CONCESSION AGREEMENT

FOR

WIDENING OF EXISTING 2-LANES TO 6-LANES DIVIDED CARRIAGeway FACILITY INCLUDING REHABILITATION OF EXISTING 2-LANES FROM KM. 273.500 TO KM. 363.885 ON JAIPUR-KISHANGARH SECTION OF NH-8 IN RAJASTHAN

ON

BUILD, OPERATE AND TRANSFER (BOT) BASIS

BETWEEN

NATIONAL HIGHWAYS AUTHORITY OF INDIA

AND

GVK – JAIPUR KISHANGARH EXPRESSWAY PRIVATE LIMITED
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CONCESSION AGREEMENT

This Agreement is entered into on this the 8th day of May, 2002 BETWEEN

1. NATIONAL HIGHWAYS AUTHORITY OF INDIA, a statutory body constituted under the provisions of the National Highways Authority of India Act, 1988, and having its principal office at G-5&G-6, Sector 10, Dwarka, New Delhi – 110 045 (hereinafter referred to as “NHAI” which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and assigns) of One Part,

AND

2. GVK - Jaipur Kishangarh Expressway Private Limited, a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at F-48/49, Malviya Industrial Area, Jaipur – 302 004, Rajasthan, India (hereinafter referred to as the “Concessionaire” or “Company” which expression shall unless repugnant to the context or meaning thereof include its successors and permitted substitutes) of the Other Part.

WHEREAS

A. The Government of India in the Ministry of Surface Transport (hereinafter referred to as “MOST”) had authorised NHAI for the strengthening of existing 2-Lanes from Km. 273/500 to 363/885 on the Jaipur-Kishangarh Section of the National Highway No.8 (“NH-8”) in Rajasthan, India and construction and widening thereof to six lanes and its
operation and maintenance through a concession on build,operate and transfer ("BOT") basis and has by its Notification No RW/NH-37011/34/97-DO-I dated July 7, 1998 issued pursuant to Section 11 of the National Highways Authority of India Act, 1988 vested the said stretch of NH-8 in NHAI as set forth in the said Notification dated July 7, 1998

B. NHAI had accordingly invited Proposals for shortlisting of bidders for the aforesaid under its Notice inviting Proposals No NHAU12011/17/97-PI dated May 3, 2000 ("the Tender Notice"), inter alia, for the design, engineering, financing, procurement, construction, operation and maintenance of the above section of NH-8 on BOT basis subject to and on the terms and conditions contained in the Tender Notice and had pursuant thereto shortlisted certain bidders including, inter alia, the consortium comprising GVK International NV and Leighton Contractors (India) Private Limited with GVK International NV as its Leader.

C. Further to a request received from the above consortium, as per provisions of the Tender Notice, NHAI had agreed to permit replacement of Leighton Contractors (India) Private Limited by M/s B. Seenaiah & Company (Projects) Limited. Accordingly, M/s GVK International NV and M/s B. Seenaiah & Company (Projects) Limited constitute the new consortium ("the Consortium")

D. NHAI had, pursuant to the Tender Notice, laid down and prescribed the technical and commercial terms and conditions and had invited Bids from the bidders shortlisted pursuant to the Tender Notice for undertaking, inter alia, the work referred to in Recital 'A' above on BOT basis.
E. After evaluation of the Bids so received NHAI accepted the Bid of the Consortium and issued its Letter of Acceptance No NHAI/12011/17-PI/IX/495 dated March 01, 2002 ("LOA") to the Consortium requiring, inter alia, the execution of this Concession Agreement within 45 (forty-five) days of the date thereof.

F. The Concessionaire has represented that GVK Industries Limited has agreed to give support to and cause, ensure and procure that the Consortium shall fulfill its performance obligations under the Concession Agreement and for that purpose shall provide the Concessionaire with the requisite technical, managerial and financial expertise and cause the funding of the Equity as per the Financing Package. The Consortium has promoted and incorporated the Concessionaire as a limited liability company to enter into this Concession Agreement pursuant to the LOA for undertaking, inter alia, the design, engineering, financing, procurement, construction, operation and maintenance of the Project Highway, as defined hereinafter on BOT basis as referred to in Recital ‘A’ and to fulfill other obligations of the Concessionaire pursuant to the LOA and has requested NHAI to accept the Concessionaire as the entity which shall undertake and fulfill and perform the obligations and exercise the rights of the Consortium under the LOA, including the obligation to enter into this Concession Agreement for the design, engineering, financing, procurement, construction, operation and maintenance of the Project Highway on BOT basis.

G. NHAI has agreed to the said request of the Consortium and has accordingly agreed to enter into this Concession Agreement with the Concessionaire pursuant to the LOA for, inter alia, the design, engineering, financing, procurement, construction, operation and maintenance of the said Project Highway on BOT basis.

H. It is deemed necessary and expedient to enter into this Agreement to record the terms of the said Agreement between the Parties.

NOW THEREFORE IN CONSIDERATION OF THE PREMISES AND THE MUTUAL COVENANTS HEREINAFTER CONTAINED, THE PARTIES HERETO HEREBY AGREE AND THIS AGREEMENT WITNESSETH AS FOLLOWS:
PREAMBLE
1 DEFINITIONS AND INTERPRETATION

1.1 Definitions

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

“Accounting Year” means the financial year commencing from 1st April of any calendar year and ending on 31st March of the next calendar year.

“Additional Facilities” means the facilities which the Concessionaire may provide or procure for the benefit of the users of the Project Highway and which are (i) in addition to the Project Facilities, and (ii) not situated on the Site.

“Affected Party” shall have the meaning set out in Clause 29.1.

“Agreement” means this Agreement, the Schedules ‘A’ through ‘Y’ hereto and any amendments thereto made in accordance with the provisions contained in this Agreement.

“Applicable Laws” means all laws, promulgated or brought into force and effect by GOI or GOR including regulations and rules made thereunder, and judgements, decrees, injunctions, writs and orders of any court of record, as may be in force and effect during the subsistence of this Agreement.

“Applicable Permits” means all clearances, permits, authorisations, consents and approvals required to be obtained or maintained under Applicable Laws in connection with the design, engineering, financing, procurement, construction, operation and maintenance of the Project Highway during the subsistence of this Agreement.

“Appointed Date” means the date on which Financial Close is achieved in accordance with Article XXII and shall be deemed to be the date of commencement of the Concession Period.

“Arbitration Act” means the Arbitration and Conciliation Act, 1996 and shall include modifications to or any re-enactment thereof as in force from time to time.

“Associates” means in relation to either Party and/or Consortium Members, a person who controls, is controlled by, or is under the common control with such Party or Consortium Member. As used in this definition, the expression “control” means with respect to a person which is a corporation, the ownership, directly or indirectly, of more than 50% of the voting shares of such person, and with respect to a person which is not a corporation,
the power to direct the management and policies of such person, whether by operation of law or by contract or otherwise.

"Bank" means a bank incorporated in India and having a minimum net worth of Rs.10,000 million (Rupees ten thousand million) and having a branch in the proximity of the Project or at any other place acceptable to NHAI.

"Bid" means the documents in their entirety comprised in the bid submitted by the Bidder in response to the Tender Notice in accordance with the provisions thereof.

"Bid Security" means the security provided by the Bidder to NHAI along with the Bid in the sum of Rs.50 million (Rupees fifty million) in accordance with the Tender Notice and which is to remain in force until substituted by the Performance Security.

"Bidder" means the Consortium referred to in Recital 'C' above.

"COD" means the commercial operations date of the Project Highway and shall be the date on which the Independent Consultant has issued the Completion Certificate or the Provisional Certificate upon completion of six-laning of the Project Highway in accordance with the Agreement.

"Change in Law" means the occurrence of any of the following after the date of this Agreement:

i. the enactment of any new Indian law or its applicability over any area where it was not applicable;

ii. the repeal, modification or re-enactment of any existing Indian law;

iii. the commencement of any Indian law which has not entered into effect until the date of this Agreement;

iv. a change in the interpretation or application of any Indian law by a court of record as compared to such interpretation or application by a court of record prior to the date of this Agreement; or

v. any change in the rates of any of the Taxes.

"Change of Scope" shall have the meaning ascribed thereto in Clause 17.1.

"Company" means the Company acting as the Concessionaire under this Agreement.
“Completion Certificate” means the Certificate issued by the Independent Consultant pursuant to Clause 16.4.

“Concession” shall have the meaning ascribed thereto in Article III.

“Concession Fee” shall have the meaning ascribed thereto in Article VII.

“Concession Period” means the period beginning from the Appointed Date and ending on the Termination Date.

“Concessionaire” means GVK – Jaipur Kishangarh Expressway Private Limited and its successors and substitutes and assigns expressly approved in writing by NHAI.

“Consortium” shall have the meaning set forth in Recital ‘C’ above.


“Construction Period” means the period beginning from the Appointed Date and ending on the COD.

“Construction Works” means all works and things necessary to complete the Project Highway for use of the traffic and other users thereof in accordance with this Agreement.

“Contractor” means the contractor or contractors, if any, with whom the Concessionaire has entered into all or any of the Project Agreements.

“Cure Period” means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Party responsible for such breach or default and upon failing of which the Agreement may be terminated by the other Party.

“Damages” shall have the meaning ascribed thereto in Clause 1.2(p).

“Debt Due” means the aggregate of the following sums expressed in Indian Rupees or in the currency of debt, as the case may be, outstanding and payable to the Senior Lenders under the Financing Documents:

(i) the principal amount of the debt provided by the Senior Lenders under the Financing Documents for financing the Project (the “principal”) which is outstanding as on the Termination Date but excluding any part of the principal that had fallen due for repayment one year prior to the Termination Date unless
such repayment had been rescheduled with the prior consent of NHAI; and

(ii) all accrued interest, financing fees and charges payable on or in respect of the debt referred to in sub-clause (i) above up to the date preceding the Termination Date but excluding (a) any interest, fees or charges that had fallen due one year prior to the Termination Date, and (b) penal interest or charges, payable under the Financing Documents to any Senior Lender.

“Debt Service Payments” means the sum of all principal and interest payments due and payable in an Accounting Year to the Senior Lenders under the Financing Documents.

“Development Period” means the period from the date of this Agreement until the Appointed Date.

“Dispute” shall have the meaning set forth in Clause 39.1(a).

“Dispute Resolution Procedure” means the procedure for Dispute resolution set forth in Article XXXIX.

“Divestment Requirements” means the obligations of the Concessionaire and NHAI for and in respect of the Termination of this Agreement as set forth in Article XXXIII.

“Document” or “Documentation” means documentation printed or in written form, tapes, discs, drawings, computer programmes, writings, reports, photographs, cassettes, or expressed in any other written, audio or visual form.

“Drawings” means all the drawings, calculations and documents pertaining to the Project Highway as set forth in Schedule ‘I’ and shall include “as built” drawings of the Project Highway.

“EPC Contract” means contract or contracts entered into by the Concessionaire with one or more Contractors for the design, engineering, procurement of materials and equipment, construction, and completion of the Project Highway in accordance with the provisions of this Agreement.

“Emergency” means a condition or situation that is likely to endanger the security of the individuals on or about the Project Highway including users thereof or which poses an immediate threat of material damage to any of the Project Assets.

“Encumbrances” means any encumbrances such as mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege or priority of any kind having the effect of security or other such obligations and shall include without limitation any
designation of loss payees or beneficiaries or any similar arrangement under any
insurance policy pertaining to the Project Highway, physical encumbrances and
encroachments on the Site where applicable herein.

"Equity" means the sum expressed in Indian Rupees representing the equity share capital
or any form of preference share capital of the Company and shall include any interest free
funds advanced by the Consortium Members for meeting the equity component of the
project cost. However, for determining Termination Payments under this Agreement,
Equity shall be reckoned as an amount that is arrived at after excluding from Equity of
the Company the sum by which actual capital cost of the Project exceeds the Total
Project Cost. It is expressly agreed that any amount contributed as Equity shall be treated
as Equity throughout the Concession Period even if it has some debt like characteristics
for some period of time. It is expressly agreed that Equity shall be computed in Rupees
only and for this purpose any Equity contribution in any foreign currency shall be the
actual Rupees as received by the Concessionaire if remitted to it. Further, for computing
Termination Payments, Equity shall mean the amount actually contributed by the
Concessionaire and shall not include Grant.

"Equity Support" shall have the meaning ascribed thereto in Clause 23.2.

"Escrow Account" means an Account which the Concessionaire shall open and maintain
with a Bank in which all inflows and outflows of cash on account of capital and revenue
receipts and expenditures shall be credited and debited, as the case may be, in accordance
with the provisions of this Agreement.

"Escrow Agreement" shall have the meaning ascribed thereto in Clause 25.2.1.

"Exempted Vehicles" means vehicles that shall be exempted from payment of Fees and
include Defence Vehicles, Vehicles with very important person symbols (VIP), Police
Vehicles, Fire fighting vehicles, Ambulances, Funeral Vans, Post and Telegraph
departments vehicles, Central and State government vehicles on duty. The vehicles with
the following dignitaries, shall be deemed to be vehicles having VIP symbols namely,
President of India, Vice President of India, Governors of States, Central and State
Minister, Leaders of Opposition of Lok Sabha or Rajya Sabha or State Legislators,
Lieutenant Governors of Union Territories, Speakers or Chairman of Central and State
Legislature, Executive Councillors, Foreign dignitaries on State Visit to India and
Foreign Diplomats stationed in India using cars with CD symbols.

"Fee" means the charge levied on and payable for a vehicle using the Project Highway in
accordance with the Fee Notification and this Agreement.

"Fee Notification" means the Notification to be issued by GOI in exercise of the powers
conferred by Section 7 of the National Highways Act, 1956 in respect of the levy and
collection of the Fees, which shall be in the form set out in Schedule "G" and includes:
any such subsequent notifications issued from time to time to give effect to the provisions of this Agreement.

“Financial Close” means the date on which the Financing Documents providing for funding by the Senior Lenders have become effective and the Concessionaire has immediate access to such funding under the Financing Documents.

“Financing Documents” means the documents executed by the Concessionaire in respect of financial assistance to be provided by the Senior Lenders by way of loans, guarantees, subscription to non-convertible debentures and other debt instruments including loan agreements, guarantees, notes, debentures, bonds and other debt instruments, security agreements, and other documents relating to the financing (including refinancing) of the Project and includes amendments or modifications made in accordance with Clause 9.1(iv).

“Financing Package” means the financing package of the Project furnished by the Concessionaire along with its Bid indicating the Total Project Cost and the means of financing thereof and shall be deemed to have been modified to the extent as submitted to the Senior Lenders and as approved by the Senior Lenders for the purposes of funding of the Project.

“Force Majeure” or “Force Majeure Event” shall mean an act, event, condition or occurrence specified in Article XXIX.

“GOI” means the Government of India.

“GOR” means the Government of the State of Rajasthan.

“Good Industry Practice” means those practices, methods, techniques, standards, skills, diligence and prudence which are generally and reasonably expected of and accepted internationally from a reasonably skilled and experienced operator engaged in the same type of undertaking as envisaged under this Agreement and acting generally in accordance with the provisions of the NHAI Act, and would mean good engineering practices in the design, engineering, construction and project management and which would be expected to result in the performance of its obligations by the Concessionaire and in the operation and maintenance of the Project Highway in accordance with this Agreement, Applicable Laws, Applicable Permits, reliability, safety, environment protection, economy and efficiency.

“Governmental Agency” means GOI, GOR or any ministry, department, commission, board, authority, instrumentality or agency, under the control of GOI or GOR having
jurisdiction over all or any part of the Project Highway or the performance of all or any of the services or obligations of the Concessionaire under or pursuant to this Agreement.

"Grant" shall have the meaning ascribed thereto in Clause 23.1.

"Indemnifying Party" means the Party obligated to indemnify the other Party pursuant to Article XXXVII.

"Independent Consultant" shall have the meaning ascribed thereto in Clause 20.1.

"Indirect Political Event" shall have the meaning ascribed thereto in Clause 29.3.

"Lenders’ Representative" means the person(s) duly authorised by the Senior Lenders to deal with the Parties to the Agreement with regard to the issues arising out of and contained in this Agreement.

"Local Commercial Traffic" means any commercial vehicle including buses, trucks, light motor vehicles or taxis engaged in carrying goods and passengers registered with the Concessionaire as plying routinely on the project highway without crossing more than one of the Toll Plazas.

"Local Personal Traffic" means and includes a personal vehicle which is registered with the Concessionaire by any person who normally resides or works at a place that can normally be approached only by using a part of the Project Highway and such person is, therefore, required to use such vehicle for commuting on a part of the Project Highway, without crossing more than one of the Toll Plazas, in the course of normal travel to and from his place of work or residence.

"Maintenance Manual" shall have the meaning ascribed to it in Clause 18.2.

"Maintenance Programme" shall have the meaning ascribed to it in Clause 18.3.

"Material Adverse Effect" means material adverse effect of any act or event on the ability of either Party to perform any of its obligations under and in accordance with the provisions of this Agreement.

"Material Breach" means a breach by either Party of any of its obligations in this Agreement which shall be deemed to have a Material Adverse Effect on the Project and which it shall have failed to cure within the Cure Period.

"NHAI Representative" means such person or persons as may be authorised in writing by NHAI to act on its behalf under this Agreement and shall include any person or persons
having authority to exercise any rights or perform and fulfill any obligations of NHAI under this Agreement.

"Net Cash Flow" means in any Accounting Year revenue income less tax payments, O&M Expense, Concession Fee and Debt Service Payments to Senior Lenders.

"Non Political Event" shall have the meaning ascribed thereto in Clause 29.2.

"O&M" means the operation and maintenance of the Project Highway during the Operations Period and includes but is not limited to functions of maintenance, collection and appropriation of Fees and performance of other services incidental thereto.

"O&M Contract" means the Operation and Maintenance Contract that may be entered into between the Concessionaire and the O&M Contractor for O&M of the Project Highway.

"O&M Contractor" means the person or entity with whom the Concessionaire has entered into an O&M Contract for discharging O&M functions for and on behalf of the Concessionaire.

"O&M Expense" means expenses incurred by or on behalf of the Concessionaire duly certified by its Statutory Auditors or by NHAI, as the case may be, for all regularly scheduled and reasonably anticipated O&M during Operations Period, including, without limitation (a) all cost of salaries and other employee compensation and contract fee payable to the O&M Contractor, if any (b) cost of materials, supplies, utilities and other services (c) premia for insurance (d) all franchise, excise, property and other similar taxes and all costs and fees incurred in order to obtain and maintain all Applicable Permits necessary for the O&M of the Project Highway at its full design capacity, (e) all repair, replacement and maintenance costs of the Project Highway, (f) corporate and registered office expenses and (g) all other expenditures required to be incurred under Applicable Law or under Applicable Permits necessary for the operation and maintenance of the Project Highway according to the Specifications and Standards at its full design capacity.

"O&M Works" means all works necessary to keep the Project Highway in operation during the Operations Period.

"Operations Period" means the period commencing from COD and ending on the Termination Date.

"PCU" shall have the meaning ascribed to the passenger car unit in the 'Indian Roads Congress', Publication No.IRC-64, 1990, a true copy of which is at Schedule ‘W', and
for the purposes of this Agreement refers only to such PCUs which pay Fees in accordance with the Fee Notification.

“Parties” means the parties to this Agreement collectively and “Party” shall mean any of the Parties to this Agreement individually.

“Performance Security” shall have the meaning ascribed thereto in Clause 5.1

“Political Event” shall have the meaning ascribed thereto in Clause 29.4.

“Preliminary Notice” shall have the meaning attributed thereto in Clause 32.1.2.

“Project” means the development, design, financing, procurement, engineering and construction, operation and maintenance of the Project Highway in accordance with the provisions of this Agreement and shall include all works relating to or in respect of the Project Highway as described in Article II.

“Project Agreements” means this Agreement, the Financing Documents, the EPC Contract, if any, the O&M Contract, if any, the Tolling Contract, if any, and any other agreements or contracts entered into by the Concessionaire with NHAI or others relating to the Project during the subsistence of this Agreement.

“Project Assets” means all physical and other assets relating to and forming part of the Project Highway including but not limited to (i) rights over the Site in the form of license, right of way or otherwise, (ii) tangible assets such as civil works including the foundation, embankments, pavements, road surface, interchanges, bridges, approaches to bridges and flyovers, road overbridges, drainage works, lighting facilities, traffic signals, sign boards, milestones, toll plazas, equipment for the collection of tolls or relating to regulation of traffic, electrical works for lighting on the Project Highway, telephone and other communication systems and equipment for the Project, rest areas, administration and maintenance depots, relief centers, service facilities etc. (iii) Project Facilities situated on the Site (iv) the rights of the Concessionaire under the Project Agreements, (v) financial assets, such as security deposits for electricity supply, telephone etc. (vi) insurance proceeds and (vii) Applicable Permits and authorisations relating to or in respect of the Project Highway, but does not include Additional Facilities.

“Project Completion” shall have the meaning ascribed thereto in Clause 15.1.

“Project Completion Schedule” means the progressive Project milestone set forth in Schedule ‘H’ for the realization of the Project Highway complete in all respects by the Scheduled Project Completion Date.
"Project Facilities" means all the amenities and facilities situated on the Site, as described in Schedule ‘C’.

"Project Highway" means the strengthening and maintenance of the existing two lanes of NH-8 from Km 273/5 to Km 363/885 and addition of 4 (four) more lanes thereto so as to have six lanes and shall include the Project Assets and the Project Facilities to be designed, engineered and built on Site and to be operated and maintained during the Concession Period in accordance with the provisions of this Agreement.

"Provisional Certificate" shall have the meaning ascribed to it in Clause 16.5.

"Punch List" shall have the meaning ascribed to it in Clause 16.5.

"RBI" means the Reserve Bank of India as constituted and existing under the Reserve Bank of India Act, 1946 including any statutory modification or replacement thereof, and its successors etc.

"Realisable Fee" means all the Fees due and realisable under this Agreement but does not include Fees that the Concessionaire has not been able to realise after due diligence and best efforts.

"Revenue Shortfall Loan" shall have the meaning ascribed to it in Clause 24.1.

"Rs." Or "Rupees" means the lawful currency of the Republic of India.

"SBI PLR" means the prime lending rate per annum for loans with 1(one) year maturity as fixed from time to time by the State Bank of India, and in the absence of such rate, the average of the prime lending rates for loans with 1(one) year maturity fixed by the Bank of India and the Bank of Baroda and failing that any other arrangement that substitutes such prime lending rate as mutually agreed between the Parties.

"Scheduled Project Completion Date" shall have the meaning set forth in Clause 15.3.

"Senior Lenders" means the financial institutions, banks, funds and agents or trustees of debenture holders, including their successors and assignees, who have agreed to guarantee or provide finance (including refinancing) to the Concessionaire under any of the Financing Documents for meeting costs of all or any part of the Project and who hold pari passu charge on the Concession granted by this Agreement.

"Site" means the real estate licensed by NHAI to the Concessionaire under and in accordance with this Agreement on which the Project Highway is situated and more particularly described in Schedule ‘A’. 

Jaipur Kishangarh Project (08/05/2002)
“Specifications and Standards” means the specifications and standards relating to the quality, capacity and other requirements for the Project Highway as set forth in Schedule ‘D’ and any modifications thereof, or additions as included in the design and engineering for the Project Highway submitted by the Concessionaire to and expressly approved by NHAI.

“State Support Agreement” means the agreement to be entered into between the GOR, NHAI and the Concessionaire substantially in the form set forth in Schedule ‘R’ for provision of support, backup and services required from GOR for the performance of Concessionaire’s obligations under this Agreement.

“Statutory Auditors” means an independent, recognized and reputable firm of Chartered Accountants duly licensed to practice in India acting as independent statutory auditors of the Concessionaire under the provisions of the Companies Act, 1956 including any statutory modification or re-enactment or replacement thereof, for the time being in force, and appointed in accordance with Clause 28.2.

“Subsistence Revenue Level” means the total amount of Fee revenue that is required by the Concessionaire in an Accounting Year to meet the sum of (a) the O&M Expense subject to an annual ceiling of 2% (two percent) of the Total Project Cost in the first operations year, to be revised each year to reflect the variations in the WPI in each subsequent years and (b) Debt Service Payments due to the Senior Lenders in an Accounting Year.

“Substitution Agreement” means the agreement referred to in Article XXXV and to be entered into among the Concessionaire, NHAI and the Senior Lenders in the form set forth in Schedule ‘U’ providing, inter alia, for the substitution of the Concessionaire by any other person subject to and in accordance with the provisions of this Agreement and the Substitution Agreement.

“Taxes” means any Indian taxes on corporate income, Sales tax, excise duties, customs duties, works contract tax, and local taxes and any impost of like nature (whether Central, State or local) charged, levied or imposed on the goods, materials, equipment and services incorporated in and forming part of the Project Highway, on the construction, operation and maintenance thereof and on the Project Assets, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever.

“Termination” means the expiry or termination of this Agreement and the Concession hereunder.
“Termination Date” means the date on which this Agreement and the Concession hereunder expires pursuant to the provisions of this Agreement or is terminated by a Termination Notice.

“Termination Notice” means the communication issued in accordance with this Agreement by any one Party to the other Party terminating this Agreement.

“Termination Payment” means the amounts payable by NHAI to the Concessionaire under this Agreement upon the Termination of this Agreement and shall consist of payments relating to Debt Due and Equity, as the case may be, and such other amounts as are expressly provided for under this Agreement. Provided, however, that for purposes of determining Termination Payments to be made by NHAI under this Agreement, the capital cost of the Project Highway shall at all times be reckoned as an amount not exceeding the Total Project Cost and the liability of NHAI to make such Termination Payments relating to Debt Due and Equity shall be determined as if such capital cost was restricted to Total Project Cost.

“Tests” mean the tests to be carried out as set forth in and in accordance with Schedule ‘J’ to determine the Project Completion and its certification by the Independent Consultant for commencement of commercial operation of the Project Highway.

“Toll Plaza” means the structures and barriers erected on the Project Highway for the purpose of regulating the entry/exit of vehicles in accordance with the provisions of this Agreement.

“Tolling Contract” means the contract, if any, entered into by the Concessionaire with the Tolling Contractor for operation of the Toll Plazas including collection of Fees for and on behalf of the Concessionaire.

“Tolling Contractor” means the person, if any, with whom the Concessionaire has entered into a Tolling Contract for operation of Toll Plazas and collection of Fees for and on behalf of the Concessionaire.

“Total Project Cost” means the lowest of the following:

a. a sum of Rs. 7284 million;
b. actual capital cost of the Project upon completion of the Project Highway as certified by the Statutory Auditors; or
c. total project cost as set forth in Financing Documents.

Provided further that if part of the Total Project Cost is funded in foreign currency, in accordance with the Financing Package, then the rate of exchange shall be determined as on the date of Bid, and the Total Project Cost shall be computed as if such foreign
currency were converted with reference to such exchange rate. In the event of Termination of this Agreement requiring NHAI to make Termination Payments, the liability of NHAI shall be determined on basis of the rate of exchange prevailing on the date of Termination Notice and the amounts payable by NHAI for Debt Due as the case may be, shall be computed accordingly.

"Vesting Certificate" shall have the meaning attributed to it in Clause 33.4.

"WPI" means the wholesale price index (all commodities) published by the Ministry of Industry, GOI and shall include any index, which substitutes the WPI.

1.2 In this Agreement, unless the context otherwise requires,

(a) any reference to a statutory provision shall include such provision as is from time to time modified or re-enacted or consolidated so far as such modification or re-enactment or consolidation applies or is capable of applying to any transactions entered into hereunder;

(b) references to Indian law shall include the laws, acts, ordinances, notifications, rules, regulations, or bye laws which have the force of law in any State or Union Territory forming part of the Union of India;

(c) the words importing singular shall include plural and vice versa, and words denoting natural persons shall include partnerships, firms, companies, corporations, joint ventures, trusts, associations, organizations or other entities (whether or not having a separate legal entity);

(d) the headings are for convenience of reference only and shall not be used in and shall not affect the construction or interpretation of this Agreement;

(e) terms and words beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein and the terms and words defined in the Schedules and used therein shall have the meaning ascribed thereto in the Schedules;

(f) the words "include" and "including" are to be construed without limitation;

(g) references to "construction" include, unless the context otherwise requires, investigation, design, engineering, procurement, delivery, transportation, installation, processing, fabrication, testing, commissioning and other activities incidental to the construction.
(h) any reference to any period of time shall mean a reference to that according to Indian Standard Time;

(i) any reference to day shall mean a reference to a calendar day;

(j) any reference to month shall mean a reference to a calendar month;

(k) the Schedules to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;

(l) any reference at any time to any agreement, deed, instrument, licence or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference provided that this clause shall not operate so as to increase liabilities or obligations of NHAI hereunder or pursuant hereto in any manner whatsoever;

(m) references to Recitals, Articles, Clauses, Sub-clauses, Paragraphs, or Schedules in this Agreement shall, except where the context otherwise requires, be deemed to be references to Recitals, Articles, Clauses, Sub-clauses, paragraphs, and Schedules of or to this Agreement;

(n) any agreement, consent, approval, authorisation, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or the Independent Consultant shall be valid and effectual only if it is in writing under the hands of duly authorised representative of such Party or the Independent Consultant, as the case may be, in this behalf and not otherwise;

(o) any reference to any period commencing “from” a specified day or date and “till” or “until” a specified day or date shall include both such days or dates;

(p) the damages payable by either Party to the other of them as set forth in this Agreement, whether on per diem basis or otherwise, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty or liquidated damages (the “Damages”); and

(q) unless otherwise expressly provided in this Agreement any Documentation required to be provided or furnished by the Concessionaire to NHAI and/or the Independent Consultant shall be provided free of cost and in three copies and if NHAI and/or the Independent Consultant are required to return any such
Documentation with their comments and/or approval, they shall be entitled to retain two copies thereof.

1.3 Measurements and Arithmetic Conventions

All measurements and calculations shall be in metric system and calculations done to 2 decimal places, with the third digit of 5 or above being rounded up and below 5 being rounded down.

1.4 Priority of contract documents and errors/discrepancies

1.4.1 The several documents forming this Agreement are to be taken as mutually explanatory to one another and, unless otherwise expressly provided elsewhere in this Agreement, the priority of the following documents shall in the event of any conflict between them be in the order they are set out:

(i) this Agreement

(ii) all other documents forming part of this Agreement

i.e. document at (i) above shall prevail over the documents at (ii) above.

1.4.2 In case of ambiguities or discrepancies within this Agreement the following shall apply:

(i) between two Clauses of this Agreement, the provisions of the specific clause relevant to the issue under consideration shall prevail over those in other Clauses;

(ii) Between the Clauses and the Schedules, the Clauses shall prevail save as otherwise expressly set forth in Clause 1.4.1;

(iii) Between the written description on the Drawings and the Specifications and Standards, the latter shall prevail;

(iv) Between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail;

(v) Between any value written in numerals and that in words, the latter shall prevail.
II SCOPE OF PROJECT

2.1 The Project shall be executed on the Site, which is described in Schedule ‘A’ of this Agreement. The scope of the Project shall include performance and execution by the Concessionaire of all design, engineering, financing, procurement, construction, completion, operation and maintenance of the Project Highway as described in Schedule ‘B’ and Schedule ‘C’ of this Agreement. It shall include strengthening of the existing two lanes of NH-8 from Km. 273/500 to Km. 363/885, six-laning thereof in accordance with the Specifications and Standards set forth in Schedule ‘D’ and operation and maintenance thereof in accordance with Schedule ‘L’. It shall also include the performance and fulfillment of other obligations by the Concessionaire under this Agreement.

The Concessionaire shall undertake its obligations at its own cost and risk.
GRANT OF CONCESSION
CHAPTER – II
GRANT OF CONCESSION

III. GRANT OF CONCESSION

3.1 Subject to and in accordance with the terms and conditions set forth in this Agreement, NHAI hereby grants to the Concessionaire and the Concessionaire hereby accepts the Concession for a period of 20 (twenty) years commencing from the Appointed Date, including the exclusive right, licence and authority during the subsistence of this Agreement to implement the Project and the Concession in respect of the Project Highway.

3.2 Subject to and in accordance with the terms and conditions set forth in this Agreement, the Concession hereby granted shall entitle the Concessionaire to enjoy, and oblige the Concessionaire to undertake the following in accordance with the provisions of this Agreement, the Applicable Laws and the Applicable Permits:

i to develop, design, engineer, finance, procure, construct, operate and maintain the Project Highway during the Concession Period;

ii upon completion of the Project Highway and during the Operations Period to manage, operate & maintain the Project Highway and regulate the use thereof by third parties;

iii levy, demand, collect and appropriate the Fees from vehicles and persons liable to payment of Fees for using the Project Highway or any part thereof and refuse entry of any vehicle to the Project Highway if the due Fee is not paid;

iv perform and fulfill all of the Concessionaire’s obligations under this Agreement;

v bear and pay all expenses, costs and charges incurred in the fulfillment of all the Concessionaire’s obligations under this Agreement; and

vi not to assign or create any lien or Encumbrance on the Concession hereby granted or on the whole or any part of the Project Highway nor transfer, lease or part possession therewith save and except as expressly permitted by this Agreement or the Substitution Agreement.

3.3 The Concession Period shall commence on the Appointed Date and shall end on the Termination Date.
IV. CONDITIONS PRECEDENT

4.1 Conditions Precedent

Save and except as provided in Articles IV, V and XXII, the rights and obligations of the Concessionaire under this Agreement are subject to the satisfaction in full of the following conditions precedent to be fulfilled on or before Financial Close unless any such condition has been waived as provided in Clause 4.2:

(a) Concessionaire shall have obtained all such Applicable Permits as listed in Schedule ‘E’ unconditionally or if subject to conditions then all such conditions have been satisfied in full and such Applicable Permits are and shall be kept in full force and effect for the relevant period during the subsistence of this Agreement;

(b) the Concessionaire shall have been granted way leaves required in connection with the Project including:

(i) rights of way for the alignment of the Project Highway free from all Encumbrances;
(ii) rights of way from public roads to the Site; and
(iii) permission/licence to enter upon and utilise the Site for the construction pursuant to and in accordance with this Agreement.

(c) the Concessionaire shall have been granted all Central Government clearances and permits under the Applicable Laws relating to environmental protection and conservation from the Ministry of Environment and Forests;

(d) the Concessionaire shall have entered into the State Support Agreement with NHAI and the GOR;

(e) certified true copies of all Project Agreements, in particular, the Financing Documents, the EPC Contract, O&M Contract, if any and the Tolling Contract, if any, as well as the shareholders funding agreement have been delivered by the Concessionaire to NHAI;

(f) the Performance Security in full has been provided by the Concessionaire to NHAI in accordance with Clause 5.1;

(g) all of the representations and warranties of the Concessionaire set forth in Article XI are true and correct as on date of this Agreement and as on the Appointed
Date;

(h) NHAI shall have received from the Concessionaire copies (certified as true copies by an authorised officer of the Concessionaire) of the constitutional documents of the Concessionaire;

(i) NHAI shall have received copies (certified as true copies by a Director of the Concessionaire) of all resolutions adopted by the Board of Directors of the Concessionaire authorising the execution, delivery and performance by the Concessionaire of this Agreement and each of the Project Agreements;

(j) NHAI shall have received from the Indian legal counsel of the Concessionaire a legal opinion with respect to the authority of the Concessionaire to enter into this Agreement and the Project Agreements and the Financing Documents and the enforceability of the provisions thereof; and

(k) MoST shall have issued a Fee Notification substantially in the form at Schedule ‘G’.

4.2 Any of the conditions precedent set forth in Clause 4.1, save and except condition of Sub-clause (b), (c), (d) and (k) thereof, may be waived fully or partially by NHAI at anytime in its sole discretion.

4.3 Obligation to Satisfy the Conditions Precedent.

The Concessionaire shall make all reasonable endeavours to procure the satisfaction in full of the Conditions Precedent set out in Clause 4.1 above and NHAI shall make all reasonable endeavours to procure fulfillment of the conditions set forth in Sub-clauses (b), (c), (d) and (k) of Clause 4.1. Each Party shall bear its respective cost and expense of satisfying such Condition Precedent.

4.4 If the Conditions Precedent set forth in Clause 4.1 have not been satisfied on or before the Financial Close, and the NHAI has not waived, fully or partially, such conditions under Clause 4.1, NHAI may, notwithstanding anything to the contrary contained in this Agreement, terminate this Agreement in accordance with provisions of Clause 32.2, without being liable in any manner whatsoever to the Concessionaire and forfeit the Bid Security and/or the Performance Security by way of Damages, provided that where NHAI does not fulfill its obligations under Clause 4.3 and terminates this Agreement under this Clause 4.4, it shall refund in full Bid Security or the Performance Security, as the case may be.
V. PERFORMANCE SECURITY

5.1 The Concessionaire shall for due and faithful performance of its obligations during the Construction Period provide to NHAI a bank guarantee from any Bank in the form set forth in Schedule ‘F’ (the “Performance Security”) for a sum equivalent to Rs.100 million (Rupees one hundred million) on or before signing of this Agreement.

5.2 The Performance Security shall be released by NHAI to the Concessionaire upon contribution of the Equity (excluding Equity Support, if any) by the shareholders of the Concessionaire to the extent of 100% and upon the Concessionaire having expended on the Project and paid out an aggregate sum of not less than 20% (twenty percent) of the Total Project Cost as certified by the Statutory Auditors of the Concessionaire and provided the Concessionaire is not in breach of this Agreement. If the Concessionaire is in breach of this Agreement, the Performance Security shall be continued till the COD or until the breach is cured, whichever is earlier.

5.3 In the event of the Concessionaire being in default in the due and faithful performance of its obligations under this Agreement and failing to remedy such default within the Cure Period, the NHAI shall without prejudice to its other rights and remedies hereunder be entitled to encash and appropriate the Performance Security as Damages for such default. Upon such encashment and appropriation of the Performance Security, NHAI shall grant a period of 30 (thirty) days to the Concessionaire to provide fresh Performance Security and the Concessionaire shall within the time so granted furnish to NHAI such Performance Security failing which NHAI shall be entitled to Terminate this Agreement under clause 32.2. The provision set forth in Clause 5.2 and this Clause 5.3 shall apply mutatis-mutandis to such fresh Performance Security.

5.4 Notwithstanding anything to the contrary contained in clause 5.3, upon furnishing of fresh Performance Security in accordance with clause 5.3, the Concessionaire shall be granted an additional period of 60 (Sixty) days as Cure Period for remedying the defaults and complying with his obligations under this Agreement. In the event of the Concessionaire continuing to be in breach of the provisions of this Agreement after such Cure Period, NHAI shall be entitled to terminate this Agreement under the provisions of Clause 32.2.

VI. FEES

6.1 The Concessionaire shall be entitled during the Operations Period to levy, collect and appropriate the Fees from the users of the Project Highway pursuant to and in accordance with the Fee Notification set forth in Schedule ‘G’ and this Agreement. Provided, however, that such Fee shall be rounded off to the nearest five rupees for ensuring ease of
payment and collection.

6.2 The Concessionaire acknowledges that the Fee Notification, inter alia, provides for annual revision in the Fees linked to the extent of variation in WPI as per the Fee Notification, and hereby confirms that save and except as provided in the Fee Notification, the Concessionaire is not entitled to and shall not seek any relief whatsoever from NHAI, GOI or GOR on account of increase or otherwise in WPI or on any other account except in accordance with the express provisions of this Agreement.

6.3 The Concessionaire shall not collect any Fees from Local Personal Traffic and Local Commercial Traffic in excess of the following discounted rates:
- Local Personal Traffic : 25% of the applicable fees for the specific category of vehicle.
- Local Commercial Traffic : 50% of the applicable fees for the specific category of vehicle.

It shall issue appropriate passes or make refunds in a manner that minimises the inconvenience to Local Traffic consistent with the Concessionaire’s need to prevent any leakage of Fees. For carrying out provisions of this Clause, the Concessionaire shall formulate, publish and implement an appropriate scheme and carry out such modifications and improvements to such scheme as may reasonably be suggested by NHAI or required by local circumstances from time to time in conformity with the objectives of this Agreement. Provided, however, that if a separate service lane is opened for free use by local traffic, the Concessionaire shall levy and collect Fees from such local traffic if they use the six-lane Highway.

6.4 The Concessionaire shall not collect any Fees in relation to Exempted Vehicles.

6.5 The Fees collected by the Concessionaire or NHAI or NHAI’s nominee pursuant hereto shall be deposited in the Escrow Account and appropriated in accordance with the provisions of Article XXV.

6.6 The Concessionaire may delegate its right to collect Fees to the O&M Contractor or the Tolling Contractor or to any other person provided, however, that notwithstanding such delegation, the Concessionaire shall be and remain solely liable and responsible for the collection of Fees in accordance with this Agreement and its deposit into the Escrow Account.

VII. CONCESSION FEE AND EXCESS REVENUE SHARING

7.1 In consideration of the grant of Concession under this Agreement, the Concessionaire agrees to pay a fee of Rupee one per annum (“Concession Fee”). The Concession Fee
shall be paid in advance with in 90 (ninety) days of the commencement of the year for which it is due and payable.

7.2 Concessionaire shall share with NHAI any Fees that it actually receives in any Accounting Year which are in excess of the projected Fees for each Accounting Year commencing from the year in which COD shall occur, as set out in Schedule ‘Y’ (the “Projected Fees”) for such Accounting Year (“Excess Fees”), in the following manner:

7.2.1 80% of such Excess Fees (“Net Excess Fees”) shall be deposited into a separate sub-account as part of the Escrow arrangements on a monthly basis;

7.2.2 Subject to Sub-clause 7.2.3 below funds from this sub-account shall be used to meet any shortfalls in Projected Fees that have arisen in any of the previous months of the Accounting Year or that may arise in any of the remaining months of the Accounting Year;

7.2.3 At the end of the Accounting Year, the Net Excess Fees less any funds used in accordance with Sub-clause 7.2.2 above shall be distributed equally between the Parties hereto;

For the purposes of this Clause 7.2, a “shortfall” or “excess” in Projected Fees shall mean the difference between the Projected Fees in an Accounting year, and the Realisable Fee on a monthly basis assuming a uniform monthly Fees projection.

7.2.4 Upon Termination, any amount left in the account referred to in para 7.2.1 above shall be distributed equally between NHAI and the Concessionaire.

7.3 The NHAI’s share of Net Excess Fees, if any, pursuant to Clause 7.2 above (“Excess Revenue Share”) shall be paid within 30 (thirty) days of the commencement of the Accounting Year immediately following the Accounting Year for which it is due and payable.

VIII. ADDITIONAL TOLLWAY

8.1 Notwithstanding anything to the contrary contained in this Agreement, any of NHAI, GOI or GOR may construct and operate either itself or have the same, inter alia, built and operated on BOT basis or otherwise any Expressway or other toll road, not being a by-pass, between, inter alia, Jaipur and Ajmer (the “Additional Tollway”) provided that such Additional Tollway shall not be opened to traffic before expiry of 8 (eight) years from the Commercial Operations Date or before achievement of a traffic level of 140000 PCUs on the Project Highway, whichever is later.
8.2 Upon commissioning of the Additional Tollway, the Concessionaire shall continue to levy and collect the Fee under this Agreement and shall not offer any discounts or reductions in such Fee except with the prior written consent of NHAI. Provided, however, that any such discounts or reductions that the Concessionaire had offered to any general or special class of users or vehicles for a continuous period of three years prior to the commissioning of the Additional Tollway may continue in the same form and manner after the commissioning of such Additional Tollway.

8.3 NHAI shall ensure that the per kilometer fee to be levied and collected from any vehicle or class of vehicles using the Additional Tollway shall at no time be less than an amount which is 133% of the per kilometer Fee levied and collected from similar vehicles or class of vehicles using the Project Highway.
OBLIGATIONS AND UNDERTAKINGS
CHAPTER -III
OBLIGATIONS AND UNDERTAKINGS

IX. OBLIGATIONS OF THE CONCESSIONAIRE

9.1 The Concessionaire shall at its own cost and expense observe, undertake, comply with and perform, in addition to and not in derogation of its obligations elsewhere set out in this Agreement, the following:

(i) make, or cause to be made, necessary applications to the relevant Governmental Agencies with such particulars and details, as may be necessary for obtaining all Applicable Permits, and obtain such Applicable Permits in conformity with the Applicable Laws;

(ii) notify to NHAI forthwith the occurrence of Financial Close;

(iii) submit to NHAI certified true copies of each of the Project Agreements within 7 (seven) days of their execution;

(iv) not to make any replacement, amendment or modifications to any of the Project Agreements without the prior written consent of NHAI, where such replacement, amendment or modification has or may have the effect of increasing or imposing any financial liability or obligation on NHAI in any manner, and where such amendment or modification is made without such consent, not to enforce such amendment or modification nor permit enforcement thereof against NHAI in any manner whatsoever;

(v) give NHAI not less than 30 (thirty) days written notice prior to entering into, amending or replacing any Project Agreement so as to enable NHAI to provide its consent or offer its comments, if any thereon which, if made, shall be duly considered and given effect to by the Concessionaire before entering into, amending or replacing such Project Agreement;

(vi) remove promptly from the Project Highway all surplus construction machinery and materials, waste materials (including, without limitation, hazardous materials and waste water), rubbish and other debris (including without limitation accident debris) and shall keep the Site in a neat and clean condition and in conformity with the Applicable Laws and Applicable Permits;

(vii) procure, as required, the appropriate proprietary rights, licenses, agreements and permissions for materials, methods, processes and systems used or incorporated into the Project Highway;
(viii) provide all assistance to the Independent Consultant as it may require for the performance of its duties and services;

(ix) provide to NHAI reports on regular basis during the Construction Period and the Operations Period in the form and manner set forth in this Agreement and Schedule 'X';

(x) obtain and maintain in force on and from the Appointed Date all insurance in accordance with the provisions of this Agreement and Good Industry Practice;

(xi) acquire such real estate, as the Concessionaire may deem appropriate for the Additional Facilities and to indemnify and save harmless and defend GOI, NHAI, and GOR from and against all proceedings, claims, demands, costs, expenses, losses and damages arising out of or relating to the securing of rights to use such real estate by the Concessionaire or any person claiming through or under the Concessionaire;

(xii) undertake Debt Service Payments in accordance with the Financing Documents;

(xiii) levy and collect Fees from users of the Project Highway at the rates set forth in the Fee Notification and in accordance with this Agreement and regulate the traffic on the Project Highway in accordance with the Applicable Laws;

(xiv) ensure and procure that each Project Agreement contains provisions that entitle NHAI to step into such agreement in its discretion in place and substitution of the Concessionaire in the event of Termination of this Agreement on account of default or breach by the Concessionaire;

(xv) appoint, supervise, monitor and control the activities of Contractors under their respective Project Agreements as may be necessary;

(xvi) make reasonable efforts to maintain harmony and good industrial relations among the personnel employed in connection with the performance of the Concessionaire’s obligations under this Agreement;

(xvii) comply with all Applicable Permits and Applicable Laws in the performance of the Concessionaire’s obligations under this Agreement including those being performed by any of the Contractors;

(xviii) develop, implement and administer a surveillance and safety program for the Project Highway, the users thereof, and the Contractors personnel engaged in the
provision of any services under any of the Project Agreements including correction of safety violations and deficiencies, and taking of all other actions necessary to provide a safe environment in accordance with Schedule ‘S’, Applicable Laws and Good Industry Practice;

(xix) take all reasonable precautions for the prevention of accidents on or about the Project Highway and provide all reasonable assistance and emergency medical aid to accident victims;

(xx) not to place or create and nor permit any Contractor or other person claiming through or under the Concessionaire to create or place any Encumbrance or security interest over all or any part of Site or the Project Assets, or on any rights of the Concessionaire therein or under this Agreement, save and except as expressly set forth in this Agreement;

(xxii) make its own arrangements for quarrying, and observe and fulfill the environmental and other requirements under the Applicable Laws and Applicable Permits at Concessionaire’s own cost and expense;

(xxii) be responsible for safety, soundness and durability of the Project Highway including other structures forming part thereof and their compliance with the Specifications and Standards;

(xxiii) not claim or demand possession or control of any roads, structures or real estate which do not form part of the Project Highway;

(xxiv) after receiving vacant possession of the Site or part thereof, ensure that such Site remains free from all encroachments and take all steps necessary to remove encroachments, if any

(xxv) make payment to Police department or any Government Agency, if required, for provision of such services as are not provided in the normal course or are available on payment;

(xxvi) indemnify the NHAI against all actions, suits, claims, demands and proceedings and any loss or damage or cost or expense that may be suffered by them on account of anything done or omitted to be done by the Concessionaire in connection with the performance of its obligations under this Agreement; and

(xxvii) comply with the Divestment Requirements and hand over the Project Highway to NHAI upon Termination of the Agreement.
(xxviii) except with the prior written approval of NHAI, the Concessionaire shall not undertake any activity other than that required for the performance of its obligations and rights under this Agreement.

9.2 Subject to the terms and conditions of this Agreement the Concessionaire shall at its cost and expense:

(i) undertake the design, engineering, procurement and construction and financing of the Project Highway in accordance with this Agreement;

(ii) operate and maintain the Project Highway at all times in conformity with this Agreement including but not limited to the Specifications and Standards set forth in Schedule ‘D’, Schedule ‘L’, the Maintenance Programme and Good Industry Practice.

9.3 The Concessionaire shall, before commencement of construction of the Project Highway:

(i) submit to NHAI with due regard to Project Completion Schedule as set forth in Schedule ‘H’ and Scheduled Project Completion Date, its design, engineering and construction time schedule and shall formulate and provide CPM/PERT charts for the completion of the said activities;

(ii) finalise the design and detailed engineering basis;

(iii) have requisite organisation and designate and appoint a Project manager and such other managers, officers and representatives as it may deem appropriate to supervise the Project and to deal with the NHAI Representative and be responsible for all necessary exchanges of information required pursuant to this Agreement; and

(iv) undertake, do and perform such acts, deeds and things as may be necessary or required for construction and Project completion under and in accordance with this Agreement.

9.4 In respect of the Concessionaire’s obligations with respect to the Drawings of the Project Highway as set forth in Schedule ‘I’, the following shall apply:

(i) The Concessionaire shall prepare and submit with reasonable promptness and in such sequence as is consistent with the Project Completion Schedule, one copy each of all Drawings to NHAI and the Independent Consultant for review and comments.
(ii) By forwarding the Drawings for review and comment to NHAI, the Concessionaire represents that it has determined and verified that the design and engineering including field construction criteria related thereto is in conformity with the Specifications, Standards and quality set forth in this Agreement for and in respect of the Project Highway.

(iii) Within 30 (thirty) days of the receipt of the Drawings, NHAI shall review the same and convey its comments/observations to the Concessionaire with particular reference to the conformity or otherwise with the Specifications and Standards set forth in this Agreement. It is expressly agreed that notwithstanding any review and comment/observations of NHAI on any Drawings or failure of NHAI to provide comments/observations thereon, NHAI shall not be liable for the same in any manner whatsoever and the Concessionaire shall remain solely responsible for and shall not be relieved or absolved in any manner whatsoever of its obligations, duties and liabilities as set forth in this Agreement. The Concessionaire shall not be obliged to await the comments/observations of NHAI on the Drawings submitted pursuant hereto beyond the period set forth hereinabove.

(iv) If the comments/observations of NHAI indicate that the Drawings are not in conformity with the Specifications and Standards set forth in this Agreement, such Drawings shall be revised by the Concessionaire to the extent necessary and resubmitted to NHAI for review, observations and comments. NHAI shall give its observations and comments, if any, within 15 (fifteen) days of the receipt of such revised Drawings provided, however, that any observations or comments of NHAI or failure of NHAI to give any observations or comments on such revised drawings shall not relieve or absolve the Concessionaire of its obligation to conform to such Specifications and Standards.

(v) The Concessionaire shall be responsible for delays in Project Completion Schedule caused by reasons of any Drawings not being in conformity with the Specifications and Standards, and the Concession Period shall not be extended in any manner whatsoever on account of submission or revision of any Drawings.

(vi) Within 90 (ninety) days of the COD, the Concessionaire shall furnish NHAI with “as built” Drawings reflecting the Project Highway as actually designed, engineered and constructed, including without limitation an “as built” survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities.

9.5 The Concessionaire shall submit to NHAI the drafts of the Project Agreements including in particular the EPC Contract, the Financing Documents, the O&M Contract and the
Tolling Contract for its review. NHAI shall have the right but not the obligation to provide its comments and observations, if any, in respect of the Project Agreements within 30 (thirty) days of the receipt thereof by NHAI and the Concessionaire shall consider all such comments/observations. Any such comments/observations by NHAI on any Project Agreements or the failure to provide such comments shall not relieve or absolve in any manner whatsoever the Concessionaire of its obligations, duties and liabilities under this Agreement nor shall it make NHAI and/or Independent Consultant liable to the Concessionaire in any manner whatsoever and shall be without prejudice to the rights of NHAI hereunder.

9.6 During the Construction Period, the Concessionaire shall be responsible for maintaining the Site including the existing two lanes of the Project Highway at its own cost and expense. During this period, the Concessionaire shall modify, repair or otherwise make improvements to the existing two lanes before expiry of six months from the Appointed Date so that the existing two lanes comply with requirements provided in Schedule 'L' and at least 2 (two) lanes of the Project Highway are ordinarily open to traffic at all times. The Concessionaire shall promptly undertake all such repairs and maintenance works as may be necessary to keep the Project Highway traffic-worthy and safe during the Construction Period.

9.7 The Concessionaire shall, at all times, afford access to the Site to the authorised representatives of NHAI, Senior Lenders, and the Independent Consultant and to the persons duly authorised by any Governmental Agency having jurisdiction over the Project, including those concerned with safety, security or environmental protection to inspect the Project Highway and to investigate any matter within their authority and upon reasonable notice, the Concessionaire shall provide to such persons reasonable assistance necessary to carry out their respective duties and functions with minimum disruption to the construction, operation and maintenance of the Project Highway consistent with the purpose for which such persons have gained such access to the Site.

X. OBLIGATIONS OF NHAI

10.1 NHAI agrees to observe, comply and perform the following:

(i) enable access to the Site, free from Encumbrances, in accordance with this Agreement;

(ii) permit peacefull use of the Site by the Concessionaire as licensee under and in accordance with the provisions of this Agreement without any let or hindrance from NHAI or persons claiming through or under it;
(iii) assist and provide all reasonable support to the Concessionaire in obtaining Applicable Permits;

(iv) upon written request from the Concessionaire, assist the Concessionaire in obtaining access to all necessary infrastructure facilities and utilities, including water, electricity and telecommunication facilities at rates and on terms no less favourable to the Concessionaire than those generally available to commercial customers receiving substantially equivalent services;

(v) procure that no barriers are erected or placed by GOR or any Governmental Agency on the Project Highway except on account of any law and order situation or upon national security considerations;

(vi) extend reasonable assistance to the Concessionaire for execution of the State Support Agreement and enter into the State Support Agreement with the Concessionaire and the GOR;

(vii) assist the Concessionaire in obtaining necessary assistance to regulate traffic on the Project Highway subject to and in accordance with the Applicable Laws;

(viii) assist the Concessionaire in obtaining Police assistance from GOR against payment of prescribed costs and charges, if any, for traffic regulation, patrolling and provision of security on the Project Highway;

(ix) operate and maintain the Project Highway during the Development Period, at its own cost and expense, in a manner that the level of service is at no time inferior to the level prevailing on the date when bids were received for this Concession; and

(x) observe and comply with its obligations set forth in this Agreement.

XI. REPRESENTATIONS AND WARRANTIES

11.1 Representations and Warranties of the Concessionaire

The Concessionaire represents and warrants to NHAI that:

(i) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation;
(ii) It has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;

(iii) It has taken all necessary corporate and other action under Applicable Laws and its constitutional documents to authorize the execution, delivery and performance of this Agreement;

(iv) It has the financial standing and capacity to undertake the Project;

(v) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof;

(vi) It is subject to civil and commercial laws of India with respect to this Agreement and it hereby expressly and irrevocably waives any immunity in any jurisdiction in respect thereof;

(vii) All the information furnished in the Bid is, and shall be, true and correct as on the Appointed Date and COD and the Balance Sheet and Profit and Loss Account of the Concessionaire for each of its Accounting Years after the Appointed Date furnished to NHAI shall give true and fair view of the affairs of the Concessionaire;

(viii) It shall furnish a copy of the audited accounts of the Company within 120 (one hundred twenty) days of the close of its each Accounting Year after the Appointed Date and any material change subsequent to the date of such accounts shall be notified to NHAI by the Concessionaire within 30 (thirty) days of its occurrence and warrants that the accounts and the information furnished as aforesaid shall be true and correct;

(ix) The execution, delivery and performance of this Agreement will not conflict with, result in the breach of, constitute a default under or accelerate performance required by any of the terms of the Memorandum and Articles of Association of the Concessionaire or any Member of the Consortium or any Applicable Laws or any covenant, agreement, understanding, decree or order to which, it is a Party or by which it or any of its properties or assets is bound or affected;

(x) There are no actions, suits, proceedings, or investigations pending or, to the Concessionaire's knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi judicial or other authority, the outcome of which may result in the breach of or constitute a default of the Concessionaire under this Agreement or which individually or in the aggregate may result in any Material Adverse Effect on its business, properties or assets or its condition,
financial or otherwise, or in any impairment of its ability to perform its obligations and duties under this Agreement;

(xi) It has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Governmental Agency which may result in any Material Adverse Effect or impairment of the Concessionaire's ability to perform its obligations and duties under this Agreement;

(xii) It has complied with all Applicable Laws and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have Material Adverse Effect on its financial condition or its ability to perform its obligations and duties under this Agreement;

(xiii) The aggregate holding of the Consortium Members and their Associates in the issued and paid up equity share capital of the Concessionaire and in Equity shall not be less than (a) 51% (fifty one percent) during the Construction Period and for 1 (one) year following COD, and (b) 26% (twenty six per cent) during the balance remaining Operations Period;

(xiv) Each Consortium Member was and is duly organised and existing under the laws of the jurisdiction of its incorporation and has full power and authority to consent to and has validly consented to and requested NHAI to enter into this Agreement with the Concessionaire pursuant to the LOA and has agreed to and unconditionally accepted the terms and conditions set forth in this Agreement;

(xv) All rights and interests of the Concessionaire in and to the Project Highway shall pass to and vest in NHAI on the Termination Date free and clear of all liens, claims, and Encumbrances without any further act or deed on the part of the Concessionaire or NHAI and that none of Project Assets including materials, supplies or equipment forming part thereof shall be acquired by the Concessionaire subject to any agreement under which a security interest or other lien or Encumbrance is retained by any person save and except as expressly provided in this Agreement;

(xvi) No representation or warranty by the Concessionaire contained herein or in any other document furnished by it to NHAI, or to any Governmental Agency in relation to Applicable Permits contains or will contain any untrue statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading; and
(xvii) It warrants that no sums, in cash or kind, have been paid or will be paid by or on behalf of the Concessionaire, to any person by way of fees, commission or otherwise for securing the Concession or entering into this Agreement or for influencing or attempting to influence any officer or employee of NHAI, GOI or GOR in connection therewith.

11.2 Representations and Warranties of NHAI.

NHAI represents and warrants to the Concessionaire that:

(i) NHAI is duly organised and validly existing under the laws of India;

(ii) NHAI has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;

(iii) NHAI has taken all necessary action to authorise the execution, delivery and performance of this Agreement;

(iv) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof; and

(v) NHAI is subject to civil and commercial laws of India with respect to this Agreement and it hereby expressly and irrevocably waives any sovereign immunity in any jurisdiction in regard to matters set forth in this Agreement.

vi) There are no actions, suits, proceedings pending to its knowledge, the outcome of which may result in the breach of or constitute a default of NHAI under this Agreement;

vii) It has no knowledge of any violation or default with respect to any order, writ, injunction or any legally binding order which may result in any Material Adverse Effect on NHAI’s ability to perform its obligations and duties under this Agreement;

viii) It has complied with all Applicable Laws and has not been subject to any fines, penalties which may have material adverse effect on its financial condition or its ability to perform its obligations and duties under this Agreement;
XII. DISCLAIMER

12.1 The Concessionaire acknowledges that prior to the execution of this Agreement, the Concessionaire has after a complete and careful examination made an independent evaluation of the traffic volumes, Specifications and Standards, Site and all the information provided by NHAI and has determined to the Concessionaire's satisfaction the nature and extent of such difficulties, risks and hazards as are likely to arise or may be faced by the Concessionaire in the course of performance of its obligations hereunder.

12.2 The Concessionaire acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth in Clause 12.1 above and hereby confirms that NHAI shall not be liable for the same in any manner whatsoever to the Concessionaire, the Consortium Members or their Associates.
PROJECT DEVELOPMENT
AND
OPERATIONS
CHAPTER – IV
PROJECT DEVELOPMENT AND OPERATIONS

XIII. USE AND DEVELOPMENT OF THE SITE

13.1 NHAI hereby grants to the Concessionaire for the Development Period access to the Site for carrying out such surveys, investigations and soil tests as the Concessionaire may deem necessary at the Concessionaire’s cost, expense and risk without causing disruption in the traffic on the existing lanes of the Project Highway.

13.2 NHAI hereby grants to the Concessionaire for the Concession Period the right and licence to enter upon all real estate comprised in the Site as briefly described in Schedule ‘A’ and to survey design, engineer, procure, construct, operate and maintain the Project Highway including the Project Facilities in accordance with the provisions of this Agreement. Such right and licence of the Concessionaire to the use the Site shall be subject to:

13.2.1 Any existing utilities on, under or above the Site are kept in continuous satisfactory use, if necessary by the use of suitable temporary or permanent diversions with the authority of the controlling body of that utility;

13.2.2 Any existing roads or right of ways are kept in continuous satisfactory use, if necessary, by the use of suitable temporary or permanent diversions with the authority of the controlling body of that road or right of way. For any diversion or construction, of temporary roads, NHAI will assist the Concessionaire in acquiring the right of way;

13.2.3 The rights of the road users to use the road in accordance with this Agreement;

13.2.4 A right of access by the NHAI itself and any of its agents to perform their obligations and rights under the Concession Agreement or any other functions that they have, and to conduct any study or trial for the purpose of research;

13.3 The license and the right to use the Site shall be granted for the purpose of carrying out the functions placed upon the Concessionaire under the Agreement and not for any other purposes;

13.4 The Concessionaire shall bear all costs and charges for special and temporary rights of way required by it in connection with access to the Site. The Concessionaire shall obtain at its cost such facilities on or outside the Site as may be required by it for the purposes of the Project Highway and the performance of its obligations under this Agreement.
13.5 The Site shall be made available to the Concessionaire pursuant hereto by NHAI free from all Encumbrances and occupations and without the Concessionaire being required to make any payment to NHAI on account of any costs, expenses and charges for the use of such Site for the duration of the Concession Period save and except as otherwise expressly provided in this Agreement. NHAI shall procure for the Concessionaire access to the Site, free of Encumbrances, not later than 150 (one hundred and fifty) days from the date of this Agreement. Provided, however, that if NHAI does not enable such access to any part or parts of the Site for any reason other than a Force Majeure Event or breach of this Agreement by the Concessionaire, NHAI shall pay to the Concessionaire Damages at the rate of Rs.1000 (Rupees one thousand) per month per 1000 (one thousand) sq. meters or part thereof if such area is required by the Concessionaire for Construction Works. Such Damages shall be raised to Rs.2000 (Rupees two thousand) per month after COD if such area is essential for the smooth and efficient operation of the Project Highway. Provided further that the Completion Certificate or the Provisional Certificate, as the case may be, for the Project Highway shall not be affected or delayed as a consequence of such parts of the Site remaining under construction even after the Scheduled Project Completion Date.

13.6 On or after the Appointed Date, the Concessionaire shall commence, undertake and complete all Construction Works on the Project Highway in accordance with this Agreement.

13.7 Construction of the Project Highway shall be undertaken by the Concessionaire in conformity with the Project Completion Schedule ‘H’ and the Project milestones set forth in Schedule ‘H’ for completion of the Project Highway on or before the Scheduled Project Completion Date. If the Concessionaire fails to achieve any such Project milestone other than Project Completion, within a period of 90 (ninety) days from the date set forth in Schedule ‘H’ then it shall pay Damages to NHAI at the rate of Rs.1,000,000 (Rs. One million) per day until such milestone is achieved. NHAI may either recover such Damages from the Performance Security or demand payment thereof from the Concessionaire. The Concessionaire shall make such payment within 7 (seven) days of receiving such demand from NHAI and any delay in making such payment shall attract interest @ SBI PLR plus two per cent. If the Concessionaire fails to achieve Project completion as per the Scheduled Project Completion Date as set forth in Schedule ‘H’, then it shall pay damages to NHAI as per Article XV. However, in the event that the Concessionaire achieves the Provisional Certification or the Completion Certificate by Scheduled Project Completion Date, the damages recovered under this clause, if any, would be refunded (without interest) to the Concessionaire.
XIV. MONITORING AND SUPERVISION OF CONSTRUCTION

14.1 During the Construction Period, the Concessionaire shall furnish to NHAI and the Independent Consultant monthly progress reports of actual progress of the Construction Works comprised in the Project Highway and shall give all such other relevant information as may be required by NHAI and/or the Independent Consultant.

14.2 The Independent Consultant shall inspect the Construction Works and the Project Highway at least once a month during the Construction Period and make out an Inspection Report of such inspection (the "Inspection Report"). It shall send a copy of its Inspection Report to NHAI and the Concessionaire. The Concessionaire shall take necessary action to remedy the lapses, if any, stated in the Inspection Report for ensuring compliance with the provisions of this Agreement. Such inspection or submission of Inspection Report by the Independent Consultant shall not relieve or absolve the Concessionaire of its obligations and liabilities hereunder in any manner whatsoever.

14.3 For the purposes of determining that Construction Works are being undertaken in accordance with Specifications and Standards and Good Industry Practice, the Independent Consultant shall require the Concessionaire to carry out such Tests at such time and frequency and in such manner as may be necessary in accordance with Good Industry Practice for quality assurance. The Concessionaire shall with due diligence carry out, or cause to be carried out, all such tests in accordance with the instructions of the Independent Consultant and furnish the results of such tests forthwith to the Independent Consultant. The Concessionaire shall promptly carry out such remedial measures as may be necessary to cure the defects or deficiencies, if any, indicated in such test results and furnish a report to the Independent Consultant in this behalf.

14.4 If the Independent Consultant or NHAI shall reasonably determine that the rate of progress of the Construction of the Project Highway is such that the Project Completion is not feasible on or before the Scheduled Project Completion Date by the Concessionaire, it shall so notify the Concessionaire about the same and the Concessionaire shall within 15 (fifteen) days thereof notify the NHAI and the Independent Consultant about the steps it proposes to take to expedite progress and the period within which it shall achieve COD.

14.5 (a) Upon recommendation of the Independent Consultant or suo-moto, NHAI may by written notice require the Concessionaire to suspend forthwith the whole or any part of the Construction Works if in the reasonable opinion of the NHAI such work is being carried on in a manner which threatens the safety of the works or of the users of the Project Highway.
(b) The Concessionaire, shall upon instructions of the NHAI pursuant to sub-clause (a) above suspend the Construction Works or any part thereof for such time and in such manner as may be specified by NHAI and subject to sub-clause (c) below, the costs incurred during such suspension to properly protect and secure the Construction Works or such part thereof as is necessary in the opinion of the Independent Consultant ("Preservation Costs"), shall be borne by the Concessionaire.

(c) If the suspension pursuant to Sub-clause (a) above, is caused by:

(i) any reason other than default or breach of this Agreement by the Concessionaire including breach of any of the obligations of the Concessionaire under this Agreement, the Preservation Costs shall be borne by NHAI;
(ii) reason of default or breach of this Agreement by NHAI the Preservation Costs shall be borne by NHAI; or
(iii) reason of any Force Majeure Event, the Preservation Costs shall be borne by the Concessionaire save and except to the extent otherwise expressly provided in Article XXIX.

(d) If suspension of Construction Works is for reasons not attributable to the Concessionaire, the Independent Consultant shall determine any extension to the Project Completion Schedule, the Scheduled Project Completion Date and the Concession Period, to which the Concessionaire is reasonably entitled and shall notify NHAI accordingly. NHAI shall extend the Project Completion Schedule, the Scheduled Project Completion Date and the Concession Period in accordance with the recommendations of the Independent Consultant.

XV. COMPLETION

15.1 The Project shall be deemed to be complete and open to traffic only when the Completion Certificate or the Provisional Certificate is issued in accordance with the provisions of Article XVI (the "Project Completion").

15.2 COD of the Project shall be the date on which the Independent Consultant has issued the Completion Certificate or the Provisional Certificate, as the case may be, under this Agreement and the Concessionaire shall not levy and collect any Fee until it has received such Completion Certificate or the Provisional Certificate.

15.3 The Concessionaire guarantees that the Project Completion shall be achieved in accordance with the provisions of this Agreement on a date not later than 30 (thirty)
months from the Appointed Date ("Scheduled Project Completion Date").

15.4 If the Project Completion is not achieved by the Scheduled Project Completion Date for any reason other than conditions constituting Force Majeure or for reasons attributable to NHAI or any Governmental Agency, the Concessionaire shall pay to NHAI as weekly Damages for delay in the achievement of the COD, an amount calculated at the rate of 0.01% (point zero one per cent) of the Total Project Cost per week or part thereof.

15.5 If the COD does not occur within 12 (twelve) months from the Scheduled Project Completion Date for any reason other than occurrence of Force Majeure or for reasons attributable to NHAI or any Governmental Agency, NHAI shall be entitled to Terminate this Agreement in accordance with the provisions of Clause 32.2.

XVI. TESTS

16.1 All Tests shall be conducted in accordance with Schedule ‘J’ and the Applicable Laws and Applicable Permits. NHAI shall designate a NHAI Representative to witness and observe the Tests. All Tests shall be held in accordance with the schedule notified by the Concessionaire to the Independent Consultant and the NHAI Representative who may either witness the Tests themselves or designate their representatives for this purpose, if they choose.

16.2 The Independent Consultant shall monitor the results of the Tests to determine the compliance of the Project Highway with the Specifications and Standards. The Concessionaire shall provide to the Independent Consultant and the NHAI with copies of all Test data including detailed Test results.

16.3 At least 30 (thirty) days prior to the likely completion of the Project Highway, the Concessionaire shall notify the Independent Consultant and NHAI of the same and shall give notice of its intent to conduct any final Tests. The Concessionaire shall give to NHAI and the Independent Consultant at least 10 (ten) days’ prior notice of the actual date on which it intends to commence the Tests and at least 7 (seven) days’ prior notice of the commencement date of any subsequent Tests. The Independent Consultant shall have the right to suspend or delay any Test if it is reasonably anticipated or determined during the course of the Test that the performance of the Project Highway or any part thereof does not meet the Specifications and Standards.

16.4 Upon the Independent Consultant determining the Tests to be successful and all parts of the Project Highway to have been completed and the Project Highway can be legally, safely and reliably placed in commercial operations, the Independent Consultant shall forthwith issue to the Concessionaire and NHAI a Certificate substantially in the form set forth in Schedule ‘K’ (the “Completion Certificate”).
16.5 Independent Consultant may at the request of the Concessionaire issue a provisional certificate of completion ("Provisional Certificate") if the Tests are successful and all parts of Project Highway can be legally, safely and reliably placed in commercial operation though certain works or things forming part thereof are not yet complete. In such an event such Provisional Certificate shall have appended thereto a list of outstanding items signed jointly by the Independent Consultant and the Concessionaire ("Punch List"). All Punch List items shall be completed by the Concessionaire within 120 (one hundred twenty) days of the date of issue of such Provisional Certificate. Subject to payment of Damages equal to Rs.200,000 (Rs. Two hundred thousand) per week or part thereof on account of any delay beyond the aforesaid period of 120 (one hundred twenty) days, the Concessionaire shall be entitled to a further period of upto 180 (one hundred eighty) days for completion of Punch List items. Upon completion of all Punch List items to the satisfaction of the Independent Consultant, the Independent Consultant shall issue the Completion Certificate to the Concessionaire. Failure to complete the Punch List items in the manner set forth in this Clause 16.5 shall entitle NHAI to Terminate this Agreement in accordance with the provisions of Clause 32.2.

16.6 If the Independent Consultant certifies to NHAI and the Concessionaire that it is unable to issue the Completion Certificate or Provisional Certificate because of events or circumstances which excuse the performance of the Concessionaire’s obligations in accordance with this Agreement and as a consequence thereof the Tests could not be held or had to be suspended, the Concessionaire shall re-schedule the Tests and hold the same as soon as reasonably practicable.

16.7 Upon receipt of a report from the Independent Consultant or after conducting its own review or inspection, if NHAI is not satisfied with the results of any Tests, it shall within 7 (seven) days thereof notify the Concessionaire of its reasons to conclude that the Completion Certificate should not be issued, in which case the Concessionaire shall promptly take such action as will achieve such satisfaction. Such procedure shall be repeated as necessary after rectification and remedy of reasons/causes by the Concessionaire on account of which the Tests were unsuccessful, until the Completion Certificate or Provisional Certificate has been issued in accordance with this Agreement by the Independent Consultant.

16.8 The Concessionaire shall bear all the expenses relating to Tests under this Agreement. Provided, however, that if the NHAI Representative requires any Test to be conducted which is not specified in this Agreement and such Test is not necessary in the opinion of the Independent Consultant, then the expenses on such Test shall be reimbursed by NHAI to the Concessionaire.
XVII. CHANGE OF SCOPE

17.1 NHAI may, notwithstanding anything to the contrary contained in this Agreement, require provision of such additional works and services on or about the Project Highway which are beyond the scope of the Project as contemplated by this Agreement ("Change of Scope"), provided such changes do not require expenditure exceeding 5% (five per cent) of the Total Project Cost and do not adversely affect the COD. All such changes shall be made by NHAI by an order (the "Change of Scope Order") issued in accordance with the procedure set forth in this Article XVII.

17.2 Procedure for Change of Scope

(a) NHAI shall whenever it desires provision of additional works and services referred to in Clause 17.1, issue to the Concessionaire a notice of change of scope (the "Change of Scope Notice").

(b) upon receipt of such Change of Scope Notice, the Concessionaire shall provide to NHAI and the Independent Consultant such information as is necessary and reasonable together with preliminary documentation in support of the following:

(i) the impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the work is required to be carried out before COD, and

(ii) the cost to the Concessionaire of complying with such Change of Scope Notice (including, without limitation, material and labour cost information furnished in accordance with the current schedule of rates applicable to the works assigned by NHAI to its contractors, including the premium on such rates).

(iii) the options suggested for implementing the proposed Change of Scope and the effect, if any, each such option would have on the costs and time for the implementation thereof including a detailed breakdown by work classifications. Provided, however, that the costs of providing such information shall be reimbursed to the Concessionaire by NHAI to the extent such costs are certified to be reasonable by the Independent Consultant.

(c) If NHAI desires, after receipt of information set forth in sub-clause (b) to proceed with the Change of Scope, it shall convey the desired option to the Concessionaire by issuing a Change of Scope Order and thereupon the Parties shall make good faith efforts to mutually agree upon the costs and time for
implementing of the same. Upon reaching an agreement relating to such costs and time, NHAI shall issue a written confirmation of the Change of Scope Order and thereupon the Concessionaire shall proceed with performance of such order. In the event, the Parties are unable to agree, NHAI may, by issuing a confirmation in writing of such Change of Scope Order, require the Concessionaire to proceed with the performance of the Change in Scope Order pending resolution of such dispute.

17.3 A change of Scope Order will be effective and binding upon issuance of a confirmation of such Change of Scope Order by NHAI. Notwithstanding a dispute regarding cost and time for implementation of such Change of Scope Order, the Concessionaire shall proceed with the performance of such Change of Scope Order promptly following NHAI's confirmation pursuant to Clause 17.2(c). Pending resolution of such dispute, NHAI shall pay to the Concessionaire an amount equal to the costs that are certified by the Independent Consultant to be reasonable plus one-half the difference between the amount certified by the Independent Consultant and the amount claimed by the Concessionaire with final adjustments to be made in accordance with the resolution of dispute under the Dispute Resolution Procedure.

17.4 All claims by the Concessionaire pursuant to this Article XVII shall be supported by such documentation as is reasonably sufficient for NHAI to determine the accuracy thereof, including invoices from Contractors and subcontractors and certification of such claims by the Statutory Auditors.

XVIII. OPERATION AND MAINTENANCE

18.1 The Concessionaire shall operate and maintain the Project Highway by itself, or through O&M Contractors and if required, modify, repair or otherwise make improvements to the Project Highway to comply with Specifications and Standards, and other requirements set forth in this Agreement, Good Industry Practice, Applicable laws and Applicable Permits and manufacturer's guidelines and instructions with respect to toll systems, and more specifically:

(i) permitting safe, smooth and uninterrupted flow of traffic during normal operating conditions;

(ii) charging, collecting and retaining the Fees in accordance with this Agreement;

(iii) minimizing disruption to traffic in the event of accidents or other incidents affecting the safety and use of the Project Highway by providing a rapid and effective response and maintaining liaison procedures with emergency services;
undertaking routine maintenance including prompt repairs of potholes, cracks, concrete joints, drains, line marking, lighting and signage;

undertaking major maintenance such as resurfacing of pavements, repairs to structures, repairs and refurbishment of tolling system and hardware and other equipment;

carrying out periodic preventive maintenance to Project Highway including tolling system;

preventing with the assistance of concerned law enforcement agencies unauthorised entry to and exit from the Project Highway;

preventing with the assistance of the concerned law enforcement agencies encroachments on the Project Highway including Site and preserve the right of way of the Project Highway;

maintaining a public relations unit to interface with and attend to suggestions from users of the Project Highway, the media, Government Agencies, and other external agencies; and

adherence to the safety standards set out in Schedule ‘S’.

18.2 The Concessionaire shall in consultation with the Independent Consultant prepare not later than 180 (one hundred and eighty) days before the Scheduled Project Completion Date, the repair and maintenance manual (the “Maintenance Manual”) for the regular and periodic maintenance, and shall ensure and procure that at all times during the Operations Period, the Project Highway is maintained in a manner that it complies with the Specifications and Standards and the minimum maintenance requirements set forth in Schedule L. The Concessionaire shall supply, at least two months before the COD, 10 (ten) copies of the Maintenance Manual to NHAI and 3 (three) copies each to the GOI, GOR and Independent Consultant. Copies of the Maintenance Manual shall also be made available by the Concessionaire for public inspection during office hours at a conspicuous place adjacent to each Toll Plaza on the Project Highway.

18.3 Not later than forty five (45) days before the beginning of each Accounting Year, the Concessionaire, shall in consultation with the Independent Consultant prepare and provide to NHAI, its proposed programme of preventive and other scheduled maintenance of the Project Highway subject to the minimum maintenance requirements set forth in Maintenance Manual and in Schedule ‘L’ necessary to maintain the Project Highway at all times in conformity with the Specifications and Standards (the

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"Maintenance Programme"). Such Maintenance Programme shall include but not be limited to the following:

(i) intervals and procedures for the carrying out of inspection of all elements of the Project Highway;
(ii) criteria to be adopted for deciding maintenance needs;
(iii) preventive maintenance schedule;
(iv) intervals at which the Concessionaire shall carry out periodic maintenance;
(v) intervals for major maintenance and the scope thereof; and
(vi) lane closures schedule for each type of maintenance (length and time).

18.4 Maintenance shall include replacement of equipment/consumables, horticultural maintenance and upkeep of all Project Assets in good order and working condition. Maintenance shall not include the extension of any existing pavements, bridges, structures and other civil works unless part of the Project.

18.5 The Concessionaire shall keep the carriageways, rest areas and other Project Facilities and Toll Plazas in a clean, tidy and orderly condition free of litter and debris.

18.6 During the Operations Period, the Concessionaire shall not carry out any material modifications to the Project Highway save and except where such (i) modification is required by Good Industry Practice; or (ii) modification is necessary for the Project Highway to operate in conformity with the Specifications and Standards prescribed under this Agreement. Provided that the Concessionaire shall notify NHAI of the proposed modifications along with details thereof at least fifteen days before commencing work on such modifications and shall reasonably consider such suggestions as NHAI may make within 15 (fifteen) days of receipt of such details by NHAI.

18.7 The Concessionaire shall be responsible for the maintenance of the approach roads to and underpasses and overpasses up to 100 mtrs from the Project Highway in accordance with Good Industry Practice.

18.8 Safety, Vehicle Breakdown and Accident

18.8.1 In the case of unsafe conditions, vehicle breakdowns and accidents, the Concessionaire shall follow the relevant operating procedures, which shall include the setting up of temporary traffic cones and lights as well as the removal of obstruction and debris expeditiously. Such procedures shall be in accordance with Applicable Laws, Applicable Permits and provisions of this Agreement.

18.8.2 The Concessionaire shall ensure that any diversion or interruption of traffic is remedied without delay. The Concessionaire’s responsibility for rescue operations on the Project...
Highway shall be limited to the removal of vehicles or debris or any other obstruction, which may endanger or interrupt the smooth traffic flow on the Project Highway.

18.8.3 The Concessionaire shall ensure that safety standards specified in Schedule ‘S’ are strictly complied with in the event of any lane closure or diversion of traffic. Compliance with Schedule ‘S’ will be monitored by the Independent Consultant and a breach by the Concessionaire of its obligations in respect of this Schedule identified by the Independent Consultant shall be notified immediately and is required to be cured within 24 hours of its notification notwithstanding inspection, reporting procedures outlined elsewhere in this Agreement. In addition, each notified breach shall lead to the award of a penalty point to the Concessionaire. A total of five penalty points in any continuous period of 365 days shall constitute a Material Breach of this Agreement.

18.9 Emergency De-commissioning

18.9.1 If, in the reasonable opinion of the Concessionaire there exists an emergency which warrants decommissioning and closure to traffic of whole or any part of the Project Highway, the Concessionaire shall be entitled to de-commission and close the whole or the relevant part of the Project Highway to traffic for so long as such emergency and the consequences thereof warrant, provided however that such emergency decommissioning will be notified to NHAI promptly. NHAI may issue directions to the Concessionaire for dealing with such situations and the Concessionaire shall abide by such directions.

18.9.2 The Concessionaire shall re-commission the Project Highway or the affected part thereof as quickly as practicable after the circumstances leading to its de-commissioning and closure have ceased to exist.

18.10 The Concessionaire shall not close any lane of the Project Highway for undertaking maintenance or repair works except with the prior written approval of the NHAI which may delegate its authority to the Independent Consultant. Such approval shall be sought by the Concessionaire through a written request to be made at least 7 (seven) days before the proposed closure of lane and shall be accompanied by particulars indicating the nature and extent of repair works, the length and section required to be closed and the period of closure. The Concessionaire shall also furnish particulars indicating the minimum time required for completing such repair works. Within 5 (five) days of receiving such request, NHAI or the Independent Consultant, as the case may be, shall grant permission with such modifications as it may deem necessary. Upon receiving such permission, the Concessionaire shall be entitled to close the lane in accordance with such permission and re-open it within the period stipulated in such permission. For any delay in re-opening such lane during the first Operations Year, the Concessionaire shall pay Damages to NHAI calculated at the rate of Rs. 10,000 (Rs. Ten thousand), per day or part thereof for every stretch of 100 (one hundred) meters or part thereof in each lane until
such time the stretch has been re-opened for traffic. These damages of Rs.10,000 (Rupees ten thousand) shall be applicable in the first Operations year and shall be revised by WPI in each subsequent Operations year. Provided, however, that these provisions shall not apply to Emergency decommissioning under Clause 18.9.

18.11Save and except as otherwise be expressly provided in this Agreement, if the Project Highway including Construction Works or any part thereof shall suffer any loss or damage during the Concession Period, from any cause whatsoever, the Concessionaire shall, at its cost and expense rectify and remedy such loss or damage forthwith in a manner so as to make the Project Highway conform in every respect to the Specifications and Standards, quality and performance as prescribed by this Agreement.

18.12In the event the Concessionaire does not maintain and/ or repair the Project Highway or a part thereof up to and in accordance with the Specifications and Standards and/or in accordance with the Maintenance Programme or the Maintenance Manual, and shall have failed to commence remedial works within 30 (thirty) days of receipt of notice in this behalf from NHAI or the Independent Consultant, or the O&M Inspection Report, as the case may be, NHAI shall, without prejudice to its rights under this Agreement, including Termination thereof, be entitled to undertake the repair and maintenance of the Project Highway at the risk and cost of the Concessionaire and to recover the same from the Concessionaire. In addition to recovery of the aforesaid cost of repair and maintenance by NHAI, a sum equal to 25% (twenty five per cent) of such cost shall also be recovered by NHAI from the Concessionaire as Damages. NHAI shall have the right and the Concessionaire hereby expressly grants to NHAI the right to recover the same directly from the Escrow Account and for that purpose the Concessionaire hereby expressly authorises NHAI and hereby gives irrevocable instructions to the Escrow Bank to make payment from the Escrow Account in accordance with the instructions of NHAI under this Clause.

18.13In the event NHAI does not exercise its option to undertake the required repair and maintenance after expiry of the 30 (thirty) days period stipulated in Clause 18.12 it shall recover Damages from the Concessionaire for default in operating and maintaining the Project Highway in conformity with this Agreement. Such Damages shall be payable after the aforesaid period of 30 (thirty) days and until the default is cured. The amount of Damages shall be calculated for each day of default at the higher of the following, namely (a) Rs.10,000 (Rs. Ten thousand), and (b) 0.1% (zero point one per cent) of the cost of such repair as estimated by the Independent Consultant. Recovery of such Damages shall be without prejudice to the rights of NHAI under this Agreement, including Termination thereof.

18.14If the Concessionaire commences any works for curing any defects or deficiencies in the Project Highway, it shall complete such works expeditiously in accordance with Good
Industry Practice. If such works are carried out in a manner that results in a delay of more than 30 (thirty) days as compared to the time required in accordance with Good Industry Practice, NHAI shall recover Damages from the Concessionaire as if a default had occurred under Clause 18.13.

18.15 The Concessionaire shall not be considered in breach of its obligations under this Agreement if any part of the Project Highway is not available to traffic after the COD on account of any of the following for the duration thereof:

(i) an event of Force Majeure;

(ii) measures taken to ensure the safe use of the Project Highway except when unsafe conditions on the road occurred because of failure of the Concessionaire to perform its obligations under this Agreement; or

(iii) compliance with a request from NHAI or the directions of any Governmental Agency the effect of which is to close all or any part of the Project Highway.

Notwithstanding the above, the Concessionaire shall keep all unaffected parts of the Project Highway open to traffic and use provided they can be safely operated and kept open to traffic.

XIX MONITORING AND SUPERVISION DURING OPERATION

19.1 The Concessionaire shall undertake periodic (at least once every calendar month but once every week during monsoons) inspection of the Project Highway to determine the condition of the Project Highway including its compliance or otherwise with the Maintenance Manual, the Maintenance Programme, Specifications and Standards and the maintenance required and shall submit reports of such inspection ("Maintenance Reports") to NHAI and the Independent Consultant.

19.2 The Independent Consultant shall review the Maintenance Reports and inspect the Project Highway at least once a month during the Operations Period and make out an Inspection Report of such inspection (the "O&M Inspection Report"). The Independent Consultant shall send a copy of its O&M Inspection Report to NHAI and the Concessionaire. The Concessionaire shall within 30 (thirty) days of the receipt of the O&M Inspection Report remedy the defects and deficiencies, if any, set forth in such O&M Inspection Report and submit its report in respect thereof to the Independent Consultant and NHAI within the said 30 (thirty) days period. Where the remedying of such defects or deficiencies is likely to take more than 30 (thirty) days in accordance with Good Industry Practice, the Concessionaire shall undertake the works in accordance with such practice and submit progress reports of such works every fortnight. The O&M
Inspection Report may also require the Concessionaire to undertake such tests as may be specified by the Independent Consultant for the purpose of determining that the Project Highway is at all times in conformity with the Specifications and Standards. The Concessionaire shall undertake such Tests without any delay and furnish a copy of the results thereof to the Independent Consultant and NHAI along with a written statement specifying in reasonable detail the measures, if any, that it proposes to undertake for curing the defaults or deficiencies indicated in such results. Such inspection or submission of O&M Inspection Report by the Independent Consultant or submission of O&M Inspection Compliance Report by the Concessionaire shall not relieve or absolve the Concessionaire of its obligations and liabilities hereunder in any manner whatsoever.

19.3 NHAI may inspect the Project Highway at any time for a review of the compliance by the Concessionaire with its maintenance obligations under this Agreement.

19.4 The Concessionaire shall furnish to NHAI within 7 (seven) days of completion of each calendar month during the Operations Period, a statement of Fees in the form set forth in Schedule ‘M’ (the “Monthly Fee Statement”).

XX. INDEPENDENT CONSULTANT

20.1 NHAI shall appoint a consulting engineering firm or body corporate out of the 3 (three) names proposed by the Concessionaire from the panel of 5 (five) consultants selected by NHAI in accordance with the selection process set forth in Schedule ‘N’ to be the Independent Consultant to undertake and perform the duties, work, services and activities set forth in Schedule ‘O’.

20.2 The appointment of the Independent Consultant pursuant to Clause 20.1 shall initially be for a period of four years from the date of its appointment. The date of such appointment shall be no later than 45 (forty five) days from the date of this Agreement. After the expiry of the aforesaid appointment, NHAI shall appoint for a term of 3 (three) years as Independent Consultant such person as it may deem appropriate from the list drawn in accordance with Schedule ‘N’ as amended from time to time by mutual consent of NHAI and the Concessionaire and who may or may not be the same person, who was Independent Consultant during the initial term. NHAI may in its discretion thereafter renew such appointment or appoint another person out of the list determined pursuant to Schedule ‘N’, as NHAI may deem appropriate to be the Independent Consultant for a term of three years at a time.

20.3 The Independent Consultant shall report to NHAI about their work, services, and activities pursuant hereto through regular periodic reports (at least once every month) as the situation may warrant. Such report of Independent Consultant shall include but not
be limited to the matters and things set forth in said Schedule ‘O’.

20.4 The remuneration, cost and expenses of the Independent Consultant shall be paid by NHAI. One-half of such remuneration, cost and expenses shall be reimbursed by the Concessionaire to NHAI within 30 (thirty) days of receiving a statement of expenditure from NHAI.

20.5 NHAI may terminate the appointment of the Independent Consultant at any time subject to appointment of their replacement by another Independent Consultant in accordance with this Article XX.

20.6 If the Concessionaire has reason to believe that the Independent Consultant is not discharging its duties in a fair, efficient and diligent manner, it may make a written representation to NHAI, stating its reasons in detail, seeking termination of the appointment of the Independent Consultant. Upon receipt of such representation, NHAI shall hold a tripartite meeting with the Concessionaire and Independent Consultant for amicable resolution of the dispute. If the dispute remains unresolved, it shall be resolved in accordance with the Dispute Resolution Procedure. In case the appointment of Independent Consultant is terminated under this Clause, it shall be replaced by another Independent Consultant in accordance with this Article XX.

20.7 If either party disputes any advice, instruction or award of the Independent Consultant, the dispute shall be resolved in accordance with the Dispute Resolution Procedure.

XXI. TRAFFIC SAMPLING

21.1 For the purpose of determination and/or verification of the actual traffic on the Project Highway, NHAI shall, in addition to inspection of Concessionaire’s records, be entitled to undertake traffic sampling at such frequency and in such manner as NHAI may deem appropriate including in the manner as set forth in Schedule ‘P’ hereto. The Concessionaire shall provide all facilities and assistance as NHAI may reasonably require for undertaking such traffic sampling.

21.2 If the data collected from traffic sampling undertaken pursuant to Clause 21.1 demonstrates that actual traffic is more than the traffic according to the records of the Concessionaire, the actual traffic for the purposes of this Agreement shall be deemed to be the traffic as determined by such NHAI traffic sampling pursuant to this Article XXI.

21.3 The Concessionaire may, in consultation with NHAI, commission an independent agency to conduct traffic sampling under this Article. The report of such agency shall be furnished to NHAI for such use as it may deem fit.
21.4 In the event of any dispute arising as to the actual traffic on the Project Highway the same shall be resolved in accordance with the Dispute Resolution Procedure under this Agreement.
FINANCING ARRANGEMENTS
XXII. FINANCIAL CLOSE

22.1 The Concessionaire shall provide to NHAI, a copy of the Financing Package furnished by it to the prospective Senior Lenders. As and when such Financing Package is approved by the Senior Lenders, with or without modifications, a copy of the same shall be furnished by the Concessionaire to NHAI forthwith.

22.2 Notwithstanding anything to the contrary contained in this Agreement, the Concessionaire covenants with NHAI that it shall achieve Financial Close within 240 (two hundred and forty) days from the date of this Agreement. If the Concessionaire shall fail to achieve Financial Close within the said 240 (two hundred and forty) days period, the Concessionaire shall be entitled to a further period of 90 (ninety) days subject to an advance weekly payment by the Concessionaire to NHAI of a sum of Rs. 100,000 (Rupees one hundred thousand) per week or part thereof for any delay beyond the said 240 (two hundred and forty) day period, as Damages on account of such delay in achieving Financial Close within the said 240 (two hundred and forty) day period by the Concessionaire.

22.3 Notwithstanding anything to the contrary contained in this Agreement, NHAI shall be entitled to terminate this Agreement forthwith, without being liable in any manner whatsoever to the Concessionaire, by a communication in writing to the Concessionaire pursuant to Clause 32.2 if the Concessionaire shall have failed to pay in advance the Damages to NHAI under and in accordance with Clause 22.2 above.

22.4 Notwithstanding anything to the contrary contained in this Agreement, if the Financial Close shall not occur within 330 (three hundred and thirty) days as set forth in Clause 22.2 above, all rights, privileges, claims and entitlements, if any, of the Concessionaire under or arising out of this Agreement shall be deemed to have been waived by and to have ceased with the concurrence of the Concessionaire, and the Concession Agreement shall be deemed to have been terminated by mutual agreement of the Parties.

22.5 Upon Termination of this Agreement under Clauses 22.3 and 22.4, NHAI shall be entitled to encash the Bid Security or the Performance Security, as the case may be, and appropriate the proceeds thereof as Damages.
XXIII. GRANT

23.1 NHAI agrees to provide to the Concessionaire a sum ("Grant") of Rs. Two thousand one hundred and ten million (Rupees2,110 million) in accordance with the provisions of this Article XXIII.

23.2 Subject to provisions of the Clause 23.3, the Grant shall be applied by the Concessionaire for meeting the capital cost of the Project and shall be treated as part of the shareholders' funds (the "Equity Support").

23.3 The Equity Support shall not exceed 40% of the Total Project Cost.

23.4 The whole or any part of the Equity Support shall be disbursed by NHAI to the Concessionaire if and only if

23.4.1 the Concessionaire is not in Material Breach of this Agreement at the time of such disbursement; and

23.4.2 the Concessionaire has achieved Financial Close and has contributed and spent on the Project at least 50% (fifty percent) of the total Equity (excluding Equity Support) in cash.

23.5 Subject to Clause 23.4, a sum aggregating to Rs one thousand and fifty five million shall be disbursed to the Concessionaire by credit to the Escrow Account as per its requirements estimated in the construction budget finalised by Concessionaire in consultation with the Independent Consultant provided the Concessionaire has submitted to NHAI along with each disbursement request a certificate from its Statutory Auditors certifying the capital expenditure till date of certificate and has given at least 7 (seven) days to NHAI for processing such request.

23.6 Subject to Clause 23.4, the disbursement of remaining Equity Support pursuant to this Article XXIII shall be made by NHAI to the Concessionaire proportionately along with the balance loan funds to be disbursed by the Senior Lenders under the Financing Documents and Equity contribution for meeting the Total Project Cost. NHAI shall disburse each tranche of the Equity Support as aforesaid by credit to the Escrow Account within 15 (fifteen) days of the release of each loan installment by the Senior Lenders to the Concessionaire provided the Concessionaire has submitted to NHAI along with each disbursement request a certificate from its Statutory Auditors certifying the above particulars and receipt of its Equity contribution and has given at least 7 (seven) days to NHAI for processing such request.
23.7 NHAI shall open a Letter of Credit in respect of amounts due by way of Equity Support from NHAI in the each calendar quarter. Such Letter of Credit shall be in place at least 15 (fifteen) days before commencement of the each quarter. If NHAI fails to disburse for reasons solely attributable to NHAI, any tranche of Equity Support within 15 (fifteen) days of the due date of the payment thereof, the Concessionaire shall be entitled to draw upon such Letter of Credit.

XXIV. REVENUE SHORTFALL LOAN

24.1 If the Realisable Fees in any Accounting Year during the Concession Period shall fall below the Subsistence Revenue Level as a result of an Indirect Political Event, or a Political Event as set forth in Article XXIX, NHAI agrees to provide to the Concessionaire such shortfall support, by way of a loan ("Revenue Shortfall Loan") with interest thereon @ SBI PLR per annum. Provided, however, that any reserves of the Concessionaire and any sums received or likely to be received by the Concessionaire through insurance claims (except insurance payments for physical loss used to carry out requisite repairs) or payments by NHAI under Article XXIX shall first be deducted and only the balance remaining shall be disbursed as the Revenue Shortfall Loan.

24.2 For the purposes of claiming disbursements on account of Revenue Shortfall loan pursuant to Clause 24.1 above in any Accounting Year, the Concessionaire shall:

(a) Submit a detailed account of the Indirect Political Event or the Political Event, as the case may be, and its impact on total revenues of the Concessionaire as soon as feasible and submit weekly reports thereafter;

(b) Provide to NHAI, the Schedule of Debt Service Payments under the Financing Documents for the Accounting year for which Revenue Shortfall Loan are claimed;

(c) Provide to NHAI the details of O&M Expense budget for such Accounting Year and the expenditure incurred in that year out of such budget;

(d) Within 15 (fifteen) days of the close of each Accounting Year in which the shortfall in the referred to in Clause 24.1 shall occur, provide a certificate from the Statutory Auditors of the Concessionaire certifying the Subsistence Revenue Level, the Realisable Fees and the Revenue Shortfall Loan requirement after deducting reserves of the Concessionaire, if any; and

(e) Submit a written request to NHAI under the hands of a Director of the Concessionaire requesting for disbursement of the Revenue Shortfall Loan to the Concessionaire by payment thereof into the Escrow Account.
24.3 Upon the receipt of the request and documents as set forth in Clause 24.2 above and provided the same is not found by NHAI to be wrong or incorrect, NHAI shall disburse the Revenue Shortfall Loan within 30 days (thirty) thereof.

24.4 In the event Realisable Fees during the first six months of an Accounting Year shall fall as a result of an Indirect Political Event or a Political Event and the amount of such Realisable Fees is less than the Debt Service Payments due for the first six months of such Accounting Year, NHAI shall upon request provide an advance to the Concessionaire for meeting the shortfall in such Debt Service Payments. For claiming such advance, the Concessionaire shall make a demand to NHAI accompanied by a certificate from the Statutory Auditors setting forth the Realisable Fees during the first six months of the Accounting Year, the reserves of the Concessionaire and the outstanding amount on account of Debt Service Payments due in the first six months of such year. The Statutory Auditors shall also certify the amount of advance required by the Concessionaire from NHAI for meeting such Debt Service Payments after deducting such Realisable Fees and the reserves of the Concessionaire. Within 15 (fifteen) days of receiving such demand, NHAI shall disburse the advance due to the Concessionaire at an interest rate equal to SBI PLR. Not later than 15 (fifteen) days after completion of such Accounting Year, the Concessionaire shall either refund such advance with interest to NHAI or adjust it against such Revenue Shortfall Loan as may be due to the Concessionaire under this Article.

24.5 The Revenue Shortfall Loan disbursed by NHAI pursuant hereto and the interest thereon shall be repaid by the Concessionaire in a sum equal to 50% (fifty per cent) of the Net Cash flow of the Concessionaire as and when made and such repayments shall be made in one or more years as necessary.

24.6 Notwithstanding anything to the contrary contained in Clause 24.5, the Concessionaire shall repay the entire Revenue Shortfall Loan and interest thereon at least two years before the expiry of the Concession Period. If any sum remains due or outstanding from the Concessionaire under this Article XXIV at any time during a period of two years preceding the Termination Date, it shall constitute a Concessionaire Event of Default under Article XXXII and NHAI shall be entitled to Terminate this Agreement under Clause 32.2.

XXV. ESCROW ACCOUNT

25.1 The Concessionaire shall within 30 days prior to Financial Close and prior to Equity Support disbursement open and establish the Escrow Account with a Bank (the “Escrow Bank”) and all funds constituting the Financing Package for meeting the Total Project Cost shall be credited to such Escrow Account. During Operations Period all Fees collected by the Concessionaire from the users of the Project Highway shall be...
exclusively deposited therein. In addition, all Fees collected by NHAI in exercise of its
rights under this Agreement during the Concession Period and all disbursements or
payments by NHAI pursuant hereto shall also, subject to the rights of deductions and
appropriations therefrom of NHAI under this Agreement, be deposited by NHAI in the
Escrow Account.

25.2 Disbursements from Escrow Account

25.2.1 The Concessionaire shall give, at the time of the opening of the Escrow Account,
irrevocable instructions by way of an Escrow Agreement substantially in form set forth in
Schedule ’Q’ (the “Escrow Agreement”) to the Escrow Bank instructing, inter alia, that
the deposits into the Escrow Account shall subject to Clause 25.2.3, be appropriated in
the following order every month and if not due in a month then appropriated
proportionately in such month and retained in the Escrow Account and paid out
therefrom in the month when due unless otherwise expressly provided in the instruction
letter:

(a) All taxes due and payable by the Concessionaire;

(b) All expenses in connection with and relevant to the Construction of Project
Highway by way of payment to the EPC Contractor and such other persons as
may be specified in the Financing Documents;

(c) O&M Expenses including Fees collection expenses incurred by the
Concessionaire directly or through O&M Contractor and/or Tolling Contractor, if
any, subject to the items and ceiling in respect thereof as set forth in the
Financing Documents but not exceeding 1/12 (one twelfth) of the annual liability
on this account;

(d) The whole or part of the expense on repair work or O&M Expense including
Fees collection expenses incurred by NHAI on account of exercise of any of its
rights under this Agreement provided Independent Consultant certifies to the
Escrow Bank that NHAI had incurred such expenses in accordance with the
provisions of this Agreement;

(e) All Concession Fees due to NHAI from the Concessionaire under this
Agreement;

(f) Monthly proportionate provision of Debt Service Payments due in an Accounting
Year and payment of Debt Service Payments in the month when due;

(g) Monthly proportionate provision of Net Excess Fees due in an Accounting Year
(which in any month shall be 80% of excess of Fees actually received by the
Concessionaire from the beginning of such Accounting Year until the end of such
month over the Projected Fees (assuming a uniform monthly revenue projection) corresponding to the number of months that have elapsed from the beginning of such Accounting Year) and distribution of such Net Excess Fee in accordance with Clause 7.3 of this Agreement;

(h) Any payments and Damages due and payable by the Concessionaire to NHAI pursuant to this Agreement, including repayment of Revenue Shortfall Loans; and

(i) Balance in accordance with the instructions of the Concessionaire.

25.2.2 The Concessionaire shall not in any manner modify the order of payment specified in this clause 25.2 except with the prior written approval of NHAI.

25.2.3 In the event the Grant, if any, to the Concessionaire shall exceed 10% of the Total Project Cost, all disbursements on account of Total Project Cost other than those to the EPC Contractor in accordance with the EPC Agreement, shall be made in accordance with the express provisions contained in that behalf in the Financing Documents. Provided, however, that if the total of such disbursements exceed 10% of the Total Project Cost, prior written consent of NHAI shall be required in respect of the disbursement arrangements for such excess amounts, and such consent shall not be unreasonably withheld by NHAI.

25.3 Notwithstanding anything to the contrary contained in the Escrow Agreement and subject to the provisions contained in Clauses 33.5 and Article XXXIV, upon Termination of this Agreement, all amounts standing to the credit of the Project Escrow Account shall be appropriated and dealt with in the following order:

(a) all Taxes due and payable by the Concessionaire;

(b) all Concession Fees due and payable to NHAI under this Agreement;

(c) all accrued Debt Service Payment;

(d) any payments and Damages due and payable by the Concessionaire to NHAI pursuant to this Agreement, including Excess Revenue Share, Termination claims and repayment of Revenue Shortfall Loans;

(e) all accrued O&M Expenses;

(f) any other payments required to be made under this Agreement; and
(g) balance, if any, on the instructions of the Concessionaire.

25.4 The instructions contained in the Escrow Agreement shall remain in full force and effect until the obligations set forth in Clause 25.3 have been discharged.

XXVI. STATE SUPPORT AGREEMENT

26.1 The Concessionaire acknowledges that for the performance of its obligations under this Agreement, it requires support and certain services from GOR. The nature and scope of such support and services required by the Concessionaire from GOR are fully described in the draft State Support Agreement set forth at Schedule ‘R’.

26.2 The Concessionaire acknowledges its obligation to enter into the State Support Agreement and accordingly the Concessionaire agrees and undertakes to enter into at its cost and expense the State Support Agreement with NHAI and GOR substantially in form and content as set forth in Schedule ‘R’.

XXVII. INSURANCE

27.1 Insurance during the Construction Period: The Concessionaire shall effect and maintain, or cause to be effected and maintained, at no cost to NHAI during the Construction Period such insurances up to such maximum sums as may be required under and in accordance with the Financing Documents, Applicable Laws and such insurance as the Concessionaire may reasonably consider necessary or desirable in accordance with Good Industry Practice. The Concessionaire shall also effect and maintain such insurance as may be necessary for mitigating the risks that may devolve on NHAI as a consequence of any act of omission by the Concessionaire during the Construction Period.

27.2 Insurance during the Operations Period: Not later than 4 months prior to the anticipated Completion of the Project Highway, the Concessionaire shall obtain and maintain at no cost to NHAI during the Operations Period in respect of the Project Highway and its operations such insurance as may be required under any of the Financing Documents, Applicable Laws and such insurance as the Concessionaire may reasonably consider necessary or desirable in accordance with Good Industry Practice. Provided, however, the level of insurance to be maintained after satisfaction of Senior Lenders’ dues in full, shall be determined on the same principles as applicable for determining the level of Insurance prior to such date. This level shall be agreed with NHAI within 120 days of date of this Agreement.

For the sake of brevity, the aggregate of the maximum sums insured under the insurance taken out by the Concessionaire pursuant to this Article XXVII are herein referred to as
the “Insurance Cover”.

27.3 Evidence of Insurance Cover: All insurance obtained by the Concessionaire in accordance with this Article XXVII shall be maintained with insurer or reinsurers, and on terms consistent with Good Industry Practice. Within thirty days of obtaining any insurance cover, the Concessionaire shall furnish to NHAI, copies of certificates of insurance, copies of the insurance policies signed by an authorised representative of the insurer and copies of all premia payment receipts in respect of such insurance received from each insurance carrier, and such insurance will not be cancelled, changed or not renewed until the expiration of at least 45 (forty five) days after written notice of such cancellation, change of non-renewal has been received by NHAI.

27.4 Remedy on Failure to Insure: If the Concessionaire shall fail to effect and keep in force the insurance for which it is responsible pursuant hereto, NHAI shall have the option to keep in force any such insurance, and pay such premia and recover the costs thereof from the Concessionaire, or for the purposes of computation of payments to the Concessionaire pursuant to Article XXIX treat the insurance cover i.e. the maximum sums which such insurance was providing for had it been in force and effect as being deemed to have been received by the Concessionaire.

27.5 Waiver of Subrogation: All insurance policies supplied by the Concessionaire shall include a waiver of any right of subrogation of the insurers thereunder against, inter alia, NHAI, and its assigns, subsidiaries, affiliates, employees, insurers and underwriters and of any right of the insurers of any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy.

27.6 Concessionaire Waiver: The Concessionaire hereby further releases, assigns and waives any and all rights of recovery against, inter alia, the NHAI, and its affiliates, subsidiaries, employees, successors, permitted assigns, insurers and underwriters, which the Concessionaire may otherwise have or acquire in or from or in any way connected with any loss covered by policies of insurance maintained or required to be maintained by the Concessionaire pursuant to this Agreement (other than third party liability insurance policies) or because of deductible clauses in or inadequacy of limits of any such policies of insurance.

27.7 Application of Insurance Proceeds: The proceeds from all insurance claims, except life and injury, shall be paid to the Concessionaire by credit to the Escrow Account (unless otherwise required by the Financing Documents) who shall, subject to its obligations under the Financing Documents, and notwithstanding anything contained in Article XXV, apply such proceeds for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery or installation of the Project Highway.
XXVIII. ACCOUNTS AND AUDIT

28.1 The Concessionaire shall maintain full accounts of all Fees including Realisable Fees and other revenues derived/collected by it from and on account of use of the Project Highway and of O&M Expenses and other costs paid out of the Project Escrow Account and shall provide copies of the said accounts duly audited and certified by the Concessionaire’s Statutory Auditors within 120 (one hundred twenty) days of the close of each Accounting Year to which they pertain, during the subsistence of this Agreement. Such audited accounts shall form the basis of various payments by either Party under this Agreement. The Concessionaire shall also furnish, within one week of its publication, a certified copy of the audited accounts and annual report published by the Company under the Applicable Laws.

28.2 The Concessionaire shall appoint and have during the subsistence of this Agreement as its Statutory Auditors a firm of Chartered Accountants duly licensed to practice in India out of the mutually agreed list of 10 (ten) independent and reputable firms of Chartered Accountants in India (the “List of Chartered Accountants”). The criteria for preparing the List of Chartered Accountants are set forth in Schedule ‘T’. Subject to a 30 days notice to NHAI and the replacement Statutory Auditors being appointed from the List of Chartered Accountants, the Concessionaire may terminate the appointment of any Statutory Auditor appointed in accordance with this Article. The fees and expenses of the Statutory Auditors shall be borne by the Concessionaire.

28.3 On or before the fifteenth day of April each Year, the Concessionaire shall provide for the preceding Accounting Year a statement duly audited by its Statutory Auditors giving summarised vehicle/user wise information on (i) the traffic count for each category of vehicles using the Project Highway and liable for payment of Fees therefore, and (ii) Fees charged and the amount of Fees received, Realizable Fees and other revenues derived from the Project Highway and such other information as NHAI may reasonably require.

28.4 Notwithstanding anything to the contrary contained in this Agreement, NHAI shall have the right but not the obligation to appoint at its cost another firm of chartered accountants from the List of Chartered Accountants (the “Additional Auditor”) to audit and verify all those matters, expense, costs, realisations and things which the Statutory Auditors of the Concessionaire, are required to do, undertake or certify pursuant to this Agreement.

28.5 Where a Grant has been provided, NHAI shall have the right to appoint for the duration of the Construction Period as Concurrent Auditor a firm of Chartered Accountants from the List of Chartered Accountants (the “Concurrent Auditor”) who shall undertake concurrent audit of the Concessionaire during the Construction Period. The charges and expenses of such Concurrent Auditor shall be borne by the NHAI. After such Construction Period, NHAI may at its option have concurrent audit done at such time and
for such period as NHAI may deem appropriate at its cost and expenses.

28.6 In the event of their being any difference between the finding of the Additional Auditor or the Concurrent Auditor, as the case may be, and the certification provided by the Statutory Auditors of the Concessionaire, such Auditors shall meet to resolve such differences and if they are unable to resolve the same such disputed certification shall be resolved by recourse to the Dispute Resolution Procedure.
FORCE MEJEURE
CHAPTER - VI
FORCE MAJEURE

XXIX. FORCE MAJEURE

29.1 Force Majeure Event: As used in this Agreement, a Force Majeure Event shall mean occurrence in India of any or all of Non Political Event, Indirect Political Event and/or Political Event as defined in Clauses 29.2, 29.3, and 29.4 respectively hereinafter which prevent the Party claiming Force Majeure (the “Affected Party”) from performing its obligations under this Agreement and which act or event is (i) beyond the reasonable control and not arising out of the fault of the Affected Party, (ii) the Affected Party has been unable to overcome such act or event by the exercise of due diligence and reasonable efforts, skill and care, including through expenditure of reasonable sums of money and (iii) has a Material Adverse Effect on the Project.

29.2 Non Political Force Majeure Events: For purposes of Clause 29.1 Non-Political Events shall mean one or more of the following acts or events:

(i) acts of God or events beyond the reasonable control of the Affected Party which could not reasonably have been expected to occur, exceptionally adverse weather conditions, lightning, earthquake, cyclone, flood, volcanic eruption or fire (to the extent originating from a source external to the Site or beyond design specifications for the Construction Works) or landslide;

(ii) strikes or boycotts (other than those involving the Concessionaire, Contractors or their respective employees/ representatives or attributable to any act or omission of any of them) interrupting supplies and services to the Project Highway for a period exceeding a continuous period of 7 (seven) days in an Accounting Year, and not being an Indirect Indian Political Event set forth in Clause 29.3 hereof;

(iii) any failure or delay of a Contractor but only to the extent caused by another Non-Political Event and which does not result in any offsetting compensation being payable to the Concessionaire by or on behalf of such Contractor;

(iv) Any judgement or order of any court of competent jurisdiction or statutory authority in India made against the Concessionaire in any proceedings for reasons other than failure of the Concessionaire to comply with any Applicable Law or Applicable Permits or on account of breach thereof, or of any contract, or enforcement of this Agreement or exercise of any of its rights under this Agreement by NHAI; or
29.3 Indirect Political Force Majeure Events: For purposes of Clause 29.1, Indirect Political Event shall mean one or more of the following acts or events:

(i) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage which prevents collection of Fees by the Concessionaire for a period exceeding a continuous period of 7 (seven) days in an Accounting Year;

(ii) radioactive contamination or ionizing radiation;

(iii) industry wide or state wide or India wide strikes or industrial action which prevent collection of Fees by the Concessionaire for a period exceeding a continuous period of 7 (seven) days in an Accounting Year; or

(iv) any public agitation which prevents collection of Fees by the Concessionaire for a period exceeding a continuous period of 7 (seven) days in an Accounting Year.

29.4 Political Force Majeure Events: For purposes of Clause 29.1, Political Event shall mean one or more of the following acts or events by or on account GOI, NHAI, GOR or any other Governmental Agency:

(i) Change in Law, only when provisions of Article XXXVI cannot be applied;

(ii) expropriation or compulsory acquisition by any Governmental Agency of any Project Assets or rights of the Concessionaire or of the Contractors; or

(iii) unlawful or unauthorised or without jurisdiction revocation of, or refusal to renew or grant without valid cause any consent or approval required by the Concessionaire or any of the Contractors to perform their respective obligations under the Project Agreements (other than a consent the obtaining of which is Condition Precedent) provided that such delay, modification, denial, refusal or revocation did not result from the Concessionaire’s or any Contractor’s inability or failure to comply with any condition relating to grant, maintenance or renewal of such consents or permits.

29.5 Effect of Force Majeure Event before Financial Close: Upon the occurrence of any Force Majeure Event prior to Financial Close as set forth in Article XXII, the following shall apply:

(a) There shall be no Termination except as provided in Clause 29.8;
The date for achieving Financial Close shall be extended by the period for which such Force Majeure event shall subsist; and

The Parties shall bear their respective costs and no Party shall be required to pay to the other Party any costs arising out of such Force Majeure Event.

Effect of Force Majeure Event after Financial Close: Upon occurrence of any Force Majeure Event after Financial Close, the following shall apply:

(a) There shall be no Termination of this Agreement except as provided in Clause 29.8;

(b) Where the Force Majeure Event occurs before COD, the dates set forth in the Project Completion Schedule, and the Concession Period shall be extended by the period for which such Force Majeure Event shall subsist;

(c) Where a Force Majeure Event occurs after COD, the Concessionaire shall continue to make all reasonable efforts to collect Fees, but if he is unable to collect Fees during the subsistence of such Force Majeure Event, the Concession Period shall be extended by the period for which collection of Fees remains suspended on account thereof; and

(d) Costs arising out of or concerning such Force Majeure Event shall be borne in accordance with the provisions of Clause 29.7.

Allocation of costs during subsistence of Force Majeure: Subject to the provisions of clause 29.6, upon occurrence of a Force Majeure Event after Financial Close, the costs arising out of such event shall be allocated as follows:

(a) When the Force Majeure Event is a Non Political Event, the Parties shall bear their respective costs and neither Party shall be required to pay to the other Party any costs arising out of any such Force Majeure Event;

(b) Where the Force Majeure Event is an Indirect Political Event, the costs attributable to such Force Majeure Event and directly relating to the Project (the “Force Majeure Costs”) shall be borne by the Concessionaire to the extent of the Insurance Claims, and to the extent such Force Majeure Costs exceed the Insurance Claims, one half of the same to the extent actually incurred and duly certified by the statutory Auditors of Concessionaire shall be reimbursed by NHAI to the Concessionaire in one lump sum or paid in three equal annual installments with interest @ SBI PLR plus two percent; and

(c) Where the Force Majeure Event is a Political Event, the Force Majeure Costs to the extent actually incurred and certified by the Statutory Auditors of
Concessionaire shall be reimbursed by NHAI to the Concessionaire in one lump sum or paid in three equal annual installments with interest @ SBI PLR plus two percent, provided that no Force Majeure Costs shall be payable by NHAI if the Concession Period is increased under Clause 29.6.

For avoidance of doubt, Force Majeure Costs shall not include loss of Fee revenues or any debt repayment obligations but shall include interest payments on such debt, O&M Expenses and all other costs directly attributable to the Force Majeure Event.

29.8 Termination Notice: If a Force Majeure Event subsists for a period of 180 (one hundred eighty) days or more within a continuous period of 365 (three hundred sixty five) days, either Party may in its sole discretion terminate this Agreement by giving 30 (thirty) days Termination Notice in writing to the other Party without being liable in any manner whatsoever, save as provided in Clause 29.9.

29.9 Termination Payment for Force Majeure Events: Upon Termination of this Agreement pursuant to Clause 29.8, Termination Payment to the Concessionaire shall be made in accordance with the following:

29.9.1 During Construction Period

(a) If the Termination is on account of a Non Political Event, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment an amount equal to 90% of the Debt Due less due insurance claims, if any. Provided that in the event some insurance claims are not admitted and paid, then 90% of such claims shall qualify for being included to determine NHAI's obligation to make the Termination Payment.

(b) If the Termination is on account of an Indirect Political Event, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment an amount equal to Debt Due plus 100% of Equity subscribed and paid in cash less due insurance claims, if any. Provided, however, that if all or any of the insurance claims are not admitted and paid, then 80% (eighty percent) of such unpaid claims shall qualify for being included to determine NHAI's obligation to make the Termination Payment.

(c) If the Termination of this Agreement is on account of a Political Event, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment an amount equal to Debt Due plus 100% of Equity subscribed and paid in cash plus interest on Equity subscribed and paid in cash @ SBI PLR + 3% till date of Termination.
29.9.2 During Operations Period:

a. If the Termination is on account of a Non Political Event, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment an amount equal to 90% of the Debt Due less due insurance claims, if any. Provided that in the event some insurance claims are not admitted and paid, then 90% of such claims shall qualify for being included to determine NHAI’s obligation to make the Termination Payment.

b. If the Termination is on account of an Indirect Political Event, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment an amount equal to Debt Due plus 75% of net present value of future cashflows to Equity as set out in Schedule ‘Y’ computed at 17.95% on the date of Termination less due cash balance on the date of Termination and due insurance claims. Further, if all or any of the insurance claims are not admitted and paid, then 80% (eighty percent) of such unpaid claims shall qualify for being included to determine NHAI’s obligation on the Termination Payment. However, total Termination Payments as calculated above shall not exceed 75% of 1.5 times of the amount arrived at by subtracting the NHAI Grant from the Total Project Cost.

c. If the Termination of this Agreement is on account of a Political Event, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment an amount equal to Debt Due plus 100% of net present value of future cashflows to Equity as set out in Schedule ‘Y’ computed at 17.95% on the date of Termination less due cash balance on the date of Termination. However, total Termination Payments as calculated above shall not exceed 1.5 times of the amount arrived at by subtracting the NHAI Grant from the Total Project Cost.

29.10 Dispute Resolution: In the event that the Parties are unable to agree in good faith about the occurrence or existence of a Force Majeure Event, such dispute shall be finally settled in accordance with the Dispute Resolution Procedure, provided however that the burden of proof as to the occurrence or existence of such Force Majeure Event shall be upon the Party claiming relief and/or excuse on account of such Force Majeure Event.

29.11 Liability for other losses, damages etc: Save and except as expressly provided in this Article XXIX, neither Party hereto shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, cost, expense, claims, demands and proceedings relating to or arising out of occurrence or existence of any Force Majeure Event or exercise of any right pursuant to this Article XXIX.

29.12 Duty to Report: The Affected Party shall discharge the following obligations in relation to reporting the occurrence of a Force Majeure Event to the other Party:
(a) The Affected Party shall not claim any relief for or in respect of a Force Majeure Event unless it shall have notified the other Party in writing of the occurrence of the Force Majeure Event as soon as reasonably practicable, and in any event within 7 (seven) days after the Affected Party knew, or ought reasonably to have known, of its occurrence and the probable material effect that the Force Majeure Event is likely to have on the performance of its obligations under this Agreement.

(b) Any notice pursuant to this Clause 29.12 shall include full particulars of:

(i) the nature and extent of each Force Majeure Event which is the subject of any claim for relief under this Article XXIX with evidence in support thereof;

(ii) the estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party’s performance of its obligations under this Agreement;

(iii) the measures which the Affected Party is taking or proposes to take, to alleviate the impact of such Force Majeure Event; and

(iv) any other information relevant to the Affected Party’s claim.

(c) For so long as the Affected Party continues to claim to be affected by such Force Majeure Event, it shall provide the other Party with regular (and not less than weekly) written reports containing information as required by this Clause 29.12, and such other information as the other Party may reasonably request the Affected Party to provide.

29.13 Excuse from performance of obligations: If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations to the extent it is unable to perform on account of such Force Majeure Event provided that:

(a) The suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event;

(b) The Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to cure the same with due diligence, and

(c) When the Affected Party is able to resume performance of its obligations under this Agreement, it shall give to the other Party written notice to that effect and shall promptly resume performance of its obligations hereunder.
SUSPENSION AND TERMINATION
CHAPTER – VII
SUSPENSION AND TERMINATION

XXX. MATERIAL BREACH AND SUSPENSION

30.1 If the Concessionaire shall be in Material Breach of this Agreement NHAI, shall be entitled in its sole discretion and without prejudice to its other rights and remedies under this Agreement including its right of Termination hereunder, to (i) suspend all or any of the rights of the Concessionaire under this Agreement including the Concessionaire’s right to collect and appropriate all Fees and other revenues from the Project Highway, and (ii) exercise the rights of the Concessionaire under this Agreement itself or authorise any other person to exercise the same during such suspension. Such suspension by NHAI shall be by a communication in writing to the Concessionaire and shall be effective forthwith upon the issue thereof to the Concessionaire. Any Fees or revenues collected by or on behalf of NHAI during such suspension shall be deposited in the Escrow Account to the exclusion of the Concessionaire. Provided, however, that the period of such suspension under this Article XXX shall not exceed 120 (one hundred twenty) days.

30.2 Subject to clause 30.1, NHAI shall have the right to utilise the proceeds of Fees and other revenues for meeting the costs incurred by NHAI to remedy and rectify the cause of such suspension and for defraying the O&M Expenses during such suspension period. Provided, however, that if the Concessionaire is making diligent efforts to remedy and rectify such cause, then NHAI shall allow the Concessionaire reasonable time and opportunity for such remedy or rectification.

30.3 The suspension of the rights of the Concessionaire by NHAI pursuant to Clause 30.1 above shall be revoked by NHAI forthwith upon the Concessionaire having remedied the Material Breach during such suspension period to the satisfaction of NHAI unless in the meantime this Agreement has been terminated by NHAI in accordance with Article XXXII.

30.4 At any time during the period of suspension under this Article XXX, the Concessionaire may in writing notify to NHAI that it does not intend to cure the breach or default that had caused such suspension. Within 7 (seven) days of receipt of such notice, NHAI shall terminate this Agreement as if a Material Breach of this Agreement had occurred on account of a Concessionaire Event of Default.

XXXI. COMPENSATION FOR BREACH OF AGREEMENT

31.1 In the event of Concessionaire being in material default of this Agreement and such default is cured before Termination, the Concessionaire shall pay to NHAI, as
compensation, all direct additional costs suffered or incurred by NHAI arising out of such material default by the Concessionaire, in one lumpsum within 30 (thirty) days of receiving the demand or at the Concessionaire’s option in 3 (three) equal semi-annual installments with interest @ SBI PLR plus 2% (two per cent).

31.2 In the event of NHAI being in material default of this Agreement and such default is cured before Termination, NHAI shall pay to the Concessionaire as compensation, all direct additional costs suffered or incurred by the Concessionaire arising out of such material default by NHAI, in one lumpsum within 30 (thirty) days of receiving the demand or at NHAI’s option in 3 (three) equal semi-annual installments with interest @ SBI PLR plus 2% (two per cent).

XXXII. TERMINATION

32.1 Termination for the Concessionaire Event of Default.

32.1.1 Concessionaire Event of Default

The following events shall constitute an event of default by the Concessionaire (a “Concessionaire Event of Default”) unless such Concessionaire Event of Default has occurred as a result of NHAI Event of Default or a Force Majeure Event;

(1) The Concessionaire fails to achieve Financial Close in accordance with the provisions of Article XXII;

(2) The Concessionaire fails to achieve any Project milestone other than Scheduled Project Completion Date within the period set forth in Schedule ‘H’ and fails to cure such default within a period of 180 (one hundred and eighty) days from the date of its occurrence.

(3) The Concessionaire is in Material Breach of this Agreement;

(4) The Concessionaire commits default in complying with any of the terms and conditions of this Agreement, save and except those defaults in respect of which Cure Period has been expressly provided in this Agreement and fails to remedy or rectify the same within the period provided in a notice in this behalf from NHAI which shall:

(i) require the Concessionaire to remedy the breach or breaches referred to in such notice within 1 (one) month (or such longer period as may be agreed by the NHAI at its absolute discretion); or
(ii) permit the Concessionaire to put forward within 15 days of such notice a reasonable programme for the remedying of the breach or breaches, such programme to specify in reasonable detail the manner in which such breach or breaches is or are proposed to be remedied and the latest date by which it is proposed that such breach or all such breaches shall be remedied.

(5) The Concessionaire creates any Encumbrance, charges or lien in favour of any person save and except as otherwise expressly permitted under Clause 35.2;

(6) The holding of the Consortium Members falls below the minimum prescribed under Clause 11.1 (xiii) and the Concessionaire does not suo moto cure such default within 90 (ninety) days of its occurrence;

(7) The transfer, pursuant to law of either (a) the rights and/or obligations of the Concessionaire under any of the Project Agreements, or (b) all or material part of the assets or undertaking of the Concessionaire except where such transfer in the reasonable opinion of NHAI does not affect the ability of the Concessionaire to perform, and the Concessionaire has the financial and technical capability to perform, its material obligations under the Project Agreements;

(8) A resolution is passed by the shareholders of the Concessionaire for the voluntary winding up of the Concessionaire;

(9) The Concessionaire is adjudged bankrupt or insolvent or if a trustee or receiver is appointed for the Concessionaire or for any of its property that has a material bearing on the Project;

(10) Any petition for winding up of the Concessionaire is admitted by a court of competent jurisdiction or the Concessionaire is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction provided that, as part of such amalgamation or reconstruction, the property, assets and undertaking of the Concessionaire are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of the Concessionaire under this Agreement and the Project Agreements, and provided that:

(i) the amalgamated or reconstructed entity has the technical capability and operating experience necessary for the performance of its obligations under this Agreement and the Project Agreements;

(ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under this Agreement and the Project
Agreements and has a credit worthiness at least as good as that of the Concessionaire as at the Financial Close; and

(iii) each of the Project Agreements remains in full force and effect;

(11) The Concessionaire is in Material Breach of any of the Project Agreements;

(12) An event of default of the Concessionaire under any of the Financing Documents has occurred or any of the Senior Lenders has recalled its loan under any of the Financing Documents;

(13) The Concessionaire abandons the operations of the Project Highway for more than 15 (fifteen) consecutive days without the prior consent of NHAI, provided that the Concessionaire shall be deemed not to have abandoned such operation if such abandonment was (i) as a result of Force Majeure Event and is only for the period such Force Majeure is continuing, or (ii) is on account of a breach of its obligations by NHAI.

(14) The Concessionaire repudiates this Agreement or otherwise evidences an intention not to be bound by this Agreement;

(15) The Concessionaire suffers an execution being levied on any of its assets/equipment causing a Material Adverse Effect on the Project and allows it to be continued for a period of 15 (fifteen) days;

(16) The Concessionaire has delayed any payment that has fallen due under this Agreement if such delay exceeds 90 (ninety) days; or

(17) The Concessionaire is in breach of its obligation to repay the Revenue Shortfall Loans in accordance this Agreement.

32.1.2 Save and except as otherwise provided in Clause 32.2, and without prejudice to any other right or remedy which NHAI may have in respect thereof under this Agreement, upon the occurrence of any breach or default by the Concessionaire under this Agreement including any Concessionaire Event of Default, NHAI shall be entitled to terminate this Agreement by a communication in writing (the “Termination Notice”) to the Concessionaire if the Concessionaire has failed to cure such breach or default within the period provided for the same in this Agreement provided that before issuing the Termination Notice, NHAI shall by a notice in writing inform the Concessionaire of its intention to issue the Termination Notice (the “Preliminary Notice”) and grant 15 (fifteen) days time to the Concessionaire to make its representation, if any, against such intended Termination Notice and shall after the expiry of said 15 (fifteen) day period
whether or not it is in receipt of such representation, in its sole discretion issue the Termination Notice.

32.1.3 Subject to Clause 32.2, the following shall apply in respect of cure of any of the defaults and/or breaches of this Agreement.

(i) The Cure Period shall commence from the date on which a notice in writing is delivered by NHAI to the Concessionaire asking the latter to cure the breach or default specified in such notice.

(ii) The Cure Period provided in this Agreement shall not relieve the Concessionaire from liability for Damages caused by its breach or default;

(iii) The Cure Period shall not in any way be extended by any period of suspension under this Agreement;

(iv) If the cure of any breach by the Concessionaire requires any reasonable action by Concessionaire that must be approved by NHAI or the Independent Consultant hereunder the applicable Cure Period (and any liability of the Concessionaire for damages incurred) shall be extended by the period taken by NHAI or the Independent Consultant to accord their required approval.

32.2 Notwithstanding anything to the contrary contained in this Agreement, in the event of the Concessionaire being in default under any of the provisions hereof expressly providing for Termination under or in accordance with this Clause 32.2, NHAI shall be entitled to terminate this Agreement forthwith by issuing a Termination Notice to the Concessionaire and upon issue of such Termination Notice by NHAI this Agreement shall stand terminated forthwith. Provided, however, that prior to such Termination, NHAI shall by notice grant to the Concessionaire a Cure Period of one month for curing the relevant breach or default of the provisions of this Agreement.

32.3 Upon Termination by NHAI on account of occurrence of Concessionaire Event of Default during the Operations Period, the NHAI shall pay to the Concessionaire by way of Termination Payment an amount equal to 90% (ninety per cent) of the Debt Due less insurance claims, if any, provided, however, that if all or any of the insurance claims are not admitted and paid, then 80% (eighty per cent) of such unpaid claims shall qualify for being included to determine NHAI's obligation to make the Termination Payment.

32.4 Termination for NHAI Event of Default.

32.4.1 The Concessionaire may after giving 90 (ninety) days notice in writing to NHAI terminate this Agreement upon the occurrence and continuation of any of the following
events (each a "NHAI Event of Default"), unless any such NHAI Event of Default has occurred as a result of Concessionaire Event of Default or due to a Force Majeure Event.

(1) NHAI is in breach of this Agreement and such breach has a Material Adverse Effect on the Concessionaire and NHAI has failed to cure such breach or take effective steps for curing such breach within 90 (ninety) days of receipt of notice in this behalf from the Concessionaire;

(2) NHAI repudiates this Agreement or otherwise evidences an irrevocable intention not to be bound by this Agreement;

(3) GoI or GOR or any Governmental Agency have by an act of commission or omission created circumstances that have a Material Adverse Effect on the performance of its obligations by the Concessionaire and have failed to cure the same within 90 (ninety) days of receipt of notice by NHAI in this behalf from the Concessionaire;

(4) NHAI has delayed any payment that has fallen due under this Agreement if such delay exceeds 90 (ninety) days.

32.4.2 Upon Termination by the Concessionaire on account of an NHAI Event of Default, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment a sum equal to:

32.4.2.1 Debt Due plus 100% of Equity subscribed and paid in cash plus interest on Equity subscribed and paid in cash @ SBI PLR + 3% till date of Termination during Construction Period

32.4.2.2 Debt Due plus 100% of net present value of future cashflows to Equity as set out in Schedule 'Y' computed at 17.95% on the date of Termination less due cash balance on the date of Termination during Operations Period. However, total Termination Payments as calculated in this Clause 32.4.2.2 shall not exceed 1.5 times of the amount arrived at by subtracting the NHAI Grant from the Total Project Cost.

32.5 Upon Termination of this Agreement for any reason whatsoever, NHAI shall:

(i) take possession and control of Project Highway forthwith;

(ii) take possession and control forthwith of any materials, construction plant, implements, stores etc., which belong to the Concessionaire, on or about the Site;

(iii) restrain the Concessionaire and any person claiming through or under the Concessionaire from entering upon the Site or any part of the Project Highway;
and/or

(iv) succeed upon election by NHAI without the necessity of any further action by the Concessionaire, to the interests of the Concessionaire under such of the Project Agreement as NHAI may in its discretion deem appropriate and shall upon such election be required to compensate such contractors only for compensation accruing and becoming due and payable to them under the terms of their respective Project Agreements from and after the date NHAI elects to succeed to the interests of the Concessionaire as aforesaid. All sums claimed by such Contractors as being due and owing for work and services performed or accruing on account of any act, omission or event prior to such date shall constitute debt between the Concessionaire and such Contractors and NHAI shall in no way or manner be liable or responsible for such sums.

32.6 Termination Payments: The Termination Payment pursuant to this Agreement shall become due and payable to the Concessionaire by NHAI within thirty days of a demand being made by the Concessionaire with the necessary particulars duly certified by the Statutory Auditors. If NHAI fails to disburse the full Termination Payment within 30 (thirty) days, the amount remaining unpaid shall be disbursed along with interest @ SBI PLR plus two per cent for the period of delay on such amount.

32.7 Mode of Payment: Payment of compensation of costs by NHAI pursuant to this Article XXXII shall be made by way of credit to the Escrow Account and such payment shall constitute valid discharge of NHAI’s obligations for Termination Payment hereunder.

32.8 Notwithstanding anything to the contrary contained in this Agreement, any Termination pursuant to the provisions of this Agreement shall be without prejudice to accrued rights of either Party including its right to claim and recover money damages and other rights and remedies which it may have in law or contract. All rights and obligations of either Party under this Agreement, including without limitation Termination Payments and Divestment procedures, shall survive the Termination of this Agreement to the extent such survival is necessary for giving effect to such rights and obligations.

XXXIII. DIVESTMENT OF RIGHTS AND INTERESTS

33.1 Upon Termination of this Agreement, the Concessionaire shall comply with the following:

(a) notify to NHAI forthwith the location and particulars of all Project Assets;
(b) deliver forthwith actual or constructive possession of the Project Highway free and clear of all Encumbrances and execute such deeds, writings and documents as may be required by the NHAI for fully and effectively divesting the
Concessionaire of all of the rights, title and interest of the Concessionaire in the Project Highway and conveying the Project Highway;

(c) comply with the Divestment Requirements set out in Clause 33.2 except in case if Termination of this Agreement is due to NHAI Event of Default, Indirect Political Event or Political Event. In case of Termination due to NHAI Event of Default, Indirect Political Event or Political Event, the Concessionaire shall have implemented the maintenance schedule as well as any repairs pointed out by the Independent Consultant in its O&M Inspection Report prior to date of Termination Notice. In case of Termination due to Non-Political Force Majeure Event, the Divestment Requirements shall be agreed between NHAI and the Concessionaire; and

(d) pay all transfer costs and stamp duty applicable on handback of project facilities except in case the Project is being transferred due to NHAI Event of Default, Indirect Political Event, Political Event or expiry of Concession period, where NHAI shall be responsible for transfer costs and stamp duty, if any. For clarification of doubt, transfer costs in this Clause relate to taxes and duties applicable at transfer of Project Highway, if any.

33.2 Subject to Clause 33.1, upon Termination of this Agreement, the Concessionaire shall comply and conform to the following Divestment Requirements in respect of the Project Highway:

(i) all Project Assets including the road, pavement, structure and equipment shall have been renewed and cured of all defects and deficiencies as necessary so that the Project Highway is compliant with the Specifications and Standards set forth in this Agreement;

(ii) all sections of each traffic lane (the “Carriageway”) of the Project Highway shall have a roughness index of not more than 2500 mm per km and shall be free from defects in accordance with O&M requirements;

(iii) all lamps shall be in working condition;

(iv) the Concessionaire delivers relevant records and reports pertaining to the Project Highway and its design, engineering, construction, operation, and maintenance including all operation and maintenance records and programmes and manuals pertaining thereto and complete as built Drawings on the Divestment Date;

(v) the Concessionaire executes such deeds of conveyance, documents and other writings as the NHAI may reasonably require to convey, divest and assign all the rights, title and interest of the Concessionaire in the Project Highway free from
all Encumbrances absolutely and free of any charge or tax unto the NHAI or its Nominee; and

(vi) the Concessionaire complies with all other requirements as may be prescribed under Applicable Laws to complete the divestment and assignment of all the rights, title and interest of the Concessionaire in the Project Highway free from all Encumbrances absolutely and free of any charge or tax to NHAI or its nominee.

33.3 Not earlier than 3 (three) months before the expiry of the Concession Period but not later than 30 (thirty) days before such expiry, or in the event of earlier Termination of this Agreement, immediately upon but not later than 15 (fifteen) days from the date of issue of Termination Notice, the Independent Consultant shall verify, in the presence of a representative of the Concessionaire, compliance by the Concessionaire with the Divestment Requirements set forth in Clause 33.2 in relation to the Project Highway and, if required, cause appropriate tests to be carried out at the Concessionaire’s cost for determining the compliance therewith. If any shortcomings in the Divestment Requirements are found by either Party, it shall notify the other of the same and the Concessionaire shall rectify the same at its cost. The provisions of Article XXXIV shall apply mutatis mutandis in relation to repair or curing of defects under this Article XXXIII.

33.4 Upon the Concessionaire conforming to all Divestment Requirements and handing over actual or constructive possession of the Project Highway to NHAI or a person nominated by NHAI in this regard, NHAI shall issue a certificate substantially in the form set forth in Schedule ‘V’ (the “Vesting Certificate”) which will have the effect of constituting evidence of divestment of all rights, title and lien in the Project Highway by the Concessionaire and their vesting in NHAI pursuant hereto. Issue of the Vesting Certificate shall not be unreasonably withheld by NHAI. The divestment of all rights, title and lien in the Project Highway shall be deemed to be complete on the date when all the Divestment Requirements have been fulfilled or the Vesting Certificate has been issued, whichever is earlier, it being expressly agreed that any defect or deficiency in any Divestment Requirement shall not in any manner be construed or interpreted as restricting the exercise of any rights by NHAI or its nominee on or in respect of the Project Highway on the footing as if all Divestment Requirements have been complied with by the Concessionaire.

33.5 Notwithstanding anything to the contrary contained in this Agreement, any Termination Payments made by NHAI into the Escrow Account shall not be withdrawn therefrom for any purpose whatsoever until the Vesting Certificate has been issued by NHAI under this Article. Provided, however, that the aforesaid restriction shall not apply to withdrawals from the Escrow Account in favour of the Senior Lenders to the extent of Debt Due.
MISCELLANEOUS
XXXIV. DEFECTS LIABILITY

34.1 Not less than 30 months nor more than 36 months prior to the expiry of the Concession Period, the Concessionaire and the Independent Consultant shall conduct a joint inspection (the “Initial Inspection”) of the Project Highway and all Project Facilities.

34.2 Within 90 days after the completion of the Initial Inspection, the Concessionaire shall provide to the Independent Consultant a report on the condition of the Project Highway and the Project Facilities and a notice setting out the Concessionaire’s proposals as to the renewal works required to comply with the Divestment Requirements.

34.3 The Independent Consultant may, within 90 days after receipt of the notice from the Concessionaire in accordance with Clause 34.2, by notice to the Concessionaire object to the proposals giving details of the grounds for such objection and shall give the Independent Consultant’s proposals in respect of the renewal works.

34.4 If no agreement is reached between the Concessionaire and the Independent Consultant within 30 days of receipt of such notice, then either the Concessionaire or the Independent Consultant may refer the matter to the Disputes Resolution Procedure.

34.5 Upon agreement or determination in accordance with the Disputes Resolution Procedure, the Concessionaire shall carry out the renewal works at its own cost.

34.6 Not less than 9 months nor more than 12 months prior to the expiry of the Concession Period, the Concessionaire and the Independent Consultant shall conduct a joint inspection (the “Second Inspection”) of all elements of the Project Highway and Project Facilities (whether or not the Renewal Works have been carried out).

34.7 Within 30 days after the completion of the Second Inspection, the Concessionaire shall provide to the Independent Consultant a report on the condition of the Project Highway and Project Facilities and a notice setting out any revisions or additions to the renewal works required in order to ensure compliance with the Divestment Requirements.

34.8 The Independent Consultant may, within 30 days after receipt of the notice from the Concessionaire in accordance with Clause 34.7, by notice to the Concessionaire object to the proposed revisions giving details of the grounds for such objection and shall give the Independent Consultant proposals in respect of such matters.
34.9 If no agreement is reached between the Concessionaire and the Independent Consultant within 30 days of receipt of such notice, then either the Concessionaire or the Independent Consultant may refer the matter to the Dispute Resolution Procedure.

34.10 Upon agreement or determination in accordance with the Disputes Resolution Procedure, the Concessionaire shall carry out the renewal works (as so revised) at its own cost.

34.11 From the date which is 2 years prior to the expiry of the Concession Period a sum equal to the Fees realisable during the last two years of the Concession Period for a traffic volume calculated at the rate of 10,000 (ten thousand) PCUs per day per year or a higher sum estimated by the Independent Consultant for Renewal Works, shall notwithstanding anything to the contrary contained in this Agreement, be retained in the Escrow Account provided that if a Bank Guarantee of an equivalent sum in the form and content acceptable to NHAI has been furnished by the Concessionaire to NHAI, no such retention shall be made.

34.12 If following the Second Inspection, it is agreed or determined that no renewal works are required, then within 14 days of such agreement, 50% of the sums retained in accordance with Clause 34.11 shall be released from the Escrow Account to the Concessionaire.

34.13 Within 14 days after the issue of the Vesting Certificate issued in accordance with Article XXXIII the sums retained in accordance with Clause 34.11 shall be released from the Escrow Account to the Concessionaire.

XXXV. ASSIGNMENTS AND CHARGES

35.1 Subject to Clauses 35.3 and 35.4, this Agreement shall not be assigned by the Concessionaire save and except with prior consent in writing of NHAI, which consent NHAI shall be entitled to decline without assigning any reason whatsoever.

35.2 Subject to Clause 35.3, the Concessionaire shall neither create nor permit to subsist any encumbrance over or otherwise transfer or dispose of all or any of its rights and benefits under this Agreement or any Project Agreements to which Concessionaire is a party except with prior consent in writing of NHAI, which consent NHAI shall be entitled to decline without assigning any reason whatsoever.

35.3 Restraint set forth in Clauses 35.1 and 35.2 shall not apply to:

(i) liens arising by operation of law (or by an agreement evidencing the same) in the ordinary course of business of the Project Highway;
mortgages/pledges/hypothecation of goods/assets other than Project Assets, and those covered by the Substitution Agreement and their related documents of title arising or created in the ordinary course of business of the Project Highway and as security only for indebtedness to the Senior Lenders under the Financing Documents and/or for working capital arrangements for the Project Highway;

assignment of rights, title and interest to or in favour of the Lenders pursuant to and in accordance with the Substitution Agreement in respect of financing by the Senior Lenders under the Financing Documents for the Project; and

liens or encumbrances required by any Applicable Law.

35.4 Senior Lenders may exercise the rights of step-in or substitution as provided in the Substitution Agreement to be entered into among the Concessionaire, NHAI and Senior Lenders in the form set forth in Schedule ‘U’ provided that the person substituting the Concessionaire shall be deemed to be the Concessionaire under this Agreement and shall enjoy all rights and be responsible for all obligations under this Agreement as if it were the Concessionaire. Provided, however, that in the event of such step-in or substitution, an additional Cure Period of 90 (ninety) days shall be provided by NHAI to enable the substitute concessionaire to cure any breach or default subsisting on the day of such step-in or substitution. Provided further that if the Senior Lenders step in to operate and manage the Concession for a period not exceeding 90 (ninety) days, their liabilities shall be restricted to the obligations relating to and arising during such 90 (ninety) days period.

35.5 Notwithstanding anything to the contrary contained in this Agreement NHAI may assign any of its rights and benefits and/or obligations under this Agreement pursuant to any direction of GOI or by operation of law or in the course of its own business.

XXXVI. CHANGE IN LAW

36.1 If as a result of Change in Law, the Concessionaire suffers an increase in costs or reduction in net after tax return or other financial burden, the aggregate financial effect of which exceeds Rs.10 million (Rupees ten million) in any Accounting Year, the Concessionaire may notify NHAI and propose amendments to this Agreement so as to put the Concessionaire in the same financial position as it would have occupied had there been no such Change in Law resulting in such cost increase, reduction in return or other financial burden as aforesaid. Upon notification by the Concessionaire as aforesaid, the Parties shall meet as soon as reasonably practicable but no later than 30 (thirty) days and either agree on amendments to this Agreement or on alternative arrangements to implement the foregoing.
Provided that if no agreement is reached as aforesaid by the Parties within 90 (ninety) days of the meeting pursuant to this Clause 36.1, the Concessionaire may by notice in writing require NHAI to pay an amount that would put the Concessionaire in the same financial position it would have occupied had there been so such Change in Law resulting in such cost increase, reduction in return or other financial burden as aforesaid. Such notice shall be accompanied by necessary particulars duly certified by the Statutory Auditors of the Concessionaire. NHAI shall make payment of such compensation within 15 (fifteen) days of receiving such notice or with interest @ SBI PLR if the payment thereof is delayed beyond such 15 (fifteen) days. If NHAI shall dispute the quantum of such compensation claim of the Concessionaire, the same shall be finally settled in accordance with the Dispute Resolution Procedure.

36.2 If as a result of Change in Law, the Concessionaire enjoys a reduction in costs or increase in net after tax return or other financial benefit, the aggregate financial effect of which exceeds Rs.10 million (Rupees ten million) in any Accounting Year, NHAI may so notify the Concessionaire and propose amendments to this Agreement so as to put the Concessionaire in the same financial position as it would have occupied had there been so such Change in Law resulting in such decreased cost, increase in return or other financial benefit as aforesaid. Upon notification by the NHAI as aforesaid, the Parties shall meet as soon as reasonably practicable but no later than 30 (thirty) days and either agree on such amendments to this Agreement or on alternative arrangements to implement the foregoing.

Provided that if no agreement is reached as aforesaid by the Parties within 90 (ninety) days of the meeting pursuant to this Clause 36.2, NHAI may by notice in writing require the Concessionaire to pay an amount that would put the Concessionaire in the same financial position it would have occupied had there been no such Change in Law resulting in such decreased cost, increase in return or other financial benefit as aforesaid. Such notice shall be accompanied by necessary particulars duly certified by the NHAI Representative. The Concessionaire shall make such payment within 15 (fifteen) days of receiving such notice or with interest @ SBI PLR if the payment is delayed beyond such 15 (fifteen) days. If the Concessionaire shall dispute such claim of NHAI, the same shall be finally settled in accordance with the Dispute Resolution Procedure.

36.3 Notwithstanding anything to the contrary contained in this Agreement, NHAI shall not be liable to reimburse to the Concessionaire any sums on account of any Change in Taxes if the same are recoverable from the users of the Project Highway or if the aggregate financial effect of such changes in any Accounting Year is less than or equal to Rs.10 million (Rupees ten million).
XXXVII. LIABILITY AND INDEMNITY

37.1 General Indemnity

(i) The Concessionaire will indemnify, defend and hold NHAI harmless against any and all proceedings, actions and, third party claims (other than a claim by NHAI or GOI for loss, damage and expense of whatever kind and nature arising out of the design, engineering, construction, procurement, Operation and Maintenance of the Project Highway or arising out of a breach by Concessionaire of any of its obligations under this Agreement except to the extent that any such claim has arisen due to NHAI Event of Default).

(ii) NHAI will, indemnify, defend and hold harmless the Concessionaire against any and all proceedings, actions, third party claims for loss, damage and expense of whatever kind and nature arising out of defect in title and/or the rights of NHAI in the land comprised in the Site adversely affecting the performance of the Concessionaire’s obligations under this Agreement and/or arising out of acts done in discharge of their lawful functions by NHAI, its Officers, servants, agents, subsidiaries and contractors (“NHAI Indemnified Persons”) including NHAI Events of Default except to the extent that any such claim has arisen due to a negligent act or omission, breach of contract or breach of statutory duty on the part of the Concessionaire, its Subsidiaries, affiliates, contractors, servants or agents including due to Concessionaire Event of Default.

37.2 Without limiting the generality of Clause 37.1 the Concessionaire shall fully indemnify, save harmless and defend NHAI including its officers, servants, agents and subsidiaries from and against any and all loss and damages arising out of or with respect to (a) failure of the Concessionaire to comply with Applicable Laws and Applicable Permits, (b) payments of taxes relating to the Concessionaire contractors, suppliers and representatives, income or other taxes required to be paid by the Concessionaire without reimbursement hereunder, or (c) non-payment of amounts due as a result of materials or services furnished to the Concessionaire or any of its Contractors which are payable by the Concessionaire or any of its contractors.

37.3 Without limiting the generality of the provisions of this Article XXXVII, the Concessionaire shall fully indemnify, save harmless and defend the NHAI indemnified Person from and against any and all damages which the NHAI Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any materials, information, design or process used by the Concessionaire or by the Concessionaire's
Contractors in performing the Concessionaire’s obligations or in any way incorporated in or related to the Project. If in any such suit, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Concessionaire shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the suspension of the injunction or restraint order. If, in any such suit claim or proceedings, the Project, or any part, thereof or comprised therein is held to constitute an infringement and its use is permanently enjoined, the Concessionaire shall promptly make every reasonable effort to secure for NHAI a licence, at no cost to NHAI, authoring continued use of the infringing work. If the Concessionaire is unable to secure such licence within a reasonable time, the Concessionaire shall, at its own expense and without impairing the specifications and standards either replace the affected work, or part, or process thereof with non-infringing work or parts or process, or modify the same so that it becomes non-infringing.

37.4 In the event that either Party receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under this Article XXXVII (the ‘Indemnified Party’) it shall notify the other Party (“Indemnifying Party”) within 14 (fourteen) days of receipt of the claim and shall not settle or pay the claim without the prior approval of the Indemnifying Party, such approval not to be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim it may conduct the proceedings in the name of the Indemnified Party subject the Indemnified Party being secured against any costs involved to its reasonable satisfaction.

37.5 Defence of Claims

37.5.1 The Indemnified Party shall have the right, but not the obligation, to contest, defend and litigate any claim, action, suit or proceeding by any third party alleged or asserted against such party in respect of, resulting from, related to or arising out of any matter for which it is entitled to be indemnified hereunder and their reasonable costs and expenses shall be indemnified by the Indemnifying Party. If the Indemnifying Party acknowledges in writing its obligation to indemnify the person indemnified in respect of loss to the full extent provided by this Article XXXVII, the Indemnifying Party shall be entitled, at its option, to assume and control the defence of such claim, action, suit or proceeding liabilities, payments and obligations at its expense and through counsel of its choice provided it gives prompt notice of its intention to do so to the Indemnified Party and reimburses the Indemnified Party for the reasonable cost and expenses incurred by the Indemnified Party prior to the assumption by the Indemnifying Party of such defence. The Indemnifying Party shall not be entitled to settle or compromise any claim, action, suit or proceeding without the prior written consent of the Indemnified Party unless the Indemnifying Party provides such security to the Indemnified Party as shall be reasonably required by the Indemnified Party to secure, the loss to be indemnified hereunder to the extent so compromised or settled.
37.5.2 If the Indemnifying Party has exercised its rights under Clause 37.4, the Indemnified Party shall not be entitled to settle or compromise any claim, action, suit or proceeding without the prior written consent of the Indemnifying Party (which consent shall not be unreasonably withheld or delayed).

37.5.3 If the Indemnifying Party exercises its rights under Clause 37.4 then the Indemnified Party shall nevertheless have the right to employ its own counsel and such counsel may participate in such action, but the fees and expenses of such counsel shall be at the expense of such Indemnified Party, when and as incurred, unless:

(i) the employment of counsel by such party has been authorised in writing by the Indemnifying Party; or

(ii) the Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defence of such action; or

(iii) the Indemnifying Party shall not in fact have employed independent counsel reasonably satisfactory to the Indemnified Party to assume the defence of such action and shall have been so notified by the Indemnified Party; or

(iv) the Indemnified Party shall have reasonably concluded and specifically notified the Indemnifying Party either:

(a) that there may be specific defences available to it which are different from or additional to those available to the Indemnifying Party; or

(b) that such claim, action, suit or proceeding involves or could have a material adverse effect upon it beyond the scope of this Agreement;

provided that if clauses (ii), (iii) or (iv) shall be applicable, counsel for the Indemnified Party shall have the right to direct the defence of such claim, action, suit or proceeding on behalf of the Indemnified Party and the reasonable fees and disbursements of such counsel shall constitute legal or other expenses hereunder.

XXXVIII. RIGHTS AND TITLE OVER THE SITE

38.1 The Concessionaire shall have exclusive rights to the use of the Site in accordance with the provisions of this Agreement and for this purpose it may regulate the entry and use of the Project Highway by third parties.
38.2 The Concessionaire shall allow access to, and use of the Site for telegraph lines, electric lines or such other public purposes as NHAI may specify. Where such access or use causes any damage to the Project Highway and consequent financial loss to the Concessionaire, it may seek compensation or damages from such user of the Site as per Applicable Laws.

38.3 The Concessionaire shall not be liable to pay any property taxes for the Site.

38.4 For the purposes of claiming tax depreciation, the property representing the capital investment made by the Concessionaire shall be deemed to be acquired and owned by the Concessionaire.

38.5 The Concessionaire shall not sublet the whole or any part of the Site save and except as may be expressly set forth in this Agreement provided however that nothing contained herein shall be construed or interpreted as restricting the right of the Concessionaire to appoint contractors for the performance of its obligations hereunder including for operation and maintenance of all or any part of the Project Highway including Project Facilities.

XXXIX. DISPUTE RESOLUTION

39.1 Amicable Resolution

(a) Save where expressly stated to the contrary in this Agreement, any dispute, difference or controversy of whatever nature howsoever arising under, out of or in relation to this Agreement including incompletion of the Project Highway between the Parties and so notified in writing by either Party to the other (the “Dispute”) in the first instance shall be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Sub-clause (b) below.

(b) In the event of any Dispute between the Parties, either Party may call upon the Independent Consultant to mediate and assist the Parties in arriving at an amicable settlement thereof. Failing mediation by the Independent Consultant or without the intervention of the Independent Consultant, either Party may require such Dispute to be referred to the Chairman of NHAI and the Chairman of the Board or Directors of the Concessionaire, for the time being for amicable settlement. Upon such reference, the said two Chairmen shall meet not later than 7 (seven) days of the date of such request to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the said period or the Dispute is not amicably settled within 15 (fifteen) days of such meeting...
between the said two Chairmen, either Party may refer the dispute to arbitration in accordance with the provisions of Clause 39.2.

(c) If the Dispute is not resolved as evidenced by the signing of the written terms of settlement within 30 (thirty) working days of the aforesaid notice in writing or such longer period as may be mutually agreed by the Parties then the provisions of Clause 39.2 shall apply.

39.2 Arbitration

39.2.1 Any Dispute, which is not resolved amicably as provided in Clause 39.1 shall be finally decided by reference to arbitration by a Board of Arbitrators, appointed pursuant to Clause 39.2.2 sub clause (b) below. Such arbitration shall be held in accordance with the Rules of Arbitration of the Indian Council of Arbitration and shall be subject to the provisions of the Arbitration Act.

39.2.2 There shall be a Board of three arbitrators of whom each party shall select one and the third arbitrator shall be appointed in accordance with the Rules of Arbitration of the Indian Council of Arbitration.

39.2.3 The arbitrators shall issue a reasoned Award.

39.2.4 The venue of such arbitration shall be New Delhi, India.

39.3 Arbitration Awards to be Binding

39.3.1 The Concessionaire and NHAI undertake to carry out any decision or award of the arbitrators (the "Award") without delay. Awards relating to any Dispute shall be final and binding on the Parties as from the date they are made.

39.3.2 The Concessionaire and NHAI agree that an Award may be enforced against the Concessionaire and/or NHAI, as the case may be and their respective assets wherever situated.

39.3.3 This Agreement and rights and obligations of the Parties shall remain in full force and effect pending the Award in any arbitration proceeding hereunder.
XL. DISCLOSURE

The Concessionaire shall make available for inspection by members of public free of charge during normal business hours on all working days copies of this Concession Agreement, the O&M Contract, the Tolling Contract and the State Support Agreement (hereinafter collectively referred to as “Public Documents”) at the Concessionaire’s Site office during the subsistence of this Agreement. The Concessionaire shall prominently display at the Toll Plazas public notices about the availability of the Public Documents for inspection and shall make available upon request and payment in advance of copying charges on no profit no loss basis to members of public copies of the said Public Documents.

XLI. REDRESSAL OF PUBLIC GRIEVANCES

41.1 The Concessionaire shall maintain a public relations office adjacent to each Toll Plaza and keep it open to public access at all times. At each such office, the Concessionaire shall open and maintain a register (the “Complaints Register”) for recording of complaints by any person (the Complainant”) at any time of the day. The availability of and access to such office and the Complaints Register shall be prominently displayed by the concessionaire at each Toll Plaza so as to bring it to the attention of all persons who are entering and exiting the Project Highway.

41.2 The Complaints Register shall be securely bound and kept in proper custody at the public relations office. Each page of the Register shall be duly numbered and each complaint recorded therein shall also be duly numbered. Soon after a complaint is registered the Complainant shall be given a receipt by such office stating the date and complaint number, which the Complainant may refer to in any subsequent correspondence or claim. The Complaints Register shall have appropriate columns including but not limited to the complaint number and date, name and address of the Complainant, the complaint and the action taken by the Concessionaire thereon.

41.3 The Concessionaire shall inspect the Complaints Register at reasonable intervals and take prompt steps for redressal of the grievances stated in each complaint. The action so taken by the Concessionaire shall be briefly noted in the ‘Action taken’ column of the Complaints Register and a suitable reply shall also be sent to the Complainant by post under a certificate of posting.

41.4 Within one week following the close of each calendar month, the Concessionaire shall send to NHAI a true photocopy of such pages of the Complaints Register on which any entries have been recorded of any Complaint on the Concessionaire during the course of such month. NHAI may in its discretion direct the concessionaire to take such further reasonable action as NHAI may deem appropriate for a fair and just redressal of any
grievance. Where NHAI is of the opinion that the Complainant is entitled to any further redressal or compensation beyond what the Concessionaire is willing to provide, NHAI may refer the matter to the Consumer Redressal Forum having jurisdiction for its disposal in accordance with the provisions of the Consumer Protection Act, 1986.

XLII. ADVERTISING ON THE SITE

42.1 The Concessionaire shall not undertake or permit any form of Commercial advertising, display or hoarding at any place on the Site if such advertising, display or hoarding shall be visible to a user of the Project Highway while driving on such Highway.

XLIII. GOVERNING LAW AND JURISDICTION

43.1 This Agreement shall be construed and interpreted in accordance with and governed by the laws of India and the Courts at New Delhi, India shall have jurisdiction over all matters arising out of or relating to this Agreement.

XLIV. MISCELLANEOUS

44.1 Video Recording

During the Construction Period, the Concessionaire shall provide a video recording to NHAI every calendar quarter which will be compiled into a 3 (three) hour cassette, covering the construction of the Project Highway in that quarter. Such video recording shall be provided no later than fifteen days after the close of each quarter.

44.2 Waiver

(a) Waiver by either Party of any default by other Party in the observance and performance of any provision of or obligations of or under this Agreement.

(i) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;

(ii) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and

(iii) shall not affect the validity or enforceability of this Agreement in any manner.
(b) Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

44.3 Survival

Termination of this Agreement (a) shall not relieve the Concessionaire or NHAI of any obligations hereunder which expressly or by implication survives Termination hereof, and (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, shall not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of or caused by acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such termination.

All obligations surviving the cancellation, expiration or Termination of this Agreement shall only survive for a period of 5 (five) years following the date of such Termination or expiry of this Agreement.

44.4 Entire Agreement:

This Agreement and the Schedules together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof and no amendment or modification hereto shall be valid and effective unless expressly previously approved in writing by NHAI and executed by the person expressly authorised by a resolution of NHAI in this behalf.

44.5 Notices

Any notice or other communication to be given by Party to the other Party under, or in connection with the matters contemplated by this Agreement shall be in writing and shall:

(a) in the case of the Concessionaire, be given by letter delivered by hand to the address given and marked for the attention of the person set out opposite the corresponding signature below or to such other address marked for such other attention as the Concessionaire may from time to time designate by notice to NHAI, provided that notices or other communications to be given to an address outside New Delhi may (if they are subsequently confirmed by sending a copy thereof by first class registered airmail or by courier) be sent by facsimile to the number as the Concessionaire may from time to time designate by notice to
NHAI; and

(b) in the case of NHAI, be given by letter delivered by hand and be addressed to the Chairman, NHAI

Copies of all notices shall also be sent by facsimile and by registered acknowledgement due pre-paid post or courier.

Copies of all notices shall also be sent to the NHAI Representative.

44.6 Severability

If for any reason whatever any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to dispute resolution under this Agreement or otherwise.

44.7 No Partnership

Nothing contained in this Agreement shall be construed or interpreted as constituting a partnership between the Parties. Neither Party shall have any authority to bind the other in any manner whatsoever.

44.8 Language

All notices required to be given by one Party to the other Party and all other communications, documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

44.9 Exclusion of Implied Warranties etc.

This Agreement expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.
44.10 Counterparts

This Agreement may be executed in two counterparts, each of which when executed and delivered shall constitute an original of this Agreement.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED SEALED AND DELIVERED
For and on behalf of
NATIONAL HIGHWAYS AUTHORITY OF INDIA by:

__________________________ (Signature)

PRABHAT KRISHNA (Name)

_______________(Designation)

SIGNED, SEALED AND DELIVERED
For and on behalf of
GVK – JAIPUR KISHANGARH EXPRESSWAY PRIVATE LIMITED by:

__________________________ (Signature)

__________________________ (Name)

FOR GVK JAIPUR KISHANGARH EXPRESSWAY PRIVATE LIMITED,

__________________________ (Designation)

DIRECTOR:

In the presence of:
1.
2.

Jaipur Kishangarh Project (08/05/2002)
SITE OF THE PROJECT
1. General

1.1 The Site

National Highway No. 8 is one of the major arteries of the road network system of the country connecting the capital of India, New Delhi, with the commercial capital of the country, Mumbai. It traverses through five states namely, Delhi, Haryana, Rajasthan, Gujarat, Maharashtra and the Union Territory of Dadra & Nagar-Haveli. It connects a number of major urban centres like Jaipur, Ajmer, Udaipur, Ahmedabad, Vadodara, Bharuch, Surat, Silvassa and Thane on its way to Mumbai from Delhi. The four-laning of NH-8 from Km 162/500 to Km 231/000 has been completed under Asian Development Bank-II loan assistance programme (ADB-II) and that from km 36/630 to km 162/500 has also been completed through the National Highways Authority of India (NHAI). A stretch of 17km near Jaipur was converted into 4-lanes through Plan Funds. In order to provide a better level of service to the vehicular traffic, it has been decided to augment the capacity of the Jaipur-Kishangarh section of NH-8 from Km 273/500 to Km 363/ 885 in Rajasthan by widening the existing 2 lanes to 6 lane divided carriageway facility, including strengthening of the existing 2-lanes on Build, Operate and Transfer (BOT) basis.

The Project Highway starts from Km 273/500 near the junction of Jaipur bypass, traverses in a south-westerly direction and ends at the proposed trumpet interchange at Km 363/ 885 at Kishangarh bypass junction. The Index Plan of the Project Highway is shown in Fig A-1. The zero (0) kilometre of NH-8, Delhi-Ahmedabad section starts at Delhi.

1.2 DISCLAIMER

1.2.1 The past traffic survey data (from PWD, Govt of Rajasthan) and observed traffic volumes in the year 1998 at three locations on the Project Highway have been furnished in Tables A-3 and A-4 of this Schedule for an initial understanding of the Concessionaire.

The above-mentioned traffic figures are only for guidance of the Concessionaire. NHAI will not be responsible for any inaccuracy in the
Figure A1: Index Map

LEGEND:

- TRAFFIC VOLUME COUNT STATIONS
- STATE BOUNDARY
- DISTRICT BOUNDARY
- NATIONAL HIGHWAY
- PROJECT CORRIDOR
- MAJOR ROADS
- OTHER ROADS
- RAILWAY TRACKS
- RIVER
information provided and shall not be liable for or be bound by the traffic data used by the Concessionaire in evaluating the project viability. The Concessionaire will carry out his own independent traffic surveys for assessing actual traffic on the project corridor.

1.2.2 The Concessionaire acknowledges that prior to the execution of this Agreement, the Concessionaire has satisfied himself (based on his own independent assessment) of the traffic data, specifications and standards, Site and all information provided by the NHAI. The Concessionaire acknowledges and accepts the difficulties, risks and hazards likely to arise or that may be faced by the Concessionaire in the course of performance of his obligations hereunder.

2. DESCRIPTION OF PROJECT HIGHWAY

2.1 ROAD INVENTORY

The Project Highway traverses through plain terrain and has a carriageway width of 7.0 m except at Gopalpura and Nasirabad bypass junctions where it has a 4 lane divided carriageway facility. Paved shoulders of 1.5 m wide are in existence or under construction throughout the Project Highway. The height of embankment varies between 0 and 3.5m. The soil along the Project Highway is generally loamy except in few sections where it is mixed with gravel. Along the Project Highway there are 20 junctions of significance.

2.2 LAND DETAILS

Land width of 48 m and 60 m is being acquired in various sections along the project highway. Table A-1 below indicates the currently available Rights of Way and Table A-2 shows the proposed availability of land in various sections along the Project Highway.

<table>
<thead>
<tr>
<th>SI No</th>
<th>Name of Village/Town</th>
<th>Kilometreage</th>
<th>East (m)</th>
<th>West (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>From</td>
<td>To</td>
<td>L</td>
</tr>
<tr>
<td>1</td>
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<td>West (m)</td>
</tr>
<tr>
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<td>---------------------</td>
<td>-------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>From</td>
<td>To</td>
<td>(L)</td>
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<td>West (m)</td>
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<td>(R)</td>
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<td>&gt;30</td>
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<td>23.5</td>
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<td>Mokhampura</td>
<td>311.9 312.5</td>
<td>&gt;30</td>
<td>&gt;30</td>
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<td>Dudu</td>
<td>328.35 330.35</td>
<td>22</td>
<td>29.5</td>
</tr>
<tr>
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<td>Harsoli</td>
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<td>&gt;30</td>
<td>&gt;30</td>
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<td>30</td>
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<tr>
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<td>&gt;30</td>
<td>&gt;30</td>
</tr>
<tr>
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<td>Dantari</td>
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<td>10</td>
<td>23</td>
</tr>
<tr>
<td>53</td>
<td>Dantari</td>
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<td>&gt;30</td>
<td>&gt;30</td>
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<tr>
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<td>Tilonia</td>
<td>355.0 355.4</td>
<td>25.0</td>
<td>&gt;30</td>
</tr>
<tr>
<td>56</td>
<td>Tilonia</td>
<td>355.7 355.8</td>
<td>30.0</td>
<td>&gt;30</td>
</tr>
</tbody>
</table>
Table A-2: Proposed Land width in stretches of Project Highway

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Chainage</th>
<th>Total Land Width (m)</th>
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<td></td>
<td>From</td>
</tr>
<tr>
<td>1.</td>
<td>273.500</td>
<td>296.000</td>
</tr>
<tr>
<td>2.</td>
<td>296.000</td>
<td>300.500</td>
</tr>
<tr>
<td>3.</td>
<td>300.500</td>
<td>301.500</td>
</tr>
<tr>
<td>4.</td>
<td>301.500</td>
<td>328.500</td>
</tr>
<tr>
<td>5.</td>
<td>328.500</td>
<td>331.000</td>
</tr>
<tr>
<td>6.</td>
<td>331.000</td>
<td>339.200</td>
</tr>
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<td>340.200</td>
</tr>
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<td>340.200</td>
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</tr>
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<td>349.700</td>
<td>350.800</td>
</tr>
<tr>
<td>10.</td>
<td>350.800</td>
<td>363.000</td>
</tr>
<tr>
<td>11.</td>
<td>363.000</td>
<td>363.885</td>
</tr>
</tbody>
</table>

2.3 TRAFFIC

Past traffic data from 1994 to 1997 from PWD, Rajasthan in terms of total PCUs and commercial vehicles (CVs) for the month of April and October are given in Table A-3 below.

Table A-3: Traffic on Jaipur Kishangarh section on NH8 during April 1994 – October 1997

<table>
<thead>
<tr>
<th>Location Period</th>
<th>Km 276/000</th>
<th>Km 323/000</th>
<th>Km 357/000</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>PCUs</td>
<td>CVS</td>
<td>PCUs</td>
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<tr>
<td>Apr 94</td>
<td>30873</td>
<td>8237</td>
<td>25792</td>
</tr>
<tr>
<td>Oct 94</td>
<td>35194</td>
<td>9813</td>
<td>30857</td>
</tr>
<tr>
<td>Apr 95</td>
<td>33545</td>
<td>9304</td>
<td>32812</td>
</tr>
<tr>
<td>Oct 95</td>
<td>40537</td>
<td>11158</td>
<td>37596</td>
</tr>
<tr>
<td>Apr 96</td>
<td>42802</td>
<td>11990</td>
<td>37208</td>
</tr>
<tr>
<td>Oct 96</td>
<td>45763</td>
<td>12770</td>
<td>38222</td>
</tr>
<tr>
<td>Apr 97</td>
<td>49450</td>
<td>15288</td>
<td>40845</td>
</tr>
<tr>
<td>Oct 97</td>
<td>53137</td>
<td>17802</td>
<td>43469</td>
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</table>

Source: Traffic Census, PWD (GOVTL. of Rajasthan)
The traffic volume counts carried out in November 1998 at three locations along the Project Highway are given in Table A-4 below.

Table A-4: Observed Traffic Volume on Project Highway during November 1998

<table>
<thead>
<tr>
<th>Mode of Traffic</th>
<th>Location (Kilometerage)</th>
<th>280/000 (Bhanokra)</th>
<th>323/000 (Gidani)</th>
<th>360/000 (Deendwada)</th>
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<tbody>
<tr>
<td>Two wheeler</td>
<td></td>
<td>1836</td>
<td>341</td>
<td>518</td>
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<tr>
<td>Auto Rickshaw</td>
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<td>56</td>
<td>11</td>
<td>31</td>
</tr>
<tr>
<td>Old Tech. Cars/Jeeps</td>
<td></td>
<td>1857</td>
<td>897</td>
<td>520</td>
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<tr>
<td>New Tech. Cars/Jeeps</td>
<td></td>
<td>1344</td>
<td>1134</td>
<td>1027</td>
</tr>
<tr>
<td>Roadways buses</td>
<td></td>
<td>605</td>
<td>385</td>
<td>360</td>
</tr>
<tr>
<td>Mini Buses</td>
<td></td>
<td>229</td>
<td>99</td>
<td>106</td>
</tr>
<tr>
<td>Private Buses</td>
<td></td>
<td>514</td>
<td>405</td>
<td>363</td>
</tr>
<tr>
<td>Other Passengers</td>
<td></td>
<td>4</td>
<td>27</td>
<td>1</td>
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<tr>
<td>2 Axle Truck</td>
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<td>8273</td>
<td>8806</td>
<td>8251</td>
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<td>3 Axle Truck</td>
<td></td>
<td>1630</td>
<td>1378</td>
<td>1143</td>
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<td>675</td>
<td>497</td>
<td>399</td>
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<tr>
<td>Tractors</td>
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<td>97</td>
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<tr>
<td>Other goods</td>
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<td>7</td>
<td>2</td>
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<tr>
<td>Cycle</td>
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<td>119</td>
<td>43</td>
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<td>1</td>
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<td>Bullock Carts</td>
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<td>14</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Other Slow</td>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total Vehicles</td>
<td></td>
<td>18902</td>
<td>15236</td>
<td>13629</td>
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<tr>
<td>Total Volume in PCU</td>
<td></td>
<td>45976</td>
<td>41150</td>
<td>36777</td>
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</table>

Source: Primary survey, LASA, November 1998

Cross pedestrian traffic is predominant in the urban stretches and especially near intersections. In rural stretches, incidence of cattle crossing the road is a common occurrence at many locations affecting the safety of traffic movement.

2.4 PAVEMENT COMPOSITION AND CONDITION

As per the pavement composition data collected from PWD, Government of Rajasthan, its total thicknesses varies between 400mm to 650mm. The pavement mainly comprises of a WBM base course over subgrade, over laid by many thin layers of bituminous macadam and mix seal surfacing/ semi-dense bituminous carpet (termed as premix carpet) over the years. The WBM course thickness varies between 250 mm and 315 mm while that of the bituminous layers between 150mm and 200mm. Bituminous overlays have been provided to improve the riding quality and also to increase the structural strength of the pavement to meet the requirement of the increasing traffic load, either fully or partly.

In general, the condition of the pavement varies from poor to fair. In the initial stretch i.e. between km 273/000 and km 285/000, the pavement has been overlaid by bituminous concrete recently where the riding quality is fair. The pavement
The surface is predominantly cracked in the following stretches (i) km 338 to km 345, (ii) km 357 to 359 and (iii) km 363 to 364. In the remaining stretches the cracks are of minor nature. The paved shoulders in km 285 to km 290, km 300 to km 312, km 342 to km 344 and km 360 to km 362 have many potholes. However, potholes have been partly patched in reaches km 300 to km 312 and km 360 to km 362. Besides these, failure of pavement due to rutting is observed in many places. Beyond km 290, rutting and bleeding of bituminous surface have been observed all along the corridor upto km 366.

2.5 DRAINAGE

The roadside drainage along the Project Highway needs improvement, predominantly in urban stretches. In urban areas, open lined/closed drains, have choked. Occasional overtopping, due to breaches in irrigation tanks, excessive rains and insufficient waterway of cross drainage structures reportedly occur in the following stretches: (i) km 314 to km 315, (ii) km 328 to km 329, (iii) km 336 to km 338, (iv) km 346 to km 348 and (v) km 351 to km 352

2.6 ROAD GEOMETRY

It is observed that the Project Highway predominantly has a straight alignment and traverses through plain terrain for most of its length. Most of the horizontal curves conform to acceptable geometric standards in terms of super-elevation, sight distance and radius of curvature except for the following:

<table>
<thead>
<tr>
<th>Location of the curve</th>
<th>Deficiency</th>
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</thead>
<tbody>
<tr>
<td>Curve in km. 321/400-Km. 321/800</td>
<td>Inadequate super-elevation and sight distance</td>
</tr>
<tr>
<td>Curve in km. 322/000-km.323/000</td>
<td>Substandard S-curve to negotiate a pond</td>
</tr>
<tr>
<td>Curve in km. 331/600-Km. 332/000</td>
<td>Curve on Dudunala bridge approach-kishangarh end on an embankment.</td>
</tr>
</tbody>
</table>

2.7 ABUTTING LANDUSE

The Project Highway is characterised by a mix of ribbon development and agricultural lands. The broad landuse pattern along the Project Highway is given in Table A-5 hereinunder:

<table>
<thead>
<tr>
<th>Project Highway Reaches</th>
<th>Predominant Landuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Km 273/500- Km 278/000</td>
<td>Commercial</td>
</tr>
<tr>
<td>Km 278/000- Km 290/000</td>
<td>Interspersed ribbon development</td>
</tr>
<tr>
<td>Km 290/000 - Km 292/000</td>
<td>Agricultural</td>
</tr>
</tbody>
</table>
Project Highway Reaches | Predominant Landuse
---------------------|---------------------
Km 292/000 - Km 296/000 | Commercial
Km 296/000 - Km 328/000 | Agricultural
Km 328/000 - Km 330/000 | Commercial
Km 330/000 - Km 363/ 885 | Agricultural

2.8 CROSS DRAINAGE STRUCTURES

There are 93 cross drainage structures along the Project Highway, out of which 2 (Two) are major bridges, 13 (thirteen) are minor bridges and remaining 78 (seventy eight) are culverts. Except for 4 (four) pipe culverts and 2 (two) arch culverts, all other structures have RCC simply supported solid slab as superstructure. All the minor bridges except 2 (two) bridges at km 365/125 and km 365/372 have been widened to 12 m width in recent past.

2.9 EXISTING FACILITIES

The Govt. of Rajasthan is constructing a rest area at km 302. Few other roadside facilities are also available at Bagru (km 294) and at Dudu (km 330).

Though there are 22 bus stops along the Project Highway, no bus bays and bus shelters have been provided. A State Road Transport bus stand exists at Dudu (km 329-330). However, the buses generally stop on the carriageway/shoulder.

Apart from the above, number of dhabas, petrol pumps (17 nos.), vehicle repair shops, telephone booths etc. have come up along the project corridor. The location for the existing petrol pumps is indicated in Table A-6 below:

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Location of petrol pumps (Kilometerage)</th>
<th>Adjoining Settlement (Name of Village)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>277/500 (R)</td>
<td>Bhakrota</td>
</tr>
<tr>
<td>2.</td>
<td>281/350 (R)</td>
<td>Mahapura</td>
</tr>
<tr>
<td>3.</td>
<td>282/050 (L)</td>
<td>Mahapura</td>
</tr>
<tr>
<td>4.</td>
<td>283/500 (L)</td>
<td>Ramchandrapura</td>
</tr>
<tr>
<td>5.</td>
<td>284/200 (R)</td>
<td>Bad Ke Balaji</td>
</tr>
<tr>
<td>6.</td>
<td>285/360 (L)</td>
<td>Thikria</td>
</tr>
<tr>
<td>7.</td>
<td>289/800 (L)</td>
<td>Devalia</td>
</tr>
<tr>
<td>8.</td>
<td>293/650 (R)</td>
<td>Bagru</td>
</tr>
<tr>
<td>9.</td>
<td>294/100 (R)</td>
<td>Bagru</td>
</tr>
<tr>
<td>10.</td>
<td>294/750 (R)</td>
<td>Bagru</td>
</tr>
<tr>
<td>11.</td>
<td>307/500 (R)</td>
<td>Godota</td>
</tr>
<tr>
<td>12.</td>
<td>312/050 (R)</td>
<td>Makhanpura</td>
</tr>
<tr>
<td>13.</td>
<td>329/285 (R)</td>
<td>Dudu</td>
</tr>
<tr>
<td>14.</td>
<td>329/500 (R)</td>
<td>Dudu</td>
</tr>
<tr>
<td>Sl.No</td>
<td>Location of petrol pumps (Kilometerage)</td>
<td>Adjoining Settlement (Name of Village)</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>15.</td>
<td>330/950 (L)</td>
<td>Dudu</td>
</tr>
<tr>
<td>16.</td>
<td>349/490 (R)</td>
<td>Bandra Sindari</td>
</tr>
<tr>
<td>17.</td>
<td>363/475 (R)</td>
<td>Nasirabad bypass junction</td>
</tr>
</tbody>
</table>

*Note: R or L indicates right or left side while travelling from Jaipur to Kishangarh.*

Telephone booths with STD facility exist at km 273 to km 279, km 283, km 289/400, km 292 to km 295, km 301, km 325/550, km 328 to km 330, km 340, km 350 and km 362.

Location of dhabas and vehicle repair shops, apart from those existing in dense built-up segments is given in Table A-7 below.

**Table A-7: Location of cluster of dhabas along Project Highway**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of Locality</th>
<th>Location (Kilometerage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>From</td>
</tr>
<tr>
<td>1.</td>
<td>Narshinghpur</td>
<td>281/700</td>
</tr>
<tr>
<td>2.</td>
<td>Ramchandpura</td>
<td>283/100</td>
</tr>
<tr>
<td>3.</td>
<td>Bad kebalaji</td>
<td>284/000</td>
</tr>
<tr>
<td>4.</td>
<td>Balkanderpura</td>
<td>286/100</td>
</tr>
<tr>
<td>5.</td>
<td>Bagru</td>
<td>296/400</td>
</tr>
<tr>
<td>6.</td>
<td>Dahmi</td>
<td>292/000</td>
</tr>
<tr>
<td>7.</td>
<td>Nasnoda</td>
<td>305/300</td>
</tr>
<tr>
<td>8.</td>
<td>Rannagar</td>
<td>334/000</td>
</tr>
<tr>
<td>9.</td>
<td>Harsoli</td>
<td>335/500</td>
</tr>
<tr>
<td>10.</td>
<td>Parasoli</td>
<td>339/300</td>
</tr>
<tr>
<td>11.</td>
<td>Danti</td>
<td>345/000</td>
</tr>
<tr>
<td>12.</td>
<td>Bandar Sindri</td>
<td>349/400</td>
</tr>
<tr>
<td>13.</td>
<td>Tilonia</td>
<td>354/500</td>
</tr>
<tr>
<td>14.</td>
<td>Nasirabad Bypass</td>
<td>362/700</td>
</tr>
</tbody>
</table>
SCOPE OF THE PROJECT
SCOPE OF THE PROJECT

1. GENERAL
The following sections of this schedule briefly highlight the scope of the work of the Project Highway for the information of the Concessionaire. The description of the requirements for the various elements of the Project Highway given herein under are the bare minimum requirements that the Concessionaire needs to undertake/provide for improvement of the same.

2. THE PROJECT HIGHWAY
The Concessionaire shall carry out engineering surveys, investigations and detailed engineering designs and prepare the working drawings for all the components relevant for the improvement and upgradation of the Project Highway to fulfil the scope of the project as envisaged hereinunder. The designs for different project facilities shall follow the locations and indicative designs given in Schedule C and shall comply with design, specifications and standards outlined in Schedule D. The maintenance of the different elements of Project Highway and facilities thereon shall follow the minimum maintenance requirements as described in Schedule L. All the designs and drawings shall be reviewed by the Independent Consultant prior to execution.

2.1 CORE CONSTRUCTION REQUIREMENT

2.1.1 In the planning, design and execution of the works and other works in connection with the repair, maintenance or improvement of the Project Highway and functions associated with the construction of the Project Highway and roadside facilities, the Concessionaire shall take all such actions and do all such things (including, but not limiting to, organizing itself, adopting measures and standards, executing procedures, including inspection procedures and highway patrols, and engaging and managing contractors, agents and employees) as will:

a. enable the NHAI to provide an acceptably safe highway in respect of its condition (structural safety) and use (road safety); and
b. enable the NHAI to fulfil its statutory and common law obligations; and

2.1.2 enable the NHAI to provide a congestion free uninterrupted flow of traffic on the Project Highway;
2.1.3 enable the NHAI to provide a level of highway service to the public not inferior to that provided on the trunk road during construction or improvement works;
2.1.4 enable the police, local authorities, and others with statutory duties or functions in relation to the Project Highway or adjoining roads to fulfil those duties and functions;
2.1.5 minimise the occurrence and adverse effects of accidents and ensure that all accidents and emergencies are responded to as quickly as possible;
2.1.6 minimise the risk of damage, destruction or disturbance to third party property
2.1.7 ensure that members of the public are treated with all due courtesy and consideration;
2.1.8 provide a safe, clear and informative system of road signs;
2.1.9 comply with any specified programme requirements, including for the completion of the new road;
2.1.10 enable standards of reliability, durability, accessibility, maintainability, quality control and assurance, and fitness for purpose appropriate to a highway of the character of the Project Highway to be achieved throughout the Contract Period;
2.1.11 ensure adequate off-street parking facilities for both passenger and goods vehicles;
2.1.12 provide adequate bus bays for stopping of buses and bus shelters for commuters to wait under protection; and
2.1.13 achieve a high standard in the appearance and aesthetic quality of the Project Highway and achieve integration of the Project Highway with the character of the surrounding landscape through both sensitive design and sensitive management of all visible elements including those on the existing road.
2.1.14 Undertake proper safety audit through an appropriate consultant (i.e. apart from the Independent Consultant) before C.O.D.
2.1.15 Carry out accident recording and reporting (to IC/NHAI) by type on regular basis.
2.1.16 Ensure adequate safety of the Project Workers on the work site.

2.2 Cross Sections

The Project Highway shall be widened to have a 6 lane divided carriageway facility. Table B-1 indicates the location of different types of road cross sections, which shall be followed along with the minimum construction criterion, mentioned below for the development of the Project Highway.

- The road level of the new carriageway shall be the same as that of the existing carriageway road level modified for the pavement strengthening courses, except in those locations where the existing vertical profile has to be raised for accommodating CD works/ cattle passes/ pedestrian subways. In such cases, the road level may be increased to suit the site conditions subject to the design standards furnished in Schedule D;
- Wherever the existing embankment is less than 1 m. and there is a chance of overtopping of the existing road, the Project Highway shall be raised as per IRC recommendations.
- The widening of the carriageway in the urban reaches shall be concentric with respect to the existing centre line of the road, while in rural sections the widening of the carriageway will be either concentric or eccentric on the left hand side of the existing carriageway while travelling from Jaipur to Kishangarh side, depending upon the RoW being available as 48m or 60m respectively; and
The road land width in urban and rural sections shall be in accordance with Table A-2 of Schedule A.

**Table B-1: Type of Road Cross Sections along the Project Highway**

<table>
<thead>
<tr>
<th>Category of the section Urban/Rural</th>
<th>Kilometrage of the section</th>
<th>Type of Cross Section</th>
<th>Drawing Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban (with service road)</td>
<td>From 273.500 To 278.500</td>
<td>Type 2</td>
<td>MCA/CS/02</td>
</tr>
<tr>
<td>Rural (embankment height &gt; 1.0 m)</td>
<td>From 278.500 To 283.000</td>
<td>Type 1</td>
<td>MCA/CS/01</td>
</tr>
<tr>
<td>Urban (with service road)</td>
<td>From 283.000 To 287.500</td>
<td>Type 2</td>
<td>MCA/CS/02</td>
</tr>
<tr>
<td>Rural (embankment height &gt; 1.0 m)</td>
<td>From 287.500 To 293.500</td>
<td>Type 1</td>
<td>MCA/CS/01</td>
</tr>
<tr>
<td>Urban (with service road)</td>
<td>From 293.500 To 296.000</td>
<td>Type 2</td>
<td>MCA/CS/02</td>
</tr>
<tr>
<td>Rural (embankment height &gt; 1.0 m)</td>
<td>From 296.000 To 300.500</td>
<td>Type 1</td>
<td>MCA/CS/01</td>
</tr>
<tr>
<td>Urban (with service road)</td>
<td>From 300.500 To 301.500</td>
<td>Type 2</td>
<td>MCA/CS/02</td>
</tr>
<tr>
<td>Rural (embankment height &gt; 1.0 m)</td>
<td>From 301.500 To 328.500</td>
<td>Type 1</td>
<td>MCA/CS/01</td>
</tr>
<tr>
<td>Urban (with service road)</td>
<td>From 328.500 To 331.000</td>
<td>Type 2</td>
<td>MCA/CS/02</td>
</tr>
<tr>
<td>Rural (embankment height &gt; 1.00 m)</td>
<td>From 331.000 To 339.200</td>
<td>Type 1</td>
<td>MCA/CS/01</td>
</tr>
<tr>
<td>Rural (embankment height &gt; 1.00 m)</td>
<td>From 339.200 To 340.200</td>
<td>Type 1</td>
<td>MCA/CS/01</td>
</tr>
<tr>
<td>Rural (embankment height &gt; 1.00 m)</td>
<td>From 340.200 To 349.700</td>
<td>Type 1</td>
<td>MCA/CS/01</td>
</tr>
<tr>
<td>Urban (with service road)</td>
<td>From 349.700 To 350.800</td>
<td>Type 2</td>
<td>MCA/CS/02</td>
</tr>
<tr>
<td>Rural (embankment height &lt; 1.00 m)</td>
<td>From 350.800 To 363.000</td>
<td>Type 1</td>
<td>MCA/CS/01</td>
</tr>
<tr>
<td>Rural (embankment height &gt; 1.00 m)</td>
<td>From 363.000 To 363.885</td>
<td>Type 1</td>
<td>MCA/CS/01</td>
</tr>
</tbody>
</table>

*Note: The extent of cross section type is indicative and shall be reviewed in consultation with the Independent Consultant at the time of construction as per the site condition.*

*Typical cross-section to be suitably modified to be accommodated within the acquired RoW of 48 m.*

The alternative cross section of the Project Highway at the cross drainage structures shall follow the typical cross sections given in figures 3a, 3b and 3c for the rural sections and figure 3d for urban sections as shown in drawing nos. MCA/CS/03 to MCA/CS/05 in consultation with the Independent Consultants at the time of construction.

The utility services, including optical fibre cables, shall be provided in the utility corridor earmarked in drawing no. MCA/CS/01 in rural sections for this purpose on the side where it is convenient to the Concessionaire or the concerned Authority with the approval of Independent Consultant/NHAI. In urban sections the utility services shall be provided through underground ducts provided for this purpose as shown in drawing no. MCA/CS/02. For cross connection it shall be carried through the nearest cross drainage structure/cattle crossing below its deck slab and above HFL. In absence of such a structure in the vicinity of the proposed location, it shall pass through separate underground ducts. Location and design of the cross utility ducts shall be finalized at the detailed design stage in consonance with the Independent Consultant and NHAI.
2.3 Pavement

2.3.1 General
The detailed pavement design including overlay and pavement characteristics requirements of the Project Highway and that of the service roads in Urban Sections shall be done in accordance with Schedule D. Pavement may be rigid or flexible, except in toll plazas, where rigid pavement is specified.

2.3.2 Flexible Pavement

2.3.2.1 Main Carriageway Pavement
The flexible pavement for the main carriageway shall be designed using the AASHTO Method for the projected traffic levels and the following indicative design input parameters:

<table>
<thead>
<tr>
<th>Table B-2: Indicative Design Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Performance Period</td>
</tr>
<tr>
<td>(ii) Traffic on Design Lane</td>
</tr>
<tr>
<td>(iii) Design serviceability Loss</td>
</tr>
<tr>
<td>(iv) Reliability</td>
</tr>
<tr>
<td>(v) Overall Standard Deviation</td>
</tr>
<tr>
<td>(vi) Effective Roadblock Soil</td>
</tr>
<tr>
<td>Resilient Modulus</td>
</tr>
<tr>
<td>(vii) Layer Coefficients</td>
</tr>
<tr>
<td>(viii) Drainage quality of Pavement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traffic on Design Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 msa. Design should take care of the maximum wheel load derived from the axle load survey on the design lane</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design serviceability Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effective Roadblock Soil Resilient Modulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corresponding to 4-day soaked field CBR value of 7% (laboratory CBR of 9-10%) compacted to 97% Modified AASHTO MDD.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Layer Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>As per the AASHTO procedures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drainage quality of Pavement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
</tr>
</tbody>
</table>

The Project highway is a heavily-trafficked section of the major arterial network of the country. The design exercise should therefore duly take into account the importance of the road, the performance level and the maintenance requirements during the performance period. The provision of cement-treated base/ sub-base/ subgrade layer(s) and the use of modified bitumen may be considered while deciding about the composition of the pavement structure. The design should also accompany the Quality Assurance Plan (QAP) alongwith its implementation scheme for the construction of the pavement structure.
2.3.2.2 Service Roads

The flexible pavement for the service roads should be designed using IRC: 37 – 2001 for a design traffic of 40 msa. The design shall be in accordance with the specifications and standards laid down in Schedule D.

2.3.3 However, in case of a change in the pavement design at the detailed engineering stage, the same shall not be considered as a change in scope of work nor shall qualify for a variation order.

2.3.4 Strengthening of the existing flexible pavement shall be of Bituminous Concrete (BC) 50 mm and Dense Bituminous Macadam (DBM) 100 mm. The profile corrective course will be 75 mm Bituminous Macadam (BM) on average. However, where the strengthening need is much more than 150 mm of BM, the additional thickness shall be provided through Wet Mix Macadam as per site requirement, after removing the existing bituminous courses, subject to a minimum thickness of 75mm. The strengthening course of DBM shall be overlaid with 50mm Bituminous Concrete wearing course. The existing pavement shall be totally scrapped and reconstructed in an aggregate length of 13 km as per Clause 4.5.4.2 of Schedule D. The actual length of totally failed sections shall be assessed by the Concessionaire during detailed design in consultation with the IC, and the length will not be limited to 13 km. The indicative length of 13 km has been provided for the initial understanding of the Concessionaire.

2.3.5 Paved shoulders of 1.5 m width shall have same thickness of the pavement as that of the main carriageway but different composition. The thickness of the Wet Mix Macadam (WMM) layer shall be 275 mm as no layer of Bituminous Macadam (BM) is envisaged here. It will ensure that the wearing course have the same composition as that of the main pavement for monolithic construction.

2.3.6 Rigid Pavement

2.3.6.1 Main Carriageway Pavement The rigid pavement for the main carriageway shall be designed using the AASHTO Method for the projected traffic levels and the following indicative input parameters. The AASHTO design may be cross-checked with the PCA Method in case the Concessionaire contemplates undowelled joints.

(i) Roadbed Soil Resilient Modulus, $M_R$ 10500 psi
(ii) Sub-base Elastic Modulus $E_{SS}$ 15000 psi -- wet condition
     25000 psi -- dry condition
(iii) Loss of Support $L_S$ 2.0
(iv) Overall Standard Deviation 0.39
Other parameters are the same as given in 2.3.2.1.

2.3.6.2 Joints

Expansion, construction and dummy joints shall be provided.

2.4 Geometric Improvement

2.4.1 Special attention shall be given while designing the centre line for Bhankrota (km. 278/000) to Bagru (km. 293/000) section in particular and other places, in general, to ensure that the existing trees with large girth along the Project Highway are saved as far as possible.

2.4.2 The flat gradients shall be corrected in such a way so as to attain an appropriate longitudinal gradient in order to achieve longitudinal drainage. Also, vertical curves shall be improved/introduced so that the vertical curves meet IRC 73-1980 standards.

2.4.3 The horizontal alignment along the Project Highway shall be improved as per the standards set out in Schedule D with special attention at the following locations:

i) Reverse curve near Gidani village at km. 322
ii) Curve at Dudu nala bridge approach, and
iii) Curve at km. 322

The locations furnished above are indicative only and the Concessionaire should assess the requirement during detailed project preparation in consultation with the IC.

The improvement shall be done in consultation with the Independent Consultant ensuring that the proposed improvements are accommodated within the land width available as far as practical otherwise action to acquire more land shall be resorted to through NHAI.

2.5 Slope Protection and Drainage

The improvements in the drainage and the slope erosion shall be made as per the following norms:

2.5.1 Drainage Measures

Following measures shall be adopted:

- Side ditches of required cross-section for area drainage on both sides of carriageway in rural sections.
- Covered pucca drains underneath the side walk in the urban sections.
• Covered pucca drains underneath the median between main carriageway and service road with proper connection to the outfall location in the urban sections;
• Chute drains alongwith shoulder drains in high embankment (3m and above);
• Median drains at super elevated sections with proper outfall connections; and
• Covered pucca drains underneath the side walk of proposed facility (bus bays, truck laybys etc.) in rural sections.

2.5.2 Slope Protection Measures:
Following measures shall be adopted:
• Side slopes of embankments 3m high or more shall be protected by stone pitching or geo-meshs or geo-nets or geo-grids in consultation with the Independent Consultant.
• Embankments less than 3m in height shall be turfed as per MOST specifications.

2.6 Traffic Signage and Pavement Markings
2.6.1 Traffic signs and pavement markings shall include road side signs, overhead signs, kerb mounted signs and road markings along the Project Highway. The design and marking for the Project Highway shall be as per the design standards indicated in Schedule D and the locations for various treatment shall be finalized in consultation with the Independent Consultant.

2.6.2 The overhead signs shall be the reflectorised type with high intensity retro-reflective sheeting of encapsulated type. The height, lateral clearance, location and installation shall be as per relevant clauses of MOST specifications. Overhead signs shall be installed ahead of major intersections, toll plazas and urban areas as per detailed design requirement.

2.7 Road Land Boundary
Road land (RoW) boundary shall be demarcated on the Project Highway. For this purpose barbed wire fencing shall be used in rural sections. All the components used in delineating road land boundary shall be aesthetically pleasing, sturdy and vandalproof.

2.8 Pedestrian Guard Rail and Safety Barrier
Pedestrian Guard Rail and Safety Barrier shall be provided, observing the following criterion.
   i) Pedestrian guard rail shall be provided at places where pedestrian activity is high and at intersections mentioned in Table B-3 and bus bays mentioned in Schedule-C.
   ii) Safety barriers shall be provided at locations of bridge approaches and high embankments (3 m and more)
iii) Safety barrier shall be provided along the central median at places where median width is 1.5 m and also in the lengths where median tapers from 5.0 m to 1.5 m.

2.9 Intersections

Improvements for the following intersections along the Project Highway shall be done according to the recommendations furnished in the Table B-3 and the conceptual drawings indicated therein. Also, the treatment at other minor intersections on the Project Highway shall be decided by the Concessionaire in consultation with the Independent Consultant.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Kilometerage</th>
<th>Type of Intersection</th>
<th>Improvement measures</th>
<th>Reference Drawing No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>273.500</td>
<td>T Junction</td>
<td>Trumpet Interchange</td>
<td>MCA/INT/01</td>
</tr>
<tr>
<td>2</td>
<td>275.885</td>
<td>X Junction</td>
<td>At grade geometric improvement with single lane unidirectional flyover for right turning vehicle from Project Highway</td>
<td>MCA/INT/02</td>
</tr>
<tr>
<td>3</td>
<td>278.265</td>
<td>T junction</td>
<td>At grade geometric improvement with treatment of curves only</td>
<td>MCA/INT/03A</td>
</tr>
<tr>
<td>4</td>
<td>280.690</td>
<td>T Junction</td>
<td>At grade geometric improvement with treatment of curves and raised median at cross road</td>
<td>MCA/INT/04</td>
</tr>
<tr>
<td>5</td>
<td>285.915</td>
<td>T-Junction</td>
<td>At grade geometric improvement with treatment of curves only</td>
<td>MCA/INT/05</td>
</tr>
<tr>
<td>6</td>
<td>291.120</td>
<td>Y Junction</td>
<td>At grade geometric improvement with treatment of curves only</td>
<td>MCA/INT/07</td>
</tr>
<tr>
<td>7</td>
<td>291.420</td>
<td>T Junction</td>
<td>At grade geometric improvement with treatment of curves only</td>
<td>MCA/INT/05</td>
</tr>
<tr>
<td>8</td>
<td>292.425</td>
<td>T Junction</td>
<td>At grade geometric improvement with treatment of curves and construction of channelisers and raised median.</td>
<td>MCA/INT/08</td>
</tr>
<tr>
<td>9</td>
<td>294.200</td>
<td>T Junction</td>
<td>6 lanes straight flyover on the Project Highway. At grade geometric improvement at surface level for cross road.</td>
<td>MCA/INT/06</td>
</tr>
<tr>
<td>10</td>
<td>301.050</td>
<td>T Junction</td>
<td>At grade geometric improvement with treatment of curves and raised median on cross road</td>
<td>MCA/INT/04</td>
</tr>
</tbody>
</table>
The Concessionaire shall take up 'Detailed Engineering Study' to ascertain further details of all intersections based on conceptual designs as suggested above. The treatment at the intersections shall be designed in accordance with the latest IRC/MOST guidelines spelt out in Schedule D.

2.10 Structures

All the cross-drainage structures and other structures shall be designed in accordance with the design standards set in Schedule D. All the cross drainage structures for the new carriageway shall be designed for 3 lane capacity. Improvement for the existing cross-drainage structures shall be made as mentioned in Table B-4. Of course, the existing structures shall be widened to match the new road cross sections as required.
Table B-4: Improvement Measures for the existing Cross Drainage Structures

<table>
<thead>
<tr>
<th>SI No</th>
<th>Structure no</th>
<th>Span arrangement (c/c)</th>
<th>Type of Structure</th>
<th>Improvement Measures for existing structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>275/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Reconstruction with larger waterway at higher level</td>
</tr>
<tr>
<td>2.</td>
<td>279/1</td>
<td>3 x 7.6</td>
<td>RCC Slab</td>
<td>Repair of slab Replacement of expansion joints with widening</td>
</tr>
<tr>
<td>3.</td>
<td>280/1</td>
<td>1 x 6.2</td>
<td>RCC Slab</td>
<td>Reconstruction with larger waterway at higher level</td>
</tr>
<tr>
<td>4.</td>
<td>283/1</td>
<td>1 x 2.54</td>
<td>RCC Slab</td>
<td>Reconstruction with hume pipe culvert at higher level</td>
</tr>
<tr>
<td>5.</td>
<td>284/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Reconstruction with hume pipe culvert at higher level</td>
</tr>
<tr>
<td>6.</td>
<td>288/1</td>
<td>1 x 0.9</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>7.</td>
<td>288/2</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>Reconstruction with hume pipe culvert at higher level</td>
</tr>
<tr>
<td>8.</td>
<td>292/1</td>
<td>16x4.35</td>
<td>RCC Slab</td>
<td>Repair of superstructure and substructure Clearing of blocked span with widening</td>
</tr>
<tr>
<td>9.</td>
<td>293/1</td>
<td>1 x 3.6</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>10.</td>
<td>293/2</td>
<td>1 x 6.7</td>
<td>RCC Slab</td>
<td>New Flooring with widening</td>
</tr>
<tr>
<td>11.</td>
<td>293/3</td>
<td>1 x 3.6</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>12.</td>
<td>294/1</td>
<td>1 x 3.6</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>13.</td>
<td>295/1</td>
<td>1 x 3.6</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>14.</td>
<td>296/1</td>
<td>2 x 0.9</td>
<td>Hume Pipe</td>
<td>Cleaning of silt with widening</td>
</tr>
<tr>
<td>15.</td>
<td>296/2</td>
<td>3 x 7.0</td>
<td>Deck Slab</td>
<td>Replacement of expansion joint with widening</td>
</tr>
<tr>
<td>16.</td>
<td>296/3</td>
<td>1 x 3.6</td>
<td>RCC Slab</td>
<td>Cleaning of Silt with widening</td>
</tr>
<tr>
<td>17.</td>
<td>299/1</td>
<td>2 x 0.90</td>
<td>Hume Pipe</td>
<td>Repair of parapet with widening</td>
</tr>
<tr>
<td>18.</td>
<td>300/1</td>
<td>2 x 0.90</td>
<td>Hume Pipe</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>19.</td>
<td>300/2</td>
<td>2 x 0.90</td>
<td>Hume Pipe</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>20.</td>
<td>301/1</td>
<td>1 x 5.0</td>
<td>Precast RCC Block</td>
<td>Reconstruction</td>
</tr>
<tr>
<td>21.</td>
<td>301/2</td>
<td>1 x 3.6</td>
<td>RCC Slab</td>
<td>Repairs for super-structure and sub-structure with widening</td>
</tr>
<tr>
<td>22.</td>
<td>302/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>23.</td>
<td>302/2</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>Reconstruction</td>
</tr>
<tr>
<td>24.</td>
<td>302/3</td>
<td>3 x 7.0</td>
<td>RCC Slab</td>
<td>Repair of honey combing &amp; exposed reinforcement with widening</td>
</tr>
<tr>
<td>25.</td>
<td>303/1</td>
<td>3 x 7.0</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>26.</td>
<td>304/1</td>
<td>1 x 6.5</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>27.</td>
<td>305/1</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>Repair with widening</td>
</tr>
<tr>
<td>SI No</td>
<td>Structure no</td>
<td>Span arrangement (c/c)</td>
<td>Type of Structure</td>
<td>Improvement Measures for existing structures</td>
</tr>
<tr>
<td>-------</td>
<td>--------------</td>
<td>-----------------------</td>
<td>-------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>28.</td>
<td>306/1</td>
<td>24 x 6.0</td>
<td>RCC Slab</td>
<td>Replacement of expansion joint with widening</td>
</tr>
<tr>
<td>29.</td>
<td>306/2</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Repairs for super-structure and sub-structure with widening</td>
</tr>
<tr>
<td>30.</td>
<td>308/1</td>
<td>2 x 1.5</td>
<td>RCC Slab</td>
<td>Cleaning of ventway with widening</td>
</tr>
<tr>
<td>31.</td>
<td>308/2</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Cleaning of silt, repair of slab with widening</td>
</tr>
<tr>
<td>32.</td>
<td>308/3</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>33.</td>
<td>310/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Redecking with widening</td>
</tr>
<tr>
<td>34.</td>
<td>310/2</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Cleaning of deposited earth in upstream side with widening</td>
</tr>
<tr>
<td>35.</td>
<td>311/1</td>
<td>1 x 2.5</td>
<td>Arch</td>
<td>Reconstruction as slab culvert</td>
</tr>
<tr>
<td>36.</td>
<td>311/2</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Redecking and widening</td>
</tr>
<tr>
<td>37.</td>
<td>311/3</td>
<td>3 x 2.0</td>
<td>RCC Slab</td>
<td>Reconstruction of structure with large span</td>
</tr>
<tr>
<td>38.</td>
<td>311/4</td>
<td>2 x 3.5</td>
<td>RCC Slab</td>
<td>Guniting on slab soffit with widening</td>
</tr>
<tr>
<td>39.</td>
<td>312/1</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>40.</td>
<td>313/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Reconstruction with larger waterway at higher road level</td>
</tr>
<tr>
<td>41.</td>
<td>314/1</td>
<td>1 x 4.0</td>
<td>RCC Slab</td>
<td>Reconstruction with larger waterway at higher road level</td>
</tr>
<tr>
<td>42.</td>
<td>314/2</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>Redeccking with widening</td>
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<tr>
<td>43.</td>
<td>315/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Reconstruction with larger waterway at higher Road Level</td>
</tr>
<tr>
<td>44.</td>
<td>315/2</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Reconstruction with larger waterway at higher road level</td>
</tr>
<tr>
<td>45.</td>
<td>315/3</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>46.</td>
<td>316/1</td>
<td>1 x 3.1</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>47.</td>
<td>317/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>New Flooring with widening</td>
</tr>
<tr>
<td>48.</td>
<td>317/2</td>
<td>1 x 5.8</td>
<td>RCC Slab</td>
<td>Repair of slab &amp; reconstruction of parapet with widening</td>
</tr>
<tr>
<td>49.</td>
<td>318/1</td>
<td>1 x 3.6</td>
<td>RCC Slab</td>
<td>Repair of slab &amp; reconstruction of parapet with widening</td>
</tr>
<tr>
<td>50.</td>
<td>318/2</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>New Flooring with widening</td>
</tr>
<tr>
<td>51.</td>
<td>320/1</td>
<td>2 x 8.0</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>52.</td>
<td>320/2</td>
<td>3 x 1.7</td>
<td>RCC Slab</td>
<td>Redeccking with widening</td>
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<tr>
<td>SI No</td>
<td>Structure no</td>
<td>Span arrangement (c/c)</td>
<td>Type of Structure</td>
<td>Improvement Measures for existing structures</td>
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<td>-----------------------------------------------</td>
</tr>
<tr>
<td>53.</td>
<td>321/1</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>54.</td>
<td>321/2</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>55.</td>
<td>321/3</td>
<td>2 x 1.5</td>
<td>Arch</td>
<td>Reconstruction</td>
</tr>
<tr>
<td>56.</td>
<td>321/4</td>
<td>3 x 1.6</td>
<td>RCC Slab</td>
<td>Repair of slab and flooring with widening</td>
</tr>
<tr>
<td>57.</td>
<td>322/1</td>
<td>1 x 4.0</td>
<td>RCC Slab</td>
<td>Repair of slab and reconstruction of parapet with widening</td>
</tr>
<tr>
<td>58.</td>
<td>322/2</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>Reconstruction</td>
</tr>
<tr>
<td>59.</td>
<td>323/1</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>Redecking and widening</td>
</tr>
<tr>
<td>60.</td>
<td>329/1</td>
<td>2 x 3.5</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>61.</td>
<td>331/1</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>Reconstruction of structure</td>
</tr>
<tr>
<td>62.</td>
<td>332/1</td>
<td>12 x 6</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>63.</td>
<td>332/2</td>
<td>1 x 5.6</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>64.</td>
<td>337/1</td>
<td>1 x 3.3</td>
<td>RCC Slab</td>
<td>Repair of parapet with widening</td>
</tr>
<tr>
<td>65.</td>
<td>339/1</td>
<td>3 x 6.7</td>
<td>RCC Slab</td>
<td>Repair of slab</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Replacement of expansion joints</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Provide extra weep holes at lower level with widening</td>
</tr>
<tr>
<td>66.</td>
<td>341/1</td>
<td>4 x 6.8</td>
<td>RCC Slab</td>
<td>Repair of old slab</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extra weep holes on abutment with widening</td>
</tr>
<tr>
<td>67.</td>
<td>346/1</td>
<td>1 x 4.0</td>
<td>RCC Slab</td>
<td>New Flooring with widening</td>
</tr>
<tr>
<td>68.</td>
<td>349/1</td>
<td>1 x 1.0</td>
<td>RCC Slab</td>
<td>New Flooring with widening</td>
</tr>
<tr>
<td>69.</td>
<td>350/1</td>
<td>1 x 2.1</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>70.</td>
<td>351/1</td>
<td>1 x 3.5</td>
<td>RCC Slab</td>
<td>Reconstruction of old slab and joints with widening</td>
</tr>
<tr>
<td>71.</td>
<td>351/2</td>
<td>1 x 4.5</td>
<td>RCC Slab</td>
<td>Reconstruction of old slab and joints with widening</td>
</tr>
<tr>
<td>72.</td>
<td>352/1</td>
<td>8 x 5.2</td>
<td>RCC Slab</td>
<td>Repair of old slab and joints with widening</td>
</tr>
<tr>
<td>73.</td>
<td>352/2</td>
<td>1 x 3.2</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>74.</td>
<td>355/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>No repairs, widening only</td>
</tr>
<tr>
<td>75.</td>
<td>356/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Repair of joints with widening</td>
</tr>
<tr>
<td>76.</td>
<td>356/2</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Reconstruction of broken parapet with widening</td>
</tr>
<tr>
<td>77.</td>
<td>357/1</td>
<td>4 x 7.6</td>
<td>RCC Slab</td>
<td>Repair of old slab with widening</td>
</tr>
<tr>
<td>78.</td>
<td>357/2</td>
<td>1 x 1.5</td>
<td>RCC Slab</td>
<td>Repair of sub-structure and RCC superstructure with widening</td>
</tr>
<tr>
<td>79.</td>
<td>357/3</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Repair of slab Flooring with widening</td>
</tr>
</tbody>
</table>
Note:
(i) The adequacy of the vent size for all culverts/bridges shall be ascertained through detailed hydrological surveys and finalized in consultation with the IC.
(ii) The above-mentioned treatments are only indicative. Any change from the above at the time of detailed engineering shall not constitute a change in scope of work, nor shall qualify for a variation order.

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Structure no</th>
<th>Span arrangement (c/c)</th>
<th>Type of Structure</th>
<th>Improvement Measures for existing structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>80.</td>
<td>358/1</td>
<td>1 x 2.5</td>
<td>RCC Slab</td>
<td>Redecoming and widening</td>
</tr>
<tr>
<td>81.</td>
<td>358/2</td>
<td>1 x 3.0</td>
<td>RCC Slab</td>
<td>Repair of slab, Flooring with widening</td>
</tr>
<tr>
<td>82.</td>
<td>359/1</td>
<td>2 x 2.0</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>83.</td>
<td>361/1</td>
<td>4 x 7.5</td>
<td>RCC Slab</td>
<td>Provide new expansion joint, repair slab with widening</td>
</tr>
<tr>
<td>84.</td>
<td>363/1</td>
<td>1x2</td>
<td>RCC Slab</td>
<td>Repair of deck slab, Repair of exposed joints in old abutment with widening</td>
</tr>
<tr>
<td>85.</td>
<td>363/2</td>
<td>1x3.6</td>
<td>RCC Slab</td>
<td>Repair of slab with widening</td>
</tr>
<tr>
<td>86.</td>
<td>364/1</td>
<td>2x2.05</td>
<td>RCC Slab</td>
<td>Reconstruction as hume pipe culvert</td>
</tr>
<tr>
<td>87.</td>
<td>364/2</td>
<td>1x2.5</td>
<td>RCC Slab</td>
<td>Reconstruction as hume pipe culvert</td>
</tr>
</tbody>
</table>
FIG. 1: 6-LANE DIVIDED CARRIAGEWAY IN RURAL SECTION (TYPE 1)
FIG. 2: 6-LANE DIVIDED CARRIAGEWAY
WITH SERVICE ROAD/PARKING LANE IN URBAN SECTION (TYPE 2)
(ALL DIMENSIONS ARE IN METRE)

DETAIL-A
TYPICAL CROSS SECTION OF SAFETY BARRIER
(ALL DIMENSIONS ARE IN CM (UNLESS OTHERWISE SPECIFIED))

DETAIL-B
TYPICAL CROSS SECTION OF PEDESTRIAN GUARD RAIL
(ALL DIMENSIONS ARE IN CM (UNLESS OTHERWISE SPECIFIED))
Fig. 3(a): CROSS-SECTION OF 6 LANE STRUCTURE IN RURAL SECTION FOR CULVERT & MINOR BRIDGE
Fig. 3(b): CROSS-SECTION OF 6 LANE STRUCTURE IN RURAL SECTION FOR MAJOR BRIDGE (WIDTH OF EXISTING STRUCTURE 12.0m)

Fig. 3(c): CROSS-SECTION OF 6 LANE STRUCTURE IN RURAL SECTION FOR MAJOR BRIDGE (WIDTH OF EXISTING STRUCTURE 8.4m)
Fig. 3(d) : CROSS-SECTION OF 6 LANE STRUCTURE IN URBAN SECTION FOR CULVERTS AND MINOR & MAJOR BRIDGES (WIDTH OF EXISTING STRUCTURE 12.0m)
The figures with arrow signify the percentage of peak hour turning traffic in terms of PCU.

NOTE:
1. Interchange to be designed within the land acquired for the purpose.
2. Street lighting and high mast lights to be provided as per schedule D in respect of their spacing, height and type of luminaries.
NOTE 1-
All dimensions are in Meters
Zebra crossing and flashing beacon are applicable only at locations where these are proposed specially

JUNCTION GEOMETRIC IMPROVEMENT
(WITH UNIDIRECTIONAL FLYOVER)
AT KM. 275.885
MATCH TO EXISTING WIDTH
TAPER ENDS

SPEED BREAKER AS PER IRC : 99-1988

NOTE:
All dimensions are in Meters
Zebra crossing and flashing beacon are applicable only at locations where these are proposed specially

JUNCTION IMPROVEMENT
AT KM. 278.265, 285.915 AND 291.420
NOTE: -
All dimensions are in Meters
Zebra crossing and flashing beacon are applicable
only at locations where they are proposed specially

JUNCTION IMPROVEMENT
AT KM. 280.690, 301.050 AND 330.195
NOTE: -
1. All dimensions are in Meters.
2. Zebra crossing and flashing beacons are applicable only at locations where these are proposed specially.
3. Street lighting and high mast lights to be provided as per schedule D in respect of their spacing, height and type of luminaries.

JUNCTION IMPROVEMENT
AT KM. 278.265

MODEL CONCESSION AGREEMENT FOR JAIPUR-KISHANGARH SECTION OF NH-8
C:\DWIN\JAN-KISH\INT-03
FLYOVER WITH JUNCTION IMPROVEMENT
AT KM. 294.200

NOTE:
1. All dimensions are in Meters
2. Street lighting and high mast lights to be provided as per schedule D in respect of their spacing, height and type of luminaries.
JUNCTION IMPROVEMENT
AT KM. 291.120

SPEED BREAKER AS PER IRC : 99-1988

PEDESTRIAN GUARD RAIL
AS PER DRG NO. MCA/03/02

SERVICE ROAD CUM PARKING CUM CYCLE TRACK

JAIPUR

AJMER

DRAIN
NOTE :-
1. All dimensions are in Metres
2. Zebra crossing and flashing beacon are applicable only at locations where these are proposed specially
3. Street lighting and high mast lights to be provided as per schedule D in respect of their spacing, height and type of luminaries.

JUNCTION IMPROVEMENT AT KM. 292.425
NOTE:
- Zebra crossing and flashing beacon are applicable only at locations where these are proposed specially.

JUNCTION IMPROVEMENT
AT KM. 312.230, 320.025, 355.945 AND 359.870

MODEL CONCESSION AGREEMENT FOR JAIPUR-KISHANGARH SECTION OF NH-8
CONCEPTUAL DESIGN OF T INTERSECTION (TYPE I)

NATIONAL HIGHWAY AUTHORITY OF INDIA
NATIONAL HIGHWAY AUTHORITY OF INDIA

NOTE:
- Zebra crossing and flashing beacon are applicable only at locations where these are proposed specially.
NOTE:
The figures with arrow signify the percentage of peak hour turning traffic in terms of PCU.

FLYOVER WITH JUNCTION IMPROVEMENT AT KM. 329.375

NOTE:
All dimensions are in Meters.
MATCH TO EXISTING WIDTH
TAPER ENDS

SERVICE ROAD CUML PARKING CUML CYCLE TRACK

MATCH TO EXISTING WIDTH
TAPER ENDS

SPEED BREAKER AS PER IRC : 99-1988

NOTE:
All dimensions are in Meters

JUNCTION IMPROVEMENT
AT KM. 339.595
SPEED BREAKER AS PER IRC:

--

KISHANGARH

I+

--

SERVICE ROAD CUM PARKING CUM CYCLE TRACK

TAPER STARTS

SPEED BREAKER AS PER IRC: 99-1988

PEDESTRIAN GUARD RAIL AS PER DRG. NO. MCA\CS\02

PROPOSED JUNCTION

EXISTING JUNCTION

EXISTING ROAD

PEDESTRIAN GUARD RAIL AS PER DRG. NO. MCA\CS\02

JUNCTION IMPROVEMENT

AT KM. 350.475

NOTE: -

All dimensions are in Meters
PROJECT FACILITIES
PROJECT FACILITIES

1 GENERAL

The following sections of this schedule indicate the minimum spatial and functional requirements of the facilities to be provided on the Project Highway with an aim to cater to the envisaged demand till the end of the concession period.

2 TOLL PLAZA

Two toll plazas shall be provided, one at the Jaipur end and the other at the Kishangarh end. The location for toll plaza at Jaipur end shall be between km 286/450 to km. 286/950, and that at Kishangarh end between km 360/200 to km. 360/700. At these locations there is sufficient land available on either side of the highway to accommodate the additional lanes for toll booths. The layout of the toll plaza shall be such that there is no possibility of the traffic bypassing it.

“Open System” of toll collection shall be provided on the Project Highway with collection of user fee from vehicles only at the two toll plazas. There will be a total of 12 (twelve) lanes, 10 (ten) of which shall have a semi-automatic system of toll collection comprising equipments of vehicle classification, ticket issuing, data processing and power supply. One toll lane in each direction should have Electronic Toll Collection system.

The toll plaza shall be designed in accordance with the conceptual layout shown in Drawing Nos. MCA/TP/01 for Jaipur end and MCA/TP/02 for Kishangarh end, appended to this Schedule. The design for toll plaza shall conform to the standards set out in Schedule D of the Concession Agreement.

3 NOT USED

4 LAYBYS

Laybys of varying lengths at the locations indicated in Table C-1 shall be constructed along the Project Highway on both sides of the Project Highway. Basic facilities such as drinking water and toilets, with proper disposal system, shall be provided at a suitable location for the layby. Use shall be made of existing toilets and new toilets will be provided where none are available.
The proposed laybys are located where the concentration of Dhabas are observed at present. The occasional isolated Dhabas which are not located at the proposed sites shall be encouraged by the Concessionaire to shift to the nearby proposed location. Some of the laybys are also envisaged to integrate with the existing petrol pumps.

The design of the laybys in rural sections shall follow the conceptual plans indicated in Drawing Nos. MCA/LB/01 and MCA/LB/02 without and with integration with adjoining petrol pump site respectively. In an urban section, the design of the layby shall follow the conceptual plan shown in Drawing No. MCA/LB/01. At such a location, part of the service road shall accommodate the truck parking only. One row of truck parking shall be allowed on the service road to ensure enough space for plying of local traffic.

Table C-1: Laybys along Project Highway

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Name of the Area</th>
<th>Location (Kilometreage)</th>
<th>Length (m)</th>
<th>Length of 2 laybys, one on either side of the divided highway (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Narsinghpura</td>
<td>281/700 - 282/000</td>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>2.</td>
<td>Bad-Ke-Balaji &amp; Thikaria</td>
<td>284/000 - 284/200</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>3.</td>
<td>Balmukundpura</td>
<td>287/200 - 287/350</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>4.</td>
<td>Dehmi Kalan</td>
<td>292/000 - 292/200</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>5.</td>
<td>Nasonda</td>
<td>305/500 - 305/650</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>6.</td>
<td>Ramnagar</td>
<td>334/000 - 334/100</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>7.</td>
<td>Dantari</td>
<td>345/550 - 345/800</td>
<td>250</td>
<td>500</td>
</tr>
<tr>
<td>8.</td>
<td>Bandar Sindari</td>
<td>349/000 - 349/500</td>
<td>500</td>
<td>1000</td>
</tr>
<tr>
<td>10.</td>
<td>Nasirabad Bypass</td>
<td>362/600 - 363/150</td>
<td>550</td>
<td>1100</td>
</tr>
</tbody>
</table>

Total Length 5300

This provision would be reviewed after 8 years in consultation with the IC, subject to a maximum aggregate length of 8500m. This will not constitute a change of scope.
Bus bays and bus shelters shall be provided on the Project Highway at 22 (Twenty two) locations as mentioned in Table C-2 herein under. Bus bays and bus shelters shall be constructed as per the conceptual Drawing Nos. MCA/BB/01 and MCA/BB/02 on both sides of the Project Highway.

### Table C-2: Bus Bay Locations along Project Highway

<table>
<thead>
<tr>
<th>SI No</th>
<th>Name of Location</th>
<th>Kilometreage of Bus Bays</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bhakrota</td>
<td>L 278.700</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 278.900</td>
</tr>
<tr>
<td>2</td>
<td>Mahapura</td>
<td>L 280.750</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 280.450</td>
</tr>
<tr>
<td>3</td>
<td>Ramchandrapura</td>
<td>L 283.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 282.850</td>
</tr>
<tr>
<td>4</td>
<td>Bad ke Balaji &amp; Thikria</td>
<td>L 285.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 285.200</td>
</tr>
<tr>
<td>5</td>
<td>Rampura &amp; Devalia</td>
<td>L 289.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 289.200</td>
</tr>
<tr>
<td>6</td>
<td>Dahmi</td>
<td>L 291.200</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 291.500</td>
</tr>
<tr>
<td>7</td>
<td>Bagru</td>
<td>L 295.200</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 295.400</td>
</tr>
<tr>
<td>8</td>
<td>Chitroli</td>
<td>L 297.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 296.700</td>
</tr>
<tr>
<td>9</td>
<td>Mahlan</td>
<td>L 301.300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 301.500</td>
</tr>
<tr>
<td>10</td>
<td>Nasnoda &amp; Gadota</td>
<td>L 306.500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 306.700</td>
</tr>
<tr>
<td>11</td>
<td>Dhani Bombe</td>
<td>L 310.500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 310.700</td>
</tr>
<tr>
<td>12</td>
<td>Mokhampura</td>
<td>L 311.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 311.800</td>
</tr>
<tr>
<td>13</td>
<td>Palu</td>
<td>L 317.400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 317.250</td>
</tr>
<tr>
<td>14</td>
<td>Sawarda</td>
<td>L 319.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 319.800</td>
</tr>
<tr>
<td>15</td>
<td>Gidani</td>
<td>L 321.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 321.800</td>
</tr>
<tr>
<td>16</td>
<td>Dudu</td>
<td>L 330.400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 330.600</td>
</tr>
<tr>
<td>17</td>
<td>Ramnagar &amp; Gajjimode</td>
<td>L 335.350</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 335.550</td>
</tr>
<tr>
<td>18</td>
<td>Parasoloni</td>
<td>L 339.700</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 339.900</td>
</tr>
<tr>
<td>19</td>
<td>Dantri</td>
<td>L 344.800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 345.000</td>
</tr>
<tr>
<td>20</td>
<td>Bandar Sindari</td>
<td>L 350.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 350.150</td>
</tr>
<tr>
<td>21</td>
<td>Patan</td>
<td>L 355.800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 355.400</td>
</tr>
<tr>
<td>22</td>
<td>Badgaon</td>
<td>L 359.400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 359.600</td>
</tr>
</tbody>
</table>

*Note: L=Left hand side and R=Right hand side, while traveling from Jaipur to Kishangarh*
6 PEDESTRIAN FACILITIES

Pedestrian facilities shall be provided at the locations indicated in Table C-3 below in order to ensure safety of pedestrians while crossing.

Table C-3: Pedestrian Facility

<table>
<thead>
<tr>
<th>Si No</th>
<th>Name of the Place</th>
<th>Location (Kilometre)</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gopalpura bypass</td>
<td>275/885</td>
<td>Zebra Crossing with flashing Beacon</td>
</tr>
<tr>
<td>2</td>
<td>Bhankrota</td>
<td>278/265</td>
<td>- do -</td>
</tr>
<tr>
<td>3</td>
<td>Bagru</td>
<td>292/425</td>
<td>- do -</td>
</tr>
<tr>
<td>4</td>
<td>Bagru</td>
<td>294/200</td>
<td>- do -</td>
</tr>
<tr>
<td>5</td>
<td>Dudu</td>
<td>329/375</td>
<td>Zebra Crossing with Separate Pedestrian Phase</td>
</tr>
<tr>
<td>6</td>
<td>Nasirabad Bypass Junction</td>
<td>363/300</td>
<td>Zebra Crossing with flashing Beacon</td>
</tr>
</tbody>
</table>

7 CATTLE CROSSING

9 (nine) cattle crossings in the form of R.C.C. box cells having inner dimensions of 3 m (width) x 3 m (height) shall be provided at the locations indicated in Table C-4 below or in the vicinity of these locations in consultation with the Independent Consultant. The proposed box cell shall have an opening at its top in full width in the median portion for the provision of daylight and ventilation.

Table C-4: Location of Proposed Cattle Crossing along Project Highway

<table>
<thead>
<tr>
<th>Si No</th>
<th>Location Kilometrage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>280/000</td>
</tr>
<tr>
<td>2</td>
<td>285/500</td>
</tr>
<tr>
<td>3</td>
<td>290/000</td>
</tr>
<tr>
<td>4</td>
<td>302/000</td>
</tr>
<tr>
<td>5</td>
<td>312/000</td>
</tr>
<tr>
<td>6</td>
<td>337/000</td>
</tr>
<tr>
<td>7</td>
<td>344/500</td>
</tr>
<tr>
<td>8</td>
<td>354/000</td>
</tr>
<tr>
<td>9</td>
<td>357/000</td>
</tr>
</tbody>
</table>

8. HIGHWAY TRAFFIC MANAGEMENT SYSTEM (HTMS)

Project Highway shall be provided with Highway Traffic Management Systems (HTMS) to collect/ disseminate information about traffic and incident management, and for the safety of users. The system shall comprise the following sub-systems:

i) Emergency Communication System.
ii) Mobile Communication System.
iii) Variable Message Sign System.
iv) Meteorological Data system.
v) Automatic traffic counter-cum-classifier system
vi) CCTV Surveillance System
vii) Power Supply System.

8.1 Emergency Communication System shall have Emergency Call Boxes (ECBs) installed at a spacing of 2 kms on either side of the highway for both direction of travel and connected to the (Control) Centres through the transmission system of optical fibre cable and copper cables with suitable interfacing. The Main Base Camp at the Jaipur end Toll Plaza shall have the Main Control Centre and the Subsidiary Base Camp at the Kishangarh end Toll Plaza shall have the Sub-Centre, so that any user making an emergency call from ECBs can be provided the assistance of an ambulance, crane and/or highway patrol unit depending upon the type of emergency.

8.2 Mobile Communication System shall comprise mobile sets provided on ambulances, cranes and patrolling vehicles for facilitating speedy communication even when they are on the move.

8.3 Variable Message Signs (VMS) shall be provided at a minimum of six locations to guide and forewarn the users about the traffic and weather conditions on the highway. These messages can be varied from the (Control) Centres based on the data received through surveillance system, highway patrolling, traffic censors etc. The locations shall be decided for their maximum utility to the users.

8.4 Meteorological Data System shall be installed at a minimum of two locations to provide weather information on temperature, wind speed, humidity and visibility. This information shall be available to the users through Variable Message Signs as per requirement.

8.5 Automatic Traffic Counters-cum-Classifiers shall be installed at a minimum of two locations for traffic data collection and monitoring.

8.6 CCTV Surveillance System - For the Closed-Circuit TV Surveillance, video cameras shall be installed at major intersections and at least two mid-block sections on the highway for visual information collection and distance surveillance system.

8.7 As discussed above, the proposed HTMS shall have outdoor equipment consisting of ECBs, VMS panels, weather sensors, traffic sensors, video camera etc. The outdoor equipment shall be connected to the Main Control
Centre through the transmission system, preferably comprising optical fibre cable, copper cable and interface equipment. The Main Control Centre shall have monitoring equipment, on-line information acquisition equipment, processing equipment etc. It shall also have a graphic display board showing the highway and the locations of equipments and of incidents. The (Control) Centres would have ambulances, tow-away trucks, cranes and fire tenders for dispatching these emergency services to the required locations.

9. ADMINISTRATIVE, OPERATION AND MAINTENANCE BASE CAMP

There shall be two base camps, one at each toll plaza as described hereinunder. The main base camp shall be at the Jaipur end Toll Plaza and the secondary base camp shall be at the Kishangarh end Toll Plaza.

The main administrative, operation and maintenance base camp shall be provided to cater to the requirement of the following services:

- Highway Traffic Management System (HTMS)
- Fee Collection
- Highway Maintenance
- Facilities for storage and repair of maintenance equipments, vehicles, and materials

The main base camp shall be housed adjacent to the toll complex at the Jaipur end toll plaza. An area of 5000 sq.m. shall be earmarked for this purpose. An indicative location is given in Drawing No. MCA/TP/01. The layout of the different buildings and facilities shall be finalised in consultation with the Independent Consultant.

The Administrative building shall primarily house the Main Control Centre, the security headquarters, the central store, the toll audit and data processing units in addition to other secondary facilities such as computer room, office space, stores, sanitary facilities, canteen etc. The main base camp shall have adequate parking space for staff and visitors.

The maintenance area shall have a centrally-located building to overlook the maintenance workshop activities comprising the welding shop, painting shop, washroom, tyre repair shops, storage area for lubricants, spare parts and materials for immediate maintenance requirements etc. A separate storage area shall be earmarked for inflammable materials. The maintenance block shall have enough space to park the equipments and machinery deployed for maintenance activities. Adequate parking space shall be earmarked for the staff vehicles and visitors' vehicles. In addition, there shall be adequate and well-illuminated covered parking space for all the maintenance vehicles.
The secondary base camp shall be established adjacent to the toll plaza complex at the Kishangarh end as indicated in Drawing No. MCA/TP/02. An area of 3000 sq. m. shall be earmarked for this purpose. The layout of the different buildings and facilities shall be finalised in consultation with the Independent Consultant. The secondary base camp shall be primarily for the purpose of providing maintenance facilities and emergency services.

In addition, the base camps shall have a power sub-station and supplies room to cater to the power requirements of the camp. The sub-station shall house a standby generator to provide the required power in case of failure of normal power.

The camps shall have adequate lighting during dark periods and night.

There shall be underground fuel storage area with delivery facilities (Petrol/ Diesel Filling Station) at the Main Base Camp site to adequately cater to the demands of maintenance and patrolling activities.

The base camps shall not have more than one entry and one exit point. Both of these shall be manned by security personnel at all times.

The camps shall be landscaped so as to protect the area from dust and noise from the Project Highway.

The laboratory facility to be established for testing of various materials related to road construction and maintenance shall be located at the main base camp.

10. HIGHWAY LIGHTING

The lighting at intersections in classified urban areas on the Project Highway, grade separators, toll plaza, main administrative and maintenance base camp, secondary base camp shall be provided in accordance with the standards set out in Schedule D. Highway lighting shall be as per Appendix I.

11. LANDSCAPING

Landscape treatment of the Project shall be undertaken through planting of trees and ground cover of appropriate varieties and landscaping on surplus land in the ROW and median.

Shrubs of low height shall be planted in the median of the project highway. Plantation scheme shall be prepared in consultation with the agricultural college at Jobner, the
Forest Department of the Government of Rajasthan, and the Independent Consultant.

12. ENVIRONMENT

In view of the statutory requirement of environmental clearance for highway projects, the NHAI decided to carry out environmental and social impact assessment of the proposed widening and strengthening of the Project Highway.

The environmental and social assessment study has accordingly been carried out and is presented in a report titled:


The said report brings out the baseline environmental and social conditions, envisaged impacts of the project, mitigation measures proposed and suitable management plan for monitoring and implementation of measures. The report is available for reference at NHAI.

The Project Highway during design, construction, operation and maintenance shall conform to the environmental rules and regulations in force.

13. FACILITY PLAN

All the facilities such as toll plazas, bus bays, laybys etc. to be provided along the Project Highway are schematically shown in Drawing Nos. MCA/FP/01 to 03 appended herewith.
### STREET LIGHT REQUIREMENTS IN URBAN STRETCHES

<table>
<thead>
<tr>
<th>Si No</th>
<th>From Km</th>
<th>To Km</th>
<th>Length (Km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>273.500</td>
<td>278.500</td>
<td>5.0</td>
</tr>
<tr>
<td>2</td>
<td>283.000</td>
<td>287.500</td>
<td>4.5</td>
</tr>
<tr>
<td>3</td>
<td>300.500</td>
<td>301.500</td>
<td>1.0</td>
</tr>
<tr>
<td>4</td>
<td>349.700</td>
<td>350.800</td>
<td>1.1</td>
</tr>
</tbody>
</table>

**Total Length**: 11.6 km
NOTES:-

1. ALL DIMENSIONS ARE IN METERS
2. INTERMEDIATE SERVICE LANE WIDTH WILL BE 3.2 m.
   AND END SERVICE LANE WILL BE 4.5 m.
3. WIDTH OF ISLANDS SHALL BE 2.0 m.
4. HIGH MAST & APPROACH LIGHTING TO BE PROVIDED AS PER SCHEDULE D
1. ALL DIMENSIONS ARE IN METERS
2. INTERMEDIATE SERVICE LANE WIDTH WILL BE 3.2 m.
   AND END SERVICE LANE WILL BE 4.5 m.
3. WIDTH OF ISLANDS SHALL BE 2.0 m.
4. HIGH MAST & APPROACH LIGHTING TO BE PROVIDED AS PER SCHEDULE D
TYPICAL LAYOUT FOR TRUCK LAYBY IN RURAL SECTION
(OPTION 1)

LAYOUT FOR TRUCK LAYBY IN URBAN SECTION

ALL DIMENSIONS ARE IN METRES
TYPICAL LAYOUT FOR TRUCK LAYBY IN RURAL SECTION

WITH A PETROL PUMP LOCATION

(OPTION II)

ALL DIMENSIONS ARE IN METRES
CONCEPTUAL DESIGN OF PASSENGER SHELTER AT BUS STOP

MODEL CONCESSION AGREEMENT FOR JAIPUR-KISHANGARH SECTION OF NH-8

NOTE: TREE AT BUS SHELTER IS NOT APPLICABLE IN URBAN CONTEXT
LAYOUT FOR PICK-UP BUS STOP IN RURAL AREA

ALL DIMENSIONS ARE IN METRES
SPECIFICATION & STANDARDS
SCHEDULE D

SPECIFICATIONS AND STANDARDS

1. INTRODUCTION

1.1 Specifications and Standards for construction, operation and maintenance of the Project Highway (including facilities thereon) in km 273.500 to km 363.885 of NH-8 in Rajasthan are described hereunder in this Schedule.

1.2 The terminology used in the Concession Agreement will carry the definition shown against each for the contractual and professional understanding in the implementation of Schedule D.

   i) National Highway Authority of India (NHAI) Employer
   ii) Concessionaire Company responsible to implement the provisions of the Concession Agreement.
   iii) Independent Consultant (IC) Consulting Engineering firm appointed by the NHAI in consultation with the Concessionaire to review the designs furnished by the Concessionaire and oversee the construction, operations and maintenance of the Project Highway during the concession period.

1.3 The Concessionaire shall employ various agencies to design, construct, operate and maintain the Project Highway. In doing so, it shall follow this Schedule in addition to other documents included in the Concession Agreement. This Schedule uses the terms "Contractor" and "Engineer" particularly with reference to the Ministry of Surface Transport Specifications for Road and Bridge Works [Third Revision], 1997 [hereinafter referred as MOST Specifications]. In implementation of the said specifications, the terms "Contractor" and "Engineer" used therein shall carry the meaning and/or reference as indicated hereunder:

   i) Contractor The Contractor(s) employed by the Concessionaire to execute the Project Highway on its behalf.
   ii) Engineer The construction supervision Consulting firm(s) employed by the Concessionaire for the construction supervision of the Project Highway.
1.4 This Schedule comprising specifications and standards (inclusive of reference to codes and manuals) for construction, operation and maintenance of the Project Highway on the basis of the Concession Agreement is sub-divided into three parts, namely:

- General
- Specifications
- Standards

These are described hereinunder.

2. GENERAL

2.1 The Project Highway is a portion of the National Highway No. 8, as such all works related to the Project Highway shall conform to the Indian Roads Congress (IRC) Standards, Codés, Guidelines and Special Publications as applicable to National Highways and MOST specifications with all updates till 30 days before the date of bid submission by the Concessionaire. In the absence of any definite provisions on any particular issue related to the specifications and/ or standards, reference may be made to the latest codes and specifications of the Bureau of Indian Standards (BIS), AASHTO, ASTM, British Standards, or any other international standards in that order of precedence. But where even these are silent, the construction and completion of the works shall conform to sound engineering practice with the approval of the Independent Consultant.

2.2 Amendments and/ or modifications carried out by the Ministry of Surface Transport (Roads Wing) in the MOST specifications and IRC standards, and codes available to the public 30 days before the date of receipt of bids shall be followed.

2.3 All building works shall conform to Central Public Works Department (CPWD) Specifications for Class 1 Building Works and standards given in the National Building Code (NBC) as amended up to 30 days before the receipt of bids. However, whenever any specific provision for any building works is given in the MOST specifications, IRC standards and codes, those shall apply. For the purpose of this clause, building works shall be deemed to include road furniture, landscape elements and/ or any other works incidental to the building works.

2.4 The Concessionaire shall plan and implement the quality assurance programme for the Project Highway and finalise it in consultation with the
Independent Consultant at least one month prior to the commencement of the work.

2.5 The quality and/or the quantities of various items shall primarily be the responsibility of the Concessionaire. The Independent Consultant shall, however, ensure and/or verify it by devising suitable means. On noticing any deficiency in the quality and/or quantity, corrective measures as ordered by the Independent Consultant shall be carried out by the Concessionaire at the Concessionaire's cost to the satisfaction of the Independent Consultant.

3. SPECIFICATIONS

3.1 "Specifications" hereinunder mean the specifications relating to the quality and other requirements for the Project Highway as set forth in this Schedule and any modifications thereof, or additions thereto, as included in the design and engineering for the Project Highway submitted by the Concessionaire to NHAI at the time of Bid and expressly approved by NHAI.

3.2 Any specifications and materials used shall be consistent with MOST specifications and other publications referred to therein.

3.3 The materials to be used in the work of the project highway (including facilities thereon) shall conform to MOST specifications. However, where the said specifications are silent in regard to specification for the material in question, specifications of the Bureau of Indian Standard/ AASHTO/ASTM/ British Standards shall apply in that order of precedence. But where even these standards are silent, the Concessionaire shall obtain the approval of the Independent Consultant for the specifications for the material in question prior to its incorporation in the work.

3.4 Guidelines on the selection of the Grade of bitumen and use of anti-stripping agents for Bituminous Materials and Mixes as given in Appendix 4 and 5 of MOST Specifications shall be followed.

3.5 In addition to Road and Bridge works, there will be other works, described hereinunder, on the Project Highway. Wherever tailor-made specifications are not available for these works, specific approval of the Independent Consultant shall be obtained by the Concessionaire in respect to that particular item of work.
3.5.1 HIGHWAY LANDSCAPING

3.5.1.1 Planting along the highway shall follow a variety of schemes depending upon location requirement as per the IRC: SP: 21-1979. The choice of trees to be planted shall also be made as per IRC: SP: 21-1979: "Manual on Landscaping". Eucalyptus (all species) is not recommended for planting. Local, indigenous species that grow in high salinity microclimate shall be planted.

3.5.1.2 On medians and as under-crop, planting of dust and gaseous substance-absorbing shrubs such as nerium oleander album is recommended. To ensure survival from herbivorous animals, shrubs/plants containing latex shall only be planted.

3.5.1.3 Preparation of schemes for highway development, restriction on building lines, control lines, control of access, prevention of unauthorised occupation of land and removal of encroachment shall be as per IRC: SP: 15-1974.

3.5.1.4 The treatment of the highway embankment slopes shall be as per the recommendations of IRC: 56-1974, depending upon the soil types involved. Pitching works on the slopes shall be as per the MOST Specifications.

3.5.1.5 Construction of Cement Concrete (CC) (M-20) footpaths for pedestrians shall be as per MOST Specifications.

3.5.1.6 No advertisement/hoarding shall be allowed to be erected on the Project Highway.

3.5.1.7 It shall be ensured that any sign, signal or any other device erected for traffic control, traffic guidance and/or traffic information shall not obscure any other traffic sign.

3.5.2 BUILDINGS

3.5.2.1 All building works shall be designed to meet the functional requirements and shall be compatible with the regional architecture and microclimate. Locally available materials shall be given preference but not at the cost of construction quality. All brick and stone masonry works shall be of First Class type and as per good practice. All steel works shall conform to Section 6, Part VI of the NBC and Sections 1900 and 2000 of MOST specifications.
3.5.2.2 All building works shall conform to Central Public Works Department (CPWD) Specifications for Class 1 Building Works and standards given in the National Building Code (NBC) as amended and/or modified from time-to-time. However, whenever any specific provision for any building works is given in the MOST specifications/IRC standards those shall apply. For the purpose of this clause, building works shall be deemed to include road furniture, landscape elements or any other works incidental to the building works.

3.5.2.3 All the open spaces around the building(s) shall be landscaped. Boundary walls, fencing, controlled entry points and cattle traps at all entry and exit points to the buildings shall be provided to protect them from intruders and animals.

3.5.2.4 The design of water storage and distribution systems, laying of mains and distribution pipes, cleaning and disinfecting of the water supply system shall be as per relevant clauses of Section 1, Part IX of the NBC.

3.5.2.5 The design, layout and construction of drains for sewage disposal system with all ancillary works such as connections, manholes and inspection chambers and septic tanks shall be as per relevant clauses of Section 2, Part IX of the NBC. Each septic tank, if provided, shall have a soakage pit of adequate size. The location of the septic tanks and sub-surface absorption system shall be as per Clause 12.15.1 of Part III of NBC.

3.5.2.6 The design and location of all electrical installations, distribution system, wiring, fittings, accessories and lightning protection of buildings shall be as per the relevant clauses of Section 2, Part VIII of the NBC.

3.5.3 HIGHWAY LIGHTING SYSTEM

3.5.3.1 The following codes shall be followed while designing the lighting system on the Project Highway for different locations such as grade-separated junctions, bridges, junction of slip roads with elevated roads, pedestrian crossing, toll plazas, base camps etc.

i) IS: 1944 (Parts I and II) - 1970
ii) IS: 1944 (Part V) - 1981; and
iii) IS: 1944 (Part VI - 1981)

The layout of the lighting system together with type of luminaires and level of illumination for different locations shall be determined in consultation with the Independent Consultant.
3.5.3.2 Overhead electric power and telecommunication lines erected within the ROW by the Concessionaire shall be provided with adequate clearance so that safe use of road is not affected. Vertical and horizontal clearances shall conform to IRC: 32-1969.

3.5.4 HIGHWAY TRAFFIC MANAGEMENT SYSTEM (HTMS)

3.5.4.1 The system and the equipment of the HTMS shall meet the following main climatic and environmental requirements as specified in IS: 9000.

i) Temperature Range of Operation - Low of 0°C (± 3°C) to High of 60°C (± 2°C)

ii) Relative Humidity of 95%

iii) Vibration Frequency Range of 10 Hz - 55 Hz.

3.5.4.2 The Emergency Communication System shall comprise Emergency Call Boxes with loudspeaker, microphone, activation button with LED indicating conversation, and shall be housed in a vandal-proof fibre glass casing. They shall operate in full duplex mode in a noise level of upto 95 Decibels (Db) and would have an in-built diagnostic feature for automatic detection in case of damage by any object. They shall be connected to the transmission system through the integrator by means of a copper cable.

3.5.4.3 The mobile communication system shall comprise the mobile radio base station and Control Centre equipment. Mobile radio shall have provision for mounting mobile set on ambulances, cranes and patrolling vehicles. The system shall neither affect the functioning of other telecom equipment, nor get affected by the presence of other equipment. The system shall have the facility to connect mobile to mobile, mobile to controller and controller to mobile along with the system for waiting, holding and transfer of calls. The system shall use a single frequency to be allotted by NHAI with the approval of Wireless Planning and Coordination (WPC), Department of Telecommunications (DoT). The equipment shall operate in semi-duplex mode at 12V ±10% DC.

3.5.4.4 The design for the Variable Message Signs (VMS) will be modular with sign panels using LEDs / High-Gain Trans-Reflective LCDs for outdoor ambient lights. The sign panel should be such that a display is legible from a distance of about 200 m. For this purpose, panels shall have minimum dimensions of 3m length x 1.8 m height x 0.2 m depth. The minimum height of the characters shall be 300 mm. The contrast ratio shall be more than 30 perpendicular to the bold face and more than 10 at an angle of ± 70 degrees to the perpendicular. The equipment shall be capable of storing minimum 10 frames than can be triggered on receiving the tele command. The sign
panels shall be installed on the structure in such a manner that they are aesthetically pleasing and can withstand wind pressures. The equipment shall be capable of storing minimum semi-duplex mode and other known forces. The minimum vertical clearance available at VMSs shall be 5.5 m from the road surface. Power supply shall be fed from the integrator locations.

3.5.4.5 The meteorological sensors shall comprise thermocouple/ pyranometer, humidity meter, anemometer meter, visibility meter and sensor for measuring pavement surface temperature. They shall be installed on a single pole with a specific attachment and power supply fed from the integrator. They shall have the facility to communicate on PIJF/ Optical Fibre Cable.

3.5.4.6 The Automatic Traffic Counter-cum-Classifer shall be capable of detecting and recording all types of vehicles plying on the Project Highway based on their length and number of axles. It shall be capable of taking input from portable sensors. The system shall be robust and capable of operating with minimum maintenance. The temperature range of pavement in which the sensor shall work are from -40°C to +80°C. The recording and display unit shall work accurately within a temperature range of -20°C to +60°C. The sensor shall be a combination of piezo-electric sensor and inductive loops enabling counting/classification of upto six-lane traffic with user-set time periods. The logic units shall be macroprocessor-based. Vehicle counting/classification interval shall be programmable from one minute to 1440 minutes/24 hours. The system should be able to record and store vehicle data for a period of at least two weeks with a Daily Traffic Volume of upto 50,000 vehicles. The system shall have compatibility to transfer the data on PIJF/Optical Fibre Cable.

3.5.4.7 The Closed Circuit Television (CCTV) Surveillance shall comprise video camera, its housing and pan, and Tilt Heads. The video camera shall be mounted at a suitable height and the housing shall be able to withstand adverse weather conditions. It shall have a 360 degree angular travel in the horizontal plane and a tilt of 90 degrees down from 0 degrees horizontal. It shall have zoom lens with minimum power of 30 X, auto iris and infrared filter, infrared compatibility for night operation and remotely selectable operating modes. It shall have compatibility with co-axial cable/optical fibre cable.

3.5.4.8 The transmission shall provide connectivity of outdoor equipment such as emergency call boxes, mobile radio sets, variable message signs, meteorological sensors, traffic sensors and video camera to the control centre. It shall have optical fibre cable, PIJF copper cable and coaxial cable system. The cable system shall be laid inside HDPE or PE coated ducts of 40/33 at a
depth of about 1.2 m in the middle of the central median of the carriageway. The laying of cable across the carriageway shall be done using a trenchless technique. The optical fibre cable shall be 8 to 24 fibre types, and shall employ multiplexing schemes to achieve desired optimal requirements. The copper cable (PIJF) shall connect the outdoor equipment such as the ECB to the nearest integrator. They shall be manufactured as per the design performance requirements. The coaxial cable system for connection the TV cameras to the control centre via integrators shall have the capability to interface with Optical Fibre Cable network for similar transmission and shall conform to relevant ITU standards. The integrator server shall provide a concentrator platform for input/output for up to 6 expansion base and 4 asynchronous ports to support communication from ECBs, Variable Message Signs and meteorological and traffic sensors. The integrator will support multi-voice + data ISDN and ATM frame transfer protocols operable on 12 VDC power-fed conductor. It should also be capable of operating on solar photovoltaic panels with up to 3 sun-less days.

3.5.4.9 The Main Control Centre shall be designed for round-the-clock operations of monitoring, on-line information acquisition and processing the same for decision-making. The Main Control Centre shall have equipment of central computer, call centre, terminal junction box, uninterrupted power supply (UPS), counsel operator with monitors and joy sticks, rack accommodation, large display board, line printer and general purpose office computer with monitor, printer, fax and telephone. The system shall also have Network Management System (NMS) or real-time monitoring of ECBs and network diagnostics.

3.5.5 TOLL PLAZA

3.5.5.1 Toll Plaza Complex

Toll booth shall be aesthetically pleasing, structurally sound and capable of withstanding extreme weather conditions of the region. It shall have clear visibility of approaching vehicles and shall be strong enough to withstand all forces as per relevant clauses of Section 1, Part VI of NBC. The buildings of the toll plaza complex shall conform to Clause 3.5.2 of this Schedule.

3.5.5.2 The Toll Plaza complex including its canopy, having 5.5 m clear height in the central portion covering 10 lanes and 8.5 m clear height in the portion of outer lane for oversized and non-tollable vehicles. There shall be an underground tunnel connecting the toll booths to the toll office strong room. The underground tunnel and barriers shall have an effective illumination system for safe movement of vehicles, their identification and all-round visual
comfort. Toll gates shall be provided with check barriers which can be electrically operated from the toll booths. High-mast lighting shall be provided at these locations. Power supply shall be from the public power supply system but standby diesel generating sets of adequate capacity shall be provided.

3.5.5.3 The Toll Plaza Complex shall be provided with adequate surface and subsurface drainage system.

3.5.5.4 Fire-fighting equipment including smoke detectors and audio-visual alarm system shall be planned and installed as per Section 4.17.1 of NBC.

3.5.5.5 The pavement of the 12 service lanes shall be cement concrete and shall be designed as stipulated under pavement design. Pavement markings shall conform to the requirements stated in Clause 4.21 of this Schedule.

3.5.5.6 Semi-automatic toll collection system shall be equipped with a vehicle detector on entry lane which counts the number of vehicles and their axle numbers, a ticket-issuing machine which issues a toll ticket at the press of a button on the touch panel and an entry lane controller which controls these equipments of the entry lane and sends the data to the data processing equipment of the toll plaza office. The Electronic Toll Collection system shall be provided on one toll lane in each direction and shall consist of a tag fitted on the vehicle which transmits radio waves to antenna for identification of its code and other stored data, an antenna fitted on the canopy which relays the received signal from the tag to the reader and a reader which transmits all information to the customer's information management system.

3.5.6 TRAFFIC SAFETY MEASURES

3.5.6.1 Highway Patrolling

3.5.6.1.1 Highway Patrolling would have two establishments, one at Jaipur Toll Plaza and other at Kishangarh Toll Plaza. At each location, there would be three shifts of 8 hours each. Each unit would consist of 1 (one) Sub-Inspector, 1 (one) Head Constable, 3 (three) Constables and 1 (one) driver. The Concessionaire shall reach an agreement for hiring the aforesaid personnel with the concerned department of the Government of Rajasthan.

3.5.6.1.2 Control Centres (Main and Sub-) for HTMS would have a crane, diesel Jeep or Station Wagon, ambulance, motorcycle and other equipment as per requirement. All the vehicles shall conform to the Motor Vehicles Act
1988. The ambulance unit shall have 1 (one) nurse, 1 (one) compounder, 1 (one) photographer and 1 (one) driver.

3.5.6.2 Pedestrian Guard Rails and Safety Barriers

3.5.6.2.1 The Pedestrian Guard Rails along the Highway shall be constructed as per Drawing No. MCA/CS/02.

3.5.6.2.2 The Safety Barrier shall conform to MOST Circular No 604.15.

3.5.7 TRAFFIC CONTROL

3.5.7.1 Traffic Signals

3.5.7.1.1 There shall be no traffic signals on the National Highway except at the locations given in Table C-3 of Schedule C for pedestrians in urban areas. Where provided as pedestrian facility and on the side road crossing meeting the Project Highway, it will be governed by Clause 3.5.7.1.2 hereinunder.

3.5.7.1.2 The signal foundation shall be constructed as per Clause 13 of IRC: 93 - 1985. Construction requirements shall conform to IS: 7537-1974, unless otherwise stated in IRC: 93-1985. Posts shall be painted and protected as per Clause 3.7 of IS: 7537-1974. Traffic signals shall have a complete electronic mechanism with an auxiliary manual controller.

3.5.7.2 Highway Signs

3.5.7.2.1 Road signs erected on the Project Highway shall conform to IRC: 67-1977, "Code of Practice for Road Signs". Road signs such as chevron, overhead etc. not covered by IRC: 67 will be as per BIS/AASHTO/ASTM/British Standards in that order of precedence.

3.5.7.2.2 All road signs shall be with retro-reflective sheet of high intensity grade with encapsulated lens fixed over aluminium substratum as per Clause 801 of MOST Specifications.

3.5.7.2.3 The overhead signs shall be placed on a structurally sound gantry or cantilever structure made of GI pipes. The said sign shall be of high intensity retro-reflective sheeting. The height, lateral clearance and installation shall be as per the MOST Specifications.
3.5.7.3 Pavement Markings

3.5.7.3.1 Pavement markings shall be as per IRC: 35-1997. These markings shall be applied to road centre lines, edge line, continuity line, stop lines, give-way lines, diagonal/chevron markings, zebra crossing and at parking areas by means of an approved self-propelled machine which has a satisfactory cut-off value capable of applying broken lines automatically.

3.5.7.3.2 Road markings shall be of hot-applied thermoplastic paints with glass reflectorising beads as per relevant clauses of Section 803 of MOST Specifications.

3.5.8 PROJECT VEHICLES AND EQUIPMENT FOR OPERATION

3.5.8.1 All the vehicles used for activities pertaining to the highway operation shall conform to the Motor Vehicles Act, 1988.

3.5.8.2 All the gadgets, equipment or any systems used for operation and maintenance of the highway shall be of standard make and shall conform to international standards.

3.5.9 ROAD FURNITURE AND FACILITIES ON ROADSIDE

3.5.9.1 Road furniture on the Project Highway provided as per IRC Codes shall meet requirements of MOST Specifications. Where any item is not covered by it, then its specification shall conform to BIS/AASHTO/ASTM/British Standards in that order of precedence.

3.5.9.2 Roadside facilities such as litter bins, public toilets and drinking water kiosks, where provided, shall follow the specifications spelt out here inunder.

3.5.9.3 Litter Bins: Litter bins shall be simple in shape, and their colour and finish shall make them conspicuous. Litter bin shall be post-mounted and/or swivel type. The mounting and fixing components shall be robust. The bin shall have drainage holes for periodic flushing. It shall also be theft-, vandal- and fire-proof. It shall be resistant to wear and tear, and the material and design shall be such as to require minimal maintenance.

3.5.9.4 Public Toilets: The public toilets shall be simple in design and the area around the toilet block shall be paved with cement concrete tiles or any
other suitable material, and have cross slope so as to ensure speedy
disposal of water. The structure shall conform to relevant sections of
Clause 3.5.2 of this Schedule.

3.5.9.5 Drinking Water Kiosk: The design of the water kiosk shall be such as to
require minimal maintenance. Area around the kiosk shall be paved with
cement concrete tiles or any other suitable material, and have cross slope
so as to ensure speedy disposal of water. The water supplied shall
conform to IS: 10500-1991 for quality and purity of potable water.

3.5.10 PICKUP BUS STOPS

3.5.10.1 The bus stop layout shall provide safe entry and exit of buses from project
highway and safe movement of passengers. The shelter structure shall be
structurally safe and functional so as to protect the waiting passengers
adequately from sun, rain and wind. The covered structure shall be of steel
pipes and with fibre glass roof. The seating and plinth of the structure shall
be of coursed stone masonry. The bus bay area shall be provided with an
effective drainage system.

3.5.10.2 The bus bays shall be paved with precast cement concrete (CC) (M-40)
blocks. The area around the bus stops used by pedestrians shall also be
paved with precast concrete blocks.

3.5.10.3 The Pedestrian Guard Rails at bus stops shall be provided as per the
Drawing No. MCA/CS/02.

3.5.11 TRUCK PARKING FACILITIES

3.5.11.1 The layout of the truck laybys and facilities thereon shall be governed by
site requirement so as to cater to the estimated parking demand in
consultation with the Independent Consultant. Parking shall be parallel to
the road and the layby shall be set back from the edge of the carriageway.
The laybys shall be landscaped with low-density plantation to provide
shade.

3.5.11.2 The parking spaces shall be so paved by precast Cement Concrete (CC)
(M-40) blocks to withstand vehicle loads and forces due to frequent
acceleration and deceleration of vehicles. Parking bays/ lots shall have
proper cross slope and drainage. They shall be marked with paint as per
IRC: 35-1997 to demarcate parking and circulation spaces. Lighting shall
be provided as per IS: 19-1944 (Parts I and II) - 1970.
3.5.11.3 The parking layby shall have drinking water kiosk, independent of other existing facilities and of required capacity. The kiosk shall be well sheltered from the sun and rain, and area around it shall be suitably and adequately paved with proper drainage to ensure disposal of spilt water.

3.5.11.4 The parking layby shall have Toilet facility to suit the requirement. It shall have covered soak pits and shall be away from the drinking water facility. Use shall be made of existing toilets, wherever available.

3.5.12 ADMINISTRATIVE, OPERATION AND MAINTENANCE BASE CAMP

3.5.12.1 The various main facilities at the Base Camps shall be as follows:

**Jaipur End-Administrative and Maintenance Base Camp**
Administrative Block including Main Control Centre  
Equipment & Store  
Paint & Sign Shop  
Welding Shop  
Washing Shed & Tyre Repair Shop  
Garage & Tool Room  
Laboratory for Testing  
Parking for Large Vehicles (4 nos.)  
Parking Area 45 no  
Petrol Pump & its Office  
Staff (2 wheeler & 4 wheeler) & Visitors’ Vehicle Parking

**Kishangarh end – Secondary Base Camp**
Maintenance Block  
Sub-Centre  
Equipment & Store  
Paint & Sign Shop  
Welding Shop  
Washing Shed & Tyre Shop  
Garage & Tool Room  
Parking for Large Vehicles (4 nos.)  
Parking Area 25 nos

All the structures inside the Administrative, Operation and Maintenance Base Camp shall conform to Clause 3.5.2.1 of this Schedule.

3.5.12.2 The roads inside the Administrative and Maintenance Base camp shall be of the same material specifications as the adjoining highway and widths of all internal roads and pathways of the Administrative, Operation and Maintenance Base Camp shall conform to Clause 4 of Part II of NBC. Location, design and illumination of all signage shall
be as per IRC: 46-1972. Suitable planting shall flank all the accesses, exits, internal roads and paved area.

3.5.12.3 The design of water distribution and storage systems, laying of mains and pipes, cleaning and disinfecting of the water supply system shall be as per relevant clauses of Section 1, Part IX of the NBC. The water supply to the base camp shall be either from a public water supply system or from a safe underground water source. The sanitary facilities shall not be clubbed with the drinking water facility.

3.5.12.4 The design, layout and construction of drains for sewage disposal system with all ancillary works such as connections, manholes and inspection chambers and septic tanks shall be as per relevant clauses of Section 2, Part IX of the NBC. Each septic tank, if provided, shall have a soak pit of adequate size. The location of the septic tanks and sub-surface absorption system shall be as per Clause 12.15.1 of Part III of NBC. Separate sanitary facility shall be provided for men and women as per the NBC. The sanitary facilities shall not be clubbed with the drinking water facility.

3.5.12.5 The design, planning, construction and installation of air conditioning system and equipment installed in the buildings for maintaining air temperature, humidity, purity and distribution shall be as per Section 3 of Part VIII of the NBC.

3.5.12.6 The design and location of all electrical installations, distribution system wiring, fittings, accessories and lightning protection of buildings shall be as per relevant Clauses of Section 2, Part VIII of the NBC. Adequate stand-by power generation units shall support the power supply system.

3.5.12.7 All parking space in the Administrative and Maintenance Base camp shall be paved to withstand vehicle loads and forces due to frequent acceleration and deceleration of vehicles. Parking bays/ lots shall have proper cross slope and drainage. They shall be marked with paint as per IRC: 35-1997 to demarcate parking and circulation space. Parking lots shall be adequately illuminated. Lighting installation shall be designed and provided as per IS: 1944 (Parts I and II)-1970.

3.5.12.8 There shall be security posts at all entry and exit points and the camp shall be properly fenced. The Administrative, Operation and Maintenance Base Camp shall be protected from intruders and
animals. Boundary walls, fencing, controlled entry and exit points and cattle traps at all entry and exit points shall be provided as required.

3.5.13 Toll Plaza, Control Centre and Base Camp Complex

The Toll Plaza Complex at Jaipur and Kishangarh ends will consist of the following facilities. The minimum area required is given against each facility.

3.5.13.1 Jaipur end complex
- Main base camp (plot area) - 5000 sqm

3.5.13.2 Kishangarh end
- Secondary base camp (plot area) - 3000 sqm

For the base camps, the built-up plinth area shall not be more than 33% of the plot area and 20% of the plot area shall be kept for circulation. The layout at the said locations shall be prepared in consultation with the Independent Consultant. The base camp buildings shall be aesthetically pleasing and structurally sound. The base camp area shall be appropriately landscaped and illuminated. All internal roads and pathways of the camps shall conform to Clause 4 of Part III of NBC. Suitable plantations and landscaping shall flank all the entry, exit, internal roads and paved areas.

4. DESIGN STANDARDS

4.1 Design standards comprise the Ministry of Surface Transport, Roads Wing (MOST), policy circulars and IRC codes, guidelines and special publications applicable to National Highways. Where the said standards are silent on any item, the following standards in the stated order of precedence shall be adopted in consultation with the Independent Consultant.

i. Bureau of Indian Standards (BIS)
ii. American Association of State Highway and Transport Officials (AASHTO)
iii. American Society of Testing Materials (ASTM)
iv. British Standards (BS)
v. Any other National or International Standard suggested by the Concessionaire.

4.2 Designs proposed by the Concessionaire shall comply with the standards as spelt out in Clause 4.1 above.

4.3 Geometric Design Standards
4.3.1 Geometric design standards shall be adopted as per IRC: 73-1980 as applicable to the National Highways. Main design criterion values are extracted therefrom and appended as Annexure 4.1 for guidance.

4.3.2 Where the existing 2-lane facility is sub-standard, it shall be upgraded to meet the design standards.

4.4 Geotechnical Design

4.4.1 Cut and fill slopes shall be appropriate to the nature of the material and the height of embankment or depth of cut. The slopes shall be safe against failure.

4.4.2 Material used in the fill and its compaction requirements shall conform to IRC: 36-1970. Where these specifications are at variance with the MOST Specifications, the latter shall govern and be followed.

4.5 Pavement Design

The strengthening of the existing 2-lane pavement and the pavement of the new lanes shall be designed keeping the following criteria in view:

4.5.1 New flexible pavement shall be designed as per the AASHTO method. The broad indicative design input parameter values given in Schedule B, Clause 2.3.2 shall be used. The pavement of service roads in urban section shall be designed as per IRC: 37-2001 for a design traffic of 40 msa.

4.5.2 The new flexible pavement shall have Bituminous Concrete (BC) [also termed Asphaltic Concrete (AC)] wearing course over laid on Dense Bituminous Macadam (DBM). Underneath the DBM a base course of Bituminous Macadam (BM) shall be provided. It will be overlaid on Wet Mix Macadam (WMM). The sub-base granular material shall conform to the grading, density and other physical requirements stipulated in MOST Specifications and shall have a minimum CBR of 30% at 97% Maximum Dry Density (MDD). Material chosen for subgrade shall have CBR value of not less than 7% at 97% MDD.

4.5.3 For the design of service roads in urban areas, IRC: 37-2001 shall be used. The same procedure shall be adopted for cross road improvement, wherever applicable.

4.5.4 Strengthening of the existing 2-lane pavement shall be carried out with a bituminous overlay in accordance with IRC: 81-1997. Benkelman beam deflection tests shall be carried out on the Project Highway. Before laying the
overlay layers, the profile corrective course shall be provided with Bituminous Macadam (BM). The strengthening layers will comprise Dense Bituminous Macadam (DBM) overlaid with Bituminous Concrete (BC) surfacing. The design shall be prepared in consultation with the Independent Consultant prior to construction.

4.5.4.2 The existing 2-lane road pavement has disintegrated and failed completely in an aggregate length of 13 km. The Concessionaire should assess the actual length during detailed project preparation and the specific stretches to be reconstructed shall be determined in consultation with IC. In such cases, instead of adopting the strengthening procedure laid down in sub-clause 4.5.4.1 ante, the identified failed/distressed pavement sections shall be reconstructed after scarifying/raking out the distressed pavement layers up to the subgrade level, and after suitably modifying/treating the subgrade, if and as required, in consultation with IC. The new flexible pavement shall be designed as per the stipulated procedure.

4.5.5 Cement concrete pavement shall be designed using the AASHTO Method suitably checked with the PCA Method, using the parameters furnished in Schedule B, Clause 2.3.6 and the axle load spectrum coming on the road. The CC pavement shall comprise concrete of flexural strength M-45. Use shall be made of a vacuum dewatering system at the time of laying concrete. The CC pavement shall be laid over Dry Lean Concrete (DLC) of M-15 grade, over a drainage layer of Wet Mix Macadam.

4.5.6 To ensure internal drainage of the pavement structure, the road sub-base shall extend right across the paved shoulders on the embankment to the side drain.

4.5.7 Earthen shoulders shall be provided at the edge of paved shoulder. Paved shoulders shall have the same thickness as that of the carriageway pavement. The paved shoulder surface shall have the same wearing course as that of the carriageway pavement for monolithic construction.

4.5.8 Roughness Index of the pavement on completion shall not be more than 2500 mm per km measured by 5th Wheel Bump Integrator or an equivalent device in consultation with the Independent Consultant. The roughness measures should be properly calibrated using the procedures recommended in the World Bank Technical Publication No 46.
4.6 Drainage System

4.6.1 An effective surface and sub-surface drainage system of pavement structure shall be designed as stipulated in IRC SP: 42-1994.

4.6.2 An effective drainage system shall be planned and designed for the drainage of medians, toll plazas, wayside amenities, truck parking areas, bus-bays and other highway features ensuring that there shall be no pooling of water at any time on the highway.

4.6.3 Surface channels used to intercept and remove surface run-off from the highway and the adjacent areas shall have adequate capacity for the design run-off and should be located and shaped to avoid creating traffic hazard and erosion of soil.

4.6.4 There shall be no open drains in the designated urban lengths of the Project Highway.

4.6.5 Profiles of channels and pipe runs shall be provided at crossings with services and utilities to ensure that conflicts do not occur.

4.7 Design Standards for Culverts, Bridges, Underpasses, Overbridges

The design standards and loading to be considered for culverts, bridges, underpasses and overbridges shall be those laid down in the latest relevant IRC codes and/ or IS codes.

NP4 type pipes shall be used for all pipe culverts which are proposed for reconstruction and widening widening portion. Suitable joints shall be provided while widening the existing pipe culverts. In those locations where the available cushion depth falls short of the standard depth, the road level may be increased or pipes may be embedded in concrete. This should be finalised in consultation with the IC.

In structures where widening is resorted to through independent structure (not as an extension of the existing structure), suitable protection of the embankment in the median portion shall be provided by extending the abutment or constructing a retaining wall up to the median filling level.

Superstructure shall be Pre-Stressed Concrete (PSC) girder with well foundations. Where the said codes are found wanting or are silent, other codes as stipulated in Clause 4.1 above shall be followed.
The list of IRC Codes in Annexure 4.2 is given to serve as a guide for the design of the bridge structures.

4.8 Existing Culverts, Bridges, Underpasses, Overbridges

4.8.1 The unsafe and/or deficient bridge and culvert structures on the existing 2-lane carriageway shall be rehabilitated or replaced by sound structures to carry the IRC-stipulated design loads as spelt out in Clause 4.7.1 above.

4.8.2 Where the existing structures are retained and extended, the extension shall be properly adjusted and matched with the existing structure.

4.9 Special Requirement for Culverts, Bridges, Underpasses, Overbridges

4.9.1 All bridge bearings shall be easily accessible for inspection and maintenance.

4.9.2 For box girder superstructure, the minimum clear depth inside the box shall be 1.8 m with suitable opening in the end cross-girder for inspection of box in the entire length.

4.10 At-Grade Intersections

4.10.1 At-grade intersections shall be designed according to IRC SP: 41 'Guidelines for the Design of At-grade Intersections in Rural & Urban Areas' and the MOST Type Designs for Intersections on National Highways, with modifications where required.

4.10.2 For the design of elements not covered in the said publications, the AASHTO publication 'A Policy on the Geometric Design of Highways and Streets' shall be followed.

4.11 Grade Separated Intersections

4.11.1 Geometric design standards for elements of grade-separated intersections are given in Annexure 4.1.

4.11.2 For elements not covered in the said Annexure, design guidelines IRC: 92-1986 supplemented by relevant MOST publications, and the AASHTO publication 'A Policy on Geometric Design of Highways and Streets' shall be used.
4.12 **Litter Bins**

4.12.1 Litter bins shall be located at a maximum interval of 100 m within the rest area and the truck parking laybys. Bus stops shall be provided with at least one litter bin.

4.12.2 The capacity of the litter bin shall be as per requirement, subject to a minimum of 30 litres.

4.13 **Public Toilets**

4.13.1 Requisite number of urinals, WC and bathing places supported by adequate water supply and sewerage facilities and appurtenances as per the NBC shall be provided at truck parking laybys, subject to a minimum of 4 WC, 5 urinals and 3 bathing places. Number of urinals, WC and bathing spaces in all other places including the rest areas will be as per the NBC. The entrance to the ladies' toilet shall be clearly marked and segregated from the gents' toilet.

4.13.2 An area at least 2 m width around the toilet blocks shall be paved with adequate cross slopes and drainage to ensure speedy disposal of water. Arrangement for sewage disposal shall be provided.

4.14 **Drinking Water Kiosk**

4.14.1 Drinking water kiosks at the truck laybys shall have a minimum of 4 taps of push-button type. The drinking water kiosks shall be easily accessible to children and handicapped people. The water kiosks shall be properly segregated and shall be at least 3 m away from the toilet blocks, if any. Water supply shall be provided through existing water supply pipe lines. In absence of this, provisions for ground water extraction through tubewells/borewells or provision of water bowsers shall be made.

4.14.2 Water storage in the drinking water kiosks shall be as per the NBC, subject to a minimum of 200 litres. An area of at least 2 m width around the drinking water kiosks shall be paved with adequate cross slopes and drainage to ensure speedy disposal of split water.
4.15 Highway Lighting System

4.15.1 In urban areas, semi-cut off luminaires shall be provided. Arrangement of lighting installations shall be staggered except at curves. High mast lighting shall be adopted for lighting of Toll Plaza and grade-separated junctions.

4.15.2 The layout of masts, their height and spacing shall be fixed in consultation with the Independent Consultant in order to meet the relevant BIS stipulations.

4.16 Highway Traffic Management System

4.16.1 HTMS shall provide facilities to the highway users to make emergency calls (through ECBs) to the Control Centre in case of accidents, breakdown of vehicle and fire, and to pre-warn the highway users about unusual conditions on the road. It shall provide information/data to traffic managers on traffic flow, conditions, speed and weather conditions, location of any incident and help required, and on incoming calls. Based on the above information, the traffic managers would be able to exercise control on changing the variable message signs, mobilising the movement of ambulances, cranes, highway patrol units and fire tenders. HTMS shall also provide on-line recording and reviewing of the voice and individual information for record and analysis.

4.16.2 All equipment shall comply with and be installed in accordance with IEC 364, with minimum CENELEC standards of EN 50128 software integrity level 2.

4.16.3 The HTMS shall have an overall system mobility of minimum 99% and shall be considered unavailable if any of the functions cannot be properly executed. The mean time to restore the normal operation following a failure shall be less than four hours all inclusive.

4.16.4 All outdoor equipment for the facility of the users such as ECB and MS shall be installed at locations which are clearly visible to the approaching drivers. The ECBs shall have proper sign identifications.
4.17 Toll Plaza

4.17.1 The design of toll plaza shall be carried out in accordance with the guidelines given in Drawing Nos MCA/TP/01 and MCA/TP/02. The design shall aim at optimising efficiency of toll collection and minimising vehicle delays.

4.17.2 Toll Collection System shall be mainly semi-automatic with one electronic lane on each side. There shall be a separate lane for traffic not required to pay fees. For each direction of traffic the toll plaza shall consist of:

- Five toll lanes, each 3.2 m wide;
- One 4.5 m lane for oversized vehicles and non-tollable vehicles;
- A toll canopy covering all the service lanes;
- An office building with public telephone facility; and
- An underground tunnel connecting the toll booths to the toll office.

4.17.3 The height of the canopy shall be such that a vertical clearance of 5.5 m is provided. For the oversized vehicle lane, the vertical clearance shall be 8.5m.

4.18 Traffic Safety Measures

4.18.1 Highway Patrolling

The Highway Patrolling System shall comprise a minimum of two teams, each team reporting at the (Control) Centres on either end. One "New Technology" Gypsy or equivalent vehicle shall be provided to each of the highway patrolling team and one vehicle shall be kept as reserve to meet the requirement in case of any emergency. These vehicles shall be able to communicate with each other and also with the (Control) Centres through mobile communication system. The primary function of the highway patrol shall be of traffic surveillance under which it is expected to closely monitor any such incident which might hamper flow of traffic at desired speed, and take prompt action in order to restore normalcy on the Project Highway. In case of any untoward incident occurring on the Project Highway, the road user is expected to call up the Main Control Centre from the Emergency Call Box (ECB). The telecommunication system at the Main Control Centre shall get activated automatically once the person pushes the button of the telephone instrument. The Main Control Centre shall be equipped with a system to identify (without the necessity of caller identifying) the location of booth and to record the nature of accident in the least possible time. The Main Control Centre in turn will despatch the ambulance and tow truck and
also direct the Highway Patrol team to extend necessary help to the road user in distress.

4.18.1.1 The minimum sizes of the room(s) in the (Control) Centres shall be as per Section 12 of the NBC and sanitary conveniences shall be provided as per Clause 5.5.1 of the NBC. The (Control) Centres shall adequately house a sub-inspector's room, a constable's room, first aid room, waiting room and a pantry. Covered parking space shall be provided for the vehicle(s) operated by the (Control) Centres.

4.18.2 Pedestrian Guard Rails and Safety Barriers

4.18.2.1 The layout of pedestrian guard rails at crossings and road intersections shall be as per Drawing No. MCA/CS/02. On kerbed road sections, guard rails shall be at least 15 cm away from the edge of carriageway.

4.18.2.2 Safety barriers shall be located at sharp horizontal curves, high embankments, bridge approaches, and places where the median width is 1.5 m and also in the median length tapering from 5m to 1.5m.

4.19 Traffic Signal (on Cross Road)

4.19.1 The road traffic signals, their configuration, size, location and other requirements shall be as per IRC: 93-1985 and IS: 7537-1974.

4.20 Highway Signs

4.20.1 The design and location of route marker signs for national highways shall be as per IRC: 2-1968. The design and placement of highway kilometre stones, the dimensions of stones, size, color, arrangement of letters shall be as per IRC: 26-1967 and IRC: 8-1980. The design, location and materials to be used for road delineators shall be as per IRC: 79-1981. The color, configuration, size and location of size of traffic signs shall be as per IRC: 67-1977.

4.20.2 For the road signs, the standards set out in IRC: 67-1977: "Code of Practice for Road Signs" shall be followed. Standards prescribed by MOST shall be followed for overhead signs. Where these are silent, standards prescribed in BIS/AASHTO/ASTM/British Standards or any other international standard in that order of precedence shall be adopted in consultation with the Independent Consultant.

4.20.3 On kerbed road sections, the edges of the road signs shall be at least 60 cm away from the edge of the kerb, whereas on un-kerbed road sections the
edge of the signs shall be at a distance of 2 m from the edge of the carriageway.

4.21 Pavement Markings

4.21.1 Pavement markings shall be designed and provided in accordance with IRC: 35-1997 "Code of Practice for Road Markings" in consultation with the Independent Consultant.

4.22 Pickup Bus Stops

4.22.1 The layout, design and location of the pickup bus stops shall be as per IRC: 80-1981. Bus stops shall be provided on both sides of the road for either direction of traffic. In rural areas the bus shelter shall be located at least 1.0 m away from the edge of the bus bay which shall be typically 30 m long. The plinth height of the bus stop shall be 0.3 m from the bus bay level and shall be 2 risers high. The minimum ceiling height of the structure shall be 2.1 m and the height of seating shall be 0.4 m from floor level. Each bus stop shall have at least one litter bin.

4.22.2 Pedestrian guard rails shall be provided along the road or the bus bay of the bus stop for adequate length for pedestrian safety, not exceeding 20 m on either side.

4.23 Truck Parking Facility

4.23.1 The parking length at bays for each vehicle shall not be less than 15 m and parking width for each vehicle shall be 2.75 m. The length of the layby shall be as per parking requirement subject to a minimum of 100 m. The minimum width of the raised separator between the layby and the carriageway shall be 3m in rural sections. The parking spaces shall be parallel to the road. Parking lots shall be adequately illuminated.

4.24 Landscaping

4.24.1 Trees shall be planted in rows and on either side of the road with a staggered pitch as per IRC SP: 21-1979. A range of 10-15 m c/c is recommended for spacing of trees (parallel to the road). Setback distance of trees in different situations shall be as per IRC SP: 21-1979 and IRC: 66-1976. The distance between the kerb, if any, and the nearest edge of tree trunk shall be at least 2 m. Shrubs in the medians shall not normally exceed 1-1.5 m in height and shall be as per IRC SP: 21-1979.
4.24.2 The Environment Mitigation Plan (EMP) shall be evolved and implemented as per the recommendations of the EIA Report referred to in Clause 12 of Schedule C. In case of a discrepancy between the spacing for trees to be planted parallel to the road as specified in the IRC standards and the EIA Report, the lesser of the two distances shall be adopted.

4.24.3 For safe traffic operation, vertical clearance between the crown of the carriageway and lowest part of the overhang of the tree available across the roadway shall conform to the standards laid down in IRC SP: 21-1979. The pit size, fencing, watering and manuring requirements shall also conform to the above standard. Planting shall be such that it does not obstruct the visibility of traffic from any side and shall be pleasing in appearance.

5. Safety During Project Execution, Operation and Maintenance

5.1 The Concessionaire shall ensure complete safety of construction staff during the construction work of the Project Highway. It shall also ensure minimum interference to the flow of traffic during widening of the existing 2-lane pavement. The additional lanes shall be constructed first and the traffic diverted to it before improvements to the existing road are taken up. Detailed plan for traffic management shall be worked out in consultation with the Independent Consultant prior to implementation. During construction the Concessionaire shall take all necessary measures for the safety of traffic by providing and maintaining barricades, traffic signs and illumination during night.

5.2 The Concessionaire shall also ensure complete safety of the Road Users during the construction work of various nature spelt out in Schedule L

5.3 Guidelines for safety measures during construction, operation and maintenance, as given in Schedule S, shall be followed.

5.4 A situation arising at site not covered in Schedule L shall be carefully studied for solution in consultation with the Independent Consultant.
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Design Speed</td>
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</tr>
<tr>
<td>2.</td>
<td>Pavement</td>
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</tr>
<tr>
<td></td>
<td>i) Width per lane for widening</td>
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<tr>
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<td>ii) Cross slope</td>
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</tr>
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<td>a) Flexible pavement having bituminous concrete surfacing</td>
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<tr>
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<td>b) C.C. pavement</td>
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<tr>
<td>3.</td>
<td>Free board for new subgrade above HFL or general ground level whichever is higher. The existing road may be raised only if the HFL rises upto formation levels for a continuous period of 2 days.</td>
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<tr>
<td>4.</td>
<td>Paved Shoulder on outerside</td>
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<tr>
<td></td>
<td>i) Width (rural sections)</td>
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<td>ii) Cross Slope (bituminous surface)</td>
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<tr>
<td>5.</td>
<td>Earthen shoulder (on outerside)</td>
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</tr>
<tr>
<td></td>
<td>i) Width</td>
<td>2.0 m</td>
</tr>
<tr>
<td></td>
<td>ii) Cross Slope</td>
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<tr>
<td>6.</td>
<td>Edge strip</td>
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</tr>
<tr>
<td></td>
<td>i) Rural Section – on median side</td>
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</tr>
<tr>
<td></td>
<td>ii) Urban Section – on median side</td>
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</tr>
<tr>
<td></td>
<td>iii) Urban Section – on outer side</td>
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<td>7.</td>
<td>Stopping Sight Distance</td>
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<td>i) Desirable</td>
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<tr>
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<td>ii) Minimum</td>
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<tr>
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</tr>
<tr>
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<td>i) Desirable requiring no superelevation</td>
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</tr>
<tr>
<td></td>
<td>ii) Minimum Requiring 5% superelevation</td>
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</tr>
<tr>
<td></td>
<td>iii) Absolute minimum requiring 7% superelevation</td>
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</tr>
<tr>
<td>9.</td>
<td>Minimum length of vertical curve</td>
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<tr>
<td>10.</td>
<td>Maximum grade change not requiring vertical curve</td>
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</tr>
<tr>
<td>11.</td>
<td>Gradient</td>
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</tr>
<tr>
<td></td>
<td>i) Maximum</td>
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</tr>
<tr>
<td></td>
<td>ii) Minimum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) In cut and kerbed sections</td>
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</tr>
<tr>
<td></td>
<td>b) On unkerbed sections on embankment</td>
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<td>12.</td>
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</tr>
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<td>ii) Maximum</td>
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<td>Side walk (in urban stretches)</td>
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<td>Median width (in rural sections)</td>
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<td>Standards</td>
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<tr>
<td>13.</td>
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<td>i)</td>
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<td>ii)</td>
<td>Carriageway Width</td>
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</tr>
<tr>
<td>b)</td>
<td>Double lane</td>
<td>8.8 m</td>
</tr>
<tr>
<td>iii)</td>
<td>Shoulder Paved</td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>Inner</td>
<td>2.3 m</td>
</tr>
<tr>
<td>b)</td>
<td>Outer</td>
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</tr>
<tr>
<td>iv)</td>
<td>Minimum radius</td>
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<td>v)</td>
<td>Maximum superelevation</td>
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</tr>
<tr>
<td>vi)</td>
<td>Gradient</td>
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</tr>
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<td>Desirable</td>
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<td>Maximum</td>
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<tr>
<td>14.</td>
<td>Interchange Loop Ramp</td>
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<td>Design speed (kmph)</td>
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<td>ii)</td>
<td>Carriageway Width</td>
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<td>Single lane</td>
<td>4.6m</td>
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<tr>
<td>b)</td>
<td>Double lane</td>
<td>8.8m</td>
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<tr>
<td>iii)</td>
<td>Shoulder Paved</td>
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<tr>
<td>a)</td>
<td>Inner</td>
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<tr>
<td>b)</td>
<td>Outer</td>
<td>1.2m</td>
</tr>
<tr>
<td>iv)</td>
<td>Minimum radius</td>
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<tr>
<td>v)</td>
<td>Maximum superelevation</td>
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<tr>
<td>vi)</td>
<td>Gradient</td>
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<tr>
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<tr>
<td>b)</td>
<td>Maximum</td>
<td>6%</td>
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Note: *Standards indicated for items 14 and 15 are based on AASHTO Geometric Design Policy (1990) and the rest on IRC codes for Geometric Standards
LIST OF IRC CODES FOR THE DESIGN OF BRIDGE STRUCTURES AND
CULVERTS

IRC: 5-1985
Standard Specifications & Code of Practice for Road Bridges. Section I - General Features of Design (Sixth Revision)

IRC: 6-1966
Standard Specifications & Code of Practice for Road Bridges. Section II - Loads and Stresses (Third Revision)

IRC: 7-1971
Recommended Practice for Numbering Bridges and Culverts (First Revision)

IRC: 18-1985
Design Criteria for Pre-stressed Concrete Road Bridges (Post-Tensioned Concrete) (Second Revision)

IRC: 21-1987
Standard Specifications and Code of Practice for Road Bridges. Section III Cement Concrete (Plain and Reinforced) (Second Revision)

IRC: 22-1986
Standard Specifications and Code of Practice for Road Bridges. Section VI Composite Construction (First Revision)

IRC: 24-1967
Standard Specifications and Code of Practice for Road Bridges. Section V Steel Road Bridges.

IRC: 45-1972

IRC: 54-1974
Lateral and Vertical Clearances at Underpasses for Vehicular Traffic.

IRC: 78-1983
Standard Specifications and Code of Practice for Road Bridges. Section VII Foundations & Substructure (First Revision)

IRC: 83-1982
Standard Specifications and Code of Practice for Road Bridges. Section IX Bearings, Part I: Metallic Bearings

IRC: 83-1987
Standard Specifications and Code of Practice for Road Bridges, (Part-II) Section IX-Bearings, Part II: Elastomeric Bearings

IRC: 89-1985
Guidelines for Design & Construction of River Training & Control Works for Road Bridges.

IRC: SP:13-1973
Guidelines for the Design of Small Bridges and Culverts

IRC: SP:18-1978
Manual for Highway Bridge Maintenance Inspection

IRC: SP:33-1989

IRC: SP:35-1990
Guidelines for Inspection and Maintenance of Bridges
Guidelines on Techniques for Strengthening and Rehabilitation of Bridges

Guidelines on Quality Systems for Road Bridges (Plain, Reinforced, Prestressed and Composite Concrete)
<table>
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<th>IRC:</th>
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<tbody>
<tr>
<td>2-1968</td>
<td>Route Marker signs for National Highways (First Revision)</td>
</tr>
<tr>
<td>8-1980</td>
<td>Type Designs for Highway Kilometer Stone (Second Revision)</td>
</tr>
<tr>
<td>12-1983</td>
<td>Recommended Practice for Location and layout of Roadside Motor Fuel Filling and Motor Fuel Filling-cum Service Stations (Second Revision)</td>
</tr>
<tr>
<td>16-1989</td>
<td>Specification for Priming of Base Course with Bituminous Primers (First Revision)</td>
</tr>
<tr>
<td>25-1967</td>
<td>Type Designs for Boundary Stones</td>
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<tr>
<td>26-1967</td>
<td>Type design for 200-meter stones</td>
</tr>
<tr>
<td>30-1968</td>
<td>Standard Letters and Numbers of Different Heights for Use on Highway signs</td>
</tr>
<tr>
<td>32-1969</td>
<td>Standards for Vertical and Horizontal Clearances of Overhead Electric Power and Telecommunication Lines as Related to Roads</td>
</tr>
<tr>
<td>35-1997</td>
<td>Code of Practice for Road Markings</td>
</tr>
<tr>
<td>36-1970</td>
<td>Recommended Practice for the Construction of Earth Embankment for Road Works</td>
</tr>
<tr>
<td>37-1984</td>
<td>Guidelines for the Design of Flexible Pavement (First Revision)</td>
</tr>
<tr>
<td>38-1988</td>
<td>Guidelines for Design of Horizontal Curves for Highways and Design Tables (First Revision)</td>
</tr>
<tr>
<td>56-1974</td>
<td>Recommended Practice for Treatment of Embankment Slopes for Erosion Control</td>
</tr>
<tr>
<td>57-1974</td>
<td>Recommended Practice for Sealing of Joints in Concrete Pavements</td>
</tr>
<tr>
<td>61-1976</td>
<td>Tentative Guidelines for the Construction of Cement Concrete Pavements in Hot Weather</td>
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<tr>
<td>62-1976</td>
<td>Guidelines for Control of Access on Highways</td>
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<tr>
<td>64-1990</td>
<td>Guidelines for Capacity of Roads in Rural Areas (First Revision)</td>
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<tr>
<td>66-1974</td>
<td>Recommended Practice for Sight Distance on Rural Highways</td>
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<td>67-1977</td>
<td>Code of Practice for Road Signs</td>
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<td>69-1977</td>
<td>Space Standards for Road in Urban Areas</td>
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<td>70-1977</td>
<td>Guidelines on Regulation and Control of Mixed Traffic in Urban Areas</td>
</tr>
<tr>
<td>73-1980</td>
<td>Geometric Design Standards for Road (Non Urban)</td>
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Annex-4.3
Guidelines for the Design of High Embankments
Recommended practice for Road Delineators
Type Designs for Pick-up Bus Stops on Rural (i.e. Non-Urban) Highways
Tentative Guidelines for Strengthening of Flexible Road Pavements Using Benkelman Beam Deflection Techniques
Code of Practice for Maintenance of Bituminous Surfaces of Highways
Code of Practice for curing of Cement Concrete Pavements
Geometric Design Standards for Urban Roads in Plains
Tentative Guidelines for Construction of Cement Concrete Pavement in Cold Weather
Guidelines for the Design of Interchanges in Urban Areas
Guidelines on Design and Installation of Road Traffic Signals
Guidelines on Accommodation of Under Ground Utility Services Along and Across Roads in urban Areas
Guidelines for Pedestrian Facilities
Guidelines for Capacity of Urban Roads in Plain Areas
Guidelines for Traffic Prediction on Rural Highways
Guidelines for Wet Mix Macadam
Hand Book of Quality Control for Construction of Roads and Runways (Second Revision)
Tentative Recommendations on the Provision of Parking Spaces for Urban Areas
Ribbon Development along Highways and its Prevention
Manual for Survey, Investigation and Preparation of Road Projects
Manual on Landscaping of Roads
Vertical curves for Highways
New Traffic signs
Guidelines on Design of At-Grade Intersections in Rural and Urban areas
Guidelines on Road Drainage
Highway Safety Code

Ministry of Surface Transport Publications

MOST, Manual for maintenance of roads, 1983
MOST, Specifications for Road and Bridge Works, 1994 (Third Revision)
MOST, Addendum to Technical Circulars and Directives on National Highways and Centrally Sponsored Road and Bridge Works, 1989
MOST, Type Designs for Intersections on National Highways, 1992

MOST, Addendum to Ministry's Technical Circulars and Directives on National Highways and Centrally Sponsored Road and Bridge Projects (August 1988 to December 1992), 1993

MOST, Addendum to Ministry's Technical Circulars and Directives on National Highways and Centrally Sponsored Road and Bridge Projects (Jan. 1993 to Dec. 1994) 1996

IS Publications
IS:7537-1974 Road traffic signals
IS:10500-1991 Drinking Water
IS:1944 (Parts I&II) 1970 Code of Practice for lighting of Public Thoroughfare: Parts land 2 For Main and secondary roads (Group A and B) (first revision) (Amendments No. 1 and 2) Parts 1 and 2 in one volume) (Amendments 2)
IS:1944 (Parts V) 1981 Code of Practice for Lighting of Public Thoroughfares: Parts 5 Lighting for Grade separated junctions, Bridges and Elevated roads (Group D)
IS: 1944 (Parts VI) 1981 Code of Practice for lighting of Public Thoroughfare: Part 6 Lighting for Towns and city centres and areas civic importance (Group E)

NBC
Part III, NBC: Development Control rules and general building requirements
Part VI, NBC: Structural Design
Part VIII, NBC: Building Services
Part IX, NBC: Plumbing Services
Part IV, NBC: Fire Protection

National Building Code
APPLICABLE PERMITS
Schedule E

APPLICABLE PERMITS  
(to be obtained before/on financial closure)

1. Ministry of Finance / RBI
   i) Approval for foreign investment and foreign loans, if required
   ii) Approval for import of equipment and machinery for construction and operation, if required

2. Department of Telecommunication
   i) Permission / clearance for setting up of wireless system, if required
   ii) Clearance / permission for the use of optical fibre cables of DOT, if required

3. State Government Permits
   Quarrying Permits:
   • Permits for extraction of boulder from quarry from ADM Mines
   • Permit for installation of crusher from village panchayat and Pollution Control Board
   • License for explosives from Explosive controller
   • Explosive license for storing Diesel
   Electricity:
   • Permission required from SEB for installation of DG
   • Permission for electrical connection, if power source is available
   Water:
   • If water has to be taken from river/ reservoir, permission to be obtained from State Irrigation Department
   Batching Plant:
   • License from inspection of factories
   • NOC consent from pollution department
   Asphalt Plant:
   • Clearance required from village panchayats & Pollution Control Board
   Borrow Earth:
   • Permission required from village panchayat and ADM mines for Government & private land
   • Permission from irrigation department if land taken from irrigation land
   • Permission for cutting of trees
BANK GUARANTEE FOR PERFORMANCE SECURITY
BANK GUARANTEE FOR PERFORMANCE SECURITY

From:
Andhra Bank
Specialised Corporate Finance Branch,
8-3-94/8/9/1, 1st Floor,
Pancor Business Centre,
Ameerpet 'X' Road,
Hyderabad-500 073.

To
National Highways Authority of India,
Plot No.G-5 & 6, Sector-10,
Dwaraka,
New Delhi,
India.

A. M/s.GVK Jaipur-Kishangarh Expressway Private Limited, the Special Purpose Vehicle Company (the “Concessionaire”) formed and incorporated by GVK-BSCPL Consortium has agreed in accordance with the Concession Agreement between it and National Highways Authority of India (the “Concession Agreement”) to construct and operate the Jaipur-Kishangarh Project on BOT basis (“the Project”).

For Andhra Bank

For Andhra Bank

Specialised Corporate Finance Br. Hyd

MANAGER

Specialised Corporate Finance Br. Hyd

For Andhra Bank
B. The Concessionaire is required to give National Highways Authority of India ("NHAI") a guarantee by a recognised bank or financial institution based in India in the sum of Rs.5,50,00,000/- (Rupees Five Crores Fifty Lakhs only) as security for compliance with its obligations under the Concession Agreement during the Construction Period.

C. The Guarantor has agreed at the request of B.Seemia & Company (Projects) Limited, 6-2-913/914, 5th Floor, Progressive Towers, Khairatabad, Hyderabad-500 004, on behalf of the "Concessionaire" to give NHAI the above mentioned guarantee on the terms set out herein.

GUARANTEE

1. We, Andhra Bank ("the Guarantor") with its registered office at D.No.5-9-11, Secretariat Road, Saifabad, Hyderabad-500004 unconditionally guarantees to pay NHAI upon first written demand and without any deduction any sum claimed by NHAI upto a maximum of Rupees 5,50,00,000/- (Rupees Five Crores Fifty Lakhs only) (the "Guaranteed Sum") subject to the conditions set out below.

2. The Guarantor unconditionally and irrevocably promises to pay on demand the Guaranteed Sum, without protest or demur whatsoever upon the receipt of a written demand from NHAI, which shall be final and conclusive as against the Guarantor requiring the Guarantor to make the payment to NHAI.

3. The Guarantor waives any requirement that NHAI demand any debt or payment from the Concessionaire before presenting it with a demand under this Guarantee.

4. NHAI shall notify the Guarantor or its demand for payment of the Guaranteed Sum without any deduction of whatsoever nature and without reference to any claim or counter claim or set off, in accordance with the Concession Agreement.

Such notification by NHAI, shall be conclusive and binding on the Guarantor.

5. Upon encashment and appropriation of the whole or any portion of the Guaranteed Sum by NHAI in accordance with the Concession Agreement, the Guarantor shall be obliged to replenish the existing Guarantee or provide fresh guarantee of the Guaranteed Sum and the Concessionaire is deemed to have made the request for such fresh guarantee upon the execution and furnishing of this Guarantee in the first instance.

6. No underlying dispute as between NHAI and the Concessionaire nor any pending application for interim relief or arbitration proceedings or other legal proceedings shall constitute any ground for prevention, delay or obstruction for making payment to NHAI by the Guarantor and the existence of any disputes or differences or claims in arbitration or otherwise shall not constitute any ground for non-payment on this Guarantee.

7. This guarantee is valid and effective from its date. This guarantee and the Guarantor’s obligations under it will terminate on the Commercial Operations Date of the Project as advised to the Guarantor in writing by NHAI. However the Guarantee shall be released earlier by NHAI to the Concessionaire, upon contribution of the Equity (excluding) Equity Support, if any by the Shareholders of the Concessionaire to the extent of 100% and upon the Concessionaire having expended on the Project and paid out an aggregate sum of not less than 20% of the certified by the Statutory Auditors of the Concessionaire but not in breach of this Agreement or the Concession Agreement.
8. The Guarantor agrees that its obligation to pay any demand made by NHAI before the termination of this Guarantee will continue until the amount demanded has been paid in full.

9. This Guarantee shall be valid upto 29-04-2003 and effective for enabling NHAI to lodge a claim for payment under the Guarantee till the date of expiry of the term of the Guarantee. The Guarantor shall be obligated to make payment upon the Guarantee forthwith on demand, if the claim is lodged within the claim validity period and the obligation to pay is subject to normal limitation for payment of claims upon a guarantee. Time is of essence for payment and in the event of failure to make payment, Guarantor shall be obligated to pay compound interest at 2% above the prime lending rate of the Guarantor institution, compounding quarterly in the event of the Guarantor’s failure to make payment upon the Guarantee for any reason whatsoever. Payment of interest as provided is no excuse for delayed payment or non payment of the Guaranteed sum.

10. No change in the constitution of the Concessionaire or of the Guarantor shall be a ground for release of the Guarantee and no variation in the concession agreement made post selection of the bidder, or post making of the bid, shall constitute a variation, which would, subject to the terms and conditions of this agreement, discharge the Guarantor. The Guarantor shall notwithstanding such change, be bound to make payment upon the Guarantee on demand.

11. The Guarantor agrees that no change, addition to or other modifications to the terms of the Concession Agreement or to any documents which have or may be made between NHAI and the Concessionaire will in any way release it from any liability under this Guarantee and that it waives any requirement for notice of any such change, addition or modification.

12. The Guarantor agrees that it will not assign its obligations under this Guarantee without the prior written consent of NHAI. NHAI will not unreasonably withhold its consent if the proposed assignee is of at least equal financial standing to the Guarantor and the assignee assumes in writing the obligations of the Guarantor under this Guarantee at the same time or before the assignment.

13. This Guarantee binds the Guarantor, its successors and permitted assigns.

Notwithstanding anything contained herein above mentioned:

a. Our liability under this Bank Guarantee shall not exceed Rs.5,50,00,000/- (Rupees Five Crores Fifty Lakhs Only).

b. This Bank Guarantee shall be valid up to 29-04-2003, and
c. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and if you serve upon us a written claim or demand on or before 29-04-2003.

NAME OF THE BANK

SIGNATURE

NAME

TITLE

DATE 25.02.2002.
BANK GUARANTEE FOR PERFORMANCE SECURITY

From:
Bank of India,
Khairatabad Branch,
PTI Buildings, AC Guards,
Khairatabad,
Hyderabad-500 004.

To
National Highways Authority of India,
Plot No.G-5 & 6, Sector-10,
Dwaraka,
New Delhi,
India.

A. M/s GVK Jaipur-Kishangarh Expressway Private Limited, the Special Purpose Vehicle Company (the “Concessionaire”) formed and incorporated by GVK-BSCPL Consortium has agreed in accordance with the Concession Agreement between it and National Highways Authority of India (the “Concession Agreement”) to construct and operate the Jaipur-Kishangarh Project on BOT basis (“the Project”).
B. The Concessionaire is required to give National Highways Authority of India ("NHAI") a guarantee by a recognised bank or financial institution based in India in the sum of Rs.4,50,00,000/- (Rupees Four Crores Fifty Lakh only) as security for compliance with its obligations under the Concession Agreement during the Construction Period.

C. The Guarantor has agreed at the request of B.Seemiah & Company (Projects) Limited, 6-2-913/914, 5th Floor, Progressive Towers, Khairatabad, Hyderabad-500 004, on behalf of the "Concessionaire" to give NHAI the above mentioned guarantee on the terms set out herein.

GUARANTEE

1. We, Bank of India ("the Guarantor") with its registered office at Express Towers, Nariman Point, Mumbai unconditionally guarantees to pay NHAI upon first written demand and without any deduction any sum claimed by NHAI upto a maximum of Rupees 4,50,00,000/- (Rupees Four Crores Fifty Lakh only) (the "Guaranteed Sum") subject to the conditions set out below.

2. The Guarantor unconditionally and irrevocably promises to pay on demand the Guaranteed Sum, without protest or demur whatsoever upon the receipt of a written demand from NHAI, which shall be final and conclusive as against the Guarantor requiring the Guarantor to make the payment to NHAI.

3. The Guarantor waives any requirement that NHAI demand any debt or payment from the Concessionaire before presenting it with a demand under this Guarantee.

4. NHAI shall notify the Guarantor or its demand for payment of the Guaranteed Sum without any deduction of whatsoever nature and without reference to any claim or counter claim or set off, in accordance with the Concession Agreement.

Such notification by NHAI, shall be conclusive and binding on the Guarantor.

5. Upon encashment and appropriation of the whole or any portion of the Guaranteed Sum by NHAI in accordance with the Concession Agreement, the Guarantor shall be obliged to replenish the existing Guarantee or provide fresh guarantee of the Guaranteed Sum and the Concessionaire is deemed to have made the request for such fresh guarantee upon the execution and furnishing of this Guarantee in the first instance.

6. No underlying dispute as between NHAI and the Concessionaire nor any pending application for interim relief or arbitration proceedings or other legal proceedings shall constitute any ground for prevention, delay or obstruction for making payment to NHAI by the Guarantor and the existence of any disputes or differences or claims in arbitration or otherwise shall not constitute any ground for non-payment on this Guarantee.

7. This guarantee is valid and effective from its date. This guarantee and the Guarantor's obligations under it will terminate on the Commercial Operations Date of the Project as advised to the Guarantor in writing by NHAI. However the Guarantee shall be released earlier by NHAI to the Concessionaire, upon contribution of the Equity (excluding) Equity Support, if any by the Shareholders of the Concessionaire to the extent of 100% and upon the Concessionaire having expended on the Project and paid out an aggregate sum of not less than 20% of the Total Project cost as certified by the Statutory Auditors of the Concessionaire but provided the Concessionaire is not in breach of this Agreement or the Concession Agreement.
The Guarantor agrees that its obligation to pay any demand made by NHAI before the termination of this Guarantee will continue until the amount demanded has been paid in full.

This Guarantee shall be valid upto 29-04-2003 and effective for enabling NHAI to lodge a claim for payment under the Guarantee till the date of expiry of the term of the Guarantee. The Guarantor shall be obligated to make payment upon the Guarantee forthwith on demand, if the claim is lodged within the claim validity period and the obligation to pay is subject to normal limitation for payment of claims upon a guarantee.

Time is of essence for payment and in the event of failure to make payment, Guarantor shall be obligated to pay compound interest at 2% above the prime lending rate of the Guarantor institution, compounding quarterly in the event of the Guarantor’s failure to make payment upon the Guarantee for any reason whatsoever. Payment of interest as provided is no excuse for delayed payment or non payment of the Guaranteed sum.

No change in the constitution of the Concessionaire or of the Guarantor shall be a ground for release of the Guarantee and no variation in the concession agreement made post selection of the bidder, or post making of the bid, shall constitute a variation, which would, subject to the terms and conditions of this agreement, discharge the Guarantor. The Guarantor shall notwithstanding such change, be bound to make payment upon the Guarantee on demand.

The Guarantor agrees that no change, addition to or other modifications to the terms of the Concession Agreement or to any documents which have or may be made between NHAI and the Concessionaire will in any way release it from any liability under this Guarantee and that it waives any requirement for notice of any such change, addition or modification.

The Guarantor agrees that it will not assign its obligations under this Guarantee without the prior written consent of NHAI. NHAI will not unreasonably withhold its consent if the proposed assignee is of at least equal financial standing to the Guarantor and the assignee assumes in writing the obligations of the Guarantor under this Guarantee at the same time or before the assignment.

This Guarantee binds the Guarantor, its successors and permitted assigns.

Notwithstanding anything contained herein above mentioned:

- Our liability under this Bank Guarantee shall not exceed Rs.4,50,00,000/- (Rupees Four Crores Fifty Lakh Only).

- This Bank Guarantee shall be valid up to 29-04-2003, and

- We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if you serve upon us a written claim or demand on or before 29-04-2003 irrespective of whether or not the original guarantee returned to us.
d. The confirmation of this bank is available with our Controlling Office, the beneficiary in his own interest should obtain such confirmation from the Controlling office with the following address:

The Zonal Manager, Bank of India, PTI Building, A.C. Guards, Hyderabad-500001.
The National Highways Authority of India,
Plot No.G-5 & 6, Sector-10,
Dwaraka,
New Delhi.

Dear Sir,

This document is an amendment to our original bank guarantee No.41/02-03 dated 02-05-2002 for Rs.5,50,00,000/- (Rupees Five Crores Fifty Lakhs Only).

***

M/s GVK Jaipur-Kishangah Expressway Private Limited, the Special Purpose Vehicle Company (the "concessionaire") formed and incorporated by GVK-BSCPL Consortium, at the request of M/s B.Seenaiah & Co. (Projects) Limited, we advise having extended the validity of our Bank Guarantee No.41/02-03 dated 02-05-2002 for Rs.5,50,00,000/- (Rupees Five Crores Fifty Lakhs Only) from 30-04-2003 to 29-04-2005.

Our liability under this bank guarantee is however strictly restricted to Rs.5,50,00,000/- (Rupees Five Crores Fifty Lakhs Only) and is valid upto 29-04-2005.

AMENDMENT

To

The National Highways Authority of India,
Plot No.G-5 & 6, Sector-10,
Dwaraka,
New Delhi.

Dear Sir,

This document is an amendment to our original bank guarantee No.41/02-03 dated 02-05-2002 for Rs.5,50,00,000/- (Rupees Five Crores Fifty Lakhs Only).

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Plot No.G-5 & 6, Sector-10,
Dwaraka,
New Delhi.

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Our liability under this bank guarantee is however strictly restricted to Rs.5,50,00,000/- (Rupees Five Crores Fifty Lakhs Only) and is valid upto 29-04-2005.
Unless a suit to enforce a claim under this Guarantee is filed against us within the expiry of that date i.e. 29-04-2005, all your rights and claims under this guarantee shall be forfeited and we shall be released and discharged from all liabilities thereunder.

Except as herein before mentioned all other terms and conditions of the original guarantee shall remain unchanged.

All other terms and conditions as appearing in the original guarantee shall apply to this extension guarantee and it shall be read with the original guarantee.

Please keep this amendment annexed to the original guarantee bond.

Notwithstanding anything contained herein above mentioned:

a. Our liability under this Bank Guarantee shall not exceed Rs.5,50,00,000/- (Rupees Five Crores Fifty Lakh Only)

b. this bank guarantee shall be valid upto 29-04-2005, and

c. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if you serve upon us a written claim or demand on or before the 29-04-2005.

Yours truly,

Name of the Bank ________________________________

Address ________________________________

Date 6-5-2002
To

The National Highways Authority of India,
Plot No. G-5 & 6, Sector-10,
Dwaraka,
New Delhi.

Dear Sir,

**AMENDMENT**

This document is an amendment to our original bank guarantee No. 8609/27/04 dated 30-04-2002 for Rs. 4,50,00,000/- (Rupees Four Crores Fifty Lakhs Only).

GVK Jaipur-Kishangarh Expressway Private Limited, the Special Purpose Vehicle Company (the “concessionaire”) formed and incorporated by GVK-BSCPL Consortium, at the request of M/s. B. Seenaiah & Co. (Projects) Limited, we advise having extended the validity of our Bank Guarantee No. 8609/27/04 dated 30-04-2002 for Rs. 4,50,00,000/- (Rupees Four Crores Fifty Lakhs Only) from 30-04-2003 to 29-04-2005.

Our liability under this bank guarantee is however strictly restricted to Rs. 4,50,00,000/- (Rupees Four Crores Fifty Lakhs Only) and is valid upto 29-04-2005.

[Signature]

For Bank of India

[Stamp]

GVK Jaipur-Kishangarh Expressway Private Limited

[Stamp]

National Highways Authority of India
Unless a suit to enforce a claim under this Guarantee is filed against us within the expiry of that date i.e. 29-04-2005, all your rights and claims under this guarantee shall be forfeited and we shall be released and discharged from all liabilities thereunder.

Except as herein before mentioned all other terms and conditions of the original guarantee shall remain unchanged.

All other terms and conditions as appearing in the original guarantee shall apply to this extension guarantee and it shall be read with the original guarantee.

Please keep this amendment annexed to the original guarantee bond.

Notwithstanding anything contained herein above mentioned:

a. Our liability under this Bank Guarantee shall not exceed Rs.4,50,00,000/- (Rupees Four Crores Fifty Lakhs Only)

b. This bank guarantee shall be valid upto 29-04-2005, and

c. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if you serve upon us a written claim or demand on or before the 29-04-2005 irrespective of whether or not the original guarantee returned to us.

d. The confirmation of this bank guarantee is available with our Controlling Office, the beneficiary in his own interest should obtain such confirmation from the Controlling office with the following address:

The Zonal Manager, Bank of India, PTI Building, A.C. Guards, Hyderabad-500001.

Yours truly,

[Signature]

[Name of the Bank]
SCHEDULE OF USER FEE
Schedule G

SCHEDULE OF USER FEE

TO BE PUBLISHED IN THE GAZETTE OF INDIA

EXTRAORDINARY

PART II – Section 3 Sub Section (ii)

PUBLISHED BY AUTHORITY

MINISTRY OF SURFACE TRANSPORT

(ROADS WING)

New Delhi, the

NOTIFICATION

- Whereas the National Highways Authority of India on behalf of the Government has entered into an agreement with M/s ............... For development of Jaipur-Kishangarh Section which is part of National Highways No.8 from km.273/500 and ends at km. 363/885 in the State of Rajasthan.

And whereas, having regard to the expenditure involved in building, maintenance, management and operation of the said stretch of National Highway, interest on the capital invested, reasonable returns, the volume of traffic and the period of such agreement, the Central Government has decided to determine the rates of fee and period of fee collection. Now, therefore, in exercise of the powers conferred under sub-rule 2 read with sub-rule 1 of rule 3 of "National Highways (Collection of fees by any person for the use of sections of National Highways/permanent bridge/temporary bridge on National Highway) Rules 1997 hereinafter referred to as the said rules, the Central Government hereby decides to authorise M/s GVK – Jaipur Kishangarh Expressway Private Limited to collect and retain the fees from different categories of mechanical vehicles from .......... to ............... at the rates specified in the Schedule Annexed herewith subject to the terms and conditions of the said agreement and the said rules.
**SCHEDULE OF USER FEE**

(Rates of fees to be recovered from the users of NH-8 from km.273/500 to km.363/885 effective as on July 1, 1997).

<table>
<thead>
<tr>
<th>S.No.</th>
<th>CATEGORY OF VEHICLE</th>
<th>BASE FEE #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASE FEE#</td>
<td>RATE OF FEE PER VEHICLE</td>
</tr>
<tr>
<td></td>
<td>PER ONE WAY TRIP (IN RUPEES PER KM)</td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>1.</td>
<td>A car, passenger van or jeep</td>
<td>0.40</td>
</tr>
<tr>
<td>2.</td>
<td>Light Goods Vehicle (LGV)</td>
<td>0.70</td>
</tr>
<tr>
<td>3.</td>
<td>Truck</td>
<td>1.40</td>
</tr>
<tr>
<td>4.</td>
<td>Bus</td>
<td>1.40</td>
</tr>
<tr>
<td>5.</td>
<td>Multi Axle Vehicles (&gt; 2 axle)</td>
<td>2.25</td>
</tr>
<tr>
<td>5.</td>
<td>Earth moving equipment and Heavy construction machinery</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>including oversized vehicles carrying boilers, turbines,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>generators etc.</td>
<td></td>
</tr>
</tbody>
</table>

# To be specified in Rupees (up to two decimal places) per vehicle in the notification.

**Notes:**

1. The aforesaid Fee will be revised with effect from July 1 for one year. The revised fee shall be computed ("Computed Fee") as follows:

   \[
   \text{Base Fee} \times \frac{WPI_i}{WPI_0}
   \]

   Where

   - \( WPI_0 \) = is the WPI on March 31, 1997
   - \( WPI_i \) = is the WPI on March 31 preceding the fee-revision date.

   The Actual Fees to be charged shall be rounded off to the nearest five Rupees.

2. Following types of vehicles are exempted from the toll:

   Defence Vehicles, Vehicles with very important person symbols, Police Vehicles, Fire fighting vehicles, Ambulances, Funeral Vans, Post and Telegraph departments vehicles, Central and State government vehicles on duty. The vehicles with following dignitaries, shall be deemed to be vehicles having VIP symbols namely, President of India, Vice President of India, Governors of States, Central and State Ministers, Leaders of Opposition of Lok Sabha or Rajya Sabha or State Legislators, Lieutenant Governors of Union Territories, Speakers or Chairman of Central and State Legislature, Executive Councillors, Foreign
dignitaries on State Visit to India and Foreign Diplomats stationed in India using cars with CD symbols.

3. The actual Fees to be charged to users will be computed by the Concessionaire and sent to NHAI for validation as soon as possible after March 31 every year, but at least 45 days before the rate increase is to be effective. NHAI shall provide any comments or request clarifications as soon as possible upon receipt of the Fee revision proposal but not later than 15 days of receipt of the Fee revision proposal. If NHAI does not offer comments/seek clarifications during this period, the revised Fee, as proposed by the Concessionaire, will be deemed to be confirmed by NHAI.

4. The above mentioned rate/s be displayed on board/s erected in the vicinity of the toll booths. The Concessionaire shall pass a receipt on each and every occasion of Fee recovery.

5. The Concessionaire shall not collect any Fees from Local Personal Traffic and Local Commercial Traffic in excess of the following discounted rates:

Local Personal Traffic: 25% of the applicable Fees for the specific category of vehicle
Local Commercial Traffic: 50% of the applicable Fees for the specific category of vehicle
PROJECT COMPLETION SCHEDULE
MILESTONES FOR PROJECT IMPLEMENTATION

Project Name: Six Laning of Jaipur-Kishangarh Section of NH-8 from Km.2733500 to Km.363885 on BOT basis

Name of Entrepreneur: M/S GVK International NV - BSCPL Consortium

Name of Independent Consultant: -----

Date of Commencement: December, 2002

Date of Completion: May, 2005

Grant from NHA: Rs.211 Crores

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Achieved
Widening of the existing 2 lanes to 6 lanes divided carriageway facility including rehabilitation of existing 2 lanes form Kms.273.500 to Kms.363.885 on Jaipur to Kishangarh Section of NH-8 in the state of Rajasthan, on Built Operate and Transfer Basis.

**Planned dates for Milestones of Project Implementation**

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<th>S.No.</th>
<th>Activity</th>
<th>Latest date of Milestones</th>
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<td>Appointment of SPV's Statutory Auditor</td>
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<td>5</td>
<td>Appointment of Owner's Engineer (OE)</td>
<td>20.05.2002</td>
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<td>6</td>
<td>Opening of SPV Office in Jaipur</td>
<td>20.06.2002</td>
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<td>7</td>
<td>Completion of Tree cutting and establishing ROW by NHAI</td>
<td>20.06.2002</td>
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<td>Appointment of Independent Engineer (IE) by NHAI</td>
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<td>10</td>
<td>Completion of Site Surveys, Investigations etc.,</td>
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<td>11</td>
<td>Submission of Detailed Project Report to NHAI</td>
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<td>Appointment of EPC contractor</td>
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<td>Approval of Detailed Project Report by NHAI &amp; IE</td>
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<td>Completion of Site clearing and Stump removal</td>
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<td>Completion of Detailed Designs &amp; Drawings</td>
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<td>23</td>
<td>Completion of Major Bridges</td>
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<td>24</td>
<td>Completion of New carriageway</td>
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<td>Widening &amp; Strengthening existing 2 lane carriageway</td>
<td>31.05.2005</td>
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<td>Completion of Drainage System</td>
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<td>28</td>
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<td>16.07.2005</td>
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1. The Project Highway drawings, as defined in clause 1.1, Definitions, Article I, Definition and Interpretation, Chapter I – Preliminary, of the Concession Agreement shall consist:

A. Drawing(s) submitted by the Concessionaire as part of the Bid (Item 2 of this schedule I), incorporating modifications accepted by NHAI, for the Contract Agreement, if any.

B. Working drawings of all the components/elements of the Project Highway as determined by Independent Consultant/NHAI, and

C. As Built drawings for the Project Highway components/elements as determined by Independent Consultant/NHAI.
   As Built drawings shall be duly certified by Independent Consultant.

2. Annexure “A” of this schedule gives the list of drawings (only drawing as defined in Dictionary) of the main components/elements of the Project Highway required to be submitted by the Concessionaire.
LIST OF DRAWINGS TO BE SUBMITTED BY CONCESSIONAIRE SHOULD INCLUDE BUT NOT BE LIMITED TO:

a) Drawings of horizontal alignment, vertical profile and cross sections.
b) Drawings of interchanges, major intersections and grade separators.
c) General arrangement drawings of toll plaza layout, toll collection system and roadway near toll plaza
d) Drawings of Control Centre
e) Drawing of a bus-bay and bus shelters with furniture and drainage system
f) Drawing of a truck parking layby with furniture and drainage system
g) Drawings of road furniture items including traffic signage, markings, safety barriers etc.
h) Drawing of traffic diversion plans and traffic control measures
i) Drawings of road drainage measures
j) Drawings of typical details of slope protection measures
k) Conceptual drawing of landscaping and horticulture
l) Conceptual drawing of Pedestrian Crossings
m) Conceptual drawing of Street Lighting
n) Preliminary drawings of general arrangement of cross drainage works
o) Conceptual Layout/ Configuration of HTMS
p) Drawing showing General Arrangement of Base camp and Administrative Block.
TESTS
## TESTS TO BE CONDUCTED

During the Construction Period, the Concessionaire shall carry out the Tests and Independent Consultant will carry out quality audit of the tests carried out by the Concessionaire. Independent Consultant may carry out more tests as per a pre-determined programme. These tests and quality audit shall include but not be limited to the following:

<table>
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<tr>
<th>Sl. No.</th>
<th>Item</th>
<th>Test</th>
<th>Testing Procedure</th>
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</table>
| 1.0     | Earthwork for embankment, subgrade construction and cut formation | Quality Audit of the following tests performed during construction for soil type, density, moisture content and CBR as required by Ministry of Surface Transport specifications for Road and Bridge works:  
  - Moisture Content test as per IS : 2720 (Part 2)  
  - Sand Content Test according to IS : 2720 (Part 4)  
  - Plasticity Characteristics of soils according to IS : 2720 (Part 5)  
  - Moisture Content dry density relationship using heavy compaction according to IS : 2720 Part 3.  
  - Deleterious content determination as per IS : 2720 Part 27  
  - CBR Test as per IS : 2720 (Part 16) | As per relevant parts of IS - 2720 |
|         | Embankment and subgrade borrow materials | Quality Audit of the following Tests performed during construction as required by MOST specifications for Road and Bridge works:  
  - Compaction density and  
  - Determination of dry density of soils in place according to IS-2720, Part 28 | As per IS-2720, Part 28 |
| 1.2     | Compaction | Quality Audit of quality control tests on soils, aggregate and moisture content - density tests and CBR tests as required by MOST specifications for Road and Bridge works:  
  - Plasticity Characteristics of soils according to IS : 2720 Part 5  
  - Dry density of soils in place according to IS : 2720 Part 28  
  - Deleterious constituents as per IS : 2720 Part 27  
  - CBR test as per IS : 2720, Part 16 | As per relevant parts of IS – 2720, IS 2386 and IS 5640 |
| 2.0     | Pavement Structure | Quality Audit of quality control tests on soils, aggregate and moisture content - density tests and CBR tests as required by MOST specifications for Road and Bridge works:  
  - Plasticity Characteristics of soils according to IS : 2720 Part 5  
  - Dry density of soils in place according to IS : 2720 Part 28  
  - Deleterious constituents as per IS : 2720 Part 27  
  - CBR test as per IS : 2720, Part 16 | As per relevant parts of IS – 2720, IS 2386 and IS 5640 |
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| 2.2    | Bituminous base and wearing courses | Quality Audit of quality control tests on aggregates and bitumen and on bituminous mixes as laid down in clause 903.4 of MOST specifications for Road and Bridge works.  
Aggregates and bitumen and on bituminous mixes  
Aggregate grading as per Job Mix Formula  
Aggregate Impact value as per IS : 2386 (Part 4) or IS : 5640  
Flakiness and elongation indices as per IS : 2386 (Part I)  
Water absorption as per IS : 2386 (Part 3)  
Soundness Test as per IS : 2386 Part 5  
Marshall stability test as per ASTM D-1559 | As specified in the codes IS 2386, parts 1,3,4 and 5, AASHTO T182 and ASTM D-1559 |
| 2.3    | Cement concrete Pavement | Quality audit of sampling and testing of cubes and beams for strength of  
concrete and quality control tests on aggregates  
Aggregate Impact Value as per IS : 2386 (Part 4)  
Soundness Test as per IS : 2386 (Part 5)  
Alkali Aggregate Reactivity IS : 2386 (Part 7)  
Strengths of Concrete (Tests on Cubes and beams) as per IS : 516  
Workability of fresh Concrete - Slump Test IS : 1199 | As per relevant parts of IS 2386, IS 516 and IS 1199 |
<p>| 2.4    | Riding Quality of Surface | Checking International Roughness index of the finished pavement surface for compliance with the requirement stated in clause 4.5.9 of Schedule D. | Roughness measurement by fifth wheel bump integrator (Annexure A) or an equivalent device approved by NHAI/IC |
| 3.0    | Bridges | | |</p>
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Item</th>
<th>Test</th>
<th>Testing Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3</td>
<td>Bearings</td>
<td>Checking and verification of the bearings to ascertain proper functioning.</td>
<td>The inspection shall be carried out in accordance with requirement laid in MOST specifications for Road and Bridge works and shall meet the prescribed criteria.</td>
</tr>
<tr>
<td>3.4</td>
<td>Expansion Joints</td>
<td>Checking and verification of the Expansion joints to ascertain proper functioning</td>
<td>The inspection shall be carried out in accordance with requirement laid in MOST specifications for Road and Bridge works and shall meet the prescribed criteria.</td>
</tr>
<tr>
<td>3.5</td>
<td>Foundation &amp; Substructure</td>
<td>Checking and verification of the Foundation settlement and rotation</td>
<td>The settlement of foundation for superstructure load at completion shall be measured with reference to a fixed datum. (For this purpose, the records of measurements taken before the superstructure concreting should also be available.)</td>
</tr>
<tr>
<td>4.0</td>
<td>Highway Lighting System</td>
<td>Level of illumination</td>
<td>The illumination level shall be measured with luxmeter following the method as specified in its manual (Annexure C).</td>
</tr>
<tr>
<td>5.0</td>
<td>Traffic Signals</td>
<td>Test in accordance with the relevant clauses of IRC:93 and IS 7537</td>
<td>Meet the prescribed criteria in IRC 93 and IS 7537</td>
</tr>
<tr>
<td>6.0</td>
<td>Toll System Operations</td>
<td>1. Certified report of Factory Acceptance test (FAT)</td>
<td>Real time test for individual functionality of each component which should conform both specifications / codes stipulated in the country of manufacture. It should include manual operations in case of no power.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Post installation site test to conform to the functionality and specifications of the contract</td>
<td></td>
</tr>
<tr>
<td>7.0</td>
<td>Rest Area Operations</td>
<td>Test in accordance with the functioning of facilities built in RAO</td>
<td>Standard building safety procedures as presented by NBC</td>
</tr>
<tr>
<td>8.0</td>
<td>Emergency Telephone System</td>
<td>Independent Systems to be developed to operate on the project site</td>
<td>Real time test to be carried out to conform the designed system.</td>
</tr>
<tr>
<td>9.0</td>
<td>Traffic Signage and Pavement Marking</td>
<td>Test in accordance with ASTM standard E:810 relevant clauses of section 800 of MOST specifications for Road and Bridge works published by IRC 1997</td>
<td>To follow ASTM Standard E:810 as per section 800 of MOST specifications for Road and Bridge Works published by IRC 1997</td>
</tr>
</tbody>
</table>
TEST PROCEDURE FOR MEASURING ROUGHNESS INDEX OF THE RIDING SURFACE OF A FLEXIBLE PAVEMENT

EQUIPMENT – British Towed Fifth Wheel Bump Integrator

Test Procedure:

The following test procedure shall be adopted for the test:

1) Check the installation and operation of the equipment is in order and meets the requirements prescribed in its operational manual. For example, the towing hitch maintains the frame in an upright position but provides freedom of movement in longitudinal and transverse directions. The tyre pressure of wheels is as prescribed.

2) The instrument shall be calibrated prior to its use for measurement as prescribed in its operational manual.

3) The operators shall familiarise themselves with the 5th wheel Bump Integrator, operation using its Test Mode before commencing a survey.

4) A uniform speed of 30 km./hour, which is the specified operating speed of the British Towed Fifth Wheel Bump Integrator, shall be maintained during measurements. The readings shall be taken for each carriageway independently.

5) The equipment shall run on a lane in both the direction once and the average of two values taken for its roughness index.

6) Pavement unevenness/roughness of 3 lane carriageway shall be obtained from the average of the values of the 3 lanes recorded.

7) The roughness index value is obtained by using the following formula.

\[
\text{Roughness Index Value} = \frac{B \times R \times 1 \text{ cm/km.}}{W}
\]

Where

\[
\begin{align*}
B &= \text{Number of Bumps in a section} \\
W &= \text{Number of Wheel Revolution Counter} \\
R &= \text{is a constant, 1000 nos. of wheel revolution counter per km.}
\end{align*}
\]

Least count of \( B = 1 \text{ cm.} \)

8. All data shall be properly recorded with appropriate referencing and stored in a prescribed manner as in the operational manual.

9. The roughness measurements shall be properly calibrated using the procedure recommended in the World Bank Technical Publication No. 46.
LOAD TESTING OF A BRIDGE SUPERSTRUCTURE

The load test shall be carried out to check and establish the serviceability and working strength of the superstructure.

1.0 Test Load

The “Test Load” is the equivalent static load equal to the impacted working design Live Load (applied in addition to all dead loads) placed for maximum effect (bending moment, shear, deflection, etc. as the case may be) and applied either through an appropriate test loading truck or through loading platforms resting on tyre-contact area plates simulating the actual areas of wheels.

2.0 Load Application and Testing Procedure

I. Fix deflection gauges (supported on unyielding supports) under the superstructure, just touching its soffit, at the pre-marked critical 'points'.

II. Apply the test load in five equal increments (including the weight of platforms of trucks in the first increment), allowing about two hours in between completion of one load increment and commencement of the next. About an hour after completing a load increment, note the deflections and any crack patterns together with maximum crack widths.

III. After measuring the deflections, etc, one hour after applying the fifth increment, i.e. the final load increment, keep the test load maintained for about 24 hours and again measure the deflections and crack widths (if any)

IV. Remove the test load in five equal decrements, allowing about two hours in-between completion of one load decrement and commencement of the next. Note the deflections and crack widths (if any) at the end of each load decrement.

V. Note the deflection and crack widths (if any) 24 hours after removal of the test load in order to see whether the recovery is complete or there is any residual deflection, etc.

3.0 Acceptance Criteria

I. Increase and decrease in deflections at a point shall follow a linear relation, with actual deflections not exceeding the theoretically estimated ones by more than about 10%;

II. The maximum crack width in reinforced concrete shall not exceed about 0.25 mm to 0.30 mm (but no cracks in case of prestressed concrete).
Annex-B
(continued)

III. The deflections at the end of the 24 hours of maintaining the test load shall not exceed the corresponding values at the start of this 24 hours period by 5% and

IV. The residual deflection at any point 24 hours after complete unloading shall not exceed 10% of the maximum observed deflection at that point (i.e. recovery: 90% or more);

4.0 Observation

The cracks in reinforced concrete shall close upon removal of test load but may not completely disappear.

Schedule-J
Testing Procedure for Illumination intensity by Luxmeter

Instrument: Luxmeter (make of renowned company)

Basis: Comparison with a calibrated Luxmeter through a standard lamp by renowned Photometric Lab.

Test Procedure:

Following steps shall be taken for the test

• Calibration of the luxmeter.
• Put off the lights to be tested.
• Take calibrated luxmeter reading.
• Put on the lights in the area to be tested
• Observe the luxmeter reading
• Difference (positive or negative) in addition with standard light illuminance level will give the actual illuminance of existing lighting system.

Note: The testing procedure shall be as per the manual of the Luxmeter used.
COMPLETION CERTIFICATE
I/We, (Name of Independent Consultant) acting as Independent Consultant on the project "Widening of the existing 2-lanes to 6-lanes divided carriageway facility including rehabilitation of existing 2-lanes, Km 273/500 to Km 363/885 on Jaipur - Kishangarh section of National Highway No. 8 (NH8) in Rajasthan, India on Build, Operate and Transfer (BOT) basis" through the Concessionaire, GVK - Jaipur Kishangarh Expressway Private Limited hereby issue this completion certificate in-terms of sub-clause 16.4 of Concession Agreement since the said project has been completed and successfully tested as per Schedule-J as stipulated in the said Concession Agreement and is ready for commissioning traffic commercially as provided in the Concession Agreement dated (Date of Agreement) between the said Concessionaire and the NHAI. The date of issue of this Completion Certificate shall be the COD, as defined in the said Concession Agreement.

Dated ____________________________
(Date of Issue)

Independent Consultant
PROVISIONAL COMPLETION CERTIFICATE

I/We (Name of Independent Consultant) acting as Independent Consultant on the project, "Widening of the existing 2-lanes to 6-lanes divided carriageway facility including rehabilitation of existing 2-lanes, Km 273/500 to Km 363/885 on Jaipur - Kishangarh section of National Highway No. 8 (NH8) in Rajasthan, India on Build, Operate and Transfer (BOT) basis," through the concessionaire, GVK - Jaipur Kishangarh Expressway Private Limited hereby issue this provisional certificate of completion in-terms of sub-clause 16.5 of Concession Agreement dated (Date of Agreement) between the said Concessionaire and the NHAI, on the request of the said Concessionaire subject to the appended Punch List containing a list of outstanding items since the tests stipulated in schedule J have been successfully carried-out and all parts of Project Highway can be legally, safely and reliably placed in commercial operations though certain works and things forming part thereof are not yet complete as indicated in the said Punch List. All the items of the said Punch List shall be completed by the said Concessionaire with in 180 (one hundred and eighty) days of the date of issue of this Provisional Certificate of Completion.

Dated ____________________
(Date of issue)

Independent Consultant
OPERATION & MAINTENANCE REQUIREMENTS
OPERATION AND MAINTENANCE REQUIREMENTS

1. Introduction

The Concession Agreement stipulates that the Project Highway shall be constructed, operated and maintained during the Concession Period by the Concessionaire and thereafter transferred to National Highways Authority of India (NHAI). This Schedule elaborates the operation and maintenance requirements of the Concession and is to be read together with the Concession Agreement for this purpose. For clarification of doubt, the period during which the Concessionaire shall comply with the O&M requirements covers the entire Concession Period including the Construction Period. In particular, during the Construction Period, the Concessionaire is required to operate and maintain the existing two lanes as provided in the Concession Agreement and this Schedule. The Concessionaire shall operate and maintain the Project Highway such that

- during the Construction Period, the two existing lanes are ordinarily open to traffic at all times and

- from Commercial Operations Date (COD), lane availability at the end of each year of the Concession will be a minimum of 99% on a cumulative basis. For this purpose, lane availability at the end of each year will be computed as follows:

\[
(90.385 \times 6 \times \text{number of days since COD}) - \sum (\text{lane kms closed} \times \text{number of days for which closed})
\]

(90.385 x 6 x number of days since COD)

- Any Lane closure due to emergency reasons shall be excluded for computing lane availability.

2. Operation and Maintenance (O&M) Requirements

2.1 The Concessionaire shall take all such actions and do all such things (including without limitation, organising internal reporting measures and standards, executing procedures such
as inspection procedures, highway patrols, and engaging and managing contractors, agents and employees) as will secure:

a) The safety of users of the Project Highway, workers or other persons on the Project Highway and/or facilities thereon;

b) Unimpaired performance of statutory duties and functions of the NHAI and other Authorities in relation to the Project Highway and/or other adjoining roads and facilities;

and, subject to paragraphs a) and b), above, ensure that:

2.1.1. adequate safety measures taking into account Schedule ‘S’ are taken up on the construction zone during the Construction and Operation periods.

2.1.2. delay to users of the Project Highway and of adjoining roads or facilities is minimised;

2.1.3. risk of adverse effects on the environment and on the amenity enjoyed by the owners and occupiers of property and/or land adjacent to the Project Highway, adjoining roads and facilities is minimised;

2.1.4. accidents and emergencies on the Project Highway and facilities thereon are responded to as quickly as possible and their adverse effects minimised;

2.1.5. risk of disturbance or damage or destruction to property of third party is minimised;

2.1.6. members of the public are treated with due courtesy and consideration;

2.1.7. users are given adequate information and forewarning of any event on or any other matter affecting the Project Highway which will enable them to minimise any adverse consequences on them of that event or matter;

2.1.8. members of the public and others are given adequate opportunity to bring to the attention of the Concessionaire any matters affecting its ability to meet the O&M Requirements;

2.1.9. traffic data and data relating to the operation and maintenance of the Project Highway and its Facilities and events on the Project Highway are collected and disseminated such that the NHAI and other persons or bodies with statutory duties or functions in relation to the Project Highway or adjoining roads are able to perform those duties and functions efficiently;

2.1.10. the project facilities shall be operated and maintained in order to fulfil the requirements set forth in the Concession Agreement and in this Schedule L;
2.2. TRAFFIC MANAGEMENT AND LANE CLOSURE

2.2.1. Traffic Management during Construction, Operation and Maintenance of the Project Highway is an important activity the Concessionaire has to attend to ensure safety of the road users as well as the construction workers simultaneously throughout the concession period. It is an usual activity to carryout various types of construction works at different stages and at different periods as per site requirement. Also, it is a vital activity during unforeseen and/or emergency situations arising on account of natural causes or accidents or administrative reasons.

2.2.2. Traffic Management is required during planned scheduled construction and maintenance activities. However, traffic management will also be called for during unscheduled activities such as

(i) Emergency situation arising on account of
   a) Force Majeure;
   b) Accident/Incident on the Project Highway;
(ii) Special repairs required on account of failure of an element of the Project Highway; and
(iii) Default of the Concessionaire with respect to an operational activity on the Project Highway.

2.2.3. The basic principles to be followed for traffic management and lane closure in this Project Highway shall be as follows:

2.2.3.1. Work programme schedule shall be prepared such that diversion roads for the main traffic are minimized. The existing two lane carriageway is utilized to the maximum extent possible.

2.2.3.2. Measures shall be taken that the traffic is guided from a closed lane onto the operating lane without its conflict with the traffic from the opposite direction.

2.2.3.3. The activity of renewal of pavement surface and/or strengthening of the pavement structure shall not be taken up in a continuous length of more than 2 kilometers at a time to avoid long detour of the traffic.

2.2.3.4. The traffic diversion road where provided shall be appropriately designed for the traffic plying on the highway. It shall also be properly maintained during its operation period.
2.2.3.5. During Traffic detour involving traffic diversion adequate safety measures, Schedule 'S' shall be followed.

2.2.3.6. Proper and adequate information about the maintenance activity shall be notified to the Road Users in advance and displayed at the work site during the Operation Period.

2.2.4. Traffic Management plan and programme for a planned scheduled construction and/or maintenance activity shall be prepared in advance of that activity keeping 2.2.1 above in view and got approved by the Independent Consultant/NHAI as the case may be.

2.3. In case of un-scheduled activities, described in 2.2.2 (l) to (iii) above, an emergency traffic management for the affected reach of the highway shall be prepared and implemented in consultation with the Independent Consultant immediately. This emergency traffic management plan shall take into account the various requirements spelt out in the Concession Agreement as well as in this schedule.

Traffic Management and Lane Closures Requirements during various situations arising on the Project Highway needing Traffic Management are detailed below:

2.4. Initial Construction Stage

2.4.1. Rural Section
i) The widening of the existing 2 lane carriageway shall be eccentric to make a six (6) lane divided carriageway facility. A new 3 lane carriageway separated from the existing carriageway with a 5.0m central median will be constructed in the first instance and then one lane will be added to the existing 2 lane carriageway.

ii) The construction sequence in this case will be as under:
   a) 3 new lanes will be constructed initially. There will be no conflict area for the main traffic using the existing two lanes during this construction phase. It shall be ensured that the construction traffic does not conflict with the main traffic in this phase.
   
   b) On completion of the 3 new lanes throughout, the total traffic will be diverted on it and the existing 2 lanes will be widened to 3 lanes upto the existing road level. Thereafter, the 3 lanes, including the existing 2 lanes and the widened one shall be given bituminous base courses on the entire width uniformly.

2.4.2. Urban Section
i) The widening of the existing 2 lane carriageway shall be concentric to make it a 6 lane divided carriageway facility. The divider will be a 1.5 m wide central median.
In addition, a 9.0 wide service road including parking-cum-cycle track will be provided on either side of the 6 lane carriageway facility.

ii) The construction sequence in this case will be as under:
   a) Service roads and side drain on both the sides will be constructed initially.

   There will be no conflict area for the main traffic which will be using the existing two lanes. It will be ensured that the construction traffic does not conflict with the main traffic at exit and entry points.

   b) On completion of the service roads on both sides, the main traffic will be diverted on them directionwise and the existing 2 lanes will be widened to 3 lanes on each side duly accounting for the 1.5 m wide central median. On completion of the widening upto the existing road level, the median will be constructed. On its completion, the existing road will be strengthened in such a manner that the bituminous base courses and the wearing course layers are laid uniformly in 3 lanes on either side of the 1.5 m wide central median. During this operation the construction traffic will not be conflicting with the main traffic on the service roads.

   c) On completion of the divided 6 lane carriageway of the Project Highway, the main traffic from the service roads shall be restored on them.

2.5. Operation and Maintenance Stage

2.5.1. This stage is obtaining during the entire period of operation on the Project Highway in the concession period. Various important activities to be carried out during this stage are:

   a) Regular periodic maintenance activities:
      i) Renewal of the wearing surface of the road pavement once every 5 years;
      ii) Strengthening course to be provided on as required basis.

   b) Maintenance activities arising out of the specific need(s) on account of the site conditions
      i. Strengthening course required on account of the B.B.D. values in excess of the prescribed criteria obtained during regular testing as per the Concession Agreement requirement;

      ii. Wearing course required on account of the IRI values higher than the prescribed criteria obtained during regular testing as per the Concession Agreement requirement;
iii. Localized repairs in short lengths less than 500 m on account of pot holes, cracking, subsidence in isolated spots or in scattered areas.

2.5.2. In order to cater to the execution of the said activities, para 2.5.1 above the main traffic will have to be diverted to an extent dependent on the site requirement.

2.6. EMERGENCY STAGE

2.6.1. This stage could arise any time in an emergency situation and shall have to be addressed to on its own merits. The extent of the traffic management shall be assessed as per the site requirement and situation.

2.6.2. The emergency situation could be faced in the following three situations.

a) During the period between the award of work and commencement of the construction works on financial close.

In this situation the existing two lane facility is available only. The traffic management will have to be tailored accordingly. Either the existing one lane will have to be closed passing the traffic on the another lane and its adjoining shoulder or both the existing lanes will be closed and a diversion road provided.

b) During the period when construction works are in progress.

In this case the availability of the carriageway at site shall decide the nature and extent of the traffic diversion.

c) During the period when the Project Highway is under operation and/or maintenance. The nature of emergency requirement in this case will determine the type and extent of the traffic diversion.

Traffic Management in emergency situation shall be provided immediately in consultation with the Independent Consultant

3. OPERATIONS

3.1. Introduction

3.1.1 The Concessionaire shall in consultation with the Independent Consultant evolve a Operation and Maintenance Manual (Maintenance Manual) as required in Sub clause 18.2 of the Concession Agreement.

3.1.2. The said Maintenance Manual shall have two separate sections, namely
(i) Section I Operations; and

(ii) Section II, Maintenance

These are briefly described in items 3.2 and 4 of this Schedule respectively.

3.2. Section I - Operations

It shall prescribe procedures and systems for activities including but not be limited to the following for the regular and emergency operations of the Project Highway and facilities thereon.

3.2.1. Regular Operations

- Permitting smooth and uninterrupted flow of traffic during normal operating conditions.
- Functioning of the Toll System including charging and collecting the fees from the road user in accordance with the Concession Agreement.
- Functioning of the lighting system;
- Functioning of the Patrolling System
- Functioning of rescue and medical aid services
  - Ambulance
  - Fire Brigade
  - Tow away truck and cranes
- Functioning of the Highway Traffic Management System
  - Emergency Call Boxes (ECBs) for Road Users
  - Central Control System
- Functioning of the Project Facilities
  - Administrative, Operation and Maintenance Base Camp
  - Rest Area
  - Truck Parking Laybys
  - Electrical Services at Laybys, Bus Stops and Rest Area
  - Potable Water supply system including supply of drinking water at truck parking laybys rest area etc.
  - Public toilets and other sanitary facilities
  - Pickup Bus
  - Solid wastes disposal system including those from litterbins.

3.2.2. Emergency Operations
Minimising disruption to the traffic in the event of accidents and/or incidents affecting the safety and use of the Project Highway by providing a rapid and effective response and maintaining liaison procedures with emergency services.

- Reasonably smooth and safe movement of traffic during emergency activities such as special repairs during floods, storms, hurricane and earthquakes.
- Failure of a system due to human error, electrical or mechanical failure.

3.3. The Concessionaire shall keep regular record of accidents that occur including the nature of accident, location of occurrence, time and date in the prescribed format, included in the Maintenance Manual and shall forward the monthly particulars of the same to the Independent Consultant and the NHAI regularly in the first week of the following month.

3.4. The Concessionaire shall programme Inspections of the Project Highway for its smooth operations in-terms of the Concession Agreement classified in the following categories:

- Visual Inspection
- Close Inspection
- Thorough Inspection

and described herein under

3.5. **Visual Inspection**

Visual Inspections are broad general inspections carried out quickly and frequently by highway /bridge maintenance engineers having knowledge of road structures. The purpose of this visual inspection is to report the obstacles to traffic and fairly obvious deficiencies, which could lead to accidents or maintenance problems. Such inspections should be frequent. The visual inspection may be carried out by visual assessment with careful observation of the specific object/item of the Project Highway for identification and for quantification of the deficiencies or damages of the Project Highway.

3.6. **Close Inspection**

The close inspection may be visual and/or supplemented by standard instrumental aids for assessment of defects / deficiencies of Project Highway with careful observation of specific element(s). The close inspection may be daily / periodic but it is more intensive and would require detailed examination of element of the Project Highway. It should cover all the aspects of the specific element of project Highway against a checklist. The close inspections are to be carried out quite frequently depending upon the nature of structure of Project Highway. This inspection is to be carried out by the Highway/Bridge Engineer having good knowledge of road structures with
theoretical background to analyse the nature, and extent of defects/deficiencies, suggest suitable remedial measures to rectify/remedy them and quantify repair work.

3.7. Thorough Inspection

A thorough inspection is comprehensive and detailed for assessment of defects/deficiencies of the Project Highway by visual inspection or with aid of standard equipment and non-destructive testing where necessary. Such an inspection is to be carried out on the basis of comprehensive checklist of items related to the materials, condition and situation of the structure etc. The checklist is to be prepared meticulously well in advance of inspection. The thorough inspection should be undertaken during the most critical weather condition, which is generally rainy season in India. During rainy season the Road/Bridge structures are under severe condition thereby the damage and deficiencies of the Project Highway are more pronounced. The inspection carried out during the said period offer the most critical evaluation of the performance of the structure.

The thorough inspections are all the more important for Bridges, Culverts and drainage structures, as well as road pavements during adverse weather condition of monsoon period.

Besides being a qualified Highway/Bridge engineer; the inspection team leader must be familiar with design and construction features of the Highway /Bridges to be inspected so that the condition can be properly and accurately assessed for a meaningful report and quantification of repair works. The competence of team leader to recognise any structural distress/deficiencies and assess its seriousness - with complete recommendation for appropriate repairs are important pre-requisites for entrusting this assignment to him.

3.8. Frequency of Inspections

The inspection frequency of various items of Project highway has been indicated in the table L-1 hereinunder. The frequency of inspection can be suitably revised in consultation with the Independent Consultant if the emergencies so warrant.
Table L-1: Objective and Frequency of Inspection

The objective and minimum frequency of inspections under normal circumstances shall be as under. If the exigencies arise, the interval of inspection shall be reduced.

<table>
<thead>
<tr>
<th>Object</th>
<th>Item</th>
<th>Daily</th>
<th>Monthly</th>
<th>Quarterly</th>
<th>Before and after rainy season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riding Surface</td>
<td>Pavement</td>
<td>♦</td>
<td>○</td>
<td>○</td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Expansion joints</td>
<td>♦</td>
<td>○</td>
<td>○</td>
<td>♦</td>
</tr>
<tr>
<td>Median</td>
<td>Kerb</td>
<td>♦</td>
<td>○</td>
<td>○</td>
<td>♦</td>
</tr>
<tr>
<td>Side Slopes</td>
<td>Shape</td>
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<td>○</td>
<td>○</td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Turfing</td>
<td></td>
<td>♦</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Pitching &amp; masonry</td>
<td>♦</td>
<td></td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Retaining wall</td>
<td>○</td>
<td>○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drainage</td>
<td>Shoulder drain</td>
<td>♦</td>
<td>○</td>
<td>○</td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Median drain</td>
<td>♦</td>
<td>○</td>
<td>○</td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Side shape drain</td>
<td>♦</td>
<td>○</td>
<td>○</td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Bridge catch basin</td>
<td>♦</td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Gullies and catch pits</td>
<td>♦</td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td>Bridges</td>
<td>Superstructure</td>
<td></td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Substructure</td>
<td></td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Head walls and aprons</td>
<td></td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Painting</td>
<td></td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Hand rail</td>
<td>○</td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td>Culverts</td>
<td>RC Culverts</td>
<td></td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>HP Culverts</td>
<td></td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td>Guard rails</td>
<td>Shoulders</td>
<td>♦</td>
<td>○</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td></td>
<td>Medians</td>
<td>♦</td>
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**LEGEND**
- ♦ visual inspection
- ○ close inspection
- ● thorough inspection
- ♦ visual inspection during rainy season only
4. MAINTENANCE

4.1. Introduction

4.1.1. The Concessionaire shall maintain the Project Highway in traffic-worthy condition and the Project's Ancillary Facilities in usable condition throughout the Concession Period or any extension thereof in terms of the Concession Agreement through regular maintenance and preventive maintenance of the various items and elements of the Project Highway.

4.1.2. The Concessionaire shall maintain the existing 2 lanes of the Project Highway during construction of new lanes in such a manner that the unevenness index of the pavement does not exceed 3500 mm per km, or the present roughness value of the existing pavement, whichever is lesser.

4.1.3. The following MOST and IRC publications shall be referred for preparation of the said Section - II Maintenance of "Maintenance Manual"
- The manufacturer's Maintenance manual(s) of the equipment including that of the Toll Collection System to be used in the Project Highway Operations shall form part of the said O&M Manual.

4.2. Maintenance Section of Maintenance Manual

The Section II Maintenance, of the Operation and Maintenance Manual, shall include the activities described hereunder amongst other activities required for the regular and preventive maintenance of the equipment during the operations period, so that the Project Highway is maintained in a manner that at all times it complies with the specifications and standards and at the time of Divestment of Rights and Interests by the Concessionaire in terms of Article XXXIII of the Concession Agreement it is in sound, durable and functional condition.

4.2.1. Regular Maintenance

It consists of the routine maintenance and periodic maintenance throughout the Concession Period and extension thereof, if any, for all elements of the Project Highway.
4.2.2. Preventive Maintenance

Preventive Maintenance shall include the activities related to each element and the system as a whole of the Project Highway to ensure that during the Concession Period and at its end is in sound, durable and functional condition.

4.2.3. Special Repairs

Damages occurring due to natural calamities like heavy floods, sand storms, hurricanes, cyclones, earthquakes to any element or system of the Project Highway, shall be rectified and the system restored to function as per programme prepared in consultation with Independent Consultant. All such activities shall fall under the Maintenance and shall form a part of the said Maintenance Manual.

4.3. LANE CLOSURE

4.3.1. Lane closure is a vital activity during construction and/or maintenance in the Concession Period that the Concessionaire shall carryout in an organized, planned and disciplined manner.

4.3.2. Lane Closure involves traffic management in the affected reach of the highway as such it is always a time bound activity and the Operation and Maintenance Manual incorporates it accordingly. In case where the concessionaire fails to perform in time a penalty shall be levied on the Concessionaire for the delay in reopening the closed lane to the traffic in terms of the Concession Agreement.

4.3.3. The basic principles to be followed in preparation of a planned lane closure shall be as follows:

4.3.3.1. The activity of renewal of pavement surface and/or strengthening of the pavement structure shall be taken up in one lane of the 3 lane carriageway so that 2 lanes of that carriageway are available to the traffic.

4.3.3.2. The activity of renewal or strengthening, item 2.5.1 above, shall not be carried out in a continuous length of more than 2 km in Rural section and 1 km in Urban section so that the closure of a lane is not more than 2 days and 1 day in Rural and Urban section respectively.

4.3.3.3. Lane closure adopted for diverting the main traffic on account of the traffic management during construction works of the Project Highway shall be governed by the approved programme of Construction.
4.3.4. Lane Closure in short lengths less than or equal to 500 metres for carrying out a routine maintenance activity defined in item 2 of this schedule shall not be more than for a continuous period of 1 day.

4.3.5. The lane closure needed on account of emergency shall be distinguished from the lane closure described in item 4.3.3 above. The lane closure on account of the Emergency shall be dealt with under sub clause 18.9, Emergency De-Commissioning, Article XVIII Operation and Maintenance, Chapter IV, Project Development and Operation of the Concession Agreement.

4.4. Minimum Requirements of Maintenance Activities

4.4.1. Major Breaches in the Roadway

Major breaches in the roadway of any type endanger safety of traffic and cause obstruction in movement of vehicles. These breaches shall be repaired urgently. Steps as mentioned in O&M manual shall be followed by the Concessionaire for repairing the breaches.

The Concessionaire shall ensure speedy restoration of traffic and take immediate action to repair the damages as permanent measures for the Project Highway. The restoration of traffic shall be made within 24 hours of its occurrence. The permanent measures shall be completed within a period of one week.

4.4.2. Minor cuts, rut or blockage

Minor cuts, rut and damages on Project Highway which do not completely obstruct the traffic but endanger the safety of traffic, shall be attended to on an urgent basis. For this purpose any cut which is in width more than 1 m shall be repaired within 24 hours. Any minor blockage, which partially obstructs the traffic and endangers safety, shall be removed by the Concessionaire immediately.

4.4.3. Branches of trees

The branches of the roadside trees if hanging closer than 5.5m over the road level of the Project Highway shall be cut, trimmed or lopped within 24 hours.

4.4.4. Shoulders

If the shoulders are deformed or scoured and are lower than 25mm from the adjacent carriageway, these shall be corrected by excavation, filling, dressing and compacting a material matching the existing material and it shall conform to the relevant MOST
Specifications. In case of earthen shoulder repairs shall be carried out as per MOST Specifications 3003.

4.4.5. Damaged Culverts/Bridges

The treatment for the damaged culverts/bridges shall be assessed at site after ascertaining the damaged portion as per site exigencies. The repair shall be carried out expeditiously.

4.4.6. Drainage / Side Drains

4.4.6.1. Routine maintenance under this category shall cover pipe drainage system, slot drains, porous drains, gullies, catch-pits, open grills, ditches, side drains and median drainage etc.

4.4.6.2. If the side drains / median drains where provided, and other drainage structures have been silted up in such a manner that it is causing obstruction in flow of water, the same shall be cleared off regularly in order to keep the drains free from obstructions all the time.

4.4.6.3. If the drainage system of Project Highway is covered and damaged, it obstructs the flow of water causing damage to the road pavement. Such damaged structures shall be reconstructed to required shape, size and proper slope.

4.4.7. Cross Drainage Works

4.4.7.1. Where the bed of a culvert gets silted up and causes obstruction in flow of water, the desilting operation shall be done regularly. The scouring of piers and abutment of bridges and culverts shall be observed carefully particularly before and after rainy season and suitable remedial measures as deemed fit looking to site conditions shall be taken.

4.4.7.2. If any settlement cracks are appearing in substructure and superstructure of the CD works beyond permissible limits, the same shall be carefully observed and suitable remedial measures as per sound engineering practice taken.

4.4.8. Pavement Distress

Maintenance procedure for correcting distress in bituminous pavements shall include patching, crack sealing, surface treatment and pot hole filling.

4.4.8.1. Cracking

Cracking of bituminous pavements shall include all types of cracks such as hairline, alligator, longitudinal, transverse, shrinkage, reflective and edge cracking, linear and slippage etc. The minimum requirement and criteria for crack sealing shall be as under:
i) If the width of the cracks is less than 3mm and resulting into settlement of pavement upto 10mm in depth and exceeding in area more than 1sqm at a place, such cracking shall be sealed by fog sealing in accordance with the MOST Specification 3004-2.

ii) If the width of cracks is more than 3mm and causing settlement of the pavement upto 10mm and the area of cracked surface exceeds 0.5sqm at a place, such cracked surface shall be repaired by slurry sealing in accordance with MOST Specification 516.

iii) If the cracked portion has settled more than 10mm and its area exceeds 0.5 sqm, such areas shall be repaired by patching as per MOST Specification 3004. In case of alligator cracks, the permanent repair by full depth patching shall be carried out. The slippage cracks shall be repaired by removing the affected bituminous layer and replacing it with surface patch. In edge cracking, if shoulders are not providing adequate lateral support, the shoulder shall be reconstructed with good quality materials.

4.4.8.2. Rutting

If the depth of rut exceeds 10mm with a length of 10m at a place in the wheel track of pavement surface, the same shall be repaired by full depth patching.

4.4.8.3. Corrugations and Shoving

If corrugations and shoving in the pavement area exceeds 1 sq. m at a place and depth / height of corrugation / shoving exceeds 10mm, the same shall be treated by full depth patching.

4.4.8.4. Settlement or Grade Depressions

If the settlements and grade depressions exceed 1 sqm in area and their depth is within 10mm, such defects shall be treated by skin / full depth patching.

4.4.8.5. Upheaval or Swell

If upheaval or swell exceeds 0.5 sq. m in area and its height is more than 10mm, such defects shall be treated.

4.4.8.6. Ravelling

If the Ravelling of bituminous pavement exceeds 1 sq. m in area, slurry seal treatment shall be applied in accordance with the MOST Specification.

4.4.8.7. Potholes

If the bowl shaped pot hole in the pavement exceeds 0.5 sqm in area and 10mm in depth irrespective of the numbers existing on the pavement shall be repaired by patching / pothole filling in accordance with MOST Specification 3004-1.
4.4.8.8. Skid Hazards

Skid hazards, irrespective of size, shall be corrected by improving the surface drainage and skid resistance including cleaning the surface of contamination, surface treatments or milling or resurfacing.

4.4.8.9. Bleeding or Flushing

Bleeding or flushing of the pavement irrespective of the area shall be repaired by application of hot sand.

4.4.8.10. Polished Aggregate

The treatment for this type of defect is to cover the surface with skid resistant repairs.

4.4.8.11. Loss of Cover Aggregate

If the loss of cover aggregate occurs in area exceeding 1 sqm of the pavement, treatment of seal coat shall be applied.

4.4.8.12. Longitudinal / Transverse Streaking

If the longitudinal and transverse streaking appears on the pavement surface in area exceeding 5sqm, the same shall be treated by application of new surface treatment or by a second treatment over the streak surface.

4.4.9. If any defects other than those mentioned above occur on the pavement of the Project Highway, the same shall be rectified/corrected by the Concessionaire as per directions laid out in IRC 82-1982 and based on sound engineering practice.

4.5. Periodic Maintenance of Pavement

The framework of activities relating to pavement maintenance and rehabilitation in respect of flexible and rigid pavement are given in the flow charts in Appendix 3.1 and Appendix 3.2 respectively. The Concessionaire shall set forth in the Operations and Maintenance Manual the detailed procedures to be followed under each of these activities, and also choose the operational and performance criteria from the IRC/MOST standards and specifications for each of the performance indicators covered under pavement condition survey, roughness and BBD deflections. Where such criteria is not specified in the standards, the Concessionaire, for the purpose of routine maintenance shall set forth such criteria so as to conform to international standards or sound pavement maintenance practices in consultation with the Independent Consultant for using them as criteria.
4.5.1. **Pavement Riding Quality**

The riding quality of the pavement shall be ensured by satisfying the minimum requirements given herein under.

i) Surface roughness of the Project Highway on completion of construction shall be 2500 mm/km as measured by the 5th wheel Bump Integrator.

ii) Surface roughness shall not exceed 3500 mm/km during the service life of pavement at any time. A renewal coat of 25 mm of bituminous concrete shall be laid every 5 years after initial construction or where the roughness value reaches 3500 mm/km whichever is earlier to bring it to initial value of 2500 mm/km.

4.5.2. **Structural Condition of the Pavement**

I) The structural condition of the flexible pavement of the Project Highway shall be assessed every year by taking Benkelman Beam Deflections and working out characteristic deflections of homogeneous sections of the Project Highway as per IRC-81-1997. Wherever the characteristic deflection exceeds 0.8 mm a bituminous overlay shall be provided appropriately designed according to IRC-81-1997 or its latest versions or amendments to it.

II) In the case of cement concrete pavement, joints shall be thoroughly inspected every year and the loss of sealing compounds made good.

4.6. **Other Maintenance Activities**

4.6.1. **Maintenance of Bridges and Other Structures**

The Concessionaire shall set forth in the Operation and Maintenance Manual the detailed procedures to be followed for the maintenance and repairs of bridges and other structures keeping in view IRC-SP-35:1990 'Guidelines for the Inspection and Maintenance of Bridges' in consultation with the Independent Consultant. The flow chart for Bridge and Culverts maintenance activities is given in Appendix 3.3.

4.6.2. **Maintenance of Traffic Signals**

The traffic signals shall be maintained at all times as per clause 18 of IRC: 93:1985 and shall be periodically inspected, maintained and repaired so as to be in satisfactory working condition all the time.
4.6.3. Maintenance of Highway Lighting System

4.6.3.1. Maintenance of all lighting installations and related appurtenances shall be as per relevant clauses of IS : 1944 (Part I-V) 1981.

4.6.3.2. Lighting wherever provided shall be maintained by the Concessionaire in a condition nearly similar to original condition.

4.6.3.3. The faults shall be repaired instantly and lighting restored. and missing and damaged items shall be replaced instantly.

4.6.3.4. Cleaning shall be done at regular intervals to be mentioned in the Maintenance Manual to ensure that lighting is not below the specified standard.

4.6.3.5. All installations shall be safeguarded against weathering and ageing effect by repainting and other preventive measures.

4.6.3.6. The servicing of stand-by power generation units shall be carried out in accordance with the manufacturer's instructions.

4.6.4. Maintenance of Highway Signs and Pavement Markings

4.6.4.1. All traffic signs and markings shall always be kept clean, visible and in correct alignment and position.

4.6.4.2. Any damage to traffic signs which reduces or threatens to reduce full and clear visibility shall be rectified within twenty four (24) hours of its occurrence. If they are used as base for posters, the posters shall be removed and the signs cleaned within 24 hours. Signs shall be washed using detergent solution followed by clean water to maintain their visibility and reflectivity unimpaired due to dust etc.

4.6.4.3. Any part of traffic signs damaged due to weathering, corrosion, vandalism or any other cause shall be replaced by the Concessionaire within seven days.

4.6.4.4. Any mandatory sign including those for traffic safety and toll, 'damaged beyond repair' shall be replaced within 2 days and all other signs with similar condition shall be replaced within 3 days.

4.6.4.5. Appropriate devices for measuring the luminosity and reflectivity shall be used to check visibility and reflectivity of signs, delineators and markings. These shall be replaced by similar material if the reduction in the level of these two requirements falls below 50% of the original level.
4.6.4.6. Line marking with thermo plastic paint shall be carried out soon after any overlay/renewal coat is provided.

4.6.5. **Maintenance of Pickup Bus Stops**

4.6.5.1. Maintenance of pickup bus stops shall include attending to repairs to the bus-bay pavement and also to various parts of the passenger shelter and connected facilities as and when necessary. Replacement of irreparable items shall be done within 2 days.

4.6.6. **Maintenance of Control Centre**

4.6.6.1. There shall be periodic inspection and maintenance of the Control Centres. This shall include attending to repairs and maintenance (both regular and periodic) to various parts of the building and connected services and facilities as and when necessary, and replacement of irreparable items of work. Cleaning & disinfecting of the water supply systems, inspection and maintenance of drainage/sanitation systems and electrical installations shall be as per relevant clauses of NBC.

4.6.6.2. Maintenance of Emergency Telephone system including its equipment shall include periodic servicing, checking of the system, replacement of components, attending to all necessary repairs and other incidentals to keep the system in working condition.

4.6.6.3. All the vehicles shall be maintained in smooth running condition at all times. In the event of any vehicle being off the road for maintenance or on account of breakdown, substitute vehicle shall be provided immediately.

4.6.6.4. At the end of the Concession period or the extended period thereof, Control Centres together with all equipment in working order shall be handed over to NHAI.

4.6.7. **Maintenance of Buildings**

4.6.7.1. Maintenance of buildings shall include routine maintenance and attending to repairs to various parts of the building and connected services as and when necessary, and replacement of irreparable items of work, cleaning & disinfection of the water supply systems, inspection and maintenance of drainage/sanitation systems and electrical installations shall be as per relevant clauses of NBC.

4.6.7.2. At the end of the concession period or the extended period thereof, all buildings shall be in useable condition and handed over to NHAI.

4.6.8. **Maintenance of Road Furniture and Facilities**
4.6.8.1. Maintenance of road furniture and facilities shall include attending to repairs to various parts of the road furniture and connected services as and when necessary, and replacement of irreparable items of work in reasonable period.

4.6.8.2. At the end of the concession period or extended period thereof, all road furniture and facilities in useable and in working order shall be handed over to NHAI.

4.6.9. Maintenance of Highway Landscape

4.6.9.1. Maintenance of Highway Landscape shall include attending to repairs to elements of the landscape connected services as and when necessary, and replacement of irreparable items of work.

4.6.9.2. Trees shall be maintained as per the guidelines in IRC : SP : 21-1979 and no indiscriminate felling of trees shall be resorted to while upgrading, widening and improving the highway. The felling of trees shall be undertaken in consultation with the Independent Consultant and after obtaining due permission of the Forest Department, as applicable.

4.6.9.3. While borrowing earth from roadside land for routine maintenance it shall be ensured that no earth is removed around root of trees. All borrowing Operation shall be as per IRC : 10-1961.

4.6.9.4. Maintenance operations include numbering and maintaining a register of all road side trees within the Right of Way.

4.6.9.5. The routine maintenance such as trimming and shaping shall also cover those hedges and trees within the RoW, which affect the performance of the Project Highway.

4.6.9.6. Cutting or clearance to safeguard visibility at intersections, road bends, accesses and signs shall be carried out in such a way as to avoid permanent damage to hedges and trees. Hedges and trees overhanging carriageways shall be trimmed to provide a minimum headroom of 5.5 metres at all times.

4.6.9.7. Turfing within the RoW shall be mown as to achieve a visual pattern in harmony with adjacent areas. Mowing shall be done when the height of cut reaches 150 mm.

4.6.9.8. The operation and maintenance manual shall include a maintenance and management plan for trees, shrubs, turfing and hedges to sustain their development in a manner pleasing in appearance.

4.7. Inspection Reports and Remedial Measures
4.7.1. Periodicity of inspections for maintenance activities by the Concessionaire shall be regulated as per the Concession Agreement and governed by the exigencies of the situation. The said inspections shall be followed by reports to the Independent Consultant and the NHAI. Based on reports, detailed investigations shall be undertaken by the Concessionaire itself and/or on advice of the Independent Consultant and the NHAI as the case may be.

4.7.2. The Concessionaire shall carry out any maintenance, repair or rehabilitation works found necessary by these investigations in accordance with the Maintenance Manual and the Concession Agreement.

4.8. Maintenance of Facilities for Road Users

4.8.1. The Concessionaire shall ensure that all the facilities provided for Road Users of all categories are kept in a neat, hygienic and tidy condition. Special attention shall be given in preparation of food items so that they are cooked with unadulterated ingredients in a hygienic manner.

4.9. Limit of Maintenance

4.9.1. The Concessionaire shall maintain the Project Highway, Project area, Project Assets, Ancillary Facilities on the Project Highway in working and orderly condition at all times during the Concession Period or any extension thereof.

4.10. The specifications and standards for maintenance items shall be governed and regulated as per Schedule 'D' of the Concession Agreement.

5. DIVESTMENT

5.1. The Concessionaire shall take action(s) in terms of Article XXXIV, Defects Liability Chapter-VIII, Miscellaneous, of the Concession Agreement prior to proceeding with Transfer of the Project Highway, Facilities and Assets thereon to NHAI.

5.2. The Concessionaire shall obtain a Transfer Certificate, Schedule L, appended to this schedule, from the Independent Consultant, who shall issue it after satisfying itself that the Project Highway and Facilities and Assets thereon have been constructed, operated and maintained in terms of the Concession Agreement during the Concession Period and meet the divestment requirements as per Concession Agreement for the issue of Vesting certificate (Schedule V) by NHAI.
5.3. The Concessionaire shall take action(s) under Article XXXIII, Divestment of Rights and Interests, of Chapter VII, Suspension and Termination of the Concession Agreement after obtaining the Transfer Certificate (Schedule L₁) from the Independent Consultant as spelt out in 5.2 above in order to obtain Vesting Certificate (Schedule V) from NHAI.

5.4. The issue of the Vesting Certificate (Schedule V) by NHAI in-terms of Sub-clause 33.4 article XXXIII, Divestment of Rights and Interest, Chapter VII, Suspension and Termination of the Concession Agreement to the Concessionaire shall result the completion of the transfer of the Project Highway in terms of the Concession Agreement.
TRANSFER CERTIFICATE

I/We ________________________________ (name of the Independent Consultant) issue this certificate, designated Transfer Certificate for widening of the existing 2-lanes to 6-lanes divided carriageway facility including rehabilitation of existing 2-lanes, Km 273/500 to Km 363/885 on Jaipur - Kishangarh section of National Highway No. 8 (NH8) in Rajasthan, India on Build, Operate and Transfer (BOT) basis by the Concessionaire __________________________ (name of the Concessionaire) on Build, Operate and Transfer (BOT) basis as per the Concession Agreement between the National Highway Authority of India (NHAI) and the said Concessionaire, being satisfied that the Project Highway has been constructed, operated and maintained during the Concession Period is in sound, durable and operational condition on completion of the said concession period, and it is in a fit condition for transfer by the said Concessionaire to the NHAI or its nominee. The transfer of the said Project Highway together with facilities thereon shall be effected on the strength of this certificate.

Place of Issue ________________
Date of Issue ________________

(Independent Consultant)
FLOW CHART FOR FLEXIBLE PAVEMENT MAINTENANCE

Note: BBD = Benkelman Beam Deflection
FLOW CHART FOR RIGID PAVEMENT (CC) MAINTENANCE
FLOW CHART FOR BRIDGES AND CULVERTS MAINTENANCE
### Equivalent Rating Conditions

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<tr>
<th>Category</th>
<th>Status</th>
<th>Rating</th>
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<td>on completion as per specification and standards</td>
<td>9</td>
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<tr>
<td>Good Condition</td>
<td>no repairs needed</td>
<td>8</td>
</tr>
<tr>
<td>Generally good condition</td>
<td>potential exists for minor maintenance</td>
<td>7</td>
</tr>
<tr>
<td>Fair condition</td>
<td>potential exists for major maintenance</td>
<td>6</td>
</tr>
<tr>
<td>Generally fair condition</td>
<td>potential exists for minor rehabilitation</td>
<td>5</td>
</tr>
<tr>
<td>Marginal condition</td>
<td>potential exists for major rehabilitation</td>
<td>4</td>
</tr>
<tr>
<td>Poor Condition</td>
<td>repair or rehabilitation required immediately</td>
<td>3</td>
</tr>
<tr>
<td>Critical condition</td>
<td>need for repair or rehabilitation is urgent. Facility should be closed until the indicated repair is complete</td>
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<tr>
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<td>facility is closed. Study should determine the feasibility for repair</td>
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<tr>
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<td>facility is closed and is beyond repair</td>
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### Sufficiency Rating System

1. Load Performance
2. Safety Performance
3. Remaining Life
MONTHLY FEE STATEMENT
COLLECTION STATEMENT
MONTHLY FEE COLLECTION STATEMENT

1. Name of Work:
2. Date of commencement of fee collection: .................. (D/M/Y)
3. Report for month ending ..................
4. Fee rates (in Rs.)

<table>
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<tr>
<th>Vehicle Type</th>
<th>Fee rates on commencement</th>
<th>Rates during year before last year w.e.f. (Date)</th>
<th>Rates during previous year applied w.e.f. (Date)</th>
<th>Present rates applied w.e.f. (Date)</th>
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<tbody>
<tr>
<td>Car, passenger van or jeep</td>
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<tr>
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<td>Bus</td>
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<tr>
<td>Earth moving equipment and heavy construction machinery</td>
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<tr>
<td>including oversized vehicles carrying boilers, turbines,</td>
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<tr>
<td>generators, etc.</td>
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5. Collection during month under report (Amount in Rs. Lacs)

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<th>Previous Month</th>
<th>Corresponding Month during Previous Year</th>
<th>Current Month</th>
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<tr>
<td>including oversized vehicles carrying boilers, turbines,</td>
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<tr>
<td>generators, etc.</td>
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<td>Gross Total</td>
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Note:

Information at '4' and '5' to be provided separately for Through Tolled Traffic, Local Tolled Traffic and Total Tolled Traffic on the Project Highway.
SELECTION CRITERIA FOR INDEPENDENT CONSULTANT
SELECTION CRITERIA FOR INDEPENDENT CONSULTANT

Selection of the Independent Consultant shall consist of the following steps:

1. **Shortlisting of Consultants by the NHAI**
2. **Issue of Letter of Invitation (LoI) along with Terms of Reference (Schedule O) to shortlisted Consultants.**
3. **Evaluation of Technical Proposal and selection of five (5) Consultants.**
4. **Forwarding list of five (5) Consultants to Concessionaire to select three (3) Consultants for consideration.**
5. **Evaluation of Financial Proposal of the 3 selected Consultants by the Concessionaire.**
6. **Negotiation and selection of Independent Consultant.**

**SELECTION COMMITTEE**

The selection shall be done by a selection committee. The members of this committee shall be nominated by the NHAI.

1. **Shortlisting of consultants by NHAI**

For shortlisting, NHAI shall review their existing databank and consider only those firms who scored more than 80 per cent marks in the technical proposal received by the NHAI for the ongoing National Highway (NH-2, NH-4, NH-8, and NH-45) improvement projects.

2. **Request for Proposal**

The request for proposal shall be sent to the shortlisted firms. This shall include a LoI and the ToR besides information (Data Sheet) to the firms and the proposed form of contract. It shall contain the guidelines for the preparation of technical and financial proposals by the firms and submission.

The LoI shall state the intention of the NHAI to enter into a contract for the provision of consulting services and the date, time and address for submission of technical and financial proposals. ToR shall include the following details:

1. **Project background**
2. **Objectives**
3. Scope of services
4. Interaction with NHAI
5. Reporting requirement
6. Performance clause
7. Consultant's Proposal
8. Period of Services

3. Evaluation of Technical Proposal
   The technical proposals received from short listed firms shall be evaluated for selection of five firms based on the following :

   **Evaluation Criteria for Technical Proposal**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Description</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specific experience of the firm related to the assignment</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Adequacy of the proposed work plan and methodology in response to the ToR</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Qualifications and competence of the key staff for the assignment</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

   Sub criteria for qualification of key staff

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>General qualifications</td>
<td>30</td>
</tr>
<tr>
<td>Adequacy for the project</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

4. Evaluation of Financial Proposal

   Financial proposals of the three firms selected by the Concessionaire shall be opened and evaluated as under :

   The financial score of the lowest bidder shall be 100 marks. The financial score for the remaining bidders shall be calculated in proportionate to the lowest bidder by the following formula :

   \[
   \text{Financial Score of } 'X' = \left\{ \frac{100 \times \text{Bid price of lowest bidder}}{\text{Bid price of } 'X'} \right\}
   \]
The weightage given to the technical proposal : 90%
The weightage given to financial proposal : 10%

Combined score of bidder 'X' = 0.10{Financial score of bidder 'X'} + 0.90{Technical score of bidder 'X'}

5. Negotiation and Selection of Independent Consultants

The combined score of technical and financial proposals shall be calculated and the firm scoring maximum marks shall be called for negotiations. After satisfactory agreement of all matters by both the parties, NHAI will appoint the said firm as Independent Consultant for the initial term of 48 months. In case of failure of negotiations, the firm with second highest score shall be called for negotiations. In case of failure of negotiations with the said second firm, the firm with the least score shall be called for negotiations.
TERMS OF REFERENCE OF INDEPENDENT CONSULTANT
INDEPENDENT CONSULTANTS’ SERVICES
TERMS OF REFERENCE

1. PROJECT BACKGROUND

(1) National Highway No. 8 originates from Delhi, the capital of India and traverses through the States of Haryana, Rajasthan, Gujarat and Maharashtra before terminating at Mumbai. It enters Rajasthan at Shahjahanpur (km. 107/180) and passes through Jaipur, the Rajasthan State Capital, Kishangarh, Ajmer, Udaipur and enters Gujarat State at Ratanpur after traversing 676km. in Rajasthan. The four-laning from km. 162/500 to km 231/000, has been completed under "Asian Development Bank-II" assistance programme and that from km 36/630 to km 162/500 is also completed under "ADB-III" assistance programme through National Highways Authority of India (NHAI). A stretch of 17km near Jaipur was converted into 4-lanes through Plan Funds. In order to provide better level of service to vehicular traffic, it has been decided to augment the capacity of the Jaipur-Kishangarh section of NH-8 from km 273/500 to km 363/885 in Rajasthan by widening the existing 2-lanes to 6 lanes dual carriageway, including strengthening of the existing 2-lanes on Build, Operate and Transfer (BOT) basis.

(2) The site shall be made available to the Concessionaire by the NHAI free from all encumbrances and occupations and without the Concessionaire being required to make any payment to NHAI on account of any costs and charges for the use of such site for the duration of the Concession agreement.

(3) The Concessionaire shall operate and maintain the Project Highway by itself, or through O&M Contractors including tolling contractor, if any, after carrying out improvements to comply with standards and specifications spelled out by the NHAI in the Concession Agreement.

(4) NHAI after due consultation with the Concessionaire intends to appoint an Independent Consultant (IC) to oversee the activities of the Concessionaire during Design, Construction, Operation and Maintenance of the Project Highway.
2. **OBJECTIVES**

The objectives of consultancy service are to:

i) Act independently and on behalf of the NHAI to review all activities associated with Design, Construction and O&M to ensure compliance of requirements of Concession Agreement in order to have a sound project.

ii) Report to NHAI on the financial and technical aspects of the project, after visiting the site at least once a month.

iii) Assist the parties to the Concession Agreement in arriving at an amicable settlement of dispute.

iv) Act, if required on behalf of the lenders and fulfil various reporting requirements of the lenders.

3.0 **SCOPE OF SERVICES**

The Project Highway provides for Widening and Strengthening of existing two lanes from km 273/500 to km 363/885 on the Jaipur - Kishangarh Section of NH8 in Rajasthan, India and its Operation and Maintenance on BOT basis. The work also includes the widening of existing bridges and culverts and construction of new bridges and culverts for new carriageway. The Project Highway shall include but not be limited to the following:

- Road works
- Fee Collection system including buildings and related structures, hardware and software
- Communication systems
- Administration and Maintenance Depots
- Rest Area and Fuel and Service facilities
- Rest areas
- Lighting system
- Interchanges
- Bridges
- Service Roads
- Lay byes, Bus bays
- Traffic safety, Landscaping, arboriculture and other Project facilities.

The Concession Agreement envisage the appointment of an Independent Consultant (IC) by the National Highways Authority of India (NHAI). The IC shall be, in principle, responsible for
The Independent Consultant shall supervise that all the requirements of the Concession Agreement and various schedules are met by the Concessionaire and in case of any discrepancy/deviations, he shall inform NHAI and the Concessionaire. The responsibility of the IC during various stages of Design, Construction and Operation and Maintenance shall be as follows but not be limited to:

3.1 Design Stage

i) Review the adequacy of the geotechnical and sub-soil investigations for road, bridge and other structures and building works, hydrological investigation and the topographical survey.

ii) Review the Design and working drawings prepared for the construction of various components of the highway, bridges/structures, analysis of rates, estimates, reports and other deliverables.

iii) Review the impact of widening proposal on the Archaeological structures, if any.

iv) Review the project report prepared by the Concessionaire, with respect to the traffic, toll management, traffic management, etc.

v) Review the implementation schedule of Engineering, Design, Procurement and Construction of the project submitted by the Concessionaire.

vi) Review the Planning and Design of way-side amenities, toll plazas, toll collection system, communication facilities, emergency relief arrangements, traffic operation and safety arrangements.

vii) Review all project contracts including Detailed Engineering and Design Consultancy Contract, Construction Supervision Consultancy contract, any other EPC contract, O&M Contract and Tolling contract, made by the Concessionaire.

viii) Review the environmental management plan for the Project Highway during Construction and Operation and Maintenance phases.

ix) Review quality assurance and quality control provisions during the design, construction and maintenance stages.

x) Audit the safety of the Project Highway both during Construction and Operation and Maintenance stages.
xi) To mediate and assist in resolving disputes between NHAI and Concessionaire.

xii) Provide Management Information System to NHAI.

3.2 Construction Stage

3.2.1 The duties of the IC are to supervise the works on sample basis and to approve the materials and workmanship of the works. As stated in the Concession Agreement, he/she shall have no authority to relieve the Concessionaire of any of their duties or to impose additional obligations. The IC shall administer the works contracts and ensure that the Contractual Clauses, whether related to quality or quantities of works, are respected.

3.2.2 Review and approve works programme.

3.2.3 Review the material testing results and Mix Designs and to order special tests of materials and/or completed works, and/or order removal and substitution of substandard materials and/or works as required.

3.2.4 Review quality assurance and quality control during Construction period.

3.2.5 Ensure that the Construction work is accomplished in accordance with the technical specifications.

3.2.6 Identify Construction delays and recommend to the NHAI the remedial measures to expedite the progress.

3.2.7 Review and certify the 'As Built' drawings for each component of the works prepared by the Concessionaire.

3.2.8 Review the safety measures provided for the traffic and Project workers.

3.2.9 Determine any extension of the Project Completion Schedule and the Concession period, to which the Concessionaire is entitled and shall notify the NHAI accordingly.

3.2.10 To mediate and assist in resolving disputes between NHAI and Concessionaire during Construction stage.

3.2.11 Assist the NHAI in arriving at any cost variation and its impact on Concession Agreement.

3.2.12 Evolve MIS and provide it to the NHAI.

3.2.13 Issue Completion Certificate after checking the results of prescribed tests.

3.2.14 Issue Provisional Certificate duly appended with a list of outstanding items (Punch List) established after joint inspection with the Concessionaire, if the Concessionaire requests for it.
3.3 Operation and Maintenance Stage

Maintenance shall include cleaning, replacement of equipment/consumables, roadside facilities, horticultural maintenance and repairs to equipment, pavements, bridges, structures and other civil works. Maintenance shall not include the extension of any existing pavements, bridges, structures and other civil works unless part of the Project Highway.

3.3.1 Review work plan and schedules of various operation and maintenance activities.

3.3.2 Review Operation and Maintenance manual prepared by the Concessionaire.

3.3.3 Review the performance of Operation and Maintenance (O & M) activities including equipment, service, traffic operation and safety, toll plazas and fees collection system, landscaping, environmental issues and way side amenities.

3.3.4 To mediate and assist in resolving disputes between NHAI and Concessionaire during O&M stage.

3.3.5 Initiate necessary action to undertake maintenance obligations of the Concessionaire at risk and cost of the Concessionaire in the event of his failure to carry out O&M.

3.3.6 Undertake audit of the traffic using the Project Highway at least once a month.

3.3.7 Review and inspect the Project Highway at least once a month during the O&M period and issue an Inspection Report of such inspections.

3.3.8 Review the accident record on the Project Highway and suggest remedial measures.

3.4 Transfer/Termination

3.4.1 Satisfy itself that all the divestment requirement have been met by the Concessionaire.

3.4.2 Issue Transfer Certificate to the Concessionaire

3.5 All other activities as per provisions of the Concessionaire Agreement

4. INTERACTION WITH NHAI

The Independent Consultants shall interact with the NHAI on a regular basis. NHAI shall generally hold meetings every month to review the progress etc. during the phase of Design and Construction, and every second month during the Operation and maintenance stage. Within 30 days of the receipt of the Drawings, the Independent Consultant shall review the same and convey its comments/observations to the Concessionaire with particular reference to the conformity or otherwise with the specifications and standards set forth in the Agreement.
5. REPORTING REQUIREMENT

The Independent Consultants shall prepare and submit to the NHAi three copies and Concessionaire two copies each of the following reports.

(a) Design Phase
   • Monthly Progress Report.

(b) Construction Phase
   • Monthly and Quarterly Inspection Report covering all aspects such as Progress Monitoring, Quality Assurance (QA)/Quality Control (QC) etc.

(c) Operation and Maintenance Phase
   • Monthly and Quarterly report on existing condition of facility including advise on all aspects of Operation And Maintenance, Toll Booths, Bridges or other Structures, Traffic Management & Safety, Telephone, Ambulance, etc.
   • Monthly report on audit of the traffic using the Project Highway at least once a month.

(d) Various other reports as provided in the Concession Agreement such as Completion Report.

6. PERFORMANCE CLAUSE

Independent Consultants shall be expected to fully comply with all the provisions of the 'Terms of Reference', and shall be fully responsible for supervising that Designs, Construction and maintenance and operation of the facility takes place in accordance with the provisions of the Concession Agreement and other schedules. Any failure of the Independent Consultant in notifying to NHAi and the Concessionaire on non-compliance of the provisions of the Concession Agreement and other schedules by the Concessionaire, non-adherence to the provision of ToR and non-adherence to the time schedule prescribed under ToR shall amount to non-performance.

7. CONSULTANT'S PROPOSAL

7.1 List of key personnel to be fielded by the Consultants shall be as below:
   i) Team Leader-cum-Senior Highway Engineer
   ii) Senior Bridge/Structural Engineer
   iii) Traffic & Transportation Expert
   iv) Senior Pavement Specialist
   v) Senior Quality Material Expert
vi) Financial Expert
vii) Legal Expert

7.2 Broad job-description and minimum qualification for key personnel mentioned above is enclosed as Appendix A. However, higher marks shall be accorded to the Candidate with higher relevant qualification and experience. It is estimated that about 105 man-months of services of key personnel are required as detailed in Appendix B. However, the Consultant should feel free to submit their proposal on the basis of the man-months which they consider to be necessary to undertake the assignment. All the key personnel mentioned in para 7.1 above shall be evaluated at the time of evaluation of technical proposal. Consultants are advised in their own interest to frame the technical proposal in an objective manner as far as possible so that these could be properly assessed in respect of points to be given as part of evaluation criteria. The bio-data of the key personnel should be signed on every sheet by the personnel concerned and the last sheet of each bio-data should also be signed by the authorised signatory for the Consultant. The key personnel shall also certify at the end of their bio-data proforma that they have not accepted any other offer at the time of signing of the bio-data and as such shall be available to work with the Independent Consultant, if the project is awarded.

8. PERIOD OF SERVICES

8.1 The services of an Independent Consultant will be in phases as per sub-clause 20.2 of Article XX Independent Consultant, of Concession Agreement.

8.2 The appointment of the Independent Consultant shall initially be for a period of 48 months. Estimated Design and Construction schedule for completion of the project for commercial operation is 30 months. The proposed manpower deployment for this period shall be matching the activities to be performed during the said period. The time frame for services during the deployment of key personnel during this period shall be as shown in Annexure B.

8.3 Thereafter, the services of the Independent Consultant shall be for a period of 3 years each time till completion of the Concession period and transfer of the Project Highway. The deployment of key personnel during the said period(s) shall be decided by NHAI in consultation with the Concessionaire.
MINIMUM QUALIFICATION OF KEY PERSONNEL

TEAM LEADER CUM SENIOR HIGHWAY ENGINEER

This is the senior most position and the expert engaged as the team leader shall be responsible for reviewing the entire project preparation and implementation activities of the Concessionaire. He shall check all the Designs being prepared by the Concessionaire, ensure execution of works on site as per specification and standards, and continuously interact with the NHAI and the Concessionaire. He shall undertake project site visits and shall guide, supervise, coordinate and monitor the work of other experts in his team as well as those of the Concessionaire. The candidate should have a proven record of supervising, organising and managing of project preparation and construction of highway projects of large magnitudes, as defined below, financed by international lending agencies and others. Knowledge of project management shall be an added advantage.

This position requires a Senior Highway Engineer who shall be a graduate in Civil Engineering with higher qualifications and specialisation in highway engineering. He should have a minimum 20 years of experience of highway engineering including 10 years of experience in developing countries. He should have handled as Team Leader or similar capacity at least one Project Preparation and Construction supervision work of major highway project of four-laning/six-laning/expressway costing more than Rs. 1500 million (1997 cost) or of at least 50 km length. Alternatively, he should have handled as Deputy Team Leader or similar capacity Project Preparation and Construction supervision of at least two projects of four-laning/six-laning/expressway costing more than Rs. 900 million (1997 cost) each or of at least 30 km length.

SENIOR BRIDGE/STRUCTURAL ENGINEER

The Senior Bridge Engineer shall be responsible for checking the designs of bridges, interchanges and any other structure to be constructed as part of the Project Highway. He shall also inspect the construction of structure and monitor bridge rehabilitation and repair works to be undertaken by the Concessionaire.

The position requires a graduate in Civil Engineering, with a Masters degree or equivalent in Structural/Bridge Engineering with minimum 15 years experience out of which at least 10 years on Design and Construction of bridges/interchanges/any other structures including rehabilitation. He should have handled in the last 5 years one detailed engineering work for rehabilitation and/or upgrading of major highway or expressway. The candidate should have
a thorough understanding and experience with international 'best practices', and of modern bridge construction technology. He should have designed independently, at least two major bridges (150 m or more in length).

**TRAFFIC AND TRANSPORTATION EXPERT**

Shall review and check the traffic analysis, projection, and assignment exercises to be carried out by the Concessionaire. He shall also review type and locations of traffic control (e.g. signal) and safety measures, design of intersections and interchanges, toll plaza layout, toll collection method and use facilities, scheme for traffic management during construction period. He shall also study and comment on safety audit report prepared by the Concessionaire.

The position requires a graduate in Civil Engineering with higher qualification in traffic engineering. The minimum period of professional experience is 15 years including at least 5 years on projects of similar nature, of which at least one should involve works of four laning/six-laning/ expressway or similar project. The candidate should have enough knowledge on road safety aspects.

**SENIOR PAVEMENT SPECIALIST**

The expert shall be continuously interacting with the Concessionaire, to ensure life cycle cost effectiveness and viable design of pavement including appropriate rehabilitation / strengthening of the existing two lane pavement which is significantly distressed. He shall also be responsible for ensuring complete adherence to maintenance standards during Construction and Operation period. Thus, the position requires a pavement specialist with thorough knowledge and understanding of international 'best practices' in the field of Design, Construction and maintenance of flexible/rigid type of pavements including latest codal stipulations and specifications.

The candidate should be a graduate in Civil Engineering with higher qualification and specialisation in Pavement Design. He should have a minimum of 15 years of professional experience of pavement -Design, Construction and its maintenance. The minimum experience of 15 years should include assignments of at least 3 years in developed countries or at least 3 years on major highway projects funded by international funding agencies in developing countries in Senior Expert capacity.
SENIOR QUALITY/MATERIAL EXPERT

The Quality/Material Expert shall review the test results of quarry and borrow area material to find out their strength characteristics and suitability for using them in pavement construction. He shall inspect the Concessionaire's field laboratories to ensure that they are adequately equipped and capable of performing all the specified testing requirements of the contract. He shall look into the quality assurance aspect of the construction works and supervise the setting-up of the various Concessionaire's rock crushers and bituminous mixing plants to ensure that the specified requirements for such equipments are fully met.

The position requires a graduate in Civil Engineering with a minimum of 15 years of professional engineering experience including 6 years in quality assurance programs in highway projects using modern technology.

FINANCIAL EXPERT

Over 8 to 10 years as a Financial Advisor particularly in the field of project financing. Advisory experience in the field of transportation project would be desirable.

LEGAL EXPERT

Lawyer with over 8 years experience in contracts and financial documentation related to project financing. Advisory experience in transportation would be desirable.
### MANMONTH INPUT FOR KEY PERSONNEL OF INDEPENDENT CONSULTANTS

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Key Personnel</th>
<th>Suggested Manmonths</th>
<th>Pre-design, Design and Construction stage</th>
<th>O&amp;M Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Team Leader cum Senior highway Engineer</td>
<td>36</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Senior Bridge Engineer</td>
<td>12</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Traffic &amp; Transportation Expert</td>
<td>6</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Senior Pavement Specialist</td>
<td>12</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Senior Quality/Material Expert</td>
<td>12</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Financial Expert</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Legal Expert</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>82</strong></td>
<td></td>
<td><strong>23</strong></td>
</tr>
</tbody>
</table>
APPENDIX I: FORMATS FOR TECHNICAL PROPOSAL
(as mentioned at para 2.1 of the data sheet)

<table>
<thead>
<tr>
<th>Appendix I-1</th>
<th>Firm's references</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix I-2</td>
<td>Firm's comments and suggestions on the Terms of Reference and on data, services, and facilities to be provided by the NHAI.</td>
</tr>
<tr>
<td>Appendix I-3</td>
<td>Approach paper on methodology and work plan for performing the assignment.</td>
</tr>
<tr>
<td>Appendix I-4</td>
<td>Composition of the team and task(s) of each team member</td>
</tr>
<tr>
<td>Appendix I-5</td>
<td>Curriculum vitae of proposed professional staff.</td>
</tr>
<tr>
<td>Appendix I-6</td>
<td>Time schedule for deployment of professional personnel</td>
</tr>
<tr>
<td>Appendix I-7</td>
<td>Activity (works) schedule.</td>
</tr>
</tbody>
</table>


APPENDIX I-1 :  FIRM’S REFERENCES

Relevant Services Carried Out in the Last Five Years
That Best Illustrate Qualifications

Using the format below, provide information on each reference assignment for which your
firm/entity, either individually as a corporate entity or as one of the major companies within
an association, was legally contracted.

<table>
<thead>
<tr>
<th>Assignment Name</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location within Country</td>
<td>Professional Staff Provided by Your Firm:</td>
</tr>
<tr>
<td>Name of Client</td>
<td>No. of Staff</td>
</tr>
<tr>
<td>Start Date (Month/Year)</td>
<td>Completion Date (Month/Year)</td>
</tr>
<tr>
<td>Completion Date (Month/Year)</td>
<td>No. of Staff-Months:</td>
</tr>
<tr>
<td>Approx. Value of Services (in Current INR)</td>
<td></td>
</tr>
<tr>
<td>Name of Associated Consultants, if any:</td>
<td>No. of Months of Professional Staff, Provided by Associated Consultants:</td>
</tr>
<tr>
<td>Name of Senior Staff involved:</td>
<td></td>
</tr>
<tr>
<td>Narrative Description of Project:</td>
<td></td>
</tr>
<tr>
<td>Description of Actual Services Provided by Your Staff:</td>
<td></td>
</tr>
</tbody>
</table>

Firm’s Name:

---

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APPENDIX I-2: COMMENTS AND SUGGESTIONS OF CONSULTANTS ON THE TERMS OF REFERENCE AND ON SERVICES AND FACILITIES TO BE PROVIDED BY THE NHAI

On the Terms of Reference:

1.

2.

3.

4.

On the services and facilities to be provided by the NHAI

1.

2.

3.

4.
APPENDIX I-3: APPROACH PAPER ON METHODOLOGY AND WORK PLAN FOR PERFORMING THE ASSIGNMENT
APPENDIX I-4: COMPOSITION OF THE TEAM PERSONNEL, AND TASK(S) OF EACH TEAM MEMBER

1. Technical/Managerial Staff

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name</th>
<th>Position</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
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<td>...</td>
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</tr>
</tbody>
</table>

2. Support Staff

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name</th>
<th>Position</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
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<td></td>
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<td>4</td>
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<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX I-5: FORMAT OF CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

Proposed Position: .............................................................................................................
Name of Firm: ..................................................................................................................
Name of Staff: ...................................................................................................................
Profession: ........................................................................................................................
Date of Birth: ....................................................................................................................
Years with Firm/Entity: ................................................................................................. Nationality: ................................
Membership of Professional Societies: ........................................................................
Detailed Task Assigned: ...................................................................................................
Key Qualifications:

[Give an outline of staff member’s experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use about half a page.]

Education:

[Summarise college/university and other specialised education of staff member, giving their names, dates attended, and degrees obtained. Use about one quarter of a page.]
Employment Record:

[Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, name of employing organisations, titles of positions held, and locations of assignments. For experience in last ten years, also give types of activities performed and client references, where appropriate. Use about three-quarters of a page.]

Languages:

[For English language indicate proficiency: excellent, good, fair, or poor; in speaking, reading, and writing]

Certification

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe qualifications and experience.

........................................................................................................... Date: ..................  
[Signature of staff member or authorised representative of the Firm]  
Day/Month/Year.

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### A. Activity Schedule

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name</th>
<th>Position</th>
<th>Monthwise Program (in form of Bar Chart)</th>
<th>Number of Months</th>
</tr>
</thead>
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1, 2, 3, etc. are months from the start of assignment.
APPENDIX I-7 : ACTIVITY (WORKS) SCHEDULE

A. Activity Schedule

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</table>

[1st, 2nd, etc. are months from the start of assignment]

B. Completion and Submission of Reports

<table>
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<tr>
<th>S.No</th>
<th>Reports</th>
<th>Programme : (Date)</th>
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</thead>
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<tr>
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<td>(Design and Construction)</td>
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<td>2</td>
<td>Quarterly Reports</td>
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<tr>
<td>3</td>
<td>Various others reports as provided in the Concession Agreement such as Completion Report</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX II: FORMATS FOR FINANCIAL PROPOSAL
(as mentioned in para 2.1 of Data Sheet)

Appendix II-1  Financial proposal submission form

Appendix II-2 Summary of costs

Appendix II-3 Breakdown of costs
APPENDIX II-1 : FINANCIAL PROPOSAL SUBMISSION FORM

FROM : (Name of Firm) 
TO :
National Highways Authority of India
G-5 & G-6, Sector # 10, Dwarka
New Delhi (India)

Subject :

We, the undersigned, offer to provide the consulting services for the above in accordance with your Request for Proposal dated [Date], and our proposal (technical and financial proposals). Our attached financial proposal is for the sum of [Amount in words and figures]. This amount is exclusive of the local taxes which we have estimated at (Amount in Words and Figures).

Our financial proposal shall be binding upon us subject to the modifications resulting from contract negotiations, up to the expiration of the validity period of the proposal, i.e., [Date].

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely “Prevention of Corruption Act 1988”.

Commission and gratuities, if any, paid or to be paid by us to agents relating to this proposal and contract execution, if we are awarded the contract, are listed below :

<table>
<thead>
<tr>
<th>Name and Address of Agents</th>
<th>Amount and Currency</th>
<th>Purpose of Commission or Gratuity</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

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

We remain,

Yours sincerely,

Authorised Signature :
Name and title of Signatory :

------------------------------

O-22
## APPENDIX II-2: SUMMARY OF COSTS

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>Remuneration for Professional Staff</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Supporting Staff</td>
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<tr>
<td>III</td>
<td>Transportation</td>
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<td>IV</td>
<td>Duty Travel to Site</td>
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<td>V</td>
<td>Office Rent</td>
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<tr>
<td>VI</td>
<td>Office Supplies, Utilities and Communication</td>
<td></td>
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<tr>
<td>VII</td>
<td>Office Furniture and Equipment</td>
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<tr>
<td>VIII</td>
<td>Reports and Document Printing</td>
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<td><strong>Subtotal:</strong></td>
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<td><strong>Total Cost Net of Tax</strong></td>
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<td>Taxes and Duties</td>
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<td><strong>TOTAL COSTS (Including Tax)</strong></td>
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## APPENDIX II-3: BREAKDOWN OF COSTS

### REMUNERATION FOR STAFF

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<th>Position</th>
<th>Name</th>
<th>Year 1</th>
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<th>Year 3</th>
<th>Year 4</th>
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<td>Rate</td>
<td>SM</td>
<td>Amount</td>
<td>Rate</td>
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*SM = Staff Month*  
*TBN = To be Named*
II. Support Staff

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<th>No.</th>
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<th>Name</th>
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Total:

III Transportation (Reimbursable)

1. The vehicles provided by the firm shall include the cost for rental drivers, operation, maintenance, repairs, insurance, etc.

   Purchases
   
   Operation, maintenance, repairs
   
   Total

IV Duty Travel to Site (Reimbursable)

Professional Staff

   ___ x ____ trips x ____ days @
   
   Transport __ x ____ trips @
   
   Total
V Office Rent (Reimbursable)

The rent cost include maintenance, cleaning, repairs, etc.

___ months x 200 sqm x ___

Total ___

VI Office Supplies, Utilities and Communication (Reimbursable)

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<td>Computer Running Costs</td>
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|      | Total            |      |          |          |            |

VII. Reports and Document Printing
<table>
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<th>No.</th>
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<th>No. of Volumes</th>
<th>No. of Copies per Volume</th>
<th>Rate per Copy ($)</th>
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<tbody>
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<td>2</td>
<td>Quarterly Reports</td>
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<td>Various others reports as provided in the Concession Agreement such as Completion Report</td>
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INDEPENDENT CONSULTANT’S SERVICES

LETTER OF INVITATION

Re: .................................................................................................................................

1 INTRODUCTION

1.1 You are hereby invited to submit a technical and financial proposal for consulting services required for the assignment named in the attached data sheet (referred to in sequential sub clause numbering hereinunder). Your proposal could form the basis for future negotiations and ultimately a contract between your firm and the NHAI.

1.2 A brief description of the assignment and its objectives are given in the data sheet.

1.3 The assignment shall be implemented in various stages such as Design, Construction supervision, and Operation and Maintenance supervision. Continuation of services for the next stage shall be subject to satisfactory performance of the previous stage, as determined by the NHAI.

1.4 To obtain first hand information on the assignment and on the local conditions, you are encouraged to pay a visit to the NHAI before submitting a proposal and attend a pre proposal conference as specified in the data sheet. You must inform yourself of local conditions and take them into account in preparing your proposal.

1.5 Please note that (i) the costs of preparing the proposal and negotiating for the contract, including a visit to site, are not reimbursable as a direct cost of assignment and (ii) NHAI is not bound to accept any of the proposals received by it.

1.6 An invitation to submit a proposal has been sent to the firms stated in the data sheet.

1.7 We wish to remind you that in order to avoid conflict of interest situations any firm associated with the Concessionaire of the Project Highway and its Design and/or Supervision Consultant and/or the Contractor(s) as Design Consultant and/or Construction Supervision Consultant is not eligible to participate in the bidding.
2 DOCUMENTS

2.1 To enable you to prepare a proposal, please use the attached documents listed in the data sheet.

2.2 Firms requiring a clarification of the documents must notify the NHAI, in writing, not later than thirty days before the proposal submission date. Any request for clarification in writing, by cable, telex or telefax must be sent to the NHAI address indicated in the data sheet. NHAI will respond by cable, telex, or telefax to such requests and copies of the response shall be sent to all the other invited firms.

2.3 At any time before the submission of the proposals, the NHAI, may for any reason, whether at its own initiative or in response to a clarification sought by an invited firm, modify the documents by amendment. The amendment shall be notified in writing or by cable, telex or telefax to all the invited firms and shall be binding on them. NHAI may at its discretion extend the deadline for the submission of the proposals.

3 PREPARATION OF PROPOSAL

3.1 You are requested to submit a technical and a financial proposal. Your proposal shall be written in the language specified in the data sheet.

Technical Proposal

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

3.3 During preparation of the technical proposal you may give particular attention to the following:

i. The estimated manmonths for the assignment is stated in the data sheet for your information.

ii. The majority of the key professional staff proposed must be permanent staff of the firm, unless otherwise indicated in the data sheet.

iii. No alternative to key professional staff may be proposed and only one Curriculum Vitae (CV) may be submitted for each position and

iv. A good working knowledge of the language specified in the data sheet is essential for key professional staff on this assignment. Reports must be in the language(s) specified in the data sheet.
3.4 Your technical proposal must provide the following information, using but not limited to the formats attached in the Appendix I.

i. A brief description of the firm's organisation and an outline of recent experience on assignments of a similar nature. The information which you shall provide on each assignment should indicate, inter-alia, the profiles of the staff provided, duration, contract amount and firm's involvement.

ii. Any comments or suggestions on the ToR and a description of the methodology (work plan) which the firm proposes to execute the services, illustrated with bar charts of activities.

iii. The composition of the proposed staff team, the tasks which shall be assigned to each and their timing;

iv. CVs recently signed by the proposed key professional staff or an authorised manager in the home office. Key information should include years with the firm and degree of responsibility held in various assignments during the last ten years;

v. Estimates of the total time effort (person x months) to be provided for the services, supported by bar chart diagrams showing the time proposed (person x months) for each professional staff and

vi. Comments, if any, on the services and facilities to be provided by the client and indicated in the ToR.

3.5 The technical proposal must not include any financial information.

Financial Proposal

3.6 The financial proposal should list the cost associated with the assignment. These normally cover; remuneration for staff (in the field and at headquarters), accommodation (per diem or housing), transportation (for mobilisation and demobilisation) and equipment (vehicles, office equipment, furniture and supplies), printing of documents, etc. Your financial proposal should be prepared using, but not limited to, the formats attached in Appendix II.

3.7 The financial proposal must take into account the tax liability including service tax and cost of insurance specified in the data sheet.

4 SUBMISSION OF PROPOSAL
4.1 You must submit one original proposal and the number of copies indicated in the data sheet. Each copy of the Technical and Financial proposal shall be separately sealed and put in an outer envelope which shall bear the address and information indicated in the data sheet. The envelope must be clearly marked.

"DO NOT OPEN, EXCEPT IN PRESENCE OF THE EVALUATION COMMITTEE"

4.2 This outer envelope shall include two separate envelopes, one clearly marked "Technical Proposal" and one clearly marked "Financial Proposal" (both envelopes indicating original or copy as appropriate).

4.3 In the event of any discrepancy between the copies of the proposals, the original shall govern. The original and each copy of the technical and financial proposal must be prepared in and signed by the authorised representative of the firm in indelible ink. The letter of authorisation must be confirmed by a written power of attorney accompanying the proposals.

4.4 The proposals must contain no interlineation or over writing. However where necessary to correct errors made by the firm themselves, such corrections must be written fresh and initialled by the person or persons signing the proposal.

4.5 Your completed technical and financial proposal must be delivered on or before the time and date stated in the data sheet.

4.6 Your proposal shall be valid for the number of days stated in the data sheet from the date of its submission prescribed in the data sheet during which you must maintain available the professional staff proposed within this period for the assignment. NHAI will make its best effort to complete negotiations at the location stated in the data sheet.

5 PROPOSAL EVALUATION

5.1 A two-stage procedure shall be adopted in evaluating the proposals: (i) a technical evaluation, which shall be carried out prior to opening any financial proposal; (ii) a financial evaluation. Firms shall be ranked using a combined technical and financial scores, as indicated below.

**Technical Proposal**

5.2 The Evaluation Committee appointed by the NHAI shall carry out its evaluation applying the evaluation criteria and point system specified in the data sheet. Each responsive proposal shall be attributed a technical score (St.)
Financial Proposal

5.3 The Evaluation Committee shall determine if the financial proposal is complete and without computational errors. The lowest financial proposal (Fm) shall be given a financial score (Sf) of 100 points. The financial score of the proposals shall be computed as follows: Sf = 100 x Fm/F (F-amount of financial proposal).

5.4 Proposals shall finally be ranked according to their combined technical (St) and financial (Sf) scores using the weights indicated in the data sheet.

5.5 Any effort by the firm to influence the NHAI in its evaluation of proposal or award of contract may result in the rejection of the firm's proposal.

6 NEGOTIATIONS

6.1 Prior to the expiration period of validity of proposal, the NHAI shall notify the successful firm who submitted the highest scoring proposal in writing by registered letter, cable telex or facsimile and invite it to negotiate the contract.

6.2 Negotiations normally take two to five days. The aim is to reach agreement on all points, and initial a draft contract by the conclusion of negotiations.

6.3 Negotiations shall commence with a discussion of your technical proposal, the proposed methodology (work plan), staffing and any suggestions you may have made to improve the ToR. Agreement must then be reached on the final ToR, the staffing and bar charts, which shall indicate activities, staff, periods in the field and in the home office, staff months, logistics and reporting. Special attention shall be paid to optimise the required outputs from the firm within the available budget and to define clearly the inputs required from the NHAI to ensure satisfactory implementation of the assignment.

6.4 Changes agreed upon shall then be reflected in the financial proposal, using proposed unit rates (no negotiation of the unit rates, including the man months rates).

6.5 Having selected a firm, among other things, on the basis of an evaluation of proposed key professional staff, the NHAI expects to negotiate, a contract on the basis of the staff named in the proposal and, prior to contract negotiations, will require assurance that this staff shall be actually available. NHAI shall not consider substitutions during contract negotiations except in cases of unexpected delays in the starting date or incapacity of key professional staff for reasons of health.

6.6 The negotiations shall be concluded with a review of the draft form of Contract. The NHAI and the firm will finalise the contract to conclude negotiations. If negotiations fail, the NHAI will invite the firm, having obtained the second highest score to contract.
negotiations. In case of failure of negotiations with the second highest scoring firm, the firm with the least score amongst the three selected firms for consideration shall be called for negotiations.

7 AWARD OF CONTRACT

7.1 The contract shall be awarded after successful negotiations with the successful firm. Upon successful completion, the NHAI shall promptly inform the other firms that their proposals have not been retained.

7.2 The successful firm with whom the contract is signed is expected to commence the assignment on the date and at the location specified in the data sheet.

8 CONFIRMATION OF RECEIPT

8.1 We shall appreciate your informing us by telex/facsimile:

- Receipt of the Lol and
- Whether or not you will submit a proposal.

[Name]*
[Designation]*
[Department]*
DATA SHEET
(As Mentioned in LoL)

Sub clause No. in LoL

1.1 The name of the Assignment is: Design and Construction Supervision of widening of the existing 2-lanes to 6-lanes divided carriageway facility including rehabilitation of existing 2-lanes, Km 273/500 to Km 363/885 on Jaipur - Kishangarh section of National Highway No. 8 (NH8) in Rajasthan, India on Build, Operate and Transfer (BOT) basis.

1.2 The description and the objectives of the Assignment are: The Government of India in the Ministry of Surface Transport has authorised the NHAI to implement the widening of the existing 2-lanes to 6-lanes divided carriageway facility including rehabilitation of existing 2-lanes, Km 273/500 to Km 363/885 on Jaipur - Kishangarh section of National Highway No. 8 (NH8) in Rajasthan, India on Build, Operate and Transfer (BOT) basis. NHAI after due consultation with the Concessionaire intends to appoint an Independent Consultant (IC) to oversee the activities of the Concessionaire during Design, Construction, Operation and Maintenance of the Project Highway.

The objectives of the consultancy service are to:

i) Act principally on behalf of the NHAI to review all activities associated with Design, Construction and O&M to ensure compliance of requirements of Concession Agreement with the Concessionaire in order to have a sound project.

ii) Report on the financial and technical aspects of the project, after visiting the site at least once a month.

iii) Assist the parties to the Concession Agreement in arriving at an amicable settlement in case of a dispute

iv) Act, if required on behalf of the lenders and fulfil various reporting requirements of the lenders

1.4 Pre-Proposal Conference shall be held at ______________ hr on 1999 at ___________________.

1.6 The invited firms are:

i)

ii)

iii)
2.1 **The Documents are** : (ToR, Contract, Appendices etc.)

i) ToR
   ii) Form of Contract Agreement alongwith Appendices
   iii) Appendix I - Formats for Technical Proposal
   iv) Appendix II - Formats for Financial Proposal

2.2 **The address is** :
   National Highways Authority of India
   1, Eastern Avenue, Maharani Bagh
   New Delhi - 110 065
   Tel : 91-11-692 4380
   Fax : 91-11-692 4383

3.1 **The Language** of documents and correspondence will be English

3.3 Limitations to joint ventures or sub-contracts are : Joint Venture between firms on the short list is not permitted.

(i) It is estimated that about 105 months of services of key personnel will be required. However, you should feel free to submit your proposal on the basis of the man-months which you consider to be necessary to undertake the assignment.

(ii) Majority of proposed key staff should be permanent employees of the firm:

(iv) All the personnel shall have working knowledge of English and all the reports etc shall be written in English.

3.7 Tax Liability, insurance :
   As per clause ____________ and __________ of Special Conditions of Contract.

4.1 **The number of copies of the proposals required** : 4 Nos.
   The outer envelop covering the Proposals shall be addressed to

   Member
   National Highways Authority of India
   G-5&G-6, Sector #10, Dwarka
   New Delhi - 110 045
   Tel : 91-11- 507 4100
   Fax : 91-11- 507 0360
4.5 The date and time of proposal submission are: *

* to be filled up by the NHAI

4.6 Validity period: 90 days

Negotiations shall be held at New Delhi

5.2 The points assigned to evaluation criteria are:

<table>
<thead>
<tr>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Relevant experience for the assignment</td>
</tr>
<tr>
<td>(ii) The quality of methodology and work plan proposed</td>
</tr>
<tr>
<td>(iii) The qualifications of the key staff proposed</td>
</tr>
<tr>
<td>TOTAL: 100</td>
</tr>
</tbody>
</table>

The points assigned to the evaluation sub-criteria for qualifications and competence of key staff are:

<table>
<thead>
<tr>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Qualifications</td>
</tr>
<tr>
<td>Adequacy for the Project</td>
</tr>
<tr>
<td>TOTAL: 100</td>
</tr>
</tbody>
</table>

The technical proposal should score at least 75 points out of 100 to be considered responsive for financial evaluation.

5.4 The weight (T%) given to the Technical Proposal is 90 percent

The weight (F%) given to the Financial Proposal is 10 percent

7.1 Commencement of Assignment: The firm shall begin carrying out the services within one month of the date of effectiveness of the contract at locations as required for the project highway stated in ToR
7.2 The selected firm is expected to commence the assignment on .......... at Jaipur.

Sincerely,

[Name]*

[Designation]*

[NHAI]*

Attachments:

i) ToR
ii) Form of Contract Agreement along with Appendices
iii) Appendix I - Formats for Technical Proposal
iv) Appendix II - Formats for Financial Proposal
TRAFFIC SAMPLING
TRAFFIC SAMPLING

NHAI through independent Consultant shall have the right to undertake traffic sampling for the purpose of determination and/or verification of the actual traffic on the project highway. This shall be done through Automatic Traffic Count-cum-classifier.

For the purpose of traffic sampling, the Concessionaire shall procure a portable type automatic traffic count-cum-classifier and provide it to the Independent Consultant. The traffic count-cum-classifier shall be light weight and portable with weather resistant casing. The system shall be capable of detecting and recording all types of vehicles plying on the Project Highway and of classifying any other vehicle category as per user needs. The vehicle classification shall be user selectable based on length of vehicle and number of axles. It would have the following main components:

Sensor - combination of piezo electric sensor and inductive loops. The sensor shall be portable as well as permanent so that either of these could be used as per the needs.

Electronic - the logic unit shall be micro processor based and programmable through a key board. It shall have legible electronic display with requisite number of entry ports and exit to communication system. The vehicle counting/classification interval shall be programmable from one minute to 1440 min. (24 hours). The system shall count and classify vehicle by each lane.

Data Collection - The system shall be capable of recording for later analysis on an individual vehicle basis time, date, speed, direction, lane, number of axles, axles spacing and site identification. The system should be able to record and store vehicle data for a period of at least two weeks.

Data Retrieval - The system shall have the capability of data retrieval through removable floppy diskette, data catridge, direct data transfer through a serial link to a portable computer and telemetory transmission via telephone link by modem.
Software - The system shall have software and manuals to analyse the data from output of vehicle count, classification speed and head-way. It should have capability of graphic/tabular representation of analysis data.

Before the use of portable automatic traffic counter cum classifier, it shall be validated and calibrated through sample counts to establish the reliability and acceptability of automatic Traffic Counter-cum-Classificater both by Concessionaire and the Independent Consultant.

The sampling shall be done at intervals of 15 days by continuous 24 hrs counting for three days. If no abnormal trends are observed in three days counting at the frequency of 15 days, the frequency would be increased to 1 month after a period of one year. The sensor/loops shall be permanently installed to capture the traffic on all the approaching lanes, in accordance with the instructions of the supplier. They shall be located about 5 kms away from the toll plaza transitions taking care that no diversion of traffic is possible in between. The portable logic unit shall be plugged to these sensors whenever counting is to be done. Portable sensor can be utilised for traffic counting at any other location as per the need.

Apart from these periodical counts, the Independent Consultant shall have the right for traffic counting at a request from the NHAI. The traffic count as obtained from the samples shall be taken as actual traffic on the Project Highway at the locations of the counting.
ESCROW AGREEMENT
DRAFT

ESCROW ACCOUNT AGREEMENT

among

..........................................

(THE COMPANY)

and

..........................................

as Lenders Representative

and

..........................................

as Escrow Agent

and

National Highways Authority of India

(Schedule Q

Subject to terms of the facility Agreement(s) between the Concessionaire and Senior Lenders. However, NHAI's position in the cashflows shall not be changed)
THIS AGREEMENT (the "Agreement") is made on the .............. day of ........ 2002 by and among:

GVK - Jaipur Kishangarh Expressway Private Limited, a company incorporated in India whose registered office is at F-48/49, Malviya Industrial Area, Jaipur – 302 004 Rajasthan, India (the “Company”)

and

..................................................................................... and having its registered office at ........................................................................, as Senior Lenders Representative (the “Lenders Representative”);

and

....................................................................................., and having its registered office at .............................................. (the “Escrow Agent”).

And

The National Highways Authority of India, a statutory body constituted under the provisions of the National Highways Authority of India Act 1988 and having its principal offices at G-5 & 6, Sector 10, Dvarka, New Delhi – 110 045, as Employer and Sub-ordinate Lender (the “NHAI”).
WHEREAS:

- The Company is undertaking a project for widening of the existing 2-lanes to 6-lanes divided carriageway facility including rehabilitation of existing 2-lanes, Km 273/500 to Km 363/885 on Jaipur - Kishangarh section of National Highway No. 8 (NH8) in Rajasthan, India on Build, Operate and Transfer (BOT) basis.

- The Company has entered into a Concession Agreement dated as of .......... 19... with NHAI (the “Concession Agreement”) wherein NHAI has granted Concession to Company for the work referred to above, on BOT basis.

- The Company has entered into Financing Documents with Senior Lenders wherein Senior Lenders (the “Lenders”) have agreed to lend and advance to the Company Rupee amounts aggregating .......... Lacs and foreign currency amounts aggregating US Dollars .......... in terms thereof;

- One of the terms of the Concession Agreement and the Financing Documents is that the Company is required to establish an Escrow Account, inter alia, on terms and conditions satisfactory to Senior Lenders.

NOW IN CONSIDERATION FOR THE PREMISES IT IS AGREED BY THE PARTIES AS FOLLOWS:-

1. **Definitions and Construction**

1.1 **Definitions:** Each capitalised term used herein and not otherwise defined shall have the definition assigned to such term in the Concession Agreement or the Substitution Agreement as the case may be

- “Account” means the Escrow Account to be opened by the Company in accordance with this Agreement;

- “Authorised Investment” means any authorised investments which Lenders Representative may, from time to time permit the Company to make in accordance with this Agreement;

- “Business Day” means any day on which banks are open for business in ......... or in relation to any notice or communication to be made under this Agreement, a day on which banks are open for business in the place of receipt of such notice or communication;

- “Company Account” shall mean any bank account of the Company, other than the Escrow Account.

- “Enforcement Notice” means any enforcement procedure commenced by the Lenders Representative under any of the Security Documents;
• "Escrow Account" means an Escrow Account established in terms of and under this Agreement;

• "Event of Default" means an event of default as defined and detailed in the Financing Documents;

• "INR" means the lawful currency of India;

• "Payment Date" means in relation to any Permitted Payment, the date(s) specified for such payment;

• "Permitted Payment" means the Payments Agreed to in this Agreement excluding payment to the Company Accounts as more particularly given in clause 3.3.1;

• "Required Balance" means on any Date in relation to the Sub-Account of the Escrow Account, an amount in INR/Dollars which if proportionately built over the months, would be sufficient to meet Permitted Payment on the Payment Date(s).

• "Security Documents" means all or any of the Documents executed, delivered or furnished to secure the Financial Assistance under the Financing Documents including but not limited to the Deed of Hypothecation, Mortgage Deed, Equitable Mortgage, Deed of Guarantee, Pledge Agreement, Undertakings, Negative Lien and other incidental or supplemental documents related thereto.

• "Sub-Accounts" means the Sub-Accounts of the Escrow Account, into which the monies due in relation to Permitted Payment would be credited every month and paid out if due and if not due in a month then appropriated proportionately in such month and retained in the Sub Account and paid out therefrom on the Payment date.

• "Year" means each twelve month period ending on March 31.

1.2 Construction

In this Agreement:

• Unless the context otherwise requires, the singular includes the plural and vice versa;

• Headings and the use of bold typeface shall be ignored in its construction;

• A reference to a Clause, or Schedule is, unless indicated to the contrary, a reference to a clause or schedule to this Agreement;
References to this Agreement shall be construed as references also to any separate or independent stipulation or agreement contained in it;

The words “other”, “or otherwise” and “whatsoever” shall not be construed to be as any limitation upon the generality of any preceding words or matters specifically referred to;

References to the word “includes” or “including” are to be construed without limitation;

References to a person shall include such person’s successors and permitted assignees or transferees;

All references to agreements, documents or other instruments include (subject to all relevant approvals) a reference to that agreement, document or instrument as amended, supplemented, substituted, novated or assigned from time to time.

The words “herein”, “hereto” and “hereunder” refer to this Agreement as a whole and not to the particular Clause in which such word may be used;

Words importing a particular gender include all genders;

“person” includes any individual, partnership, firm, trust, body corporate, government, governmental body, authority, agency, unincorporated body of persons or association;

any reference to a public organisation shall be deemed to include a reference to any successor to such public organisation or any organisation or entity which has taken over the functions or responsibilities of such public organisation;

references to “Party” means a party to this Agreement and references to “Parties” shall be construed accordingly; and

references to any law shall include references to such law as it may, after the date of this Agreement, from time to time be amended, supplemented or re-enacted.

2. THE ACCOUNTS

2.1 Acceptance of Appointment of Escrow Agent

(a) The Escrow Agent hereby agrees to act as such and to accept all payments and other amounts to be delivered to or held by the Escrow Agent pursuant to the terms of this Escrow Agreement. Escrow Agent shall hold and safeguard the Escrow Account during the term of this Escrow Agreement and shall treat the amount in the Escrow Account as monies deposited by Company / NHAl with the Escrow Agent, as agent for the benefit of the Lenders Representative, or its nominee, successors or assigns, in trust in accordance with the provisions of this Escrow Agreement. In performing its functions and duties under this Escrow Agreement, the Escrow Agent shall act as agent for the
Lenders Representative.

The Company also hereby declares that all right, title and interest in and to the Escrow Account, the Authorised Investments and Permitted Payments made from the Escrow Accounts shall be vested in the Escrow Agent and held in trust for the Senior Lenders acting through Lender's Representative, NHAI and the Company in accordance with the terms of this Agreement and as their respective interests are provided for herein. Amounts deposited in the Escrow Account from time to time shall be held by the Escrow Agent in trust and received and applied as provided in and in accordance with the Agreement. No person other than the Lenders Representative, NHAI and the Company shall have any rights hereunder as the beneficiaries of or as third party beneficiaries under this Agreement.

(b) The rights of Company/NHAI in the monies held in Escrow Account are set forth in their entirety in this Escrow Agreement and Company/NHAI shall have no other rights against or to the monies in the Escrow Account.

2.2 Establishment of Escrow Account

At least thirty (30) days prior to Financial Close and prior to any Grant disbursement, the Company shall establish the Escrow Account with the Escrow Agent.

2.3 Maintenance of the Account

The Escrow Agent shall maintain the Escrow Account in accordance with the terms of this Agreement and its usual practices and applicable regulations and pay the maximum rate of interest payable to its most credit worthy customers on the balance in the said account from time to time.

2.4 Operating Procedures

The Escrow Agent and the Company shall agree (after consultation with the Lenders Representative) on the detailed mandates, terms and conditions and operating procedures for the Escrow Account but in the event of any inconsistency between this Agreement and such mandates, terms and conditions or procedures, this Agreement shall prevail.

3. Currency

3.1 The Escrow Account shall be established with the ................. Branch of the Escrow Agent. The Escrow Account shall be denominated in INR.

3.2 Deposits

3.2.1 The Company

(A) agrees, confirms and undertakes that it shall deposit and/or credit the Escrow Account with
(i) all its receivables;
(ii) all proceeds received pursuant to any insurance claims; and
(iii) all monies received from any source in relation to and in respect of the Project.

The NHAI agrees, confirms and undertakes that it shall deposit and/or credit the Escrow Account with:

(i) all Fees collected by NHAI in exercise of its rights under Concession Agreement;
(ii) Revenue Shortfall Loan;
(iii) Grant, termination payments and other monies paid or disbursed in accordance with the provisions of the Concession Agreement and/or the Substitution Agreement.

It is clarified that terms of this Agreement shall apply to all funds deposited in the Escrow Account by the Company/ NHAI at any stage.

3.2.2 The Escrow Agent shall ensure that all interest, if any, on the balances of the Escrow Accounts and interest on Authorised Investments made from the Escrow Accounts shall be credited to or deposited in the Escrow Account.

3.3 Withdrawals

3.3.1 The Escrow Agent shall withdraw amounts from the Escrow Accounts and appropriate in the following order every month as more particularly given in the Bank Proforma in Schedule 1 and deposit in the relevant Sub-Account for payments and if not due in a month then appropriate proportionately in such month and retain in the Sub-Account and pay out therefrom on the Payment Date(s):

(a) All taxes due and payable by the Concessionaire;

(b) All expenses in connection with and relevant to the Construction of Project Highway by way of payment to the EPC Contractor and such other persons as may be specified in the Financing Documents;

(c) O&M Expenses including Fees collection expenses incurred by the Concessionaire directly or through O&M Contractor and/or Tolling Contractor, if any, subject to the items and ceiling in respect thereof as set forth in the Financing Documents but not exceeding 1/12 (one twelfth) of the annual liability on this account;

(d) The whole or part of the expense on repair work or O&M Expense including Fees collection expenses incurred by NHAI on account of exercise
of any of its rights under this Agreement provided Independent Consultant certifies to the Escrow Bank that NHAI had incurred such expenses in accordance with the provisions of this Agreement;

(e) All Concession Fees due to NHAI from the Concessionaire under this Agreement;

(f) Monthly proportionate provision of Debt Service Payments due in an Accounting Year and payment of Debt Service Payments in the month when due;

(g) Monthly proportionate provision of Net Excess Fees due in an Accounting Year (which in any month shall be 80% of excess of Fees actually received by the Concessionaire from the beginning of such Accounting Year until the end of such month over the Projected Fees (assuming a uniform monthly revenue projection) corresponding to the number of months that have elapsed from the beginning of such Accounting Year) and distribution of such Net Excess Fee in accordance with Clause 7.3 of this Agreement;

(h) Any payments and Damages due and payable by the Concessionaire to NHAI pursuant to this Agreement, including repayment of Revenue Shortfall Loans; and

(i) Balance in accordance with the instructions of the Concessionaire.

The amounts specified in Clause 3.3.1 (a) to (i) constitute the Permitted Payments.

For each year, Bank Proforma would be separately provided by the Company to the Escrow Agent, with the permission of Lenders Representative, not later than 60 days prior to the first day of each year.

3.3.2 Notwithstanding anything to the contrary contained in this Agreement upon the earlier of (i) issue of Termination Notice (ii) termination of Concession Agreement, or (iii) the expiry of Concession Period, all amounts standing to the credit of the Escrow Account shall be appropriated and dealt with in the following order:-

(a) all Taxes due and payable by the Concessionaire;

(b) all Concession Fees due and payable to NHAI under this Agreement;

(c) all accrued Debt Service Payment;

(d) any payments and Damages due and payable by the Concessionaire to NHAI pursuant to this Agreement, including Excess Revenue Share, Termination claims and repayment of Revenue Shortfall Loans;
(e) all accrued O&M Expenses;
(f) any other payments required to be made under this Agreement; and
(g) balance, if any, on the instructions of the Concessionaire.

3.4 Application of Insufficient Funds

As provided in Clause 3.3, the application of funds in the Escrow Account shall be in the serial order of priority set forth therein. If the funds available for payment to the Sub-Accounts are sufficient to pay a portion, but not all, of the amount required to be paid to any Sub-Account, the Escrow Agent shall apply such funds in the serial order of priority set forth in Clause 3.3, until exhaustion thereof.

4. Authorised Investments

4.1 Power to Invest

The Escrow Agent shall invest the amounts standing to the credit of any of the Sub-Accounts in Authorised Investments on the instructions of the Company as approved by the Lenders Representative, from time to time, in accordance with the provisions of the Agreement. The Escrow Agent shall not be bound to and shall not make investments under the Indian Trusts Act, 1882 without prior approval of the Lenders Representative.

4.2 Procedure for Investments

4.2.1 All Authorised Investments shall be made and/or realised by the Escrow Agent on the instructions of the Company as approved by the Lenders Representative from time to time, in accordance with the provisions of this Agreement.

4.2.2 All documents of title or other documentary evidence of ownership with respect to Authorised Investments made out of any Escrow Account will be held in the custody of the Escrow Agent.

4.3 Realisations

Upon the realisation of any investment made under this Clause, the proceeds of realisation shall immediately be credited to the relevant Sub-Account by the Escrow Agent or immediately invested in another Authorised Investment in accordance with the Company's instructions as approved by the Lenders Representative.

4.4 Mandatory Realisations

In the event that the Company becomes aware that any Authorised Investment
has ceased to be an Authorised Investment, the Company shall immediately
instruct the Escrow Agent on a best efforts basis to realise such Authorised
Investment on its maturity date or earlier if possible under intimation to the
Lenders Representative or NHAI.

4.5 Accounts include Investments

Any reference in this Agreement to the balance standing to the credit of the
Escrow Account shall be deemed to include a reference to the amount of the
Authorised Investments in which all, or part of, such balance is for the time being
invested.

4.6 Interest on Investments

Any interest or other income received on account of Authorised Investments shall
be to the credit of the Escrow Account.

4.7 Enforcement Notice

On receipt of an Enforcement Notice from the Lenders Representative, the
Escrow Agent shall realise the Authorised Investments, whether such
investments have matured or not on a best effort basis, and apply the proceeds
as directed by the Lenders Representative.

5. Withdrawals following Event of Default

5.1 If the Lenders Representative notifies the Escrow Agent that an Event of
Default is likely to occur or has occurred, and is continuing, then, until such time
as the Lenders Representative has notified the Escrow Agent that the Event of
Default has been cured or waived under the Financing Documents, the Escrow
Agent shall only make withdrawals from the Escrow Accounts which constitute
Permitted Payment and shall not make any payments from the Escrow Account
to the Company Accounts.


6.1 The Escrow Agent and the Lenders

The Company hereby appoints the Escrow Agent to act as trustee for the
Lenders Representative in connection herewith and authorises the Escrow Agent
to exercise such rights, powers, authorities and discretion as are specifically
delegated to the Escrow Agent by the terms hereof together with all such rights,
powers, authorities and discretion as are reasonably incidental hereto, and the
Escrow Agent accepts such appointment pursuant to the terms hereof.
6.2 Particular Duties of the Escrow Agent

The Escrow Agent:

(A) may, in the absence of bad faith or gross negligence on its part, rely as to any matters of fact which might reasonably be expected to be within the knowledge of the Company upon a certificate signed by or on behalf of the Company;

(B) may, in the absence of bad faith or gross negligence on its part, rely upon the authenticity of any communication or documents believed by it to be authentic;

(C) shall, within five (5) Business Days after receipt, deliver a copy to the Lenders Representative of any notice or document received by the Escrow Agent in its capacity as the Escrow Agent from the Company or any other person hereunder or in connection herewith; and

(D) shall, within five (5) Business Days after receipt, deliver a copy to the Company of any notice or document received by the Escrow Agent from the Lenders Representative in connection herewith.

(E) The Escrow Agent shall not be responsible for and financial loss incurred by the Concessionaire except in case of Escrow Agent's gross negligence in ascertaining the relevant facts or Escrow Agent not acting in accordance with the instructions issued by the Concessionaire.

6.3 Segregation of Funds

Monies and other property received by the Escrow Agent under this Agreement shall, until used or applied in accordance with this Agreement, be held by the Escrow Agent in trust for the purposes for which they were received, and shall be segregated from other funds and property of the Escrow Agent.

6.4 Termination

6.4.1 This Agreement shall remain in full force and effect so long as amounts remain outstanding from the Company in respect of the Financial Assistance received by it from the Senior Lenders or its obligations to NHAI, unless terminated earlier by the mutual consent of the parties or otherwise in accordance with the provisions of this Clause.

6.4.2 The Company may, by not less than 45 days prior notice to the Escrow Agent, NHAI and the Lenders Representative, terminate this Agreement and appoint a new Escrow Agent, provided that the new Escrow Agent is acceptable to the Lenders Representative and arrangements are made satisfactory to the Lenders Representative for transfer of amounts deposited in the Escrow Account to a new Escrow Account established with the successor Escrow Agent.
6.5 Fees

The Company shall pay the Escrow Agent fees in an amount and at such times as may be agreed between the Escrow Agent and the Company.

7. Escrow Agreement Defaults

7.1 If the Company is in breach of any of its obligations under this Agreement and, following a notice of default from the Lenders' Representative, fails to remedy the same:

(A) in the case of a failure to deposit funds received by the Company in the Escrow Account, by depositing the same in the Escrow Account within five Business Days of receipt of such notice;

(B) in the case of a breach consisting of causing the Escrow Agent to transfer funds to any Company Account in breach of the terms of this Agreement, by depositing the relevant funds in the Escrow Account or any Sub-Account in which such transfer should have been made within five Business Days of receipt of such notice.

(C) in the case of a breach of the Company's obligations under Clause 4, by instructing the Escrow Agent to realise any investment made in breach of Clause 4 within five (5) Business Days of receipt of such notice; or

(D) in the case of any other breach, by remediing the same within five (5) Business Days to the satisfaction of the Lenders Representative.

7.2 The Company and the Escrow Agent agree and confirm that any default by either the Company or the Escrow Agent in the performance of their respective obligations under this Agreement resulting, in the opinion of the Lenders Representative, in a breach of this Agreement, shall qualify as an Event of Default under the Financing Documents/Security Documents.

8. Miscellaneous

8.1 Closure of Accounts

The Escrow Agent shall, at the request of the Company made on or after the payment by the Company of all outstanding amounts under the Financing Documents / Concession Agreement and upon confirmation of receipt, close the Escrow Accounts and pay any amount standing to the credit thereof to the Company.

Notwithstanding anything to the contrary contained in this Agreement, this Agreement shall remain in full force and effect till the Transfer Date provided however if NHAI shall certify to the Escrow Agent that Concession Agreement and/or the Concession has been terminated on account of default of the Concessionaire under this Agreement, then notwithstanding anything to the contrary contained herein, all the amounts standing to the credit of the Escrow
Account shall be dealt with in accordance with provisions of Clause 3.3.2.

8.2 **Successors and Assignors**

This Agreement shall be binding on and shall enure to the benefit of the Parties and their respective successors and permitted assigns.

8.3 **No Set Off**

The Escrow Agent agrees not to claim or exercise any right of set off, banker's lien or other right or remedy with respect to amounts standing to the credit of the Escrow Accounts. For the avoidance of doubt, it is declared by the Escrow Agent that the monies and properties held by the Escrow Agent shall not be considered as part of the assets of the Escrow Agent and being trust property, shall in the case of bankruptcy or liquidation of the Escrow Agent be wholly excluded from the assets of the Escrow Agent in such bankruptcy or liquidation.

8.4 **Notifications**

**8.4.1** All notices or other communications to be given or made under this Agreement shall be in writing, shall either be delivered personally or sent by courier, registered or certified mail or facsimile. The address for service of each Party and its facsimile number is set out under its name on the signing pages hereto. All notices shall be effective upon actual receipt save that where a notice is received after 5.30 p.m. on a Business Day or on a day that is not a Business Day, such notice shall be deemed to be received on the first Business Day following the date of actual receipt. Without prejudice to the foregoing a Party giving or making a notice or communication by facsimile shall promptly deliver a copy of such notice or communication personally, by courier or mail to the addressee of such notice or communication.

**8.4.2** Any party may by notice change the addresses and/or addresses to which such notices and communications to it are to be delivered or mailed. Such change shall be effective when all the Parties have notice of it.

8.5 **Waiver**

Failure by any Party at any time to enforce any provision of this Agreement or to require performance by other Parties of any provision of this Agreement shall not be construed as a waiver of such provision and shall not affect the validity of this Agreement or any part of it or the right of the relevant Party to enforce any provision in accordance with its terms.

8.6 **Severability**

If any condition, Clause or provision of this Agreement not being of a fundamental nature, is held to be illegal or unenforceable, the validity or enforceability of the remainder of this Agreement shall not be affected thereby.
8.7 Amendments

No amendment to this Agreement shall be binding unless in writing and signed by the duly authorised representatives of the Parties.

8.8 Governing Law

This Agreement shall be governed by and construed in accordance with Indian law.

8.9 Regulatory Approvals

The Escrow Agent shall use its best efforts to procure and shall thereafter maintain and comply with all regulatory approvals required for it to establish and operate the Escrow Accounts. The Escrow Agent represents and warrants that it is not aware of any reason why such regulatory approvals will not be ordinarily granted to the Escrow Agent.

8.10 Notification of Balances

Seven Business Days prior to each Payment Date (and for this purpose the Escrow Agent shall be entitled to rely on an affirmation by the Company and/or the Lenders Representative as to the relevant Payment Dates), the Escrow Agent shall notify the Lenders Representative of the balance of the Escrow Account as at the close of business on the immediately preceding Business Day.

IN WITNESS whereof the Company has caused its Common Seal to be affixed hereto and to a triplicate hereof on the date first above written and the Escrow Agent, NHAI and the Lenders Representative have caused the said triplicate to be executed by the hand of an authorised official.

SIGNED AND DELIVERED BY

........................ within named Escrow Agent )
by the hand of )

an authorised official of the Account )
Trustee )

Address:
Fax Number:
Attention:........................

SIGNED AND DELIVERED by THE

........................ within named Lenders )

........................ within named Lenders )
Representative by the hand of
an authorised official of the Lenders

Address:
Fax Number:
Attention:

SIGNED AND DELIVERED by
NHAI within named by the hand of
an authorised official of the NHAI

Address:
Fax Number:
Attention:

THE COMMON SEAL OF .................... has pursuant to the Resolution
of its Board of Directors passed in
that behalf on the ...... day of ......2002
hereunto been affixed in the presence of
Shri ............... and Shri ............... Directors who have signed these
Presents in token thereof and
Secretarv/authorised
Person who has countersigned the
Same in token thereof.

Address:
Fax Number:
Attention:

Q-15
STATE SUPPORT AGREEMENT
STATE SUPPORT AGREEMENT

THIS SUPPORT AGREEMENT is made on this ___________ day of ____
1999 AMONG

1 THE GOVERNOR OF THE STATE OF RAJASTHAN through the Secretary, Ministry of ___________, Government of Rajasthan, Jaipur, Rajasthan (hereinafter referred to as "GoR" which expression shall unless repugnant to the context or meaning thereof include its successors and assigns),

2 National Highways Authority of India, a statutory body constituted under the provisions of the National Highways Authority Act, 1988 and having its principal office at G-5 & 6, Sector 10, Dwarka, New Delhi – 110 045 (hereinafter referred to as "NHAI" which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and assigns),

AND

3 [ ___________ LIMITED], a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at ___________ (hereinafter referred to as the "Concessionaire", which expression shall unless repugnant to the context or meaning thereof include its successors and substitutes).

WHEREAS

A. The Government of India in the Ministry of Surface Transport (the "GOI") had authorised the NHAI for the widening of the existing 2-lanes to 6-lanes divided carriageway facility including rehabilitation of existing 2-lanes, Km 273/500 to Km 363/885 on Jaipur - Kishangarh section of National Highway No. 8 (NH 8) in Rajasthan, India on Build, Operate and Transfer (BOT) basis and has by its Notification No. ___________ dated ___________ issued pursuant to Section 11 of the National Highways Authority of India Act, 1988 vested the said stretch of NH-8 in NHAI as set forth in the said Notification dated ___________.

B. NHAI had accordingly invited proposals for shortlisting of bidders for the aforesaid by its Notice Inviting Proposals No. ___________ dated ___________ (the "Tender Notice"), inter-alia, for the design, engineering, financing, procurement, construction, operation and maintenance of the
above section of NH-8 on BOT basis subject to and on the terms and conditions contained in the Tender Notice and had pursuant thereto shortlisted certain bidders including, inter alia, the consortium comprising _____________, _____________ and _____________ (collectively the "Consortium") with _____________ as its leader.

C. NHAI had pursuant to the Tender Notice laid down and prescribed the technical and commercial terms and conditions and had invited commercial and financial bids from the shortlisted bidders for undertaking, inter alia, the work referred to in Recital 'A' above on BOT basis.

D. After evaluation of the bids so received, NHAI had accepted the bid of the Consortium and issued its Letter of Acceptance No. _____________ dated _____________ (the"LOA") to the Consortium requiring, inter alia, the execution of an Concession Agreement pursuant thereto.

E. The Consortium had promoted and incorporated the Concessionaire as a limited liability company to enter into the Concession Agreement pursuant to the LOA for undertaking the design, engineering, financing, procurement, construction, operation and maintenance of the Project Highway, as defined hereinafter on BOT basis and to fulfill other obligations of the Concessionaire pursuant to the LOA and had requested NHAI to accept the Concessionaire as the entity which shall undertake and fulfill and perform the obligations and exercise the rights of the Consortium, under the LOA and to enter into the Concession Agreement pursuant thereto.

F. NHAI agreed to the said request of the Consortium and accordingly entered into the Concession Agreement dated _____________ with the Concessionaire for the design, engineering, financing, procurement, construction, operation and maintenance of the Project Highway on BOT basis subject to and on the terms and conditions set out therein including Schedules forming part thereof (the "Concession Agreement") and a copy of which is annexed hereto and marked as Annexure ‘A’.

G. GoR, NHAI and the Concessionaire agree that the implementation of the Concession including performance of its obligations by the Concessionaire under and in accordance with the Concession Agreement requires extensive continued support and grant of certain rights and authorities as hereinafter set forth by GoR and is an essential pre-condition for mobilization of resources therefore by the Concessionaire.
NOW THEREFORE THE PARTIES HERETO HEREBY AGREE AND THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. DEFINITIONS AND INTERPRETATIONS

1.1 For the purposes of this Agreement the following terms shall have the meaning hereinafter respectively assigned to them.

1.1.1 "Agreement" means this Support Agreement and all annexures hereto and amendments if any thereto made in accordance with the provisions contained herein in this behalf.

1.1.2 "Concession Agreement" means the Concession Agreement dated entered into between NHAI and the Concessionaire, and shall include all of its annexures and appendices and any amendments made thereto in accordance with the provisions contained in this behalf therein.

1.1.3. "Substitution Agreement" means the Substitution Agreement dated entered into between the Senior Lenders, NHAI and the Concessionaire providing for substitution of the Concessionaire by the Selectee selected by the Senior Lenders in the manner and subject to and on the terms and conditions set forth therein. A copy of the said Substitution Agreement is annexed hereto and marked as "Annexure 'B'."

1.1.4. "GoR Support" means the obligations assumed and the facilities agreed to be provided by GoR to the Concessionaire hereunder or pursuant hereto.

1.2. The words and expressions beginning with or in capital letters used in this Agreement and not defined herein but defined in the Concession Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Concession Agreement. Words and expressions used in this Agreement and neither defined herein nor in the Concession Agreement but defined in the Substitution Agreement shall have the meaning respectively assigned to them in the Substitution Agreement.

1.3. In this Agreement unless the context otherwise requires-

(a) any reference to a statutory provision shall include such provision as is from time to time modified and re-enacted or consolidated so far as such modification or re-enactment or consolidation applies or is capable of applying to any transactions entered into hereunder;
the words importing singular shall include plural and vice versa, and words denoting natural persons shall include partnerships, firms, companies, corporations, joint ventures, trusts, associations, organizations or other entities (whether or not having a separate legal entity);

the headings are for convenience of reference only and shall not be used in and shall not affect the construction or interpretation of this Agreement;

terms beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein;

the words "include" and "including" are to be construed without limitation.

any reference to a "day" shall mean reference to a calendar day;

any reference to "month" shall mean reference to a calendar month;

the Annexures and appendices to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;

any reference at any time to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference provided that this clause shall not operate so as to increase liabilities or obligations of GoR hereunder or pursuant hereto in any manner whatsoever.

References to Recitals, Clauses, Sub-clauses, Paragraphs, Annexures or Appendices in this Agreement shall, except where the context otherwise requires, be deemed to be references to Recitals, Clauses, Sub-clauses, Paragraphs, Annexures and Appendices of this Agreement.

Any agreement, consent, approval, authorization, proposal, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or Senior Lender(s) shall be valid and effectual only if it is in writing under the hands of duty authorized representative of such Party or the Senior Lender(s), as the case may be, in this behalf and not otherwise; and
(l) Any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both days or dates.

(m) "Concessionaire" shall include Selectee under the Substitution Agreement.

2. TERM

2.1. This Agreement shall come into force the date hereof and shall continue to be in full force and effect for the period the Concession Agreement is in force and effect including any extension thereof.

3. SUPPORT OF GoR

3.1. Upon and with effect from the date hereof, GoR agrees:

(i) so long as the Concessionaire is not in breach of its obligations under this Agreement, GoR agrees to enable access to the Site to the Concessionaire for peaceful use of and operations at the Site by the Concessionaire under and in accordance with the provisions of the Concession Agreement without any let or hindrance from GoR or persons claiming through or under it;

(ii) subject to the Concessionaire complying with Applicable Laws, provide to the Concessionaire Applicable Permits to the extent GoR or any Governmental Agency of GoR is entitled to issue;

(iii) upon written request from the Concessionaire, assist the Concessionaire in obtaining access to all necessary infrastructure facilities and utilities, including water, electricity and telecommunication facilities at rates and on terms no less favorable to the Concessionaire than those generally available to commercial customers receiving substantially equivalent services;

(iv) ensure that no barriers are erected or placed by GoR or any Governmental Agency of GoR that interrupts free flow of traffic on the Project Highway except on account of any law and order situation or upon national security considerations;

(v) provide the Concessionaire with assistance through a dedicated team against payment of prescribed fee and
charges, if any, for regulation of traffic on the Project Highway;

(vi) provide the Concessionaire with police assistance in the form of dedicated highway patrol parties against payment of prescribed costs and charges, if any, for patrolling and provision of security on the Project Highway;

(vii) observe and comply with its obligations set forth in this Agreement;

(viii) support, cooperate with and facilitate NHAI and the Concessionaire in the implementation of the Project;

(ix) subject to and in accordance with the Applicable Laws, assist the Concessionaire in the procurement of all Applicable Permits required from any municipal and other local authorities and bodies including Panchayats in the State of Rajasthan for the implementation of the Project;

(x) ensure, subject to and in accordance with the Applicable Laws, that all relevant municipal and other local authorities and bodies including Panchayats in the State of Rajasthan do not put any barriers or other obstructions that interrupt free flow of traffic on the Project Highway; and

(xi) not do or omit to do any act, deed or thing which may in any manner be violative of or cause the Concessionaire to violate any of the provisions of the Concession Agreement.

3.2. Notwithstanding anything to the contrary contained in the Agreement, GoR may construct and operate either itself or have the same, inter alia, built and operated on BOT basis or otherwise any Expressway or other toll road, not being a bye-pass, between inter alia, Jaipur and Ajmer (the "Additional Tollway"), provided that such Additional Tollway shall not be opened to traffic before expiry of 8 (eight) years from the Appointed Date.

3.3. GoR agrees and undertakes that it shall not levy any additional toll, fee, charge or tax on the use of whole or any part of the Project Highway. GoR acknowledges the rights of Senior Lenders and NHAI under the Substitution Agreement and hereby covenants that upon substitution of the Concessionaire by the Selectee pursuant to the Substitution Agreement, it shall be deemed for the purposes of this Agreement that as if Selectee is a Party hereto and the Selectee shall accordingly be deemed to have succeeded to the rights and obligations of the Concessionaire under this Agreement on and with effect from the date of substitution of the Concessionaire by the Selectee.
4. CONCESSIONAIRE'S OBLIGATIONS

4.1. Concessionaire agrees and undertakes to perform, observe and comply with the following:

(i) All Applicable Laws and Applicable Permits;

(ii) The provisions of the Concession Agreement, the Substitution Agreement, and the Project Agreements; and

(iii) Observe, comply and perform its obligations under this Agreement.

5. REPRESENTATIONS AND WARRANTIES

5.1. The Concessionaire represents and warrants to GoR that:

(i) It is duly organized, validly existing and in good standing under the laws of India.

(ii) It has power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;

(iii) It has taken all necessary corporate and other action under Applicable Laws and its constitutional documents to authorize the execution, delivery and performance of this Agreement;

(iv) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof;

(v) It is subject to civil and commercial laws of India with respect to this Agreement and it hereby expressly and irrevocably waives any immunity in any jurisdiction in respect thereof;

(vi) All the information furnished to the GoR pertaining to the Concessionaire including its constitution and existing and proposed shareholding structure is now and shall be true and correct as on the Appointed Date and COD and the Balance Sheet and Profit and Loss Account of the Concessionaire for each of its Accounting Year after the
Appointed Date furnished to GoR shall give true and fair view of the affairs of the Concessionaire.

(vii) The Concessionaire shall furnish a copy of its audited Balance Sheet within 120 (one hundred twenty) days of the close of its each Accounting Year after the Appointed Date and any material change subsequent to the date of such Balance Sheet shall be notified to GoR by the Concessionaire within 30 (thirty) days of its occurrence and warrants that the Balance Sheet and the information furnished as aforesaid shall be true and correct;

(viii) The execution, delivery and performance of this Agreement will not conflict with, result in the breach of, constitute a default under or accelerate performance required by any of the terms of the Concessionaire's Memorandum and Articles of Association or any member of the Consortium or any Applicable Laws or Applicable Permits or any covenant, agreement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;

(ix) There are no actions, suits, proceedings or investigations pending or, to the Concessionaire's knowledge, threatened against it at law or in equity before any court or before any judicial, quasi judicial or other authority, the outcome of which may result in the breach of or constitute a default of the Concessionaire under this Agreement or which individually or in the aggregate may result in any material adverse effect on its business, properties or assets or its condition, financial or otherwise, or in any impairment of its ability to perform its obligations and duties under this Agreement;

(x) The Concessionaire has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Governmental Agency which may result in any material adverse effect or impairment of the Concessionaire's ability to perform its obligations and duties under this Agreement;

(xi) The Concessionaire has complied with all Applicable Laws and Applicable Permits, and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have material adverse effect on its financial condition or its
ability to perform its obligations and duties under this Agreement;

(xii) Each Consortium Member was and is duly organized and existing under the laws of the jurisdiction of its incorporation and has full power and authority to consent to and has validly consented to the Concessionaire entering into this Agreement with the GoR;

(xiii) No representation or warranty by the Concessionaire contained herein or in any other document furnished by it to GoR, or to any Governmental Agency in relation to Applicable Permits contains or will contain any untrue statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;

(xiv) The Concessionaire warrants that no sums have been paid or will be paid, by or on behalf of the Concessionaire, to any Person by way of fees, commission or otherwise for entering into this Agreement or for influencing or attempting to influence any officer or employee of NHAI, GOI or GoR in connection therewith; and

(xv) The Concessionaire is subject to civil and commercial laws of India with respect to this Agreement.

5.2. GoR represents and warrants to the Concessionaire that:

(i) It has full power and authority to execute, deliver and perform this Agreement.

(ii) It has taken all necessary governmental action to authorize the execution, delivery and performance of this Agreement; and

(iii) This Agreement constitutes the legal, valid and binding obligation of GoR enforceable against it in accordance with its terms.

6. SOVEREIGN IMMUNITY

6.1. GoR hereto unconditionally and irrevocably:

(i) Agrees that the execution, delivery and performance by it of this Agreement do not constitute sovereign acts;
(ii) Agrees that should any proceedings be brought against it or its assets in relation to this Agreement or any transaction contemplated by this Agreement, no sovereign immunity from such proceedings, execution, attachment or other legal process shall be claimed by or on behalf of itself or with respect to any of its assets, to the extent permitted by law; and

(iii) to the extent permitted by law, waives any right of sovereign immunity, which it or its assets now has or may acquire in the future.

6.2. Notwithstanding anything to the contrary herein contained such waiver of right of immunity shall not apply to

a) Property and assets of any consular or diplomatic mission or consulate or

b) Property belonging to the Defence services and such assets of the Union of India.

7. Breach and Compensation

7.1. In case GoR is in breach of any of its obligations under this Agreement, which breach is not cured within 30 days of receipt of a notice in writing from the Concessionaire to GoR and NHAI and which has not occurred as a result of Concessionaire's breach of its obligations under this Agreement or the Concession Agreement, GoR shall pay to the Concessionaire, all direct additional costs suffered or incurred by the Concessionaire, determined by NHAI as arising out of such material default by GoR.

7.2. In case of any dispute by GoR on admissibility of the claim or extent of compensation determined by NHAI, the claim shall be settled as per provisions of the Dispute Settlement mechanism provided in Article IX of this Agreement.

7.3. Any such compensation payable shall be paid to the Concessionaire, in one lumpsum within 90 (ninety) days of receiving NHAI's determination of compensation.

8. INDEMNITY

8.1. The Concessionaire will indemnify, defend and hold GoR harmless against any and all proceedings, actions and claims for any loss, damage, cost and expense of whatever kind and nature arising out of design, engineering, construction, operation and maintenance of the
Project Highway or arising out of any breach by the Concessionaire of any of its obligations under this Agreement or on account of failure of the Concessionaire to comply with, and observe Applicable Laws and Applicable Permits;

8.2. GoR will indemnify, defend and hold harmless the Concessionaire against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of GoR to fulfill any of its obligations under this Agreement adversely affecting the performance of the Concessionaire’s obligations under the Concession Agreement other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by GoR, its officers, servants and agents;

8.3. Without limiting the generality of Clause 8.2, the GoR shall indemnify the Concessionaire and shall save it harmless from and against any payments required to be made by the Concessionaire with respect to levy of any Local Taxes provided nothing contained herein shall be construed or interpreted as restricting in any way or manner the right of GoR or any municipal, panchayat or other local authorities to levy any taxes which they or any of them are lawfully entitled to levy, impose or collect (the “Expected Taxes”). The Concessionaire shall not be entitled and GoR shall be under no obligation to reimburse Expected Taxes to the Concessionaire or any person claiming through or under the Concessionaire;

8.4. In the event that either party hereto receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under Clause 8 or in respect of which it is entitled to reimbursement (the “Indemnified Party”) within 14 (fourteen) days of receipt of the claim or payment, as the case may be, and shall not settle or pay the claim without the prior approval of the Indemnifying Party. In the event that the Indemnifying Party wishes to contest or dispute the claim, it may conduct the proceedings in the name of the Indemnified Party and shall bear all costs involved in contesting the same. The Indemnified Party shall provide all cooperation and assistance in contesting any claim and shall sign all such writings, and documents as the Indemnified Party may reasonably require.

9. GOVERNING LAW AND DISPUTE SETTLEMENT

9.1. This Agreement shall be governed by and construed and interpreted in accordance with the laws of India. The provisions contained in Clause 8 shall survive the termination of this Agreement.

9.2. Any dispute, difference or claim arising out of or in connection with or in relation to this Agreement which is not resolved amicably shall be
decided finally by reference to arbitration to a Board or Arbitrators comprising of one nominee of each party to the dispute. Such arbitration shall be held in accordance with the Rules of Arbitration of the Indian Counsel of Arbitration and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996. The Arbitrators shall issue a reasoned award. The venue of such arbitration shall be New Delhi, India. The Award shall be final and binding on the Parties.

10. MISCELLANEOUS

10.1. Alteration of Terms

All additions, amendments, modifications and variations to this agreement shall be effectual and binding only if in writing and signed by the duly authorized representatives of GoR and the Concessionaire.

10.2. Time or Indulgence Allowed

An indulgence by one Party to the other in respect of any obligation or matter hereunder including time for performance to the other party hereunder or to remedy any breach thereof shall not be construed as a waiver of any of its rights hereunder Party may be on such terms and subject to such conditions as the Party giving it may specify and shall be without prejudice to that Party's then accrued rights under this Agreement except to the extent expressly varied in writing when giving such time or other indulgence.

10.3. Severance of Terms

If any provisions of this Agreement are declared to be invalid, unenforceable or illegal by any competent arbitration tribunal or court, such invalidity, unenforceability or illegality shall not prejudice or affect the remaining provisions of this Agreement, which shall continue in full force and effect.

10.4. Language

All notices, certificates, correspondence or other communications under or in connection with the Agreement shall be in English

10.5. Notices

Any notice or communication hereunder shall be in writing and shall either be delivered personally or sent by registered post, with copy by facsimile transmission or other means of telecommunication in permanent written form. A copy of all the notices and communications will also be forwarded to the Lenders Representative. The service of
notice shall unless otherwise notified by a notice hereunder to the parties at their following address:

IF to GoR:
Attn:
Fax no:
Tel no.

IF to the NHAI
Attn:
Fax no.
Tel no.

IF to the Concessionaire:
Attn:
Fax no.
Tel no.

The notice pursuant hereto will be deemed to have been received on the date when such notice is in fact received by the addressee.

10.6. Authorised Representatives

Each of the Parties shall by notice in writing designate their respective authorised representatives through whom only all communications shall be made. A Party hereto shall be entitled to remove and/or substitute or make fresh appointment of its such authorised representative by similar notice.

10.7. Original Document

This Agreement is made in two counterparts, each of which shall be deemed to be an original.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE PUT THEIR HANDS HEREUNTO ON THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN.

FOR CONCESSIONAIRE

BY: ____________________________
Name: __________________________
Title: __________________________

FOR GOVT. OF RAJASTHAN

BY: ____________________________
Name: __________________________
Title: __________________________

FOR NHAI

______________________________
R-13
SAFETY REQUIREMENTS
SAFETY REQUIREMENTS

1. OBJECTIVE

1.1 Safety of road users and Project workers is a vital requirement which the Concessionaire has to attend during the Concession Period under the Concession Agreement.

2. SAFETY STANDARDS

2.1 Objective

2.1.1 The objective of safety standards is to provide safe travel to the drivers of vehicles plying on the Project Highway at all times of the day, throughout the year and provide protection to the Project workers when they are on the work. This Schedule delineates the safety standards in terms of construction zones, signs and safety measures in work zones and during normal operations.

2.1.2 The guiding principles for safety measures shall include

(i) warning to the drivers unambiguously and sufficiently in advance of the situation on the highway;
(ii) providing clear demarcation for movement of vehicles;
(iii) providing devices to guide the drivers and their movements through construction zones/lane closures/traffic diversions etc.
(iv) protection to Project workers on work site.

2.2 Construction zone

In order to plan and provide appropriate traffic management and safety measures, it is necessary to appreciate the concept of a construction zone. A construction zone can be defined as an area of the highway which involves the conflict of the right of use between the road users and authority responsible for the maintenance/improvement of the highway. From traffic safety point of view, a construction zone comprises four sub-zones (shown in Figure 1) as described hereunder:

2.2.1 Advance Warning Sub-Zone

The advance warning sub-zone is meant to prepare the driver for an alert behaviour and is an essential part of any traffic control system. The warning system shall prepare the driver well in advance by providing information regarding distance, extent and type of hazard ahead so that
he can gradually reduce the speed of his vehicle. The information in this sub-zone is conveyed mostly through a series of traffic signs along its length.

2.2.2 Transition Sub-Zone

The transition sub-zone is the area in which the traffic is steered and guided into and out of the diverted path around the work sub-zone. This is the most crucial sub-zone from safety point of view since most of the movements are turning movements. The traffic in this sub-zone is mostly taken across with the help of barricades and channelizers.

2.2.3 Work Sub-Zone

This is the actual area where construction or maintenance activity is taking place and the main concern, therefore, is the safety of the workers at the site from the plying traffic. The path of the traffic must, therefore, be very clearly delineated to avoid intrusion of vehicles moving into the work area. The work sub-zones shall not be close to each other and the distance between the two work sub-zones shall be such that the flow of traffic can return to normal stream by permitting fast moving traffic to overtake slow moving vehicles. These distances shall preferably be 2 km on urban sections and 5 to 10 km on rural sections of the highway. The length of work sub-zones will vary. The length of warning and transition sub-zones shall be basically governed by the speed of approaching vehicles and shall be regulated as shown in table S-1 below:

<table>
<thead>
<tr>
<th>Average Speed (kph)</th>
<th>Length of Advance Warning Sub-Zone (m)</th>
<th>Length of Transition Sub-Zone (m)</th>
<th>Length of Work Sub-zone (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>100</td>
<td>50</td>
<td>Varies</td>
</tr>
<tr>
<td>51-80</td>
<td>100-300</td>
<td>50-100</td>
<td></td>
</tr>
<tr>
<td>81-100</td>
<td>300-500</td>
<td>100-200</td>
<td></td>
</tr>
<tr>
<td>Over 100</td>
<td>1000</td>
<td>200-300</td>
<td></td>
</tr>
</tbody>
</table>

The traffic across these sub-zones is guided and taken with the help of various traffic control devices erected at the site.

2.2.4 Termination Sub-Zone

An information sign board shall be erected to inform road users of the end of Construction Zone.
2.3 Traffic Control Devices

Traffic control devices in the construction zones perform the crucial task of warning, informing and alerting the driver apart from guiding the vehicle movements so that the driver of the vehicle as well as the workers on site are protected and safe passage to the traffic is possible.

The primary traffic control devices used in work sub-zones are signs, delineators, barricades, cones, pylons, pavement markings, flashing lights etc. They shall be such that they are easily understood without any confusion, are clearly visible during day and night, conform to the prevailing speeds in immediate vicinity, stable against sudden adverse weather conditions and are easy in installation, removal and maintenance.

2.3.1 Signs

The construction and maintenance signs fall into the same three major categories viz. regulatory signs, warning signs and guide signs as other traffic signs do. The IRC: 67-1977 (Code of Practice for Road Signs) gives a comprehensive list of traffic signs to which the size, colour and placement of signs shall conform. These signs shall be placed on the left hand side of the road. Figure 2 shows typical positioning of signs. Some of the common type of signs which shall be provided in construction zones are discussed in the following para and shown in Figure 3.

2.3.1.1 Regulatory signs

Regulatory signs mean legal restrictions on the traffic. They shall be used only in consultation with the local police and /or authorities. The most common types for use in construction zones are "Do not Enter", "Road Closed", Give Way to Pedestrians", "Speed limit" etc.

2.3.1.2 Warning Signs

The most common type of warning signs to alert the drivers of the possible dangers ahead in construction zones are “Lane Closed”, “Diversion to other Carriageway”, “Divided Carriageway Starts”, “Divided Carriageway Ends” and “Two Way Traffic” etc. Sometimes it might be advisable to explain these signs with the help of a rectangular definition plate of size appropriate to the size of warning triangle and placed 0.15 m below, from the bottom of the triangle.

2.3.1.3 Guide Signs
Guide signs in construction zones shall have different background colour than the normal informatory signs of IRC: 67-1977. These signs shall have black messages and arrows on yellow (Traffic Yellow of IS: 5-1978) background. The commonly used guide signs are: "Diversion", "Road Ahead Closed" and "Sharp Deviation of route" etc.

2.3.2 Delineators

These channelising devices such as cones, traffic cylinders, tapes, drums are placed in or adjacent to the roadway to guide the drivers along a safe path and to control the flow of traffic. These shall normally be retro-reflectorised for night visibility. IRC: 79-1981 (Recommended Practice for Road Delineators) gives details of some of the delineators. The other delineators are discussed in following paras.

2.3.2.1 Traffic Cones and Cylinders

Traffic cones shall normally be 0.5m to 0.75m high and 0.3m to 0.4m in diameter or in square shape at the base. These are mostly made of plastic or rubber with retro reflectorised red and white band and have suitable anchoring so that they are not easily blown over or displaced, it might be preferable to use double cones, one over the other. The cones shall be placed close enough together to give an impression of the continuity. The spacing shall be 3m (close) to 9m (normal). Larger size cones can be used for high speeds or where more conspicuous guidance is required.

2.3.2.2 Drums

Empty bitumen drums (made of metal) cut to the required height can be used as channelising devices since they are highly visible, give the appearance of being formidable objects, thereby commanding the respect of the drivers. These drums can also be of plastic which are lighter, easy to transport and store. As delineators, these drums shall be about 0.80 to 1m high and 0.30m in diameter. They shall be painted in circumferential strips 0.10 m to 0.15 m wide, alternatively in black and white colours.

2.3.3 Barricades

Whenever the traffic has to be restricted from entering the work areas, such as excavations or material storage sites so that protection to workers is provided or there is a need for separating the two way traffic, barricades can be used. The barricades can be portable or permanent type and can be made of wooden planks, metal or other suitable material. The horizontal component facing the traffic is made of 0.30 m wide wooden planks joined together and painted in alternate yellow and white strips of 0.15 m width and sloping down at an angle of 45 degree in the direction of the traffic. Figure 4 shows three types of barricades. Types I and II are portable type useful for small works and Type III is permanent type, suitable for major work.
areas. Suitable support or ballasting shall be provided so that they do not over turn or are not blown away in strong winds. In case of a permanent type barricade, a gate or movable section shall be separately provided to allow the movement of construction/supervision vehicles.

2.3.4 Flagmen

In large construction sites, flagmen with flags and sign paddles shall be effectively used to guide the safe movements. The flags for signalling shall be 0.60 m x 0.60 m size, made of a good red cloth and securely fastened to a staff of approximately 1m in length. The sign paddles shall conform to IRC: 67-1977 and provided with a rigid handle.

2.4 Safety & Management Practices

Measures for providing safe movement of traffic in some of the most commonly occurring work zones on highways shall be as follows:

2.4.1 Detour on Temporary Diversion

In the cases of major repairs or reconstruction of cross drainage structures on a highway section, damaged due to flood etc., the traffic may have to pass on a diversion, moving parallel to the highway.

2.4.1.1 A temporary diversion road shall basically satisfy the following requirements:

i) it shall have smooth horizontal and vertical profile with smooth vertical and horizontal curves;

ii) it shall not get overtopped by flood or drainage discharge under any conditions;

iii) it shall have adequate capacity to cater for the diverted traffic;

iv) it shall be dust free and shall ensure clear visibility at all times of day and night;

v) It shall be provided with the required safety standards; and

vi) It shall be provided with suitable barricades to prevent intrusion affecting the movement of the traffic.

2.4.1.2 The warning for the construction ahead shall be provided by the sign “Men at Work” about 1 km earlier to the work zone. In addition, a supplementary plate indicating “Diversion 1 km ahead” and a sign “Road Closed Ahead” shall be placed. It shall be followed by “Compulsory Turn Right/Left Sign”. The “Detour” and “Sharp Deviation” sign shall be used to guide the traffic onto the diversion. Hazard markers shall be placed just where the railings for the cross drainage structures on the diversion starts. Figure 5 illustrates a typical arrangement according to the above plan.

2.4.2 Partial Closure of existing two lane Carriageway
2.4.2.1 Such an eventuality will arise only in a special situation where the existing two lanes in use for the main traffic need emergency repairs and the new lanes under construction are not available for diversion of the traffic. It will become necessary to carry out special repairs through partial closure of the existing two lane facility.

2.4.2.2 In the said situation care shall be taken that the traffic is guided from the closed lane onto the operating lane without conflicting with the traffic from opposite direction.

2.4.2.3 The warning sign for "Men at Work" shall be the first sign to be seen by the drivers of the approaching vehicles. This sign shall have supplementary plate also showing the distance of work zone. The next warning sign shall be for the "Road Narrowing" (depending upon the lane closure). Compulsory "Keep Right" or "Keep Left" sign depending upon the situation shall be provided at the beginning of the transition zone and taper. The point from where the traffic is to deviate from its normal path, the channel for traffic shall be clearly marked with the aid of painted drums or traffic cones. The spacing of these cones and/or drums shall be about 9 m or closer as per site requirement.

"The traffic lane or carriageway closed" sign shall also be provided at barricades along with "Keep Right/Left" sign. A typical layout of signs for a two lane carriageway having one lane closure is shown in Figure 6.

2.4.3 Closure for Work on one side Carriageway of a 6 lane divided carriageway

The first sign shall be for the "Men at Work" along with distance plate for construction zone. Thereafter the sign for "Road Narrowing" shall be provided, followed by the signs for lane closure one after another. This shall be followed by sign for compulsory "Keep right/Left" (depending upon site situation). The sign for the "Closure of carriageway" along with that for "keep Left/Right" shall be provided at the point from where the vehicle is expected to change the lane for the diversion. The sign for the "Diversion to the other carriageway" shall be provided between the "Carriageway Closure" sign and the median gap. The sign for "Sharp Diversion of Route" along with compulsory "Turn right/Left" shall be provided at the location where the gap in median opening starts and traffic is expected to get diverted to the other carriageway. The warning signs for "Two way traffic" along with the plate indicating the distance up to which the two way traffic is allowed, shall be placed at the median which shall be to the left of the moving traffic. Cones or painted drums shall be placed for delineation, starting from the sign location for "Carriageway Closed". A Typical arrangement is shown in Figure 7.

2.4.4 Carriageway Repairs

When the work is of small magnitude, to be done in the middle of the carriageway, such as minor repairs of potholes, cracks and patches, then the traffic control measures shall mainly consist of providing cautionary signs of "Men at Work", about 500m before the work zone for
the approaching vehicle and other cautionary sign of "Road Narrows", shall be placed at 100m ahead of work area. Regulatory sign of "Keep Left/Right" shall be placed at the commencement point of the work zone and next to the barriers for the approaching vehicles. Movable type of barriers shall also be placed on both sides of the work area. Cones or drums shall be placed at suitable interval to demarcate the work area. The "Work Zone Ends" sign shall be installed 120m beyond the work area. If the operation is to continue during night time, necessary lighting arrangements with flashing lights shall be provided. A Typical arrangement is shown in Figure 8.

2.4.5 Construction of New Carriageway

2.4.5.1 Urban Section of the Project Highway

a) The service roads on either side together with side drains shall be constructed initially.

During this period the main traffic shall use the existing two lane carriageway. The construction traffic in the work zone shall be safely brought out from the main stream traffic by erecting appropriate signs at the beginning of the work site. Also on return it will be amalgamated with the mainstream traffic by erecting appropriate signs at the end of the work site. It shall be ensured that there shall be identified entry and exist points duly designed so that haphazard entry or exit of construction traffic is avoided. Conflicting turning movements shall be avoided. Figure 9 illustrates the safety measures taken during construction stage-I in urban sections.

b) On completion of the Stage-I, the main traffic shall be diverted on their respective directions on to the newly constructed service roads and the additional four lanes shall be constructed (2 lanes on each side) of the existing carriageway duly including the 1.5m wide central median. During this stage, position of different signs/delineators/barricades to ensure safety of workers and road uses shall be as illustrated in Figure 10.

c) On completion of the divided 6 lane carriageway of the project highway, the main traffic from the service roads shall be restored on them and informative signs shall be installed as illustrated in Figure 11.

2.4.5.2 Rural Section of the Project Highway

In rural section the new 3 lane carriageway and the central median shall be constructed eccentric to the Centre line of the existing carriageway. During this construction phase, the existing two lane carriageway shall be used for the main traffic. The construction traffic using the existing highway shall be guided on to the work zone and allowed to return to the main traffic stream safely. For this purpose identified exist and entry points duly designed shall be provided. It shall ensure against haphazard entry or exit of the Construction Traffic to/from the existing highway. Conflicting turning movements of the Construction traffic shall be avoided. During this phase, sign/barricade shall be as shown in Figure 9 on the construction side of the road.
On completion of the new 3 lane carriageway and the median throughout, the traffic on the existing highway shall be diverted on it and the strengthening of the existing 2 lanes and widening of it by adding 1 lane to make it a 3 lane carriageway facility shall be taken up. Layout of signs and safety measures for this construction phase shall be as illustrated in Figure 7.

At the construction stages described above, situations may arise requiring diversion of traffic for cross over from the new 3 lane carriageway to the existing 2 lane carriageway when construction of new three lanes is done in stretches, during which traffic safety measures as shown in Figure 12 shall be adopted.

2.5 Safety Measures During Normal Operation

2.5.1 Introduction

It is observed that the drivers park their vehicles on the carriageways leading to accidents. Many a times, the accidented vehicles and/or debris on the carriageway are the cause of further accidents besides obstructing the smooth flow of the traffic. For smooth and normal flow of the traffic on the project highway, the actions stated hereinunder in 4.5.2 will be taken for the normal operation of the Project Highway.

2.5.2 Highway Patrol

Highway Patrolling shall be done to ensure safe, uninterrupted and smooth traffic flow so that:

(i) no parking of a vehicle on any of the divided carriageway takes place at anytime;
(ii) immediate assistance is provided to accident victims and their rescue as per clause 18.8.2 of the Concession Agreement.
(iii) Minor debris and stalled vehicles are removed from carriageway within an hour's time;
(iv) in the incident of traffic congestion, adequate measures shall be taken to mitigate the same in maximum one hour's time and the approaching traffic is duly cautioned about it.

2.5.3 Safety, Vehicle Breakdown and Accident

2.5.3.1 In case of unsafe condition, vehicle breakdowns and accidents, the Concessionaire shall follow the relevant operating procedures, which shall include the setting up of temporary traffic cones and lights as well as the removal of obstruction and debris expeditiously as per clause 18.8.1 of the Concession Agreement.

2.5.3.2 The Concessionaire shall ensure that any diversion or interruption of traffic is remedied without delay as per clause 18.8.4 of the Concession Agreement.
2.6 Safety Measures During Concession Period

2.6.1 During the Concession Period or extension thereof as per the Concession Agreement many activities are involved at different stages and at various periods in respect of construction, operation and maintenance of the Project Highway. Safety of the road users and the Project workmen at site is of paramount importance and obligatory for the Concessionaire throughout the said period.

2.6.2 In Emergency arising on account of Force Majeure due to nature or administrative reasons especial safety measures may be called for the traffic and/or the workmen at site to be taken by the Concessionaire.

2.6.3 The following principles shall be kept in view in Emergency situations from safety considerations:

2.6.3.1 Where part width of the existing 2 lane carriageway is envisaged to be used for passage of two way traffic, paved shoulders shall be used on the side on which work is not proposed. A maximum of one lane (3.5 m wide) closure shall be allowed for a short duration depending on the extent on Emergency.

2.6.3.2 At the points where traffic is to deviate from its normal path, the channel for traffic shall be clearly marked with the aid of pavement markings or other similar device as directed by the Independent Consultant. At night the passage shall be delineated with lamps or lanterns or any suitable light source.

2.6.3.3 On the approach of any type of closure suitable regulatory/warning signs as approved by the Independent Consultant shall be installed for guidance of road users. At least two signs shall be put up one lose to the carriageway where transition of carriageway begins and the other 120 m ahead. The signs shall be of approved design and of reflectory type as directed by Independent Consultant.

2.6.4 The Concessionaire shall ensure that safety standards specified in this schedule are strictly complied with in the event of any lane closure or diversion of traffic.

2.7 Safety of Project workmen at Site

2.7.1 Safety of the Project Workers at site during duty hours is the responsibility of the Concessionaire. It shall be ensured by him that safety measures appropriate for the job a workman performs shall be provided.

2.7.2 Also, safety measures against accidents of the Workers by the traffic using the highway and/or diversions shall be taken. The Concessionaire shall provide helmets and protective chest vests to its workmen at site and make it compulsory for them to wear the same.

2.7.3 The Concessionaire shall insure all the Project Workers against accident.

2.7.4 Labour Laws in force shall be followed.
2.8 Safety Requirements

2.8.1 Safety of Road users and workers on the Project Highway during its Construction, Operation and Maintenance is obligatory and the Concessionaire shall be fully responsible to discharge it in terms of the Concession Agreement including its Schedules.

2.8.2 In case of emergency situations the Concessionaire shall take action(s) for the safety of the road users and the workers as required by the site conditions immediately without waiting for consultation with the Independent Consultant and/or NHAI because any delay in it will not absolve the Concessionaire of its responsibilities under the Concession Agreement including its Schedules.

2.8.3 A breach by the Concessionaire of its obligations in respect of the safety standards shall be dealt with in terms of clause 18.8.3 of the Concession Agreement.
NOTE: -
Flashing beacon to be used during night

FIG-1. COMPONENTS OF CONSTRUCTION ZONE
(One direction traffic lane)
(a) On Kerbed Road

(b) On Un-Kerbed Road

NOTE:--
Flashing beacon to be provided during night

Fig. 2 Typical Placement of Sign
(a) Regulatory signs

- **Road closed**
- **Do not enter**
- **Give way to pedestrians**

(b) Warning signs

- **Lane closed**
  (two lane road)
- **Diversion to the other carriageway**
- **Closed for Traffic**

- **Dual carriageway starts**
- **Dual carriageway ends**
- **Two way traffic**

(c) Guide signs

- **Distance to diversion**
- **Indication of diversion road**
- **Route for pedestrians**
- **Road ahead closed**

- **Sharp deviation of route**
- **Restriction end**
- **Crossover in dual Carriageway**
Type of support varies

Fig. 4 Portable And Permanent Barricades
Fig. 5 Layout of Signs For Road Closed With a Diversion

Legend:

- Type III Barricades
- River
- Cones or Drums
- Work Area

NOTE:

Flashing beacon to be provided during night
Fig. 6: Typical Layout Showing Advance Warning, Transition Work and Stabilization Sub Zones
NOTE:
Flashing beacon to be provided during night

Fig. 7: Layout of signs for works on 6 Lane divided Carriageway – One side Carriageway closed
NOTE:
Flashin beacon to be provided during night

Fig. 8: Layout of signs for Work Zone in middle of Carriageway
NOTE:

Flashing beacon to be provided during night

Fig. 9: URBAN SECTION (STATE - I)
Construction of service road, footpath and side drain
Flashing beacon to be provided during night.
Figure: 12 Typical construction and crossover detail in rural areas of highway.

NOTE:—
Flashlight beacon to be provided during night.
CRITERIA FOR LIST OF CHARTERED ACCOUNTANTS
CRITERIA FOR LIST OF CHARTERED ACCOUNTANTS

Selection of the Chartered Accountants for a mutually agreed list shall consist of the following steps:

1. Shortlisting of Chartered Accountants by the NHAI
2. Issue of Letter of Invitation (LoI) along with Terms of Reference to shortlisted Chartered Accountants.
4. Forwarding list of 15 (fifteen) Chartered Accountants to Concessionaire to select a maximum of 10 (ten).

SELECTION COMMITTEE

The selection shall be done by a Selection Committee. The members of this committee shall be nominated by the NHAI.

1. Shortlisting by NHAI

For shortlisting, NHAI shall advertise for Expression of Interest (EoI) to serve as Statutory Auditors/Chartered Accountants for the ongoing National Highway (NH-2 and NH-45) improvement projects. The EoI will ask for summary information on

- Number of Partners and Professional Staff
- Experience of the firm on roads project
- Presence in India and in the region
- Experience of the firm on other similar work in other sectors.

2. Request for Technical Proposal

The request for technical proposals shall be sent to the shortlisted firms. This shall include a ToR besides information (Data Sheet) to the firms. It shall contain the guidelines for the preparation of technical proposals by the firms and submission.

The ToR shall include the following details:

1. Project background
2. Objectives
3. Scope of services
4. Interaction with NHAI
5. Reporting requirement
3. Evaluation of Technical Proposal

The technical proposals received from shortlisted firms shall be evaluated based on the following:

- Specific experience of the firm related to the assignment
- Adequacy of the proposed work plan and methodology in response to the ToR
- Qualifications and competence of the key staff for the assignment.
SUBSTITUTION AGREEMENT
SUBSTITUTION AGREEMENT

THIS SUBSTITUTION AGREEMENT is made at New Delhi on this the _____ day of _____ 1999.

BETWEEN

1. THE NATIONAL HIGHWAY AUTHORITY OF INDIA, a statutory body constituted under the provisions of the National Highways Authority of India Act, 1988 and having its principal offices at G-5 & 6, Sector 10, Dwarka, New Delhi – 110 045 (hereinafter referred to as “NHAI” which expression shall unless repugnant to the context or meaning thereof include its successors and assigns),

2. ..................................LIMITED, a company incorporated under the provisions of the Companies Act, 1956 and having its Registered Office at ..................................(hereinafter referred to as the “Concessionaire” which expression shall unless repugnant to the context or meaning thereof include it successors and assigns),

AND

3. ..................................and having its registered office at ..................................acting for itself and for and on behalf of the Senior Lenders listed in Schedule 1 hereto (hereinafter referred to as the “Senior Lenders”).

(NHAI, the Concessionaire and the Senior Lenders are hereinafter collectively referred to as the “Parties” and individually are hereinafter referred to as “Party”).

WHEREAS

A. By the Concession Agreement dated ...................... entered into between the NHAI and the Concessionaire, NHAI has granted to the Concessionaire the Concession for widening of the existing 2-lanes to 6-lanes divided carriageway facility including rehabilitation of existing 2-lanes, Km 273/500 to Km 363/ 885 on Jaipur - Kishangarh section of National Highway No. 8 (NH8) in Rajasthan, India on Build, Operate and Transfer (BOT) basis subject to and on the terms, conditions and covenants set forth in the said Concession Agreement or forming part thereof.
B. With a view to help facilitate obtaining of financing for the said Project by the Concessionaire so as to enable the Concessionaire to build, operate and maintain the same pursuant to and in accordance with the Concession Agreement, the Parties have agreed subject to the terms and conditions of the Concession Agreement and the Financing Documents, that the Senior Lenders shall have the right to substitute the Concessionaire by a Selectee for the residual period of the Concession on the terms, conditions and covenants mentioned hereinbelow.

C. As a condition to making any disbursement pursuant to the Financing Documents, the Senior Lenders have required and it is deemed necessary and expedient to record the terms, conditions and covenants of the above agreement between the Parties.

NOW THEREFORE THE PARTIES HERETO HEREBY AGREE AND THIS AGREEMENT WITNESSETH AS FOLLOWS:

ARTICLE 1
DEFINITIONS

1.1 For the purpose of this Agreement, the following terms shall have the meaning hereinafter respectively assigned to them:

1.1.1 “Concession” means the bundle of rights, obligations and covenants of the Concessionaire under and as set forth in the Concession Agreement.

1.1.2 “Concession Agreement” means the Concession Agreement dated ...................... entered into between NHAI and the Concessionaire granting the Concession to the Concessionaire in respect of the Project Highway and includes without limitation any amendments thereto made in accordance with the provisions contained in this behalf therein.

1.1.3 “Event of Default” means occurrence of any of the following events:

(i) A Material Breach by the Concessionaire of the Concession Agreement, or the occurrence of a Concessionaire Event of Default as defined in the Concession Agreement.

(ii) A material default in payment by the Concessionaire to all or any of the Senior Lenders under the Financing Documents of any two instalments, either of principal or interest or both, due and payable by it on account of Lenders Dues.

(iii) Any event of default under or breach of any of the terms of any of the Financing Documents or Project Agreements concerning the Project which in the sole opinion of the Lenders Agent is material or major and which may seriously affect the ability of
the Concessionaire to meet its payment obligations to the Senior Lenders under the Financing Documents or to design, engineer, construct, complete, operate and maintain the Project Highway pursuant to and in accordance with the Concession Agreement.

1.1.4 “Financial Assistance” means the loans, advances and other funding assistance including any syndicated/participation facility provided by the Senior Lenders as set forth in Schedule II hereto for financing the whole or any part of the Project Cost.

1.1.5 “Financing Documents” means the documents executed/to be executed by the Concessionaire or entered/to be entered into by the Concessionaire with the Senior Lenders and/or the Lenders Agent in respect of the Financial Assistance and include loan agreements, guarantees, notes, debenture, bonds and other security agreements and other documents relating to the Financial Assistance and brief particulars whereof are set forth in Schedule II hereto in relation to each Senior Lender.

1.1.6 “Lenders Agent” means the Industrial Development Bank of India, a statutory corporation established under the provisions of the Industrial Development Bank of India Act, 1964 and having its principal office at IDBI Tower, Cuffe Parade, Mumbai 400 005 and any replacement thereof appointed by all the Senior Lenders, inter alia, on the condition that as security for the Financial Assistance they shall have the right to seek transfer and assignment of the Concession Agreement including the Concession in accordance with the provisions of this Agreement.

1.1.7 “Lenders Certificate” shall have the meaning ascribed thereto in Clause 2.2(b).

1.1.8 “Lenders Dues” means the aggregate of all monies owned by the Concessionaire to the Senior Lenders under the Financing Documents on account of principal thereunder for funding the Project Cost, and all accrued interest, additional interest, liquidated damages, commitment fees, commission, prepayment premium, costs, charges and other monies including financing charges and fees owned by the Concessionaire to the Senior Lenders under the Financing Documents for the Project up to the Transfer Date payable under the Financing Documents.

1.1.9 “Notice of Default” shall have the meaning ascribed thereto in Clause 2.2(a).

1.1.10 “Proposal” shall have the meaning ascribed thereto in Clause 3.1(iii).

1.1.11 “Project Agreements” means this Agreement, the Concession Agreement and certain other agreements and contracts entered into by the Concessionaire with NHAI and others relating to the Project and brief particulars whereof are set forth in Schedule III hereto.
1.1.12 "Project Cost" means the total capital cost of the Project up to the COD as approved by the Senior Lenders.

1.1.13 "Senior Lenders" means the financial institutions, trusts, funds, banks and such other persons who have provided or agreed to provide the finance to the Concessionaire under any of the Financing Documents for meeting all or any part of the Total Project Cost and who hold pari passu charge on the Project Assets.

1.1.14 "Selectee" means a new Concessionaire proposed by the Senior Lenders pursuant to this Agreement and approved by NHAI for substituting the Concessionaire for the residual period of the original Concession by amendment of the Concession Agreement or by execution of a fresh Concession Agreement.

1.1.15 "Substitution Notice" means the notice given by the Lenders Agent pursuant to Clause 2.2 (c) of this Agreement.

1.2 The words and expressions beginning with or in capital letters used in this Agreement not defined in the Concession Agreement, shall have, unless repugnant to the context, the meaning respectively assigned to them in the Concession Agreement.

1.3 In this agreement unless the context otherwise requires:
   a) any reference to a statutory provision shall include such provision as is from time to time modified or re-enacted or consolidated so far as such modification or re-enactment or consolidation applies or is capable of applying to any transactions entered into hereunder;
   b) the words importing singular shall include plural and vice versa, and words denoting natural persons shall include partnerships, firms, companies, corporations, joint ventures, trusts, associations, organisations or other entities (whether or not having a separate legal entity);
   c) the headings are for convenience of reference only and shall not be used in and shall not affect the construction or interpretation of this Agreement;
   d) terms beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein;
   e) the words "include" and "including" are to be construed without limitation;
   f) any reference to a "day" shall mean reference to a calendar day;
   g) any reference to "month" shall mean reference to a calendar month.
h) the Schedules to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;

i) any reference at any time to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference provided that this clause shall not operate so as to increase liabilities or obligations of NHAI hereunder or pursuant hereto in any manner whatsoever;

j) references to Recitals, clauses, sub-clauses, paragraphs, or schedules in this Agreement shall, except where the context otherwise requires, be deemed to be references to Recitals, Articles, clauses, sub-clauses, paragraphs, Annexures, appendices of this Agreement.

k) any agreement, consent, approval, authorisation, proposal, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or Senior Lender(s) shall be valid and effectual only if it is in writing under the hands of duly authorised representative of such Party or the Senior Lender(s), as the case may be, in this behalf and not otherwise; and

l) any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both days or dates.

ARTICLE 2

SUBSTITUTION OF THE CONCESSIONAIRE BY A SELECTEE

2.1 NHAI hereby irrevocably agrees to substitute the Concessionaire by a Selectee (selected by the Senior Lenders in accordance with the provisions of this Agreement and approved by NHAI) by amendment of the Concession Agreement or by execution of a fresh Concession Agreement in favour of the Selectee for the purpose of securing the payments of the Lenders Dues, provided that nothing contained herein shall entitle the Senior Lenders to operate the Concession themselves as a Concessionaire under and in accordance with Concessionaire Agreement either individually or collectively.

2.2 (a) The Lenders Agent shall notify by a notice in writing to the Concessionaire, with a copy thereof simultaneously to NHAI, about the occurrence of an Event of Default and requiring the Concessionaire to remedy and cure such default within 30 (thirty)
days from the date of delivery of such notice of the Concessionaire (the “Notice of Default”). The Notice of Default shall be accompanied by the Lenders Certificate.

(b) A certificate under the hands of an authorised officer of the Lenders Agent annexed to the Notice of Default certifying –

(i) the occurrence of an Event of Default, and

(ii) the Lenders Dues.

(the “Lenders Certificate”) shall be conclusive evidence of occurrence of such Event of Default and of such Lenders Dues. Such Lenders Certificate shall be final, conclusive and binding upon the Concessionaire for the purposes of this Agreement and the Financing Documents.

(c) NHAI and the Concessionaire hereby irrevocably agree that the Lenders Agent may within 30 (thirty) days of the date of delivery of the Notice of Default of the Concessionaire and without prejudice to any other right or remedy available to the Senior Lenders under the Financing Document, notify NHAI and the Concessionaire on behalf of all the Senior Lenders about the Senior Lenders decision to invite, negotiate and procure offers, either through private negotiations or public auction or process of tendering for the residual period of the Concession and the rights and obligations of the Concessionaire under the Concession Agreement, by a Selectee, subject to the approval of such Selectee by NHAI (the “Substitution Notice”).

(d) Upon assumption by the Selectee of the liability and obligations of the Concessionaire under the Financing Documents and the Concession Agreement including obligation to pay any sums then due and payable to NHAI under the Concession Agreement, NHAI shall grant the Concession to the Selectee on the same terms and conditions for the residual period of the original Concession, by amendment of Concession Agreement or, if required by the Lenders Agent by a separate agreement with the Selectee.

2.3 The Lenders Agent shall apply in the selection of the following criteria:

(i) the Selectee shall be capable of properly discharging the duties, obligations and liabilities of the Concessionaire under the Concession Agreement;

(ii) the Selectee shall provide security to the satisfaction of Senior Lenders for repayment of the Lenders Dues;
(iii) the Selectee shall have the capability and shall unconditionally consent to assume the liability for the payment and discharge of dues of the Concessionaire to NHAI under and in accordance with the Concession Agreement and of Lender’s Dues upon terms and conditions as agreed to with the Senior Lenders;

(iv) the Selectee shall have the networth, experience and technical equity parameters as set forth in the Concession Agreement or prescribed by NHAI thereunder in respect of the Concessionaire or as relaxed subsequently by NHAI;

(v) the Selectee shall have not been in breach of any agreement between the Selectee and NHAI; and

(vi) any other appropriate circumstance, whereby continuity in the performance of the Concessionaire’s obligations under the Concession Agreement is maintained and the security in favour of Senior Lenders under the Financing Documents is preserved.

2.4 At any time prior to the acceptance of the Selectee by NHAI pursuant to this Agreement, the NHAI may require the Lenders Agent to satisfy NHAI as to the eligibility of the Selectee and the decision of the NHAI in this behalf (which shall be reasonable), shall be final, conclusive and binding on the Senior Lenders and the Selectee.

ARTICLE 3
MODALITY FOR SUBSTITUTION

3.1 The following modalities shall be applicable to any substitution of the Concessionaire by the Selectee pursuant to this Agreement:

(i) The Lenders Agent may invite, negotiate or procure offers either through private negotiations or public auction or process of tender or otherwise for the substitution of the Concessionaire by the Selectee;

(ii) The Lenders Agent shall on behalf of the Senior Lenders propose to NHAI pursuant to sub-clause (iii) below, the name of the Selectee for acceptance and shall apply as necessary to NHAI for:

a) grant to the Selectee (as substitute for the Concessionaire) the right to build, construct, complete, maintain, and operate the Project Highway under and in
accordance with and subject to and on the terms and conditions setforth in the Concession Agreement,

b) amendment of the Concession Agreement so as to grant to the Selectee on the same terms and conditions, the residual period of the Concession under original Concession Agreement,

c) the execution of a new Substitution Agreement with the proposed Selectee for the residual period of Concession on the same terms and conditions, and

(iii) The Lenders Agent on behalf of the Senior Lenders shall be entitled, within a period of 120 (one hundred twenty) days from the date of delivery to NHAI of the Substitution Notice pursuant to Clause 2(c) above, to select and propose to NHAI for its approval a Selectee (the “Proposal”). The Proposal of the Lenders Agent pursuant to this sub-clause (iii) shall contain the particulars and information in respect of the Selectee, the Lenders Dues and other data and information, all as prescribed in Schedule IV hereto. Without prejudice to the foregoing the Lenders Agent agrees and undertakes to provide to NHAI such further and other information and such clarifications in respect of any data, particulars or information furnished pursuant hereto by the Lenders Agent as NHAI may reasonably require. NHAI shall convey its approval or otherwise of such Proposal, including of Selectee, in its sole discretion within 60 (sixty) days of (a) the date of receipt of the Proposal by NHAI, or (b) the date when last of further and other information and such clarifications in respect of any data, particulars or information comprised in the Proposal, as have been provided in the Lenders Agent to NHAI, whichever is later. It is expressly agreed that the Proposal shall be accompanied by an unconditional undertaking of the Selectee that it shall upon approval by NHAI of the Proposal including the Selectee, observe, comply, perform and fulfill the terms, conditions and covenants of the Concession Agreement which according to its terms are required to be observed, complied with, performed and fulfilled by Concessionaire thereunder on the footing as if such Selectee were the concessionaire under the Concession Agreement and shall be liable for and shall assume, discharge and pay the Lenders Dues to the Senior Lenders under and in accordance with the Financing Documents. Upon approval of the Proposal including of the Selectee by NHAI, such Selectee shall become the Selectee hereunder.

(iv) NHAI shall, upon its satisfaction of the eligibility of the Selectee and in accordance with the provisions of this Agreement and subject to the provisions of Sub-clause (v) below proceed to Substitute the Concessionaire of the Selectee by amendment of the
The substitution as aforesaid shall be subject to the Selectee, obtaining requisite Indian Government approvals, clearances and permission necessary for operating the Concession under and in accordance with the Concession Agreement.

The objection if any of NHAI to the substitution as aforesaid shall be reasoned and be made after hearing the Lenders Agent, provided however, that in the event of a refusal as stated above, the Lenders Agent may propose another Selectee. In the event that no objection is raised with respect to the Selectee by NHAI within the period setforth in sub-clause (iii) above, the Selectee shall be deemed to have been accepted by NHAI. NHAI shall, subject to the provisions of Sub-clause (v) above, grant the Concession for the residual period within 15 days of its acceptance/deemed acceptance of the Selectee.

The substitution as aforesaid, pursuant to the security interest hereby created in favour of the Senior Lenders, shall be deemed to be complete only upon the Selectee as Concessionaire accepting and complying with the terms and conditions stipulated in the Concession Agreement.

The decision of the Senior Lenders and NHAI in the selection of the Selectee shall be final and binding on the Concessionaire and shall be deemed to have been made with the concurrence of the Concessionaire and the Concessionaire hereby expressly waives all rights to objects to or challenge such selection of the Selectee on any ground whatsoever. No third party shall have the right to question the decision of the Senior Lenders/Lenders Agent and NHAI.

All actions of the Lenders Agent hereunder shall be deemed to be on behalf of the Senior Lenders, and be binding upon them. The Lenders Agent is authorised to receive payment of compensation, payment to cure default and any other payments, consideration for transfer in accordance with the Substitution Notice and the Financing Documents and give valid discharge on behalf of all Senior Lenders.

3.2 The terms and conditions for substitution of the Concessionaire by the Selectee shall be proposed by the Senior Lenders through the Lenders Agent to the NHAI, on the occurrence of an Event of Default and continuance thereof for six months but at least 2 months prior to the anticipated date of substitution as aforesaid for the residual period of the Concession.
3.3 The Concessionaire hereby irrevocably agrees and waives any right to challenge the Senior Lender's decision to apply to NHAI for substitution as aforesaid and neither the Concessionaire nor NHAI shall be entitled to prevent the Lenders Agent from proceeding to seek such a substitution of the Concessionaire by Selectee as hereinbefore provided. The Concessionaire agrees and confirms that the Concessionaire shall not have any right to seek re-valuation of the Concessionaire's assets and the Concession Agreement including the Concession, otherwise than as contracted in the Financing Documents while the NHAI permits substitution as hereinbefore provided, pursuant to the Lenders Agent's request. The Parties acknowledge that the rights of the Senior Lenders hereunder are irrevocable and shall not be contested in any proceedings before any court of authority and the Concessionaire shall have no right or remedy to prevent, obstruct, injunct or restrain NHAI and/or the Senior Lenders from effecting or causing the substitution as aforesaid.

3.4 Where no suitable Selectee can be found by the Lenders Agent, or NHAI shall decide to take over the concession then NHAI shall advise the Lenders Agent of all steps it proposes to take under the Concession Agreement for determination of Termination Payments thereof.

3.5 (i) If NHAI decides to substitute the Concessionaire by any other person (NHAI Nominee), it shall take into account the Senior Lender's Dues while considering offers from such persons and shall include a suitable condition as agreed to by the Lenders Agent on behalf of the Senior Lenders for payment or take over of such dues by such NHAI nominee to the extent agreed by the Lenders Agent while substituting the Concessionaire by the NHAI nominee. The NHAI nominee shall similarly be bound to execute a supplementary/fresh substitution agreement on the same terms and conditions as provided herein.

(ii) Notwithstanding anything contained in Clause 3.4 and this Clause 3.5, NHAI shall not be required to take over, upon Termination of the Concession Agreement including the Concession, the liabilities representing the Lender's Dues save and except to the extent of Termination Payments due and payable upon such Termination under the Concession Agreement. In such an event NHAI's obligation shall be limited to assumption of such liabilities and payments of dues as NHAI has agreed to bear under the Concession Agreement.

3.6 Nothing contained in these presents shall mean or be interpreted as provision of any guarantee or surety by NHAI and it is expressly agreed that NHAI has not provided any surety, guarantee or counter guarantee whether directly or indirectly for the recovery of amount of Financial Assistance advanced by the Senior Lenders to the Concessionaire.
ARTICLE 4
INTERIM PROTECTION OF SERVICE AND PRESERVATION OF SECURITY

4.1 In the event of the Senior Lenders notify NHAI and the Concessionaire of the Event of Default (and the Concessionaire has not cured the default for a period of 30 days) or in special circumstances affecting the security of the Senior Lenders, the Senior Lenders shall be entitled to institute protective legal proceedings for a receivership (the "Receiver") to maintain, preserve and protect the assets (other than the Concession Agreement including the Concession) held as security by the Senior Lenders provided always that such receiver shall be NHAI if such assets are in the opinion of NHAI necessary and required for the operation and maintenance of the Project Highway and the Parties hereby consent and agree to the same. The Lenders Agent shall in such an event notify NHAI to assume receivership of the assets held as security and NHAI shall operate and maintain the same pending the substitution of the Concessionaire by the Selectee. In the event NHAI does not assume receivership and declines the request of the Lenders Agent, the Lenders Agent shall for itself and each of the Senior Lenders, be entitled to seek the appointment of a Court Receiver for the Concessionaire's assets held as security and NHAI shall operate and maintain the same pending substitution as aforesaid and/or the takeover of the Concession Agreement including the Concession and the Project Highway in accordance with the Concession Agreement or this Agreement by the NHAI. All the receivables shall be deposited by the Receiver in the Escrow Account and shall be dealt with in accordance with the Concession Agreement. The Receiver shall be responsible for protecting the assets in receivership and shall render a true and proper account of the receivership to the Senior Lenders in accordance with the terms of its appointment. The Receiver shall make best efforts to operate and maintain the Project Highway, in accordance with the obligations of the Concessionaire under the Concession Agreement. Any person other than NHAI may be appointed as Receiver only with the prior consent of NHAI. In a declaratory suit for appointment of a Receiver, notwithstanding that no recovery or mortgage suit or any suit or proceeding for enforcement of the Senior Lenders' security under the Financing Documents is instituted by the Lenders Agent for itself or the Senior Lenders, any action for appointment of NHAI as Receiver or appointment of an Independent Court Receiver shall be without prejudice for the other rights and remedies of NHAI, and of the Senior Lenders under the Financing Documents.
TERMINATION OF THE CONCESSION BY THE NHAI

5.1 If under the Concession Agreement an event occurs which shall entitle NHAI to Terminate the Concession Agreement, NHAI shall intimate the Senior Lenders prior to exercising of its decision to Terminate the Concession and advise the Senior Lenders to ensure the cure of the event which otherwise can result in termination of the Concession and the Concession Agreement. Such a notice shall entitle the Senior Lenders to cure any financial or other default of the Concessionaire within a period of two months from the date of the notice received from the NHAI failing which NHAI without any further notice to either the Concessionaire or the Lenders Agent/Senior Lenders, shall be entitled to Terminate the Concession Agreement.

5.2 Upon receipt of the Notice as referred to in Clause 5.1, intimating occurrence of an event which can entail Termination of the Concession Agreement including the Concession, the Senior Lenders shall be entitled to consider such notice as an Event of Default and may initiate steps to invite, negotiate and procure offers for the substitution of the Concessionaire by a Selectee in accordance with the procedure set forth in this Agreement.

ARTICLE 6

SENIOR LENDERS RIGHT TO RECEIVE TERMINATION PAYMENTS

6.1 NHAI and Concessionaire hereby agree, and confirm that without prejudice to any other right or remedy, NHAI shall be entitled to deposit the Termination Payments into the Escrow Account and the Senior Lenders shall be entitled to receive the same without any further reference to or consent of the Concessionaire under and in accordance with the Concession Agreement towards the satisfaction of the Senior Lenders Dues out of and limited to the sum of Termination Payments worked out under and in accordance with the Concession Agreement. The Senior Lenders shall be entitled to appropriate any consideration received for the substitution as hereinabove provided from the Selectee towards the payment of their and NHAI's respective dues to the exclusion of the Concessionaire.

6.2 The Concessionaire hereby nominates, constitutes and appoints the Lenders Agent as its constituted attorney for doing all acts, deeds and things as may be required to be done for the substitution of the Concessionaire by the Selectee pursuant hereto and for receiving consideration for discharge of the Lenders' Dues pursuant to Clause 6.1.

6.3 The Concessionaire hereby expressly authorises payment of sums by NHAI on account of Termination Payments into Escrow Account and the Lenders Agent to draw the same therefrom for and on behalf of the account of the Senior Lenders notwithstanding the pendency of any dispute or objection or claim that the Concessionaire may have against the...
Senior Lenders and/or NHAI. The deposit by NHAI into the Escrow Account and payment to the Senior Lenders directly or through the Lenders Agent in accordance with this Agreement, made or caused to be made by NHAI shall constitute a valid discharge of its obligation of the payment thereof to the Concessionaire. All such payments shall stand charged to the Senior Lenders under the Financing Documents and shall be receivable by the Lenders Agent from the Escrow Account on behalf of the Senior Lenders to the exclusion of any receiver or liquidator appointed.

ARTICLE 7

GENERAL

7.1 The Parties hereto expressly represent and warrant that they are duly empowered to sign and execute this Agreement and the Lenders Agent is duly and fully authorised by each of the Senior Lenders to enter into this Agreement on their behalf.

7.2 Notices under this Agreement shall be sent to the Addresses first hereinabove mentioned. Any change in the address of any Party shall be duly notified by a Registered post acknowledgement due and delivered to the other Parties.

7.3 The expressions “NHAI”, the “Concessionaire”, the “Senior Lenders” and the “Lenders Agent” herein used shall unless there be anything repugnant to the subject or context include their respective successors, legal representatives, administrators and permitted assigns.

7.4 This Agreement shall not be affected by reorganisation of any Senior Lender, Lenders Agent or NHAI and the successor – in interest of such Senior Lender, Lenders Agent or NHAI shall have the benefit of this Agreement.

7.5 No amendment, variation or modification to this Agreement shall be valid and effectual unless made in writing and executed by the duly authorised representatives of all the Parties hereto.

7.6 All stamp duties or other imposts and charges as are applicable on this Agreement or on amendment of the Concession Agreement or execution of fresh Concession Agreement for the purpose of substitution as aforesaid shall be borne by and be to the account of the Concessionaire. In the event of the Senior Lenders making such payment for the time being, it shall be deemed to be a part of the Lenders Dues.

7.7 The Parties hereby expressly agree that for the purpose of giving full and proper effect to this Agreement, the Concession Agreement and this Agreement shall be
read together and construed harmoniously. The terms of this Agreement shall prevail in the event of any inconsistency with the Concession Agreement.

7.8 The consultation, recommendation or approval of the Lenders Agent under this Agreement shall always be taken as consultation, recommendation or approval of every concerned Senior Lender and each such Senior Lender shall be bound by the same and hereby waives its right to question or dispute the same.

7.9 This Agreement shall be in addition to and shall not be in derogation of the terms of the Financing Documents.

7.10 It shall not be necessary for the Senior Lenders or the Lenders Agent to enforce or exhaust any other remedy available to them before invoking the provisions of this Agreement.

7.11 Any dispute, difference or claim arising out of or in connection with or in relation to this Agreement which is not resolved amicably shall be decided finally by reference to arbitration to a Board of Arbitrators comprising of one nominee of each party to the dispute. Such arbitration shall be held in accordance with the Rules of Arbitration of the Indian Council of Arbitration and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996. The arbitrators shall issue a reasoned award. The venue of such arbitration shall be New Delhi, India. The Award shall be final and binding on the Parties. The Parties agree and undertake to carry out the award of the arbitrators (the "Award") without delay.

This Agreement and rights and obligations of the Parties shall remain in full force and effect pending the Award in any arbitration proceeding hereunder. The Courts in New Delhi alone shall have jurisdiction over all matters arising out of or relating to the arbitration agreement contained herein or proceedings arising out of or relating to the arbitration proceedings thereunder.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE SET THEIR HANDS HEREUNTO ON THE DAY, MONTH AND YEAR HEREINABOVE MENTIONED.

SIGNED AND DELIVERED ON BEHALF OF

LIMITED

U-14
SIGNED AND DELIVERED ON BEHALF OF
THE NATIONAL HIGHWAY AUTHORITY OF INDIA

SIGNED AND DELIVERED ON BEHALF OF
SENIOR LENDERS

Name:
Title:
VESTING CERTIFICATE
VESTING CERTIFICATE

National Highway Authority of India ("NHAI") hereby acknowledges:

1. Compliance and fulfillment by the Concessionaire of the Divestment Requirements set forth in Clause 33.2 of the Concession Agreement in respect of the Project Highway;
2. Receipt of actual possession of the Project Highway from the Concessionaire; and
3. Receipt from the Concessionaire of a certificate confirming that there are no liens or encumbrances whatsoever on the Project Highway including Project Assets;

on the basis that upon the issue of this Vesting Certificate, NHAI shall be deemed to have acquired, and all title and interest of the Concessionaire in or about the Project Highway shall be deemed to have vested, unto NHAI free from all encumbrances, charges and liens whatsoever.

Notwithstanding anything to the contrary contained hereinabove it shall be a condition of this Vesting Certificate that in the event of any defect or deficiency in any of the Divestment Requirements set forth in Clause 33.2 of the Concession Agreement being found or discovered at any time hereafter, nothing contained in this Vesting Certificate shall be construed or interpreted as waiving the obligation of the Concessionaire to rectify and remedy the same and/or relieving the Concessionaire in any manner of the same.

Agreed and accepted
For the Concessionaire
By:........................................
Name:
Title:
Dated:

For National Highway Authority of India
By:........................................
Name:
Title:
Dated:
PASSENGER CAR UNIT FACTORS
The equivalency factor for the conversion of different types of vehicles into equivalent Passenger Car Units (PCUs) based on their relative interference value shall be as per the following table:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Vehicle Type</th>
<th>Equivalency factor**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Fast Vehicles</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Motor Cycle or Scooter</td>
<td>0.50</td>
</tr>
<tr>
<td>2.</td>
<td>Passenger Car, Pick-up Van or Auto-rickshaw</td>
<td>1.00</td>
</tr>
<tr>
<td>3.</td>
<td>Agricultural Tractor, Light Motor Vehicle</td>
<td>1.50</td>
</tr>
<tr>
<td>4.</td>
<td>Truck or Bus</td>
<td>3.00</td>
</tr>
<tr>
<td>5.</td>
<td>Truck-trailer, Agricultural Tractor-trailer</td>
<td>4.50</td>
</tr>
<tr>
<td></td>
<td><strong>Slow Vehicles</strong>*</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Cycle</td>
<td>0.50</td>
</tr>
<tr>
<td>7.</td>
<td>Cycle-rickshaw</td>
<td>2.00</td>
</tr>
<tr>
<td>8.</td>
<td>Hand Cart</td>
<td>3.00</td>
</tr>
<tr>
<td>9.</td>
<td>Horse-drawn vehicle</td>
<td>4.00</td>
</tr>
<tr>
<td>10.</td>
<td>Bullock Cart*</td>
<td>8.00</td>
</tr>
</tbody>
</table>

* For smaller bullock-carts, a value of 6 shall be appropriate.
** Recommended PCU factors for various types of vehicles in accordance with IRC:64-1990 on "Guidelines for Capacity of Road in Rural Areas"
*** While computing the Design service volumes and the capacity of highway, slow vehicles (of the table) shall not be considered since they would not be expected to use the main carriageway of the project highway.
REPORTING AND RECORD REQUIREMENTS
REPORTING AND RECORD REQUIREMENTS

1.0 INTRODUCTION

The reporting and records requirements spelt out hereinunder have been provided in terms of the indicative type of information required. The Independent Consultant shall determine the following:

- Format of such reports and record requirements
- Software standards
- Number of Copies required
- The Language of the reports and records shall be English

2.0 Part I
Reporting Requirements

From the date of the Concession Agreement until the end of the Concession Period, the Concessionaire shall prepare and submit to the NHAI and Independent Consultant 1 copy each of the following reports/Documents/Drawings else otherwise stated in the Concession Agreement.

A. DESIGN & CONSTRUCTION STAGE

1. A detailed work plan supported with CPM/PERT charts for completion of all project activities related to the Project Highway, at the beginning of the Design Works.

2. MONTHLY PROGRESS REPORT: Within 5 Days of end of each month or a part thereof, which falls within the Construction Period, the Concessionaire shall provide to the NHAI and the Independent Consultant the monthly report, which shall at least identify the following:

   - Working drawings submitted/resubmitted to NHAI/Independent Consultant during the month ended
   - NHAI/Independent Consultant's comments there on, if any.
   - Concessionaire's compliance with NHAI/Independent Consultant's comments on the drawings submitted to NHAI/Independent Consultant, during the month ended.
   - "As built" drawings submitted to NHAI/Independent Consultant during the month ended.
   - Progress of pre-construction activities such as utility relocation and other obstructions.
   - Concessionaire's compliance with the Inspection Report during the month ended, if any.
   - Construction Constraints.
   - Progress data with 'S' curves, if applicable; Project Data with contract detail and sectional completion details.
• Tests carried out during the month ended, if any; results of these Tests furnished to the NHAI/Independent Consultant during the month ended, if any.
• Remedial measures taken by the Concessionaire on the basis of these Tests, if any.
• Traffic management steps undertaken by the Concessionaire during the month (particularly on the existing two lanes of the Project highway).
• Achievement of a Project milestone (Schedule H) during the month, if any. The Concessionaire shall also provide information on delay in achievement of such milestone, if any.
• Any suspension of the Construction Works by NHAI as per provisions of the Concession Agreement, if any. The Concessionaire shall also provide information on reason of such suspension, duration of such suspension and the steps undertaken by it to revoke such suspension.
• Any Change of Scope Notice issued by NHAI and status thereof.
• All actual or potential departures from the Project Completion Schedule (Schedule H).
• All grounds for a substantial Dispute which have occurred or which may reasonably be foreseen as likely to occur.
• All substantial disagreements among the Concessionaire, and the NHAI and/or Independent Consultant to the design/construction of the Project Highway.
• The proposed measures to be taken by the Concessionaire to overcome such departures or to resolve such grounds for a Dispute.
• The date on which the Concessionaire expects the Project Highway to be completed.
• The Concessionaire is required to maintain the existing two lanes during the Construction Period. This monthly construction report shall also contain information in respect of maintenance activity, if any, carried out by the Concessionaire during the month ended in respect of these existing two lanes. The Concessionaire and the Independent Consultants shall agree on the information requirements in respect of these two existing lanes during the Construction Period.
• Monthly Weather Report giving daily temperature maximum and minimum value; rain fall and any other significant event.


4 Video Recording as per clause 44.1 of the Concession Agreement.

5 Monthly Escrow Account Report: With in 5 Days of end of each month which falls within the Operations Period, the Concessionaire shall provide to the NHAI and the Independent Consultant a copy of the report containing the summary of the receipts in and payments from the Escrow Account for the month ended.
The Concessionaire shall supply to the NHAI free of charge the following documents prior to requesting the issue of the Completion Certificate:

6.1 Detailed, accurately scaled, and sequentially numbered plans of the Project Highway “As Built” covering all relevant engineering features, which in relation to structures shall also include cross sections in each plane; and

6.2 Copies of all geo-technical and borehole reports obtained by the Concessionaire in preparation for and during the construction of the Project Highway.

7 All other reports in accordance with the provisions of the Concession Agreement.

8 Such other reports as may be reasonably required by NHAI/Independent Consultant.

9 Additional Reports: The Concessionaire shall supply to the NHAI free of charge copies of all information, records and test results (including any interpretation of such test results) resulting from any ground, physical or geophysical investigation or archaeological or ecological survey of the Site or Adjacent Areas.

B. Operation Phase

1 Monthly Traffic Report: With in 5 Days of end of each month which falls within the Operations Period, the Concessionaire shall provide to the NHAI and the Independent Consultant a copy of the report containing the following information:
   • Total traffic count by mode for each day of the month; and
   • Tollable traffic count by mode for each day of the month.

2 Monthly Escrow Account Report: With in 5 Days of end of each month which falls within the Operations Period, the Concessionaire shall provide to the NHAI and the Independent Consultant a copy of the report containing the summary of the receipts in and payments from the Escrow Account for the month ended.

3 Monthly Operations Report: With in 5 Days of end of each month or a part thereof, which falls within the Operations Period, the Concessionaire shall provide to the NHAI and the Independent Consultant a copy of the report, which shall identify the following, at the minimum:
   • Inspections undertaken by the Concessionaire during the month ended, if any.
   • Maintenance Reports submitted to the Independent Consultant during the month ended, if any.
   • O&M Inspection Compliance Report submitted to NHAI/Independent Consultant during the month ended, if any.
   • Preventive/Periodic maintenance undertaken during the month ended, if any.
• Any material modifications made to the Project Highway during the month ended, if any.
• All the accidents or incidents on the Project Road during the month under report (including all accidents on which a report has previously been made to the Concession Agreement).
• Tests performed during operation and maintenance stage along with the defects identified on the Project Highway, if any.
• Number and type of the complaints received from Users and others in respect of the Project Highway and the conduct of Operations.
• Incidents of emergency de-commissioning of the Project Highway during the month ended, if any.
• Incidents of lane-closure on the Project Highway during the month ended, if any. The Concessionaire shall provide information on reason, time of such lane-closures.
• all actual or potential departures from the O&M Requirements as specified in 'Schedule L'.
• all grounds for substantial Dispute which have occurred or may reasonably be foreseen as likely to occur.
• the proposed measures to be taken by the Concessionaire to overcome such departures or to resolve such grounds for a Dispute.

4. An annual report on the working of the toll collection system. This report will provide information on method of toll collection (semi-automatic, automatic, etc.), usage of pass system (manual, electronic, etc.), average time taken in toll-collection, Concessionaire's suggestions on improvements in the toll-collection system, which would be considered by NHAI appropriately.

5. Accident Reports: As soon as practicable and in any event no later than 7 days following the occurrence of any accident on the Project Highway involving a fatality or serious personal injury or substantial property damage, the Concessionaire shall investigate the circumstances of such accident and submit to the NHAI and Independent Consultant a report setting out details of such accident and, to the extent they are known, the causes of such an accident, and the Concessionaire shall thereafter promptly report to the NHAI and/or Independent Consultant any additional details of such accident or its causes which become known to it.

6. Concessionaire shall submit a copy of the audited accounts within 120 days of the close of each Accounting Year after the Appointed Date.

7. All other reports in accordance with the provisions of the Concession Agreement.
8. Such other reports as may be reasonably required by NHAI/ Independent Consultant.

9. Additional Reports: The Concessionaire shall supply to the NHAI/Independent Consultant free of charge copies of all information, records and test results (including any interpretation of such test results) resulting from any ground, physical or geophysical investigation or archaeological or ecological survey of the Site or Adjacent Areas.
3.0 Part II

Record Requirements

The Concessionaire shall take the following action(s) in respect of preparation of the record, its submission to NHAI and retention by the Concessionaire itself.

<table>
<thead>
<tr>
<th></th>
<th>Design</th>
<th>Retention Period of the Concessionaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Design standards containing all relevant design assumptions, codes of practice, design loadings, design parameters and product data sheets for all components of Project Highway.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>1.1</td>
<td>Full set of final design calculations for all parts of the Project Highway including details of the influence on design of actual construction methods, and any changes or any remedial works during construction.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>1.3</td>
<td>Full set of working drawings</td>
<td>Until 2 years after issue of the Completion Certificate</td>
</tr>
<tr>
<td>1.4</td>
<td>Full specification for construction and all revisions made thereto.</td>
<td>Until 2 years after issue of the Completion Certificate</td>
</tr>
<tr>
<td>1.5</td>
<td>Change of Scope Order(s)</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Construction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Video recording submitted to NHAI</td>
<td>Until 2 years after the issue of Completion Certificate</td>
</tr>
<tr>
<td>2.1</td>
<td>Full set of construction site records relating to progress, testing of materials, monitoring of standards of workmanship, meteorological conditions, instructions issued and other site correspondence.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>2.3</td>
<td>Full set of “As-Built” drawings and schedules incorporating all changes to the design and all remedial measures applied to the Project Highway during construction, and all final As-built details and dimensions of the Project Highway. These drawings shall include permanent modifications made to suit the construction method.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>2.4</td>
<td>Full set of Tests results</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>2.5</td>
<td>The appropriate proprietary rights, licenses, agreements and permissions for materials, methods, processes and systems used or incorporated into the Project Highway.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Operations and Maintenance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Monthly Progress Reports</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.1</td>
<td>Full records of all incidents which affect the operation and/or maintenance of the Project Highway including traffic accidents.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.2</td>
<td>Full records of inspections and surveys and results of such inspection</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
</tbody>
</table>
4. All other records in accordance with the provisions of the Concession Agreement.

5. Additional Requirements

5.1 When there is a conflict between the Reporting and Record Requirement of Schedule 'X' and a requirement in respect of these stated elsewhere in this Agreement, the latter shall take precedence.

5.2 The requirements set out in Reporting and Record Requirements of this Schedule 'X' indicate the minimum requirements to be complied with but are not limited to else only.

5.3 Availability of Records shall be as follows:

<table>
<thead>
<tr>
<th>Details</th>
<th>Term of Retention</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3 Details of all repairs to the Project Highway and/or replacement, including photographs. As-built drawings and other documentary records.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.4 Full sets of all Monthly Reports</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.5 Adequate records of adverse meteorological conditions.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.6 Records of landscape planting.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.7 Schedule and strip plan of grassed areas with details of the Routine Maintenance required in the normal course.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.8 Record of all permanent traffic signs on the Project Highway.</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.9 All traffic (both total and tollable) count for each day of the Operations Period</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.10 Record of daily toll collection at each toll plaza</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.11 All financial and accounting records to be maintained as per Applicable Laws</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
<tr>
<td>3.12 Encroachment particulars and details</td>
<td>Till handover to NHAI at Termination of the Concession</td>
</tr>
</tbody>
</table>
PROJECTED CASHFLOWS
## Schedule Y

### Jaipur Kishangarh Project

#### Projected Fees (Rs millions)

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</tr>
</thead>
<tbody>
<tr>
<td>- Projected Fees</td>
<td>1021.94</td>
<td>1108.19</td>
<td>1172.82</td>
<td>1267.34</td>
<td>1345.10</td>
<td>1462.52</td>
<td>1556.44</td>
<td>1672.90</td>
<td>1800.62</td>
<td>1950.29</td>
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</tbody>
</table>

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>- Projected Fees</td>
<td>2097.42</td>
<td>2247.68</td>
<td>2417.69</td>
<td>2610.03</td>
<td>2825.78</td>
<td>3008.72</td>
<td>3233.95</td>
<td>1722.91</td>
</tr>
</tbody>
</table>

Source: Updated Financial Model provided by the bidder
### Jaipur Kishangarh Project

#### Cashflows to Equity (Rs millions)

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</tr>
</thead>
<tbody>
<tr>
<td>- Accounting Year Ending</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>197.07</td>
<td>250.90</td>
<td>374.97</td>
<td>480.64</td>
<td>603.78</td>
<td>734.72</td>
<td>870.02</td>
</tr>
<tr>
<td>- Projected cashflows to equity</td>
<td>1004.41</td>
<td>1111.76</td>
<td>1231.99</td>
<td>1366.67</td>
<td>1489.93</td>
<td>1618.66</td>
<td>1122.70</td>
<td>488.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Updated Financial Model provided by the bidder