 6 hereof shall constitute the Consultants' sole remuneration in connection with this Contract or the Services and the Consultants shall not accept for their own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Contract or to the Services or in the Discharge of their obligations hereunder, and the Consultants shall use their 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 remuneration.

3.2.2 Consultants and Affiliates not to be otherwise interested in Project

The Consultants agree that, during the term of this Contract and after its termination, the Consultants and any entity affiliated with the Consultants, as well as any Sub-consultant and any entity affiliated with such Sub-consultant, shall be disqualified from providing goods, works or services (other than the Services and any continuation thereof) for any project resulting from or closely related to the Services.

3.2.3 Prohibition of Conflicting Activities

Neither the Consultants nor their Sub-consultants nor the Personnel of either of them shall engage, either directly or indirectly, in any of the following activities:

- (a) during the term of this Contract, any business or professional activities in the Government's country which would conflict with the activities assigned to them under this Contract; or
- (b) after the termination of this Contract, such other activities as may be specified in the SC.

3.3 Confidentiality

The Consultants, their Sub-consultants and the Personnel of either of them shall not, either during the term or within two (2) years after the expiration of this Contract, disclose any proprietary or confidential information relation to the Project, the Services, this Contract or the Client's business or operations without the prior written consent of the Client.

3.4 Liability of the Consultants

Subject to additional provisions, if any, set forth in the SC, the Consultants' liability under this Contract shall be as provided by the Applicable Law.

3.5 Insurance to be taken out by the Consultants

The Consultants (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 coverage, as shall be specified in the Special Conditions (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 Consultants (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 charges and cost, and the bases thereof (including the bases of the Consultants' costs and charges), and (ii) shall permit the Client or its designated representative periodically, and up to one year from the expiration or termination of this Contract, to inspect the same and make copies there of as well as to have them audited by auditors appointed by the Client.

3.7 Consultants' Actions requiring Client's prior Approval

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

- (a) appointing such members of the Personnel as are listed in Appendix B;
- (b) entering into a subcontract for the performance of any part of the Services, it being understood (i) that the selection of the Sub-consultant and the terms and conditions of the subcontract shall have been approved in writing by the Client prior to the execution of the subcontract, and (ii) that the Consultants shall remain fully liable for the performance of the Services by the Sub-consultant and its Personnel pursuant to this Contract;
- (c) any other action that may be specified in the SC.

3.8 **Reporting Obligations**

The Consultants shall submit to the Client the reports and documents specified in

Appendix A/E hereto, in the form, in the numbers and within the time periods set forth in the said Appendix.3.9

Documents prepared by the Consultants to be the Property of the Client :

All plans, drawings, specifications, designs, reports and other documents prepared by the Consultants in performing the Services shall become and remain the property of the Client, and the Consultants 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 Consultants may retain a copy of such documents. Restrictions about the future use of these documents, shall be as specified in the SC.

3.10 **Equipment and Materials furnished by the Client**

Equipment and materials made available to the Consultants by the Client, or purchased by the Consultants 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 Consultants shall make available to the Client an inventory of such equipment and materials and shall dispose of such equipment and materials in accordance with the Client's I instructions. While in possession of such equipment and materials, the Consultants, unless otherwise instructed by the Client in writing, shall insure them in an amount equal to their full replacement value.

4. **CONSULTANTS' PERSONNEL**

4.1 **General**

The Consultants shall employ and provide such qualified and experienced Personnel as are required to carry out the Services.

4.2 **Description of Personnel**

- (a) The titles, agreed job descriptions, minimum qualification and estimated periods of engagement in the carrying out of the Services of each of the Consultants' Key Professional / Sub Professional Personnel are described in Appendix B.
- (b) If required to comply with the provisions of Clause 3.1.1 of this Contract, adjustments with respect to the estimated periods of engagement of Key Professional / Sub Professional Personnel set forth in Appendix B may be made by the Consultants by written notice to the Client, provided
 - (i) that such adjustment shall not alter the originally estimated period of engagement of any individual by more than 10% or one week, whichever is larger, and
 - (ii) that the aggregate of such adjustments shall not cause payments under this Contract to exceed the ceilings set forth in Clause 6.1 (b) of this Contract. Any other such adjustments shall only be made with the Client's written approval.
- (c) If additional work is required beyond the scope of the Services specified in Appendix A, the estimated periods of engagement of Key Personnel set forth in Appendix B may be increased by agreement in writing between the Client and the Consultants.

4.3 Approval of Personnel

The Key Personnel and Sub-consultants listed by title as well as by name in Appendix B are hereby approved by the Client. In respect of other Key Personnel which the Consultants propose to use in the carrying out of the Services, the Consultants shall submit to the Client for review and approval a copy of their biographical data. If the Client does not object in writing (stating the reasons for the objection) within twenty-one (21) calendar days from the date of receipt of such biographical data, such Key Personnel shall be deemed to have been approved by the Client.

4.4 Working Hours, Overtime, Leave, etc.

- (a) Working hours and holidays for Key Professional / Sub Professional Personnel are set forth in Appendix C hereto. To account for travel time, foreign Personnel carrying out Services inside the Government'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 Government's country as is specified in Appendix C hereto.
- (b) The Key Professional / Sub Professional 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 for in Appendix B. Any taking of leave by Personnel shall be subject to the prior approval of the Client by the Consultants, who shall ensure that absence for leave purposes will not delay the progress and adequate supervision of the Services.

4.5 Removal and/or Replacement of Personnel

Removal and/or replacement of Personnel shall be regulated as under:

- 4.5.1** In case notice to commence services pursuant to Clause 2.1 of this Contract is not ordered by Client within 120 days of negotiations the key personnel can excuse themselves on valid grounds, e.g., selection on some other assignment, health problem developed after contract negotiation, etc. In such a case no penalty shall be levied on the Firm or on the person concerned. The firm shall however be asked to give a replacement by an equal or better scoring person, whenever mobilization is ordered.
- 4.5.2** In case notice to commence services is given within 120 days of negotiations the replacement shall be as below:
- a. Replacement up to 33%: Replacement shall be by an equal or better scoring person. Reduction in remunerations for the balance period shall be @ 5% of the monthly rate.
 - b. Replacement of more than 33% and up to 50%: Replacement shall be by an equal or better scoring person. Reduction in remunerations for the balance period shall be @ 10% of the monthly rate.
 - c. Replacement beyond 50% and upto 66% . Replacement shall be by an equal or better scoring person. Reduction in remunerations for the balance period shall be @ 15% of the monthly rate.
 - d. Replacement beyond 66 %shall normally not be considered. However in exceptional circumstances, where it becomes absolutely essential the remunerations of the substitute shall be reduced by 50 % of the original person replaced. Replacement shall be by an equal or better scoring person, The Department may initiate action for termination/debarment of such consultant for future projects of **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** for a period of 6 months to 24 months depending upon the severity of case.
- 4.5.3** Replacement after original contract period is over:
There shall be no limit on the replacements and no reduction in remunerations shall be made. The replacement shall however be of equal or better score.
- 4.5.4** If the Employer (i) finds that any of the Personnel has committed serious misconduct or has been charged with having committed a criminal action or (ii) has reasonable ground to be dissatisfied with the performance of any of the Personnel, then the consultant shall, at the Employer's written request specifying the grounds therefore, forthwith provide a replacement with qualifications and experience acceptable to him.
- 4.5.5** If the team leader or any other key personnel/ specialist considered pivotal to the project is replaced, the substitute may be interviewed by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** to assess their merit and suitability.

4.5.6 If any member of the approved team of a consultant engaged by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** leaves that consultant before completion of the job, he shall be barred for a period of 6 months to 24 months from being engaged as a team member of any other consultant working (or to be appointed) for any other **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** projects.

4.5.7 In exceptional situations where the replacement with equivalent or better qualification is not available, replacement with lower qualifications than the originally approved may be accepted with reduction in remuneration as per the procedure prescribed below. This kind of relaxation shall however, be limited to replacement of 2 key personnel only in one consultancy contract package.

i) The new proposed personnel as a replacement has to be evaluated as per the criteria fixed at the time of evaluation of original proposal and marks/rating and then: -If the original personnel (included in the original proposal based on which the contract was awarded) is to be replaced at the instruction of **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** and the new proposed personnel is having less qualification/ experience i.e marks/rating (but fulfilling the minimum requirement as per TOR), his remuneration would be reduced by 15% over and above the stipulated conditions in the contract because of less qualified personnel.

-If the original personnel (included in Contract Agreement) is to be replaced by the Consulting firm and the new proposed personnel is having less qualification/ experience (marks/rating), then his remuneration would be decreased proportionally in comparison to the marks of the original personnel. This will also take into account the contract condition and if the proposed reduction is less than that stipulated in contract condition, it would be as per the contract provision. It will be ensured that the new proposed personnel should score at least 75% of the marks of the originally approved key personnel. Both the Consulting firm and the proposed personnel should give the undertaking in the format available in Form VII of Appendix II along with the replacement CV.

ii) The CV should be signed by personnel and the consulting firm in every page. If the CV is found incorrect at later date, the personnel accepted would be removed from the assignment and debarred from further **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** works for an appropriate period to be decided by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** and the new proposed personnel in place of removed personnel would be paid 15% less salary than the original personnel. 15% reduction in the salary will be imposed as penalty for submitting the incorrect information. This penalty will be imposed only once. If the same consulting firm submits incorrect information again second time, necessary action will be taken by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** to black list the firm.

4.6 **Resident Project Manager**

If required by the SC, the Consultants shall ensure that at all times during the Consultants' performance of the Services in the Government's country a resident project manager, acceptable to the Client, shall take charge of the performance of such Services.

5. **OBLIGATION 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 Consultants, Sub consultants and Personnel with work permits and such other documents as shall be necessary to enable the Consultants, Sub-consultants or Personnel to perform the Services;
- (b) assist for the Personnel and, if appropriate, their eligible dependents to be provided promptly with all supporting papers for necessary entry and exit visas, residence permits, exchange permits and any other documents required for their stay in India;
- (c) facilitate prompt clearance through customs of any property required for the Services;
- (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;

5.2 Access to Land

The Client warrants that the Consultants shall have, free of charge, unimpeded access to all land in the Government'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 Consultants 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 Consultants or any Sub-consultants or the Personnel of either of them.

5.3 Change in the Applicable Law

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 or reimbursable expenses incurred by the Consultants in performing the Services, then the remuneration and reimbursable expenses otherwise payable to the Consultants 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 6.1(b),

5.4 Services, Facilities and Property of the Client

The client shall make available to the Consultants and the Personnel, for the purposes of the Services and free of any charge, the services, facilities and property described in Appendix D at the times and in the manner specified in said Appendix D, provided that if such services, facilities and property shall not be made available to the Consultants as and when so specified, the Parties shall agree on (i) any time extension that may be appropriate to grant to the Consultants for the performance of the Services, (ii) the manner in which the Consultants shall procure any such services, facilities and property from other sources, and (iii) the additional payments, if any, to be made to the

Consultants as a result thereof pursuant to Clause 6.1(c) hereinafter.

5.5 **Payment**

In consideration of the Services performed by the Consultants under this Contract, the Client shall make to the Consultants such payments and in such manner as is provided by Clause 6 of this Contract.

6. **PAYMENT TO THE CONSULTANTS**

6.1 **Cost Estimates ; Ceiling Amount**

- (a) An abstract of the cost of the Services payable in **local currency (Indian Rupees)** is set forth in **Appendix E**.
- (b) Except as may be otherwise agreed under Clause 2.6 and subject to Clause 6.1(c), the payments under this Contract shall not exceed the ceiling specified in the SC. The Consultants shall notify the Client as soon as cumulative charges incurred for the Services have reached 80% of the ceiling.
- (c) Notwithstanding Clause 6.1(b) hereof, if pursuant to Clauses 5.4 hereof, the Parties shall agree that additional payments shall be made to the Consultants in order to cover any necessary additional expenditures not envisaged in the cost estimates referred to in Clause 6.1(a) above, the ceiling set forth in Clause 6.1(b) above shall be increased by the amount or amounts, as the case may be, of any such additional payments.

6.2 **Currency of Payment**

- (a) The payment shall be made in Indian Rupees.

6.3 **Mode of Billing and Payment**

Payments in respect of the Services shall be made as follows:-

- (a) The Client shall cause to be paid to the Consultants an advance payment as specified in the SC, and as otherwise set forth below. The advance payment will be due after provision by the Consultants to the Client of a bank guarantee by a bank acceptable to the Client in an amount (or amounts) and in a currency (or currencies) specified in the SC, such bank guarantee (i) to remain effective until the advance payment has been fully set off as provided in the SC, and **ii) in such form as the Client shall have approved in writing.**

(b) Payment Schedule

The Consultant will be paid stage-wise as a percentage of the contract value as per the schedule given below:

Sl. No.	Item	Payment as % of Contract Value
1	On submission of Draft Phase-I report	15%
2	On submission of Final Phase-I report	5%
3	On submission of Draft Phase-II (Feasibility Study) Report including Option Study Report	10 %
4	Submission of Final Alignment Report	15%
5	On submission of Final Phase-II Study Report	25%
6	On completion of Project Clearances (Phase-II)	30 %
	(i)Completion of 3a, 3A and 3D	10%
	(ii)Forest clearance and Environmental Clearance	10%
	(iii)Utility Shifting (Electricity, Water, Railway and others)	10%
	Total	100%

Note: Consultants have to provide a certificate that all key personnel as envisaged in the Contract Agreement has been actually deployed in the project. They have to submit this certificate at the time of submission of bills to **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** from time to time.

(c) No payment shall become eligible for the next stage till the consultant completes to the satisfaction of the client the work pertaining to the preceding stage. The payment for the work of sub-soil investigation(Boring)will be as per plan approved by the client and

will be paid as per actual at the rates quoted by the consultants .The payment for the quantity given by the client for boring will be deemed to be included in the above mentioned payment schedule. Any adjustment in the payment to the consultants will be made in the final payment only.

(d) The Client shall cause the payment of the Consultants in Para 6.4 (b) above as given in schedule of payment within thirty (30) days after the receipt by the Client of bills. Interests at the 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.

(e) 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 Consultants 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 one hundred and eighty (180) calendar days after receipt of the final report and final statement by the Client unless the Client, within ninety (90) day period, gives written notice to the Consultants specifying in detailed deficiencies in the Services, the final report or final statement. The Consultants shall thereupon promptly make any necessary corrections, and upon completion of such corrections, 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 Consultants to the Client within thirty (30) days after receipt by the Consultants 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.

- (f) All payments under this Contract shall be made to the account of the Consultants specified in the SC.

7. Responsibility for Accuracy of Project Documents

7.1 General

- 7.1.1 The Consultant shall be responsible for accuracy of the data collected, by him directly or procured from other agencies/authorities, the designs, drawings, estimates and all other details prepared by him as part of these services. He shall indemnify the Authority against any inaccuracy in the work which might surface during implementation of the project. The Consultant will also be responsible for correcting, at his own cost and risk, the drawings including any re-survey/investigations and correcting layout etc. if required during the execution of the Services.
- 7.1.2 The Consultant shall be fully responsible for the accuracy of design and drawings of the bridges and structures. All the designs and drawings for bridges and structures including all their components shall be fully checked by a Senior Engineer after completion of the designs. All drawings for bridges and structures shall be duly signed by the (a) Designer, (b) Senior Checking Engineer, and (c) Senior Bridge / Structure Expert. The designs and drawings not signed by the three persons mentioned above shall not be accepted. The Consultant shall indemnify the Client against any inaccuracy / deficiency in the designs and drawings of the bridges and structures noticed during the construction and even thereafter and the Client shall bear no responsibility for the accuracy of the designs and drawings submitted by the Consultants.
- 7.1.3 The survey control points established by the Consultant shall be protected by the Consultants till the completion of the Consultancy Services.

7.2. Retention Money

An amount equivalent to 5% of the contract value shall be retained at the end of the contract for accuracy of design and quantities submitted and the same will be released after the

completion of civil contract works or after 3 years from completion of consultancy services, whichever is earlier. The retention money will however be released by the Client on substitution by Bank Guarantee of the same amount valid up to the period as above.

7.3. Penalty

7.3.1. Penalty for Error/Variation

- (i) If variation in any of the main quantities of work like earth work including sub grade, GSB, WMM, Bituminous works (BM/DBM/AC/BC), drains, total concrete quantities and reinforcing steel in bridge works or overall project cost, found during execution is more than +/- 15%, the penalty equivalent to 5% of the contract value shall be imposed. For this purpose retention money equivalent to 5% of the contract value will be forfeited. This shall exclude any additional/deletion of items/works ordered during the execution.
- ii) For inaccuracies in survey/investigation/design work the penalties shall be imposed as per details given in Table below:

Sl. No.	Item	Payment as % of Contract Value
1	Topographic Surveys	0.5 to 1.0
	<i>a) The horizontal alignment does not match with ground condition.</i>	
	<i>b) The cross sections do not match with existing ground.</i>	
	<i>c) The co-ordinates are defective as instruments of desired accuracy not used.</i>	
2	Geotechnical Surveys	0.5 to 1.0
	<i>a) Incomplete surveys</i>	
	<i>b) Data not analysed properly</i>	
	<i>c) The substrata substantially different from the actual strata found during construction.</i>	
3	Traffic data found to be varying by more than 25% on resurvey at a later date, unless there are justifiable reasons.	0.2 to 0.5
4	Axle load data found to be varying by more than 25% on resurvey at a later date, unless there are justifiable reasons.	0.20 to 0.5
5	Structural Designs found to be unsafe or grossly over safe.	1.0 to 2.0

7.3.2 Penalty for delay

In case of delay in completion of services, a penalty equal to 0.05% of the contract price per day subject to a maximum 5% of the contract value will be imposed and shall be recovered from payments due/performance security. However in case of delay due to reasons beyond the control of the consultant, suitable extension of time will be granted.

7.3.3 Total amount of recovery from all penalties shall be limited to 10% of the Consultancy Fee.

7.4 ACTION FOR DEFICIENCY IN SERVICES

7.4.1 Consultants liability towards the Client

Consultant shall be liable to indemnify the client for any direct loss or damage accrued or likely to accrue due to deficiency in service rendered by him.

7.4.2 Warning / Debarring

In addition to the penalty as mentioned in para 7.3, warning may be issued to the erring consultants for minor deficiencies. In the case of major deficiencies in the Feasibility Study involving time and cost overrun and adverse effect on reputation of **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**, other penal action including debarring for certain period may also be initiated as per policy of **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**.

8. FAIRNESS AND GOOD FAITH

8.1 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.

8.2 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 9 hereof.

9. SETTLEMENT OF DISPUTES

9.1 Amicable Settlement

The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or the interpretation thereof.

9.2 Dispute Settlement

Any dispute between the Parties as to matters arising pursuant to this Contract which cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be submitted by either Party for settlement in accordance with the provisions specified in the SC.

10. Change of Scope

The change of Scope **on account of variation of total length as well as 4 laned length of project Highway from the indicative length** as given at Annex-1 of Letter of Invitation of the RFP shall be dealt as follows

- i) During the course of consultancy services in case it is considered necessary to increase/decrease the scope of services (of total length or 4 laned length as compared to indicative Length as given in the RFP) by the client the same shall be notified by Change of scope notice. Similarly, if the Consultant determines that change of scope is needed, he shall inform of the same to the Client. The Client will examine and shall either reject the proposal or issue change of scope notice.
- ii) The Consultancy fee shall be revised on account of change of scope as below:
 - In case the total length of project increase/ decrease up to more 10% of indicative length given in the RFP :
No change in Consultancy Fees
 - In case the increase/ decrease in total length of project is more than 10 % of the indicative length as given in the RFP: The consultancy fee shall be increased/ decreased in the same proportion in which the length of the project road is increased/ decreased beyond 10% . - In case the length of 4 lane road is increased up to 10% of the length as indicated in the RFP : **No change in Consultancy Fees** - In case the length of 4 lane road is increased by more than 10% of the length as indicated in the RFP : The consultancy fee shall be increased by 0.25 times the average quoted rate (Rs per km) for the increased length of 4 lane beyond 10%
- iii) Length of Bypass / realignment shall not be treated as additionality to the existing length of the highway for the purpose of change / variation in length. Increase/decrease in length on account of bypasses shall not be considered as change of scope. However, the total length of the project highway (including bypasses and realignment) along the finally approved alignment shall be compared with the indicative length in the RFP for the purpose of variation.

SPECIAL CONDITIONS OF CONTRACT

Number of

GC Clause

A. Amendments of, and Supplements to, Clauses in the General Conditions

1.1(a) The words “in the Government’s country” are amended to read “in INDIA”

1.4 The language is: **English**

1.6.1 The addresses are:

For the Client : **The Chief Engineer, National Highway Zone,
P.W.D. NH Campus, Pensionbada, Raipur (Chhattisgarh)**

Attention : **The Chief Engineer, National Highway Zone,
P.W.D. NH Campus, Pensionbada, Raipur (Chhattisgarh)**

Tel: 0771-4051075, 4062744, Fax: 0771-4051076
E-mail: cenhr@rediffmail.com, cenhraipur@gmail.com

For the Consultants:

Attention: Name

Designation

Address

Tel:

Fax:

E-mail address

1.6.2 Notice will be deemed to be effective as follows:

(a) in the case of personal delivery or registered mail, on delivery;

(b) In the case of facsimiles, 24 hours following confirmed transmission.

(c) In case of E mail, 24 hours following confirmed transmission.

1.8 Entity to Act as Member in charge (In case of Joint Venture of Consultants) with or without an Associate:

.....

1.9 The Authorized Representatives are:

For the Client : (--)

**The Chief Engineer, National Highway Zone,
P.W.D. NH Campus, Pensionbada, Raipur (Chhattisgarh)**

For the Consultant: Name

Designation

1.10 The Consultants and the personnel shall pay the taxes, duties, fees, levies and other impositions levied under the existing, amended or enacted laws (prevailing 7 days before the last date of submission of bids) during life of this contract and the Client shall perform such duties in regard to the deduction of such tax as may be lawfully imposed.

2.1 **The effectiveness conditions are the following:**

- a) The contract has been approved by **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**.
- b) The consultant will furnish within 15 days of the issue of letter of acceptance, an unconditional Bank Guarantee from a Nationalised Bank, IDBI or ICICI/ICICI Bank/Foreign Bank/EXIM Bank / Any Scheduled Commercial Bank approved by RBI having a net worth of not less than 500 crore as per latest Annual Report of the Bank. In the case of a Foreign Bank (issued by a Branch in India) the net worth in respect of Indian operations shall only be taken into account. In case of Foreign Bank, the BG issued by Foreign Bank should be counter guaranteed by any Nationalised Bank in India. In case of JV, the BG shall be furnished on behalf of the JV or lead partner of JV for an amount equivalent to **10%** of the total contract value to be received by him towards Performance Security valid for a period of **three years** beyond the date of completion of services

2.2 The time period shall be “four months” or such other time period as the parties may agree in writing.

2.3 The time period shall be “fifteen days” or such other time period as the Parties may agree in writing.

2.4 The time period shall be ----- **months** or such other time period as the parties may agree in writing.

3.4 Limitation of the Consultants’ Liability towards the Client

(a) Except in case of negligence or wilful 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 Client’s property, shall not be liable to the Client:

(i) for any indirect or consequential loss or damage; and

(ii) for any direct loss or damage that exceeds (A) the total payments for Professional

Fees and Reimbursable Expenditure 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.

(b) 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.

3.5 The risks and the coverage shall be as follows:

(a) Third Party motor vehicle liability insurance as required under Motor Vehicles Act, 1988 in respect of motor vehicles operated in India by the Consultants or their Personnel or any Sub consultants or their Personnel for the period of consultancy.

(b) Third Party liability insurance with a minimum coverage, for Rs. 1.00 million for the period of consultancy.

(c) (i) The Consultant shall provide to **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** Professional Liability Insurance (PLI) for a period of **Five years** beyond completion of Consultancy services or as per Applicable Law, whichever is higher.

(ii) The Consultant will maintain at its expense PLI including coverage for errors and omissions caused by Consultant's negligence in the performance of its duties under this agreement, **(A)** For the amount not exceeding 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**.

iii) The policy should be issued only from an Insurance Company operating in India.

iv) The policy must clearly indicate the limit of indemnity in terms of "Any One Accident" (AOA) and "Aggregate limit on the policy" (AOP) and in no case should be for an amount less than stated in the contract.

v) If the Consultant enters into an agreement with **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** in a joint venture or 'in association', the policy must be procured and provided to **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)** by the joint venture/in association entity and not by the individual partners of the joint venture/ association.

vi) The contract may include a provision whereby the Consultant does not cancel the policy midterm without the consent of **Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**. The insurance company may provide an undertaking in this regard.

(d) Employer's liability and workers' compensation insurance in respect of the Personnel of the Consultants and of any Sub consultant, 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 all insurances and policies should start from the date of commencement of services and remain effective as per relevant requirements of contract agreement.

3.9 The Consultants shall not use these documents for purposes unrelated to this Contract without the prior written approval of the Client.

4.6 The person designated as Team Leader cum Senior Highway Engineer in Appendix B shall serve in that capacity, as specified in Clause 4.6.

6.1 (b) The ceiling amount in local currency is **Rs..... Excluding Service Tax)**

6.3 (a) No advance payment will be made.

6.3 (e) The interest rate is : @ 12% per annum

6.3 (f) **The account is :**

9.2 Disputes shall be settled by arbitration in accordance with the following provisions:

9.2.1 Selection of Arbitrators

Each dispute submitted by a Party to arbitration shall be heard by a sole arbitrator or an arbitration panel composed of three arbitrators, in accordance with the following provisions:

(a) Where the Parties agree that the dispute concerns a technical matter, they may agree to appoint a sole arbitrator or, failing agreement on the identity of such sole arbitrator within thirty (30) days after receipt by the other Party of the proposal of a name for such an appointment by the Party who initiated the proceedings, either Party may apply to the President, Indian Roads Congress, New Delhi, for a list of not fewer than five nominees and, on receipt of such list, the Parties shall alternately strike names there from, and the last remaining nominee on the list shall be the sole arbitrator for the matter in dispute. If the last remaining nominee has not been determined in this manner within sixty (60) days of the date of the list, the president, Indian Roads Congress, New Delhi, shall appoint, upon the request of either Party and from such list or otherwise, a sole arbitrator for the matter in dispute.

(b) Where the Parties do not agree that the dispute concerns a technical matter, the Client and the Consultants shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the arbitrators named by the Parties do not succeed in appointing a third arbitrator within thirty (30) days after the later of the two arbitrators named by the Parties has been appointed, the third arbitrator shall, at the request of either Party, be appointed by Secretary, the Indian Council of Arbitration, New Delhi.

(c) If, in a dispute subject to Clause SC 9.2.1 (b), one Party fails to appoint its arbitrator within thirty (30) days after the other Party has appointed its arbitrator, the Party which has named an arbitrator may apply to the Secretary, Indian Council of Arbitration, New Delhi, to

appoint a sole arbitrator for the matter in dispute, and the arbitrator appointed pursuant to such application shall be the sole arbitrator for that dispute.

9.2.2 Rules of Procedure

Arbitration proceedings shall be conducted in accordance with procedure of the Arbitration & Conciliation Act 1996, of India unless the Consultant is a foreign national/firm, where arbitration proceedings shall be conducted in accordance with the rules of procedure for arbitration of the United Nations Commission on International Trade Law (UNCITRAL) as in force on the date of this Contract.

9.2.3 Substitute Arbitrators

If for any reason an arbitrator is unable to perform his function, a substitute shall be appointed in the same manner as the original arbitrator.

9.2.4 Qualifications of Arbitrators

The sole arbitrator or the third arbitrator appointed pursuant to paragraphs (a) through (c) of Clause 8.2.1 hereof shall be an internationally recognized legal or technical expert with extensive experience in relation to the matter in dispute.

9.2.5 Miscellaneous

In any arbitration proceeding hereunder:

- (a) Proceedings shall, unless otherwise agreed by the Parties, be held in RAIPUR
- (b) the English language shall be the official language for all purposes; and
[Note: English language may be changed to any other Language, with the agreement of both the Parties.]
- (c) the decision of the sole arbitrator or of a majority of the arbitrators (or of the third arbitrator if there is no such majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction, and the Parties hereby waive any objections to or claims of immunity in respect of such enforcement.

(d) The maximum amount payable per Arbitrator in Arbitration clauses shall be as under

S. No.	Particulars	Maximum amount payable per Arbitrator/ per case
1	Arbitrator fee	Rs 15,000/- per day subject to a maximum of Rs 4 lacs or Rs 2.5 lacs (lump sum) subject to publishing the award within 12months.
2	Reading charges	Rs 15,000/-
3	Secretarial Assistance and Incidental charges (telephone, fax, postage etc)	Rs 20,000/-
4	Charges for publishing/ declaration of the award	Rs 20,000/-
5	Other expenses (As per actual against bills subject to maximum of the prescribed ceiling given below)	
	Traveling expenses Lodging and Boarding	Economy class (by air), First class AC (by train) and AC Car (by road) a) Rs 15,000/- per day (in metro cities) b) Rs 7,000/- per day (in other cities) c) Rs 3,000/- per day if any Arbitrator makes their own arrangements.
6	Local travel	Rs 1,500/- per day
7	Extra charges for days other than hearing/ meeting days (maximum for 2 days)	Rs 3,500/- per day
Note:-	1. Lodging boarding and travelling expenses shall be allowed only for those members who are residing 100 kms. Away from place of meeting. 2. Delhi, Mumbai, Chennai, Kolkata, Bangalore and Hyderabad shall be considered as Metro Cities.	

In exceptional cases, such as cases involving major legal implications/ wider ramifications/ higher financial stakes etc., a special fee structure could be fixed in consultation with the Contractor/ Supervision Consultants and with the specific approval of the Director MORTH before appointment of the Arbitrator,

Appendix A

Terms of reference containing, inter-alia, the Description of the Services and Reporting Requirements

Appendix B

Consultants' Sub-consultants, Key Personnel and Sub Professional Personnel

Appendix C

Hours of work for Consultants' Personnel

The Consultant's personnel shall normally work for 8 hours in a day and six days a week. Normally Sundays shall be closed for working. In addition they shall also be allowed to avail holidays as observed by the Client's office in the relevant state without deduction of remunerations. In case any person is required to work on Sunday or Holiday due to exigency of work, he/she shall be given compensatory leave within the next 10 days.

Appendix D

Duties of the Client

Appendix E

Cost Estimate

Appendix F

Minutes of Financial/ Contract Negotiations with the Consultant

Appendix G: Copy of letter of invitation

Appendix H: Copy of letter of acceptance

Format for Bank Guarantee for Performance Security (For individual work)
BANK GUARANTEE FOR PERFORMANCE SECURITY

To,
The Chief Engineer,
National Highway Zone,
PWD, N.H. Campus, Pensionbada
RAIPUR, Chhattisgarh

In consideration of “**Chief Engineer, P.W.D. N.H. Zone, Raipur (C.G.)**” (hereinafter referred as the “Client”, which expression shall, unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s.....having its office at (Hereinafter referred to as the “Consultant” which expression shall repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a contract by issue of client’s Contract Agreement no. / Letter of Acceptance No. dated and the same having been unequivocally accepted by the Consultant, resulting in a Contract valued at Rs...../- (Rupees.....) excluding service tax for “Consultancy Services for Feasibility Study and Detailed Project Report for rehabilitation and improvement to two laning with paved shoulder configuration of(Total Length -.....) on NH-.....in the states ofunder – Contract Package No. (Hereinafter called the “Contract”), and the Consultant having agreed to furnish a Bank Guarantee to the Client as “Performance Security as stipulated by the Client in the said contract for performance of the above Contract amounting to Rs...../- (Rupees.....).

We,having registered office at, a body registered/constituted under the(hereinafter referred to as the Bank), which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the client immediately on demand any or, all money payable by the Consultant to the extent of Rs.(Rupees.....) as aforesaid at any time up towithout any demur, reservation, contest, recourse or protest and/or without any reference to the consultant. Any such demand made by the client on the bank shall be conclusive and binding notwithstanding any difference between the Client and the Consultant or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. We agree that the Guarantee herein contained shall be irrevocable and shall continue to be enforceable till the Client discharges this guarantee.

The Client shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee, from time to time to vary or to extend the time for performance of the contract by the Consultant. The Client shall have the fullest liberty without affecting this guarantee, to postpone from

time to time the exercise of any powers vested in them or of any right which they might have against the consultant and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Client and the Consultant any other course or remedy or security available to the Client. The bank shall not be relieved of its obligations under these presents by any exercise by the Client of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Client or any other indulgence shown by the Client or by any other matter or thing whatsoever which under law would but for this provision have the effect of relieving the Bank.

The Bank also agrees that the Client at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Consultant and notwithstanding any security or other guarantee that the Client may have in relation to the Consultant's liabilities.

Notwithstanding anything contained herein,

- a) Our liability under this Bank Guarantee is limited to Rs. (Rupees.....) and it shall remain in force up to and includingand shall be extended from time to time for such period as may be desired by M/s....., on whose behalf this guarantee has been given.
- b) This Bank Guarantee shall be valid up to
- c) We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before(date of expiry of Guarantee).

(Signature of the Authorised Official)

(Name & Designation with Bank Stamp)

NOTE:

- (i) *The bank guarantee(s) contains the name, designation and code number of the officer(s) signing the guarantee(s).*

- (ii) The address, telephone no. and other details of the Head Office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing Branch.*
- (iii) The bank guarantee for Rs. 10,000 and above is signed by at least two officials (or as per the norms prescribed by the RBI in this regard).*

Appendix J : Reply to Queries of the Bidder

DISCLAIMER

The applicant must read all the instruction in the RFP and submit the same accordingly.

Executive Engineer

O/o. The Chief Engineer,
National Highway Zone,
P.W.D. Raipur (C.G.)

Chief Engineer

National Highway Zone,
P.W.D. Raipur (C.G.)

