

Schedules

Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

- (i) Site of the Two-Lane Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.
- (ii) The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.
- (iii) An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement.
- (iv) The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The Contractor, however, improve/upgrade the Road Profile as indicated in Annex-III based on site/design requirement.
- (v) The status of the environment clearances obtained or awaited is given in Annex-IV.

Annex - I

(Schedule-A)

Site

[Note: Through suitable drawings and description in words, the land, buildings, structures and road works comprising the Site shall be specified briefly but precisely in this Annex-I. All the chainages/ location referred to in Annex-I to Schedule-A shall be existing chainages.]

1. Site

The Project “Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh.”

2. Land

The Site of the Project Highway comprises the land as described below:

Sl. No.	Chainage (km)		Right of Way (m)	Remarks
	From	To		
1	77+400	78+074	30	Major Bridge
2	92+550	93+148	30	Major Bridge
3	96+680	97+220	30	Minor Bridge

3. Carriageway

The present carriageway of the Project Highway is two lane with paved shoulder. The type of the existing pavement is flexible.

4. Major Bridges

The Site includes the following Major Bridges:

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Super-structure		
1	77+600	Open	Arch	Solid Slab	13x18.60	6.80
2	92+850	Open	Arch	Arch	4x18	6.80

5. Road over-bridges (ROB)/ Road under-bridges (RUB)

The Site includes the following ROB (road over railway line)/RUB (road under railway line):

S. No.	Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)	ROB/ RUB
		Foundation	Superstructure			
NIL						

6. Grade separators

The Site includes the following grade separators:

S. No.	Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)
		Foundation	Superstructure		
NIL					

7. Minor bridges

The Site includes the following minor bridges:

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Super-structure		
1	97+020	Open	Brick wall type	Solid Slab	3x5	6.80

8. Railway level crossings

The Site includes the following railway level crossings:

S. No.	Location (km)	Remarks
NIL		

9. Underpasses (vehicular, non vehicular)

The Site includes the following underpasses:

S. No.	Chainage (km)	Type of Structure	No. of Spans with span length (m)	Width (m)
NIL				

10. Culverts

The Site has the following culverts:

S. No.	Chainage (km)	Type of Culvert	Span /Opening with span length (m)	Width (m)
NIL				

11. Bus bays

The details of bus bays on the Site are as follows:

S. No.	Chainage (km)	Length (m)	Left Hand Side	Right Hand Side
NIL				

12. Truck Lay byes

The details of truck lay byes are as follows:

S. No.	Chainage (km)	Length (m)	Left Hand Side	Right Hand Side
NIL				

13. Road side drains

The details of the roadside drains are as follows:

S. No.	Location		Type	
	From km	to km	Masonry/cc (Pucca)	Earthen (Kutchha)
NIL				

14. Major junctions

The details of major junctions are as follows:

S. No.	Location		At grade	Separated	Category of Cross Road			
	From km	to km			NH	SH	MDR	Others
NIL								

(NH: National Highway, SH: State Highway, MDR: Major District Road)

15. Minor junctions

The details of the minor junctions are as follows:

S. No.	Location		Type	
	From km	To km	T -junction	Cross road
NIL				

16. Bypasses

The details of the existing road sections proposed to be bypassed are as follows:

S. No.	Name of bypass (town)	Chainage (km) From km to km	Length (in Km)
NIL			

[17. Other structures]

NIL

18. Details of Existing Utilities

Details of Existing Utilities are given below

(i) Electrical Utilities

The site includes the following electrical utilities: -

(a) Extra High-Tension Lines (EHT Lines) *

Sl No.	Design Chainage (Km)	Length (in Km)				Crossings			
		400 KV	220 KV	110 KV	66 KV	400 KV	220 KV	132 KV	110 KV
NIL									

(b) High Tension / Low Tension Lines (HT/ LT Lines) *

Sl. No	Design Chainage (km)		Length (in Km)				Crossings (no's)				Transformer		Side
	From	To	33 KV	22 KV	11 KV	LT	33 KV	22 KV	11 KV	LT	No	Capacity	
1	77+400	78+074			05 no. of pole	0.2 Km							
2	96+680	97+220	05 no. of pole		0.3K m	0.2 Km							

(ii) Public Health Utilities (Water/Sewage Pipe Lines)

The site includes the following Public Health Utilities wherein the tabulated stretches of the road are affected by Water supply pipeline: -

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh.

Sl. No	Design Chainage (km)		Length along NH (in Km)				Falling in ROW				Side
	From	To	Water Supply line		Sewage line		Hand Pump		Sewage line		
			With Pumping	With Gravity	With Pumping	With Gravity	LHS	RHS	With Pumping	With Gravity	
1	96+680	97+220	0.24 (63mm)								Both Side
2	96+680	97+220	0.6 (75mm)								
3	96+680	97+220	0.24 (90mm)								
4	96+680	97+220	0.15 (Nala crossing)								

NOTE: - The design chainage mentioned above signifies the stretch of road affected by water supply pipeline. In above stretches of the road, shifting of water pipeline in length as per attached estimate from Jal Nigam has been done by the Concessionaire.

(iii) Broadband Network Utilities:

The site includes the following broadband network utilities: -

Sl. No	Design Chainage(km)		Length along NH (in Km)		ROW Crossings (in km)		Side
	From	To	Cable	Pipe	Cable	Pipe	
Bharti Airtel, Jio & BSNL							

Annex - II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

The dates on which the Authority shall provide Right of Way of Construction Zone to the Contractor on different stretches of the Site are stated below:

Sl. No	From km to km	Length (km)	Width (m)	Date of providing Right of Way*
(1)	(2)	(3)	(4)	(5)
(i) Full Right of Way (full width) (a) Stretch 1	77+400 to 78+074	0.674	30	On appointed date
(i) Full Right of Way (full width) (b) Stretch 2	92+550 to 93+148	0.598	30	On appointed date
(i) Full Right of Way (full width) (c) Stretch 3	96+680 to 97+220	0.540	30	On appointed date
(ii) Part Right of Way (part width) (a) Stretch (b) Stretch				
(iii) Balance Right of Way (width) (a) Stretch (b) Stretch				

The dates specified herein shall in no case be beyond 150 (one hundred and fifty) days after the Appointed Date.

Annex - III

(Schedule-A)

Alignment Plans

The existing alignment of the Project Highway shall be modified in the following sections as per the alignment plan indicated below:

- (i) The alignment of the Project Highway is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be followed by the contractor as minimum FRL. In any case, the finished road level of the project highway shall not be less than those indicated in the alignment plan. The contractor shall, however, improve/upgrade the Road profile as indicated in Annex-III based on site/design requirement.
- (ii) Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed. The contractor shall, however, improve/upgrade upon the traffic signage plan as indicated in Annex-III based on site/design requirement as per the relevant specifications/IRC Codes/Manual.

Annex - IV

(Schedule-A)

Environment Clearances

The project highway is less than 100km length. Therefore, as per MOEF notification NO.S.O2559 (E) dated 22.08.2013, environmental clearance is not required.

Schedule - B

(See Clause 2.1)

Development of the Project Highway

1. Development of the Project Highway

Development of the Project Highway shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C.

2. [Rehabilitation and augmentation]

[Rehabilitation and augmentation] shall include Two-Laning with paved shoulder and Strengthening of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

3. Specifications and Standards

The Project Highway shall be designed and constructed in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.

Annex - I

(Schedule-B)

Description of Two-Laning

[Note: Description of the Project Highway shall be given by the Authority in detail together with explanatory drawings (where necessary) to explain the Authority's requirements precisely in order to avoid subsequent changes in the Scope of the Project. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for [Two Laning of Highways with Paved Shoulder (IRC: SP:73)], referred to as the Manual. If any standards, specifications or details are not given in the Manual, the minimum design/construction requirements shall be specified in this Schedule. In addition to these particulars, all other essential project specific details, as required, should be provided in order to define the Scope of the Project clearly and precisely.]

1. Widening of the Existing Highway

(i) The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for [plain/rolling] terrain to the extent land is available.

(ii) Width of Carriageway

(a) Two-Laning [with/without] paved shoulders shall be undertaken. The paved carriageway shall be [10(Ten) m] wide in accordance with the typical cross section's drawings in the Manual.

Provided that in the built-up areas [refer to paragraphs 2.1 (ii) (a) of the Manual and provide necessary details]: the width of the carriageway shall be as specified in the following table:

Sl. No.	Built-up stretch (Township)	Location (km to km)	Width (m)	Typical cross section (Ref. to Manual)
NIL				

(b) Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.1 above.

2. Geometric Design and General Features

The contents of this Annex-I may be modified in accordance with the structure of the Project.

(i) General

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the Manual.

(ii) Design speed

The design speed shall be in conformity with the specifications and standards specified in Schedule-D except in the stretch specified in 2 (iii) of schedule B.

(iii) Improvement of the existing road geometrics

In the following sections, where improvement of the existing road geometrics to the prescribed standards is not possible, the existing road geometrics shall be improved to the extent possible within the given right of way and proper road signs and safety Measures shall be provided:

Sl. No.	Stretch (from km to km)	Type of deficiency	Remarks
As per Plan & Profile			

(iv) Right of Way

Details of the Right of Way are given in Annex-II of Schedule-A.

(v) Type of shoulders

(a) In built-up sections, footpaths/fully paved shoulders shall be provided in the following stretches:

Sl. No.	Stretch (from km to km)	Fully paved shoulders/ footpaths	Reference to cross section
As per TCS			

(b) In open country, [Paved shoulder & Earthen shoulder shall be provided as mentioned in table below].

Sl. No.	Stretch (from km to km)	Fully paved shoulders	Earthen shoulders / Footpath	Reference to cross section
1	77+400 to 77+447	2 x 1.5 PS	2 x 1.0m Hard shoulder + 2 x 1.0m additional earthen shoulder	TCS-1

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh.

Sl. No.	Stretch (from km to km)	Fully paved shoulders	Earthen shoulders / Footpath	Reference to cross section
2	77+447 to 77+487	2 x 2.5 PS	LHS (1 x 1.5) Footpath + Earthen shoulder match with existing road side slope	TCS-3
3	77+884 to 77+964	2 x 2.5 PS	LHS (1 x 1.5) Footpath + Earthen shoulder match with existing road side slope	TCS-3
4	77+964 to 78+074	2 x 1.5 PS	2 x 1.0m Hard shoulder + 2 x 1.0m additional earthen shoulder	TCS-1
5	92+550 to 92+679	2 x 1.5 PS	2 x 1.0m Hard shoulder + 2 x 1.0m additional earthen shoulder	TCS-1
6	92+679 to 92+801	LHS (1 x 2.5) + RHS (1 x 1.5) PS	LHS (1 x 1.5) Footpath + RHS (1 x 1.0) Hard shoulder + RHS (1 x 1.0) additional earthen shoulder	TCS-3
7	92+898 to 92+980	LHS (1 x 2.5) + RHS (1 x 1.5) PS	LHS (1 x 1.5) Footpath + RHS (1 x 1.0) Hard shoulder + RHS (1 x 1.0) additional earthen shoulder	TCS-3
8	92+980 to 93+148	2 x 1.5	2 x 1.0m Hard shoulder + 2 x 1.0m additional earthen shoulder	TCS-1
9	96+680 to 97+006	2 x 1.5 PS	2 x 1.0m Hard shoulder + 2 x 1.0m additional earthen shoulder	TCS-1
10	97+035 to 97+220	2 x 1.5 PS	2 x 1.0m Hard shoulder + 2 x 1.0m additional earthen shoulder	TCS-1

(c) Design and specifications of paved shoulder and granular material shall confirm to the requirements specified in the relevant.

(vi) Lateral and Vertical clearances at underpasses-

- (a) Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per the provision of relevant Manual.
- (b) Lateral clearance: The width of the opening at the underpasses shall be as follows:

Sl. No.	Location (Chainage) (from km to km)	Span/ opening (m)	Remarks
NIL			

(vii) Lateral and vertical clearances at overpasses

- (a) Lateral and vertical clearances at overpasses shall be as per the provision of relevant Manual.
- (b) Lateral clearance: The width of the opening at the overpasses shall be as follows:

Sl. No.	Location (Chainage) (from km to km)	Span/ opening (m)	Remarks
NIL			

(viii) Service roads

Service roads shall be constructed at the locations and for the lengths indicated below: [Refer to the provision of relevant Manual and provide details]

Sl. No.	Location of service road (from km to km)	Right hand side (RHS)/Left hand side (LHS)/ or Both sides	Length (km) of service road
NIL			

(ix) Grade separated structures

- (a) Grade separated structures shall be provided as per provision of the relevant Manual. The requisite particulars are given below:

[Refer to the provision of relevant Manual and provide details]

Sl. No.	Location of structure	Length (m)	Number and length of spans (m)	Approach gradient	Remarks, if any
Nil					

- (b) In the case of grade separated structures, the type of structure and the level of the Project Highway and the cross roads shall be as follows: [Refer to the provision of relevant Manual and specify the type of vehicular under pass/ overpass structure and whether the cross road is to be carried at the existing level, raised or lowered]

Sl. No.	Location	Type of structure Length (m)	Cross road at			Remarks, if any
			Existing Level	Raised Level	Lowered Level	
NIL						

- (x) Cattle and pedestrian underpass /overpass

Cattle and pedestrian underpass/ overpass shall be constructed as follows: [Refer to the provision of relevant Manual and specify the requirements of cattle and pedestrian underpass/ overpass]

Sl. No.	Location	Type of crossing
Nil		

- (xi) Typical cross-sections of the Project Highway

Project Highway shall be developed as per the Typical Cross Section indicated in Appendix B-1

3. Intersections and Grade Separators

All intersections and grade separators shall be as per the provision of relevant Manual. Existing intersections which are deficient shall be improved to the prescribed standards.

Properly designed intersections shall be provided at the locations and of the types and features given in the tables below:

- (i) At-grade intersections

Sl. No.	Location of intersection	Type of intersection	Other features
NIL			

- (ii) Grade separated intersection with/without ramps

Sl. No.	Location	Salient features	Minimum length of viaduct to be provided	Road to be carried over/under the structures
NIL				

4. Road Embankment and Cut Section

- (i) Widening and improvement of the existing road embankment/ cuttings and construction of new road embankment/ cuttings shall conform to the Specifications and Standards given in Section 4 of the Manual and the specified cross-sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.
- (ii) Raising of the existing road [Refer to the provision of relevant Manual and specify sections to be raised]

The existing road shall be raised in the following sections:

Sl. No.	Section (from km to km)	Length	Extent of raising [Top of finished road level]
NIL			

5. Pavement Design

- (i) Pavement design shall be carried out in accordance with the provision of relevant Manual.
- (ii) Type of pavement

Flexible pavement shall be adopted for Project Highway.

- (iii) Design requirements

- (a) Design Period and strategy

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 20 years. Stage construction shall not be permitted.

- (b) Design Traffic

Not with standing anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for a design traffic of minimum 100 million standard axles and SV loading.

- (c) Polymer Modified Bitumen of grade 76-10 (PMB 76-10) in Bituminous Concrete and VG-40 in DBM shall be used.

Sr. No	Type of pavement	Proposed Carriageway Width	Design Traffic (Minimum)	Composition (Minimum)
(i)	Flexible Pavement (As per IRC 37:2018)	2 Lane +PS flexible pavement	100 MSA	BC-50mm, DBM-150mm, WMM-250 mm, GSB-200 & Subgrade-500 mm
(ii)	Wearing Course on Structures proper IRC 107-2013	2 Lane structure. Overall width 16.650 m	SV Loading	65mm wearing course (40 mm BC + 25mm Mastic asphalt)

Pavement for Temporary Diversion at km 97+020 shall be followed with minimum composition are as :-

1) Bituminous Concrete

- 2) Wet Mix Macadam - 225mm,
- 3) Granular Sub Base - 200 mm,
- 4) Subgrade - 500mm

(iv) Reconstruction of stretches

The following stretches of the existing road shall be reconstructed. These shall be designed as new pavement.

Sl. No.	Stretch From km to km	Remarks
1	77+400 to 77+447	47m
2	77+964 to 78+074	110m
3	92+550 to 92+679	129m
4	92+980 to 93+148	168m
5	96+680 to 97+006	326m
6	97+035 to 97+220	185m

6. Roadside Drainage

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per the provision of relevant Manual.

7. Design of Structures

(i) General

- (a) All bridges, culverts and structures shall be designed and constructed in accordance with the provision of relevant Manual and shall conform to the cross- sectional features and other details specified therein.

Brief details of the work are as under :-

(i) Reconstruction Major Bridge at km 77.60 (Baghen River) of NH 35

S. No.	Description of item	Provisions proposed
1	Name of the Project	Reconstruction of Major Bridge at km 77.60 of NH 35 on EPC mode in the State of Uttar Pradesh.
2	Width & length of the existing structure	Carriageway width = 6.80 m, Length = 241.8m (13x18.60m)
3	Project length including approaches	Bridge structure length = 390m (13span x 30m) Approaches length = 284m Total Length = 674m TCS-1: Approaches with both side free slope Total width - 14m (7m CW + 1.5m x 2 PS + 1m x 2 ES + 1m x 2 additional width for crash barrier) Length -157m TCS-2: Bridge Total width = 16.650 m (12m CW + 2 x 0.45m CB+ 2 x 1.5m FP +2 x 0.375 Railing) Length -390m TCS-3: Approaches with Retaining wall on LHS & free slope on RHS Total width - 14.50m (1.5m FP + 2.5m PS + 7m CW + 1.5m PS + 1m ES + 1m additional width for crash barrier) Length -120m Approach Slab - 7m
4	Width & length of the proposed Major Bridge	Overall width = 16.650 m (12m CW + 2 x 0.45m CB+ 2 x 1.5m FP + 2 x 0.375 Railing) Length = 390m (13x30m span)
5	Design traffic & CBR (%)	Minimum 100 MSA & CBR-6%

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh.

(ii) Reconstruction Major Bridge at km 92.85 of NH 35:

1	Name of the Project	Reconstruction of Major Bridge at km 92.85 of NH 35 on EPC mode in the State of Uttar Pradesh.
2	Width & length of the existing structure	Carriageway width =7 m, Length = 72m (4x18m)
3	Project length including approaches	Bridge structure length = 90m (3span x 30m) Approaches length = 508m Total Length = 598m
		TCS-1: Approaches with both side free slope Total width - 14m (7m CW + 1.5m x 2 PS + 1m x 2 ES + 1m x 2 additional width for crash barrier) Length - 297m TCS-2: Bridge Total width = 16.650 m (12m CW + 2 x 0.45m CB+ 2 x 1.5m FP +2 x 0.375 Railing) Length -90m TCS-3: Approaches with Retaining wall on LHS & free slope on RHS Total width - 14.50m (1.5m FP + 2.5m PS + 7m CW + 1.5m PS + 1m ES + 1m additional width for crash barrier) Length - 204m Approach Slab -7m
4	Width & length of the proposed Major Bridge	Overall width = 16.650 m (12m CW + 2 x 0.45m CB+ 2 x 1.5m FP + 2 x 0.375 Railing) Length = 90m (3x30m span)
5	Design traffic & CBR (%)	Minimum 100 MSA & CBR- 6%

(iii) Reconstruction Major Bridge at km 97+020 of NH 35:

1	Name of the Project	Reconstruction of Major Bridge at km 97+020 of NH 35 on EPC mode in the State of Uttar Pradesh.
2	Width & length of the existing structure	Carriageway width = 7.00 m, Length = 15m (3x5m)
3	Project length including approaches	Bridge structure length = 20m (2span x 10m) Approaches length = 520m Total Length = 540m
		TCS-1: Approaches with both side free slope (widening of Existing approach road) Total width - 14m (7m CW + 1.5m x 2 PS + 1m x 2 ES + 1m x 2 additional width for crash barrier) Length -511m Approach slab - 9m TCS-2: Bridge Total width = 16.650 m (12m CW + 2 x 0.45m CB+ 2 x 1.5m FP +2x 0.375 Railing) Length -20m

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh.

4	Width & length of the proposed Major Bridge	Overall width = 16.650 m (12m CW + 2 x 0.45m CB+ 2 x 1.5m FP +2 x 0.375 Railing) Length = 20m (2x10m span)
5	Design traffic & CBR (%)	Minimum 100 MSA & CBR- 6%

(b) Width of the carriageway of new bridges and structures shall be as follows:

Major Bridges: 02 nos.				
Sl. No.	Nos. of Bridges	Design Chainage	Existing details	Proposed details
Reconstruction- 02 no.				
1	1 No.	77.6	Major Bridge Length=241.8m (13x18.6m) Total width - 6.80 m Carriageway	Major Bridge Length=397m (13 x 30m span) Total width 16.650 m = (12m CW +2* .45 m Crash Barrier+ 2 1.5m Footpath + 2*.375 Guardrail)
2	1 No.	92.85	Major Bridge Length=72m (4x18m) Total width - 7 m Carriageway	Major Bridge Length=90m (3 x 30m span) Total width 16.650 m = (12m CW +2* .45 m Crash Barrier+ 2*1.5m Footpath + 2*.375 Guardrail)
Minor Bridges: 01 no.				
Sl. No.	Nos. of Bridges	Design Chainage	Existing details	Proposed details Length = 20m (2 x 10m span) Total width 16.650 m = (12m CW+2* .45 m Crash Barrier+ 2*1.5m Footpath + 2*.375 Guardrail)

1	1 No.	97.02	Minor Bridge Length= 15m (3x5m) Total width - 7 m Carriageway	Major Bridge Length = 20m (2 x 10m span) Total width 16.650 m = (12m CW+2* .45 m Crash Barrier+ 2*1.5m Footpath + 2*.375 Guardrail)
---	-------	-------	---	--

(c) The following structures shall be provided with footpaths:

Sl. No.	Location at km	Remarks
1	77+600	Major Bridge
2	92+850	Major Bridge
3	97+020	Minor Bridge

(d) Stone Pitching shall be provided at sections Ch 77+400 to 77+487 & Ch. 77+884 to 78+000 and Ch. 92+650 to 92+801 & Ch. 92+898 to 93+000 at merging with existing road and from km 96+700 to 97+006 & Ch. 97+035 to 97.200 at both sides on embankment slopes.

(e) All necessary protection works like Guide bund, river training works, protection works for floor & embankment slope shall be done as per site requirement. No positive change of scope shall be claimed in this regard.

(f) Any ground improvement required at site including for structures, high embankment, RE wall (if provided) etc based on soil parameters shall be carried out by the Executing Agency during execution works with the prior approval of Authority. No Change of Scope shall be claimed in this regard.

(g) All bridges shall be high-level bridges.

[Refer to paragraph 7.1(iii) of the Manual and state if there is any exception] (f) The following structures shall be designed to carry utility services specified in table below:

[Refer to the provision of relevant Manual and provide details]

Sl. No.	Bridge at km	Utility service to be carried	Remarks
1	77+600	Electric cables, other wires, Water pipe line etc.	Major Bridge

2	92+850	Electric cables, other wires, Water pipe line etc.	Major Bridge
3	97+020	Electric cables, other wires, Water pipe line etc.	Minor Bridge

- (f) Cross-section of the new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections given in the provision of relevant Manual.

(ii) Culverts

- (a) Overall width of all culverts shall be equal to the roadway width of the approaches.

- (b) Reconstruction of existing culverts:

The existing culverts at the following locations shall be re-constructed as new culverts:

[Refer to the provision of relevant Manual and provide details]

Sl. No.	Culvert location	Span/Opening (m)	Remarks, if any*
NIL			

- (c) Widening of existing culverts:

All existing culverts which are not to be reconstructed shall be widened to the roadway width of the Project Highway as per the typical cross section given in the provision of relevant Manual. Repairs and strengthening of existing structures where required shall be carried out.

Sl. No.	Culvert location	Type, span, height and width of existing culvert (m)	Repairs to be carried out [specify]
NIL			

- (d) Repairs/replacements of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as follows:

Sl. No.	Location at km	Type of repair required
Nil		

- (e) Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

(iii) Bridges

- (a) Existing bridges to be re-constructed/widened

- (i) The existing bridges at the following locations shall be re-constructed as new Structures.

Sl. No.	Bridge location (km)	Salient details of existing bridge	Adequacy or otherwise of the existing waterway, vertical clearance, etc*	Remarks
1	97+020	3x5	Clear span-2*10m, Vertical clearance - Minimum 3.0m	Re-Construction

- (ii) The following narrow bridges shall be widened:

Sl. No.	Location (km)	Existing width (m)	Extent of widening (m)	Cross-section at deck level for widening @
Nil				

- (b) Additional new bridges

New bridges at the following locations on the Project Highway shall be constructed. GADs for the new bridges are attached in the drawings folder.

Sl. No.	Location (km)	Total length (m)	Remarks, if any
1	77+600	0.674	Major bridge
2	92+850	0.598	Major bridge

- (c) The railings of existing bridges shall be replaced by crash barriers at the following locations:

Sl. No.	Location at km	Remarks
NIL		

- (d) Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows :
Existing bridge at km. 77+600 & km. 92+850 shall be repaired for running traffic during complete construction period.

- (e) Drainage system for bridge decks

An effective drainage system for bridge decks shall be provided as specified in the provision of relevant Manual

- (f) Structures in marine environment

(iv) Rail-road bridges

- (a) Design, construction and detailing of ROB/RUB shall be as specified in the provision of relevant Manual. [Refer to the provision of relevant Manual and specify modification, if any]

- (b) Road over-bridges

Road over-bridges (road over rail) shall be provided at the following level crossings, as per GAD drawings attached:

Sl. No.	Location of Level crossing (Chainage km)	Length of bridge (m)
Nil		

- (c) Road under-bridges

Road under-bridges (road under railway line) shall be provided at the following level crossings, as per GAD drawings attached:

Sl. No.	Location of Level crossing (Chainage km)	Length of bridge (m)
NIL		

(v) Grade separated structures

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2 (ix) and 3 of this Annex-I.

(vi) Repairs and strengthening of bridges and structures

[Refer to the provision of relevant Manual and provide details]

The existing bridges and structures to be repaired/strengthened, and the nature and extent of repairs /strengthening required are given below:

(a) Bridges

Sl. No.	Location of bridge (km)	Nature and extent of repairs /strengthening to be carried out
1	77+600	Existing bridge shall be repaired for running traffic during complete construction period.
2	92+850	

(b) ROB / RUB

Sl. No.	Location of ROB/RUB (km)	Nature and extent of repairs /strengthening to be carried out
NIL		

(c) Overpasses/Underpasses and other structures

Sl. No.	Location of Structure (km)	Nature and extent of repairs /strengthening to be carried out
Nil		

(vii) List of Major/Minor Bridges and Structures

The following is the list of the Major/Minor Bridges and Structures:

Sl. No.	Location
1	77+600 (Major Bridge)
2	92+850 (Major Bridge)
3	97+020 (Minor Bridge)

8. Traffic Control Devices and Road Safety Works

- Traffic control devices and road safety works shall be provided in accordance with the provision of relevant Manual.
- Specifications of the reflective sheeting.
- Provision of road marking, cautionary, mandatory & informative signboards and place & identification sign boards, road stud other road Side Furniture/ Appurtenance's, road safety works & Delineators, etc. as per Ministry guidelines & IRC specifications.
- Traffic cone, Drum delineators, portable barricades, barricades, flagman etc. for construction period and diversion road as per Ministry guidelines & IRC

specifications.

- (v) Painting lines, dashes, arrows, providing road marking, providing Km stones, hectometre stones, road delineators, road studs.

9. Roadside Furniture

- (i) Roadside furniture shall be provided in accordance with the provision of relevant Manual.

- (ii) Overhead traffic signs: location and size

[Refer to the provision of relevant Manual and provide details]

10. Compulsory Afforestation

[Refer to the provision of relevant Manual and specify the number of trees which are required to be planted by the Contractor as compensatory afforestation.]

11. Hazardous Locations

The safety barriers shall also be provided at the following hazardous locations:

Sl. No.	Location stretch from (km) to (km)	LHS/RHS
NIL		

12. Special Requirement for Hill Roads

[Refer to the provision of relevant e Manual and provide details where relevant and required.]

13. Temporary Diversion

A temporary diversion (7.0m wide) shall be constructed for reconstruction of bridge at km 97+020, the minimum length of diversion shall be 665m and the minimum pavement crust shall be **Bituminous Concrete**, 225mm WMM, 200mm GSB & 500mm Subgrade.

14. Change of Scope

The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified in this Schedule- B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

(Schedule B-1)

1. The shifting of utilities and felling of trees shall be carried out by the Contractor. The cost of the same shall be borne by the Contractor. The details of utilities are as follows:

Sl. No	Design Chainage (km)		Length (in Km)				Crossings (no's)				Transformer		Side
	From	To	33 KV	22 KV	11 KV	LT	33 KV	22 KV	11 KV	LT	No	Capacity	
1	77+400	78+074			05 no. of pole	0.2Km							
2	96+680	97+220	05 no. of pole		0.3Km	0.2Km							

(ii) Public Health Utilities (Water/Sewage Pipe Lines)

The site includes the following Public Health Utilities wherein the tabulated stretches of the road are affected by Water supply pipeline: -

Sl. No	Design Chainage (km)		Length along NH (in Km)				Falling in ROW				Side
	From	To	Water Supply line		Sewage line		Hand Pump		Sewage line		
			With Pumping	With Gravity	With Pumping	With Gravity	LHS	RHS	With Pumping	With Gravity	
1	96+680	97+220	0.24 (63mm)								Both Side
2	96+680	97+220	0.6 (75mm)								
3	96+680	97+220	0.24 (90mm)								
4	96+680	97+220	0.15 (Nala crossing)								

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh.

Appendix B-I

Applicable Stretches of Typical Cross-sectional Schedule. The construction shall be carried out as per typical cross section mentioned below (TCS Drawings at Appendix-B-II).

No.	Design Chainage		Deduction For	Type of TCS	Length of TCS (m)	Type of TCS
	From (km)	To (km)	Bridge			
1	77+400	77+447		TCS-1	47	Two lane with paved shoulder (approach to bridge)
2	77+447	77+487		TCS-3	40	Two Lane with paved shoulder in open land with one side retaining wall
3	77+487	77+884		TCS-2	397	Two Lane Bridge
4	77+884	77+964		TCS-3	80	Two Lane with paved shoulder in open land with one side retaining wall
5	77+964	78+074		TCS-1	110	Two lane with paved shoulder (approach to bridge)
No.	Design Chainage		Deduction For	Type of TCS	Length of TCS (m)	Type of TCS
	From (km)	To (km)	Bridge			
1	92+550	92+679		TCS-1	129	Two lane with paved shoulder (approach to bridge)
2	92+679	92+801		TCS-3	122	Two Lane with paved shoulder in open land with one side retaining wall
3	92+801	92+898		TCS-2	97	Two Lane Bridge

**Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge),
km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering,
Procurement and Construction (EPC) mode in the State of Uttar Pradesh.**

4	92+898	92+980		TCS-3	82	Two Lane with paved shoulder in open land with one side retaining wall
5	92+980	93+148		TCS-1	168	Two lane with paved shoulder (approach to bridge)

No.	Design Chainage		Deduction For	Type of TCS	Length of TCS (m)	Type of TCS
	From (km)	To (km)	Bridge			
1	96+680	97+006		TCS-1	326	Two lane with paved shoulder (approach to bridge)
2	97+006	97+035		TCS-2	29	Two Lane + Paved Shoulder with footpath for 2-lane bridge
3	97+035	97+220		TCS-1	185	Two lane with paved shoulder (approach to bridge)

Schedule - C

(See Clause 2.1)

Project Facilities

1. Project Facilities

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include:

- (a) toll plaza;
- (b) roadside furniture;
- (c) pedestrian facilities;
- (d) tree plantation;
- (e) truck lay-byes;
- (f) bus-bays and bus shelters;
- (g) rest areas; and
- (h) others to be specified

2. Description of Project Facilities

Each of the Project Facilities is described below:

Sl. No.	Project Facility	Location	Design Requirements	Other essential details

Note: Provide adequate details of each Project Facility to ensure their design and completion in accordance with the project-specific requirements and the provisions of the Manual.

1. Description of Project Facilities

Each of the Project Facilities is briefly described below:

a) Toll Plazas

Sl. No.	Chainage/Locations
	NIL

b) Traffic control devices/ road safety devices / roadside furniture

The provision of traffic control devices/ road safety devices shall be made as per specifications and standards as specified in Schedule D and in consultation with the Authority Engineer/Authority.

The hazardous locations that require safety barriers are given in Appendix C-I.

c) Roadside Furniture

The roadside furniture shall include the following provisions;

i. Traffic Signs

Traffic signs include roadside signs, overhead signs along the entire Project Highway as per manual recommended in Schedule D. The locations and size of overhead traffic signs are given in Appendix C-II.

However, the minimum no. of Traffic/ Road signs to be provided are as detailed below:

S. No.	Type of overhead sign/ Traffic signs/ roadside signs	Minimum numbers
1.	Directional arrows, letter marking etc.	24
2.	Advance Directional signs size 1800x1200mm	6
3.	Village name sign boards	6
4.	Place identification signs size 600x800mm	6
5.	90 cm Triangle	10
6.	90 cm Octagon	8
7.	Hazard plate 300X900 mm	24
8.	60 Cm circular	6
9.	Square Boards 60*60cm	6
10.	Rectangular Boards 80*60cm	6
11.	Chevron Board 50x60cm	33

ii. Pavement Markings

Pavement markings shall cover road marking for the entire Project Highway as per Manuals specified in Schedule D.

**Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge),
km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering,
Procurement and Construction (EPC) mode in the State of Uttar Pradesh.**

(i) 77+600 (Major Bridge)

S.NO	Description	Unit	No	Length (m)	Breadth (m)	Height (m)	Quantity
1	Centre line on straight portion	Sqm	0.33	539	0.1	-	17.78
2	Centre line on curve portion	Sqm	1	135	0.1	-	13.5
3	Edge Line at C'way edge / Paved Shoulder	Sqm	2	674	0.15	-	202.20
4	Add 15% for Misc. including Pedestrian X-ings etc						35.02

(ii) 92+850 (Major Bridge)

S.NO	Description	Unit	No	Length (m)	Breadth (m)	Height (m)	Quantity
1	Centre line on straight portion	Sqm	0.33	478	0.1	-	15.77
2	Centre line on curve portion	Sqm	1	120	0.1	-	12.00
3	Edge Line at C'way edge / Paved Shoulder	Sqm	2	598	0.15	-	179.40
4	Add 15% for Misc. including Pedestrian X-ings etc						31.08

(iii) 97+020 (Minor Bridge)

S.NO	Description	Unit	No	Length (m)	Breadth (m)	Height (m)	Quantity
1	Centre line on straight portion	Sqm	0.33	432	0.1	-	14.26
2	Centre line on curve portion	Sqm	0.5	108	0.1	-	5.40

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh.

3	Edge Line at C'way edge / Paved Shoulder	Sqm	2	540	0.15	-	162.00
4	Add 15% for Misc. including Pedestrian X-ings etc						27.25

iii. LED Traffic Blinkers

For all Pedestrian cross walks along the alignment, at all Major Junction locations and at Curve locations where curve radius not confirming to minimum radius as per design standards and any other locations specified in relevant manual, Solar Traffic Blinkers shall be provided by the contractor.

iv. Crash barrier

Provide Thrie beam crash barrier along the project highway. The length crash barrier is given below as minimum criteria in line with the standard recommended in Schedule D.

Description	Total length of crash barrier
Thrie Beam Metal Crash Barrier	2254m
RCC Crash barrier	1046m
Railing	1166m

v. Retaining Wall

S.NO	Chainage		Total Length (m)	Remarks
	From	To		
1	77+447	77+487	40	TCS-3 (77+600) LHS
2	77+884	77+964	80	TCS-3 (77+600) LHS
3	92+679	92+801	122	TCS-3 (92+850) LHS
4	92+898	92+980	82	TCS-3 (92+850) LHS
Total Retaining wall length-324m				

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh.

vi. Delineators

Delineators for the entire Project Highway shall be provided. The minimum numbers of delineators are given below as minimum criteria in line with the standard recommended in Schedule D.

Sl. No.	Unit (Numbers)
Delineators	260

vii. Boundary stones

Road Boundary Stones (RBS) shall be provided at every 50m intervals on both sides for the entire Project length as per minimum criteria in line with the Manuals recommended in Schedule D.

viii. Hectometre / Kilometre stones/5th km stone

For the entire Project Highway length as suggested in relevant IRC Manuals recommended in Schedule D.

S. No.	Type of overhead sign/ Traffic signs/ roadside signs	Minimum numbers
1	Ordinary KM Stone	3
2	Hectometre Stone	6

d) Street Lighting

Street Lighting shall be provided as per specifications and standards specified in Schedule D. Providing Pole Mounted Street Light-Single overhang street lights in Bridge Portion. The tentative locations of street lighting are given below: -

Sl. No.	Location
1	77+600 (Major Bridge)
2	92+850 (Major Bridge)
3	97+020 (Minor Bridge)

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh.

- e) Pedestrian Facilities
- i. Pedestrian guardrail: As per TCS
 - ii. Pedestrian facilities shall be provided as per specifications and standards specified in Schedule-D

- f) Landscaping and Tree Plantation

Landscaping: at major intersections, interchange etc. within ROW of the project highway shall be done as per specifications and standards specified in Schedule D.

Tree Plantation: Nil

- g) Truck Terminal / Wayside Amenities / Truck Lay-Bys

The Truck Terminal / Wayside Amenities / Truck Lay-Bys shall be provided as per specifications and standards specified in Schedule D.

Sl. No	Chainage	Side
NIL		

- h) Bus Bays / Bus Shelters

The locations of these bus bays shall be finalized by the contractor in consultation with the Authority Engineer/Authority.

Sl. No.	Design Chainage (km)	Side
NIL		

- i) Rest Area

The Rest Area to meet the IRC's provisions is to be provided at below mentioned locations.

Sl. No	Chainage	Remarks
Nil		

j) Solar Blinkers

The solar blinkers shall be provided as per specifications and standards specified in Schedule D & the location shall be finalized with concerned with Authority/Authority Engineer. However minimum quantity of solar blinkers is mentioned in table below:-

Sl. No	Item	Total Numbers
1	Solar Blinkers	648

Schedule - D

(See Clause 2.1)

Specifications and Standards

1. Construction

The Contractor shall comply with the Specifications and Standards set forth in Annex- I of this Schedule-D for construction of the Project Highway.

2. Design Standards

The Project Highway including Project Facilities shall conform to design requirements set out in the following documents:

[Manual of Specifications and Standards for Two Laning with Paved Shoulder of Highways (IRC: SP: 73:2018), referred to herein as the Manual]

- (i) All geometric features and Re-alignment have reportedly been designed for ruling design and minimum design speed of 100 kmph and 80 kmph respectively as per IRC-SP:84-2019.
- (ii) Protection work is provided along the project stretch at required locations according to IRC SP 73:2018.
- (iii) Construction of embankment with materials deposited from roadway cutting and from materials obtained from borrow pits, construction of subgrade and earthen shoulder.
- (iv) Polymer Modified Bitumen of grade 76-10 (PMB76-10) in Bituminous Concrete and VG-40 in DBM has been considered in accordance with Ministry's Circular No. RW/NH-35072/05/2018- S&R(P&B)(Computer No. 165688) dated 19.04.2024.
- (v) Contractor shall ensure that the quality of works conforms to the provisions stipulated in the contract agreement in accordance with the IRC: SP:112-2017 "Manual for Quality Control in Roads & Bridge works.
- (vi) Bitumen to be used for the road works shall be as per IRC:37-2018 & Ministry's circular No.RW/NH-35072/05/2018-S&R(P&B) dated 24.08.2018 and Ministry's Circular No. RW/NH35072/05/2018-S&R(P&B)(Computer No. 165688) dated 19.04.2024. Also, anti-stripping agent shall be used as per Ministry guideline circulated vide letter NO.RW/NH-33044/127/2016-S&R(P&B) dated 06.08.2018.
- (vii) All the items of work included in the scope of work will be executed

as per Ministry's Specifications for Road and Bridge Works (5th Revision, 2013) and Circulars/ Guidelines issued by the Ministry from time to time.

- (viii) The work is to be carried out in accordance with the "Hand Book of Quality Control for construction of Roads & Runways (Second Revision) - IRC: SP: 11-1988", observing strict quality control instructions contained in Ministry's letter No.NHIII/P/1/83 dated 19th April, 1984 and permanent records maintained thereof.
- (ix) The existing surface shall be prepared to the required profile in accordance with Clause 501.8 and 902.3 of Ministry's specification.
- (x) In view of providing enhanced safety to road users, the latest specifications for road furniture need to be envisaged in conformity with Ministry's specification and relevant guidelines should be used.
- (xi) The work of road items should not continue over the bridges, if any. The longitudinal profile of the immediate approaches should be suitably adjusted to merge with the road level of the bridge as per the guidelines circulated vide Ministry's letter no. RW/NH-33044/10/2000-S&R dated 1st June 2000.
- (xii) The work of road marking with stipulated paint (thermoplastic) shall be done as per Cl. 803 of Ministry's latest specifications and IRC: 35-1997 and per the requirement of manual.
- (xiii) Traffic management during construction: The traffic should be managed as per section 112 of Ministry's Specifications for Road and Bridge works, 5th Revision, 2013.
- (xiv) Bitumen used for the work shall be heated in boilers only and not in drums on open fire. Spraying of bitumen wherever necessary should be done only with the mechanical sprayers and premixing of bitumen and stone aggregates should be done only in the proper mechanical mixer/hot mix plant.
- (xv) The tack coat shall be provided with bitumen of VG-10 grade as per latest specification of the Ministry.
- (xvi) Collection of material on the roadside should be so planned that it should commensurate with the physical progress of work and the collected material should not cause any hindrance to the traffic. It must be ensured that the contractor arranges for separate land for storage of road construction material and machinery and these shall not be allowed to be stacked on roadside.
- (xvii) Camber or cross falls of 2% for CC surface, 2.5% for bituminous surface and 3.5% for earth work may be provided as per clause 8.2 of IRC: 52-1981 considering the high rainfall in the area.

- (xviii) The selection of grade of bitumen to be used for the work shall be as per guidelines issued vide Ministry's Circular No. RW/NH-35072/05/2018-S&R(P&B)(Computer No. 165688) dated 19.04.2024.
- (xix) During the course of execution, the traffic may be regulated in accordance with guidelines laid down vide Ministry's letter no. NHIII-33 (126)/72 dated 20th March, 1973 and Letter No.RW/NH-11060/1/1998- D.O.1 dated 7th October, 1987. Smooth flow of the traffic may be ensured by providing adequate traffic control devices in accordance with stipulation of IRC: SP: 55:2001 "Guidelines on Safety in construction Zone".
- (xx) Contractor shall provide road signage, bollards, boards, gunny bags, sheets etc. for safety of traffic during construction period, which will be incidental to the work.

[Note: Specify the relevant Manual, Specifications and Standards]

Annex - I

(Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for [Two-Laning of Highways with Paved Shoulder (IRC:SP:73)], referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2. Deviations from the Specifications and Standards

- (i) The terms "Concessionaire", "Independent Engineer" and "Concession Agreement" used in the Manual shall be deemed to be substituted by the terms "Contractor", "Authority's Engineer" and "Agreement" respectively.
- (ii) Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:]
- (iii) [Note 1: Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in view of project-specific requirements.]

Schedule-E (Maintenance Requirement)

(See Clauses 2.1 & 14.2)

1. Maintenance Requirements

- (i) The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.
- (ii) The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfilment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.
- (iii) All Materials works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

1. Repair/rectification of Defects and deficiencies

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex-I of this Schedule-E within the time limit set forth therein.

2. Other Defects and deficiencies

In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority's Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Authority's Engineer.

3. Extension of Time Limit

Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

4. Emergency repairs/restoration

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Notwithstanding anything to the contrary contained in this Schedule-E, if any Defect, deficiency or deterioration in the Project Highway poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger

5. Daily inspection by the Contractor

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority's Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority's Engineer at any time during office hours.

6. Pre-monsoon inspection / Post-monsoon inspection

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system before [1st June] every year in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed maintenance works as required on the basis of this inspection shall be sent to the Authority's Engineer before the 10th June every year. The Contractor shall complete the required repairs before the onset of the monsoon and send to the Authority's Engineer a compliance report. Post monsoon inspection shall be done by the 30th September and the inspection report together with details of any damages observed and proposed action to remedy the same shall be sent to the Authority's Engineer.

7. Repairs on account of natural calamities

All damages occurring to the Project Highway on account of a Force Majeure Event or default or neglect of the Authority shall be undertaken by the Authority at its own cost. The Authority may instruct the Contractor to undertake the repairs at the rates agreed between the Parties.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Annex - I: Repair/rectification of Defects and deficiencies

(Schedule-E)

The Contractor shall repair and rectify the Defects and deficiencies specified in this Annex-I of Schedule-E within the time limit set forth in the table below:

Table-1: Maintenance Criteria for Pavement

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools / Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
Flexible Pavement (Pavement of MCW, Service Road, approaches of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Potholes	Nil	< 0.1 % of area and subject to limit of 10 mm in depth	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC 82: 2015 and Distress Identification Manual for Long Term Pavement Performance Program, FHWA 2003 (https://www.fhwa.dot.gov/publications/research/infrastructure/pavements/ltpa/reports/03031/03031.pdf)	24-48 hours	MORT&H Specification 3004.2

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools / Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
---do---	Cracking	Nil	< 5 % subject to limit of 0.5 Sq. m for any 50 m length	Daily	---do---	---do---	7-15 days	MORT& H Specification 3004.3
---do---	Rutting	Nil	< 5 mm	Daily	Straight Edge	---do---	15 -30 days	MORT& H Specification 3004.2
---do---	Corrugations and Shoving	Nil	< 0.1 % of area	Daily	Length Measurement Unit like	---do---	2-7 days	IRC:82-2015
---do---	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape, odometer etc.	---do---	3-7 days	MORT& H Specification 3004.4
---do---	Ravelling/ Stripping	Nil	< 1 % of area	Daily	---do---	---do---	7-15 days	IRC:82-2015 read with IRC

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools / Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
								SP 81
---do---	Edge Deformation / Breaking	Nil	< 1 m for any 100 m section and width <0.1 m at any location, Restricted to 30 cm from the edge	Daily	---do---	---do---	7- 15 days	IRC:82-2015

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools / Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
---do---	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer SCRIM (Sideway - force Coefficient Routine Investigation Machine or equivalent)	Class I Profilometer: ASTM E950 (98): 2004 -Standard Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	180 days	IRC:82-2015
---do---	Skid Number	60 SN	50SN	Bi-Annually	---do---	---do---	180 days	BS: 7941-1: 2006
---do---	Pavement Condition Index	3	2.1	Bi-Annually	---do---	---do---	180 days	IRC:82-2015
---do---	Other Pavement Distress	-	-	Bi-Annually	-	-	2-7 days	IRC:82-2015

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools / Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
	es							
---do---	Deflection/ Remaining Life	-	-	Annually	Falling Weight Deflectometer	IRC:115-2014	180 days	IRC:115-2014
Rigid Pavement (Pavement of MCW, Service Road, approaches of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as	Roughness BI	2200 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer	ASTM E950 (98):2004 and ASTM E1656 -94: 2000	180 days	IRC:83-2000

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools / Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
applicable)								

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools / Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
---do---	Skid Number	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway- force Coefficient Routine Investigation Machine or equivalent)	IRC:83-2000	180 days	IRC:83-2000
		Min. SN	Traffic Speed (Kmph)					
		36	50					
		33	65					
		32	80					
		31	95					
		30	110					

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performan ce Parameter	Level of Service (LOS)		Frequen cy of Inspecti on	Tools / Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectifica tion/ Repair	Maintenan ce Specificati ons
		Desirab le	Accept able					
Embank ment/ Slope	Edge drop at shoulder s	Nil	40mm	Daily	Length Measure ment Unit like Scale, Tape, odomete r etc.	-	7-15 days	MORT& H Specific ation 408.4
---do---	Slope of camber / cross fall	Nil	<2% variati on in prescri bed slope of cambe r	Daily	---do---	-	7-15 days	MORT& H Specific ation 408.4

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools / Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
			/cross fall					
---do---	Embankment Slopes	Nil	<15 % variation in prescribe side slope	Daily	---do---	-	7-15 days	MORT&H Specification 408.4
---do---	Embankment Protection	Nil	Nil	Daily	NA	-	7-15 days	MORT&H Specification
---do---	Rain Cuts/ Gullies in slope	Nil	Nil	Daily (Specially During Rainy season)	NA	-	7-15 days	MORT&H Specification

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

In addition to the above performance criterion, the contractor shall strictly maintain the rigid pavements as per requirements in the following table.

Table-2: Maintenance Criteria for Rigid Pavement

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
CRACKING						
1	Single Discrete Cracks Not intersecting with any joint	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	w < 0.2 mm. hair cracks		
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car	Seal without delay	Seal, and stitch if L > 1m. Within 7days
			3	w = 0.5 - 1.5 mm, discernible from fast-moving car		
			4	w = 1.5 - 3.0 mm	Seal, and stitch if L > 1 m. Within 7 days	Staple or Dowel Bar Retrofit, FDR for affected portion. Within 15days
			5	w > 3 mm.		
2	Single Transverse (or Diagonal) Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.2 mm. hair cracks	Route and seal with epoxy. Within 7 days	Staple or Dowel Bar Retrofit. Within 15days
			2	w = 0.2 - 0.5 mm, discernible from slow vehicle		
			3	w = 0.5 - 1.5 mm, discernible from fast vehicle	Route, seal and stitch, if L > 1 m. Within 7 days	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
3	Single Longitudinal Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	4	w = 3.0 - 6.0 mm	Dowel Bar Retrofit. Within 15 days	Full Depth Repair Dismantle and reconstruct affected. Portion with norms and specifications - See Para 5.5 & 9.2 Within 15days
			5	w > 6 mm, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, as it may be full depth	
			0	Nil, not discernible	No Action	
			1	w < 0.5 mm, discernible from slow moving vehicle	Seal with epoxy, if L > 1 m. Within 7 days	Staple or dowel bar retrofit. Within 15days
			2	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route seal and stitch, if L > 1 m. Within 15 days	
			3	w = 3.0 - 6.0 mm	Staple, if L > 1 m. Within 15 days	Partial Depth Repair with stapling. Within 15 days
			4	w = 6.0 - 12.0 mm, usually associated with spalling	Not Applicable, as it may be full depth	
			5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic		Full Depth Repair Dismantle and reconstruct affected portion as per norms and specifications See

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
						Para 5.6.4 Within 15 days
4	Multiple Cracks intersecting with one or more joints	w = width of crack	0	Nil, not discernible	No Action	-
			1	w < 0.2 mm, hair cracks	Seal, and stitch if L > l m. Within 15 days	
			2	w = 0.2 - 0.5 mm. discernible from slow vehicle		
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinststate sub base, Reconstruct whole slab as per specifications within 30 days
			4	w = 3.0 - 6.0 mm panel broken into 2 or 3 pieces		
			5	w > 6 mm and/or panel broken into more than 4 pieces		
5	Corner Break	w = width of crack L = length of crack	0	Nil, not discernible	No Action	-
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to secure broken parts.	Seal with epoxy seal with epoxy. Within 7days
			2	w < 1.5 mm; L < 0.6 m, only		

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
				one corner broken	Within 7 days	
			3	$w < 1.5 \text{ mm}$; $L < 0.6 \text{ m}$, two corners broken	Partial Depth (Refer Figure 8.3 of IRC:SP: 83-2008) Within 15 days	Full depth repair
			4	$w > 1.5 \text{ mm}$; $L > 0.6 \text{ m}$ or three corners broken		Reinstate sub-base, and reconstruct the slab as per norms and specifications. within 30days
			5	Three or four corners broken		
6	Punch out (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)	w = width of crack L = length (m/m^2)	0	Nil, not discernible	-	No Action
			1	$w < 0.5 \text{ mm}$; $L < 3 \text{ m/m}^2$	Not Applicable, as it may be full depth	Seal with low viscosity epoxy to secure broken parts. Within 15days
			2	either $w > 0.5 \text{ mm}$ or $L < 3 \text{ m/m}^2$		
			3	$w > 1.5 \text{ mm}$ and $L < 3 \text{ m/m}^2$		Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement. Within 30days
			4	$w > 3 \text{ mm}$, $L < 3 \text{ m/m}^2$ and deformation		
			5	$w > 3 \text{ mm}$, $L > 3 \text{ m/m}^2$ and deformation		

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
SURFACE DEFECTS						
7	Raveling or Honeycomb type surface	r = area damaged surface/total surface of slab (%) h = maximum depth of damage			Short Term	Long Term
			0	Nil, not discernible	No Action	Not applicable
			1	r < 2 %	Local repair of areas damaged and liable to be damaged. Within 15 days	
			2	r = 2 - 10 %		
			3	r = 10-25%	Bonded Inlay, 2 or 3 slabs if affecting. Within 30 days	
			4	r = 25 - 50 %		
			5	r > 50% and h > 25 mm	Reconstruct slabs, 4 or more slabs if affecting. Within 30 days	
8	Scaling	r = damaged surface/total surface of slab (%) h = maximum depth of damage			Short Term	Long Term
			0	Nil, not discernible	No Action	Not applicable
			1	r < 2 %	Local repair of areas damaged and liable to be damaged. Within 7days	
			2	r = 2 - 10 %		
			3	r = 10 - 20%	Bonded Inlay within 15 days	
			4	r = 20 - 30 %		
			5	r > 30 % and h > 25 mm	Reconstruct slab	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
			0	-	within 30 days	
9	Polished Surface/Glazing	t = texture depth, sand patch test	1	t > 1 mm	No Action	Not applicable
			2	t = 1 - 0.6 mm	Monitor rate of deterioration	
			3	t = 0.6 - 0.3 mm		
			4	t = 0.3 - 0.1 mm		
			5	t < 0.1 mm	Diamond Grinding if affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days	-
			10	Pop out (Small Hole), Pothole Refer Para 8.4	n = number/m2 d = diameter h = maximum depth	0
1	d = 50 - 100 mm; h < 50 mm; n < 1 per 5 m2	Partial depth repair 65 mm deep. Within 15 days				
2	d = 50 - 100 mm; h > 50 mm; n < 1 per 5 m2					
3	d = 100 - 300 mm; h < 100 mm n < 1 per 5 m2	Partial depth repair 110mm i.e.10 mm more than the depth of the hole. Within 30 days				
4	d = 100 - 300 mm; h > 100 mm; n < 1 per 5 m2					
5	d > 300 mm; h > 100 mm: n > 1 per 5 m2	Full depth repair. Within 30 days				

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
JOINT DEFECTS						
11	Joint Seal Defects	loss or damage L = Length as % total joint length			Short Term	Long Term
			0	Difficult to discern.	No action.	Not applicable
			1	Discernible, L< 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material.	Clean joint, inspect later.	
			3	Notable. L > 25% insufficient protection against ingress of water and trapping incompressible material.	Clean and reapply sealant in selected locations. Within 7 days	
			5	Severe; w > 3 mm negligible protection against ingress of water and trapping incompressible material	Clean, widen and reseal the joint. Within 7 days	
12	Spalling of Joints	w = width on either side of the joint L = length of spalled portion (as % joint length)	0	Nil, not discernible	No action.	Not applicable
			1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in cracked portion. Within 7 days	
			2	w = 10 - 20 mm, L < 25%		
			3	w = 20 - 40 mm, L > 25%	Partial Depth Repair. Within 15 days	
			4	w = 40 - 80 mm, L > 25%	30 - 50 mm deep, h = w + 20% of w, within	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
			5	w > 80 mm, and L > 25%	50 - 100 mm deep repair. H = w + 20% of w. Within 30 days	
13	Faulting (or Stepping) in Cracks or Joints	f = difference of level	0	No discernible, < 1 mm	No action.	No action.
			1	f < 3 mm		
			2	f = 3 - 6 mm	Determine cause and observe, take action for diamond grinding	Replace the slab as appropriate. Within 30days
			3	f = 6 - 12 mm	Diamond Grinding	
			4	f= 12 - 18 mm	Raise sunken slab.	Replace the slab as appropriate. Within 30days
			5	f> 18 mm	Strengthen subgrade and sub-base by grouting and raising sunken slab	
14	Blowup or Buckling	h = vertical displacement from normal profile	0	Nil, not discernible	No action.	
			1	h < 6 mm		
			2	h = 6 - 12 mm	Install Signs to Warn Traffic. within 7 days	
			3	h = 12 - 25 mm		
			4	h > 25 mm	Full Depth Repair. Within 30 days	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
					5	Shattered slabs, i.e. 4 or more pieces
15	Depression	h = negative vertical displacement from normal profile L = Length	0	No discernible, h < 5 mm	No action.	Not applicable
			1	h = 5 - 15 mm		
			2	h = 15-30 mm, Nos. <20% joint	Install Signs to Warn Traffic. within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen subgrade. Reinstate pavement at normal level if L < 20 m. Within 30 days	
			5	h > 100 mm		
16	Heave	h = positive vertical displacement from normal profile. L = length	0	No discernible. h < 5 mm	No action.	Scrabble
			1	h = 5 - 15 mm	Follow up.	
			2	h = 15 - 30 mm, Nos. <20% joints	Install Signs to Warn Traffic. within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Stabilize subgrade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		
17	Bump	h = vertical	0	h < 4 mm	No action.	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
		displacement from profile.	1	$h = 4 - 7 \text{ mm}$	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	$h = 7 - 15 \text{ mm}$	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			5	$h > 15 \text{ mm}$	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days
18	Lane to Shoulder Drop-off	f = difference of level	0	Nil, not discernible $< 3\text{mm}$	No action.	
			1	$f = 3 - 10 \text{ mm}$	Spot repair of shoulder within 7 days	
			2	$f = 10 - 25 \text{ mm}$		
			3	$f = 25 - 50 \text{ mm}$	Fill up shoulder within 7 days	
			4	$f = 50 - 75 \text{ mm}$		
			5	$f > 75 \text{ mm}$		
DRAINAGE						
19	Pumping	quantity of fines and water expelled through open joints and cracks Nos.			Short Term	Long Term
			0	No discernible	No Action	Inspect and repair sub-drainage at distressed sections and upstream.
			1 to 2	slight/ occasional Nos $< 10\%$	Repair cracks and joints Without delay.	
			3 to 4	appreciable/ Frequent 10 - 25%	Lift or jack slab within 30 days.	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
		Nos. / 100 m stretch	5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade and sub base. Replace slab. Within 30 days	
20	Ponding	Ponding on slabs due to blockage of drains	0-2	No discernible problem	No action.	
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc. within 7 days, Follow up	Action required to stop water damaging foundation within 30 days.
			5	Ponding, accumulation of water observed	-do-	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Table -3: Maintenance Criteria for Safety Related Items and Other Furniture Items:

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Highway	Availability of Safe Sight Distance	As per IRC SP: 87-2019, a minimum of safe stopping sight distance shall be available throughout.	Monthly	Manual Measurements with Odometer along with video/ image backup	Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments.	IRC:SP 87-2019	
	Design Speed				In case of permanent structure or design deficiency:		
	Desirable min. sight distance (m)				Removal of obstruction/improvement of deficiency at the earliest		
	Safe SSD (m)				Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.		
	100						
	80						
Pavement Marking	Wear	<70% of marking remaining	Bi- Annually	Visual Assessment as per Annexure-F of IRC:35-2015	Re - painting	Cat-1 Defect - within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015
	Day time Visibility	During expected life Service Time Cement Road - 130mcd/m ² /lux Bituminous Road - 100mcd/m ² /lux	Monthly	As per Annexure-D of IRC:35-2015	Re - painting	Cat-1 Defect - within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards		
	Night Time Visibility	Initial and Minimum Performance for Dry Retro reflectivity during night time:		Bi- Annually	As per Annexure-E of IRC:35-2015	Re - painting	Cat-1 Defect - within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015		
		Design Speed	(RL) Retro Reflectivity (mcd/m2/lux)							
			Initial (7Day)						Min. Threshold level (TL) & warranty period reqd. up to 2 years	
									Up to 65	20080
									65-100	250120
									Above 100	350150

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity): Initial 7 days Retro reflectivity: 100 mcd/m ² /lux Minimum Threshold Level: 50 mcd/m ² /lux					
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7days): 55BPN Min. Threshold: 44BPN	Bi-Annually	As per Annexure-G of IRC:35-2015		Within 24 hours	IRC:35-2015
		*Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc.					

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Road Signs	Shape and Position	Shape and Position as per IRC: 67- 2012. Signboard should be clearly visible for the design speed of the section.	Daily	Visual with video/image backup	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 15 Days in case of Gantry/Cantilever Sign boards	IRC:67-2012
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of each signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.	Change of signboard	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 1 Month in case of Gantry/ Cantilever Sign boards	IRC:67-2012
Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring	Raising Kerb Height	Within 1 Month	IRC:86-1983

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
				tape			
	Kerb Painting	Functionality: Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	IRC:35-2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC: SP: 87-2019 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:87-2019, IRC:35-2015
	Pedestrian Guardrail	Functionality: Functioning of guardrail as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:87-2019
	Traffic Safety Barriers	Functionality: Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:87-2019, IRC:119-2015
	End Treatment of Traffic Safety Barriers	Functionality: Functioning of End Treatment as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:87-2019
	Attenuators	Functionality: Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP-2014, IRC:119-2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC: 79-1981
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:87-2019
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with lux meter	Improvement in Lighting System	24 hours	IRC:SP:87-2019
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:87-2019
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:87-2019
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with lux meter	Improvement in Lighting System	24 hours	IRC:SP:87-2019
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:87-2019
Trees and Plantation including median plantation	Obstruction in a minimum head-room of 5.5 m above carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:87-2019

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC:SP:87-2019
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of Trees	Immediate	IRC:SP 87-2019
Rest Areas	Cleaning of toilets	-	Daily	-	-	Every 4 hours	-
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	-
Other Project Facilities and Approach roads	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus-shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily	-	Rectification	15 days	IRC:SP 87-2019

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Table 4: Maintenance Criteria for Structures and Culverts:

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Pipe/box/slab culverts	Free waterway/unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-1993 and IRC SP:69-2011

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Structurally sound	Spalling of concrete not more than 0.25 Sqm	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC: SP: 40-1993.	15 days	IRC SP 40-1993 and MORTH Specifications clause 2800
		Delamination of concrete not more than 0.25 Sqm.					
		Cracks wider than 0.3 mm not more than 1m aggregate length					

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 Sqm, damage to solid apron (concrete apron) not more than 1 Sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Bridges including ROB's Flyover etc. as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge - Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-1990.	Repairs and replacement of safety barriers as the case may be	3days	IRC: 5-1998, IRC SP: 87-2019 and IRC SP: 40-1993
	Rusted reinforcement	Not more than 0.25 sq.m	Bi- Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
	Spalling of concrete	Not more than 0.50 sq.m					
	Delamination	Not more than 0.50 sq.m					

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH specifications 2600 & 2700.
	Deflection due to permanent loads and live loads	Within design limits.	Once in every 10 years for spans more than 40 m	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-1999

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	Once in every 5 years for spans more than 30m and every 10 years for spans between 15 to 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications
	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of rain water through expansion joint in case of buried and asphalt plug and copper strip joint.	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Replace of seal in expansion joint	15 days	MORTH specifications 2600 and IRC SP: 40-1993.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Debris and dust in strip seal expansion joint	No dust or debris in expansion joint gap.	Monthly	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specifications 2600 and IRC SP: 40-1993
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab. Providing sealant around the drainage spout if any leakages observed.	3 days	MORTH specification 2700.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Bridge-substructure	Cracks/spalling of concrete/ rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH Specification 2800.
	Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture of	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced, in order to get uniform load	3 months	IRC SP: 40-1993 and MORTH Specification 2810.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		reinforcement or rubber			transfer on to bearings.		
Bridge Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells in major	Suitable protection works around pier/abutment	1 month	IRC SP: 40-1993 IRC:83-2014, and MORTH Specification 2500

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3sq.m, damage to solid apron (concrete apron) not more than 1 Sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching.	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC: SP: 13- 2004.
Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor.							

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Table 5: Maintenance Criteria for Hill Roads

In addition to above, for hill roads the following provisions for maintenance is also to done.

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	12 (Twelve) hours
(iii)	Snow requiring clearance	24 (Twenty-Four) hours

Note: For all tables 1 to 5 above, latest BIS & IRC standards (even those not indicated herewith) along with MoRT&H specifications shall be binding for all maintenance activities.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Table-6: Time limit for Repair/rectification of Defects and deficiencies

Nature of Defect or deficiency		Time limit for repair/rectification
ROADS		
(a) Carriageway and paved shoulders		
(i)	Breach or blockade	Temporary restoration of traffic within 24 hours; permanent restoration within 15 (fifteen) days
(ii)	Roughness value exceeding 2,200 mm in a stretch of 1 km (as measured by a calibrated bump integrator)	120 (one hundred and twenty) days
(iii)	Pot holes	24 hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10 mm in road surface	15 (fifteen) days
(vi)	Bleeding/skidding	7 (seven) days
(vii)	Any other defect/distress on the road	15 (fifteen) days
(viii)	Damage to pavement edges	15 (fifteen) days
(xi)	Removal of debris, dead animals	6 hours
(b) Granular earth shoulders, side slopes, drains and culverts		
(i)	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi- urban areas	24 (twenty four) hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c) Road side furniture including road sign and pavement marking		
(i)	Damage to shape or position, poor visibility or loss of retro- reflectivity	48 (forty eight) hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(iii)	Damaged/missing signs road requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Nature of Defect or deficiency		Time limit for repair/rectification
(d) Road lighting		
(i)	Any major failure of the system	24 (twenty four) hours
(ii)	Faults and minor failures	8 (eight) hours
(e) Trees and plantation		
(i)	Obstruction in a minimum head- room of 5 m above carriageway or obstruction in visibility of road signs	24 (twenty four) hours
(ii)	Removal of fallen trees from carriageway	4 (four) hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(iv)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(f) Rest area		
(i)	Cleaning of toilets	Every 4 (four) hours
(ii)	Defects in electrical, water and sanitary installations	24 (twenty four) hours
(g) Toll Plaza		
(h) Other Project Facilities and Approach roads		
(i)	Damage in approach roads, pedestrian facilities, truck lay- byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a) Superstructure		
(i)	Any damage, cracks, spalling/ scaling	
	Temporary measures	within 48 (forty eight) hours
	Permanent measures	within 15 (fifteen) days or as specified by the Authority's Engineer
(b) Foundations		
(i)	Scouring and/or cavitation	15 (fifteen) days
(c) Piers, abutments, return walls and wing walls		
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d) Bearings (metallic) of bridges		
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
(e) Joints		
(i)	Malfunctioning of joints	15 (fifteen) days
(f) Other items		

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Nature of Defect or deficiency		Time limit for repair/rectification
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g) Hill Roads		
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours
(iii)	Snow requiring clearance	24 (twenty four) hours
Note: Where necessary, the Authority may modify the time limit for repair/rectification or add to the nature of Defect or deficiency before issuing the bidding document, with the approval of the competent authority.		

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-F (Applicable Permits)

(See Clauses 4.1 (vii) (a))

1. Applicable permits

- 1.1 The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:
- (a) Permission of the State Government for extraction of boulders from quarry;
 - (b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;
 - (c) Licence for use of explosives;
 - (d) Permission of the State Government for drawing water from river/reservoir;
 - (e) Licence from inspector of factories or other competent Authority for setting up batching plant;
 - (f) Clearance of Pollution Control Board for setting up batching plant;
 - (g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;
 - (h) Permission of Village Panchayats and State Government for borrow earth; and
 - (i) Any other permits or clearances required under Applicable Laws.
- 1.2 Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority in accordance with the provisions of this Agreement.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-G

(See Clauses 7.1 and 19.2)

Annex - I: Form of Bank Guarantee

(Schedule-G)

(See Clauses 7.1)

[Performance Security/Additional Performance Security]

Chief Engineer,
National Highway,
UPPWD, Lucknow ,

WHEREAS:

- (A) _____ [name and address of contractor]
(Hereinafter called the "Contractor") and [name and address of the authority],
(hereinafter called the "Authority") have entered into an agreement
(hereinafter called the "Agreement") for the Reconstruction 02 nos. Major
Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major
Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and
Construction (EPC) mode. subject to and in accordance with the provisions of
the agreement.
- (B) The Agreement requires the Contractor to furnish a Performance Security for
due and faithful performance of its obligations, under and in accordance with
the Agreement, during the {Construction Period/ Defects Liability Period and
Maintenance Period} (as defined in the Agreement) in a sum of Rs
_____ cr. (Rupees _____ crore) (the
"Guarantee Amount").
- (C) We, _____ through our branch at _____ (the
"Bank") have agreed to furnish this bank guarantee (hereinafter called the
"Guarantee") by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and
affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

faithful performance of the Contractor's obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of [DG, RD & SS in the Ministry of Road Transport & Highways], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfilment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Guarantee shall cease to be in force and effect on _____¹. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

¹ Insert date being 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 7.2 of the Agreement).

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this _____ day of _____ 20____ at _____

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

- (a) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (b) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Annex - II: Form for Guarantee for Advance Payment

(Schedule-G)

(See Clauses 19.2)

Chief Engineer,
National Highway,
UPPWD, Lucknow,

WHEREAS:

- (A) _____ [name and address of contractor]
(Hereinafter called the “**Contractor**”) has executed an agreement (hereinafter called the “**Agreement**”) with the [name and address of the authority], (hereinafter called the “**Authority**”) for the **Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode.** subject to and in accordance with the provisions of the Agreement.
- (B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @*Bank Rate* + 3% advance payment (herein after called “**Advance Payment**”) equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two instalments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such instalment to remain effective till the complete and full repayment of the instalment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} instalment of the Advance Payment is Rs. _____cr. (Rupees _____crore) and the amount of this Guarantee is Rs. ____cr. (Rupees _____crore) (the “**Guarantee Amount**”)§.
- (C) We, _____ through our branch at _____ (the “**Bank**”) have agreed to furnish this bank guarantee (*hereinafter called the “Guarantee”*) for the Guarantee Amount.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under _____

§ The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

2. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
3. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
4. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

5. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
6. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
7. The Guarantee shall cease to be in force and effect on _____[§]
Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.
8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
10. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this _____ day of _____ 20____ at _____

[§] Insert a date being 90 (ninety) days after the end of one year from the date of payment of the Advance payment to the Contractor (in accordance with Clause 19.2 of the Agreement).

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

- (a) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (b) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-H (Contract Price Weightages)

(See Clauses 10.1 (iv) and 19.3)

Contract Price Weightages

1.1 The Contract Price for this Agreement is Rs.

1.2 Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below:

ITEM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE
1	2	3	4
Road works including culverts widening and repair of culverts.	9.89%	A-Widening and Strengthening of existing road	
		(1) Earthwork up to top of the embankment	0.00%
		(2) Subgrade, earthen shoulder & Hard Shoulder	0.00%
		(3) Sub Base courses	0.00%
		(4) Non Bituminous Base Course	0.00%
		(5) Bituminous Base Course	0.00%
		(6) Wearing coat	0.00%
		(7) Widening and repair of culverts	0.00%
		B 1- Reconstruction / New re-alignment / bypass (Flexible pavement)	
		(1) Earthwork up to top of the embankment	9.20%
		(2) Subgrade, earthen shoulder & Hard Shoulder	6.44%
		(3) Sub Base courses	13.02%
		(4) Non Bituminous Base Course	11.02%
		(5) Bituminous Base Course	39.94%
		(6) Wearing coat	20.38%
		(7) Widening and repair of culverts	0.00%
		B 2- Reconstruction / New re- alignment / bypass (Rigid pavement)	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

		(1) Earthwork up to top of the embankment	0.00%
		(2) Subgrade	0.00%
		(3) Sub Base courses	0.00%
		(4) Dry Lean Concrete (DLC) Course	0.00%
		(5) Pavement Quality Control (PQC) course	0.00%
		C 1- Reconstruction / New Service road (Flexible pavement)	
		(1) Earthwork up to top of the embankment	0.00%
		(2) Subgrade	0.00%
		(3) Sub Base courses	0.00%
		(4) Non Bituminous Base Course	0.00%
		(5) Bituminous Base Course	0.00%
		(6) Wearing coat	0.00%
		C 2- Reconstruction / New Service road (Rigid pavement)	
		(1) Earthwork up to top of the embankment	0.00%
		(2) Subgrade	0.00%
		(3) Sub Base courses	0.00%
		(4) Dry Lean Concrete (DLC) Course	0.00%
		(5) Pavement Quality Control (PQC) course	0.00%
		D - Reconstruction and New culverts on existing road, Realignments, bypasses:	
		Culverts (Length <6m)	0.00%
Minor Bridges / underpasses / over passes	4.55%	A 1- Widening and repairs of Minor Bridges (length >6m and <60m)	
		Minor Bridges	0.00%
		(1) Foundation : on completion of foundation work of abutment & piers.	0.00%
		(2) Sub-structure : on completion of abutment & piers with abutment/pier cap.	0.00%

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

		(3) Superstructure : on completion of super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road sign & markings, tests on completion etc. complete in all respect.	0.00%
		(4) Approaches: on completion of approaches including wing wall/Return walls, retaining walls, stone pitching, protection works for floor, embankment slope etc complete in all respect and fit for use.	0.00%
		A 2- New Minor Bridges (length >6m and <60m)	
		(1) Foundation : on completion of foundation work of abutment & piers.	29.96%
		(2) Sub-structure : on completion of abutment & piers with abutment/pier cap.	21.40%
		(3) Super-structure : on completion of super structure upto deck slab including bearings.	21.40%
		(4) Miscellaneous works : On completion of wearing coat, expansion joint, crash barrier, railings, protection works and any remaining work associated to bridge including tests on bridge.	18.68%
		(5) Approaches : On completion of approaches including wing walls/ return walls, Retaining walls, stone pitching, protection works for floor, embankment slope etc. complete in all respect and fit for use.	5.99%
		(6) Guide bunds and River Training Works: On completion of Guide Bunds and river Training Works complete in all respects	2.57%
		B 1 - Widening and repair of underpasses / overpasses	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

		Underpasses / Overpasses	0.00%
		B 2 - New Underpasses / Overpasses	
		(1) Foundation : on completion of foundation work of abutment & piers.	0.00%
		(2) Sub-structure : on completion of abutment & piers with abutment/pier cap.	0.00%
		(3) Super-structure : on completion of super structure upto deck slab including bearings.	0.00%
		(4) Miscellaneous works : On completion of wearing coat, expansion joint, crash barrier, railings, protection works and any remaining work associated to bridge including tests on bridge.	0.00%
		(5) Approaches : On completion of approaches including wing walls/ return walls, Retaining walls, stone pitching, protection works for floor, embankment slope etc. complete in all respect and fit for use.	0.00%
Major bridge (length > 60m) works and RoB / RUB / Elevated sections / Flyovers including viaducts, if any	82.38%	A 1 - Widenng and repair of major bridges	
		(1) Foundation	0.00%
		(i) Pile Foundation	
		(ii) Open Foundation	
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Guide bunds, River Training works etc.	0.00%

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

		(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	0.00%
		A 2 - New Major bridges	
		(1) Foundation	
		(i) Well foundation	0.00%
		(ii) Pile foundation	29.56%
		(iii) Open foundation	0.00%
		(2) Sub-structure	21.68%
		(3) Super-structure (including bearings)	19.71%
		(4) Wearing Coat including expansion joints	4.93%
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	9.34%
		(6) Wing walls/return walls	6.90%
		(7) Guide bunds, River Training works etc.	2.95%
		(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	4.93%
		B 1 - Widening and repair of	
		a) RoB	
		b) RuB	
		1) Foundation	0.00%
		(i) Pile Foundation	
		(ii) Open Foundation	
		2) Sub Structure	0.00%
		3) Super Structure (Including bearings)	0.00%
		4) Wearing coat (a) in case of RoB - wearing coat including expansion joints complete in all respect as specified and (b) in case of RuB - rigid pavement under RuB including drainage facility complete in all respect as specified	0.00%
		5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

		6) wing walls / return walls	0.00%
		7) Approaches (including Retaining walls, stone pitching and protection works)	0.00%
		B 2 - New RoB / RuB	
		a) RoB	
		b) RuB	
		1) Foundation	
		(i) Well foundation	
		(ii) Pile foundation	0.00%
		(iii) Open foundation	
		2) Sub Structure	0.00%
		3) Super Structure (Including bearings)	0.00%
		4) Wearing coat (a) in case of RoB - wearing coat including expansion joints complete in all respect as specified and (b) in case of RuB - rigid pavement under RuB including drainage facility complete in all respect as specified	0.00%
		5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%
		6) wing walls / return walls	0.00%
		7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
		C 1 - Widening and repair of Elevated sections / Fly overs / Grade Separators	
		1) Foundation	0.00%
		(i) Pile Foundation	
		(ii) Open Foundation	
		2) Sub Structure	0.00%
		3) Super Structure (Including bearings)	0.00%
		4) Wearing coat including expansion joints	0.00%
		5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%
		6) wing walls / return walls	0.00%

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

		7) Approaches (including Retaining walls, stone pitching and protection works)	0.00%
		C 2 - New Elevated sections / Fly overs / Grade Separators	
		1) Foundation	
		(i) Well foundation	
		(ii) Pile foundation	0.00%
		(iii) Open foundation	
		2) Sub Structure	0.00%
		3) Super Structure (Including bearings)	0.00%
		4) Wearing coat including expansion joints	0.00%
		5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%
		6) wing walls / return walls	0.00%
		7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
Other Works	3.18%	(i) Toll Plaza	0.00%
		(ii) Road side drains	
		(a) Drain	0.00%
		(b) Cover Slab	0.00%
		(iii) Road Signs, markings, km stones, safety devices,Road furnitures etc	7.35%
		(iv) overhead gantry/mounted signs	0.00%
		(v) Project facilities	
		(a) Bus Bays	0.00%
		(b) Truck lay byes	0.00%
		(c) Rest Areas	0.00%
		(d) Others	0.00%
		vi) Road side Plantation	0.00%
		(c) Breast wall	0.00%

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

		vi) Safety and traffic management during construction	0.00%
		vii) Construction of Diversion at km 97+020	61.57%
		viii) Utility Shifting	
		a) BSNL	0.00%
		b) Jal Nigam	16.55%
		c) Electricity	14.53%

1.3 Procedure of estimating the value of work done

1.3.1 Road Works

Procedure for estimating the value of road work done shall be as follows:

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
A-Widening and Strengthening of existing road		
(1) Earthwork up to top of the embankment	0.00%	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length or 500m whichever is less.
(2) Subgrade	0.00%	
(3) Sub Base courses	0.00%	
(4) Non Bituminous Base Course	0.00%	
(5) Bituminous Base Course	0.00%	
(6) Wearing coat	0.00%	
(7) Widening and repair of culverts	0.00%	Cost of completed culverts shall be determined pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of atleast one culvert. 75% of the cost will be payable on completion of box/ abutments and slab/ pipe and head wall. Remaining 25% will become payable on completion of protection works including return/ wing walls and any other work associated with culverts.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

B 1- Reconstruction / New re-alignment / bypass (Flexible pavement)		
(1) Earthwork up to top of the embankment	9.20%	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 500 m length, whichever is less.
(2) Subgrade	6.43%	
(3) Sub Base courses	13.02%	
(4) Non Bituminous Base Course	11.02%	
(5) Bituminous Base Course	39.94%	
(6) Wearing coat	20.39%	
(7) Widening and repair of culverts	0.00%	
B 2- Reconstruction / New re- alignment / bypass (Rigid pavement)		
(1) Earthwork up to top of the embankment	0.00%	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 500 m length, whichever is less.
(2) Subgrade	0.00%	
(3) Sub Base courses	0.00%	
(4) Dry Lean Concrete (DLC) Course	0.00%	
(5) Pavement Quality Control (PQC) course	0.00%	
C 1- Reconstruction / New Service road (Flexible pavement)		
(1) Earthwork up to top of the embankment	0.00%	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 500 m length, whichever is less.
(2) Subgrade	0.00%	
(3) Sub Base courses	0.00%	
(4) Non Bituminous Base Course	0.00%	
(5) Bituminous Base Course	0.00%	
(6) Wearing coat	0.00%	
C 2- Reconstruction / New Service road (Rigid pavement)		
(1) Earthwork up to top of the embankment	0.00%	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 500 m length, whichever is less.
(2) Subgrade	0.00%	
(3) Sub Base courses	0.00%	
(4) Dry Lean Concrete (DLC) Course	0.00%	
(5) Pavement Quality Control (PQC) course	0.00%	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

D - Reconstruction and New culverts on existing road, Realignments, bypasses:		
Culverts (Length <6m)	0.00%	Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of atleast one culvert. 75% of the cost will be payable on completion of box/ abutments and slab/ pipe and head wall. Remaining 25% will become payable on completion of protection works including return/ wing walls and any other work associated with culverts.

@. For example, if the total length of bituminous work to be done is 100 km, the cost per km of bituminous work shall be determined as follows:

Cost per km = $P \times \text{weightage for road work} \times \text{weightage for bituminous work} \times (1/L)$
Where P= Contract Price

L = Total length in km

Similarly, the rates per km for other stages shall be worked out accordingly.

Note: The length affected due to law-and-order problems or litigation during execution due to which the Contractor is unable to execute the work, may be deducted from the total project length for payment purposes. The total length calculated here is only for payment purposes and will not affect and referred in other clauses of the Contract Agreement.

1.3.2 Minor Bridges and Underpasses/Overpasses.

Procedure for estimating the value of Minor bridge and Underpasses/Overpasses shall be as stated in table 1.3.2:

A 1- Widening and repairs of Minor Bridges (length >6m and <60m)		
Minor Bridges	0.00%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges.
(1) Foundation : on completion of foundation work of abutment & piers.	0.00%	(i) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e completion of atleast two foundations of each bridge. In case where load testing is specified for foundation, the trigger of first payment shall include load testing also.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

(2) Sub-structure : on completion of abutment & piers with abutment/pier cap.	0.00%	ii) Sub - structure – Payment shall be made on pro-rata basis on completion of stage i.e. completion of atleast one sub-structure upto abutment/ pier cap level of each bridge.
(3) Superstructure : on completion of super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road sign & markings, tests on completion etc. complete in all respect.	0.00%	(iii) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e., completion of super-structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause.
(4) Approaches : on completion of approaches including wing wall/Return walls, retaining walls, stone pitching, protection works for floor, embankment slope etc complete in all respect and fit for use.	0.00%	(iv) Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches including wing walls/ return walls, retaining walls, stone pitching in all respect as specified in the column of "Stage of Payment" in this sub-clause for each bridge.
A 2- New Minor Bridges (length >6m and <60m)		Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges.
(1) Foundation : on completion of foundation work of abutment & piers.	29.96%	(i) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage completion of atleast two foundations of each bridge. In case where load testing is specified for foundation, the trigger of first payment shall include load testing also.
(2) Sub-structure : on completion of abutment & piers with abutment/pier cap.	21.40%	ii) Sub - structure – Payment shall be made on pro-rata basis on completion of stage i.e. completion of atleast one sub-structure upto abutment/ pier cap level of each bridge.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

(3) Super-structure : on completion of super structure upto deck slab including bearings.	21.40%	(iii) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e., completion of super-structure of at least one span upto deck slab including bearing as specified in the column of "Stage of Payment" in this sub-clause. If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Miscellaneous works : On completion of wearing coat, expansion joint, crash barrier, railings, protection works and any remaining work associated to bridge including tests on bridge.	18.68%	(iv) Miscellaneous Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of wearing coat, expansion joint, crash barrier, railing, protection works, drainage and any other remaining work associated to bridge including tests on bridge for each bridge
(5) Approaches : On completion of approaches including wing walls/ return walls, Retaining walls, stone pitching, protection works for floor, embankment slope, Road diversion etc. complete in all respect and fit for use.	5.99%	(v) Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches including wing walls/ return walls, retaining walls, stone pitching in all respect as specified in the column of "Stage of Payment" in this sub-clause for each bridge.
(6) Guide bunds and River Training Works: On completion of Guide Bunds and river Training Works complete in all respects	2.57%	(vi) Guide Bunds and River Training Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bunds and River training Works
B 1 - Widening and repair of underpasses / overpasses	0.00%	Cost of each underpass/overpass shall be determined on pro rata basis with respect to the total linear length of the underpasses/overpasses. Payment shall be made on the completion of widening & repair works of a underpass/overpass.
Underpasses / Overpasses	0.00%	
B 2 - New Underpasses / Overpasses	0.00%	Cost of each Underpass/Overpass shall be determined on pro rata basis with respect to the total linear length (m) of the Underpasses/Overpasses.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

(1) Foundation : on completion of foundation work of abutment & piers.	0.00%	(i) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of foundation(s) of each underpass/overpass. In case where load testing is specified for foundation, the trigger of first payment shall include load testing also.
(2) Sub-structure : on completion of abutment & piers with abutment/pier cap.	0.00%	(ii) Sub-structure: Payment shall be made on pro-rata basis on completion of stage i.e. completion of atleast one sub-structure upto abutment/ pier cap level of each bridge.
(3) Super-structure : on completion of super structure upto deck slab including bearings.	0.00%	(iii) Super-structure: Payment shall be made on pro-rata basis on completion of a stage 'i.e. completion of super-structure of at least one span upto deck slab including bearing as specified in the column of "Stage of Payment" in this sub-clause: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Miscellaneous works : On completion of wearing coat, expansion joint, crash barrier, railings, protection works and any remaining work associated to bridge including tests on bridge.	0.00%	(iv) Miscellaneous Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of wearing coat, expansion joint, crash barrier, railing, protection works and any other remaining work associated to bridge including tests on bridge for each bridge.
(5) Approaches : On completion of approaches including wing walls/ return walls, Retaining walls, stone pitching, protection works for floor, embankment slope etc. complete in all respect and fit for use.	0.00%	v) Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches including wing wall/ return wall, retaining walls, Reinforced Earth walls, stone pitching, protection works complete in all respect for each bridge

1.3.3 Major Bridge works, ROB/RUB and Structures.

Procedure for estimating the value of Major Bridge works, ROB/RUB and Structures shall be as stated in table 1.3.3:

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
A 1 - Widening and repair of major bridges		Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridges.
(1) Foundation	0.00%	1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the major Bridge as specified hereinunder.
(i) Pile Foundation	0.00%	(i) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorata basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Open Foundation	0.00%	(ii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	0.00%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the major bridge.
(3) Super-structure (including bearings)	0.00%	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under : If pre-cast RCC/PSC/Steel girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Wearing Coat including expansion joints	0.00%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major bridge.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each major bridge.
(6) Wing walls/return walls	0.00%	6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each major bridge.
(7) Guide bunds, River Training works etc.	0.00%	(7) Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified for each major bridge.
(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	0.00%	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.
A 2 - New Major bridges		Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge.
(1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the major Bridge as specified here in under:
(i) Well Foundation(a) On completion of Cutting Edge + Well Curb(b) Wellsteining : On completion of well steining upto bottom of well cap.(c) On completion of bottom plug + top plug (if provisioned as per design) + well cap	0.00%	(i) Well Foundation(a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb.(b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof.(c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap	29.56%	(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorota basis. (b) Pile Cap : Payment of 30% shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

(iii) Open foundation	0.00%	(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	21.68%	ii) Sub-Structure:. Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the major bridge.
(3) Super-structure (including bearings)	19.71%	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon. (For cable stayed bridge and suspension cable bridge, detailed payment stage may be included on case to case basis)
(4) Wearing Coat including expansion joints	4.92%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major bridge.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	9.34%	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each major bridge.
(6) Wing walls/return walls	6.90%	6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each major bridge.
(7) Guide bunds, River Training works etc.	2.96%	(7) Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified for each major bridge.
(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	4.93%	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.
B 1 - Widening and repair of		Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUBs.
a) RoB	0.00%	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

b) RuB	0.00%	
1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the ROB/RUB as specified here in under.
(i) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap	0.00%	(i) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorata basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Open Foundation	0.00%	(ii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
2) Sub Structure	0.00%	(2) Sub-Structure:.. Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the ROB/RUB.
3) Super Structure (Including bearings)	0.00%	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under : If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
4) Wearing coat (a) in case of RoB - wearing coat including expansion joints complete in all respect as specified and (b) in case of RuB - rigid pavement under RuB including drainage facility complete in all respect as specified	0.00%	(4) Wearing Coat: Payment shall be made on completion of (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified for each of the ROB and (b) in case of RUB- rigid pavement under RUB including drainage facility complete in all respects as specified for each of the RUB.
5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each of the ROB/ RUB.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

6) wing walls / return walls	0.00%	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the ROB/ RUB.
7) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(7) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each of the ROB/ RUB.
B 2 - New RoB / RuB		Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUBs.
a) RoB	0.00%	
b) RuB	0.00%	
1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the ROB/RUB as specified here in under:
(i) Well Foundation(a) On completion of Cutting Edge + Well Curb(b) Wellsteining : On completion of well steining upto bottom of well cap.(c) On completion of bottom plug + top plug (if provisioned as per design) + well cap	0.00%	(i) Well Foundation(a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb.(b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof.(c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap	0.00%	(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorota basis. (b) Pile Cap : Payment of 30% shall be made on completion of pile cap. In case where load testing is required fo
(iii) Open foundation	0.00%	(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
2) Sub Structure	0.00%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the ROB/RUB.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

3) Super Structure (Including bearings)	0.00%	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under : If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
4) Wearing coat (a) in case of RoB - wearing coat including expansion joints complete in all respect as specified and (b) in case of RuB - rigid pavement under RuB including drainage facility complete in all respect as specified	0.00%	(4) Wearing Coat: Payment shall be made on completion of (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified for each of the ROB and (b) in case of RUB- rigid pavement under RUB including drainage facility complete in all respects as specified for each of the RUB.
5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each of the ROB/RUB.
6) wing walls / return walls	0.00%	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the ROB/RUB.
7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%	(7) Approaches: Payments shall be made on completion of both approaches of each ROB including stone pitching, protection works, etc. complete in all respects as specified here in under : If reinforced soil wall is used with facia panel/blocks, interim payment shall be made @75% of the Cost of that element as derived from MoRTH data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
C 1 - Widening and repair of Elevated sections / Fly overs / Grade Separators		Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures.
1) Foundation	0.00%	(1) Foundation : Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the structure as specified here in under :

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

(i) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap	0.00%	(i) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorata basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Open Foundation	0.00%	(ii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
2) Sub Structure	0.00%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the structure.
3) Super Structure (Including bearings)	0.00%	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure upto deck slab including bearings of at least one span as specified here in under : If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
4) Wearing coat including expansion joints	0.00%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each of the structure.
5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each of the structure.
6) wing walls / return walls	0.00%	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the structure.
7) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(7) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects of each structure.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

C 2 - New Elevated sections / Flyovers / Grade Separators		Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures.
1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the structure as specified here in under :
(i) Well Foundation(a) On completion of Cutting Edge + Well Curb(b) Wellsteining : On completion of well steining upto bottom of well cap.(c) On completion of bottom plug + top plug (if provisioned as per design) + well cap	0.00%	(i) Well Foundation(a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb.(b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof.(c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile foundation : a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile ca	0.00%	ii) Pile Foundation : (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on pro-rata basis. (b) Pile Cap : Payment of 30% shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open foundation	0.00%	(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
2) Sub Structure	0.00%	(2) Sub-Structure:. Payment against Sub- structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the structure.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

3) Super Structure (Including bearings)	0.00%	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
4) Wearing coat including expansion joints	0.00%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each of the structure.
5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each of the structure.
6) wing walls / return walls	0.00%	6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the structure.
7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%	(7) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified here in under : If reinforced soil wall is used with facia panel/blocks, interim payment shall be made @75% of the Cost of that element as derived from MoRTH data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.

Note:

(1) In case of innovate Major Bridge projects like cable suspension/cable stayed/ Extra Dozed and exceptionally long span bridges, the schedule may be modified as per site requirements before bidding with due approval of Competent Authority.

(2) The Schedule for exclusive tunnel projects may be prepared as per site requirements before bidding with due approval of Competent Authority.

1.3.4 Other works.

Procedure for estimating the value of other works done shall be as stated in table 1.3.4.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Other Works		
(i) Toll Plaza	0.00%	Unit of measurement is each completed toll plaza. Payment for each toll plaza shall be made on pro rata basis with respect to the total of all toll plazas as specified here in under :
(a) DLC (LHS)	0.00%	a) DLC (LHS) : Payment of 12.5% on pro-rata basis shall be made on completion of a stage i.e. completion of DLC on LHS
(b) DLC (RHS)	0.00%	(b) DLC (RHS) : Payment of 12.5% on pro-rata basis shall be made on completion of a stage i.e. completion of DLC on LHS.
(c) PQC (LHS)	0.00%	(c) PQC(LHS): Payment of 25% on pro-rata basis shall be made on completion of a stage i.e. completion of PQC on LHS.
(d) PQC (RHS)	0.00%	(d) PQC(RHS): Payment of 25% on pro-rata basis shall be made on completion of a stage i.e. completion of PQC on RHS.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

(e) Admin Building	0.00%	(e) Admin Building: Payment of 10% on pro-rata basis shall be made on completion of a stage i.e. completion of Admin Building and miscellaneous works.
(f) Toll Booth, canopy, safety items and all other associated works	0.00%	(f) Toll Booth, canopy, safety items and all other associated works: Payment of 15% on pro-rata basis shall be made on completion of a stage i.e. completion of Toll Booth, canopy, safety items and all other associated works.
(ii) Road side drains		
(a) Drains	0.00%	a) Drains: Unit of measurement is linear length in metre . Payment shall be made on pro rata basis on completion of a stage in a length of not less than 100 m on one side.
(b) Cover Slabs	0.00%	b) Cover Slabs: Unit of measurement is linear length in metre . Payment shall be made on pro rata basis on completion of a stage in a length of not less than 100 m on one side.
(iii) Road Signs, markings, km stones, safety devices, Road furnitures etc	7.35%	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than one Km on both sides.
(iv) overhead gantry/mounted signs	0.00%	Unit of measurement is each number. Payment shall be made on pro-rata basis on completion of each overhead gantry mounted sign
(v) Project facilities		
(a) Bus Bays	0.00%	Unit of measurement is each number. Payment shall be made on pro rata basis for completed facilities.
(b) Truck lay byes	0.00%	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

(c) Rest Areas	0.00%	
(d) Others	0.00%	
vi) Road side Plantation	0.00%	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of one km.
x) Safety and traffic management during construction	0.00%	Payment shall be made on pro rata basis every six months.
xi) Construction of Diversion at km 97+020	61.57%	Payment shall be made on completion of work only.
xii) Utility Shifting		
b) Jal Nigam	16.55%	Unit of measurement is as per completed activities. Cost per activity shall be determined on pro -rata basis as per its weightage with reference to total cost of pipe line. Payment shall be made for completed activity.
c) Electricity	14.53%	Unit of measurement is as per completed activities. Cost per activity shall be determined on pro -rata basis as per its weightage with reference to total cost of Electric line. Payment shall be made for completed activity.

2. Procedure for payment for Maintenance

2.1 The cost for maintenance shall be as stated in Clause 14.1.1.

2.2 Payment for Maintenance shall be made in quarterly instalments in accordance with the provisions of Clause 19.7.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-I (Drawings)

(See Clauses 10.2 (ii))

1. Drawings

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

2. Additional Drawings

If the Authority's Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Contractor to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such drawings to the Authority's Engineer, as if such drawings formed part of Annex-I of this Schedule-I.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Annex - I: List of Drawings

(Schedule-I)

A minimum list of the drawings of the various components / elements of the Project Highway and project facilities required to be submitted by the Contractor is given below:

- (a) Drawings of horizontal alignment, vertical profile and detailed cross sections.
- (b) All Drawings of Major / minor bridges.
- (c) Drawings of cross-drainage works
- (d) Drawing of road furniture including traffic signage, marking, safety barriers etc.
- (e) Drawing of traffic diversion plan.
- (f) Drawing as per instruction of Authority's Engineer.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-J (Project Completion Schedule)

(See Clauses 10.2 (iii))

1. Project Completion Schedule

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule-J for each of the Project Milestones and the **Scheduled Completion Date**. Within 15 (fifteen) days of the date of each Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

2. Project Milestone-I

- (i) Project Milestone-I shall occur on the date falling on the 256th **Day** from the Appointed Date (the “Project Milestone- I”).
- (ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 10% (ten per cent) of the Contract Price.

3. Project Milestone-II

- (i) Project Milestone-II shall occur on the date falling on the 438th **day** from the Appointed Date (the “Project Milestone- II”).
- (ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 35% (thirty five per cent) of the Contract Price **and should have started construction of all bridges**

4. Project Milestone-III

- (i) Project Milestone-III shall occur on the date falling on the 622th **day** from the Appointed Date (the “Project Milestone- III”).
- (ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 70% (seventy per cent) of the Contract Price **and should have started construction of all project facilities.**

5. Scheduled Completion Date

- (i) The Scheduled Completion Date shall occur on the 730th **day** from the Appointed Date.
- (ii) On or before the Scheduled Completion Date, the Contractor shall have

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

completed construction in accordance with this Agreement.

6. Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-K (Tests on Completion)

(See Clauses 12.1 (ii))

1. Schedule for Tests

- 1.1 The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.
- 1.2 The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-K.

2. Tests

- 2.1 Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include (to be decided with Authority's Engineer at the time of physical tests as per relevant IRC/ Code Manual).
- 2.2 Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be 2,000 (two thousand) mm for each kilometre.
- 2.3 Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Non-destructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
- 2.4 Other tests: The Authority's Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards
- 2.5 Environmental audit: The Authority's Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and Applicable Permits.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

- 2.6 Safety Audit: The Authority's Engineer shall carry out, or cause to be carried out, a safety audit to determine conformity of the Project Highway with the safety requirements and Good Industry Practice.

3. Agency for conducting Tests

All Tests set forth in this Schedule-K shall be conducted by the Authority's Engineer or such other agency or person as it may specify in consultation with the Authority.

4. Completion Certificate

Upon successful completion of Tests, the Authority's Engineer shall issue the Completion Certificate in accordance with the provisions of Article 12.

5. The Authority Engineer will carry out tests with following equipment at his own cost in the presence of contractor's representative:

S. No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface defects of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of pavement	Falling Weight Deflectometer (FWD)	At least once a year
4	Bridges	Mobile Bridge Inspection Unit (MBU)	At least twice a year (As per survey months defined for the state basis rainy season)
5	Road signs	Retro-reflectometer	At least twice a year (As per survey months defined for the state basis rainy season)

The first testing with the help of NSV shall be conducted at the time of issue of Completion Certificate.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-L (Completion Certificate)

(See Clauses 12.2)

I,..... (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated(the "**Agreement**"), for **Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode (the "Project Highway")** on Engineering, Procurement and Construction (EPC) basis in the state of Jharkhand through (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.

1. It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this theday of 20....., Scheduled Completed Date for which was theday of20.....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-M (Payment Reduction for Non-Compliance)

(See Clauses 14.6, 15.2 & 19.7)

1. Payment reduction for non-compliance with the Maintenance Requirements

- 1.1 Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.
- 1.2 Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.
- 1.3 The Authority's Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph 2

2. Percentage reductions in lump sum payments

- 2.1 The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
(a)	Carriageway/Pavement	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	Road, Embankment, Cuttings, Shoulders	
(i)	Edge drop, inadequate cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c)	Bridges and Culverts	
(i)	Desilting, cleaning, vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	Roadside Drains	
(i)	Cleaning and repair of drains	5%
(e)	Road Furniture	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5th km stones	5%
(f)	Miscellaneous Items	

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

S. No.	Item/Defect/Deficiency	Percentage
(i)	Removal of dead animals, broken down/accidented vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(g)	Defects in Other Project Facilities	5%

- 2.2 The amount to be deducted from monthly lump-sum payment for non-compliance of particular item shall be calculated as under:

$$R = P/100 \times (M1 \text{ or } M2) \times L1/L$$

Where,

P= Percentage of particular item/Defect/deficiency for deduction

M1= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

M2= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

L1= Non-complying length

L = Total length of the road,

R= Reduction (the amount to be deducted for non-compliance for a particular item/Defect/deficiency

The total amount of reduction shall be arrived at by summation of reductions for such items/Defects/deficiency or non-compliance.

For any Defect in a part of one kilometer, the non-conforming length shall be taken as one kilometer.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-N (Selection of Authority's Engineer)

(See Clauses 18.1 (i))

1. Selection of Authority's Engineer

- 1.1 The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority's Engineer.
- 1.2 In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule-N.

2. Terms of Reference

The Terms of Reference for the Authority's Engineer (the "TOR") shall substantially conform with Annex 1 to this Schedule N.

3. Appointment of Government entity as Authority's Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion appoint a government-owned entity as the Authority's Engineer; provided that such entity shall be a body corporate having as one of its primary functions the provision of consulting, advisory and supervisory services for engineering projects; provided further that a government-owned entity which is owned or controlled by the Authority shall not be eligible for appointment as Authority's Engineer.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

**Annex - I: Terms of Reference for Authority's Engineer
(Schedule-N)**

1. Scope

1.1 These Terms of Reference (the “TOR”) for the Authority’s Engineer are being specified pursuant to the EPC Agreement dated (The “**Agreement**”), which has been entered into between the [Chief Engineer, National Highways UPPWD, Lucknow] (the “**Authority**”) and..... (the “**Contractor**”)[#] for **Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh**

1.2 The TOR shall apply to construction and maintenance of the Project Highway.

2. Definitions and interpretation

2.1 The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

2.2 References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

2.3 The rules of interpretation stated in Article 1 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

3.1 The Authority’s Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

3.2 The Authority’s Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:

(a) any Time Extension;

(b) any additional cost to be paid by the Authority to the Contractor;

[#] In case the bid of Authority’s Engineer is invited simultaneously with the bid of EPC project, then the status of bidding of EPC project only to be indicated

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

- (c) the Termination Payment; or
 - (d) issuance of Completion Certificate or
 - (e) Any other matter which is not specified in (a), (b), (c) or (d) above and which creates a financial liability on either Party.
- 3.3 The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.
- 3.4 The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2.
- 3.5 The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.
- 3.6 In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.
- 4. Construction Period**
- 4.1 During the Construction Period, the Authority's Engineer shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1 (vi). The Authority's Engineer shall complete such review and approval and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended up to 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.
- 4.2 The Authority's Engineer shall review and approve any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.
- 4.3 The Authority's Engineer shall review and approve the Quality Assurance Plan

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty-one) days stating the modifications, if any, required thereto.

- 4.4 The Authority's Engineer shall complete the review and approve of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.
- 4.5 The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.
- 4.6 The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.
- 4.7 The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.
- 4.8 The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.
- 4.9 For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality management. For purpose of this paragraph 4 (ix), the tests specified in the MORTH Specifications for Road and Bridge Works and respective Indian Roads Congress Standards/Guidelines/Manuals, together with any other Indian/International Standards mentioned therein including any modifications/substitutions thereof shall be deemed to be tests confirming to Good Industry Practice for quality management.
- 4.10 The Authority's Engineer shall witness all the quality control tests carried out Contractor at its laboratory/main by the site laboratory/field/plants. These include tests for all materials, mixes, products, etc. Authority's Engineer shall also witness all tests of finished products like bearing in the manufacturers' laboratory as mandated in respective standards. Authority's Engineer will also

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

conduct review of quality control documents in respect manufactured of factory materials/finished products, etc. as per IRC:SP:112.

- 4.11 The timing of tests referred to in Paragraph 4 (ix), and the criteria for acceptance/ rejection of their results shall be determined by the Authority's Engineer in accordance with the MoRTH specifications for Road & Bridge works and respective Indian Roads Congress Standards/Guidelines/Manuals together with any other Indian/International Standards referred thereto. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.
- 4.12 In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.
- 4.13 The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.
- 4.14 In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- 4.15 The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.2.
- 4.16 Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.
- 4.17 In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

- 4.18 The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate, as the case may be. For carrying out its functions under this Paragraph 4 (xviii) and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

5. Maintenance Period

- 5.1 The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.
- 5.2 The Authority's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.
- 5.3 The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.
- 5.4 In respect of any defect or deficiency referred to in Paragraph 3 of Schedule-E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.
- 5.5 The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

6. Determination of costs and time

- 6.1 The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- 6.2 The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

6.3 The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

7. Payments

7.1 The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.2 (iv) (d).

7.2 Authority's Engineer shall -

(a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and

(b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Clause 19.10.

7.3 The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.

7.4 The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause 19.16.

8. Other duties and functions

The Authority's Engineer shall perform all other duties and functions as specified in the Agreement.

9. Miscellaneous

9.1 A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.

9.2 The Authority's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

- 9.3 Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.
- 9.4 The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.

The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-O (Forms of Payment Statements)

(See Clauses 19.4(i), 19.6(i), 19.8(i))

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

- (a) the estimated amount for the Works executed in accordance with Clause 19.3
 - (i) subsequent to the last claim;
- (b) amounts reflecting adjustments in price for the aforesaid claim;
- (c) the estimated amount of each Change of Scope Order executed subsequent to the last claim;
- (d) amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2 (iii) (a);
- (e) total of (a), (b), (c) and (d) above;
- (f) Deductions:
 - (i) Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
 - (ii) Any amount towards deduction of taxes; and
 - (iii) Total of (i) and (ii) above.
- (g) Net claim: (e) - (f) (iii);
- (h) The amounts received by the Contractor up to the last claim:
 - (i) For the Works executed (excluding Change of Scope orders);
 - (ii) For Change of Scope Orders, and
 - (iii) Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

- (a) the monthly payment admissible in accordance with the provisions of the Agreement;
- (b) the deductions for maintenance work not done;
- (c) net payment for maintenance due, (a) minus (b);
- (d) amounts reflecting adjustments in price under Clause 19.12; and
- (e) amount towards deduction of taxes

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

3. Contractor's claim for Damages

Note: The Contractor shall submit its claims in a form acceptable to the Authority.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-P (Insurance)

(See Clauses 20.1)

1. Insurance during Construction Period

1.1 The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:

- (a) Insurance of Works, Plant and Materials and an additional sum of [15 (fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and
- (b) Insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

1.2 The insurance under sub para (a) and (b) of paragraph 1(i) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover of not less than 15% of the Contract Price for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring prior to the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage to property

3.1 The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences.

The insurance cover shall be not less than: Rs. _____

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

3.2 The insurance shall be extended to cover liability for all loss and damage to the Authority's property arising out of the Contractor's performance of this Agreement excluding:

- (a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and
- (b) Damage which is an unavoidable result of the Contractor's obligations to execute the Works.

4. Insurance to be in joint names

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-Q (Tests on Completion of Maintenance Period)

(See Clauses 14.10)

1. Riding Quality test:

Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be 2,200 (two thousand and two hundred only) mm for each kilometre.

2. Visual and physical test:

The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include measurement of cracking, rutting, stripping and potholes and shall be as per the requirement of maintenance mentioned in Schedule-E.

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

Schedule-R (Taking Over Certificate)

(See Clauses 14.10)

Taking Over Certificate

I, _____ (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated _____ (the "Agreement"), for **"Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh"** (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through _____ (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day _____.

SIGNED, SEALED AND DELIVERED

(Signature)

(Name & Designation of Authority's Representatives)

(Address)

Reconstruction 02 nos. Major Bridge and 01 no. Minor Bridge at km 77.60 (Major Bridge), km 92.85 (Major Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and Construction (EPC) mode in the State of Uttar Pradesh

******* End of the Document*******