

DRAFT

**MODEL CONCESSION AGREEMENT FOR ANNUITY
BASED PROJECT**

TABLE OF CONTENTS

ARTICLE	CONTENTS	PAGE
1	DEFINITIONS AND INTERPRETATION	2
1.1	Definitions	2
1.2	Interpretation	10
1.3	Measurements & Arithmetic Conventions	12
1.4	Ambiguities & Discrepancies	12
2	CONCESSION	12
2.1	Grant of Concession	12
2.2	Concession Period	12
2.3	Acceptance of Concession	13
3	PROJECT SITE	13
3.1	Handover of Project Site	13
3.2	Rights, Title and Use of the Project Site	13
3.3	Peaceful Possession	14
3.4	Clearances	15
4	INDEPENDENT ENGINEER	15
4.1	Procedure for Appointment	15
4.2	Payments to the Independent Engineer	16
4.3	Replacement of the Independent Engineer	16
4.4	Eligibility for Re-appointment	16
5	CONCESSIONAIRE'S OBLIGATIONS	17
5.1	Performance Security	17
5.2	Financing Arrangement	17
5.3	Drawings	17
5.4	Project Implementation	19
5.5	Operation & Maintenance	21
5.6	Insurance	23
5.7	Shareholding	24
5.8	General Obligations	25
5.9	No Breach of Obligations	26
6	NHAI'S OBLIGATIONS	27
6.1	Specific Obligations	27
6.2	General Obligations	27
7	CHANGE OF SCOPE	28
7.1	Change of Scope	28
7.2	Procedure for Change of Scope	28
8	ANNUITY	30
8.1	Annuity	30
8.2	Payment of Annuity	30
8.3	Bonus/Reduction in Annuity	30
8.4	Assured Availability	32
8.5	Payment Mechanism	34

ARTICLE	CONTENTS	PAGE
9	LEVY AND COLLECTION OF FEE	34
9.1	Concessionaire's obligations	34
9.2	NHAI's Rights	35
10	CAPACITY AUGMENTATION	36
10.1	Capacity Augmentation of the Project	36
10.2	Bid Requirements	36
11	CHANGE IN LAW	37
11.1	Change in Law	37
11.2	Relief to Concessionaire	37
11.3	Obligations of the Concessionaire	38
12	FORCE MAJEURE	38
12.1	Force Majeure Events	38
12.2	Non-Political Events	39
12.3	Political Events	39
12.4	Other Events	40
12.5	Obligations of the Parties	40
12.6	Termination due to Force Majeure Event	42
12.7	Liability for other losses, damages etc.,	44
13	EVENTS OF DEFAULT AND TERMINATION	44
13.1	Events of Default	44
13.2	Termination due to Events of Default	47
13.3	Termination Payments	49
13.4	Rights of NHAI on Termination	50
13.5	Rights of Parties	51
14	MODE OF PAYMENT BY NHAI	51
14.1	Mode of Payment	51
14.2	Valid Discharge	51
15	HANDBACK OF PROJECT FACILITIES	52
15.1	Handback and Defect Liability Period	52
15.2	Retention Amount	52
16	INDEPENDENT AUDITOR	53
16.1	Appointment	53
16.2	Payment of Fees	53
17	DISPUTE RESOLUTION	53
17.1	Amicable Resolution	53
17.2	Arbitration	54

ARTICLE	CONTENTS	PAGE
18	REPRESENTATIONS AND WARRANTIES, DISCLAIMER	55
18.1	Representations and Warranties of the Concessionaire	55
18.2	Representations and Warranties of NHA	57
18.3	Obligation to notify change	57
19	MISCELLANEOUS	57
19.1	Assignment and Charges	58
19.2	Interest and Right of Set Off	58
19.3	Liability and Indemnity	59
19.4	Governing Law and Jurisdiction	61
19.5	Waiver	61
19.6	Survival	62
19.7	Amendments	62
19.8	Notices	62
19.9	Severability	63
19.10	No Partnership	63
19.11	Language	63
19.12	Exclusion of Implied Warranties etc.	63
19.13	Counterparts	64

SCHEDULES

A	LETTER OF ACCEPTANCE
B	PROJECT SITE
C	PROJECT
D	PROJECT FACILITIES
E	PROJECT SITE DELIVERY SCHEDULE
F	CLEARANCES
G	DESIGN REQUIREMENTS
H	CONSTRUCTION REQUIREMENTS
I	O&M REQUIREMENTS
J	ANNUITY PAYMENT SCHEDULE
K	CASHFLOW PROJECTIONS
L	SCOPE OF WORK
M	PERFORMANCE SECURITY
N	STATE SUPPORT AGREEMENT
O	SUBSTITUTION AGREEMENT
P	HANDBACK REQUIREMENTS

CONCESSION AGREEMENT

BETWEEN

NATIONAL HIGHWAY AUTHORITY OF INDIA

AND

.....
(CONCESSIONAIRE)

FOR

PANAGARH-PALSIT PROJECT

JANUARY, 2001

CONCESSION AGREEMENT

THIS CONCESSION AGREEMENT is entered into on this the ----- day of -----
(Month) ----- (Year) at New Delhi.

BETWEEN,

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 office at No.1, Eastern Avenue, Maharani Bagh, New Delhi 110 065, hereinafter referred to as "**NHAI**" (which expression shall unless excluded by or repugnant to the context, be deemed to include its successors and assigns) OF THE ONE PART,

AND

M/s XXXX Limited, a company incorporated under the provisions of the Companies Act, 1956, having its registered office at ----- hereinafter referred to as the "**Concessionaire**" (which expression shall unless repugnant to the subject or the context include its successors and permitted assigns) OF THE OTHER PART.

WHEREAS,

- A. The Government of India has by notification no. S.O.78(E) dated 4th February, 1999 published in the Official Gazette in exercise of its powers under Section 11 of the National Highways Authority of India Act, 1988 (NHAI Act), entrusted NHAI with the stretch of national highway from Km. 516 to Km. 670 in Panagarh- Calcutta section on National Highway 2(NH-2) in the State of West Bengal,
- B. NHAI, in discharge of its functions, envisaged under Section 16 of the NHAI Act, is keen to implement in the aforesaid stretch of NH-2 , a project envisaging strengthening of the existing 2-lanes and widening thereof to 4 lanes with dual carriageway with private sector participation on build, operate and transfer (BOT) basis,
- C. NHAI has carried out extensive project development work in connection with the Project including engineering studies, assessment of feasibility and preparation of a detailed project report,
- D. NHAI invited competitive proposals from eligible persons for implementing the Project and in response thereto NHAI received proposals from several persons including the Concessionaire/the Consortium (as hereinafter defined) for implementing the Project,
- E. NHAI, after evaluating the aforesaid proposals, accepted the proposal submitted by the Concessionaire/the Consortium and issued Letter of

Acceptance dated ----- (LOA) to the Concessionaire/the Consortium, a copy whereof is hereto annexed as Schedule “A”,

- F. In accordance with the terms of the proposal submitted by the Consortium, the Consortium has incorporated the Concessionaire as a special purpose vehicle to implement the Project and NHAI has agreed to grant to the Concessionaire, the Concession (as hereinafter defined).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

ARTICLE 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 ascribed 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 Cost” means the additional capital expenditure and/or the additional operating costs or additional taxes or both as the case may be, which the Concessionaire has or would be required to incur and which has arisen as a result of Change of Scope or Change in Law.

“Agreement” means this agreement including schedules hereto, as of the date hereof and includes any amendment hereto made in accordance with the provisions hereof.

“Annuity” shall have the meaning ascribed to it in Article 8.1.

“Annuity Payment Date” means each date specified as such in Schedule “J”, for payment of Annuity.

“Annuity Payment Period” means each period for which the Annuity is payable in accordance with the provisions of this Agreement as set out in Schedule ‘J’.

“Applicable Laws” means all laws in force and effect as of the date hereof and which may be promulgated or brought into force and effect hereinafter in India, including judgements, decrees, injunctions, writs or 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 under or pursuant to any of the Applicable Laws, required to be obtained and maintained by the Concessionaire, in order to implement the Project and to provide Project Facilities in accordance with this Agreement.

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

“Assured Availability” means, the availability of Carriageway assured by the Concessionaire for each Annuity Payment Period, computed as under :

$$AA = 4 \times LA$$

Where,

AA = Assured Availability

LA = Lane Availability

“Book Value” means lower of the Initial Investment or the value of the capital expenditure incurred on the Project as per the books of the Concessionaire, in either case net of depreciation charged on the basis of straight line method and amortised equally over the Operations Period, duly verified and certified by the Independent Auditor in accordance with IGAAP.

Provided that in the event of Termination, the Additional Cost, if any, compensated by NHAI in accordance with Articles 7.2 (d) (i) or 7.2 (d) (ii) or in accordance with Articles 11.3 (c)(i) or 11.3(c)(ii), shall, to the extent capitalised, be excluded in computing the Book Value.

“Carriageway” means the 4 lane highway comprised in the Mainline specified in Clause 2.1 of Schedule " D".

“Cashflow Projections” means cashflow projections set out in Schedule “K”, submitted by _____ as part of its bid for the Project which shall be used only to determine on any date the Discounted Value of Future Net Cash Flows.

“Change in Law” shall have the meaning ascribed to it in Article 11.1.

“Change of Scope” shall have the meaning ascribed to it in Article 7.1.

“COD” means the commercial operations date of the Project which shall be the date on which the Independent Engineer has issued the Provisional Certificate or the Completion Certificate in accordance with the provisions of Article 5.4.

“Commencement Date” means.....¹.

“Completion Certificate” means the certificate to be issued by the Independent Engineer certifying completion of construction of the Project by the Concessionaire in accordance with the Construction Requirements.

“Concession” shall have the meaning ascribed thereto in Article 2.1.

¹ 7 months from the date of this Agreement.

“Concession Period” means the period of Concession specified in Article 2.2, as applicable.

“Concessionaire” means M/s. XXXX and includes its successors and permitted assigns expressly approved by NHAI.

“Consortium” means the consortium consisting of (i) AAAA (ii) BBBB and (iii) CCCC formed/ acting pursuant to the Memorandum of Understanding dated --- entered into by them, for the purpose of submitting their proposal for undertaking the Project and in the event of their being accepted by NHAI to implement the Project through a special purpose company formed and incorporated by them in India.

“Construction Requirements” means the requirements as to construction of the Project/ Project Facilities set forth in Schedule “H”.

“Construction Works” means all works and things required to be undertaken by the Concessionaire, pursuant to the Construction Requirements.

“Contractor” means any Person with whom the Concessionaire has entered into/ may enter into any of the Project Agreements.

“Deemed Date of Investment” means 30th December, 2002.

“Design Requirements” means the design requirements of the Project / Project Facilities set forth in Schedule “G”.

"DPR" means the Detailed Project Report in respect of the Project comprised of the following provided by NHAI to the bidders for the Project as part of bidding documents:

Volume I	Main Report Part, A
Volume I	Main Report Part, B
Volume II	Designs Report (Road and pavement) Part –I
Volume II	Designs Report (Bridges and cross drainage) Part-II (Section –A)
Volume II	Designs Report (Bridges and cross drainage) Part-II (Section –B)
Volume II	Designs Report (Bridges and cross drainage) Part-II (Section –C)
Volume II	Designs Report (Sub Soil Investigation) Part-III
Volume III	Designs Report (Material Report) Part A Report
Volume III	Designs Report (Material Report) Part B (Appendices)
Volume IV	Environmental Assessment Report
Volume V	Technical Specification
Contract	Part A Road Works
Drawing	
Contract	Part C Bridges & Cross drainage

Drawing

“Discounted Value of Future Net Cashflows” shall have the meaning ascribed thereto in Schedule “K”.

“Dispute” shall have the meaning ascribed thereto in Article 17.1.

“Dispute Resolution Procedure” means the procedure for resolution of Dispute set forth in Article 17.

“Drawings” means all of the drawings, designs, calculations and documents pertaining to the Project in accordance with the Design Requirements.

“Emergency” means a condition or situation that is likely to endanger the road safety as per Good Industry Practice on or about the Project Site/Project Facilities including safety of users thereof or which poses an immediate threat of material damage to any of the Project Site/Project Facilities.

“Encumbrance” means any encumbrance 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, physical encumbrances and encroachments on the Project Site/Project Facilities.

“EPC Contract” means the contract, if any entered into by the Concessionaire interalia for the purpose of design, engineering, procurement of equipment and materials and construction of the Project in accordance with the provisions of this Agreement.

“Equity Documents” means collectively the documents evidencing subscription to Concessionaire's equity capital to the extent of equity component of cost of the Project.

“Event of Default” shall have the meaning ascribed thereto in Article 13.1.

“Financial Close” means the date on which the Financing Documents and the Equity Documents have become effective, and the Concessionaire has access to the funds/financial assistance committed thereunder.

“Financing Documents” means collectively the documents evidencing Lenders' commitment to finance the debt component of cost of the Project.

“Force Majeure Event” shall have the meaning ascribed thereto in Article 12.

“Force Majeure Period” means, as determined by the Independent Engineer, the period commencing from the date of occurrence of a Force Majeure Event and ending on (i) the date on which the Affected Party, acting in accordance with the Good Industry Practice, resumes or should have resumed such of its obligations the performance of which was excused in terms of Article 12.5(b) or (ii) the Termination Date, as applicable.

“Good Industry Practice” means the exercise of that degree of skill, diligence, prudence and foresight in compliance with the undertakings and obligations under this Agreement which would reasonably and ordinarily be expected from a skilled and experienced Person engaged in the implementation, operation and maintenance or supervision or monitoring thereof or any of them of a project of the type similar to that of the Project.

“Gol” means the Government of India.

“Government Agency” means Gol, GoWB, NHAI or any state government or governmental department, commission, board, body, bureau, agency, authority, instrumentality, court or other judicial or administrative body, central, state, or local, having jurisdiction over the Concessionaire, the Project Site/ Project Facilities or any portion thereof, or the performance of all or any of the services or obligations of the Concessionaire under or pursuant to this Agreement.

“GoWB” means the Government of the State of West Bengal.

“Handback Requirements” means the requirements as to handback of the Project Site/Project Facilities set out in Schedule P.

“IGAAP” means the Indian generally accepted accounting principles consistently applied.

“Implementation Period” means the period beginning from the Commencement Date and ending on the COD.

“Independent Auditor” means a reputed firm of Chartered Accountants practising in India that may be appointed by the Parties pursuant to and in accordance with Article 16.

“Independent Engineer” means a reputed Person being a firm, company or a body corporate appointed in accordance with Article 4 for supervision and monitoring of compliance by the Concessionaire with the Project Requirements, more particularly to undertake, perform, carry out the duties, responsibilities, services and activities set forth in Schedule “L”.

“Internal Rate of Return” shall have the meaning ascribed thereto in Schedule "K".

“Initial Investment” shall have the meaning ascribed thereto in Schedule “K”.

“Insurance Proceeds” means the proceeds of the insurance policies taken by the Concessionaire in terms of Article 5.6 or otherwise.

“Lane Availability” means in respect of each Annuity Payment Period, the availability of any lane comprised in the Carriageway measured in terms of lane kilometer hours as under:

$$LA = L \times 24 \times D$$

Where,

LA = Lane Availability

L = Length of the lane

D = Actual number of days in the relevant Annuity Payment Period.

“Lenders” means financial institutions, banks, funds or trusts who provide or refinance the debt component of the cost of the Project (including guarantees, risk participation facility, take-out facility and other forms of credit enhancement) and includes subscribers to/ trustee for the holders of debentures/bonds or other securities issued by the Concessionaire to meet the cost of the Project.

“Material Adverse Effect” means material adverse effect on (a) the ability of the Concessionaire to exercise any of its rights or perform/discharge any of its duties/obligations under and in accordance with the provisions of this Agreement and/or (b) the legality, validity, binding nature or enforceability of this Agreement.

“Material Breach” means a breach by either Party of any of its obligations under this Agreement which has or is likely to have a Material Adverse Effect on the Project and which such Party shall have failed to cure.

“NHAI Act” means the National Highways Authority of India Act, 1988, and includes any amendment thereto or replacement or re-enactment thereof, as in force from time to time.

“O&M Contract” means the contract, if any, entered into by the Concessionaire for the operation and maintenance of the Project Facilities in accordance with the provisions of this Agreement.

“Operations Period” means the period commencing from COD and ending at the expiry/termination of the Concession/ Agreement.

“O & M Requirements” means the requirements as to operation and maintenance of the Project Facilities set forth in Schedule “I”.

“Parties” means the parties to this Agreement collectively and

“Party” means either of the Parties to this Agreement individually.

“Performance Security” means the bank guarantee for performance of its obligations during the Implementation Period to be provided by the Concessionaire in accordance with Article 5.1.

“Person” means (unless otherwise specified or required by the context), any individual, company, corporation, partnership, joint venture, trust, unincorporated organisation, government or Government Agency or any other legal entity.

“Preliminary Notice” means the notice of intended Termination by the Party entitled to terminate this Agreement to the other Party setting out, inter alia, the underlying Event of Default.

“Project” means design, financing, construction, operations and maintenance of the Project Facilities in accordance with the provisions of this Agreement.

“Project Agreements” means collectively this Agreement, EPC Contract, O&M Contract and any other material contract (other than the Equity Documents and Financing Documents) entered into or may hereafter be entered into by the Concessionaire in connection with the Project.

“Project Facilities” means collectively the facilities set out in Schedule ‘D’ to be designed, constructed, built, installed, erected or provided by the Concessionaire on the Project Site, in accordance with the Design Requirements and Construction Requirements.

“Project Highway” means collectively the facilities specified in Clause 2 of Schedule D.

“Project Requirements” means collectively the Design Requirements, Construction Requirements and O & M Requirements or any of them as the context may admit or require.

“Project Site” means the real estate particulars whereof are set out in Schedule ‘B’ on which the Project is to be implemented and the Project Facilities are to be provided by the Concessionaire in accordance with the Project Requirements.

“Project Site Delivery Schedule” means the schedule for delivery of Project Site by NHAI to the Concessionaire as set out in Schedule “E”.

“Promoters” means M/s _____, _____ and _____.

“Proposal Due Date” means _____².

“Provisional Certificate” means the Completion Certificate that may be issued by the Independent Engineer pending completion of the Punch List items in accordance with Article 5.4(a)(vii).

“Punch List” shall have the meaning ascribed thereto in Article 5.4(a)(vii).

“Rs.” or “Rupees” refers to 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.

² Proposal Due Date as per RFP.

“Scheduled Project Completion Date” means.....³--.

“State Support Agreement” means the agreement substantially in the form set out in Schedule “N” to be entered into amongst GoWB, NHAI and the Concessionaire.

“Substitution Agreement” means the agreement substantially in the form set out at Schedule “O”, to be entered into between NHAI, Lenders and the Concessionaire.

“Tax” means and includes all taxes, fees, cesses, levies that may be payable by the Concessionaire under any Applicable Law.

Provided that for the purpose of Article 11.2, Tax shall not include any penalty, interest or other penal sum levied on or payable by the Concessionaire on account of non-payment, short payment or delayed payment of Tax or on account of any other default.

“Termination” means early termination of this Agreement pursuant to Termination Notice or otherwise in accordance with the provisions of this Agreement but shall not, unless the context otherwise requires, include the expiry of this Agreement due to efflux of time in the normal course.

“Termination Date” means the date specified in the Termination Notice as the date on which Termination occurs.

“Termination Notice” means the notice of Termination by either Party to the other Party, in accordance with the applicable provisions of this Agreement.

“Termination Payment” means the amount payable by NHAI to the Concessionaire under this Agreement upon Termination.

“Tests” means the tests to be carried out in accordance with the Construction Requirements or the O & M Requirements.

1.2 Interpretation

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 Applicable Law shall include the laws, acts, ordinances, rules, regulations, notifications, guidelines or byelaws which have the force of law in any State or Union Territory forming part of the Union of India;

³ 2 ½ years from the Commencement Date.

- (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, organisations 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) the words "include" and "including" are to be construed without limitation;
- (f) references to "construction" include investigation, design, engineering, procurement, delivery, transportation, installation, processing, fabrication, testing, commissioning and other activities incidental to the construction;
- (g) any reference to any period of time shall mean a reference to that according to Indian Standard Time;
- (h) any reference to day shall mean a reference to a calendar day;
- (i) any reference to month shall mean a reference to a calendar month;
- (j) 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;
- (k) 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;
- (l) references to recitals, Articles, sub-articles, clauses, or Schedules in this Agreement shall, except where the context otherwise requires, be deemed to be references to recitals, Articles, sub-articles, clauses and Schedules of or to this Agreement;
- (m) 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 Engineer and/or Independent Auditor shall be valid and effectual only if it is in writing under the hands of duly authorised representative of such Party or the Independent Engineer and/or Independent Auditor, as the case may be, in this behalf and not otherwise;
- (n) unless otherwise stated, 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.

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 Ambiguities and Discrepancies

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

- (a) between two Articles of this Agreement, the provisions of specific Articles relevant to the issue under consideration shall prevail over those in other Articles;
- (b) between the written description on the Drawings and the Specifications and Standards, the latter shall prevail;
- (c) between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail;
- (d) between any value written in numerals and that in words, the latter shall prevail.

ARTICLE 2

CONCESSION

2.1 Grant of Concession

Subject to and in accordance with the terms and conditions set forth in this Agreement, NHAI hereby grants and authorises the Concessionaire to investigate, study, design, engineer, procure, finance, construct, operate and maintain the Project/Project Facilities and to exercise and/or enjoy the rights, powers, benefits, privileges, authorisations and entitlements as set forth in this Agreement (“the Concession”).

2.2 Concession Period

The Concession hereby granted is for a period of 17 years 6 months commencing from the Commencement Date and ending with _____ (“the Concession Period”) during which the Concessionaire is authorised to implement the Project and to operate Project Facilities in accordance with the provisions hereof.

Provided that in the event of Termination, the Concession Period shall mean and be limited to the period commencing from the Commencement Date and ending with the Termination Date.

2.3 Acceptance of Concession

In consideration of the Annuity agreed to be paid by NHAI and other good and valuable consideration expressed herein, the Concessionaire hereby accepts the Concession and agrees and undertakes to implement the Project/provide Project Facilities, and to perform/discharge all of its obligations in accordance with the provisions hereof.

ARTICLE 3

PROJECT SITE

3.1 Handover of Project Site

- (a) NHAI shall handover to the Concessionaire physical possession of the Project Site free from Encumbrance together with the necessary rights of way/way leaves for the purpose of implementing the Project in accordance with the Project Site Delivery Schedule.
- (b) Upon the Project Site or any part thereof being handed over pursuant to the preceding sub-article (a), the Concessionaire shall, subject to the provisions of Article 5, have the right to enter upon, occupy and use the Project Site or part thereof delivered to it by NHAI and to make at its costs, charges and expenses such investigation, development and improvements in the Project Site as may be necessary or appropriate to implement the Project and to provide Project Facilities in accordance with the provisions of this Agreement.

3.2 Rights, Title and Use of the Project Site

- (a) The Concessionaire shall have the right to the use of the Project Site in accordance with the provisions of this Agreement and for this purpose it may regulate the entry and use of the same by third parties.
- (b) The Concessionaire shall not part with or create any Encumbrance on the whole or any part of the Project Site save and except as set forth and permitted under this Agreement.
- (c) The Concessionaire shall not without the prior written consent or approval of NHAI use the Project Site for any purpose other than for the purpose of the Project/the Project Facilities and purposes incidental or necessary thereto.
- (d) The Concessionaire shall allow access to and use of the Project Site/ Project Facilities for laying/installing telegraph lines, electric lines or for such other public purposes as NHAI may specify.

Provided that such access or use shall not result in a Material Adverse Effect and that NHAI shall, in the event of any physical damage to the Project Site/Project Facilities on account thereof, ensure that the Project Site/Project Facilities are promptly restored at its cost and expenses.

Provided further, that to the extent such access and use allowed by the Concessionaire affects the performance of any of its obligations hereunder, the Concessionaire shall not be deemed or construed to be in breach of its obligations nor shall it incur/suffer any liability on account thereof.

3.3 Peaceful Possession

NHAI hereby warrants that:

- (a) The Project Site together with the necessary right of way/ way leaves having been acquired through the due process of law belongs to and is vested in NHAI, and that NHAI has full powers to hold, dispose of and deal with the same consistent, inter alia, with the provisions of this Agreement and that the Concessionaire shall, in respect of the Project Site, have no liability regarding any compensation payment on account of land acquisition or rehabilitation/resettlement of any Persons affected thereby.
- (b) The Project Site (i) comprises of existing road and marginal land acquired on either side of the existing alignment and (ii) does not pass through ecologically sensitive areas such as national parks, sanctuaries, tiger reserves or reserve forests and therefore, in terms of EIA Notification No. 21012/26-99-IA-III dated October 15, 1999 issued by the Ministry of Environment and Forests, no environmental clearance from GoI is required to be issued/obtained for the Project. The letter J-21012/22/2000 –IA-III dated 18th July, 2000 issued to NHAI by Ministry of Environment & Forests, Government of India to this effect is included as part of Schedule "F".
- (c) The Concessionaire shall, subject to complying with the terms and conditions of this Agreement, remain in peaceful possession and enjoyment of the Project Site during the Concession Period. In the event the Concessionaire is obstructed by any Person claiming any right, title or interest in or over the Project Site or any part thereof or in the event of any enforcement action including any attachment, distraint, appointment of receiver or liquidator being initiated by any Person claiming to have any interest in/ charge on the Project Site or any part thereof, NHAI shall, if called upon by the Concessionaire, defend such claims and proceedings and also keep the Concessionaire indemnified against any consequential loss or damages which the Concessionaire may suffer, on account of any such right, title, interest or charge.

3.4 Clearances

NHAI has in respect of Project, procured clearances listed in Schedule "F". The Concessionaire shall be responsible and shall be in compliance with the terms and conditions subject to which these clearances have been issued. The Concessionaire shall obtain all Applicable Permits in such sequence as is consistent with the Project Requirements.

ARTICLE 4

INDEPENDENT ENGINEER

4.1 Procedure for Appointment

- (a) NHAI shall within 15 days hereof forward to the Concessionaire a list consisting of the names accompanied by their respective profile in brief of atleast five Persons who are eligible and willing to act as Independent Engineer for the Project.
- (b) Within 15 days of receipt of the panel forwarded by NHAI, the Concessionaire shall submit a panel of three Persons selected out of the panel forwarded by NHAI, together with its consent for appointment by NHAI of one of the Persons named in such panel as the Independent Engineer.
- (c) NHAI shall within 30 days of receipt of the panel forwarded by the Concessionaire, finalise in consultation with the Concessionaire the fees and other terms of appointment of the Independent Engineer, appoint one of the Persons included in the panel as the Independent Engineer and communicate the same to the Concessionaire and the Person so appointed. The scope of work of the Independent Engineer shall include that set out in Schedule 'L'.
- (d) The initial term of the Independent Engineer shall extend upto 6 months after COD, which term may be renewed/extended for a period not exceeding 6 months at a time and 2 years in aggregate.

4.2 Payments to the Independent Engineer

All fees, costs, charges and expenses payable to the Independent Engineer in accordance with the terms of its appointment (collectively "the Remuneration") shall be shared and borne by the Parties equally. The Concessionaire shall within 7 days of receipt of demand from NHAI pay/reimburse to NHAI from time to time its share of the Remuneration.

4.3 Replacement of the Independent Engineer

- (a) The Parties may replace the Independent Engineer for the time being in any of the following circumstances :
 - (i) If NHAI or the Concessionaire has reason to believe that the Independent Engineer has not discharged its duties in a fair, appropriate and diligent manner;
 - (ii) if the Parties decide not to renew the term of the Independent Engineer;

- (iii) if, in accordance with the terms of its appointment the Independent Engineer resigns or notifies its intention not to continue as the Independent Engineer;
 - (iv) any other circumstance which in the opinion of the Parties warrants replacement of the Independent Engineer.
- (b) Subject to the attendant circumstances and unless the Parties otherwise agree, the procedure laid down in Article 4.1 shall as far as possible be adhered to for replacement of the Independent Engineer, and the replacement shall be so effected as to maintain continuity in the supervision and monitoring of the Project Requirements.
- (c) The Independent Engineer appointed pursuant to the Article 4.3 shall be for an initial term not exceeding 2 years which term may be extended/renewed for a further period of not exceeding six months at a time and 2 years in aggregate.

4.4 Eligibility for Re-appointment

No person shall be eligible to be re-appointed as the Independent Engineer unless a period of not less than two years has lapsed since the expiry of his previous tenure as the Independent Engineer.

ARTICLE 5

CONCESSIONAIRE'S OBLIGATIONS

In addition to and not in derogation or substitution of any of its other obligations under this Agreement, the Concessionaire shall have the following obligations:

5.1 Performance Security

- (a) The Concessionaire shall, for due and punctual performance of its obligations during the Implementation Period deliver to NHAI, simultaneously with the execution of this Agreement, a bank guarantee from a scheduled bank acceptable to NHAI, in the form as set forth in Schedule 'M', (the "Performance Security") for a sum of Rs. 60,000,000/- (Rupees Sixty Million Only).
- (b) The Performance Security shall be valid upto⁴ _____.

Provided that If the Agreement is terminated due to any event other than a Concessionaire Event of Default, the Performance Security if subsisting as of the Termination Date shall, subject to NHAI's right to receive amounts, if any,

⁴ 9 months after the Scheduled Project Completion Date.

due from the Concessionaire under this Agreement, be duly discharged and released to the Concessionaire.

5.2 Financing Arrangement

- (a) The Concessionaire shall at its cost, expenses and risk make such financing arrangement as would be necessary to finance the cost of the Project and to meet Project Requirements and other obligations under this Agreement, in a timely manner.
- (b) The Concessionaire shall achieve Financial Close on or before the Commencement Date and within 15 days thereof submit to NHAI one set each of the Equity Documents and the Financing Documents.

5.3 Drawings

(a) Preparation of Drawings

- (i) The Concessionaire may, subject to the Design Requirements, adopt with or without modifications the Drawings made available by NHAI or adopt its own Drawings. Provided that, the Concessionaire shall in any event be solely responsible for the adequacy of the Drawings.
- (ii) If the Concessionaire proposes any modifications to the Drawings made available by NHAI or submits alternate Drawings or Drawings in respect of any item for which no Drawings are made available by NHAI, the same shall be subject to review by the Independent Engineer as provided in the succeeding sub article (b).

(b) Review of Drawings

- (i) The Concessionaire shall promptly and in such sequence as is consistent with the Construction Requirements, submit a copy each of the Drawings to the Independent Engineer and NHAI.
- (ii) By forwarding the Drawings to the Independent Engineer and NHAI pursuant to the preceding clause (i), the Concessionaire shall be deemed to have represented that it has verified and determined that the Drawings forwarded are in conformity with the Design Requirements.
- (iii) Within 15 days of receipt of the Drawings, Independent Engineer shall review the same taking into account, inter alia, comments of NHAI, if any, thereon, and convey its comments/observations to the Concessionaire on the conformity of Drawings with Design Requirements. If the comments/observations of the Independent Engineer indicate that the Drawings are not in conformity with the Design Requirements, such Drawings shall be revised by the Concessionaire to the extent necessary and resubmitted to Independent Engineer for further review. The Independent Engineer shall give its observations and comments, if any, within 15 (fifteen) days of receipt of such revised Drawings, which shall be taken into account by the Concessionaire while finalising the Drawings.

- (iv) If, within the period stipulated in the preceding clause (iii), the Independent Engineer does not respond to the Drawings submitted to it by the Concessionaire the Concessionaire shall be entitled to proceed with the Project on the basis of such Drawings submitted by it to the Independent Engineer.
- (v) Notwithstanding any review or failure to review by or the comments/observations of the Independent Engineer or NHAI, the Concessionaire shall be solely responsible for the adequacy of the Drawings and their conformity with the Design Requirements, and shall not be relieved or absolved in any manner whatsoever of any of its obligations hereunder.
- (vi) The Concessionaire shall be responsible for delays in meeting the Design Requirements caused by reason of any Drawings not being in conformity with the Design Requirements, and shall not be entitled to seek any relief in that regard from NHAI.
- (vii) The Concessionaire shall in consultation with the Independent Engineer finalise an implementation schedule for the Project in accordance with the Construction Requirements.
- (viii) Within 90 (ninety) days of COD, the Concessionaire shall furnish to NHAI three copies of "as built" Drawings duly verified by the Independent Engineer, including without limitation an "as built" survey illustrating the layout of the Project and setback lines, if any, of the buildings and structures forming part of Project Facilities reflecting the Project as actually designed, engineered and constructed.

5.4 Project Implementation

(a) Construction Works

- (i) The Concessionaire is required to commence Construction Works only on or after the Commencement Date or the Financial Close whichever is later.
- (ii) Nothing contained in the preceding clause (i) shall be deemed to preclude the Concessionaire from commencing Construction Works prior to the Commencement Date, provided the Concessionaire shall do so entirely at its own cost and risk, and shall not be entitled to seek any compensation therefor or in respect thereof in the event the Agreement is terminated prior to Financial Close for reasons whatsoever. Provided that unless otherwise permitted by NHAI, no Construction Works shall begin until the Independent Engineer is in place and has assumed charge. The Concessionaire shall immediately upon commencement of Construction Works notify NHAI of the same.

- (iii) The Concessionaire shall adhere to the Construction Requirements and achieve COD on or before the Scheduled Project Completion Date.
- (iv) The Concessionaire may undertake Construction Works by itself or through a Contractor possessing requisite technical, financial and managerial expertise/capability; but in either case, the Concessionaire shall remain solely responsible to meet the Construction Requirements.
- (v) The Concessionaire shall, before commencement of Construction Works;
 - a) have requisite organisation and designate and appoint suitable officers/ representatives as it may deem appropriate to supervise the Project, to deal with the Independent Engineer/NHA and to be responsible for all necessary exchange of information required pursuant to this Agreement;
 - b) construct, provide and maintain a reasonably furnished site office accommodation for the Independent Engineer, at the Project Site.
- (vi) For the purposes of determining that Construction Works are being undertaken in accordance with the Project Requirements, the Concessionaire shall with due diligence carry out all necessary and periodical Tests in accordance with the instructions and under the supervision of the Independent Engineer and the Construction Requirements. The Concessionaire shall maintain proper record of such Tests and the remedial measures taken to cure the defects or deficiencies, if any, indicated by the Test results.
- (vii) All Tests shall be conducted in accordance with Construction Requirements. If the Tests are successful and all parts of Project Facilities can be safely and reliably opened for commercial operation, the Independent Engineer shall issue Completion Certificate.

Provided, notwithstanding that certain works or things forming part of Construction Works are not complete, if following Tests the Independent Engineer determines that the Project Facilities can be safely and reliably opened for operations, the Independent Engineer may issue Provisional Certificate to the Concessionaire. The Provisional Certificate shall have appended thereto a list of outstanding items signed jointly by the Independent Engineer and the Concessionaire ("Punch List"). All Punch List items shall be completed by the Concessionaire within such time as may be determined by the Independent Engineer, not exceeding 90 (ninety) days of the date of issue of the Provisional Certificate. Upon satisfactory completion of all Punch List items, the Independent

Engineer, shall promptly and in any case within 15 days thereof, issue Completion Certificate.

- (viii) If the Concessionaire fails to complete the Punch List items within the said period of 90 days, NHAI may, without prejudice to any other rights or remedy available to it under this Agreement, have such items completed at the risk and costs of the Concessionaire. The cost incurred by NHAI in completing the Punch List items, as certified by the Independent Engineer, shall be reimbursed by the Concessionaire to NHAI within 7 days from the date of receipt of a claim in respect thereof from NHAI. Thereupon, the Independent Engineer may issue Completion Certificate.
- (ix) The Independent Engineer, may, by written notice, require the Concessionaire to suspend forthwith the whole or any part of the Construction Works if in its reasonable opinion the same is being carried on in a manner that is not in conformity with the Construction Requirements.
- (x) The Project shall be deemed to be complete and open to traffic only when the Provisional Certificate or the Completion Certificate is issued by the Independent Engineer in accordance with the provisions hereof.
- (xi) In case COD is different from the Scheduled Project Completion Date, the provisions of Article 8.3 shall apply.

Provided if COD is delayed beyond 120 days of the Scheduled Project Completion Date, NHAI shall, subject to the provisions of Article 5.9, be entitled to terminate this Agreement and to appropriate the Performance Security.

5.5 Operation and Maintenance

(a) Operation and Maintenance Requirements

The Concessionaire shall operate and maintain the Project/Project Facilities in accordance with the O&M Requirements, by itself, or through a Contractor possessing the requisite technical, financial and managerial expertise/capability, but in either case, the Concessionaire shall remain solely responsible to meet the O&M Requirements.

(b) Failure to meet O & M Requirements

In the event the Concessionaire has failed to operate and maintain the Project Facilities in accordance with the O&M Requirements, and such failure has not been remedied despite a notice to that effect issued by the Independent Engineer or NHAI (Notice to Remedy), NHAI may, without prejudice to any of its other rights/remedies under this Agreement, be entitled to cause the repair and maintenance of the Project Facilities at the risk and cost of the Concessionaire. The Concessionaire shall reimburse

all costs incurred by NHAI on account of such repair and maintenance within 7 days of receipt of NHAI's claim therefor.

(c) Material Breach of O&M Requirements

The Concessionaire shall be deemed to be in material breach of O&M Requirements if the Independent Engineer acting reasonably and in accordance with the provisions of this Agreement, has determined that due to breach of its obligations by the Concessionaire :

- (i) there has been failure/undue delay in carrying out scheduled/planned maintenance or the scheduled/planned maintenance has not been carried out in accordance with the O&M Requirements;
- (ii) the riding quality of the Carriageway or any part thereof has deteriorated to a level which is below the acceptance level prescribed by the O&M Requirements;
- (iii) there has been a serious or persistent let up in adhering to safety requirements and standards and thereby the Project Highway or any part thereof is not safe for operations;
- (iv) Non-Availability (as hereinafter defined in Article 8.4) during any Annuity Payment Period has exceeded 1000 lane kilometer hours;
- (v) there has been persistent breach of O&M Requirements.

For avoidance of doubt, persistent breach shall mean :

- (a) any breach of O&M Requirements by the Concessionaire which has not been remedied by the Concessionaire despite a Notice to Remedy in respect thereof issued by the Independent Engineer/NHAI;
- (b) recurrence of a breach by the Concessionaire, during the pendency of Notice to Remedy by the Independent Engineer/NHAI requiring the Concessionaire to remedy a breach and
- (c) repeated occurrence of a breach notwithstanding that earlier breaches have been remedied pursuant to Notice to Remedy or otherwise.

(d) NHAI'S Rights

Upon occurrence of a material breach of O&M Requirements, NHAI shall, without prejudice to and notwithstanding any other consequences provided therefor under this Agreement, be entitled to terminate this Agreement.

5.6 Insurance

(a) Implementation period

The Concessionaire shall at its cost and expense, purchase and maintain by due re-instatement or otherwise, during the Implementation Period such insurance as are necessary including but not limited to the following:

- (i) builders' all risk insurance;
- (ii) comprehensive third party liability insurance including injury or death to personnel / representatives of Persons who may enter the Project Site;
- (iii) workmen's compensation insurance;
- (iv) any other insurance that may be necessary to protect the Concessionaire, its employees and its assets against loss, damage, destruction, business interruption or loss of profit including insurance against all Force Majeure Events that are insurable.

(b) Operations Period

The Concessionaire shall at its cost and expense, purchase and maintain by re-instatement or otherwise, during the Operations Period insurance against:

- (i) loss, damage or destruction of the Project Facilities, at replacement value,
- (ii) the Concessionaire's general liability arising out of the Concession,
- (iii) liability to third parties;
- (iv) any other insurance that may be necessary to protect the Concessionaire, its employees and its assets against loss, damage, destruction, business interruption or loss of profit including insurance against all Force Majeure Events that are insurable.

(c) Evidence of Insurance

The Concessionaire shall, from time to time, provide to NHAI copies of all insurance policies (or appropriate endorsements, certifications or other satisfactory evidence of insurance) obtained by the Concessionaire in accordance with this Agreement.

(d) Validity of Insurance

The Concessionaire shall from time to time promptly pay insurance premium, keep the insurance policies in force and valid throughout the Concession Period and furnish copies thereof to NHAI. Each insurance policy shall provide that the same shall not be cancelled or terminated unless 10 Days' clear notice of cancellation is provided to NHAI in writing. If at any time the Concessionaire fails to obtain or maintain in full force and

effect any and all of the insurance required under this Agreement, NHA I may at its option obtain and maintain such insurance and all sums incurred by the NHA I therefore shall be reimbursed by the Concessionaire to NHA I within 7 days from the receipt of claim in respect thereof made by NHA I

(e) Application of Insurance Proceeds

Subject to the provisions of the Financing Documents and unless otherwise provided herein, the proceeds of all insurance policies received shall be promptly applied by the Concessionaire towards repair, renovation, restoration or re-instatement of the Project Facilities or any part thereof which may have been damaged or destroyed. The Concessionaire may designate the Lenders as the loss payees under the insurance policies or assign the insurance policies in their favour as security for the financial assistance provided by them to the Project. The Concessionaire shall carry out such repair, renovation, restoration or re-instatement to the extent possible in such manner that the Project Facilities after such repair, renovation, restoration or re-instatement be as far as possible in the same condition as it were prior to such damage or destruction, normal wear and tear excepted.

(f) Un-insurable Risks

If during the Concession Period, any risk which has been previously insured becomes un-insurable due to the fact that the insurers have ceased to insure such a risk and therefore insurance cannot be maintained/re-instated in respect of such risk, the Concessionaire shall not be deemed to be in breach of its obligations regarding insurance under this Agreement.

5.7 Shareholding

The Concessionaire shall ensure that;

- (a) the Promoters/Consortium holds not less than 51% of its paid up equity capital until 3 years after COD and not less than 26% of its paid up equity capital during the balance Operations Period.
- (b) M/s _____ [“Lead Member”] holds at any time not less than 50% of the Consortium’s holding in the paid up equity capital of the Concessionaire.

OR⁵

- (c) M/s _____ [“Lead Technical Member”] and M/s _____ [“Lead Financial Member”] holds at any time not less than 25% each, of the Consortium’s holding in the paid up equity capital of the Concessionaire.

5.8 General Obligations

The Concessionaire shall at its own cost and expense:

⁵ This provision will be firmed up once the preferred bidder is known.

- (a) investigate, study, design, construct, operate and maintain the Project/Project Facilities in accordance with the Project Requirements;
- (b) obtain all Applicable Permits in conformity with the Applicable Laws and be in compliance thereof at all times during the Concession Period;
- (c) procure and maintain in full force and effect, as necessary, appropriate proprietary rights, licenses, agreements and permissions for materials, methods, processes and systems used in or incorporated into the Project;
- (d) ensure and procure that each Project Agreement contains provisions that would entitle NHAI or a nominee of NHAI to step into the same at NHAI's discretion, in place and substitution of the Concessionaire, pursuant to the provisions of this Agreement or the Substitution Agreement;
- (e) provide all necessary assistance to the Independent Engineer as it may reasonably require for the performance of its duties and services;
- (f) appoint, supervise, monitor and control as necessary, the activities of Contractors under the respective Project Agreements;
- (g) make efforts to maintain harmony and good industrial relations among the personnel employed in connection with the performance of its obligations under this Agreement;
- (h) make its own arrangements for construction materials and observe and fulfil the environmental and other requirements under the Applicable Laws and Applicable Permits;
- (i) be responsible for quality, soundness, durability, safety and the overall Project Requirements notwithstanding the appointment by it of Contractor(s) to implement and/or operate and maintain the Project/Project Facilities;
- (j) ensure that the Project Site remains free from all encroachments and take all steps necessary to remove encroachments, if any;
- (k) make payments to the Police Department or any Government Agency, if required, for provision of such services as are not provided in the normal course or are available only on payment;
- (l) afford access to the Project Site to the authorised representatives of NHAI the Independent Engineer and any Government Agency having jurisdiction over the Project, including those concerned with safety, security or environmental protection to inspect the Project and to investigate any matter within their authority and upon reasonable notice, the Concessionaire shall provide to such persons assistance reasonably required to carry out their respective duties and functions.
- (m) obtain at its costs and charges special or temporary right of access, occupation or user of any property that may be required by it in connection

with implementation of the Project. The Concessionaire shall also obtain at its cost such facilities as may be required by it for the purposes of the Project and the performance of its obligations under this Agreement.

5.9 No Breach of Obligations

The Concessionaire shall not be considered to be in breach of its obligations under this Agreement nor shall it incur or suffer any liability if and to the extent performance of any of its obligations under this Agreement is affected by or on account of any of the following:

- (a) Force Majeure Event, subject to Article 12.5(b)
- (b) NHAH Event of Default,
- (c) Compliance with the instructions of the Independent Engineer/NHAH or the directions of any Government Agency other than instructions issued as a consequence of a breach by the Concessionaire of any of its obligations hereunder;
- (d) Emergency Decommissioning of the Project Facilities or part thereof in accordance with O&M Requirements;
- (e) Closure of the Project Facilities or part thereof with the approval of the Independent Engineer / NHAH;
- (f) Concessionaire's inability to remove any accident debris due to non-completion of any police / insurance related inquiry/survey despite prompt steps having been taken by the Concessionaire in that regard.

ARTICLE 6

NHAH'S OBLIGATIONS

In addition to and not in derogation or substitution of any of its other obligations under this Agreement, NHAH shall have the following obligations :

6.1 Specific obligations

NHAH shall :

- (a) execute and procure execution of the State Support Agreement within 90 days of this Agreement;
- (b) subscribe to the Substitution Agreement within 30 days of the intimation regarding Financial Close given by the Concessionaire;
- (c) grant in a timely manner all such approvals, permissions and authorisations which the Concessionaire may require or is obliged to seek from NHAH in

connection with implementation of the Project and the performance of its obligations, under this Agreement;

6.2 General obligations

NHAI shall :

- (a) grant or where appropriate provide necessary assistance to the Concessionaire in securing Applicable Permits;
- (b) ensure peaceful use of the Project Site by the Concessionaire under and in accordance with the provisions of this Agreement without any let or hindrance from NHAI or any Governmental Agency or persons claiming through or under it/them;
- (c) 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 facilities/utilities;
- (d) assist the Concessionaire in obtaining and for exercising necessary authority to regulate traffic on the Project Site/Project Facilities subject to and in accordance with the Applicable Laws;
- (e) assist the Concessionaire in obtaining police assistance against payment of prescribed costs and charges, if any, for traffic regulation, patrolling and provision of security on the Project Site/Project Facilities and implementing this Agreement in accordance with the provisions hereof;
- (f) observe and comply with all its obligations set forth in this Agreement.

ARTICLE 7

CHANGE OF SCOPE

7.1 Change of Scope

NHAI may, notwithstanding anything to the contrary contained in this Agreement, require a change in the scope of the Project ("Change of Scope"), provided that such change does not involve additional capital expenditure exceeding Rs. 175 million. The Change of Scope may be required by NHAI by an order (the "Change of Scope Order") issued in accordance with the procedure set forth in Article 7.2.

7.2 Procedure for Change of Scope

- (a) NHAI may, at any time during the Implementation Period but at least 90 days prior to the Scheduled Project Completion Date, require Change of

Scope by a written notice (the "Change of Scope Notice") to the Concessionaire, through the Independent Engineer.

- (b) The Concessionaire shall, within 15 days of receipt of Change of Scope Notice, provide to the Independent Engineer such information as is necessary and reasonable together with preliminary documentation and details including calculations where necessary, in support of the following:
 - (i) the impact which the Change of Scope is likely to have on the Construction Requirements and/or the O&M Requirements.
 - (ii) the budgeted estimate of the Additional Cost to be incurred by the Concessionaire for implementing the Change of Scope,
 - (iii) the estimated additional time (number of days) that the Concessionaire would require to achieve COD consequent to Change of Scope.
- (c) The Independent Engineer shall after reviewing the information, documentation and the budgeted estimate of the Additional Cost submitted to it pursuant to preceding sub-article (b), settle the rates, approve the quantities/ design and forward the budgeted estimate of the Additional Cost as duly certified by it in consultation with the Concessionaire, to NHAI. NHAI may, within a period of 15 (fifteen) days from the date of receipt of such statement, issue the Change of Scope Order. The final Additional Cost shall be computed by taking into account the actual work executed as measured and certified by the Independent Engineer at the rates settled.
- (d) If for any reason NHAI chooses not to issue the Change of Scope Order, it shall reimburse to the Concessionaire the cost/expenses certified by the Independent Engineer as having been incurred by the Concessionaire in preparing and submitting the drawings, documents, estimates and other information in compliance with the Change of Scope Notice.
- (e) Simultaneously with the issue of the Change of Scope Order, NHAI shall notify the Concessionaire the mode of reimbursement of the Additional Cost which shall be one of the following modes:
 - (i) by lump-sum reimbursement to the Concessionaire of the Additional Cost;
 - (ii) reimbursement of Additional Cost to the Concessionaire, in not exceeding four equal half yearly instalments, subject to payment of interest at SBI PLR +2% on the amount the payment of which is deferred.

Provided that if the Change of Scope leads to increase in cost of meeting O&M Requirements only, such cost incurred during an Annuity Payment Period shall be reimbursed by NHAI to the Concessionaire on the Annuity Payment Date in respect of that Annuity Payment Period.

- (f) The Change of Scope Order shall be effective from the date the mode of reimbursement is notified to the Concessionaire in terms of the preceding clause (e).
- (g) NHAI shall, within 30 days from the date of receipt of a Certificate from the Independent Engineer certifying that the Concessionaire has completed the works in accordance with the Change of Scope Order, reimburse to the Concessionaire the Additional Cost by (i) lumpsum payment of the amount equal to the Additional Cost or (ii) advising the Concessionaire the number of instalments in which NHAI proposes to reimburse the Additional Cost and paying the first of such instalments.

ARTICLE 8

ANNUITY

8.1 Annuity

Subject to the provisions of this Agreement and in consideration of the Concessionaire accepting the Concession and undertaking to perform and discharge its obligations in accordance with the terms, conditions and covenants set forth in this Agreement, NHAI agrees and undertakes to pay to the Concessionaire, on each Annuity Payment Date, the sum of Rs. _____ (the Annuity).

8.2 Payment of Annuity

Subject to the provisions of Article 8 and any other applicable provisions of this Agreement, NHAI shall make Payment of Annuity to the Concessionaire on each Annuity Payment Date.

8.3 Bonus/Reduction in Annuity

- (a) The Concessionaire shall either receive bonus for early completion of the Project (the Bonus) or incur reduction in the Annuity for delayed completion of the Project (the Reduction) as the case may be.
- (b) For the purpose of this Article 8.3, each Annuity Payment Period shall be deemed to be a period of 180 calendar days.
- (c) The Bonus or Reduction as the case may be shall be computed as under:

- (i) If COD is achieved prior to first Annuity Payment Date:

$$B \text{ or } R = [(SPCD-COD) + X] * A / 180$$

- (ii) If COD is achieved between two Annuity Payment Dates:

$$B \text{ or } R = [(PAPD-COD) + X] * A / 180$$

Where,

A = Annuity,

B = Bonus,

PAPD = Previous Annuity Payment Date.

R = Reduction

SPCD = Scheduled Project Completion Date,

X = As determined by the Independent Engineer, the aggregate number of days of delay caused by;

- (i) delay in delivery of the Project Site or any part thereof by NHAI,
- (ii) suspension of Construction Works or part thereof by NHAI or the Independent Engineer, for reasons not attributable to the Concessionaire,
- (iii) Change of Scope Order pursuant to Article 7,
- (iv) stoppage of the Construction Works or part thereof on account of the Concessionaire allowing access and use of Project Site for public purposes pursuant to Article 3.2(d),
- (v) Force Majeure Event which is a Political Event ,
- (vi) Force Majeure Event which is the Other Event. Provided however, only one half of the number of days of delay caused shall qualify as the number of days of delay, and
- (vii) NHAI Event of Default.

(d) If the resultant figure arrived at pursuant to computation made in accordance with the preceding sub-article is positive, the same shall be the amount of Bonus payable to the Concessionaire and if negative, the same shall be the amount of Reduction.

(e) The Bonus shall be paid or Reduction shall be effected on the first Annuity Payment Date occurring after COD.

(f) Notwithstanding anything inconsistent contained anywhere in this Agreement, NHAI's obligation to pay Annuity shall arise subject to and only upon occurrence of COD.

8.4 Assured Availability

- (a) If due to Concessionaire's failure to perform/discharge its obligations under this Agreement, the actual availability of the Carriageway during any Annuity Payment Period was less than the Assured Availability, the Concessionaire's right to receive Annuity shall proportionately abate. The difference between the Assured Availability and the actual availability of the Carriageway is hereafter referred to as Non Availability.

Provided that :

- (i) to the extent that the Non Availability is due to Political Events and /or events set out in 5.9 (b) to (f), the same shall not constitute Non Availability, and
 - (ii) to the extent that the Non Availability is due to Other Events, one half thereof shall only constitute Non Availability.
- (b) Subject to the proviso to preceding sub-article(a), the Carriageway or part thereof shall be deemed to be unavailable if;
- (i) the same is closed for traffic otherwise than in accordance with the O & M Requirements,
 - (ii) irrespective of whether the same is closed for traffic or not, if the Independent Engineer has determined that,
 - (a) the riding quality thereof has deteriorated to a level which is below the acceptable level prescribed by the O & M Requirements; and
 - (b) the same is not, in the opinion of the Independent Engineer, safe for operations.
- (c) The Non-Availability shall be measured in terms of the sum total of lane kilometer hours for which the Carriageway or part thereof as the case may be was unavailable.
- (d) The length of a lane that was unavailable for the use of the traffic, shall be the actual length of the affected stretch of that lane as determined by the Independent Engineer plus 1 km (500mtrs on either side of the affected stretch).
- (e) If in respect of any Annuity Payment Period, the Independent Engineer has reported Non Availability or Non-Availability has otherwise been established, the Annuity payable for the immediately succeeding Annuity Payment Period shall be adjusted for such Non Availability (the Adjusted Annuity) as under and paid.

$$\text{Adjusted Annuity} = (AA - N) * A/AA$$

Where,

AA = Assured Availability

A = Annuity

$N = \sum_{i=1}^n Li \times hi$

Where,

N = Non Availability during the previous
Annuity Payment Period (in lane
kilometer hours)

n = total number of days of non-availability

Li = length of non-available portion of the lane on each day (in
kms)

and

hi = number of hours of non availability, on each day.

Provided that if $Li \times hi$ is less than four lane kilometer
hour in a given day, the same shall be ignored.

Provided that if the Non Availability relates to the last of the Annuity
Payment Periods, the Annuity payable for that Annuity Payment Period
shall be adjusted as above and paid. In such an event, the Annuity may be
paid on or before the 15th day after the relevant Annuity Payment Date.

- (f) Adjustment of Annuity on account of Non Availability in accordance with
this Article 8.4 shall be without prejudice to any other right/remedy available
to NHAI on account of breach of its obligations by the Concessionaire and
that NHAI shall be entitled to treat frequent occurrences of Non-Availability
or continued Non-Availability (beyond a reasonable time having regard to
Good Industry Practice) as persistent breach of O&M Requirements within
the meaning of Article 5.5 (c) (v).

8.5 Payment Mechanism

(a) Submission of Invoice

The Concessionaire shall at least one month prior to the relevant Annuity
Payment Date submit to the Independent Engineer, its invoice (addressed
to NHAI) for payment of Annuity duly adjusted for Non-availability, if any, in
accordance with the preceding Article 8.4. The Independent Engineer shall

after verification and certification of the amount claimed in the invoice forward the invoice to NHAI with necessary recommendation for payment thereof so as to reach NHAI atleast one week prior to the relevant Annuity Payment Date.

(b) Payment of Annuity

Upon receipt of the invoice together with recommendation for payment forwarded by the Independent Engineer, NHAI shall take all necessary steps and ensure payment of Annuity on the relevant Annuity Payment Date. The mode of payment of Annuity shall be as provided in Article 14.

For avoidance of doubt, the Parties agree that notwithstanding any dispute which either of them may have as to the amount of invoice/Annuity certified and recommended for payment by the Independent Engineer; the Annuity payable on the relevant Annuity Payment Date shall be that certified by the Independent Engineer. Provided such payment shall be without prejudice to a final adjustment according to the terms on which such dispute is resolved whether amicably or through arbitration in accordance with the provisions of Article 17.

ARTICLE 9

LEVY AND COLLECTION OF FEE

9.1 Concessionaire's obligations

- (a) The Concessionaire shall not levy, demand or collect from or in respect of any vehicle or Person, for the use of Project Facilities, any sum whatsoever in the nature of a toll or fee.
- (b) The Concessionaire shall not permit or allow any advertisement/hoarding or other commercial activity and shall not be entitled to charge, collect or receive any sums on account of any such activity. For avoidance of doubt, the Concessionaire agrees that unless otherwise provided in this Agreement, the Project revenue shall consist of the Annuity only.

9.2 NHAI's Rights

(a) Levy and Collection of Fee

- (i) Notwithstanding anything inconsistent contained in this Agreement, NHAI shall have the authority to levy toll or fee on the vehicles using the Project Facilities (the Fee) and to demand, collect, retain and appropriate the Fee in accordance with the Applicable Laws.
- (ii) NHAI may at its sole discretion levy, demand, collect, retain and appropriate the Fee either by itself or authorise any Person by contract or otherwise to levy, demand, collect, retain and appropriate the same (the

“Authorised Person”) as NHA I may deem fit in its sole discretion and in accordance with the Applicable Laws.

Provided NHA I or the Authorised Person as the case may be shall, at its own cost be responsible to construct, erect, instal, operate and maintain plazas (including the plazas envisaged at the designated places in the Project Site) as may be necessary for levy and collection of Fee.

- (iii) Any arrangement or contract made or entered into by NHA I for levy and collection of Fee shall be independent of this Agreement and that no such arrangement or contract shall have the effect of adding to or enlarging in any way the obligations or the scope thereof or the liability of the Concessionaire under this Agreement and that the Concessionaire’s obligations and liabilities shall be and limited to, those contained in this Agreement only.
- (iv) NHA I / the Authorised Person shall have access to and use of the Project Site for all purposes necessary or incidental to levy and collection of the Fee.

Provided, that to the extent such access and use allowed by the Concessionaire affects the performance of any of its obligations hereunder, the Concessionaire shall not be deemed or construed to be in breach of its obligations nor shall it incur/suffer any liability on account thereof.

Provided further, that NHA I shall, in the event of any physical damage to the Project Facilities on account of such access or use, ensure that such damage is promptly repaired and the Project Facilities are restored at its cost and expenses.

(b) Advertisement/Hoarding etc.

NHA I shall have the right to permit/allow any advertisement /hoarding or other commercial activity in the Project Site provided no such activity shall in anyway affect the safe and smooth flow of traffic or cause any physical damage to the Project Site/Project Facilities which NHA I has not undertaken to restore entirely at its cost.

ARTICLE 10

CAPACITY AUGMENTATION

10.1 Capacity Augmentation of the Project

- (a) NHA I may, at any time after COD but following a detailed traffic study conducted by it, decide to augment/increase the capacity of the Project (Capacity Augmentation) with a view to provide the desired level of service to the users of the Project Facilities.

- (b) Subject to the Provisions of Article 10.2, NHAI may invite bids from eligible Persons for Capacity Augmentation. The Concessionaire shall have the option to submit its bid for Capacity Augmentation in response to such invitation

10.2 Bid Requirements

- (a) The bid document for Capacity Augmentation shall specify;
 - (i) the Termination Payment to be made to the Concessionaire in case the Concessionaire chooses not to submit its bid or fails or declines to match the preferred bid as mentioned in sub-article(b) below,
 - (ii) the sum to be paid by the Concessionaire to the preferred bidder towards bidding cost in case the Concessionaire chooses to match the preferred bid.
- (b) In case the Concessionaire, after participating in the bidding process, fails to give the lowest bid, the Concessionaire shall be given the first right of refusal to match the preferred bid. If the Concessionaire matches the preferred bid and accordingly NHAI accepts its bid, the Concessionaire shall pay to NHAI the bidding cost to be reimbursed to the preferred bidder.
- (c) In case the Concessionaire (i) chooses not to submit its bid for Capacity Augmentation or (ii) is not the preferred bidder, and also fails or declines to match the preferred bid, NHAI shall be entitled to accept the preferred bid and terminate this Agreement upon payment to the Concessionaire of the Termination Payment.
- (d) The Termination Payment referred to in the preceding sub articles (a) and (c) above shall be the amount equivalent to the Discounted Value of Future Net Cashflows.

ARTICLE 11

CHANGE IN LAW

11.1 Change in Law

Change in Law means the occurrence or coming into force of any of the following, after the Proposal Due Date:

- (a) the enactment of any new Indian law;
- (b) the repeal, modification or re-enactment of any existing Indian law;
- (c) a change in the interpretation or application of any Indian law by a court of record ;
- (d) any change in the rates of any of the Taxes.

Provided that Change in Law shall not include;

- (i) coming into effect, after the Proposal Due Date, of any provision of a statute which is already in place as of the Proposal Due Date or
- (ii) any new law or any change in the existing law under the active consideration of or in the contemplation of any government as of the Proposal Due Date, which is a matter of public knowledge.

11.2 Relief to Concessionaire

Subject to the Concessionaire taking necessary measures to mitigate the impact or the likely impact of Change in Law on the Project, if as a direct consequence of a Change in Law, the Concessionaire is obliged to incur Additional Cost in any Accounting Year, such Additional Cost shall (without duplication) be allocated and shared between the Concessionaire and NHAI as under :

Increase in Capital Expenditure (Rs. In Million)	NHAI's Share
From Rs 0 to 60 Million	0%
Above Rs. 60 Million	100% of the capital expenditure in excess of Rs. 60 Million.
Increase in Costs /Taxes (Rs. In Million)	NHAI's Share
From Rs 0 to 10 Million	0%
Above Rs. 10 Million	100% of the amount in excess of Rs. 10 Million.

11.3 Obligations of the Concessionaire

- (a) Upon occurrence of a Change in Law, the Concessionaire may, if it is entitled to claim relief under the provisions of Article 11.3, notify NHAI and the Independent Engineer, of the following:
 - (i) the nature and the impact of Change in Law on the Project;
 - (ii) in sufficient detail, the estimate of the Additional Cost likely to be incurred by the Concessionaire on account of the Change in Law;
 - (iii) the measures, which the Concessionaire has taken or proposes to take to mitigate the impact of Change in Law, including in particular, minimising the Additional Cost;
 - (iv) the relief sought by the Concessionaire.
- (b) Upon receipt of the notice of Change in Law issued by the Concessionaire pursuant to the preceding sub-article(a), NHAI and the Concessionaire shall alongwith the Independent Engineer hold discussions and take all such steps as may be necessary including determination/certification by the Independent Engineer and where necessary by the Independent Auditor of

the Additional Cost and to determine the quantum of the Additional Cost to be borne and paid by NHAI.

- (c) NHAI shall, within 30 days from the date of determination of quantum of Additional Cost, provide relief to the Concessionaire in either of the following ways:
- i) by lump-sum reimbursement of the Additional Cost to the Concessionaire;
 - ii) reimbursement of the Additional Cost to the Concessionaire, in not exceeding four half yearly instalments, subject to payment of interest at SBI PLR +2% on the amount the payment of which is deferred.

ARTICLE 12

FORCE MAJEURE

12.1 Force Majeure Events

As used in this Agreement, Force Majeure Event means any of the Non-Political Events, the Political Events or the Other Events set out in Articles 12.2, 12.3 and 12.4 respectively including the impact/consequence thereof which :

- (a) is beyond the control of the Party claiming to be affected thereby (the "Affected Party"),
- (b) prevents the Affected Party from performing or discharging its obligations under this Agreement and
- (c) the Affected Party has been unable to overcome or prevent despite exercise of due care and diligence.

12.2 Non-Political Events

Any of the following events which prevents the Affected Party from performing any of its obligations for a continuous period of not less than 7 days from the date of its occurrence, shall constitute a Non-Political Event :

- (a) earthquake, flood, inundation, landslide;
- (b) storm, tempest, hurricane, cyclone, lightning, thunder or other extreme atmospheric disturbances;
- (c) fire caused by reasons not attributable to the Concessionaire or the Contractor or any of the employees or agents of the Concessionaire or the Contractor;
- (d) acts of terrorism;

- (e) strikes, boycotts, labour disruptions or any other industrial disturbances not arising on account of the acts or omissions of the Concessionaire or the Contractor;
- (f) any failure or delay of a Contractor caused by any of the aforementioned Non-Political Events, for which no offsetting compensation is payable to the Concessionaire by or on behalf of the Contractor.

12.3 Political Events

Any of the following events shall constitute Political Event:

- (a) Change in Law for which no relief is provided under the provisions of Article 11, resulting in Material Adverse Effect.
- (b) action of a Government Agency having Material Adverse Effect including but not limited to (i) acts of expropriation, compulsory acquisition or takeover by any Government Agency of the Project/Project Facilities or any part thereof or of the Concessionaire's or the Contractor's rights under any of the Project Agreements, (ii) any judgement or order of a court of competent jurisdiction or statutory authority in India made against the Concessionaire or the Contractor in any proceedings which is non-collusive and duly prosecuted by the Concessionaire and (iii) any unlawful, unauthorised or without jurisdiction refusal to issue or to renew or the revocation of any Applicable Permits, in each case, for reasons other than Concessionaire's or the Contractor's breach or failure in complying with the Project Requirements, Applicable Laws, Applicable Permits, any judgement or order of a Governmental Agency or of any contract by which the Concessionaire or the Contractor as the case may be is bound.
- (c) early determination of this Agreement by NHAI for reasons of national emergency, national security or the public interest.
- (d) any failure or delay of a Contractor caused by any of the aforementioned Political Events, for which no offsetting compensation is payable to the Concessionaire by or on behalf of the Contractor.

12.4 Other Events

Any of the following events which prevents the Affected Party from performing any of its obligations for a continuous period of not less than 7 days from the date of its occurrence, shall constitute the Other Event:

- (a) war, hostilities (whether war be declared or not);
- (b) invasion, act of foreign enemy, rebellion, riots, weapon conflict or military actions, civil war;
- (c) ionising radiation, contamination by radio activity from nuclear fuel, any nuclear waste, radioactive toxic explosion;
- (d) volcanic eruptions;

- (e) any failure or delay of a Contractor caused by any of the aforementioned Other Events, for which no offsetting compensation is payable to the Concessionaire by or on behalf of the Contractor.

12.5 Obligations of the Parties

(a) Obligation to Notify

- (i) As soon as practicable and in any case within 7 days of the date of occurrence of a Force Majeure Event or the date of knowledge thereof, the Affected Party shall notify the Independent Engineer and the other Party of the Force Majeure Event setting out, inter alia, the following in reasonable detail:
 - a) the nature and extent of the Force Majeure Event;
 - b) the estimated Force Majeure Period,
 - c) the nature of and the extent to which, performance of any of its obligations under this Agreement is affected by the Force Majeure Event.
 - d) the measures which the Affected Party has taken or proposes to take to alleviate/mitigate the impact of the Force Majeure Event and to resume performance of such of its obligations affected thereby.
 - e) any other relevant information concerning the Force Majeure Event, and /or the rights and obligations of the Parties under this Agreement.
- (ii) As soon as practicable and in any case within 5 days of notification by the Affected Party in accordance with the preceding clause (i), the Parties shall alongwith the Independent Engineer, meet, hold discussions in good faith and where necessary conduct physical inspection/survey of the Project in order to:
 - a) assess the impact of the underlying Force Majeure Event,
 - b) to determine the likely duration of Force Majeure Period and,
 - c) to formulate damage mitigation measures and steps to be undertaken by the Parties for resumption of obligations the performance of which shall have been affected by the underlying Force Majeure Event.
- (iii) The Affected Party shall during the Force Majeure Period provide to the other Party with regular (not less than weekly) reports concerning the matters set out in the preceding clause

(ii) as also any information, details or document, which the other Party may reasonably require.

(b) Performance of Obligations

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

- (i) the excuse from performance shall be of no greater scope and of no longer duration than is necessitated by the Force Majeure Event;
- (ii) the Affected Party shall make all reasonable efforts to mitigate or limit damage, if any, caused or is likely to be caused to the Project Facilities as a result of the Force Majeure Event and to restore the Project Facilities, in accordance with the Good Industry Practice and its relative obligations under this Agreement;
- (iii) the Affected Party shall take all remedial measures including duly prosecuting and exhausting all such remedies available to the Affected Party under the Applicable Laws;
- (iv) 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
- (v) the Affected Party shall continue to perform such of its obligations which are not affected by the Force Majeure Event and which are capable of being performed in accordance with this Agreement.

12.6 Termination due to Force Majeure Event

(a) Termination

- (i) If a Force Majeure Event which is Non-Political Event or Other Event continues or is in the reasonable judgement of the Parties likely to continue beyond a period of 120 days, the Parties may mutually decide to terminate this Agreement or continue this Agreement on mutually agreed revised terms. If the Parties are unable to reach an agreement in this regard, the Affected Party shall after the expiry of the said period of 120 days, be entitled to terminate this Agreement.

Notwithstanding anything inconsistent contained in this Agreement, if a Force Majeure Event is a Political Event and the same subsists for a period exceeding 365 days either Party shall be entitled to terminate this Agreement.

Provided that NHAI may at its sole discretion have the option to terminate this Agreement any time after the occurrence of the Political Event.

(b) Termination Notice

If either Party having become entitled to do so decides to terminate this Agreement pursuant to the preceding sub article (a), it shall issue Termination Notice setting out ;

- (i) in sufficient detail the underlying Force Majeure Event;
- (ii) the Termination Date which shall be a date occurring not earlier than 60 days from the date of Termination Notice;
- (iii) the estimated Termination Payment including the details of computation thereof and;
- (iv) any other relevant information.

(c) Obligation of Parties

Following issue of Termination Notice by either Party, the Parties shall promptly take all such steps as may be necessary or required to ensure that ;

- (i) the Termination Payment, if any, payable by NHAI in accordance with the following sub-article (d) is paid to the Concessionaire on the Termination Date and
- (ii) the Project Site/Project Facilities are handed back to NHAI by the Concessionaire on the Termination Date free from all Encumbrance.

(d) Termination Payment

Upon Termination of this Agreement after the Commencement Date or the Financial Close whichever is later, due to a Force Majeure Event, Termination Payment shall be made to the Concessionaire by NHAI in accordance with the following:

- (i) Prior to COD
 - a) If Termination is due to a Force Majeure Event which is a Non Political Event, no Termination Payment shall be made by NHAI to the Concessionaire but, the Concessionaire shall be entitled to receive and appropriate the proceeds of any insurance obtained by it.
 - b) If Termination is due to a Force Majeure Event which is a Political Event, NHAI shall pay to the Concessionaire

Termination Payment equal to the Book Value as on the Date of Termination Notice plus the accrued interest thereon @ SBI PLR + 3% p.a., from the date of Financial Close.

- c) If Termination is due to a Force Majeure Event which is the Other Event, NHA I shall pay to the Concessionaire, Termination payment equal to the Book Value as on the date of Termination Notice.
- (ii) After COD
- a) If Termination is due to a Force Majeure Event which is a Non Political Event, no Termination Payment shall be made by NHA I to the Concessionaire but, the Concessionaire shall be entitled to receive and appropriate the proceeds of any insurance obtained by it.
 - b) If Termination is due to a Force Majeure Event which is a Political Event, NHA I shall pay to the Concessionaire Termination Payment equal to the Discounted Value of Future Net Cashflows.
 - c) If Termination is due to a Force Majeure Event which is the Other Event, NHA I shall pay to the Concessionaire, Termination Payment equal to 75% of the Discounted Value of Future Net Cashflows.

Provided NHA I shall be entitled to deduct from the Termination Payment any amount due and recoverable by NHA I from the Concessionaire as on the Termination Date.

12.7 Liability for other losses, damages etc.

Save and except as expressly provided in this Article 12, 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.

ARTICLE 13

EVENTS OF DEFAULT AND TERMINATION

13.1 Events of Default

Event of Default means either Concessionaire Event of Default or NHA I Event of Default or both as the context may admit or require.

(a) Concessionaire Event of Default

Any of the following events shall constitute an event of default by the Concessionaire ("Concessionaire Event of Default") unless such event has occurred as a result of one or more reasons set out in Article 5.9;

- (i) The Concessionaire has failed to achieve Financial Close within 7 months from the date hereof.
- (ii) The Concessionaire has failed to adhere to the Design Requirements and/ or Construction Requirements and in the reasonable estimation of the Independent Engineer, such failure is likely to delay achievement of COD beyond 120 days of the Schedule Project Completion Date.
- (iii) The Concessionaire has failed to achieve COD within 120 days from the Scheduled Project Completion Date.
- (iv) The Concessionaire is in Material Breach of O&M Requirements.
- (v) Any representation made or warranties given by the Concessionaire under this Agreement is found to be false or misleading.
- (vi) The Concessionaire has created any Encumbrance on the Project Site/ Project Facilities in favour of any Person save as otherwise expressly permitted under this Agreement.
- (vii) The Concessionaire has failed to ensure minimum shareholding requirements specified in Article 5.7.
- (viii) A resolution has been passed by the shareholders of the Concessionaire for the voluntary winding up of the Concessionaire.
- (ix) Any petition for winding up of the Concessionaire has been admitted and liquidator or provisional liquidator has been appointed or the Concessionaire has been ordered to be wound up by Court of competent jurisdiction except for the purpose of amalgamation or reconstruction with the prior consent of NHAI, 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 further that:
 - a) 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;
 - b) 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 Commencement Date and

- c) each of the Project Agreements remains in full force and effect.
- (x) A default has occurred under any of the Financing Documents and any of the Lender(s) has recalled its financial assistance and demanded payment of the amounts outstanding under the Financing Documents or any of them as applicable.
- (xi) The Concessionaire has abandoned the Project Facilities.
- (xii) The Concessionaire has repudiated this Agreement or has otherwise expressed an intention not to be bound by this Agreement.
- (xiii) The Concessionaire has suffered an attachment levied on any of the assets located or comprised in the Project Site/Project Facilities, causing a Material Adverse Affect on the Project and such attachment has continued for a period exceeding 90 days.
- (xiv) The Concessionaire has delayed any payment that has fallen due under this Agreement for 90 days or more.
- (xv) The Concessionaire has otherwise been in Material Breach of any of its other obligations under this Agreement.

(b) NHAI Event of Default

Any of the following events shall constitute an event of default by NHAI ("NHA Event of Default"), unless caused by a Concessionaire Event of Default or a Force Majeure Event:

- (i) NHAI is in breach of any of its obligations under this Agreement except those for which specific remedy has been provided elsewhere, and has failed to cure such breach within 30 (thirty) days of receipt of notice thereof issued by the Concessionaire.
- (ii) NHAI has repudiated this Agreement or otherwise expressed its intention not to be bound by this Agreement.
- (iii) NHAI has (a) failed to execute the Substitution Agreement in accordance with Article 6.1(b) or having executed the same is in breach of any of its obligations thereunder and such breach has not been cured within 30 days from the date of written notice thereof given by the Concessionaire.
- (iv) NHAI has failed to execute and/or procure execution by GoWB of the State Support Agreement in accordance with Article 6.1(a) or

having done the same is in breach of any of its obligations thereunder.

- (v) NHAI has unreasonably withheld or delayed grant of any approval or permission which the Concessionaire is obliged to seek under this Agreement, and thereby caused Material Adverse Effect.
- (vi) NHAI has delayed payment of any amount that has fallen due in terms of this Agreement beyond 90 days.
- (vii) Any representation made or warranties given by the NHAI under this Agreement has been found to be false or misleading.

13.2 Termination due to Events of Default

(a) Termination for Concessionaire Event of Default

- (i) Without prejudice to any other right or remedy which NHAI may have in respect thereof under this Agreement, upon the occurrence of a Concessionaire Event of Default, NHAI shall, subject to the provisions of the Substitution Agreement, be entitled to terminate this Agreement by issuing Termination Notice.
- (ii) If NHAI decides to terminate this Agreement pursuant to preceding Clause (i), it shall in the first instance issue Preliminary Notice to the Concessionaire. Within 30 days of receipt of the Preliminary Notice, the Concessionaire shall submit to NHAI in sufficient detail, the manner in which it proposes to cure the underlying Event of Default (the "Concessionaire's Proposal to Rectify"). In case of non submission of the Concessionaire's Proposal to Rectify within the said period of 30 days, NHAI shall be entitled to terminate this Agreement by issuing Termination Notice, and to appropriate the Performance Security, if subsisting.
- (iii) If the Concessionaire's Proposal to Rectify is submitted within the period stipulated therefor, the Concessionaire shall have further period of 30 days to remedy / cure the underlying Event of Default. If, however the Concessionaire fails to remedy/cure the underlying Event of Default within such further period allowed, NHAI shall be entitled to terminate this Agreement, and to appropriate the Performance Security if subsisting.

(b) Termination for NHAI Event of Default

- (i) Without prejudice to any other right or remedy which the Concessionaire may have in respect thereof under this Agreement, upon the occurrence of NHAI Event of Default, the Concessionaire shall be entitled to terminate this Agreement by issuing Termination Notice.

- (ii) If the Concessionaire decides to terminate this Agreement pursuant to preceding Clause (i) it shall in the first instance issue Preliminary Notice to NHA. Within 30 days of receipt of Preliminary Notice NHA shall forward to the Concessionaire its proposal to remedy/cure the underlying Event of Default (the "NHA Proposal to Rectify"). In case of non submission of NHA Proposal to Rectify within the period stipulated therefor, Concessionaire shall be entitled to terminate this Agreement by issuing Termination Notice.
- (iii) If NHA Proposal to Rectify is forwarded to the Concessionaire within the period stipulated therefor, NHA shall have further period of 30 days to remedy/cure the underlying Event of Default. If, however NHA fails to remedy/cure the underlying Event of Default within such further period allowed, the Concessionaire shall be entitled to terminate this Agreement by issuing Termination Notice.

(c) Termination Notice

If a Party having become entitled to do so decides to terminate this Agreement pursuant to the preceding sub article (a) or (b), it shall issue Termination Notice setting out:

- (i) in sufficient detail the underlying Event of Default;
- (ii) the Termination Date which shall be a date occurring not earlier than 60 days from the date of Termination Notice;
- (iii) the estimated Termination Payment including the details of computation thereof and;
- (iv) any other relevant information.

(d) Obligation of Parties

Following issue of Termination Notice by either Party, the Parties shall promptly take all such steps as may be necessary or required to ensure that ;

- (i) until Termination the Parties shall, to the fullest extent possible, discharge their respective obligations so as to maintain the continuity of service to the users of the Project Facilities,
- (ii) the Termination Payment, if any, payable by NHA in accordance with the following sub-article (d) is paid to the Concessionaire on the Termination Date and
- (iii) the Project/Project Facilities are handed over to NHA by the Concessionaire on the Termination Date free from any Encumbrance.

(e) Withdrawal of Termination Notice

Notwithstanding anything inconsistent contained in this Agreement, if the Party who has been served with the Termination Notice cures the underlying Event of Default to the satisfaction of the other Party at any time before the Termination occurs, the Termination Notice shall be withdrawn by the Party which had issued the same.

Provided that the Party in breach shall compensate the other Party for any direct costs/consequences occasioned by the Event of Default which caused the issue of Termination Notice.

13.3 Termination Payments

Upon Termination of this Agreement after the Commencement Date or the Financial Close whichever is later, the Concessionaire shall be entitled to receive Termination Payment as under;

(a) Prior to COD.

If the Agreement is terminated due to NHAI Event of Default, the Concessionaire shall receive from NHAI, Termination Payment equal to Book Value and accrued interest thereon @SBI PLR +3% p.a., from the date of Financial Close.

(b) After COD.

- (i) If the Agreement is terminated due to Concessionaire Event of Default, NHAI shall pay to the Concessionaire, Termination Payment equal to 70% of the Book Value as on the date of Termination Notice.
- (ii) If the Agreement is terminated due to NHAI Event of Default, the Concessionaire shall receive from NHAI, Termination Payment equal to the Discounted Value of Future Net Cashflows as on the date of Termination Notice.

Provided NHAI shall be entitled to deduct from the Termination Payment any amount due and recoverable by NHAI from the Concessionaire as on the Termination Date.

13.4 Rights of NHAI on Termination

Upon Termination of this Agreement for any reason whatsoever, NHAI shall upon payment of the Termination Payment to the Concessionaire have the power and authority to:

- (i) enter upon and take possession and control of Project Site/Project Facilities forthwith;

- (ii) prohibit the Concessionaire and any Person claiming through or under the Concessionaire from entering upon/dealing with the Project Facilities;
- (iii) step in and 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 Agreements as NHAI may in its discretion deem appropriate with effect from the date of communication of such election to the counter party to the relative Project Agreements.

Provided any sums claimed by such counter party as being due and owing for work and services performed or accruing on account of any act, omission or event prior to such date of election shall and shall always constitute debt between the Concessionaire and such counter party and NHAI shall in no way or manner be liable or responsible for such sums. The Concessionaire shall ensure that the Project Agreements contain provisions necessary to give effect to the provisions of this Article 13.4.

- (iv) Notwithstanding anything contained in this Agreement, NHAI shall not, as a consequence of Termination or otherwise, have any obligation whatsoever including but not limited to obligations as to compensation for loss of employment, continuance or regularisation of employment, absorption or re-employment on any ground, in relation to any person in the employment of or engaged by the Concessionaire in connection with the Project, and the handback of the Project Site/Project Facilities by the Concessionaire to NHAI shall be free from any such obligation.

13.5 Rights of Parties

Notwithstanding anything to the contrary contained in this Agreement, Termination pursuant to any of 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. The rights and obligations of either Party under this Agreement, including without limitation those relating to Termination Payment, shall survive the Termination but only to the extent such survival is necessary for giving effect to such rights and obligations.

ARTICLE 14

MODE OF PAYMENT BY NHAI

14.1 Mode of Payment

The Concessionaire hereby expressly authorises NHAI to pay Annuity, Bonus, Termination Payment and any other payment which becomes payable by NHAI to the Concessionaire under this Agreement directly to the credit of such bank account at New Delhi, as may be, collectively designated by the Lenders and

advised to NHAI and the Concessionaire (Designated Account) in writing, and/or to make/issue and deliver cheques, drafts or other instruments in respect of such payments in favour of a bank at New Delhi collectively designated by the Lenders as their agent or trustee and advised to NHAI (Designated Bank).

14.2 Valid Discharge

The Concessionaire hereby agrees, undertakes and confirms that;

- (a) the payment to the credit of the Designated Account or to the Designated Bank shall be made by NHAI notwithstanding any instructions to the contrary issued or disputes raised by the Concessionaire.
- (b) any payment made in accordance with the preceding sub-article (a) shall be valid and NHAI shall to the extent of the payment so made be relieved and discharged of all its obligations in respect of such payments under this Agreement. Provided no such discharge shall prejudice any claim which the Concessionaire may have against the Lenders.
- (c) In the absence of the Designated Account or upon the Concessionaire procuring and furnishing to NHAI a certificate from the Lenders to the effect that the Concessionaire has discharged its obligations under the Financing Documents, all payments accruing to the Concessionaire under this Agreement shall be made by NHAI to the Concessionaire directly.

ARTICLE 15

HANDBACK OF PROJECT FACILITIES

15.1 Hand back and Defect Liability Period

- (a) Upon the expiry of the Concession Period by efflux of time and in the normal course, the Concessionaire shall at the end of the Concession Period, hand back vacant and peaceful possession of Project Site/Project Facilities to NHAI free of cost, in compliance with the Handback Requirements.
- (b) The process of handing back shall be initiated atleast 12 months before the actual date of expiry of the Concession Period by a joint inspection by NHAI, the Independent Engineer and the Concessionaire. The Independent Engineer shall, within 15 days of such inspection prepare and furnish to the Concessionaire a list of works/jobs, if any, to be carried out to conform to the Handback Requirements. The Concessionaire shall promptly undertake and complete such works/jobs at least two months prior to the date of expiry of the Concession Period and also ensure that the Project Facilities continue to meet the Handback Requirements until the same are handed back to NHAI.

15.2 Retention Amount

- (a) In case the Concessionaire fails to carry out the above works/jobs, within the stipulated period. NHAI shall be at liberty to have the same executed by any other Person at the risk and cost of the Concessionaire and any cost incurred by NHAI in this regard shall be reimbursed by the Concessionaire. For this purpose NHAI may withhold a sum of Rs. -----⁶ from each of the Annuity Payments to be made during two years immediately preceding the expiry of the Concession Period (collectively the "Retention Amount") or accept a guarantee from a scheduled bank for a sum equal to the _____⁷ furnished by the Concessionaire in lieu thereof.
- (b) The Retention Amount or as the case may be the bank guarantee shall be released/returned by NHAI upon the Independent Engineer certifying compliance by the Concessionaire with the requirement of the preceding Article 15.1 or appropriated to the extent required towards the costs reimbursable by the Concessionaire in terms of preceding sub-article(a).

ARTICLE 16

INDEPENDENT AUDITOR

16.1 Appointment

- (a) Upon occurrence of any event necessitating or warranting appointment of the Independent Auditor under the provisions of this Agreement, and upon a proposal being made by either Party to the other, the Parties shall promptly (and in any case within 15 days of such proposal) confer and agree upon a reputed firm of Chartered Accountants practising in India to be appointed as the Independent Auditor. Thereupon NHAI shall appoint the Independent Auditor on terms and conditions agreed to by the Parties and the Person to be appointed as the Independent Auditor.
- (b) If, upon a proposal being made by a Party for appointment of Independent Auditor, the other Party fails to confer and agree upon the Independent Auditor within the said period of 15 days, the Party proposing the appointment shall be entitled to appoint the Independent Auditor. Such appointment and the terms thereof shall be binding on the other Party.

16.2 Payment of Fees

All fees and costs of the Independent Auditor shall be shared equally and borne by the Parties. The Concessionaire shall within 7 days of NHAI's claim therefor pay/ reimburse its share of such fees and costs to NHAI.

ARTICLE 17

DISPUTE RESOLUTION

⁶ 25 % of Annuity

⁷ Amount equivalent to the Retention Amount.

17.1 Amicable Resolution

- (a) Save where expressly stated to the contrary in this Agreement, any dispute, difference or controversy of whatever nature between the Parties, howsoever arising under, out of or in relation to this Agreement including disputes, if any, with regard to any acts, decision or opinion of the Independent Engineer or the Independent Auditor and so notified in writing by either Party to the other (the "Dispute") shall in the first instance be attempted to be resolved amicably in accordance with the procedure set forth in sub-article (b) below.
- (b) Either Party may require such Dispute to be referred to the Chairman, NHAI and the Chief Executive Officer of the Concessionaire for the time being, for amicable settlement. Upon such reference, the two shall meet at the earliest mutual convenience and in any event within 15 days of such reference to discuss and attempt to amicably resolve the Dispute. If the Dispute is not amicably settled within 15 (fifteen) days of such meeting between the two, either Party may refer the Dispute to arbitration in accordance with the provisions of Article 17.2 below.

17.2 Arbitration

(a) Procedure

Subject to the provisions of Article 17.1, any Dispute which is not resolved amicably shall be finally settled by binding arbitration under the Arbitration Act. The arbitration shall be by a panel of three arbitrators, one to be appointed by each Party and the third to be appointed by the two arbitrators appointed by the Parties. The Party requiring arbitration shall appoint an arbitrator in writing, inform the other Party about such appointment and call upon the other Party to appoint its arbitrator. If within 15 days of receipt of such intimation the other Party fails to appoint its arbitrator, the Party seeking appointment of arbitrator may take further steps in accordance with Arbitration Act.

(b) Place of Arbitration

The place of arbitration shall ordinarily be New Delhi but by agreement of the Parties, the arbitration hearings, if required, may be held elsewhere.

(c) English Language

The request for arbitration, the answer to the request, the terms of reference, any written submissions, any orders and awards shall be in English and, if oral hearings take place, English shall be the language to be used in the hearings.

(d) Enforcement of Award

The Parties agree that the decision or award resulting from arbitration shall be final and binding upon the Parties and shall be enforceable in accordance with the Provision of the Arbitration Act.

(e) Performance during Arbitration

Pending the submission of and/or decision on a Dispute and until the arbitral award is published, the Parties shall continue to perform their respective obligations under this Agreement without prejudice to a final adjustment in accordance with such award.

ARTICLE 18

REPRESENTATIONS AND WARRANTIES, DISCLAIMER

18.1 Representations and Warranties of the Concessionaire

The Concessionaire represents and warrants to NHA that:

- (a) it is duly organised, validly existing and in good standing under the laws of India;
- (b) it is a special purpose company set up solely for the purpose of implementing and operating the Project/Project Facilities in accordance with the terms of this Agreement and that it will not during the subsistence of this Agreement undertake any other Project or business activity unrelated to the Project;
- (c) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;
- (d) it has taken all necessary corporate and other action under Applicable Laws and its constitutional documents to authorise the execution, delivery and performance of this Agreement;
- (e) it has the financial standing and capacity to undertake the Project;
- (f) this Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof;
- (g) 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;
- (h) 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 of 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 are bound or affected;

- (i) 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 constitute Concessionaire Event of Default or which individually or in the aggregate may result in Material Adverse Effect;
- (j) 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 Government Agency which may result in Material Adverse Effect;
- (k) 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;
- (l) subject to receipt by the Concessionaire from NHAI of the Termination Payment and any other amount due under any of the provisions of this Agreement, in the manner and to the extent provided for under the applicable provisions of this Agreement all rights and interests of the Concessionaire in and to the Project / Project Facilities shall pass to and vest in NHAI on the Termination Date free and clear of all Encumbrances without any further act or deed on the part of the Concessionaire or NHAI;
- (m) no representation or warranty by the Concessionaire contained herein or in any other document furnished by it to NHAI or to any Government 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
- (n) no bribe or illegal gratification has been paid or will be paid in cash or kind by or on behalf of the Concessionaire to any Person to procure the Concession.
- (o) Without prejudice to any express provision contained in this Agreement, 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 Project Site, Project Requirements and the information provided by NHAI, and has determined to its satisfaction the nature and extent of risks and hazards as are likely to arise or may be faced by the Concessionaire in the course of performance of its obligations hereunder.

The Concessionaire also acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth above and hereby confirms that NHAI shall not be liable for the same in any manner whatsoever to the Concessionaire.

18.2 Representations and Warranties of NHAI

NHAI represents and warrants to the Concessionaire that:

- (a) NHAI has full power and authority to grant the Concession;
- (b) NHAI has taken all necessary action to authorise the execution, delivery and performance of this Agreement;
- (c) This Agreement constitutes NHAI's legal, valid and binding obligation enforceable against it in accordance with the terms hereof.
- (d) There are no suits or other legal proceedings pending or threatened against NHAI in respect of the Project Site or the Project.

18.3 Obligation to notify change

In the event that any of the representations or warranties made/given by a Party ceases to be true or stands changed, the Party who had made such representation or given such warranty shall promptly notify the other of the same.

ARTICLE 19

MISCELLANEOUS

19.1 Assignment and Charges

- (a) Subject to sub-articles (b) and (c) hereinbelow, neither Party shall assign this Agreement or the rights, benefits and obligations hereunder save and except with prior consent of the other Party.
- (b) Except as provided in sub-article (c) hereinbelow, the Concessionaire shall not 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 except with prior consent in writing of NHAI, which consent NHAI shall be entitled to decline without assigning any reason whatsoever.
- (c) Restraint set forth in sub-articles (a) and (b) above shall not apply to:
 - (i) liens/encumbrances arising by operation of law (or by an agreement evidencing the same) in the ordinary course of business of the Concessionaire ;
 - (ii) mortgages/pledges/hypothecation of goods/assets other than Project Site, as security for indebtedness, in favour of the Lenders and working capital providers for the Project;
 - (iii) assignment of Concessionaire's rights and benefits under this Agreement to or in favour of the Lenders as security for financial assistance provided by them.

19.2 Interest and Right of Set Off

Any sum which becomes payable under any of the provisions of this Agreement by one Party to the other Party shall, if the same be not paid within the time allowed for payment thereof, shall be deemed to be a debt owed by the Party responsible for payment thereof to the Party entitled to receive the same. Such sum shall until payment thereof carry interest at SBI PLR plus 3% from the due date for payment thereof until the same is paid to or otherwise realised by the Party entitled to the same. Without prejudice to any other right or remedy that may be available under this Agreement or otherwise under law, the Party entitled to receive such amount shall also have the right of set off.

Provided the stipulation regarding interest for delayed payments contained in this Article 19.2 shall neither be deemed or construed to authorise any delay in payment of any amount due by a Party nor be deemed or construed to be a waiver of the underlying breach of payment obligations.

19.3 Liability and Indemnity

- (a) General Indemnity
 - (i) The Concessionaire shall indemnify, defend and hold NHAI harmless against any and all proceedings, actions and third party claims 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 breach by NHAI of any of its obligations under this Agreement or a Force Majeure Event which is a Political Event.
 - (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 breach by NHAI, its officers, servants and agents of any obligations of NHAI under this Agreement except to the extent that any such claim has arisen due to breach by the Concessionaire of any of its obligations under this Agreement.
- (b) Without limiting the generality of this Article 19.3 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 failure of the Concessionaire (a) to comply with Applicable Laws and Applicable Permits, (b) to make payments of Taxes relating to the Concessionaire's Contractors, suppliers and representatives income or other taxes required to be paid by the Concessionaire without reimbursement hereunder, or (c) to pay 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.
- (c) Without limiting the generality of the provisions of this Article 19.3, the Concessionaire shall fully indemnify, save harmless and defend NHAI from and against any and all damages which the NHAI 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 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 license, at no cost to NHAI , authorising continued use of the infringing work. If the Concessionaire is unable to secure such license within a reasonable time, the Concessionaire shall, at its own expense and without impairing the Project Requirements, 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.

- (d) 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 19.3 (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. Provided that, 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 to the Indemnified Party being secured against any costs involved to its reasonable satisfaction.
- (e) Defence of Claims
 - (i) 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 19.3, the Indemnifying Party shall be entitled, at its option, to assume and control the defence of such claim, action, suit or other proceedings, 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.

- (ii) If the Indemnifying Party has exercised its rights under Article 19.3(d) above, 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).
- (iii) If the Indemnifying Party exercises its rights under Article 19.3(d) above, 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:
 - (1) the employment of counsel by such party has been authorised in writing by the Indemnifying Party; or
 - (2) 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
 - (3) 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
 - (4) 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 sub-articles (2), (3) or (4) of Article 19.3(e)(ii) 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.

19.4 Governing Law and Jurisdiction

This Agreement shall be governed by the laws of India. The Courts at New Delhi, India shall have jurisdiction over all matters arising out of or relating to this Agreement.

19.5 Waiver

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

- (i) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions or obligations under this Agreement;
- (ii) shall not be effective unless it is in writing and executed by a duly authorised representative of such 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 hereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver/breach of any terms, conditions or provisions of this Agreement.

19.6 Survival

Termination of this Agreement (a) shall not relieve the Concessionaire or NHAI of any obligations already incurred 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.

19.7 Amendments

This Agreement and the Schedules together constitute a complete and exclusive understanding 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 agreed to by all the Parties hereto and evidenced in writing.

19.8 Notices

Unless otherwise stated, notices to be given under this Agreement including but not limited to a notice of waiver of any term, breach of any term of this Agreement and termination of this Agreement, shall be in writing and shall be given by hand delivery, recognised international courier, mail, telex or facsimile transmission and delivered or transmitted to the Parties at their respective addresses set forth below :

If to NHAI

Fax No. -----

If to the Concessionaire

The Managing Director,
----- Limited,

Fax No. -----

Or such address, telex number, or facsimile number as may be duly notified by the respective Parties from time to time, and shall be deemed to have been made or delivered (i) in the case of any communication made by letter, when delivered by hand, by recognised international courier or by mail (registered, return receipt requested) at that address and (ii) in the case of any communication made by telex or facsimile, when transmitted properly addressed to such telex number or facsimile number.

19.9 Severability

If for any reason whatsoever 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 shall negotiate in good faith with a view to agreeing upon one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable. Provided failure to agree upon any such provisions shall not be subject to dispute resolution under this Agreement or otherwise.

19.10 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.

19.11 Language

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

19.12 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 any Party not contained in a binding legal agreement executed by the Parties.

19.13 Counterparts

This Agreement may be executed in two counterparts, each of which when executed and delivered shall constitute an original of this Agreement but shall together constitute one and only the 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 NHAI by

(Signature)

(Name)

(Designation)

SIGNED, SEALED AND DELIVERED

For and on behalf of CONCESSIONAIRE by:
In the presence of.

1)

2)

SCHEDULE A
(LETTER OF ACCEPTANCE)
SCHEDULE - B
PROJECT SITE

The Project Site commences from Panagarh, east of existing railway level crossing, at Km. 517.0, traverses generally in south easterly direction and ends at Km. 581.4 at Palsit junction with Durgapur Expressway¹ on NH-2, as illustrated in the Index Maps attached (**Fig B-1(a)** and **Fig B-1(b)**). The width of the existing and proposed right of way/ (ROW) comprised in the Project Site is given in Table B-1 below:

Table B-1

RIGHT- OF WAY DETAILS

Section #	Chainage		Right of Way Width (m)		Urban/Rural
	From	To	Existing	Proposed	
1	517+000	519+000	45	45	Rural
2	519+000	519+800	45	125*	Rural
3	519+800	522+000	45	45	Rural
4	522+000	526+700	-	60**	Rural
5	526+700	535+900	45	53	Semi-Urban
6	535+900	542+100	45	45	Urban
7	542+100	545+900	45	53	Rural
8	545+900	547+200	45	45	Rural
9	547+200	554+400	45	53	Rural
10	554+400	554+850	45	125*	Rural
11	554+850	556+700	45	53	Semi-Urban
12	556+700	568+300	60	60	Rural
13	568+300	569+200	45	45	Urban
14	569+200	571+000	18	45	Semi-Urban
15	571+000	573+400	45	45	Semi-Urban
16	573+400	578+700	-	60**	Rural
17	578+700	580+300	45	53	Rural
18	580+300	581+457	45	200***	Rural

All Chainages are proposed construction chainages and the exact location of km positions may slightly vary.

* Location for Toll Plaza.

** Proposed Bypass.

*** Location for Palsit Interchange

¹ Km. 0.000 starts at Varanasi

The Project Site shall also include additional land if any, handed over by NHAI to accommodate any of the Project Facilities.

SCHEDULE C

PROJECT

NOT USED

SCHEDULE – D

PROJECT FACILITIES

1.0 General

The facilities to be procured, constructed, built, installed, erected or provided by the Concessionaire in the Project Site (Project Facilities) shall be those set out in the DPR, which broadly include the following. Any additional Project Facilities included hereunder shall be deemed to be part of the DPR and shall accordingly form part of the Project Facilities.

2.0 Project Highway

2.1 Mainline

- (i) A 4 lane divided rural highway with a 45 m wide raised median, by strengthening and widening the existing 2 lane highway stretch on NH-2. The width of each carriage way shall be 7.0 m with 250 mm median edge strip, paved shoulders 1.5m wide in addition to granular sub-base hard shoulder 2.0 m wide on outer side.
- (ii) New 4 lane divided rural controlled access highway with a 4.5 m wide raised median and with shoulders as specified in (i) above for the

sections bypassing Bud Bud (Chainage 522+350 to Chainage 526+711) and Shaktigarh (Chainage 573+226 to Chainage 579+146) urban centres.

- (iii) A 4 lane divided urban controlled access highway (by reconstructing the existing 2 lane highway stretch on NH-2) with a reduced raised median (1.5 m wide) and shoulder as specified in (i) above through the built up areas at Galsi between Chainage 538+332 and Chainage 541+450.

2.2 Service Roads

- (i) A 7.0 m wide pavement with a raised footpath of width 2.0 m over lined drain on the outside through the urban areas; and
- (ii) Four sections of service roads alongside the mainline on both sides and one section on the south side only as shown in **Table D-1** below:

Table D-1
Service Road Locations

Section	Chainage		Built-up Area
	From	To	
1	538+330	541+500	Galsi
2	546+450	547+875	Kulgharia
3 *	548+650	549+675	Bardighi
4	561+800	563+750	Bardhaman (SH 7)
5	568+500	570+450	Gangpur

* South side only

2.3 Intersections/junctions

2.3.1 At-grade

- (i) Adequately designed junctions with channelisations, all right turn and left turn (acceleration and deceleration) lanes (auxiliary) at major intersections for safe and smooth movement of traffic.
- (ii) Auxiliary acceleration and deceleration lanes for left turning traffic movement at entrances to major roadside facilities such as Wayside Amenities, Service Area and Truck Lay-bys.
- (iii) Typical intersection treatments to be applied as specified in the DPR.

- (iv) Improved existing major intersections/ junctions, located at beginning and end of Bardhaman Bypass for all traffic turning movements.
- (v) New intersections at the beginning and end of Bud Bud and Shaktigarh Bypasses.

2.3.2 Grade Separations

Two grade separated intersections/ junctions as under:

- (i) existing intersection with SH 7, replaced by a fly-over; and
- (ii) an overpass on Bud Bud Bypass built at the Mankad Station Road .

2.3.3 INTERCHANGES

Two new interchanges together with associated structures, transfer ramps and speed change lanes as specified in the DPR at the following locations:

- (i) 'diamond' type interchange at Shaktigarh Bypass with Barsul Road; and
- (ii) 'trumpet' type interchange at the intersection of the old (decommissioned) NH-with the Durgapur Expressway at the Palsit end.

2.4 Structures and Bridges

2.4.1 General

Existing and new culverts and bridges, built wide enough to accommodate 6 Lanes (with or without footpath/s) dual carriageway (i.e. 2 x 3 lane each) as specified in DPR.

2.4.2 Rail Over Bridge (ROB)

A new ROB over the existing railway tracks on Shaktigarh Bypass, south of Shaktigarh at Chainage 578+260 as per detailed drawings approved by the concerned Railway authorities.

2.4.3 Minor Bridges (length < 60 m)

At the following 5 locations, existing minor bridges to be widened to accommodate a 6 Lane road cross-section.

- (1) Chainage 535+049
- (2) Chainage 559+625
- (3) Chainage 564+970

- (4) Chainage 579+731
- (5) Chainage 579+887

2.4.4 Overpasses and Underpasses

New grade separation structures to be provided at interchanges and fly-over locations as specified below:

- (i) At the location of the Palsit interchange, NH 2 to have an underpass structure for 2 lane ramp crossing. The structure opening should accommodate the mainline cross section of the 6 Lane divided carriageway.
- (ii) At Barsul Road interchange, NH 2 (Shaktigarh Bypass) to cross the local road by an overpass. The structure opening should accommodate the road cross-section for a 2 lane road including shoulders with 5.50m vertical clearance.
- (iii) At the intersection with SH 7, NH 2 (existing Bardhaman Bypass) to cross over the state highway by an overpass structure. The structure opening should accommodate SH-7 having 4 lanes with a central 1.5m raised median and 2 m shoulder/footpath on both sides. Traffic movement between SH-7 and NH-2 mainline to be through the provision of service roads on both sides.
- (iv) Nine underpasses to be provided as crossing facility for pedestrians and vehicles connecting Service Roads and as cattle passes in rural areas. These structures should have an opening of 7 m x 3.5m high. The proposed location of these underpasses are given in Table D-2 below:

Table D-2
Proposed Location of Underpasses

Sl. No	Chainage	Remarks	Sl. No	Chainage	Remarks
1	539+535	Galsi	6	559+830	Existing to be widened
2	547+565	Kulgharia	7	569+575	Gangpur
3	549+050	Bardighi	8	574+941	Shaktigarh Bypass
4	552+475	Belgram	9	576+180	Shaktigarh Bypass
5	560+705	Bardhhaman Bypass			

2.4.5 DRAINAGE CULVERTS

There are 42 existing concrete culverts on this stretch for cross drainage purposes. Out of these there are 13 box, 10 pipe, 9 slab, 7 arch and 3 with a combination of arch and RCC slab. The existing cross drainage structures are to be repaired and widened to a 6 Lane road cross-section, maintaining as a minimum, same vent area similar to existing

culverts as amended and included in the DPR. All existing pipe culverts and two arch and RCC slab combination culverts are to be replaced by box culverts of same vent area. The gap in the median portion should be covered by RCC slab.

In addition, twenty seven (27) new concrete box culverts of various sizes are to be constructed along bypasses.

2.4.6

Retaining Walls

Reinforced Earth/ RCC Retaining Walls of varying heights, constructed on several sections, located mainly between mainline and service road and where land constraint exists.

2.5 Drainage

- (i) Storm water drainage system constructed in the form of open ditches, pipes, concrete drains, kerb and gutter, concrete chutes/ spillways etc along the route.
- (ii) Underpavement drainage through granular layer carried to the embankment slope for the full width of formation so as to keep pavement as well as the side of the embankment well drained.
- (iii) Sub-surface drainage wherever required along the Project route.
- (iv) Properly designed drainage of surface runoff at the location of interchanges, intersections, junctions, underpasses, service roads, toll plaza area, etc., shall be provided as approved by the Independent Engineer.

2.6 Traffic Signs

- (i) A complete range of permanent retro-reflective traffic signs as per the requirements defined in but not limited to the DPR, for the safe and efficient movement of traffic. These signs are to be of regulatory, warning and informatory types and placed on the roadside except at interchanges where overhead directional and lane designation signs should be mounted on steel portals. The proposed signs and their location are given in the DPR.
- (ii) Temporary traffic and construction signs are to be provided during construction and maintenance operations for traffic diversion and pedestrian safety.

2.7 Road Markings

- (i) Thermoplastic road markings for lane marking, edge strips, chevron, zebra stripes are to be provided in accordance with MoST Guidelines/ Specifications and as specified in the DPR.
- (ii) Kerbs all along the road (including structures) are to be suitably painted.

2.8

Traffic Safety Measures

- (i) Pedestrian Guard Rails at the proposed major urban intersection SH-7/ service roads in order to control and guide pedestrian traffic.
- (ii) Concrete Crash Barriers of New Jersey type are to be constructed at the edge of the outside shoulder of the road. These should also be installed on sections of the road where the embankment height is more than 6m, at bridge approaches, and where the Carriageway passes through / along large ponds.
- (iii) Concrete Guard Posts at intervals of 2 m where the embankment height is over 3m, at the locations and as per details shown in the DPR.
- (iv) W-shaped Steel Beam Guard Rails (crash barriers) are to be provided back-to-back within narrow central raised median (1.5 m) mainly on the five (5) sections where service roads are to be provided (as per Table D-1). These are also to be provided along the full length of the ramps (both sides) and at important at-grade intersections.

2.9 Site Development for Toll Plazas

Ten (10) lanes of cement concrete pavement with islands are to be constructed at the locations identified for the 2 Toll Plazas (at Chainage 519+400 and Chainage 554+600 as shown in the DPR).

2.10 Road Illumination

Illumination with suitable high mast pole to be provided at all major intersections, in classified urban areas (i.e., stretches where Service Roads have been specified), grade separations and interchanges (including ramps), in accordance with the standards set in **Schedule G (Design Requirements)**.

2.11 Telecom Ducts

A set of 11 (eleven) permanently lubricated HDPE Telecom Ducts shall be provided within and throughout the length of the Project Highway. These Telecom Ducts shall be laid in the soil trenches at a depth of 1.65m in the median alongwith pre-cast R.C.C. manholes at every 1 km separately for each duct as shown in the DPR for future installation of OFC by "Air Blowing" technique.

2.12 Planting/ Landscaping

Landscaping undertaken within the ROW along the route of the Carriageway through planting of trees and ground cover at appropriate locations including the surplus land in the ROW and median. Shrubs of low height are to be planted in the highway median. The plantation scheme would need to be prepared in consultation with the Forest Department, Government of West Bengal and the Independent Engineer.

3.0 Ancillary Facilities

3.1 Wayside Amenities - Service Area

- (i) Two Service Areas, one on each side of the Project Highway are to be provided at Rakona Village. The one on the northern side should be constructed at Ch. 527+900 while the one on the southern side, at Chainage 528+200. The Service Areas should have adequately treated approaches – auxiliary left turn lanes (left-in and left-out traffic moves). The layout of the Wayside Amenities- Service Area is given in the DPR.
- (ii) Basic facilities to be provided by the Concessionaire should include electricity, overhead reservoir of adequate capacity to ensure 24 hour water supply, drinking water, toilets, drainage, litter collection bins and proper waste disposal systems.
- (iii) Facilities for development of area earmarked for petrol pumps, service station and repair shops as shown in the DPR.
- (iv) Provision to be made for other important facilities such as parking, restaurant and motel as provided in the DPR.

3.2 Truck Lay-bys

- (i) Four truck lay-bys are to be constructed along the Project Highway on both sides at the locations specified in Table D-3 below and as per the DPR having properly treated approaches with auxiliary left turn lanes (left-in and left-out traffic moves).
- (ii) The basic facilities to be provided at the lay bys should include 24 hour drinking water, electricity, litter collection bins and toilets with proper disposal systems.

**Table D-3
Proposed Location of Lay-bys**

Sl. No	Town	Chainage	Length	North/South Side
1	Bardhaman	557+400	200m	North side
2	Bardhaman	568+800	200m	South side
3	Shaktigarh	574+000	200m	North side
4	Shaktigarh	574+000	200m	South side

3.3 Bus Bays and Bus Shelters

Bus bays and Bus shelters are to be constructed at 28 locations as specified in **Table D-4** and in the DPR. The chainages indicated are approximate and should be finalised in consultation with the local Panchayat and the Independent Engineer.

Table D-4

Location of Bus Bays

Sl. No	Locations	Chainage
1	Dharala More- G T Road	516+800 (L) , 516+700(R)
2	Hasua Gate	519+200 (L) , 519+100 (R)
3	J K Nagar	521+790 (L) , 519+690 (R)
4	Simnore More	527+800 (L), 527+900 (R)
5	Rakona Village	529+100 (L), 529+200 (R)
6	Paraj More	530+850 (L), 530+750 (R)
7	Gali Gram	536+400 (L), 536+500 (R)
8	Galsi	539+700 (L), 539+800 (R)
9	Chotomuria	542+900 (L) , 542+800 (R)
10	Sarul	543+650 (L), 543+550 (R)
11	Khana	544+750 (L), 544+650 (R)
12	Barmuria	546+200 (L), 546+100 (R)
13	Kulgaria	547+750 (L), 547+850 (R)
14	Bardighi	549+110 (L), 549+210 (R)
15	Ferry Ghat	551+800 (L), 551+900 (R)
16	Metal DVC	553+200 (L), 553+300 (R)
17	Fagupur	555+150 (L), 555+250 (R)
18	Chandul	556+700 (L), 556+800 (R)
19	Station More Goda	558+300 (L), 558+400 (R)
20	Anjir bazar	560+850 (L), 560+950 (R)
21	Telepukur	562+650 (L), 562+550 (R)
22	Amra Village	563+500 (L), 563+600 (R)
23	Kanaihatsal	565+400 (L), 565+500 (R)
24	Nawabhat	567+000 (L), 567+100 (R)
25	Gangpur	571+900 (L), 571+800 (R)
26	Amra	573+400 (L), 573+500 (R)
27	Shaktigarh	574+000 (L), 574+100 (R)
28	Shaikhpur	580+500 (L), 580+600 (R)

Note: L= Left Hand Side and R= Right Hand Side while travelling from Panagarh to Palsit.

3.4 Project Implementation Unit (PIU) Complex

A PIU Complex is to be developed and provided for the use of NHAI, the Independent Engineer and their technical and administrative staff, as outlined in the DPR, within the PWD Stock Yard in Bud Bud Town with properly designed access to existing NH 2. The complex should include an administrative office building with overhead reservoir and should have furniture, furnishings (wall to wall carpeting and curtains), air conditioning, office equipment (computers, printer, telephone, fax, photocopier), utilities (potable water, sanitation, electricity, internet connection and stand-by power generator and complete boundary wall with steel gates) and a complete up to date testing laboratory with the latest testing equipment as per MoST Specification setup in consultation with the Independent Engineer and NHAI. The complex should have internal paved roads, paved parking and proper indoor and outdoor illumination with high mast poles.

3.5 Maintenance Yard

A Maintenance Yard of 2000 sq. m area with boundary wall and steel gates to be developed and constructed at Bud Bud or any other convenient location for the operation and maintenance of the Project Highway. Basic facilities such as internal paved road, potable water supply, drainage, sewerage, litter collection, power supply, illumination and boundary wall complete with steel gates should be provided. Parking area for construction vehicle and car are also to be provided.

The location and the layout of the Yard is to be finalised in consultation with the Independent Engineer. The land for the Maintenance Yard will be provided by NHAI.

3.6 Illumination

Illumination with suitable high mast pole and lampposts should be provided at toll plaza areas, PIU Complex and Maintenance Yard, Truck Lay- Bys, Bus Bays and Wayside Amenities-Service Area. It shall be provided in accordance with the Design Requirements.

3.7 Landscaping

Landscaping shall be carried out at Wayside Amenities-Service Area, Truck Lay-bys, PIU Complex and Maintenance Yard in consultation with Independent Engineer.

3.8 Drainage

Proper area drainage system should be provided in consultation with the Independent Engineer for Wayside Amenities- Service Area, Truck lay-bys, Bus Bays, PIU complex and Maintenance Yard.

3.9 Signs and Markings

Internal signs and markings should be provided in consultation with the Independent Engineer at the locations of Wayside Amenities- Service Area, Truck lay-bys, Bus Bays, PIU complex and Maintenance Yard.

SCHEDULE – E

PROJECT SITE DELIVERY SCHEDULE

The time schedule for delivery of Project Site by NHAI to the Concessionaire, is as under:

Sr. No.	Site Details	Delivery Schedule
1.	Ch 517+000 - 539+000	Within 15 days from signing the Agreement
2.	Ch 539+000 - 557+000	Within 4 months from signing the Agreement
3.	Ch 557+000 - 581+457	Within 6 months from signing the Agreement
4.	Additional land, if any, required to accommodate any of the Project Facilities	Within 6 months from signing the Agreement

SCHEDULE – F

CLEARANCES

- 1) No Objection Certificate (NOC) issued by West Bengal Pollution Control Board vide memo no. 1019 2N-1046/2000 dated 17/7/2000.
- 2) Confirmation from Ministry of Environment and Forests (MoEF) issued vide its letter no. J-21012/22/2000-IA-III dated July 18, 2000 that in view of Circular no. 21012/26/99-IA-III dated 15th October, 1999 issued by MoEF, the Project does not attract the provisions of EIA Notification, 1994 as amended on 10th April, 1997.
- 3) Approval conveyed vide letter no. W2/ROB/1 dated 12th May, 2000 by Sr. Divl. Engineer (2), Eastern Railway, Howrah for the GA drawing and cross section drawing submitted in respect of the ROB at Shaktigarh. [Detailed designs and drawings in respect thereof have since been submitted and approval thereof is expected in due course]

Photocopies of the aforesaid are attached hereto.

SCHEDULE – G

DESIGN REQUIREMENTS

1.0 General

- 1.1 The Project/Project Facilities shall conform to the minimum design requirements set out in this Schedule on the basis of which the DPR has been prepared. Alternate or additional Drawings, if any, submitted by the Concessionaire should also meet these requirements.
- 1.2 At least 2 weeks prior to commencement of the design work, the Concessionaire shall finalise a quality assurance plan for the design work (Quality Assurance Plan).

2.0 Codes and Standards

- 2.1 The codes and standards applicable for the design of the Project /Project Facilities are :
 - i) Indian Road Congress (IRC) Codes and Standards; and
 - ii) Ministry of Surface Transport (MoST) Specifications

both as applicable to National Highways and shall include policy circulars, guidelines and special publications, issued in respect thereof by IRC or MoST, as the case may be, from time to time and shall incorporate all amendments and/or modifications to such codes and standards which are available to public 30 days before the Proposal Due Date.

A list of IRC/MoST codes for road works is provided in Appendix G-1 while the same for bridge structures and culverts is provided in Appendix G-2.

- 2.2 Where the aforesaid are silent on any aspect, the following standards in order of preference shall be adopted in consultation with the Independent Engineer, unless otherwise specified in this Schedule :
- (a) Bureau of Indian Standards (BIS)
 - (b) American Association of State Highway and Transport officials (AASHTO)
 - (c) Geometric Design Standards for Ontario Highways
 - (d) American Society of Testing Materials (ASTM)
 - (e) British Standards (BS)
 - (f) Suitable specification/standard devised by the Independent Engineer
 - (g) Any other standard proposed by the Concessionaire
- 2.3 All items of 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). To the extent specific provisions for building works are provided in IRC/MoST specifications, the same shall prevail over the CPWD/NBC provisions. For this purpose, building works shall be deemed to include road furniture, roadside facilities, landscape elements and/or any other works incidental to the building works.
- 2.4 The Geometric Design Standards for the Project/Project Facilities shall be as per IRC: 73-1980 code as applicable to the National Highways; the main design criterion values have been extracted therefrom and appended as Appendix G-3. Where IRC Standards are silent Geometric Design Standards for Ontario Highways shall be adopted. These should be adhered to and the geometric design standards are the minimum requirements to be maintained for the Project Highway.
- 2.5 The designed horizontal and vertical alignments shown in the DPR are the minimum requirements to be maintained for the Project Highway.

3.0

Materials and Specifications

- 3.1 All materials and specifications shall be consistent with IRC/MoST specifications. Where these are silent, the standards in the same order of preference as in Clause 2.2 shall be used.
- 3.2 For items other than road and bridge works, where tailor made specifications are not available in the DPR, the same shall be finalised in consultation with the Independent Engineer.
- 3.3 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: 15-1996.
- 3.4 Only polymer modified bitumen shall be used for all bituminous works involved in the Project. Guidelines for the selection of grades/types of bitumen polymer and the use of other additives, e.g. anti-stripping agents for mixes as given in the MoST specifications shall be followed.

4.0

Geo-Technical Design

- 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.
- 4.2 Material used in the fill and its compaction requirements shall conform to IRC-36-1970. Where these specifications are in variance with the MoST specifications the latter shall govern and be followed.

5.0 Pavement Design

- 5.1 Pavement Design shall be based on the following parameters :

- a. Traffic Forecast : At least as in the DPR
- b. Design Life : Flexible Pavement – 20 years
Rigid Pavement – 30 years
- c. New Flexible Pavement :
 - (i) The new flexible pavement may be designed as per the IRC method or the AASHTO method.
 - (ii) Pavement of service roads in urban section shall be designed as per latest version of IRC-37 : 1984 or AASHTO method for a design traffic of 40 msa.
 - (iii) The new flexible pavement shall have Bituminous Concrete (BC) [also termed Asphaltic Concrete (AC)] wearing course overlaid on dense Bituminous Macadam (DBM). Underneath the DBM, Wet Mix Macadam (WMM) shall be provided to act as a base course. The sub-base granular material shall conform to the Grading I as given in Table 400-1 (MoST Specifications). The density and other physical requirements shall be as stipulated in MoST Specifications. Material chosen for sub-grade shall have 4 day soaked CBR not less than 7% at 97% Modified Dry density (MDD) tested as per IS : 2720 (Part 8).
- d. Strengthening of the existing 2-lane bituminous pavement may be done with a bituminous overlay in accordance with IRC:81-1997 or procedures specified by the Asphalt Institute, USA. Benkeleman Beam Deflection (BBD) tests shall be carried out. The profile corrective course before laying the overlay layers shall be carried out with the DBM. The strengthening layers shall comprise of DBM overlaid with BC surfacing. The design shall be prepared in consultation with the Independent Engineer prior to construction. S
- e. Quality Cement Concrete (QCC) pavement shall be designed based on AASHTO method (1992) for the axle load spectrum obtained by the Concessionaire by axle load survey. The QCC pavement shall be laid using slip form paver over dry lean concrete of M-15 grade over a drainage layer of WMM. The concrete of the QCC pavement shall have a flexural strength of 4.42 N/sq.mm. The design shall be prepared in consultation with the Independent Engineer prior to construction. Q

- 5.2 To ensure internal drainage of the pavement structure, the granular sub-base layer functioning as drainage layer (GSB/WMM) shall extend to full width across the shoulders on the embankment to the side drain. The finished pavement profile for the total project length shall be designed so that the

bottom level of the sub grade always remains above the High Flood Level (HFL) and shall not be lower than as defined in the DPR.

- 5.3. Hard shoulders (2 m wide) of GSB (Grading II of Table 400-1) shall be provided at the edge of paved shoulder. Paved shoulder (1.5 m) shall have the composition and thickness of the pavement structure including the wearing course same as that of main carriageway pavement providing a monolithic pavement. In the case of rigid carriageway pavement, composition, shoulder structure will remain flexible type having similar pavement composition as above.

6.0 Drainage System

- 6.1 An effective surface and sub surface drainage system of pavement structure shall be designed as stipulated in IRC SP : 42 (1994).
- 6.2 An effective drainage system shall also be planned and designed for the drainage of medians, interchanges, intersections/junctions, underpasses, service roads, toll plazas, Wayside Amenities-Service Area, PIU Complex, Maintenance Yard, Truck Lay-bys areas, Bus-bays and other highway features ensuring that there shall be no pooling of water at any time on the highway.
- 6.3 Storm water should be directed away from the bridge deck by providing kerb and gutter on the approaches for a minimum distance of 50 m beyond the bridge and carried by a chute to the roadside channel in order to avoid embankment erosion.
- 6.4 In rural stretches of the Project Highway, roadside channels (flat bottomed) shall intercept and remove surface run off from the highway ROW and the adjacent areas and will be drained to the nearest available natural watercourse. These shall have adequate capacity for the design run off and be located and shaped to avoid creating traffic hazard and erosion of soil.
- 6.5 Concrete lined drains under footpath in urban stretches in Galsi, Amra, Pemra & Gangpur where service roads have been provided, shall be located on both side of the Project Highway. The capacity of these drains shall be sufficient to carry 100% surface run-off of drainage area of highway ROW.
- 6.6 Drainage channels and pipe shall be installed at crossings with service pipes and utilities ensuring that conflicts do not occur.
- 6.7 Drainage of highway pavements on a highway embankment and steep grade will require designed outlet by means of kerb and gutter and concrete chutes/spillways along the side slope of the embankment in order to prevent its erosion.

7.0 Structures : Culverts, Bridges, Underpasses, Overpasses and retaining walls

- 7.1 The design standards and loading to be considered for culverts, bridges, underpasses and overpasses and retaining walls shall be those laid down in the latest relevant IRC codes. Where the said codes are found wanting or are silent, other codes in the same order of preference as in Clause 2.2 shall be used. A list of IRC codes is given in Appendix G-2 as a reference for design.
- 7.2 Any existing bridge or culvert found to be structurally unsafe and/or deficient to carry the IRC design load (based on non-destructive testing including full scale load testing) shall be replaced or rehabilitated.

7.3 Special Design Requirements

- (a) NP4 type pipes shall be used for all pipe culverts that are required for reconstruction and/or extension of pipe culverts where suitable joints shall be provided. Where minimum depth of pipe cover is not available, profile of the highway may be raised or the culvert embedded in concrete in consultation with and approved by the Independent Engineer.
- (b) Where an existing structure is twinned, the profiles of the new and existing bridges and their approaches shall be same. Also, suitable protection of the embankment between the structures in the median portion shall be provided either by extending the abutment wall or constructing a retaining wall extending up to the bridge parapet wall.
- (c) Bridge superstructure shall be designed and constructed with pre-stressed concrete girder and sub-structure of pile foundations.
- (d) The ROB at railway crossing shall be designed with footpaths on both sides.
- (e) Bearings of all bridges shall be easily accessible for inspection and maintenance;
- (f) The box girder superstructure's minimum clear depth inside the box shall be 1.8m with suitable opening in the end cross girder for inspection of box in the entire length;
- (g) Reinforced Earth/ R.C.C. Retaining Wall type shall be provided through urban areas for high fill/embankment for aesthetically pleasing appearance using steel metallic strips for earth reinforcement.
- (h) M-25 grade concrete shall be used where R.C.C retaining wall is constructed.

8.0 At-Grade Intersections

- 8.1 At-Grade Intersections shall be designed according to the IRC Special Publication 41 'Guidelines for the Design of At-Grade Intersections in Rural and Urban Areas' and the MoST Type Designs for Intersections on National Highways, with modifications where required.
- 8.2 For the design of elements not covered in the said publications the AASHTO publication 'A Policy on the Geometric Design of Highway and Streets' shall be followed.

9.0 Interchanges

- 9.1 Geometric design standards for elements of interchanges are given in **Appendix G -3**.
- 9.2 For interchange elements where Geometric design standards are not covered in the said Appendix G-3, design Guidelines IRC-92-1986 supplemented by relevant MoST and the AASHTO publication 'A Policy on the Geometric Design of Highway and Streets' shall be used.

10.0

Illumination

- 10.1 The average level of illumination on the stretches of mainline (including urban areas, junctions/ intersections, toll plazas, wayside amenities-service areas, Truck Lay-bys, PIU complex and maintenance yard) shall be 20 lux with high mast pole of 15m height.
- 10.2 At interchanges 30m high mast poles shall be provided with illumination level 30 lux.
- 10.3 The layout of the lighting system together with type of luminaries for different locations shall be determined in consultation with the Independent Engineer.
- 10.4 The level of illumination in the areas used by pedestrians shall not be less than 20 lux. In urban areas, it is recommended that semi-cut of luminaries shall be provided.
- 10.5 Arrangement of lighting installations shall be staggered except on curves.
- 10.6 The layout of lighting poles, their height and spacing shall be finalised in consultation with the Independent Engineer so that the minimum illumination level prescribed in the aforesaid clauses above can be achieved;
- 10.7 Overhead electrical power and telecommunication lines erected within the ROW by the Concessionaire shall be provided with adequate clearance so that safe use of the highway is not affected.
- 10.8 Vertical and horizontal clearances shall conform to IRC: 32 - 1069.

11.0 Highway Signs

- 11.1 All road signs shall be with retro-reflective sheet of high intensity grade with encapsulated lens fixed over aluminium substrat as per clause 801 MoST specifications;
- 11.2 The road signs erected on the Project Highway shall conform to IRC: 67 – 1977, Code of Practice for Road Signs.
- 11.3 For overhead signs the standards prescribed by MoST shall be followed. Where these are silent, standards prescribed in the same order of preference as in Clause 2.2 shall be used.
- 11.4 The overhead signs shall be placed on a structurally sound gantry or cantilever structure made of tubular structure or steel structure as shown in the DPR. The final location shall be finalised in consultation with the Independent Engineer. These signs shall be of high intensity retro reflective sheeting. The height, lateral clearance and installation of the sign structures shall be as per the MoST/IRC specifications;
- 11.5 On kerbed road sections the edges of the road signs shall be at least 600 mm away from the edge of the kerb, whereas on un-kerbed road sections the edge of the signs shall be at a distance of 2.5m from the edge of the carriageway;
- 11.6 Design and location of route marker signs for National Highways shall be as per the IRC: 2 – 1968. The design and placement of highway kilometre stones, the dimensions of stones, size, colour, 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 colour,

configuration, size and location of size of traffic signs shall be as per IRC: 67 – 1977;

- 11.7 Road Delineators shall conform to the recommended practice as per IRC 79-1981

12.0

Road Markings

- 12.1 Road markings shall be of hot applied thermoplastic materials with glass reflectorising beads as per relevant clauses of section 803 of MoST specifications;
- 12.2 Road markings shall be as per IRC: 35 – 1997. These markings shall be applied to road centre lines, edge lines, 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 valve capable of applying broken lines automatically;
- 12.3 Synthetic enamel paints shall be used to display details of structure number, span arrangement etc on all culverts and bridges with required description as per MoST guidelines.

13.0 Traffic Safety Measures

- 13.1 Pedestrian Guard Rail shall be designed to control and guide pedestrian road crossing movement safely at designated location at the two new SH-7/Service Road intersections. The location and the extent of this installations are shown in the DPR.
- 13.2 Concrete Guard Posts may be used at less hazardous locations. These shall have 2.5 m offset at 2 m spacing at locations generally described in Schedule D (Project Facilities).
- 13.3 Concrete Crash Barriers of 'New Jersey' type and/or Steel Beam Guardrails shall be installed mainly at major hazard locations. Concrete Crash Barrier of New Jersey type shall be constructed at the outer edge of both the shoulders of the road. It will also generally be installed on sections of the road (a) where embankment height is more than 6m, (b) bridge approaches, and (c) where the Project Road passes through large ponds. Concrete Crash Barriers shall be installed along the edge of the outside shoulder with an offset of 2.5m from the edge of the driving pavement. Details of these installations are shown in the DPR.
- 13.4 Both Concrete Crash Barriers and/or Steel Beam Guardrails (W-shaped) installation shall have short transition flared section at the approach ends.
- 13.5 W-shaped steel Beam crash barriers shall be installed back to back in the 1.5 m narrow median for stretches of the Project Road with service roads. The location of these stretches are given in Schedule D. Barrier Installations will be extended beyond the transition section of the median between 1.5 m and 4.5m. Metallic crash barriers shall be provided along the full length of the ramps (both sides) of Interchanges and at important At-Grade Intersections.
- 13.6 The Safety Barrier shall conform to MoST Circular No 604.15 and finalised in consultation with the Independent Engineer.

14.0

Landscaping

- 14.1 Planting along the highway shall follow a variety of schemes depending upon location requirement as per the IRC: SP21-1979. The choice of trees to be planted shall also be made as per IRC: SP21-1979: "Manual of Landscaping". Eucalyptus (all species) is not recommended for planting. Local, indigenous species that grow in that area shall be planted.
- 14.2 On medians and islands, 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.
- 14.3 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 and as shown in the DPR.
- 14.4 No advertisement/hoarding shall be allowed within the ROW limits of the Project Highway.
- 14.5 Visibility of any signs, signals or any other devices erected for traffic control, traffic guidance and/or information shall not be obstructed by plantation.

15.0**Ancillary Facilities****15.1 PIU Complex, Maintenance Yard, Wayside Amenities-Service Area, Ducting**

- a. Design details are shown in the DPR for PIU Complex, Wayside Amenity - Service Area. Design of the Maintenance Yard shall be developed over 2000 sq. m of covered area by the Concessionaire in consultation with the Independent Engineer. D
- b. All building works shall be designed to meet their 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 section 1900 of MoST specifications. A
- c. All the open spaces around the building(s) shall be landscaped. Boundary walls, fencing with barbed wires, controlled entry points and cattle-catches at all entry and exit points to the buildings shall be provided to protect them from intruders and animals. A
- d. The design of water storage (including overhead reservoir) and distribution systems, laying of mains and pipes, cleaning and disinfecting of water supply system shall be as per relevant clauses of section 1 Part IX of the NBC. T
- e. The design, layout and construction of sanitary sewer and 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 shall have a soak pit of adequate size. The T

location of the septic tanks and subsurface absorption system shall be as per clause 12.15.1 of part III of NBC.

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|----|---|---|
| f. | he design and location of all electrical installations, distribution system, wiring, fittings, accessories and lighting protection of buildings shall conform to the relevant clauses of Section 2, Part VIII of the NBC; | T |
| g. | he internal road system have the same material specification as that of the mainline road and width shall conform to Clause 4 of part III of NBC; | T |
| h. | or Internal parking facility, shall be constructed as per set out in the DPR. | F |

15.2

Truck Lay-bys

- | | | |
|----|--|---|
| a. | <p>typical layout of a Truck Lay-by has been proposed and is detailed in the DPR. The layout and facilities thereon have been designed considering site requirement so as to cater to the estimated parking demand. Any deviation in layout or design shall be reviewed and accepted by the Independent Engineer. Parking shall be parallel to the road and the lay-bys shall be setback from the edge of the carriageway. The Lay-bys shall be landscaped with low-density plantation to provide shade;</p> | A |
| b. | <p>he parking spaces shall have the similar specification as that of the main carriageway or be so paved by precast Cement Concrete Block (M-40) grade concrete to withstand vehicle loads and forces due to frequent acceleration and deceleration of vehicles. Parking bay/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. Illumination shall be provided as per IS: 1944, Part 1 and 11) – 1970;</p> | T |
| c. | <p>he parking lay-bys shall have basic facilities, such as, drinking water kiosk, and toilet, proper waste disposal system, electricity, water etc as described elsewhere in this Schedule.</p> | T |

15.3

Bus Bays

Bus Bays shall be provided at location as shown in Schedule D. A typical design has been given in which shall be followed for all locations. Generally, the bus bays shall provide safe entry and exit of buses from Project Highway and safe boarding and alighting 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 Bus Bay area shall be provided with an effective drainage system.

15.4

Road Furniture

Road furniture such as traffic signs, kilometre posts, hectometre stones, ROW pillar etc on the Project Highway provided as per IRC Codes shall meet requirements of MoST specifications, other codes in the same order of preference as in Clause 2.2 shall be used.

15.5 Telecom Ducts

Specifications of the permanently lubricated HDPE Telecom Ducts shall conform to the Generic Requirements no. G/CDS-08/01.DEC'99 specified by the Telecommunication Engineering Centre, Delhi of Department of Telecom (DoT). These ducts shall be sourced from manufacturers having the Type Approval Certificate from DoT as per the aforesaid specifications as well as the ISO accreditation and also having sufficient past experience of similar works including supplying. Sufficient past experience shall be defined as having already supplied required Telecom Ducts to reputed end users for not less than 300 kms of ducts during any one of the last three years to Highway /Expressway Departments or undertakings of State/Central Government. Manufacturer shall also have the experience of supplying to DoT as per the aforesaid specifications. The Concessionaire shall submit relevant duct detail design and installation drawings duly certified by the manufacturers about the complete engineering of duct laying for the Project Highway for the approval by the Independent Engineer. Specifications of the Precast R.C.C. Manholes shall conform to Section 1700 of the MoST Specification (third revision).

15.6

Roadside Facilities

15.6.1

Litter Bin

Litter Bin shall be located conveniently in PIU Complex, Maintenance Yard, Wayside Amenities -Service Area, and Truck Lay-bys, it shall be simple in shape and its colour and finish shall be 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 fireproof. It shall be resistant to wear and tear and the material and design shall be such as to require minimal maintenance. The capacity shall be minimum 30 litres.

15.6.2

Public Toilets

Separate Public Toilets for men and ladies shall be located in Wayside Amenities-Service Area, Truck Lay-bys and Maintenance Yard shown in the DPR. The capacity of toilets shall be for minimum 25 users. Toilets shall be provided with septic tank and soak pit. "Sulabh Souchalaya" type toilet is also acceptable. Generally, 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.

15.6.3 Drinking Water Kiosk

Piped water supply shall be provided to the Wayside Amenity-Service Area and Maintenance Yard. Tube wells shall be provided in Truck Lay-bys. 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 sloped away so as to ensure speedy disposal of water. The water supplied shall conform to IS:1050:1991 for quality of potable water. The location of Drinking Water Kiosk shall be finalised in consultation with the Independent Engineer.

Appendix G-1**List of IRC Codes / Standards / Acts for Road Works**

IRC : 2 – 1968	Route Marker Signs for National Highways (First Revision)
IRC : 8 – 1980	Type Designs for Highway Kilometre Stones (Second Revision)
IRC : 12 – 1983	Recommended Practice for Location and Layout of Roadside Motor-Fuel Filling and Motor-Fuel Filling-cum Service Stations (Second Revision)
IRC : 15 – 1981	Standard Specifications and Code of Practice for Construction of Concrete Roads (Second Revision)
IRC : 16 – 1989	Specification for Priming of Base Course with Bituminous Primers (First Revision)
IRC : 25 – 1967	Type Designs for Boundary Stones
IRC : 26 – 1967	Type Design for 200-meter Stones
IRC : 30 – 1968	Standard Letters and Numbers of Different Heights for Use on Highway Signs
IRC : 32 – 1969	Standard for Vertical and Horizontal Clearances of Overhead Electric Power and Telecommunication Lines as Related to Roads
IRC : 35 – 1997	Code of Practice for Road Markings (with Paints) (First Revision)
IRC : 36 – 1970	Recommended Practice for the Construction of Earth Embankment for Road Works
IRC : 37 – 1984	Guidelines for the Design of Flexible Pavement (First Revision)
IRC : 38 – 1988	Guidelines for the Design of Horizontal Curves for Highways and Design Tables (First Revision)
IRC : 56 – 1974	Recommended Practice for Treatment of Embankment Slopes for Erosion Control
IRC : 57 – 1974	Recommended Practice for Sealing of Joints in Concrete Pavements
IRC : 61 – 1976	Tentative Guidelines for the Construction of Cement Concrete Pavements in Hot Weather
IRC : 62 – 1976	Guidelines for Control of Access on Highways
IRC : 64 – 1990	Guidelines for Capacity of Roads in Rural Areas (First Revision)

IRC : 66 – 1976	Recommended Practice for Sight Distance on Rural Highways
IRC : 67 – 1977	Code of Practice for Road Signs
IRC : 69 – 1977	Space Standards for Roads in Urban Areas
IRC : 73 – 1980	Geometric Design Standards for Rural (Non-Urban) Highways
IRC : 75 – 1979	Guidelines for the Design of High Embankments
IRC : 79 – 1981	Recommended Practice for Road Delineators
IRC : 80 – 1981	Type Designs for Pick-up Bus Stops on Rural (i.e. Non-Urban) Highways
IRC : 81 – 1997	Tentative Guidelines for Strengthening of Flexible Road Pavements Using Benkelman Beam Deflection Technique (First Revision)
IRC : 84 – 1983	Code of Practice for Curing of Cement Concrete Pavements
IRC : 86 – 1983	Geometric Design Standards for Urban Roads in Plains
IRC : 92 – 1985	Guidelines for the Design of Interchanges in Urban Areas
IRC : 93 – 1985	Guidelines on Design and Installation of Road Traffic Signals
IRC : 98 – 1997	Guidelines on Accommodation of Underground Utility Services Along and Across Roads in Urban Areas (First Revision)
IRC : 103 – 1988	Guidelines for Pedestrian Facilities
IRC : 106 – 1990	Guidelines for Capacity of Urban Roads in Plain Areas
IRC : 108 – 1996	Guidelines for Traffic Prediction on Rural Highways
IRC : 109 – 1997	Guidelines for Wet Mix Macadam
IRC : SP:11 – 1998	Hand Book of Quality Control for Construction of Roads and Runways (Second Revision)
IRC : SP:15 – 1996	Ribbon Development Along Highways and its Prevention
IRC : SP:19 – 1977	Manual for Survey, Investigation and Preparation of Road Projects
IRC : SP:21 – 1979	Manual on Landscaping of Roads
IRC : SP:23 – 1983	Vertical Curves for Highways
IRC : SP:31 – 1992	New Traffic Signs

IRC : SP:41 – 1994 Guidelines on Design of At-Grade Intersections in Rural and Urban Areas

IRC : SP:42 – 1994 Guidelines on Road Drainage

IRC : SP:44 – 1994 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:7573 – 1974

IS:10500 – 1991

IS:1944 (Parts I & II) 1970 Code of Practice for Lighting of Public Thoroughfare : Parts 1 and 2 for main and secondary roads (Group A & B) (first revision) (Amendments no. 1 and 2) Parts 1 & 2 in one volume (Amendment 2)

IS:1944 (Part V) 1981 Code of Practice for Lighting of Public Throughfares: Parts 5 Lighting for Grade Separated junctions, Bridges and Elevated roads (Group D)

IS:1944 (Part VI) 1981 Code of Practice for Lighting of Public Throughfares: Part 6 lighting for towns and city centres and areas civic importance (Group E)

IS:10748 – 1995 Hot rolled steel for welded tubes and pipes (First Revision)

NBC National Building Code

Part III, NBC: Development Control rules and general building requirements

Part IV, NBC Fire Services

Part VI, NBC: Structural Design

Part VIII, NBC: Building Services

Part IX, NBC:	Plumbing Services
Generic Requirements No. G/CDS-081/01. DEC'99 TEC-DoT	Permanently lubricated HDPE Telecom Ducts For use as underground optical fibre cable conduits.

Appendix G-2**List of IRC Codes for the Design of Bridge Structures and Culverts**

IRC : 5 – 1998	Standard Specifications & Code of Practice for Road Bridges, Section I – General Features of Design (7th 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	Recommendations for Estimating the Resistance of Soil Below the Maximum Scour Level in the Design of Well Foundations of Bridges.
IRC : 54 – 1974	Lateral and Vertical Clearances at Underpasses for Vehicular Traffic.
IRC : 73 – 1980	Geometric Design Standards for Rural (Non-Urban) Highways
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 1 : Metallic Bearings

IRC : 83 – 1987 (Part-II)	Standard Specifications and Code of Practice for Road Bridges, (Part-II) Section IX-Bearings, Part II : Elastomeric Bearings
IRC : 89 – 1997	Guidelines for Design & Construction of River Training & Control Works for Road Bridges (First Revision)
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	Guidelines on Supplemental Measures for Design, Detailing & Durability of Important Bridge Structures.
IRC : SP:35 – 1990	Guideline for Inspection and Maintenance of Bridges
IRC : SP:40 – 1993	Guidelines on Techniques for Strengthening and Rehabilitation of Bridges
IRC : SP:47 – 1998	Guidelines on Quality Systems for Road Bridges (Plain, Reinforced, Pre-stressed and Composite Concrete)

SCHEDULE – H

CONSTRUCTION REQUIREMENTS

1.0 General

The Project Facilities shall be so constructed as to meet the requirements in respect thereof contained in the DPR and the Design Requirements. In addition, the Concessionaire shall observe and meet the following requirements:

2.0 Before Commencement of construction

2.1 Prior to commencement of any construction activity, the Concessionaire shall finalise an implementation plan for the Project (Implementation Plan) in consultation with the Independent Engineer. The Implementation Plan shall, inter alia, include:

- (i) A detailed schedule of implementation for putting up and operationalising the Project Facilities, and which shall specify at least 4 major milestones;
- (ii) The Critical Path Method (CPM)/ Programme Evaluation and Review Technique (PERT) charts or similar activity planning technique/ method for monitoring. This would cover all stages/ aspects of the Project implementation including design and engineering, procurement of materials and equipment, installation, construction and testing;
- (iii) Manpower deployment plan, including the designation of key personnel for the management and supervision of all Project activities. (This would include the designation of suitably qualified personnel for areas such as contract administration and supervision, construction management, traffic and safety, environmental management, plant and equipment maintenance, procurement, materials management and quality control); and
- (iv) A broad method statement for key items (Earth Works, GSB/WMM, Bituminous Layers, Concrete Works and Pre-stressing Concrete) setting out the methodology of construction, materials and construction equipment mobilisation/ utilisation plans, broad output calculations and details of the quality assurance and quality control procedures.
- (v) Format of the monthly report giving details of the physical progress in implementation of the Project and operations and maintenance activities undertaken (Monthly Progress Report).

2.2 Prior to commencement of any construction activity, the Concessionaire shall also finalise in consultation with the Independent Engineer an operations and maintenance plan for the Project during the Implementation Period (O&M Plan – Implementation Period) and which shall, inter alia, include the following :

- (i) an Environmental Management Plan based on the environmental assessment report contained in the DPR or based on such other alternate assessment made by the Concessionaire;
- (ii) Traffic Management Plan;
- (iii) a safety management programme including an Emergency Response Protocol.

- 2.3 The Concessionaire shall, in consultation with the Independent Engineer workout an appropriate schedule for submission of documents set out in 2.1 and 2.2 above to the Independent Engineer for review.
- 2.4 Prior to commencement of construction of any of the Project Facilities, the Concessionaire shall have:
- (i) Obtained all such Applicable Permits as are necessary to commence construction of such Project Facilities;
 - (ii) Finalised such Drawings as are necessary and the Implementation Schedule in consultation with the Independent Engineer;
 - (iii) Mobilised the requisite resources, personnel and organisation necessary for the same and designated and appointed suitable officers/ representatives as it may deem appropriate with responsibility to supervise implementation of the Project and for exchange of information with the Independent Engineer and NHAI;
 - (iv) Finalised in consultation with the Independent Engineer a method statement setting out details of the actual methods that would be adopted by the Concessionaire for the construction of such Project Facilities including details of equipment and machinery that would be used, their locations, and arrangements for conveying and handling materials;
 - (v) Finalised in consultation with the Independent Engineer quality assurance and quality control procedures to cover all aspects of the work so as to ensure the desired quality. This would include establishment of a well-equipped functional laboratory.

3.0 During Construction

- 3.1 The Concessionaire shall :
- (i) Ensure that the construction/ rehabilitation of the Project Facilities is undertaken with minimal inconvenience to the traffic using the existing highway and provide detours wherever required;
 - (ii) Ensure that the standard of service on the existing highway is maintained to the extent possible at the level that existed prior to the commencement of construction;
 - (iii) Take the necessary precautions to minimise accidents and respond to Emergency as quickly as possible;
 - (iv) Take precautions to avoid inconvenience to, damage to, destruction of or disturbance to any third party rights and properties;
 - (v) provide a safe, clear and informative system of road signs;

- (vi) ensure adequate safety of road users and the personnel deployed at the Project Site which would include measures for the safety of traffic such as the provision and maintenance of barricades, traffic signs and illumination during night in consultation with the Independent Engineer;
 - (vii) be in compliance with the Applicable Laws and Applicable Permits obtained for the Project including the clearances obtained by NHAI;
 - (viii) Adhere to the Implementation Plan and Implementation Period O&M Plan-Implementation Period;
 - (ix) deploy adequate number of qualified and competent personnel having relevant experience and skills for implementation of the Project and interaction with the Independent Engineer/ NHAI.
- 3.2 In flexible pavement type, longitudinal cold joint shall not be allowed while laying DBM and BC wearing course. The bituminous layers shall be laid in full width including the paved shoulders in a single go.
- 3.3 Positions and Levels
- (i) The Concessionaire shall be responsible for :
 - (a) the accurate setting-out in relation to original survey control points, lines and levels of reference provided by NHAI;
 - (b) the correctness of the positions, levels, dimensions and alignment of all parts of the works;
 - (c) the provision of all necessary instruments, appliances and labour in connection with the foregoing responsibilities;
 - (ii) If, at any time during execution of the works, any error is noticed in the position, levels, dimensions or alignment of any part of the Construction Works, the Concessionaire, on being asked to do so by the Independent Engineer, shall at his own cost, rectify such errors to the satisfaction of the Independent Engineer.
 - (iii) The checking of any setting-out or of any line or level by the Independent Engineer shall not in any way relieve the Concessionaire of his responsibility for the accuracy thereof and the Concessionaire shall carefully protect and preserve all benchmarks, sight rails, pegs and other materials used in setting-out the works.
- 3.4 Tests
- (i) Various quality control tests would be undertaken for the Project as per the standards prescribed by MoST and Bureau of Indian Standards. Where no testing methods are specified by the said standards, details of the tests to be carried out and specifications to be achieved for the respective Project Facilities/ Construction Works or part thereof shall be agreed upon with the Independent Engineer prior to construction;
 - (ii) Where material properties vary from or comply only marginally with the specifications contained in the Design Requirements/ DPR, the

Independent Engineer shall increase the frequency of testing as appropriate at the cost of the Concessionaire.

(iii) Workmanship

- (a) The finished bituminous layers (DBM and BC) shall be tested for workmanship (immediately before allowing traffic) by measuring roughness, longitudinally separately for each lane with the Calibrated Towed Fifth Wheel Bump Integrator. Calibration of Bump Integrator device shall be carried out using the procedure recommended in the World Bank Technical Publication No. 46. The measured roughness shall not exceed a value of 2000 mm/km for finished DBM and B.C. layers. In case DBM is laid in two separate lifts, the roughness shall be measured on the final DBM layer. The allowable tolerance is upto 5% of the specified roughness value.
- (b) Any completed layer (DBM and BC) having roughness in excess of the value 2000mm/km beyond the admissible tolerance shall not be accepted. For cement concrete pavement the same roughness level shall be applicable.
- (iv) The tests would be carried out at a location (place of manufacture, fabrication or preparation, at site or any specialised testing laboratory) that the Independent Engineer may reasonably require, at the cost and expense of the Concessionaire.
- (v) The Concessionaire shall provide such assistance, labour, electricity, fuels, stores, apparatus and instruments as are normally required for examining, measuring and testing any materials or plant and shall supply samples of materials, as required by the Independent Engineer to undertake Tests.

3.5 No part of the Construction Works shall be covered up or put out of view before the same has been examined by the Independent Engineer.

3.6 The Independent Engineer may from time to time require:

- (i) removal from the Project Site, within such time as may be specified in its instructions, any material, equipment, machinery or plant which, in its opinion, do not meet the standards specified in the Design Requirements/ DPR.
- (ii) Substitution/ replacement of such improper material, equipment, machinery or plant;
- (iii) Re-execution, of any or part of the Construction Works which in the opinion of the Independent Engineer do not meet the standards set out in the DPR/ Design Requirements;
- (iv) the Concessionaire to make boreholes or to carry out exploratory excavation for the Project.

3.7 The Concessionaire shall ensure minimum interference to the flow of traffic during widening stage of the existing 2-lane pavement. The additional carriageway shall be constructed first and the traffic diverted to it before improvements to the existing carriageway are commenced.

- 3.8 Eleven (11) Telecom Ducts of 40/33 mm size shall be supplied and laid by the Concessionaire. These shall be supplied/installed as follows:
- (i) permanently lubricated HDPE Telecom Ducts in the soil trenches 500 mm wide at a depth of 1.65 m in the highway median as specified in the drawings.
 - (ii) The installation of the ducts shall also include supply and installation of Precast R.C.C. Manholes each having dimension of 1200 mm length X 500 mm width X 400 mm height with 50 mm thickness and with Precast R.C.C. slab cover of 1200 mm length X 500 mm width and 50 mm thickness with hooks for lifting, as shown in the DPR. Precast R.C.C. manholes will be placed at every 1 km, one manhole for each duct as shown in the DPR.
 - (iii) The ducts shall be supplied in coils of continuous lengths of 1 km each and shall be laid throughout the length of the Project Highway by coupling the coils with the help of plastic couplers. Each duct coil shall enter its manhole at every 1 km through the opening provided in the manhole as shown in the DPR. The duct ends shall be properly and tightly sealed with the help of the end plugs so as to avoid ingress of any foreign particles such as dust dirt and water inside the duct. The accessories shall conform to DOT Spec G/CDS-08/01 Dec. 99.
 - (iv) After laying the ducts in the trench in a single layer, the trench shall be backfilled with the excavated earth and compacted to a height of 600 mm and a plastic warning tape 150 mm wide placed on top. The remaining depth shall be backfilled with the excavated earth and compacted.
 - (v) Concrete markers shall be provided for each manhole each duct. The colour of the concrete markers shall be same for all manholes of a particular duct. Further, colour of manholes shall be different for different ducts and shall be provided with the clear identification of all manholes for each duct, distinct from the other ducts.
 - (vi) In case of bridge, culvert and stream crossings, ducts shall be carried through three (3), 150 mm dia G.I. pipes. Actual crossing locations will be established in consultation with and approved by the Independent Engineer.
 - (vii) After completion of duct installation, the Concessionaire shall submit details of the Duct Integrity Test certified by the manufacturer and carry out the Duct Integrity Test, to the satisfaction of the Independent Engineer/NHAI, of the suitability of the deployment of multiple Permanently Lubricated HDPE Telecom Ducts for future installation of the OFC.
- 3.9 The Concessionaire shall ensure that HDPE pipes used for the cable ducts have not deteriorated due to sunlight during the period between manufacture and installation in the ground.

- 3.10 The Concessionaire shall mobilise adequate numbers of equipment, plants and machinery to ensure adherence to the Implementation Plan. The Concessionaire shall ensure that:
- (i) the Hot Mix Plant is of Batch type with minimum 150 TPH capacity.
 - (ii) drum mix type Hot Mix Plant is not used on the Project Site under any circumstances.
 - (iii) no old inefficient plant, machinery or equipment is used and generally should not be more than 3 years old.
 - (iv) full width Paver finisher with Electronic Sensor Device is mobilised with such adjustable floating screed width so that no cold longitudinal joints are formed while laying DBM or AC layer including the paved shoulder's width.
- 3.11 The Concessionaire shall arrange for the quarrying, where required, of all the material requirements for the Project and disposal of all material wastes. The Applicable Permits in this regard would have to be obtained by the Concessionaire. All quarrying operations shall be carried out by the Concessionaire with minimum degrading of the environment. All excessive and unsuitable excavated materials shall be stacked at appropriate dumping places or otherwise disposed of by the Concessionaire in consultation with the Independent Engineer.
- 3.12 Prior to making the request for the issue of Completion Certificate, the Concessionaire shall submit to the Independent Engineer/ NHA I the following, duly finalised in consultation with the Independent Engineer:
- (i) the Operation and Maintenance Manual for the Project (O&M Manual) setting out in detail the standards, schedules, procedures, type, periodicity and other details of the operation and maintenance activities to be carried out for the Project during the Operations Period so as to meet the O&M Requirements as well as details of the management information system to be incorporated, reports to be submitted and procedure for reviews.
 - (ii) The Operations & Maintenance Plan (O&M Plan) for the first year of operations.

4.0 After Completion of Construction

Upon completion of construction (including road marking work) but prior to issue of the Completion Certificate, the Project Site shall be cleared of all construction equipment, surplus materials, debris and temporary installations and shall be left in tidy and an aesthetically pleasing appearance to the satisfaction of the Independent Engineer.

5.0 Reporting Requirements and Documents to be provided

- 5.1 During the Implementation Period, the Concessionaire shall submit to the Independent Engineer/ NHAI Monthly Progress Report (for each calendar month or part thereof) within 5 working days of the last day of the month. The report shall review the progress made, identify slippages if any, and project the future activities to be undertaken (including rectifications), operations and maintenance activities undertaken and would, inter alia, include the following:
- (i) Listing of working drawings/sketches submitted
 - (ii) Comments of Independent Engineer, if any on the working drawings/sketches submitted
 - (iii) Concessionaire's response to the comments on the Drawings/sketches
 - (iv) Listing of the "As Built" drawings submitted
 - (v) Progress of pre-construction activities - mobilization of plant and equipment, personnel, site office, utility relocation etc.
 - (vi) Concessionaire's compliance inspection report, if any required
 - (vii) Constraints in construction
 - (viii) Progress data with "S" curves, if applicable
 - (ix) Project data with contract detail and sectional completion details
 - (x) Tests carried out, if any, and results thereof
 - (xi) Remedial measures taken by the Concessionaire following such tests, where required
 - (xii) Traffic management steps taken by the Concessionaire
 - (xiii) Review of milestones and reasons for delay, if any
 - (xiv) Suspension of construction, if any, its reasons, duration and the steps undertaken to resume construction
 - (xv) 'Change of Scope Notice issued by NHAI, if any, and status thereof
 - (xvi) All actual or potential deviations from the Implementation Plan
 - (xvii) Disagreements/ Disputes , if any and proposed measures to be taken
 - (xviii) Maintenance activities carried out by the Concessionaire on the existing carriageway
 - (xix) Monthly weather report giving daily temperature maximum and minimum value, rainfall and any other significant event
 - (xx) Injury to any construction personnel during construction, its severity, cause and remedial measure(s) taken to avoid recurrence
 - (xxi) Brief report of any accident / incident within the Project Site, injury/fatality, property damage, cause of accident and actions taken to avoid recurrence

- (xxii) Summary of daily journal for incident lane closure, time and duration and length
 - (xxiii) Traffic detour/diversion for construction - time and duration and number of available lanes
 - (xxiv) Notes of meetings between the Concessionaire, the Independent Engineer and NHA1 highlighting critical decisions taken or agreements reached.
- 5.2 Prior to making the request for the issue of Completion Certificate, the Concessionaire shall submit to NHA1 the following documents, free of costs:
- (i) Three hardcopies and two copies in electronic form (two Compact Discs) of the "As Built" drawings of the Project Highway - detailed, accurately scaled and sequentially numbered, covering all relevant engineering features, which in relation to structures shall also include cross sections in each drawing;
 - (ii) copies of all geo-technical and borehole reports obtained by the Concessionaire, if any;
 - (iii) Three hardcopies and two copies in electronic form (two Compact Discs) of the Operations and Maintenance Manual.

SCHEDULE – I

OPERATION AND MAINTENANCE (O & M) REQUIREMENTS

1.0 General

- a. The Concessionaire shall comply with the O&M Requirements set out in this Schedule. In doing so, the Concessionaire shall ensure that the Project Facilities are maintained to the standards and specifications as set out in the Design Requirements and DPR and shall also meet the other requirements, if any, set out in the Agreement.
- b. During the Implementation Period, the Concessionaire shall take appropriate measures to operate and maintain the existing 2 lane highway and ensure that the same remains open for uninterrupted, smooth and safe traffic flow at all times.
- c. In the design, planning and implementation of all works and functions associated with the operation and maintenance of the Project Facilities, the Concessionaire shall take all such actions and do all such things (including without limitation, organising itself, adopting measures and standards, executing procedures including inspection procedures, highway patrols, and engaging contractors, if any, agents and employees) in such manner, as will :
 - (i) Ensure the safety of personnel deployed on and users of the Project Facilities or part thereof;
 - (ii) Keep the Project Facilities from undue deterioration and wear;
 - (iii) Permit unimpaired performance of statutory duties and functions of any party in relation to the Project;
- d. During the Concession Period, the Concessionaire shall ensure that :
 - (i) The Project Facilities are kept free from undue deterioration and undue wear;
 - (ii) applicable and adequate safety measures are taken;
 - (iii) minimum delay is caused to users of the Project Facilities;
 - (iv) adverse effects on the environment and to the owners and occupiers of property and/or land in the vicinity of the Project Facilities, due to any of its actions, is minimised;

- (v) Any situation which has arisen or likely to arise on account of any accident or other emergency is responded to as quickly as possible and its adverse effects controlled/minimised;
- (vi) disturbance or damage or destruction to property of third party by operations of the Project Facilities is controlled/minimised;
- (vii) Members of the public times are treated with due courtesy and consideration by its employees/ agents;
- (viii) Users are provided with adequate information and forewarned of any event or any other matter affecting the Project Facilities to enable them to control/minimise any adverse consequences by such event or matter;
- (ix) A complaint register to record grievances of any member of the public in relation to the operations and maintenance of the Project/Project Facilities is duly maintained;
- (x) Traffic data and data relating to the operation and maintenance of the Project Facilities are collected;
- (xi) All materials used in the maintenance, repair and replacement of any of the Project Facilities shall meet the Design Requirements/ standards prescribed in the DPR.
- (xii) The personnel assigned by the Concessionaire have the requisite qualifications and experience and are given the training necessary to enable the Concessionaire meet the O & M Requirements.

2.0 Operation and Maintenance Manual and O & M Plans

- a. Prior to the commencement of any construction activity, the Concessionaire, in consultation with the Independent Engineer, shall finalise the O&M Plan - Implementation Period.
- b. As provided in Schedule H, prior to making application for the Completion certificate for the Project the Concessionaire shall finalise in consultation with the Independent Engineer:
 - (i) the O&M Manual
 - (ii) the O&M Plan for the first year of operations.
- c. Six weeks prior to the anniversary of COD each year, the Concessionaire shall submit an annual O&M Plan for the next year of operations.

3.0 Maintenance Requirements

3.1 Road Works

A Maintenance Standards

a. During Implementation Period, the Concessionaire shall maintain the existing 2 lane highway in traffic v

Table I - 1
Intervention Levels
(Existing 2 lane highway during Implementation Period)

Sl.	Service Factor	Level 1 (Desirable)	Level 2 (Acceptable)
1.	Potholes / km (max) i) upto 75 mm deep ii) more than 75 mm deep	Nil Nil	5 nos. of size < 5 sq.m Nil
2.	Percent Cracking	Nil	No Unsealed cracks > 6mm wide on 95% Project Highway.
3.	Rut Depth not exceeding 10mm	Length not more than 10% of the Project Highway	Length upto 20% of Project Highway
4.	User Information	All road signs, Km post and road marking in good condition.	All road signs, Km post and road marking in good condition.
5.	Percentage Defective bridge Deck area and bump at approach	Nil	Nil
6.	Drainage (including shoulders)	No visible water pool within the ROW	No visible water pool within the ROW.
7.	Characteristic Deflection as per IRC: 81-1997	Upto 0.50 mm	Upto 0.80 mm

b. During Operations Period, all the road works and pavements contained in the Project Facilities (including those in the ancillary facilities) shall be maintained in traffic-worthy condition as per the intervention levels 1 & 2 as provided in the Table I - 2 through the various maintenance activities set out later.

Table I - 2
Intervention Levels
Operations Period

Sl.	Service Factor	Level 1 (Desirable)	Level 2 (Acceptable)
1	Roughness by Bump Integrator (max. permissibility)	2000 mm/Km (Allowable Tolerance: +5%)	3000 mm/Km
2	Potholes / km (max) i) Less than 75 mm deep ii) more than 75 mm deep	Nil Nil	2 nos. of size < 5 sq.m Nil
3	Percent Cracking	Nil	No Unsealed cracks > 6mm wide on 95% Project Highway.
4	Rut Depth not exceeding 10mm	Length not more than 5% of Project Highway	Up to 10% of length of Project Highway
5	User Information	All road signs, Km post and road marking in good condition in 3 language formula.	All road signs, Km post and road marking in good condition in 3 language formula
6	Percentage Defective bridge Deck area and bump at approach	Nil	Nil
7	Camber i) Mainline ii) Service Road	(+ or -) 0.05% variation from the Camber as per Design Requirements (+ or -) 0.10% variation from the Camber as per Design	(+ or -) 0.15% variation from the Camber as per Design Requirements (+ or -) 0.20% variation from the Camber as per Design Requirements

		Requirements	
8	Drainage (including shoulders)	No visible water pool within the Project Highway	No visible water pool within the Project Highway
9	Characteristic Deflection as per IRC: 81-1997	Upto 0.50 mm	Upto 0.80 mm

- c. The road roughness value shall be measured at least twice in a year by a properly calibrated Bump Integrator device before the monsoon and soon after the monsoon i.e in the months of June and November of every year. It shall be measured longitudinally or transversely along the line picking up worst surface characteristics, which include the rut areas and depressions etc. The Concessionaire shall ensure that at no point during the Operations Period the roughness in the road surface shall fall below than the prescribed acceptable roughness values given in Table I - 2.
- d. 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. In the case of cement concrete pavement, joints shall be thoroughly inspected every year and the loss of sealing compounds made good.
- e. Bridges and Other Structures: The Concessionaire shall maintain and carry out required repairs of the various elements of the structures in accordance with IRC-SP-35: 1990.

B. Maintenance Activities

1. Routine Maintenance

- a. In order to ensure smooth and uninterrupted flow of traffic during normal operating conditions for all 24 hours of a day, routine maintenance of the Project Facilities shall include but not be limited to:
- (i) prompt repairs of potholes, electrical items, concrete joints, drains, line marking, lighting and signage; patching, re-grading of granular shoulders to designed standard, making good the deficiency of material on the shoulder, drain cleaning, repairing of signs, road marking, carrying out repairs to pavement crack by sealing;
 - (ii) replacement of equipment/consumables, horticultural maintenance and repairs to equipment, pavements, bridges, structures and other civil works which are part of the Project/Project Facilities;
 - (iii) maintenance of the approach roads to and underpasses, overpasses and drainages within the Project Site in accordance with Good Industry Practice;
 - (iv) keeping the Project Site/Project Facilities in a clean, tidy and orderly condition free of litter and debris and taking all practical measures to prevent damage to the Project Facilities or any other property on or near the Project Site. Removing and disposing of in accordance with all

Applicable Laws and Applicable Permits, all rubbish, debris, etc. including any and all equipment, supplies, materials and wastes brought or produced by the Concessionaire/Contractor on the Project Site;

- (v) undertaking maintenance works in accordance with the O & M Plan and O&M Manual;
 - (vi) preventing, with the assistance of concerned law enforcement agencies where necessary, any unauthorised entry to and exit from and any encroachments including any encroachments on the ROW /Project Site;
 - (vii) taking all reasonable measures for the safety of all the workmen, material, supplies and equipment brought to the Project Site. Explosives, if any, shall be stored, transported and disposed of by the Concessionaire in accordance with Applicable Laws/Applicable Permits.
- b. For routine maintenance works, the Concessionaire shall generally follow the operational and performance criteria specified in the respective IRC/MoST standards and specifications for each of the performance indicators covered under pavement condition survey, roughness and BBD deflections. Where such criteria are not specified in the standards, the Concessionaire, for the purpose of routine maintenance shall set forth such criteria as to conform to good international standards and Good Industry Practice for sound pavement maintenance practices in consultation with the Independent Engineer.
- c. The Concessionaire shall regularly carry out the necessary preventive maintenance activities for the Project Facilities to ensure adherence to the Design Requirements/ specifications set out in the DPR throughout the Concession Period.
- d. Asset Management Deliverables And Tolerance Criteria: The Concessionaire shall strictly follow and adhere to the Asset Management Project Deliverables and Tolerance Criteria as given in Appendix: I-1.

2. Periodic Maintenance

- a. This activity shall be carried out at the end of 5th year and 15th year from COD. Roadmarking as specified and other road side features shall be restored to meet the relevant standards to the satisfaction of the Independent Engineer.
- b. The periodic maintenance activities shall also include profile corrective course overlaid with periodic renewal of the wearing course of the road pavement with minimum 40 mm thick Asphaltic Concrete (AC). The same shall be undertaken on all roads and pavements in the Project Facilities including on the truck lay-bys, bus bays and Wayside Amenities – Service Area.
- c. The paved shoulders shall also be treated in similar manner as applicable to the Mainline traffic lanes.
- d. The periodic renewal shall result in improvement of the riding quality, meeting road roughness value as at the time of COD.

- e. The granular hard shoulders shall be restored to the design cross section as per the DPR. This will involve application of additional granular material of same characteristics to bring it back to the required cross section.
- f. The rip-rap (stone pitching) shall be repaired wherever required.

3. Strengthening/Rehabilitation

- a. This activity shall be carried out at the end of 10th year from COD.
- b. The Concessionaire shall carry out pavement condition survey for evaluation of existing pavement and make up the structural deficiency with DBM and AC overlays of appropriate thickness. Besides the profile corrective course, even if no structural layer is warranted, the Concessionaire shall still lay a minimum 100 mm thick layer comprising 60 mm DBM and 40 mm thick AC. Alternatively, the concessionaire shall be allowed to use cold in-place recycling of existing bituminous layers and overlay minimum 40 mm thick AC layer provided such operations impart and equivalent structural strength as could be achieved by traditional overlay method defined above.
- c. The paved shoulder shall also be treated in a similar manner as applicable to the Mainline traffic lanes.
- d. The granular hard shoulders shall be restored to the design cross section as per the DPR. This will involve application of additional granular material of same characteristics to bring it back to the required cross section.
- e. The rip-rap (stone pitching) shall be repaired wherever required.
- f. Roadmarking as specified and other road side features wherever required shall be restored to meet the relevant standards specified.

4. Emergency Maintenance

- a. The Emergency Response Protocol ("ERP") shall be developed by the Concessionaire in consultation with the local police, hospital/ambulance services, fire departments and other authorities/support personnel and the Independent Engineer. This shall be a part of the O&M Manual developed by the Concessionaire.
- b. The ERP shall set out steps to be taken and measures to be adopted by the Concessionaire in responding to dealing with Emergency including those situations related to vehicle accidents involving personal injuries or fatalities, property damage and force majeure as follows :
 - (i) In the event of an Emergency, the Concessionaire shall immediately carry out an inspection of the area affected by the Emergency. Where Emergency has necessitated closure of the Project Facilities or part thereof, the Concessionaire shall promptly carry out any repair works necessary to restore the Project Facilities to safe condition and in any

event shall carry out such works before the affected area of the Project Facilities is re-opened to traffic.

- (ii) The Concessionaire shall ensure that sufficient staff, plant, equipment and materials, including without limitation medical assistance are available to respond to Emergency within reasonable period at all times during the Concession Period.
- (iii) The Concessionaire shall employ appropriate personnel as 'Duty Officers' and shall ensure that a Duty Officer is on duty at all times to respond to Emergency. A schedule of the telephone numbers of the Duty Officers shall be provided to NHAI, GoWB, Independent Engineer and the police so that contact can be made with a Duty Officer at any time. The Concessionaire shall ensure that Duty Officers are empowered to mobilise the necessary staff, plant, equipment and materials in response to information or instruction from NHAI, Independent Engineer, police or other emergency services in the event of Emergency. Procedures for liaison between Duty Officers and the police and other emergency services shall be developed as part of the Emergency Response Protocol.

c. In case of Emergency, the Concessionaire shall

- (i) carry out such emergency maintenance and repairs as may be required to repair the damages, if any, in consultation with the Independent Engineer and where required under the supervision of the police in order to ensure that the Project Facilities are returned to normal operating standards as quickly as possible..
- (ii) follow the relevant operating procedure specified in the O&M Manual including the setting up of temporary traffic cones and lights as well as the removal of obstruction and debris expeditiously.
- (iii) Take all necessary measures to minimise pollution in accordance with the procedure specified in the O&M Plan/ Environmental Management Plan where liquid or soluble material spillage is involved.

5. Other Maintenance Works

- a. Illumination: The Concessionaire shall maintain all Illumination installations and related hardware in accordance with relevant clauses of IS: 1944 (Part I-V) 1981. The maintenance will normally involve cleaning of luminaries, replacement of burnt out luminaries, damaged illumination poles or brackets and repairs to transformers. Detailed maintenance procedure for the same shall be prepared in consultation with the Independent Engineer. In case of any breakdown, illumination shall be restored within 24 hours. The following standards shall broadly apply:
 - (i) Illumination shall be maintained at the designed level throughout the Concession Period.
 - (ii) All faults shall be repaired instantly and lighting restored and missing and damaged items shall be replaced instantly.

- (iii) Cleaning shall be done at regular intervals as specified in the O&M Manual to ensure that lighting is not below the specified standard.
 - (iv) All installations shall be safeguarded against weathering and ageing effect by repainting and other preventive measures.
 - (v) The servicing of stand-by power generations units shall be carried out in accordance with the manufacturer's instructions.
- b. Highway Signs and Road Markings
- (i) All traffic signs and markings shall always be kept clean, visible and in correct alignment and position.
 - (ii) 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 shall be 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.
 - (iii) Any part of traffic signs damaged due to weathering, corrosion, vandalism or any other cause shall be replaced by the Concessionaire within seven days.
 - (iv) Any mandatory sign including those for traffic safety, damaged beyond repair shall be replaced within 2 days and all other signs replaced within 3 days.
 - (v) 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.
 - (vi) Line marking with thermo-plastic paint shall be carried out soon after any overlay/renewal coat is provided.
- c. Landscaping
- (i) 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.
 - (ii) Trees shall be maintained as per the guidelines in IRC : SP : 21 – 1979 and no indiscriminate felling of trees shall be resorted. The felling of trees shall be undertaken in consultation with the Independent Engineer and after obtaining due permission of the Forest Department, as applicable.

- (iii) While borrowing earth from roadside land for maintenance it shall be ensured that no earth is removed from around the roots of trees. All borrowing operation shall be as per IRC:10-1961.
 - (iv) Maintenance operations include numbering and maintaining a register of all road side trees within the Right of way (ROW)).
 - (v) 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.
 - ◆ 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;
 - ◆ Turning 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.
 - ◆ The O&M Manual shall include a maintenance and management plan for trees, shrubs, turfing and hedges to sustain their development in a manner pleasing in appearance
- d. Safety Barriers and Pedestrian Guard Rail
- (i) The Concrete Barrier (New Jersey Type) should require minimum maintenance except in case of damage due to impact.
 - (ii) Concrete Posts and Steel Beam Guardrails will require repairs or replacement from low to medium impact damage caused by vehicles. Periodic painting will also be required.
- e. PIU Complex, Maintenance Yard and Wayside Amenity - Service Area
- i. The Concessionaire shall carry out regular and periodic inspection and maintenance of the PIU Complex and Wayside Amenity. This shall include cleaning, repairs and maintenance of various parts of the building, services and facilities in a wholesome and hygienic condition at all time. This will involve replacement of irreparable items of work,. cleaning & disinfecting of the water supply systems, inspection and maintenance of drainage/sanitation systems and Illumination and electrical installations, landscaping, painting and shall be as per relevant clauses of NBC. Maintenance of pavement of parking lot with road markings shall also be carried out.
 - ii. Maintenance of all furniture, furnishing items and equipment shall include periodic servicing, checking, replacement attending to all necessary repairs, replenishment of the consumables and other incidentals. Laboratory shall be maintained and operated efficiently to carry out requisite Tests till end of the concession period.

f. Truck Lay-Bys and Bus Bays

Maintenance of Truck Lay-Bys and Bus Bays shall include attending to repairs to the pavement, illumination, road signs and road marking, landscaping etc and also to various parts of the passenger shelter and other facilities like drinking water, toilets, litter bins etc as and when necessary. Replacement of irreparable items shall be done within 2 days.

g. Road Furniture

i. Maintenance of road furniture like KM post, Hectometer stones, ROW pillar etc and 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.

ii. At the end of the Concession Period, all road furniture shall be handed over to NHAI in useable and in working order.

4.0 Safety and Traffic Management Operations

4.1 Safety

a. The Concessionaire shall implement a Safety Management Programme in line with relevant MoST and IRC guidelines. This shall form a part of the O&M Manual.

b. The Concessionaire shall nominate a traffic safety and control officer (Traffic Safety Officer) who shall be responsible for all arrangements necessary for traffic safety and control including the provision and operation of recovery vehicles for breakdown. The Traffic Safety Officer shall be available on call on a 24 hours' basis.

c. In case of Emergency, the Concessionaire shall take prompt and effective steps to minimise the adverse effects to road users and shall act as requested or as directed by the Police and take all such safety precautions and measures to minimise the risk of personal injury.

4.2 Traffic Management

A. General

Traffic Management shall be undertaken during scheduled and unscheduled construction work and maintenance activities and also during any Emergency. Traffic Management during Emergency shall be undertaken in consultation with the Independent Engineer. The extent of the traffic management shall be assessed as per the site conditions.

B. Traffic Management Plan

a. Before the commencement of construction activity, an overall traffic management plan and programme for a planned scheduled construction and/or operations and maintenance activity of the existing highway shall be prepared in

consultation with the Independent Engineer. The plan shall be based on the following operational parameters:

- (i) The existing two lane carriageway shall be utilised to the maximum extent possible;
 - (ii) At major intersections all traffic turning movements will be allowed at all times;
 - (iii) Lane closure adopted for diverting the main traffic during Construction Works shall be governed by the approved programme of construction.
 - (iv) Existing 2 lane traffic may be reduced to a one lane one-way operation for a short duration of a maximum of 4 hours in 24 hours provided it is adequately controlled by signing and flag men;
 - (v) The activity of renewal or strengthening shall not be carried out in a continuous length of more than 2 km in rural section and 1.0 km in urban section and shall not be closer than 2 km and 1 km in between respectively;
 - (vi) Lane closure in short lengths less than or equal to 500 metres for carrying out routine maintenance activities shall not be more than for a continuous period of 12 hours.
 - (vii) Traffic speed through the construction zone shall be reduced to 40 km/hr by designed speed bumps and warning signs.
 - (viii) For the safety of construction workers as well as the traffic, a physical separation of 1.5 m between work area and the highway traffic shall be maintained by installing orange coloured drums; (Painted rocks/stones are not permitted).
 - (ix) All construction traffic shall enter and exit the construction site at designated and manually controlled entrances;
 - (x) All short (4 months and less and during dry season) and long (more than 4 months and during monsoon season) term temporary road detours (diversions) shall be designed and submitted for approval by the Independent Engineer prior to construction;
 - (xi) Adequate advance warning and information signs shall be incorporated in the traffic management plan in accordance with IRC/MoST standards and specifications.
- b. The Concessionaire shall provide, erect, maintain, reposition, cover, uncover and remove traffic signs as required in respect of works on the Project Site (including without limitation any diversions). Adequate safety during night time shall be ensured by providing mobile emergency lighting units with illuminated warning signs at important locations finalised in consultation with the Independent Engineer.

C Corridor Control Plan

- a. Regular 24 hours patrol/surveillance of the ROW in respect of the Project/Project Facilities shall be required to monitor, report and take actions against activities, such as, encroachments, unauthorised construction of road or entrance connections, structures, interference with drainage system etc, within 150 m of the highway corridor.
- b. Surveillance shall also include traffic operation and management of accidents/ other incidents.
- c. The Corridor Control Plan shall be developed in consultation with local administrative authorities and the Independent Engineer and shall form a part of the O & M Manual.

5.0 Inspections & Frequency

The Concessionaire shall plan inspection programme for the Project Facilities for its smooth operations as follows:

5.1 Visual Inspection

Visual Inspections are broad general inspections carried out frequently by highway/ bridge maintenance engineers having adequate knowledge of road structures. The purpose of 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 Facilities for identification and for quantification of the deficiencies or damages of the Project Facilities.

5.2 Close Inspection

Close inspections may be visual and/or 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 frequency of close inspections would depend 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 analysis the nature, and extent of defects/deficiencies, suggest suitable remedial measures to rectify/remedy them and quantify repair work.

5.3 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 would be of critical importance for bridges, culverts and drainage structures, as well as road pavements during adverse weather condition of monsoon period.

5.4 Frequency of Inspections

The type of inspection and related frequency of various items of Project Highway and its facilities have been indicated in the Table I- 3 below. The frequency of inspection can be suitably revised in consultation with the Independent Engineer if the situation so warrants. 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 I-3
Objective and Frequency of Inspection**

Object	Item	Daily	Monthly	Quarterly	Before and after rainy season
Riding Surface	Pavement	◆	7		●
	Expansion joints	◆	7		●
Median	Kerb	◆	7		●
Side Slopes	Shape	◆		7	●
	Turfing		◆		●
	Pitching & masonry		◆		●
	Retaining wall		7		●
Drainage	Side/Toe drain	❖	7		
	Gullies and catch pits	❖	7		
Bridges	Superstructure			7	●
	Substructure			7	●
	Head wing walls and aprons			7	●
	Painting				●
	Hand rail		7	●	
Culverts/ Underpasses					●
Safety Barrier		◆		7	●
Traffic operation facilities	Signs		●	7	
	Marking	◆	7	●	
	Delineator	◆	7	●	
	Lighting	◆		7	
Other facilities	Vegetation / landscaping	◆	7	●	
	Truck layby	◆	7		
	Way side amenities	◆	7		
Traffic Conditions		◆	●	7	
Encroachments		◆	●		

LEGEND

- ◆ Visual inspection
- 7 Close inspection
- Thorough inspection
- ❖ Visual inspection during rainy season only

6. Reporting Requirements

The reporting and information that generally need to be provided by the Concessionaire are given below. The Requirements given below are indicative of the type of information to be provided. The format of such reports, recording requirements, software standards and number of copies required would be finalised in consultation with the Independent Engineer. All reports and records shall be in the English language.

6.1 Inspection Reports and Remedial Measures

The periodicity of inspections for maintenance activities by the Concessionaire shall be set out in the O&M Manual and regular reports on the same shall be sent to the Independent Engineer. Where required, the Concessionaire shall carry out any maintenance, repair or rehabilitation works found necessary as a result of such inspections.

6.2 Monthly O & M Report

During the Concession Period, within 5 days of the end of each calendar month or part thereof, the Concessionaire shall provide to the Independent Engineer/ NHA1 a monthly report (Monthly O&M Report) which shall contain the following minimum information:

- (i) Inspections undertaken by the Concessionaire during the month and action taken/ proposed thereafter;
- (ii) Details of all reports submitted to the Independent Engineer during the month
- (iii) O & M inspection compliance report
- (iv) Maintenance activities undertaken during the month ended,
- (v) Details of any Emergency and action taken

The format of the O&M Report would be finalised in consultation with the Independent Engineer.

7.0 O & M Manual

- a. The O&M Manual prepared by the Concessionaire in consultation with the Independent Engineer shall set out the operations and maintenance standards and details of the operations and maintenance activities to be undertaken during the Concession Period, so that the Project Facilities shall at all times conform to the Design Requirements/ specifications set out in the DPR.
- b. The O&M Manual should have separate sections for operations and maintenance.
- c. The Manual should include without limitation the following aspects:
 - (i) Organisation structure with responsibilities of key personnel;
 - (ii) Traffic Management Plan including the Corridor Control Plan;
 - (iii) Safety Management Programme including the Emergency Response Protocol;
 - (iv) Inspection Procedures;
 - (v) Maintenance Intervention Levels;
 - (vi) Asset Management Project Deliverables and Tolerance Criteria;
 - (vii) Environment Management Plan;
 - (viii) Maintenance Programme;
 - (ix) Management information system;
 - (x) Report Formats.

8.0 Miscellaneous

a. Inventory

- (i) The Concessionaire shall maintain an inventory of all items comprised in the Project Facilities (the "Inventory"), in a format to be developed in consultation with the Independent Engineer.
- (ii) Throughout the Concession Period the Concessionaire shall keep the Inventory updated to take account of works carried out on and other changes made to the Project Facilities.
- (iii) A copy of the Inventory shall be submitted by the Concessionaire to the Independent Engineer within thirty (30) days of receipt of a request for the same.

b. Abnormal Indivisible Load Routing (Oversize and Overweight)

- (i) The Concessionaire shall take all reasonable steps to facilitate the transit of Abnormal Indivisible Loads along the Project Facilities.
- (ii) The Concessionaire shall develop a procedure for handling Abnormal Indivisible Loads in consultation with local authorities and the Independent Engineer.

c. Equipment belonging to third parties

The Concessionaire shall be responsible for the installation, operation, maintenance and removal of any equipment belonging to third parties.

ANNUIITY PAYMENT SCHEDULE **SCHEDULE J**

SCHEDULE K
CASHFLOW PROJECTIONS

Cashflow Projections submitted by the Concessionaire as part of Price Proposal.

(As submitted by the Concessionaire)

SCHEDULE – L

INDEPENDENT ENGINEER - SCOPE OF WORK

1. Role of the Independent Engineer

The Independent Engineer is expected to play a positive and independent role in discharging its functions, thereby facilitating the smooth implementation and operation of the Project. Broadly, the role of the Independent Engineer is to:

- i) independently review, monitor and where required by the Agreement, to approve activities associated with the Design, Construction, Operation and Maintenance of the Project Facilities to ensure compliance by the Concessionaire with the DPR/ Project Requirements,
- ii) report to the Parties on the various physical, technical and financial aspects of the Project based on inspections, site visits and Tests,
- iii) assist the Parties in arriving at an amicable settlement of disputes, should the need arise, and
- iv) review matters related to safety and traffic management measures adopted by the Concessionaire for the Project.

2. Scope of Services

The services to be provided by the Independent Engineer are listed below. In addition, the scope of services would also include such other functions as are required to be undertaken pursuant to specific provisions of the Agreement.

2.1 Implementation Period - Design and Planning

- a. Where the Concessionaire chooses to adopt the Drawings provided in the DPR, no review of the same is envisaged;
- b. In case the Concessionaire (i) proposes any deviation to the Drawings or (ii) submits alternative Drawings for any of the Project Facilities or (iii) submits any Drawings required but not included in the DPR, the Independent Engineer shall review the same to ensure conformity with the Design Requirements.
- c. Review of the following submitted by the Concessionaire :
 - (i) Quality Assurance Plan;
 - (ii) Implementation Plan;
 - (iii) O & M Plan – Implementation Period;

- (iv) Condition Survey of the existing 2 lane road, bridges and other structures and rehabilitation measures to be adopted for the same.

2.2 Implementation Period - Construction

- a. The Independent Engineer would monitor, in accordance with Good Industry Practice, the progress in implementation and ensure compliance with the Construction Requirements. For this purpose the Independent Engineer shall undertake, interalia, the following activities and where appropriate make suitable suggestions:
 - (i) monitor the progress in implementation of the Project based on the Implementation Plan submitted by the Concessionaire;
 - (ii) review and approve the material testing and mix designs results and recommend special tests, where required, for materials and/or completed works, require removal/substitution of unsuitable materials and /or works and report deficiencies in respect of the same to NHA1;
 - (iii) review and monitor the quality assurance and quality control procedures followed by the Concessionaire;
 - (iv) review the manpower and equipment deployed by the Concessionaire;
 - (v) monitor the Construction Works for conformity with the DPR/ Project Requirements (including rehabilitation of the existing road and bridge structures);
 - (vi) verify the 'As Built' drawings for each component of the works prepared by the Concessionaire and require removal of deficiencies found therein;
 - (vii) review the safety and traffic management measures implemented;
 - (viii) review and ascertain the cost variation arising as a result of Change in Law and/ or Change in Scope and determine the Additional Cost;
 - (ix) require, monitor and review the results of Tests to be carried out by the Concessionaire in accordance with the Construction Requirements and/ or O&M Requirements;
 - (x) require suspension of whole or any part of the Construction Works if in its reasonable opinion the same does not conform to the Construction Requirements;
 - (xi) issue Provisional Certificate and/ or Completion Certificate in accordance with the applicable provisions of the Agreement; and
 - (xii) review and assist in finalisation of the O&M Manual and first annual O&M Plan prepared by the Concessionaire.

2.3 Operations Period

- a. During this period the Independent Engineer would monitor, in accordance with Good Industry Practice, the operations and maintenance activities undertaken by the Concessionaire so as to ensure compliance with the O&M Requirements. The specific activities to be undertaken would include the following :
- (i) review the O&M Plans submitted by the Concessionaire from time to time and assist the Concessionaire in finalising the same;
 - (ii) monitor Operation and Maintenance activities (including maintenance of equipment, standards of service, traffic management, safety and environmental issues) and the overall quality of O&M activities so as to ensure compliance by the Concessionaire with the O&M Requirements, O&M Plan and O&M Manual;
 - (iii) Periodically review the O&M Manual for adequacy;
 - (iv) inspect the Project Facilities at least once a month and as and when exigencies require to ascertain conformity with Project Requirements;
 - (v) review and ascertain the cost variation arising as a result of Change in Law and/ or Change in Scope and determine the Additional Cost;
 - (vi) undertake a quarterly review of the various records and registers to be maintained by the Concessionaire (including the records relating to complaints and accidents) and suggest suitable remedial measures/ procedures, where necessary.
- b. In the event of Emergency, the Independent Engineer shall assist the Concessionaire in dealing with the same and if necessary require or permit, as the case may be, the Concessionaire to take such appropriate steps or measures including where necessary decommissioning of any Project Facilities.

2.4 Handback of Project Facilities to NHAI

At the time of handing back the Project Facilities to NHAI at the end of Concession Period, the Independent Engineer shall :

- (i) monitor and certify compliance with the Handback Requirements and
- (ii) issue a Certificate of Compliance with Handback Requirements to the Concessionaire.

2.5 Breach of Obligations

If during the course or upon review / inspection undertaken by the Independent Engineer or otherwise, it transpires that either of the Parties is in breach/ default of any of its obligations under the Agreement, the Independent

Engineer shall, under intimation to the other Party, require the defaulting Party to remedy such breach/ default within such time and in such manner as the Independent Engineer may deem fit and in each case the same shall be recorded.

2.6 Meetings, Records and Reporting

- a. The Independent Engineer would be required to participate in the Project review meetings held from time to time by the Parties, which are ordinarily expected to be held once a month during the Implementation Period and once every two months during the Operations Period as also to participate in emergency or extra-ordinary meetings of the Parties held to deal with any Emergency, Force Majeure Event or other exigencies.
- b. The Independent Engineer shall, in the ordinary course, maintain record of the activities undertaken by it in discharge of its functions and responsibilities. This would include records in respect of the following:
 - (i) Manpower deployed and other organisational arrangements of the Independent Engineer;
 - (ii) Reviews of documents submitted to it by the Concessionaire to meet Project Requirements, such as manuals, Drawings, As Built drawings, schedules, plans and reports;
 - (iii) Inspections undertaken and notices/ instructions issued to the Concessionaire;
 - (iv) Review of compliance with Project Requirements;
 - (v) Tests;
 - (vi) Lane Availability (including Non Availability);
 - (vii) Annuity claims certified;
 - (viii) Change of Scope and Change in Law;
 - (ix) Emergency (including accidents);
 - (x) Force Majeure Events;
 - (xi) Breaches and defaults by the Parties; and
 - (xii) Handback Requirements
- c. The Independent Engineer would be required to submit the following reports to the Parties during the Concession Period:
 - (i) Implementation Period

- Monthly Progress Report (including details of slippages and remedial measures)
 - Report on Tests and report on notices Issued
 - Completion Certificate (including Provisional Certificate)
 - Any supplemental or special report that may be considered necessary by the Independent Engineer (including Emergency, Force Majeure, and breach of obligations).
- (ii) Operations Period
- Monthly O&M Report (including Lane Availability, details of slippages and remedial measures)
 - Report on Tests and report on notices Issued
 - Any supplemental or special report that may be considered necessary by the Independent Engineer (including Emergency, Force Majeure, and breach of obligations)
 - Annual Review of O&M Manual
- (iii) Report on Handback Requirements.
- (iv) Any other report as may be reasonably required by NHA or as may be necessary to give effect to the provisions of the Agreement.

SCHEDULE M
PERFORMANCE SECURITY
(PROFORMA OF BANK GUARANTEE)⁸

THIS DEED OF GUARANTEE executed on this the ---- day of ----- at ----- by -----
----- (Name of the Bank) having its Head/Registered office at -----
----- hereinafter referred to as “the Guarantor”
which expression shall unless it be repugnant to the subject or context thereof include
successors and assigns;

In favour of

THE NATIONAL HIGHWAYS AUTHORITY OF INDIA, a statutory body constituted under the provisions of the National Highway Authority of India, Act, 1988 and having its Principal office at No. 1, Eastern Avenue, Maharani Bagh, New Delhi 110 065 (hereinafter referred to as “NHAI”) which expression shall, unless repugnant to the context or meaning thereof include its administrators, successors or assigns.

WHEREAS

- A. By the Concession Agreement dated ----- entered into between NHAI and M/s. XXXX Limited, a company incorporated under the Companies Act, 1956 having its registered office at ----- (“the Concession Agreement”) the Company has been granted the Concession to implement the project envisaging rehabilitation of the existing 2 lane stretch and widening thereof to 4 lane dual carriageway between Km. 517 to Km. 581 in Panagarh-Palsit section on NH-2 in the State of West Bengal on build, operate and transfer basis.
- B. In terms of Article 5.1 of the Concession Agreement, the Company is required to furnish to NHAI, an unconditional and irrevocable bank guarantee for an amount of Rs. 60,000,000/- (Rupees Sixty Million only) as security for due and punctual performance/discharge of its obligations under the Concession Agreement during the Implementation Period, substantially in the format annexed as Schedule 'M' to the Concession Agreement.
- C. At the request of the Company, the Guarantor has agreed to provide guarantee, being these presents guaranteeing the due and punctual performance/discharge by the Company of its obligations under the Concession Agreement during the Implementation Period.

NOW THEREFORE THIS DEED WITNESSETH AS FOLLOWS :

- 1. Capitalised terms used herein but not defined shall have the meaning assigned to them respectively in the Concession Agreement.

⁸ To be issued by a Scheduled Bank in India

2. The Guarantor hereby irrevocably guarantees the due and punctual performance by M/s. _____ (hereinafter called "the Concessionaire") of all its obligations under the Concession Agreement during the Implementation Period.
3. The Guarantor shall, without demur, pay to NHAI sums not exceeding in aggregate Rs.60,000,000/- (Rupees Sixty Million only), within five (5) calendar days of receipt of a written demand therefor from NHAI stating that the Company has failed to meet its performance obligations under the Concession Agreement during the Implementation Period. The Guarantor shall have not go into the veracity of *any breach or failure on the part of the Concessionaire or validity of demand* so made by NHAI and shall pay the amount specified in the demand notwithstanding any direction to the contrary given or any dispute whatsoever raised by the Concessionaire or any other Person. The Guarantor's obligations hereunder shall subsist until all such demands are duly met and discharged in accordance with the provisions hereof.
4. In order to give effect to this Guarantee, NHAI shall be entitled to treat the Guarantor as the principal debtor. The obligations of the Guarantor shall not be affected by any variations in the terms and conditions of the Concession Agreement or other documents or by the extension of time for performance granted to the Company or postponement/non exercise/ delayed exercise of any of its rights by NHAI or any indulgence shown by NHAI to the Concessionaire and the Guarantor shall not be relieved from its obligations under this Guarantee on account of any such variation, extension, postponement, non exercise, delayed exercise of any of its rights by NHAI or any indulgence shown by NHAI provided nothing contained herein shall enlarge the Guarantor's obligation hereunder.
5. This Guarantee shall be irrevocable and shall remain in full force and effect until _____⁹ unless discharged/released earlier by NHAI in accordance with the provisions of the Concession Agreement. The Guarantor's liability in aggregate be limited to a sum of Rs. 60,000,000/- (Rupees Sixty Million Only).
6. This Guarantee shall not be affected by any change in the constitution or winding up of the Concessionaire/the Guarantor or any absorption, merger or amalgamation of the Concessionaire/the Guarantor with any other Person.
7. The Guarantor has power to issue this guarantee and discharge the obligations contemplated herein, and the undersigned is duly authorised to execute this Guarantee pursuant to the power granted under _____.

IN WITNESS WHEREOF THE GUARANTOR HAS SET ITS HANDS HEREUNTO ON THE DAY, MONTH AND YEAR FIRST HEREINABOVE WRITTEN.

SIGNED AND DELIVERED by ----- Bank by the hand
of Shri -----
its ----- and authorised official.

⁹ the date, 3 years 10 months from the date of the Concession Agreement.

SCHEDULE N

STATE SUPPORT AGREEMENT

THIS STATE SUPPORT AGREEMENT is entered into on this the ----- day of ----- (Month) ----- (Year) at -----.

AMONGST,

THE GOVERNOR OF WEST BENGAL in his executive capacity for the State of West Bengal, acting through the Public Works Department/ Roads and Building Department, Government of West Bengal, Calcutta hereinafter referred to as “**GoWB**” (which expression shall include its successors and assigns),

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 office at No. 1, Eastern Avenue, Maharani Bagh, New Delhi 110 065 (hereinafter referred to as “**NHAI**”) which expression shall, unless repugnant to the context or meaning thereof include its administrators, successors or assigns.

AND

M/s XXXX Limited, a company incorporated under the Companies Act, 1956, having its registered office at ----- hereinafter referred to as the “**Concessionaire**” (which expression shall include its permitted successors and assigns)

WHEREAS,

- A. NHAI is implementing a project envisaging rehabilitation of the existing 2 lane stretch and widening thereof to 4 lane dual carriageway within the between Km. 517 to Km. 581 in Panagarh-Palsit section on NH-2 in the State of West Bengal (hereinafter referred to as “the Project”) with private sector participation on Build, Operate and Transfer (BOT) basis;
- B. By the Concession Agreement dated ----- entered into between NHAI and the Concessionaire (hereinafter referred to as “the Concession Agreement”), the Concessionaire has been granted the Concession to implement the Project on BOT basis;
- C. GoWB, NHAI and the Concessionaire agree that the implementation of the Project and the operation of the Project/Project Facilities in terms of the Concession Agreement requires extensive and continued support and grant of certain rights and authorities by GoWB which are prerequisites to the mobilisation of

resources by the Concessionaire and the performance of their respective obligations by NHAI and the Concessionaire under the Concession Agreement;

D. With the view to facilitate implementation and operation of the Project by the Concessionaire in accordance with the Concession Agreement, GoWB has agreed to enter into State Support Agreement being these presents to extend continued support and to grant certain rights and authorities as hereinafter set forth.

NOW, THEREFORE, THIS AGREEMENT WITNESSETH AS FOLLOWS :

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 hereafter respectively assigned to them.

“Agreement” means this agreement and includes any amendment or modification made to this agreement in accordance with the provisions hereof.

“GoWB Support” means the obligations assumed and the facilities agreed to be provided by the Government of West Bengal to the Concessionaire pursuant hereto or the Substitution Agreement as applicable.

1.2 Capitalised terms used in this Agreement but not defined shall have the meaning assigned to them respectively in the Concession Agreement or the Substitution Agreement as the case may be.

1.3 Interpretation

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, rules, regulations, guidelines 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, organisations 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 including 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, 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;
- (m) references to recitals, Articles, sub-articles, clauses, or Schedules in this Agreement shall, except where the context otherwise requires, be deemed to be references to recitals, Articles, sub-articles, clauses and Schedules of or to this Agreement;
- (n) 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; and

2. TERM

- 2.1 This Agreement shall come into force from the date hereof and shall be in force and effect during the Concession Period.

3. SUPPORT OF GoWB

- 3.1 Upon and with effect from the date hereof, GoWB agrees :

- (a) so long as the Concessionaire is not in breach of the obligations under this Agreement, GoWB agrees to enable access to the Project Site to the Concessionaire for peaceful use of and operations at the Project Site by the Concessionaire under and in accordance with the provisions of the Concession Agreement without any let or hindrance from GoWB or persons claiming through or under it;

- (b) subject to the Concessionaire complying with Applicable Laws, provide to the Concessionaire Applicable Permits to the extent GoWB or any of its agencies is entitled or required to issue;
 - (c) upon written request from the Concessionaire, provide and/or 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;
 - (d) ensure that no barrier that interrupts free flow of traffic on the Project /Project Facilities is erected or placed by GoWB or any of its agencies including local bodies except on account of any law and order situation or upon national security consideration;
 - (e) 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/Project Site;
 - (f) provide to 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/Project Facilities;
 - (g) observe and comply with its obligations set forth in this Agreement;
 - (h) support, co-operate with and facilitate NHAI and the Concessionaire in the implementation of the Project;
 - (i) 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 pachayats, in the State of West Bengal for the implementation of the Project;
 - (j) 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 GoWB acknowledges the rights of Lender(s) and NHAI under the Substitution Agreement and hereby covenants that upon substitution of the Concessionaire by the Selectee pursuant to the Substitution Agreement, Selectee shall be deemed for the purposes of this Agreement to be a party hereto and accordingly the Selectee shall succeed 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 :
- (a) All Applicable Laws and Applicable Permits;
 - (b) The provisions of the Concession Agreement, the Substitution Agreement, and the Project Agreements; and
 - (c) Observe, comply with and discharge its obligations under this Agreement.

5. REPRESENTATIONS AND WARRANTIES

- 5.1 The Concessionaire represents and warrants to GoWB that:
- (a) it is duly organised, validly existing and in good standing under the laws of India;
 - (b) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;
 - (c) 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;
 - (d) this Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof;
 - (e) it is subject to civil and commercial laws of India with respect to this Agreement;
 - (f) the execution, delivery and performance of this Agreement will not conflict with nor will the same result in any breach or default under the Memorandum of Association 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;
 - (g) there are no actions, suits, proceedings, or investigations pending or, to the Concessionaire's knowledge, threatened against it in law or in equity before any court or 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 Material Adverse Effect;
 - (h) it has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any order of any Government Authority which may result in any Material Adverse Effect;

- (i) 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;
- (j) No representation or warranty by the Concessionaire contained herein or in any other document furnished by it to GoWB, or to any Governmental Agency in relation to Applicable Permits contains or will contain any untrue statement or material fact necessary to make such representation or warranty not misleading;
- (k) No unauthorised 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/GoWB in connection therewith.

5.2 GoWB represents and warrants to the Concessionaire that:

- (a) It has full power and authority to execute, deliver and perform this Agreement;
- (b) It has taken all necessary action to authorise the execution, delivery and performance of this Agreement;
- (c) this Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof.

6. SOVEREIGN IMMUNITY

6.1 GoWB hereto unconditionally and irrevocably agrees that the execution, delivery and performance by it of this Agreement do not constitute sovereign acts; and that

- (a) 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 in behalf of itself or with respect to any of its assets, to the extent permitted by law; and
- (b) To the extent permitted by law, waives right of sovereign immunity, which it or its assets now has or may acquire in 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 assets of the Union of India.

7 BREACH AND COMPENSATION

- 7.1 In case GoWB is in breach of any of its obligations under this Agreement, which breach is not cured within 30 days of receipt of notice in writing from the Concessionaire and which has not occurred as a result of Concessionaire's breach of its obligation under this Agreement or the Concession Agreement, GoWB shall pay to the Concessionaire by way of Compensation, all direct additional costs suffered or incurred by the Concessionaire and determined by NHAI as arising out of such material default by GoWB.
- 7.2 In case of any dispute by GoWB as to the extent of compensation determined by NHAI, the same shall be settled as per provisions of the Article 9 of this Agreement.
- 7.3 Any sum payable by GoWB to the Concessionaire pursuant to the preceding sub-article 7.1 shall be paid to the Concessionaire in one lumpsum within 60 (sixty) days of receiving NHAI's determination thereof. Failing such payment, NHAI shall within the next 30 days pay the sum due to the Concessionaire and seek reimbursement of the same from GoWB.

8. INDEMNITY

- 8.1 The Concessionaire will indemnify, defend and hold GoWB 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/Project Facilities 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 GoWB 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 GoWB 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 GoWB, its officers, servants and agents;
- 8.3 In the event that a Party hereto is served with a claim by a third party in respect of which it is entitled to the benefit of an indemnity under this Clause 8 or in respect of which it is entitled to reimbursement it (the 'Indemnified Party') 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. 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 co-operation 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 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 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 -----.
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 authorised representatives of GoWB and the Concessionaire.

10.2 Waiver

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

- (i) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions or obligations under this Agreement;
- (ii) shall not be effective unless it is in writing and executed by a duly authorised representative of such 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 hereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver/breach of any terms, conditions or provisions of this Agreement.

10.3 Severance of Terms

If any provision of this Agreement is 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. The service of notice shall unless otherwise notified by a notice hereunder to the parties at their following address:

IF to GoWB :
Attn :
Fax No:
Tel No:

IF to 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 representative 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 three counterparts, each of which shall be deemed to be an original but shall constitute one document.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE PUT THEIR HANDS HEREUNTO ON THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN.

For the Concessinaire

By :-----
Name -----
Title -----

For GoWB

By :-----
Name -----
Title -----

For NHAI

By :-----
Name -----
Title -----

SCHEDULE O

SUBSTITUTION AGREEMENT

THIS SUBSTITUTION AGREEMENT is entered into on this the ----- day of -----
--- (Month) ---- (Year) at -----.

AMONGST,

THE NATIONAL HIGHWAY AUTHORITY OF INDIA, a statutory body constituted under the provisions of the National Highway Authority of India, Act, 1988 and having its Principal office at No. 1, Eastern Avenue, Maharani Bagh, New Delhi 110 065 (hereinafter referred to as "NHAI") which expression shall, unless repugnant to the context or meaning thereof include its administrators, successors or assigns.

AND

M/s. XXXX 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 assigns),

AND

YYYY (Financial Institution/ Bank) having its Registered Office/Head Office at ----- hereinafter referred to as "**the Lender**".

OR

ZZZZ (Financial Institution/Bank) having its Registered Office/Head Office at----- acting for and on behalf of the Lenders listed in Schedule I hereto (hereinafter referred as "**the Lender's Representative**".

WHEREAS,

- A. NHAI is implementing a project envisaging rehabilitation of the existing 2 lane stretch and widening thereof to 4 lane dual carriageway between Km. 517 to Km. 581 in Panagarh-Palsit section on NH-2 in the State of West Bengal (hereinafter referred to as "the Project") with private sector participation on Build, Operate and Transfer (BOT) basis;
- B. By the Concession Agreement dated ----- entered into between NHAI and the Concessionaire (hereinafter referred to as "the Concession Agreement") the Concessionaire has been granted the Concession to implement the Project on BOT basis;

- C. With a view to facilitate financing of the Project by the Concessionaire, NHAI and the Concessionaire have agreed to enter into Substitution Agreement being these presents with the Lender/s/Lenders' Representative.

NOW, THEREFORE, THIS AGREEMENT WITNESSETH AS FOLLOWS :

ARTICLE 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 hereafter respectively assigned to them.

“Agreement” means this agreement and includes any amendment or modification made to this agreement in accordance with the provisions hereof.

“Financial Assistance” means the financial assistance set forth in Schedule A hereto, agreed to be provided by the Lender(s) to the Concessionaire for financing the Project.

“Lender(s)” means the financial institutions/banks whose name(s) and addresses are set out in Schedule A hereto.

“Residual Concession Period” means the period which shall be the remainder of the Concession Period computed from the date of suspension of the Concession in terms of Article 2.3.

“Selectee” means a Person proposed by the Lender/Lender's Representative pursuant to this Agreement and approved by NHAI for substituting the Concessionaire for the residual Concession Period, in accordance with the provisions of this Agreement.

"Suspension Period" means the period commencing from the expiry of the Cure Period specified in the Preliminary Notice and ending on the date on which all formalities connected with substitution of the Concessionaire by the Selectee including handing over of Project Site/Project Facilities, in accordance with this Agreement are completed and the substitution has become effective.

- 1.2 Capitalised terms used in this Agreement but not defined shall have the meaning assigned to them respectively in the Concession Agreement.

ARTICLE 2

SUBSTITUTION OF THE CONCESSIONAIRE BY THE SELECTEE

2.1 Lenders right to Substitute

NHAI and the Concessionaire hereby irrevocably agree that upon occurrence of a Concessionaire Event of Default, the Lender(s) shall, without prejudice to any other rights or remedies available to them under law/Financing Documents and without being required to exercise or exhaust such rights or remedies, have the right to seek substitution of the Concessionaire by Selectee for the Residual Concession Period in accordance with the provisions of this Agreement.

2.2 Preliminary Notice of Termination

NHAI shall as soon as possible but in any case not later than 15 days of its knowledge of the occurrence of the Concessionaire Event of Default issue Preliminary Notice of Termination to the Concessionaire in terms of Article 13.2(a) of the Concession Agreement, with a copy thereof simultaneously endorsed to the Lenders. Provided if the Concessionaire Event of Default is the one set out in Article 13.1(a)(x) of the Concession Agreement, NHAI shall not be obliged to issue Preliminary Termination Notice until receipt by NHAI of the recall notice issued by the Lender(s).

2.3 Suspension of Concession and Takeover of the Project Facilities

The Concessionaire irrevocably agrees that if the Cure Period specified in the Preliminary Notice of Termination lapses without the Concessionaire Event of Default having been cured, the Concession shall effective from the expiry of such Cure Period stand suspended without any further notice or other act of NHAI being required, and that NHAI shall have the right to enter upon and takeover the Project Site/Project Facilities and to take all such steps as are necessary for the continued operation and maintenance of the Project Facilities subject to servicing the payment obligations under the Financing Documents, and the substitution of the Concessionaire by the Selectee in accordance with this Agreement. The Concessionaire hereby irrevocably consents to the takeover of the Project Site/Project Facilities by NHAI forthwith upon suspension becoming effective.

2.4 Substitution Notice

NHAI and the Concessionaire hereby irrevocably agree that in the event of the Concessionaire's failure to cure the Event of Default specified in the Preliminary Notice of Termination, the Lender/Lender's Representative may, within 30 (thirty) days of the expiry of the Cure Period specified therein notify NHAI and the Concessionaire about the intention of the Lender(s) to seek substitution of the Concessionaire by the Selectee for the Residual Concession Period (the "Substitution Notice").

2.5 Criteria for selection of the Selectee.

The Lender/ Lenders' Representative shall in addition to any other criteria that it may deem fit and necessary, apply the following criteria in the selection of the Selectee:

- (i) the Selectee shall possess the network, experience, technical capability and managerial ability to perform and discharge all the residual duties, obligations and liabilities of the Concessionaire in respect of the Concession, under the Concession Agreement;
- (ii) the Selectee shall have the capability and shall unconditionally consent to assume the liability for the payment and discharge of dues, if any, of the Concessionaire to NHAI under and in accordance with the Concession Agreement, and also payment of amounts due to the Lender(s) under the Financing Documents upon terms and conditions as agreed to between the Selectee and the Lenders.

ARTICLE 3

MODALITY FOR SUBSTITUTION

3.1 Modalities for Substitution.

The following modalities shall be followed for substitution of the Concessionaire by the Selectee pursuant to this Agreement:

- (i) The Lender(s)/Lenders' Representative shall be entitled, within a period of 120 (one hundred twenty) days from the date of delivery of the Substitution Notice pursuant to the preceding Article 2.2 to invite or procure offers either through private negotiations or public auction or process of tender or otherwise from the eligible Persons, for the substitution of the Concessionaire by the Selectee and propose to NHAI for its approval, the Selectee (the "Proposal"). The Proposal of the Lender/Lender's Representative shall contain the particulars and information in respect of the Selectee, particulars of the amounts due to the Lenders under the Financing Documents, the terms of Substitution and such data and information as would be necessary and relevant for NHAI to decide as to the acceptability of the Selectee. The Lender/Lender's Representative shall provide to NHAI such additional information and clarification in respect of any data, particulars or information contained in the Proposal, as NHAI may reasonably require.
- (ii) The Proposal shall be accompanied by an unconditional undertaking of the Selectee to the effect that it shall upon acceptance by NHAI of the Proposal observe, comply with, perform and fulfill the residual terms, conditions and covenants of the Concession Agreement as if the Selectee had been the Concessionaire under the Concession Agreement, and to assume, take over, discharge and pay the

Concessionaire's obligations under the Financing Documents on the terms and conditions agreed to by the Selectee with the Lenders. The Selectee shall also undertake to enter into such documents and writings with NHAI and the Lender(s) as may be necessary or required to give effect to the substitution of the Concessionaire by the Selectee.

- (iii) NHAI shall convey to the Lender/Lenders' Representative its acceptance or otherwise of the Selectee within 30(thirty) days of (a) the date of receipt of the Proposal by NHAI, or (b) the date of receipt of the additional information and clarifications in respect of any data, particulars or information comprised in the Proposal, provided by the Lender/Lender's Representative to the NHAI, whichever is later.
- (iv) At any time prior to the acceptance of the Selectee by NHAI pursuant to this Agreement, NHAI may require the Lender/Lenders' Representative to satisfy it as to the eligibility of the Selectee and the decision of NHAI as to acceptance or rejection of any Selectee (which shall be reasonable), shall be final, conclusive and binding on the Lender(s), the Selectee and the Concessionaire. In the event that NHAI fails to communicate its acceptance or otherwise or the objections if any it has to the acceptance of the Proposal/ the Selectee within a period of 30 days prescribed in preceding sub-article (iii), NHAI shall be deemed to have accepted the Proposal/ the Selectee
- (v) The rejection of the Selectee if made by NHAI shall be reasoned and be made after hearing the Lender/Lenders' Representative. Following the rejection of the Proposal, the Lender/Lenders' Representative shall have the right to submit a fresh Proposal, proposing another Selectee, within 30 days of receipt of communication regarding rejection of the Selectee previously proposed. The provisions of preceding sub-article (iii) and (iv) shall apply mutatis mutandis to such fresh Proposal.
- (vi) If NHAI accepts the Proposal/fresh Proposal, NHAI shall take all necessary steps to substitute the Concessionaire by the Selectee by amendment of the Concession Agreement or by execution of fresh agreement or such other writing as may be required or necessary to give effect to the Substitution of the Concessionaire by the Selectee for the Residual Concession Period.
- (vii) The substitution of the Concessionaire by the Selectee shall be deemed to be complete upon the Selectee executing all necessary documents and writings with or in favour of NHAI and the Lender(s) so as to give full effect to the terms and conditions of substitution subject to which the Selectee has been accepted by the Lender(s) and NHAI and upon the delivery by NHAI of the Project Site/ Project Facilities to the Selectee. Upon the substitution becoming effective pursuant to this sub-article all the rights of the Concessionaire under the Concession Agreement shall cease to exist. Provided nothing contained in this sub-article shall prejudice any pending/subsisting claims of the Concessionaire against NHAI or any claim of NHAI against the Concessionaire and the Selectee shall incur no liability or consequence on account of any previous breach/default and shall subject to the terms and conditions of

the substitution, have a period of 90 days to cure any breach/default subsisting on the date of substitution and required or agreed to be cured.

- (viii) The decision of the Lenders and NHAJ 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. The Concessionaire hereby expressly waives all rights to object to or challenge such selection of the Selectee on any ground whatsoever.

3.2 Termination and Termination Payment.

- (i) Where the Lender/Lenders' Representative (on behalf of all the Lenders) communicates in writing that (i) the Lender/ Lender's Representative does not intend to seek substitution of the Concessionaire, or (ii) that the Lender/Lenders' Representative has not been able to find suitable Selectee or (iii) that NHAJ has declined to accept the Selectee proposed by the Lender/Lenders' Representative, NHAJ shall proceed to terminate the Concession and to make Termination Payment, in accordance with the provisions of the Concession Agreement.
- (ii) Nothing contained in these presents shall mean or be interpreted as provision of any guarantee or surety by NHAJ and it is expressly agreed that NHAJ has not provided any surety, guarantee or counter guarantee whether directly or indirectly for the recovery of amounts advanced by the Lenders to the Concessionaire.

ARTICLE 4

MODE OF TERMINATION PAYMENTS

4.1 Mode of Payment

NHAJ and Concessionaire hereby irrevocably agree, and confirm that so long as the liabilities of the Concessionaire under the Financing Documents are outstanding the Termination Payment and any other amounts due and payable by NHAJ to the Concessionaire under any of the provisions of the Concession Agreement shall be paid only by way of credit directly to a bank account designated therefor by the Lender(s)/Lenders' Representative and advised to NHAJ and the Concessionaire in writing. The Lender(s) shall be entitled to receive and appropriate the same without any further reference to or consent of the Concessionaire to the extent of the amounts outstanding, due and payable under the Financing Documents. Any payment so made shall to the extent of such payment constitute a valid discharge to NHAJ of its obligations with regard to the Termination Payment and of any other monies due to the Concessionaire under the Concession Agreement.

ARTICLE 5

GENERAL

5.1 General

- (i) The Parties hereto expressly represent and warrant that they are duly empowered to sign and execute this Agreement.
- (ii) 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 registered post acknowledgement due and delivered to the other parties.
- (iii) The expressions "NHAI", the "Concessionaire", the "Lender" and the "Lenders' Representative" herein used shall unless there be anything repugnant to the subject or context include the respective successors and assigns.
- (iv) This Agreement shall not be affected by reorganisation of any Lender, the Concessionaire or NHAI and the successor in interest of the Lender or NHAI shall have the benefit of this Agreement.
- (v) 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 arbitration by a Board of Arbitrators comprising of a nominee of each party to the dispute. Such arbitration shall be held in accordance with 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.
- (vi) This Agreement and rights and obligations of the Parties hereunder 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.
- (vii) The consultation, recommendation or approval of the Lenders' Representative under this Agreement shall always be taken as consultation, recommendation or approval of every concerned Lender and each such Lender shall be bound by the same.
- (viii) This Agreement shall be in addition to and shall not be in derogation of the terms of the Financing Documents.

- (ix) It shall not be necessary for the Lender(s) or the Lenders' Representative to enforce or exhaust any other remedy available to them before invoking the provisions of this Agreement.
- (x) 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.
- (xi) 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, irrespective of the Lenders making such payment for the time being, shall be borne by and be to the account of the Concessionaire.
- (xii) 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.

SCHEDULE I

PARTICULARS OF FINANCIAL ASSISTANCE.

Name and Address of the Lender	Nature and Amount of Financing Assistance

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

BY : _____

Name :

Title :

SIGNED AND DELIVERED ON BEHALF OF
GOVERNMENT OF INDIA

BY : _____

Name :

Title :

SIGNED AND DELIVERED ON BEHALF OF
----- ON BEHALF OF THE
LENDERS SETFORTH IN SCHEDULE I

BY : _____

Name :

SCHEDULE P

HANDBACK REQUIREMENTS

1. This Schedule sets out the minimum requirement of the physical condition of the Project Site/Project Facilities ["Minimum Criteria"] at the time of handback.
2. Before handing back, a joint inspection of the Project Facilities would be carried out as provided in Article 15 of the Agreement.
3. An inventory of all assets to be handed to NHAI shall be prepared in detail itemwise in a format approved by Independent Engineer.
4. The Minimum Criteria shall be:

PROJECT FACILITIES	MINIMUM REQUIREMENTS
Site Clearance	Project Site/Project Facilities shall be free from debris, surplus material or construction material left over.
Pavement Including Shoulders and Slopes:	
Road Roughness	2000 + 5 % tolerance = 2100mm/Km
Potholes/depressions	Nil
Characteristic deflection (IRC : 81-1997)	0.50mm
Camber (Pavement, Shoulder)	As per design +/- 0.10%
Cracking	Nil
Rut Depth not exceeding 10mm	Length not more than 5% of Project Highway
Bleeding, raveling	Nil
Pavement edge deformation	Nil
Pavement edge drop	Nil
Unpaved Shoulders	No reverse slope, no scouring and no drop off from Hard Shoulder and width as per design.
Roadmarking	100%
Roadside:	
Grass/ Turfing	Neat not more than 12" height, sight distance clear in intersections, passing zones, curves etc.
Slopes	No erosion and slope is stable
Slope Pitching	Neat and no disturbed pitching
Drainage:	
Cross Pipes	No erosion, Structurally sound, Joints are all intact, Upstream and Downstream side are clear and drains properly.

Box Culverts / Slab Culverts	No erosion, Structurally sound, Joints are all intact, Upstream and Downstream side are clear and drains properly.
Drains/ Ditches (Lined or Unlined)	All drains are clean, no damage and fully functional
Drainage Structures	Structurally sound, joints in tact, no crack and drains properly
Kerb and Gutter	Structurally sound, functional and no spalling.
Structures:	
Bridges/ Culverts	Smooth ride, structurally sound, no crack and fully functional. Parapet Walls & Railings are in perfect condition and freshly painted, Crash Barrier in perfect condition, wearing course perfectly cambered without any defect (to be renewed before handback), Expansion joints in perfect condition (to be renewed before handback), Bearings are all checked and approved by Independent Consultant.
Other structure like Retaining Wall , Toe Wall , etc	Structurally sound with no cracks, cleaned and painted where required.
Ancillary Works	
Crash barriers/ Guard Rails/ Guard Posts	Structurally sound, replaced with new ones wherever broken, damaged or missing.
Road Signs/Markings, delineators, Km post, Hectometer posts, 5 th Km posts, boundary pillars and other Road furniture	Good reflectivity, visible, undamaged, replaced with new ones wherever broken, damaged or missing, painted, present in proper location, properly mounted and all are functional.
Illumination/Lighting	All lighting shall be functional and poles are properly painted
Wayside Amenities- Service Area/ Truck Lay Bye	Internal pavement are crack free/ pothole free, all kerbs and channel are satisfactorily in perfect condition, Water Supply and Drainage systems are fully functional, Toilets with fittings and fixtures are all in good working condition, damaged, broken or missing ones are replaced with new, all lightings including fittings and fixtures inside and outside are functional and in good condition with damaged ones replaced, toilets are fully functional, fresh paintings inside and outside the building and outside landscaping is neat.
Project Implementation Unit (PIU) building, laboratory, Maintenance Yard and	All buildings are in good shape and functional, fresh paintings inside and outside the building, no damage inside

campus area	and outside the building, laboratory equipment functional with fair accuracy, water supply, drainage system and electrical are all functional, no damage in the internal pavement, internal road pavement and parking area are resurfaced with road paintings freshly applied, all furniture are in satisfactory condition and broken ones are replaced with new one , furnishing items are replaced with fresh ones, air-conditioner, water cooler, heater etc supplied are all in fairly good working condition.
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5. All surveys, investigation, tests made in respect of the inspection for handback shall be at the Concessionaire's cost and expense.
6. Deliverables :
 - As built drawing, Project Records,
 - All manuals as updated and restored