

**SCHEDULE – A**  
*(See Clauses 2.1 and 8.1)*

**SITE OF THE PROJECT**

**The Site**

- 1.1 Site of the “2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”, Project Highway shall include the land, buildings, structures and road works as described in **Annex-I** of this Schedule-A.  
The Project alignment is approachable for all location for execution of works.
- 1.2 The dates of handing over the Right of Way to the Contractor are specified in **Annex-II** of this Schedule-A.
- 1.3 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’s Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2.1 of this Agreement.
- 1.4 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, may improve/upgrade the road profile as indicated in Annexure-III based on site/design requirement.
- 1.5 The status of the environment clearances obtained or awaited is given in **Annex-IV**.

**Annex I**  
(Schedule-A)

**1. Site**

Hunli-Anini (131.920 Kms) road is a part of Meka-Roing-Hunli road having length of 206 kms is strategically important road leading to LAC. It is presently a Single Lane road. The entire road passes through hilly terrain & Upper Dibang Valley district of Arunachal Pradesh. NHIDCL has been entrusted from Design Km 21.500 to Design Km 130.300. The details of the entrusted stretches are as below.

Sno	Design Km		Contractors Name	Remarks
	From (Km)	To (Km)		
1	21.500	37.500	M/s Madhucon Projects Limited	Work is ongoing at site
2	37.500	53.500	M/s Madhucon Projects Limited	Work is ongoing at site
3	53.500	92.500	M/s PCL-Eagle (JV)	Work is ongoing at site
4	92.500	106.200	M/s Sushee Infra & Mining Limited	Work is ongoing at site
5	106.200	120.00	M/s Sushee Infra & Mining Limited	Work is ongoing at site
6	120.00	130.300	-	Instant proposal/Project

The Site of the “2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”. The Project road comprises the new alignment on virgin land and improvement of existing single lane in Anini town. The existing road other than Greenfield/realignment is of sub-standard single lane (even less) with poor road surface, passing through mountainous terrain, in general. The road is deficient in geometric features at almost all locations. The stretch lies in Upper Dibang valley district.

The Index Map is appended at the end of this **Schedule-A**.

**2. Chainage References (Existing Vs Design)**

“Existing Chainage” means Km Stones existing on the Project Highway. During topography survey, observations are made to these Km stones and after finalization of alignment by improving the existing geometry the chainage has been referred to “Design Chainage”. The

---

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

relationship between the “Existing Chainage” and the “Design Chainage” as per field surveys of the location of existing Km stones for the “Project Highway” is given below:

Sl. No.	Existing Chainage (m)	Design Chainage (m)	Remarks
1.	129+000 i.e end of package mentioned in Sr No. 5 of table of para 1	120000	
2.		120420	
3.		120900	
4.		121400	
5.		121900	
6.		122425	
7.		122900	
8.		123400	
9.		123780	
10.		124260	
11.		124770	
12.	134+000	125240	Re-alignment
13.		125700	
14.		126175	
15.		126700	
17.		130300	End of Project road

Note: Total design length of the road is 10.3 Kms

### 3 Land

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

Sl. No.	Existing Chainage (km)		Design Chainage (km)		Length in m (Design)	Existing/A available ROW (m)	Remarks
	From	To	From	To			
1	129+00	134+00	120+000	125+240	5240	15	Existing Hunli Anini road
2			125+240	128+240	3000	0	Realignment
3			128+240	130+300	2060	5-8	Village road

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

**4. Carriageway**

The present carriageway of the Project Highway is substandard single lane configuration. The type of the existing pavement is flexible.

Sl. No.	Design Chainage (km)		Length in m (Design)	Existing Lane Width (m)	Remarks
	From	To			
1	120+000	125+240	5240	3.0- 3.25	
2	125+240	128+240	3000	-	New alignment
3	128+240	130+300	2060	3.0 – 3.25	Village road

**5. Major Bridges**

The Site includes the following Bridge:

Sl. No.	Existing (m)	Type of Structure			Span length (m)	Width (m)
		Foundation	Sub-structure	Super Structure		
1	126990	Double single reinforced bailey bridge (DSRBB) Type			79.56	3.79

**6. Railway over-bridges (ROB)**

The Site includes the following Railway Over Bridges

The site includes the following Railway Over Bridges						
Sl. No.	Chainage (km)	Type of Structures			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-Structure	Superstructure		
NIL						

**7 Grade Separators**

The Site includes the following Grade separators

The site includes the following Grade Separators						
Sl. No.	Chainage (km)	Type of Structures			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-Structure	Super structure		
NIL						

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

**8. Minor Bridges**

The Site includes the following minor Bridges:

The site includes the following minor bridges:							
Sl. No.	Road Segment	Existing Chainage (km)	Type of Structures			No. of Spans with Span Length (m)	Total Width (m)
			Foundation	Sub-Structure	Super Structure		
NIL							

**9. Railway level crossings / Railway Track**

The Site includes the following railway level crossings:

Sl. No.	Road Segment	Existing Chainage (km)	Remarks
Nil			

**10. Underpasses (vehicular, Non Vehicular)**

The Site includes the following underpasses:

Sl. No.	Road Segment	Existing Chainage (km)	Type of Structure	No. of Spans with Span Length (m)	Width (m)
Nil					

**11. Culverts**

*The Site includes the 21 Nos of culverts in a dilapidated conditions, which needs to be replaced*

**12. Bus bays**

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

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

**13. Truck Lay Bye**

The details of truck lay byes on the Site are as follows:

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

**14. Road side drains.**

The details of the road side drains on the Site are as follows:

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

Sl. No.	Existing Location		Side	Type	
	From (km)	From (km)		Masonry/CC (Pucca)	Earthen (Kutchha)
NiL					

**15. Major Junctions**

The details of major junctions are as follows:

The details of major junctions are as follows:								
Sl. No.	Location		At Grade	Separated	Category of Cross Roads			
	Existing Ch.	Design Ch.			NH	SH	MDR	Others
NIL								

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

**16. Minor Junctions**

The details of major junctions are as follows:

Sl. No.		Design Chainage (m)	Side	Type of Junction	Remarks
1		125.240	BOTH	4 arm Junction	
2		130.300	LHS	3 arm Junction	

**17. Bypasses**

The details of bypass are as follows:

The details of Bypass are as follows:							
S. No.	Name of Proposed Bypass (Town)	Road Segment	Existing Chainage		Length (km)	Carriageway	
			From (km)	To (km)		Width m	Type
NIL							

**18. Other Structures/Details**

The details of other structures are as follows:

S No.	Type	Existing Chainage (km)	Length (m)	Width
Nil				

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

**Annex-II**  
(Schedule-A)

**Details for Providing Right of Way**

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

Sl. No	Design Chainage		Length (Km)	Existing ROW as per Clause 3 of Schedule A	Proposed ROW Width (m)	Date of Providing proposed ROW
	From	To				
(i) 90% of ROW (full width)	120+000	130+300	10+300	0-15m	24 m	At appointed date
(ii) Balance Right of way (width)						Within 150 days after the appointed Date as per clause 8.2 of DCA

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

**Annex-III**  
*(Schedule-A)*

**Alignment Plans**

The existing alignment of the Project Highway shall be modified in the following sections as per the enclosed alignment plan.

ENCLOSED

---

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.



**Annex-IV**  
*(Schedule-A)*

**Environmental Clearances**

The project Highway does not require Environment Clearance as per MoEF corrigendum dated 22.08.2013.

The muck dumping sites in forest area stand identified and freezed by Forest department to be abided by agency during dumping of muck as stated in Schedule 'F'

## INDEX MAP OF PROJECT HIGHWAY SECTIONS



**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

**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 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**

Project is construction/improvement of the existing single lane road two lane with paved/hard shoulder and new two lane in virgin land in accordance with IRC-SP:73: 2015, IRC / SP: 48: 1998 and other relevant codes including standard good practice of the road construction

**1. SCOPE OF THE PROJECT**

**1.1 GENERAL**

The following sections of this schedule briefly highlight the scope of the work of the 'Project'. The descriptions of the requirements for the various elements of the Project Highway given here in under are the bare minimum requirements for the 'Project'.

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

- a. enable the NHIDCL to provide an acceptably safe highway in respect of its condition (structural safety) and use (road safety);
- b. enable the NHIDCL to fulfill its statutory and common law obligations;
- c. enable the NHIDCL to provide a congestion free uninterrupted flow of traffic on the Project Highway;
- d. enable the NHIDCL to provide a level of highway service to the public not inferior to that provided on the trunk road during construction or improvement works;
- e. enable the police, local authorities, and others with statutory duties or functions in relation to the Project Highway or adjoining roads to fulfill those duties and functions;
- f. minimize the occurrence and adverse effects of accidents and ensure that all accidents and emergencies are responded to as quickly as possible;
- g. minimize the risk of damage, destruction or disturbance to third party property;
- h. ensure that members of the public are treated with all due courtesy and consideration;
- i. provide a safe, clear and informative system of road signs;
- j. comply with any specified programme requirements, including for the completion of the new road;
- k. enable standards of reliability, durability, accessibility, maintainability, quality control and assurance, and fitness for purpose appropriate to a highway of the character of the Project Highway to be achieved throughout the Contract Period;

- l. ensure adequate off-street parking facilities for both passenger and goods vehicles;
- m. provide adequate bus bays for stopping of buses and bus shelters for commuters to wait under protection;
- n. achieve a high standard in the appearance and aesthetic quality of the Project Highway and achieve integration of the Project Highway with the character of the surrounding landscape through both sensitive design and sensitive management of all visible elements including those on the existing road;
- o. Undertake proper safety audit through an appropriate consultant (i.e. apart from the Authority Engineer)
- p. Carry out accident recording and reporting (to NHIDCL) by type on regular basis; and
- q. Ensure adequate safety of the Project Workers on the work site.

## **2.0 GEOMETRIC DESIGN AND GENERAL FEATURES**

### **2.1.1 General**

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

### **2.1.2 WIDENING OF THE EXISTING HIGHWAY**

Notwithstanding the basic alignment plans enclosed with this document the Construction Contractor shall himself carryout and be responsible for engineering surveys, investigation and detailed engineering designs and prepare the working drawings for all the components relevant for the improvement and up-gradation of the Project Highway to fulfill the scope of the project as envisaged herein under. These shall comply with design specifications and standards given in **Schedule-D**. The designs for different project facilities shall follow the locations and indicative designs given in **Schedule-C** and shall comply with design specifications and standards outlined in **Schedule-D**. All the designs and drawings shall be reviewed by the Authority Engineer prior to execution.

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.

### **2.1.2 Improvement of the existing road geometries**

[Refer to paragraph 2.1 (v) of the Manual and provide details]

The hilly gradients shall be corrected in such a way so as to attain a limiting gradient of 6% in order to achieve longitudinal drainage. Also vertical curves shall be improved / introduced so that the vertical curves meet IRC: SP-73 - 2015 standards.

The horizontal alignment of the Project Highway shall be improved as per the standards set out in **Schedule-D**.

The improvement shall be done in consultation with the Authority Engineer / Project Company ensuring that the proposed improvements are accommodated within the land width available as far as practical otherwise action to acquire more land shall be resorted to through NHIDCL.

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.

## 2.2 Proposed Right of Way

[Refer to paragraph 2.3 of the Manual]. Details of the proposed Right of Way are tabulated below.

Sl. No	Design Chainage (km)		Length (m)	Width (m)
	From	To		
1.	0	10.300	10.300	24 m

2.2.1 The Scheduled date on which the Authority shall provide ROW to the contractor is given in Annexure-II of Schedule A

## 2.3 Type of Shoulders

Hard Shoulder and paved shoulder in builtup areas.

[Refer to paragraph 2.6 of the Manual and specify]

### 2.4.1 Width of Carriageway/Roadway width

2.4.2 Two-Laning with Paved / hard shoulders shall be undertaken.

2.4.3 Except as otherwise provided in this Agreement, the width of the hard shoulder carriageway and cross-sectional features shall conform to Para 2.7 of the manual.

2.4.4 On horizontal curves with radius upto 300 metres width of pavement and Roadway shall be increased as follows-

S. No.	Radius of Curve	Extra width of Carriageway
1	21 to 40	1.5
2	41 to 60	1.2
3	61 to 100	0.9
4	101 to 300	0.6



## 2.5 Lateral and vertical clearances at underpasses

2.5.1 Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per paragraph 2.11 of the Manual.

2.5.2 *Lateral clearance:* The width of the opening at the underpasses shall be as follows:

Sl No.	Location [Chainage (km)]		Span/Opening (m)	Remarks
	From	To		
Nil				

## 2.6 Lateral and vertical clearances at overpasses

2.6.1 Lateral and vertical clearances at overpasses shall be as per paragraph 2.12 of the Manual.

2.6.2 *Lateral clearance:* The width of the opening at the overpasses shall be as follows:

Sl No.	Location Chainage (km)]		Span/Opening (m)	Remarks
	From	To		
Nil				

## 2.7 Service roads

Service roads shall be constructed at the locations and for the lengths indicated below:[Refer to paragraph 2.13 of the Manual and provide details]

Sl. No.	Location of Service Road (km)		Right Hand Side (RHS) / Left Hand Side (LHS) / Both Sides	Length (km) of Service Road
	From	To		
Nil				

## 2.8 Grade Separated Structures

2.8.1 Grade separated structures shall be provided as per paragraph 2.14 of the Manual. The requisite particulars are given below:

[Refer to paragraphs 2.14.1 of the Manual and provide details]

Sl. No.	Location of Structure	Length (m)	Number and Length of Spans (m)	Approach Gradient	Remarks, if any
---------	-----------------------	------------	--------------------------------	-------------------	-----------------

Nil
-----

- 2.8.2 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 paragraphs 2.14.2 of the 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						

### 2.8.3 Cattle and pedestrian underpass / Overpass

Cattle and pedestrian underpass/overpass shall be constructed as follows: [Refer to paragraph 2.14.3 of the Manual and specify the requirements of cattle and pedestrian underpass/overpass.

Sl. No.	Location	Type of Crossing
Nil		

## 2.9 Typical cross-sections of the Project Highway

Typical cross-sections to be followed as per IRC: SP-73-2015 and in addition the proposed cross section for various situations are given in Fig.B-1 to B-4. These illustrate the widening proposals for the project highway. The Project Highway (length 10.300 km) shall be 2-lane carriageway with 1.5 m wide Hard shoulders facility.

Following typical cross sections shall be provided for the Project Highway However to be designed as per manual.

**TCS - I: 2-lane carriageway with paved shoulder of existing road with Lined**

**Drain in Built-up areas,**

**TCS - II: 2-lane carriageway with hard shoulder of existing road in open areas,**

**TCS - III: New 2-lane with hard shoulder carriageway in open areas,**

The cross section schedule shall be as follows:

Sl. No.	DESIGN CHAINAGE (Km)		Length (m)	TCS TYPE	Land use Pattern	Shoulder
	FROM	TO				
1	120000	120350	350	TCS II	Widening in Open areas	1.0 m Hard Shoulder on hill side and 2.0 m on Valley side
2	120350	120650	300	TCS I	Built-up Area	1.5 m Paved Shoulder with 1.0 m RCC Drain on either side.



3	120650	125240	4590	TCS II	Widening in Open areas	1.0 m Hard Shoulder on hill side and 2.0 m on Valley side
4	125240	128240	3000	TCS III	New 2 lane in open area	1.0 m Hard Shoulder on hill side and 2.0 m on Valley side
5	128240	130300	2060	TCS I	Built-up Area	1.5 m Paved Shoulder with 1.0 m RCC Drain on either side.

Note: The extent of cross section type is indicative and shall be reviewed in consultation with the Authority Engineer at the time of construction as per the site condition. However, length of 2 lane carriageway of paved shoulder shall be minimum of 2360 m.

The alternative cross section of the Project Highway at the cross drainage structures shall follow the typical cross section in consultation with the Authority Engineer at the time of construction. The utility services, including optical fiber cables, shall be provided in the utility corridor earmarked for this purpose on the side where it is convenient to the NHIDCL or the fiber cable shall be relocated by the respective owner at a safe place as indicated by NHIDCL in such a way that it causes least hindrances to the execution of project. In urban sections the utility connection, the utility services shall be carried through the nearest cross drainage structure/cattle crossing below its deck slab and above HFL. In absence of such a structure in the vicinity of the purposed location, it shall pass through separate underground ducts. Location and design of the cross utility ducts shall be finalized at the detailed design stage in consonance with the Authority Engineer and NHIDCL.

## 2.10 Longitudinal Section

As a minimum, the Construction Contractor shall achieve the proposed finished road level as indicated in the plan and profile drawings for this purpose in FFSR. However, the final finished road levels (FRL) will be finalized as per site conditions in consultation with NHIDCL.

## 2.11 Built-Up Areas

The alignment passes through Built up areas as tabulated below.

S no	Design Chainage		Name of Village/town etc
	From(km)	To (Km)	
1	120350	120650	Amboli Village
2	128240	130300	Anini

## 3 INTERSECTIONS AND GRADE SEPARATORS

All intersections shall be as per Section3 of the Manual. Existing intersections which are deficient shall be improved to the prescribed standards.

[Refer to paragraphs 3.1.1, 3.1.2 and 3.3 of the Manual and specify the

requirements. Explain where necessary with drawings/sketches/general arrangement].

There are no intersections with cross roads having bituminous surfacing. The cross roads fall into the category VRs. The Construction Contractor has to construct the following:

- i) Typical junction treatments as specified in Final Project Report shall be applied. Design types of intersections are as given below:

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

### 3.2 At-grade Intersections

#### (a) Major Intersections

Sl No.	Location of Intersection	Intersection Towards	Existing Configurations				Type of Intersection	Figure No.	Other Features
			Location	Type	Width (m)	Surface			
Nil									

Details of junction improvements shall be as per IRC SP: 73-2015.

#### (b) Minor Intersections

Sl. No.	Existing Chainage (m)	Design Chainage (m)	Side	Type of Junction	Remarks
1	134.000	125.240	BOTH	4 arm Junction	
2		130.300	LHS	3 arm Junction	

Except these two minor junctions, all junctions to be improved as at grade falling on alignment passes through Anini town.

Details of junction improvements shall be as per IRC SP: 73-2015.

#### (b) Grade Separated Intersections with/without Ramps

Sl No.	Location (km)	Salient Features	Minimum Length of Viaduct to be Provided (m)	Road to be Carried Over/Under the Structures
Nil				

#### 4.0 ROAD EMBANKMENT AND CUT SECTION

4.1 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.

4.2.1 Raising of the existing road [Refer to paragraph 4.2.2 of the Manual and specify sections to be raised].

The existing road shall be raised in the following sections:

Sl No.	Section (km)		Length (km)	Extent of Raising*	Remarks
	From	To			
			Nil		

\* Difference between levels at proposed c/l and existing road/ground below proposed c/l

#### 5.0 PAVEMENT DESIGN

##### 5.1 General

Pavement design shall be carried out in accordance with section 5 of the Manual. The detailed pavement design including overlay and pavement characteristics requirements of the Project Highway shall be done in accordance with Schedule D. Flexible pavement shall be considered for the project road. Flexible Pavement design shall be carried out in accordance with Section 5 of the Two Lane Manual (IRC: SP 73 -2015).

##### 5.2 Type of pavement

Flexible pavement shall be adopted for Project Highway in accordance with IRC: 37-2012. Clause 2.2 of IRC: 37-2012 identifies five type of flexible pavements. The estimated cost of civil works is based on flexible pavements consisting of Granular base, Sub base, DBM and BC. Since, the successful bidders under EPC mode can use any type of five flexible pavements mentioned Clause 2.2 of IRC: 37-2012, they may carry out their own diligence to arrive at project cost before submitting bids. The minimum thickness of wearing coat (BC) shall be 40 mm.

##### 5.3 Design requirements

[Refer to paragraph 5.4, 5.9 and 5.10 of the Manual and specify design requirements and strategy]

##### 5.4 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 15 years.

Stage construction shall not be permitted.

## 5.5 Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for design traffic of 5 million standard axles as follows.

PACKAGE	Design Chainage (km)		Length (km)	15Year MSA*
	From	To		
	120+000	130+300	10+300	20

\*As per 5.4.1 of IRC: SP: 73-2015

## 5.6 Design Parameters

The flexible pavement for the main carriageway is a 2-lane carriageway having 1.5 m wide hard shoulder and 1.0 m wide earthen shoulder in some stretches. This shall be designed using the IRC SP 37: 2012 method for the 20 msa for 15 years and the construction period of 36 months.

5.6.1 The Project highway will be a light-trafficked section connecting the major arterial network of the country. The design exercise should therefore duly take into account the importance of the road, the performance level and the maintenance requirements during the performance period. The provision of Wet Mix Macadam (granular base)/cement-treated base/ sub-base (crushed stone only)/ sub grade layer(s) and the use of VG 30 Bitumen in bituminous base layers and preferably polymer modified bitumen in wearing course shall be considered while deciding about the composition of the pavement structure. The design should also accompany the Quality Assurance Plan (QAP) along with its implementation scheme for the construction of the pavement structure.

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

5.6.3 Hard shoulders of 3.0 m width including both sides having cementitious base of thickness 200 mm shall be provided.

5.6.4 Contractor shall design the pavement for design traffic of 20 million standard axles corresponding sub grade CBR.

### 5.6.5 Rigid Pavement

No rigid pavement has been considered for the Project Highway.

### 5.6.6 Reconstruction / Realignment/ Bypass of sections

[Refer to paragraph 5.9.7 of the Manual and specify the sections, if any, to be reconstructed.]

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

**"2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE"**

Sl No.	Design Section (km)		Remarks
	From	To	
1	120+000	125+240	Poor condition of existing pavement
2	125+240	128+240	Proposed Realignment Section
3	128+240	130+300	Poor condition of existing pavement

## 6.0 ROAD SIDE DRAINAGE

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per section 6 of the Manual.

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

### 6.1 Drainage Measures

Following measures shall be adopted:

- i) Open side Trapezoidal drains at the hill side for widening at hill sides.
- ii) Open side Trapezoidal drains at hill side in realignment stretches by hill cut.
- iii) Covered Lined drain on both side of carriageway in built-up areas.

Open side trapezoidal cross section drain shall be provided on hill sides of the project highway in order to intercept surface water from the carriageway, shoulders and hill slopes. RCC Lined drains have slopes also been proposed in urban/semi urban/intersection stretches. The concrete drains shall be covered in reaches along commercial establishments and intersections. The drains outfall into the natural water courses i.e. either in culverts or bridges. Table below gives the location of lined drains.

These are guidelines for minimum provisions. However, contractor has to design as per requirement of road in accordance with manual.

## Details of Drains :

Sl. No.	DESIGN CHAINAGE (Km)		Length (m)	TCS TYPE	Drain
	FROM	TO			
1	120000	120350	350	TCS II	K C Drain on hill side
2	120350	120650	300	TCS I	Lined covered drain on both side
3	120650	125240	4590	TCS II	K C Drain on hill side
4	125240	128240	3000	TCS III	K C Drain on hill side
5	128240	130300	2060	TCS I	Lined covered drain on both side

**Note:** (The above locations shall be reviewed in consultation with the Authority Engineer at the time of construction as per the site condition).

Trapezoidal section for the drain/ditch has been proposed as it is more economical and efficient as compared to rectangular cross section V-Shaped. These road side drains have been designed of adequate capacity to carry 100% surface runoff of the drainage area of highway ROW and the adjoining land. The side slopes have been kept as 1H: 1V in case of unlined drain/ditches. However, successful bidder may adopt any type of PCC drain as per IRC & accordingly they may carry out their own diligence to arrive at project cost before submitting the bid.

## 7.0 DESIGN OF STRUCTURES

### 7.1 General

The Project road includes provision of 2 bridges (span 91.85 & 46 m) & 74 box culverts. All culverts and other structures shall be designed and constructed in accordance with section 7 of the Manual/Ministry's Standard Design and shall conform to the cross-sectional features and other details specified therein. New bridges and culverts shall be constructed wide enough to accommodate the adjacent road cross section as given in this Schedule-B. The details of existing culverts are given in Schedule-A.

The details of culverts shall be provided by the EPC Contractor. Minimum compulsory requirement of the culverts are given in Para 7.2.1 herein under.

### 7.2 Culverts

- 1.1.1 Overall width of all culverts shall be equal to the roadway width of the approaches. Catch water pit at every culvert location shall be provided as per IRC standard and Breast wall of varying height shall also be provided at the end of catchpit along hill side to protect against hill toe erosion. All box culverts (excluding the box culverts in cushion) shall be provided with approach slabs on both sides. Moreover upstream and downstream protection works, including catch pit connecting stream with the culvert, catch pits; baffle piers/blocks

etc. shall be provided which must be ascertained as per the site conditions.

Minimum no. of box culverts with Span arrangement are given herein under:

S. No.	Span (m)	No. of culverts
1	2.0	64
2	3.0	11

### 7.2.2 Reconstruction of existing culverts

Total 75 nos of Box Culvert as mentioned above need to be constructed including 21 Nos. of box culverts.

7.2.3 Additional new culverts shall be constructed as per particulars given in the table below:

NIL

7.2.4 Repairs/replacements of railing/parapets, flooring and protection. works of the existing culverts shall be undertaken as follows:

[Refer to paragraph 8.2.3 of the Manual and provide details]

Sl. No.	Existing Chainage (km)	Design Chainage (km)	Proposal	Proposed Span
NIL				

7.2.5 Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

### 7.3 Bridges

7.3.1 The existing bridges to be reconstructed/widened

(i) The following is the list of Minor Bridges to be reconstructed/widened

Sl. No.	Design Chainage (m)	Proposed Span in mt	Proposed Width in mt	Proposed/Remark
1	126650	1x46.0	12.9	New Construction

7.3.2 The following structures shall be provided with footpaths:

Sl No.	Location (km)	Remarks
Nil		

### 7.3.3 Additional New Minor Bridges

New minor bridges at the following locations on the project highways shall be constructed as per manual

Sr. No.	Designed Chainage (km)	River/ Nallah Name	Proposed Span Arrangement (m)
NiL			

### 7.3.4 Additional new bridges

[Specify additional new bridges if required, and attach GAD]

One new bridges at the following locations on the Project Highway shall be constructed as per manual

Sl No.	Location Designed (km)	Total Length (m)	Remarks
NiL			

### 7.3.5 The railings of existing bridges shall be replaced by crash barriers at the following locations:

[Refer to paragraph 7.17 (iv) of the Manual and provide details]

Sl No.	Location (km)	Remarks
Nil		

### 7.3.6 Repairs/replacements of railings/parapets of the existing bridges shall be undertaken as follows:

[Refer to paragraph 7.17 (v) of the Manual and provide details]

Sl No.	Location (km)	Remarks
Nil		

### 7.3.7 Drainage system for bridge decks

An effective drainage system for bridge decks shall be provided as specified in paragraph 8.21 of the Manual

### 7.3.8 Structures in marine environment



[Refer to paragraph 7.22 of the Manual and specify the necessary measures / treatments for protecting structures in marine environment, where applicable]

#### 7.4 Rail-road Bridges

7.4.1 Design, construction and detailing of ROB/RUB shall be as specified in section 7 of the Manual. [Refer to paragraph 8.19 of the Manual and specify modification, if any]

##### 7.4.2 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 (km)	Length of Bridge (m)
Nil		

##### 7.4.3 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 (km)	Number and Length of Span (m)
Nil		

#### 7.5 Grade Separated Structures

[Refer to paragraph 7.20 of the Manual]

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2.9 and 3 of this Annex-I.

#### 7.6 Underpasses/Overpasses

There is no Underpass/Overpass proposed on the Project Highway.

#### 7.7 Repairs and strengthening of bridges and structures

[Refer to paragraph 8.23 of the 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
--------	-------------------------	--

Nil
-----

**B. ROB / RUB**

Sl No.	Location of Bridge (km)	Nature and Extent of Repairs/Strengthening to be Carried out
Nil		

**C. Overpasses / Underpasses and Other Structures**

Sl No.	Location of Bridge (km)	Nature and Extent of Repairs/Strengthening to be Carried out
Nil		

**7.8 List of Major Bridges and Structures**

The following is the list of Major Bridges on Package

Sl. No.	Design Chainage (m)	Proposed Span in mt	Proposed Width in mt	Proposed/Remark
1	120900	2X45.925	12.9	Reconstruction

**8.0 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS****8.1 General**

Traffic control devices and road safety works shall be provided in accordance with Section 9 of the Manual.

Specifications of the reflective sheeting [Refer to paragraph 9.3 of the Manual and specify]

Traffic signs and pavements markings shall include roadside signs, overhead signs, curve amounting signs and road marking along the Project Highway. The design and marking for the project Highway shall be as per design standards indicated in **Schedule-D** and the location for various treatments shall be finalized in consultation with the Authority Engineer and Project Company.

The road markings shall be applied to lane lines, road center lines, edge lines, continuity line, stop lines, give way lines, directional arrows, diagonal/chevron markings, and Zebra crossings at parking areas.

PCC kerbs (duly painted) approximately 617 RM (minimum) shall be provided by EPC Contractor in bus bays and Islands.

**8.2 Road/Traffic Signs**

(i) A complete range of permanent retro-reflective traffic signs as per the requirements defined in but not limited to the FPR, for the safe and efficient movement of traffic. These sign are to be of regulatory, warning and informatory types and placed on the roadside except at the start and end of the project road and start and end of two bypasses where overhead directional and lane designation signs shall be mounted on the steels portals.

(ii) Temporary traffic and construction signs are to be provided during construction and maintenance operations for traffic diversion and pedestrian safety.

### 8.3 Pavement Marking

Retro-reflective thermoplastic paint is proposed for use.

The road markings shall be applied to lane lines, road center lines, edge lines, continuity line, stop lines, give way lines, diagonal/chevron markings, Zebra crossings and at parking areas.

i) Delineators' bollards and other safety devices shall be provided on entire project Highway and other locations as directed by NHIDCL.

ii) All signs shall be the reflectorized type with high intensity retro-reflective sheeting conforming to ASTM D 4956-01, type VIII and /or type IX of micro prismatic type. All sign boards of size more than 1.2 m and less than 0.9 m shall be provided at the locations finalized in consultation with NHIDCL.

iii) Cautionary sign boards (900mm Equilateral Triangle), stop sign (900mm Octagonal) mandatory sign boards(600mm dia), Village name boards (600X900mm), Hazard Plate (300X900mm), chevron signboard (600X750mm), Facility information sign (600X800mm), Advance direction sign (1800X1200mm), Place identification sign (1200X900mm) shall be provided by the Construction Contractor with suitable interval in consultation with NHIDCL.

The minimum quantity of Traffic signages and pavement marking are tabulated here for Package

Sl. No.	Traffic Signages, Road Marking and other appurtenances	unit	Quantity
1.	Road Marking: - Lane, Centre Line, Pedestrian crossing	Sqm	3041.000
2.	Directional Arrows, letter marking etc.	Nos.	25.000
3.	Advance Direction signs size 1800X1200 mm	Nos.	15.000
4.	Village name boards size 600X900 mm	Nos.	18.000
5.	Place Identification signs size 1200X900 mm	Nos.	20.000
6.	90 cm Triangle	Nos.	20.000
7.	90 cm Octagon	Nos.	20.000
8.	Hazard plate 300X900 mm	Nos.	40.000
9.	800 x 600 mm Size	Nos.	15.000
10.	60 Cm circular	Nos.	15.000
11.	Supply and fixing of Micro Prismatic type Retro-Reflective sign plate which is to be fixed on Overhead/ Cantilever structures with the help of G.I. nut bolts	Sqm	74.900
12.	Over Head Sign Truss	MT	8.500
13.	Boundary Stone	Nos.	52.00

Sl. No.	Traffic Signages, Road Marking and other appurtenances	unit	Quantity
14.	5th Km Stone -New	Nos.	1.000
15.	Ordinary Km Stone	Nos.	9.000
16.	Hectometer Stone	Nos.	42.000
17.	Delineator	Nos.	105.000
18.	Bollards	Nos.	105.000
19.	RCC Guard Post	Nos.	60.000
20.	Enamel Paint	Sqm	25.000

## 9.0 ROAD SIDE FURNITURE

9.1.1 Roadside furniture shall be provided in accordance with the provisions of Section 11 of the Manual IRC: SP: 73-2015.

9.1.2 Overhead traffic signs: location and size

[Refer to paragraph 11.5 of the Manual and provide details]

The overhead signs shall be the reflectorized type with high intensity retro-reflective sheeting conforming to ASTM D 4956-01, type VIII and /or type IX of micro prismatic type. The retro reflected sheets of Engineering Grade and high intensity grade (ordinary) shall not be used. The height, lateral clearance, location and installation shall be as per relevant clauses of MoRTH specifications. Overhead sign shall be installed ahead of major intersections and urban areas as per detailed design requirements. The minimum number of overhead signs shall be 02 (01 No. of gantry and 01 No. of Cantilever) as per this manual.

## 10. COMPULSORY AFFORESTATION

[Refer to paragraph 11.1 of the Manual and specify the number of trees which are required to be planted by the Contractor as compensatory afforestation.]

Minimum 1000 nos. trees are required to be planted.

## 11.0 HAZARDOUS LOCATIONS

Metal Beam crash barrier length of minimum 4128m (single runner, heavy duty and W-shape) shall be provided at the locations of bridge approaches and high embankments (3.0m and more), at sharp curves on both sides. Heavy duty metal beam crash barriers shall be provided on this project by the Construction Contractor at the locations finalized in consultation with NHIDCL. Typical details of metal crash barrier are given in as per manual.

## 12.0 SPECIAL REQUIREMENT FOR HILL ROADS

In accordance with section 13 of the manual (from IRC: SP: 73-2015), IRC: SP 48-1998 and Recommended practices for Treatment of Embankment and Roadside slopes for Erosion control (First Revision), IRC: 56-2011 and relevant IRC codes.

### 12.1 Slope Protection

As the project involves cutting of existing hill slopes, it is imperative that slopes are stabilized for ensuring longevity of the slope and the road. Slope stability, erosion control and landslide correction shall be accomplished in accordance with IRC: SP: 48-1998. Reference may be drawn from IRC: 56-2011.

(i) The minimum quantity of protection work may be taken as below:

Type of Protection Work		
Protection Work	Unit	Quantity
1. Parapet Wall	Rm	5700
2. Breast wall with PCC/RCC		
a) 1.0 - 2.0m height	Rm	2850
3. Retaining Wall / Gabion wall with R C C		
a) 2m Height retaining wall	Rm	2408
b) 3-4m Height gabion wall	Rm	1311
Seeding and Mulching with Jute net/Polymer net	Sqm	32024
Vetiver Plantation, Hydro Seeding and Hydro Mulching etc including nets if required or similar works are to be done for slope protection and site mitigation measures upto a height of 12-15m all along the road on barren slopes except hard rock location which needs to be protected with appropriate applicable technologies, if required	Rm	6000

**Note-** The Contractor shall be responsible for accurate assessment of the actual requirement as per site situation & prepare designs for slope protection & stabilization as per the specifications & standards stipulated in schedule 'D' and submit the same to the AE for review through the proof consultant and implement it accordingly thereafter.

Any increase in quantity over and above the tentative qty. as mentioned in above table or through change in specifications will not be considered as change of scope. Therefore contractor shall make thorough investigation at site and assess the requirement of slope protection and slide prone zone and other safety features at his own before submission of bid.

## 12.2 Rip rap Protection:

The minimum quantity of riprap protection or similar work to be provided at valley side shoulder in the following locations as special safety feature on valley side on curves locations detailed in para 11.0

## 12.3 ROAD LAND BOUNDARY (Clause 12.2 IRC SP: 73 : 2015)

Road land (ROW) boundary shall be demarcated by putting RCC boundary pillars of size 60cm x 15cm x 15 cm embedded in concrete (as per IRC:25) along the Project Highway at 200 m interval on both sides. All the components used in delineating road land boundary shall be aesthetically pleasing, sturdy and vandal proof. The road land boundary shall be demarcated in consultation with NHIDCL.

## 12.4 Disposal of Debris: - As per Manual

## 13 CHANGE OF SCOPE

"2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE"

The length of Structures, bridges, culverts and slope protection works whatsoever in terms of retaining wall, breast wall, gabion wall, RE wall, chute drain, catch pit, baffle piers/blocks etc. are under special requirement of hill slope 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 and specifications in this Schedule-B shall not constitute a Change of Scope.

## **SCHEDULE – C**

*(See Clause 2.1)*

### **PROJECT FACILITIES**

#### **1 Project Facilities**

This schedule indicates the minimum spatial and functional requirements of the facilities to be provided on the Project Highway with an aim to cater to the envisaged demand till the end of the concession period.

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

- (a) Roadside furniture
- (b) Pedestrian facilities
- (c) Tree plantation
- (d) Bus bays
- (e) Passing Places
- (f) Truck lay byes and
- (g) Others to be specified

#### **2 Description of Project Facilities**

##### **Toll Plaza**

NIL

##### **Bus bays**

To ensure orderly movement of the through traffic, bus bays have been proposed outside the residential area, away from bridges, and high embankments and not too close to the road intersections. The bus stops have been proposed on one side of the road.

Bus Bays shall be provided on the Project Highway at 4 locations (minimum) as approved by Authority Engineer/ site requirement in Anini town. Bus Bays shall be constructed as per Manual on both sides of the Project Highway. These Bus Bays will also have passenger shelter.

##### **Pedestrian Facilities**

Pedestrian facilities shall be provided at the locations of urban sections in order to ensure safety of pedestrians while crossing in consultation with NHIDCL. This should include (a) minimum Zebra Crossing with flashing Beacon or (b) Zebra Crossing with separate pedestrian phase or (c) any other provision as approved by NHIDCL.

### **Landscaping**

Landscape treatment of the Project Highway shall be undertaken through planting of trees and ground cover of appropriate varieties and landscaping on surplus land in the ROW. The Construction Contractor should plant at least 850 nos. of trees of minimum 6 ft. height with tree guard made up of MS sections.

Plantation scheme shall be prepared in consultation with the Forest Department of the Government of Arunachal Pradesh, and the Independent Consultant/ NHIDCL.

### **Environment**

The Project Highway during design, construction and maintenance during implementation period shall conform to the environmental rules and regulations in force. The Construction Contractor shall be responsible for the same.



**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 confirm to design requirements set out in the following documents:

Two Lane Manual (IRC: SP 73 - 2015) of Specifications and Standards for Two Laning published by IRC and Hill Road Manual IRC SP 48:1998

Annex - I  
(Schedule - D)

**Specifications and Standards for Construction**

**1 Specifications and Standards**

All materials, works and construction operations shall confirm to the Two Lane Manual (IRC: SP 73 - 2015) of Specifications and Standards for Two Laning (IRC: SP: 73 - 2015), referred as the Two Lane Manual (IRC: SP: 73 - 2015), and MORTH Specifications for Road and Bridge Works (Fifth Edition) with upto date amendments/modifications/additions, IRC: SP: 48-1998 and IRC 56-2011. 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**

2.1 The terms 'Concessionaire', 'Independent Engineer' and 'Concession Agreement' used in the Two Lane Manual (IRC: SP 73- 2015) shall be deemed to be substituted by the terms '**Contractor**', '**Authority's Engineer**' and '**Agreement**' respectively.

2.2 NIL

SCHEDULE - E  
(See Clauses 2.1 and 14.2)

**MAINTENANCE REQUIREMENTS**

**1 Maintenance Requirements**

- 1.1 The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.
- 1.2 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-fulfillment 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.
- 1.3 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.

[Specify all the relevant documents]

**2 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.

**3 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.

**4 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

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

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.

**5 Emergency repairs/restoration**

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.

**6 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.

**7. 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.

**8. 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.

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

Annex - I  
(Schedule-E)

### Repair/rectification of Defects and deficiencies

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.

Nature of Defect or deficiency		Time limit for repair/rectification
<b>ROADS</b>		
<b>(a)</b>	<b>Carriageway and paved shoulders</b>	
(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	30 (thirty) 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
(ix)	Removal of debris, dead animals	6 hours
<b>(b)</b>	<b>Granular earth shoulders, side slopes, drains and culverts</b>	
(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
Nature of Defect or deficiency		Time limit for

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

		repair/rectification
(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 hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
<b>(c)</b>	<b>Road side furniture including road sign and pavement marking</b>	
(i)	Damage to shape or position, poor visibility or loss of retro-reflectivity	48 hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/Once every year
(iii)	Damaged/missing road signs requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days
<b>(d)</b>	<b>Road lighting</b>	
(i)	Any major failure of the system	24 hours
(ii)	Faults and minor failures	8 hours
<b>(e)</b>	<b>Trees and plantation</b>	
(i)	Obstruction in a minimum head-room of 5 m above carriageway or obstruction in visibility of road signs	24 hours
(ii)	Removal of fallen trees from carriageway	4 hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
<b>Nature of Defect or deficiency</b>		<b>Time limit for</b>

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

		repair/rectification
(iv)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
<b>(f)</b>	<b>Rest area</b>	
(i)	Cleaning of toilets	Every 4 hours
(ii)	Defects in electrical, water and sanitary installations	24 hours
<b>(g)</b>	<b>[Toll Plaza]</b>	
<b>(h)</b>	<b>Other Project Facilities and Approach roads</b>	
(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
<b>Bridges</b>		
<b>(a)</b>	<b>Superstructure</b>	
(i)	Any damage, cracks, spalling/scaling  Temporary measures  Permanent measures	within 48 hours  within 15 (fifteen) days or as specified by the Authority's Engineer
<b>(b)</b>	<b>Foundations</b>	
(i)	Scouring and/or cavitation	15 (fifteen) days
<b>(c)</b>	<b>Piers, abutments, return walls and wing walls</b>	
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
<b>Nature of Defect or deficiency</b>		<b>Time limit for repair/rectification</b>

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

<b>(d)</b>	<b>Bearings (metallic) of bridges</b>	
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
<b>(e)</b>	<b>Joints</b>	
(i)	Malfunctioning of joints	15 (fifteen) days
<b>(f)</b>	<b>Other items</b>	
(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
<b>(g)</b>	<b>Hill Roads</b>	
(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.]

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.



SCHEDULE - F  
(See Clause 3.1.7(a))

**APPLICABLE PERMITS**

**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.

2. The agency need to ensure compliance of AIP and FC stated in schedules 'A' Annexure – IV. The necessary certifications need to be obtained from competent local forest department.

3. Muck dumping locations in forest area to be freezed in consultation with the forest department, the necessary certifications from local competent forest department is to be submitted.

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

## SCHEDULE – G

(See Clauses 7.1.1, 7.5.3 and 19.2)

### FORM OF BANK GUARANTEE

Annex-I

(See Clause 7.1.1)

#### [Performance Security/Additional Performance Security]

Managing Director ,  
National Highways and Infrastructure  
Development Corporation Limited  
New Delhi

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 construction of the “**2 Laning of existing Hunli-Anini from design Km 120.000 to Km 130.300 (Total Length =10.300 Kms) in the State of Arunachal Pradesh on EPC basis under SARDP-NE**” section of [National Highway No. \*\*] on Engineering, Procurement and Construction (the “**EPC**”) basis, 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:

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

1. The Bank hereby unconditionally and irrevocably guarantees the due and 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 General Manager, 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, fulfillment 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 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

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

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 fulfillment, 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 \*\*\*\*\$. 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.
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.
12. This guarantee shall also be operatable at our..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or

---

<sup>\$</sup> Insert date being 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 7.2 of the Agreement).

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

13. Bank Guarantee has been sent to Authority's bank through SFMS gateway as per the details below: -

Sl. No	Particulars	Details
1	Name of the Beneficiary	National Highways and Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch	IFSC SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Syndicate Bank, Transport Bhawan, 1 <sup>st</sup> Parliament street, New Delhi-110001

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:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) 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.

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

Annex – II  
(Schedule - G)  
(See Clause 7.5.3)

**Form for Guarantee for Withdrawal of Retention Money**

Managing Director ,  
National Highways and Infrastructure  
Development Corporation Limited  
New Delhi

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 construction of the *“2 Laning of existing Hunli-Anini from design Km 120.000 to Km 130.300 (Total Length =10.300 Kms) in the State of Arunachal Pradesh on EPC basis under SARDP-NE”* section of [National Highway No. \_\_] on Engineering, Procurement and Construction (the “**EPC**”) basis, subject to and in accordance with the provisions of the Agreement.
- (B) In accordance with Clause 7.5.3 of the Agreement, the Contractor may withdraw the retention money (hereinafter called the “**Retention Money**”) after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.
- (C) We, ..... through our branch at ..... (the “**Bank**”) have agreed to furnish this bank guarantee (hereinafter called the “**Guarantee**”) for the amount of Rs. ----- cr. (Rs.-----crore) (the “**Guarantee Amount**”).

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

1. The Bank hereby unconditionally and irrevocably 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 [General Manager in the National Highways & Infrastructure Development Corporation Limited], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for under and in accordance with the Agreement shall be conclusive, final and

*“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.*

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 Retention Money and 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 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 Retention Money.
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 90 (ninety) days after the date of the Completion Certificate specified in Clause 12.4 of the Agreement.
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

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

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.
11. 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.
12. This guarantee shall also be operatable at our..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

13. Bank Guarantee has been sent to Authority's bank through SFMS gateway as per the details below: -

Sl. No	Particulars	Details
1	Name of the Beneficiary	National Highways and Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch	IFSC SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Syndicate Bank, Transport Bhawan, 1 <sup>st</sup> Parliament street, New Delhi-110001

Signed and sealed this ..... day of ....., 20..... at .....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**



(Designation)

(Code Number)

(Address)

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) 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.

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

Annex – III  
(Schedule - G)  
(See Clause 19.2)

**Form for Guarantee for Advance Payment**

Managing Director ,  
National Highways and Infrastructure  
Development Corporation Limited  
New Delhi

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 construction of the *“2 Laning of existing Hunli-Anini from design Km 120.000 to Km 130.300 (Total Length =10.300 Kms) in the State of Arunachal Pradesh on EPC basis under SARDP-NE”* section of [National Highway No. \*\*] on Engineering, Procurement and Construction (the “**EPC**”) basis, 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) 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 installments 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 installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} installment 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

---

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

*“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.*

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 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 General Manager, 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.
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 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 sureties and guarantors would but for this provision have the

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

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 Advance Payment.
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 \*\*\*\*.\*<sup>\$</sup> 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.
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.
11. 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.
12. This guarantee shall also be operatable at our..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

---

<sup>\$</sup> Insert a date being 90 (ninety) days after the completion of 80% of work (In accordance with Schedule J) from the date of payment of the Advance payment to the Contractor (in accordance with Clause 19.2 of the Agreement).

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

13. Bank Guarantee has been sent to Authority's bank through SFMS gateway as per the details below: -

Sl. No	Particulars	Details
1	Name of the Beneficiary	National Highways and Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch	IFSC SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Syndicate Bank, Transport Bhawan, 1 <sup>st</sup> Parliament street, New Delhi-110001

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:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) 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.

\_\_\_\_\_

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300  
(Total length = 10.300 Kms ) in the state of Arunachal Pradesh on EPC basis  
under SARDP-NE”.

**SCHEDULE - H**  
**(See Clauses 10.1.4 and 19.3)**  
**Contract Price Weightages**

1.1 The Contract Price for this Agreement is Rs. Cr./-

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

IT EM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE OF PAYMENT	PERCENTAGE WEIGHTAGE	PERCENTAGE WEIGHTAGE vis a vis OVERALL PROJECT
1	2	3	4	5
<b>Road works including Culverts, widening and Repair of Culverts.</b>	<b>61.93%</b>	<b><i>A- Widening and strengthening of existing road</i></b>		
		(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	38.66%	23.94%
		(2) Sub-Base Course.	12.64%	7.83%
		(3) Non Bituminous Base Course.	6.85%	4.24%
		(4) Bituminous Base Course	5.04%	3.12%
		(5) Wearing Coat.	0.00%	0.00%
		(6) Widening and repair of culverts	0.00%	0.00%
		<b><i>B.1- Reconstruction/New 2lane realignment/bypass (Flexible pavement)</i></b>	0.00%	
		(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	4.02%	2.49%
		(2) Sub-Base Course.	3.52%	2.18%
		(3) Non Bituminous Base Course.	1.79%	1.11%
		(4) Bituminous Base Course	1.32%	0.82%
		(5) Wearing Coat.	0.00%	0.00%
		<b><i>B.2- Reconstruction/New 4lane realignment/bypass (Rigid pavement)</i></b>	0.00%	
		(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	0.00%	0.00%
		(2) Sub-Base Course.	0.00%	0.00%
		(3) Dry Lean Concrete (DLC) Course	0.00%	0.00%
		(4) Pavement Quality Control (PQC) Course	0.00%	0.00%
		<b><i>C.1-Reconstruction /New Service road (Flexible Pavement)</i></b>	0.00%	

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

		(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	0.00%	0.00%
		(2) Sub-Base Course.	0.00%	0.00%
		(3) Non Bituminous Base Course.	0.00%	0.00%
		(4) Bituminous Base Course	0.00%	0.00%
		(5) Wearing Coat.	0.00%	0.00%
		<b>C.2-Reconstruction /New Service road (Rigid Pavement)</b>	0.00%	
		(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	0.00%	0.00%
		(2) Sub-Base Course.	0.00%	0.00%
		(3) Dry Lean Concrete (DLC) Course	0.00%	0.00%
		(4) Pavement Quality Control (PQC) Course	0.00%	0.00%
		<b>D-Re-construction and New culverts on existing road, realignment, bypasses.</b>	0.00%	0.00%
		(1) Culverts (Length < 6m)	26.16%	16.20%
<b>Minor Bridges/Underpasses/Overpasses</b>	3.92%	<b>A.1-Widening and Repair of Minor Bridges (length&gt;6m and &lt;60m)</b>		
		(1) Minor Bridges	0.00%	
		<b>A.2-New Minor Bridges (length &gt;6m and &lt;60m)</b>		
		(1) <b>Foundation + Sub Structure</b> : On completion of the foundation work including foundation for wing and return walls, abutments, piers upto the abutment/pier cap	68.11%	2.67%
		(2) <b>Super Structure</b> : On completion of the super structures in all respects including wearing coat, bearing, expansion joint, hand rail, crash barriers, road signs & marking, tests on completion etc. Complete in all respect.	29.85%	1.17%
		(3) <b>Approaches</b> : On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	2.04%	0.08%
		(4) <b>Guide Bunds and River Training Works</b> : On completion of Guide Bunds and river Training works complete in all respects.	0.00%	0.00%
		<b>B.1-Widening and Repair of underpasses/overpasses</b>		
		(1) Underpasses / Overpasses	0.00%	0.00%
		<b>B.2-New Underpasses / Overpasses</b>		
		(1) <b>Foundation + Sub Structure</b> : On completion of the foundation work including foundation for wing and return walls, abutments, piers upto the abutment/pier cap		

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**



		(2) <b>Super Structure</b> : On completion of the super structures in all respects including wearing coat, bearing, expansion joint, hand rail, crash barriers, road signs & marking, tests on completion etc. Complete in all respect. Wearing Coat (a) in case of overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass-rigid pavement including facility complete in all respects as specified as specified.		
		(3) <b>Approaches</b> : On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.		
<b>Major Bridge (length &gt;60m works and ROB/RUB/elevated section/flyovers including viaducts, if any</b>	<b>9.86%</b>	<b>A.1-Widening and repairs of Major Bridges</b>		
		(1) Foundation	0.00%	0.00%
		(2) Sub-structure	0.00%	0.00%
		(3) Super-structure (including bearings)	0.00%	0.00%
		(4) Wearing Coat including expansion joints	0.00%	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	0.00%
		(6) wing wall/return walls	0.00%	0.00%
		(7) Guide Bunds, River Training works etc	0.00%	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection)	0.00%	0.00%
		<b>A.2-New Major Bridges</b>		
		(1) Foundation	39.76%	3.92%
		(2) Sub-structure	30.02%	2.96%
		(3) Super-structure (including bearings)	30.02%	2.96%
		(4) Wearing Coat including expansion joints	0.00%	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road marking etc	0.20%	0.02%
		(6) wing wall/return walls	0.00%	0.00%
		(7) Guide Bunds, River Training works etc	0.00%	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection)	0.00%	0.00%

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

Major Bridge (length >60m works and ROB/RUB/elevated section/flyovers including viaducts, if any)		<b>B.1-Widening and Repair of (a) ROB (b) RUB</b>		
		(1) Foundation	0.00%	0.00%
		(2) Sub-structure	0.00%	0.00%
		(3) Super-structure (including bearings)	0.00%	0.00%
		(4) Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified as specified	0.00%	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	0.00%
		(6) wing wall/return walls	0.00%	0.00%
		(7) Approaches (including Retaining walls, stone pitching and protection work)	0.00%	0.00%
		<b>B.2-New ROB/RUB (a) ROB (b) RUB</b>		
		(1) Foundation		0.00%
		(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 respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified as specified		0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road marking etc		0.00%
		(6) wing wall/return walls		0.00%
		(7) Approaches (including Retaining walls/Reinforced earth wall, stone pitching and protection work)		0.00%
		<b>C.1-Widening and repair of Elevated Section/Flyovers/Grade Separators</b>		
		(1) Foundation	0.00%	0.00%
		(2) Sub-structure	0.00%	0.00%
		(3) Super-structure (including bearings)	0.00%	0.00%
		(4) Wearing Coat including expansion joints	0.00%	0.00%
		(5) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	0.00%
		(6) wing wall/return walls	0.00%	0.00%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection work)	0.00%	0.00%

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

		<b>C.2-New Elevated Section/Flyovers/Grade Separators</b>		
		(1) Foundation		0.00%
		(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 barriers, road marking etc		0.00%
		(6) wing wall/return walls		0.00%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection work)		0.00%
<b>Other Works</b>	<b>24.29%</b>			
		(i)Toll Plaza	0.00%	0.00%
		(ii)Road side drain	18.69%	4.54%
		(iii) Road signs, marking, Km stones, Safety devices etc.	2.10%	0.51%
		(iv)Project facilities	0.00%	0.00%
		(a)Bus bays	1.69%	0.41%
		(b)Truck lay-byes	0.00%	0.00%
		(c.) Rest areas	0.00%	0.00%
		(d) Others	0.29%	0.07%
		(v) Road side Plantation	0.00%	0.00%
		(vi) Repair of protection works other than approaches to the bridges elevated section/flyovers/grade separators and ROB/RUBs	0.00%	0.00%
		(vii) Safety and traffic management during construction	0.00%	0.00%
		(viii) Slope Protection Works as special requirement for hill road	0.00%	0.00%
		(a) Hydro Seeding of Cut Slopes in Soil	1.32%	0.32%
		(b)Seeding and Mulching with Jute net all along the perpetual slide locations	4.08%	0.99%
		(c.) Catch water Drain	0.00%	
		(d) Gabion Structure on hill side/valley side of varying height between 1 to 6 metre depending upon the slope	3.29%	0.80%
		(e) Breast wall	25.20%	6.12%
		(f) Sub Surface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	0.00%	0.00%
		(g) Parapet wall	4.08%	0.99%
		(h) Toe wall	0.00%	
		(k) Retaining Wall	23.30%	5.66%
		(l) Minor Junction	6.96%	1.69%
		(m) Crash Barrier	9.02%	2.19%
		<b>Total %</b>		<b>100.00%</b>

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

### 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:

**TABLE 1.3.1**

STAGE OF PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
<b>A- Widening and strengthening of existing Road</b> (1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	23.94%	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. Further, If existing road length (excluding bypasses, re-alignment, structure) is say 'L' Km and the unencumbered length along the existing road as handed over on the appointed date is 'L1' Km and the balance length i.e. 'L2' Km (L-L1) is to be handed over on a later date as per the memorandum signed under provision of clause 8.2.1 of the contract document, then the stage payment shall be worked out for the 'L1' Km length handed over on the appointed date. The stage payment for the remaining 'L2' Km shall be worked out on prorata basis from the date of handing over of such length.
(2) Sub-Base Course.	7.83%	
(3) Non Bituminous Base Course.	4.24%	
(4) Bituminous Base Course	3.12%	
(5) Wearing Coat.	0.00%	
(6) Widening and repair of culverts	0.00%	Cost of completed culverts shall be determined pro rate basis with respect to the total no. of culverts. The payment shall be made on the completion of atleast five culverts.
<b>B.1- Reconstruction/New 2lane realignment/bypass (Flexible pavement)</b> (1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	2.49%	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 5(five) Km. length, whichever is less. Further, Unit of Measurement is linear length of each bypass/realignment (excluding structures) and payment of each stage shall be made on prorata basis on completion of a stage in full length or 5 (five) Km length of each bypass/ re- alignment taken separately.
(2) Sub-Base Course.	2.18%	
(3) Non Bituminous Base Course.	1.11%	
(4) Bituminous Base Course	0.82%	
(5) Wearing Coat.	0.00%	

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms) in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

<b>B.2-Reconstruction/New 2lane realignment/bypass (Rigid pavement)</b>		Unit of measurement is liner length. Payment of each stage shall be made on pro rate basis on completion of a stage in full length or 5(five) km. length, whichever is less.
(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	0.00%	
(2) Sub-Base Course.	0.00%	
(3) Dry Lean Concrete (DLC) Course	0.00%	
(4) Pavement Quality Control (PQC) Course	0.00%	
<b>C.1-Reconstruction /New Service road (Flexible Pavement)</b>		Unit of measurement is liner length. Payment of each stage shall be made on pro rate basis on completion of a stage in full length or 5(five) km. length, whichever is less.
(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	0.00%	
(2) Sub-Base Course.	0.00%	
(3) Non Bituminous Base Course.	0.00%	
(4) Bituminous Base Course	0.00%	
(5) Wearing Coat.	0.00%	
<b>C.2-Reconstruction /New Service road (Rigid Pavement)</b>	<b>0.00%</b>	Unit of measurement is liner length. Payment of each stage shall be made on pro rate basis on completion of a stage in full length or 5(five) km. length, whichever is less.
(1) Earthwork upto top of the Sub-grade including excavation in soil, soft rock and hard rock including clearing & grubbing with required site clearance etc.	0.00%	
(2) Sub-Base Course.	0.00%	
(3) Dry Lean Concrete (DLC) Course	0.00%	
(4) Pavement Quality Control (PQC) Course	0.00%	
<b>D-Re-construction and New culverts on existing road, realignment, bypasses.</b>		Cost of each culverts shall be determined on pro rate basis with respect to the total number of culverts. Payment shall be made on the completion of atleast five culverts.
(1) Culverts (Length > 6m)	16.20%	

@. 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 x weightage for road work x weightage for bituminous work x (1/L)

Where P= Contract Price

L = Total length in km

Similarly, the rates per km for 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.*

### 1.3.2 Minor Bridge and Underpasses/Overpasses

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

**TABLE 1.3.2**

STAGE OF PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
<b>A.1-Widening and Repair of Minor Bridges (length&gt;6m and &lt;60m)</b>	0.00%	Cost of each minor bridge shall be determined on pro rate basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of widening & repair works of a minor bridge.
<b>A.2-New Minor Bridges (length &gt;6m and &lt;60m)</b>		
(i) <b>Foundation + Sub Structure</b> : On completion of the foundation work including foundation for wing and return walls, abutments, piers upto the abutment/pier cap	2.67%	(i) <b>Foundation + Sub Structure</b> : Cost of each minor bridge shall be determined on pro rate basis with respect to the total linear length(m) of the minor bridges. Payment against foundation+sub structure shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of foundation + sub structure of each bridge subject to completion of atleast two foundation along with sub structure upto abutment/pier cap level of each bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) <b>Super Structure</b> : On completion of the super structures in all respects including wearing coat, bearing, expansion joint, hand rail, crash barriers, road signs & marking, tests on completion etc. Complete in all respect.	1.17%	(ii) <b>Super Structure</b> : Payment shall be made on pro rate basis on completion of a stage i.e completion of super structure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub clause.
(iii) <b>Approaches</b> : On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	0.08%	(iii) <b>Approaches</b> : Payment shall be made on pro rate basis on completion of a stage i.e completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub clause.
(iv) <b>Guide Bunds and River Training Works</b> : On completion of Guide Bunds and river Training works complete in all respects.	0.00%	(iv) <b>Guide Bunds and River Training Works</b> : Payment shall be made on pro rate basis on completion of a stage i.e completion of Guide Bunds and River Training Works in all respects as specified..
<b>B.1-Widening and Repair of underpasses/overpasses</b>	0.00%	Cost of each underpass/overpass shall be determined on pro rate basis with respect to the total linear length of the underpasses/overpasses. Payment shall be made on the completion of wideing & repair works of a underpass/overpass

<p><b>B.2-New Underpasses / Overpasses</b></p> <p>(i) <b>Foundation + Sub Structure</b> : On completion of the foundation work including foundation for wing and return walls, abutments, piers upto the abutment/pier cap</p> <p>(ii) <b>Super Structure</b> : On completion of the super structures in all respects including wearing coat, bearing, expansion joint, hand rail, crash barriers, road signs &amp; marking, tests on completion etc. Complete in all respect.</p> <p>Wearing Coat (a) in case of overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass-rigid pavement including facility complete in all respects as specified as specified.</p> <p>(iii) <b>Approaches</b> : On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.</p>	<p>0.00%</p> <p>0.00%</p> <p>0.00%</p>	<p>(i) <b>Foundation + Sub Structure</b> : Cost of each Underpass/Overpass shall be determined on pro rate basis with respect to the total linear length (m) of the Underpasses/Overpasses. Payment against foundation + sub structure shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of foundation + sub structure of each underpasses/overpasses subject to completion of atleast two foundation along with sub structure upto abutment/pier cap level each underpass/overpass.</p> <p>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p> <p>(ii) <b>Super Structure</b> : Payment shall be made on pro rate basis on completion of a stage i.e completion of super structure of atleast one span in all respects as specified in the column of " Stage of Payment" in this sub clause.</p> <p>(iii) <b>Approaches</b> : Payment shall be made on pro rate basis on completion of stage i.e completion of approaches in all respect as specified.</p>
---	--	--

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:

**TABLE 1.3.3**

STAGE OF PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
A.1-Widening and repairs of Major Bridges		

(i) Foundation	0.00%	<p>(i) <b>Foundation</b> : Cost of each Major Bridge shall be determined on pro rate basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of foundation of the major bridge subject to completion of atleast two foundation of the Major Bridge.</p> <p>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p>
(ii) Sub-structure	0.00%	<p>(ii) <b>Sub Structure</b> : Payment against Sub Structure shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of sub structure of the major bridge subject to completion of atleast two sub structure of abutment/piers upto abutment/pier cap level of the major bridge.</p>
(iii) Super-structure (including bearings)	0.00%	<p>(iii) <b>Super Structure</b> : Payment shall be made pro rate basis on completion of a stage i.e completion of super structure including bearing of atleast one span in all respect as specified.</p>
(iv) Wearing Coat including expansion joints	0.00%	<p>(iv) <b>Wearing Coat</b> : Payment shall be made on completion of wearing coat including expansion joint complete in all respects as specified.</p>
(v) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	<p>(v) <b>Miscellaneous</b> : Payment shall be made on completion of miscellaneous work like hand rail, crash barriers, road marking etc. complete in all respectc as specified.</p>
(vi) wing wall/return walls	0.00%	<p>(vi) <b>Wing walls/return walls</b> : Payment shall be made on completion of wing walls/return walls complete in all respects as specified.</p>
(vii) Guide Bunds, River Training works etc	0.00%	<p>(vii) <b>Guide Bunds, River Training works</b> : Payment shall be made on pro completion of all guide bunds/river training works etc. complete in all respects as specified.</p>
(viii) Approaches (including Retaining walls, stone pitching and protection)	0.00%	<p>(viii) <b>Approaches</b> : Payment shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respect as specified.</p>
<b>A.2-New Major Bridges</b>		
(i) Foundation	3.92%	<p>(i) <b>Foundation</b> : Cost of each Major Bridge shall be determined on pro rate basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro rate basis on completion of stage i.e not less than 25% of the scope of foundation of the major bridge subject to completion of atleast two foundation of the major bridge.</p> <p>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p>
(ii) Sub-structure	2.96%	<p>(ii) <b>Sub Structure</b> : Payment against Sub-structure shall be made on pro rate basis on completion of a stage i.e not less than 25% of scope of sub structure of the major bridge subject to completion of atleast two sub structure of abutment/piers upto abutment/pier upto level of the major bridge.</p>



(iii) Super-structure (including bearings)	2.96%	(iii) <b>Sup Structure</b> : Payment shall be made on pro rate basis on completion of a stage i.e completion of super structure including bearing of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	0.00%	(iv) <b>Wearing Coat</b> : Payment shall be made on completion of wearing coat including expansion joint complete in all respects as specified.
(v) Miscellaneous items like hand rails, crash barriers, road marking etc	0.02%	(v) <b>Miscellaneous</b> : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.
(vi) wing wall/return walls	0.00%	(vi) <b>Wing walls/Return walls</b> : Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Guide Bunds, River Training works etc	0.00%	(vii) <b>Guide Bunds, River Training works</b> : Payment shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(viii) Approaches (including Retaining walls, stone pitching and protection)	0.00%	(viii) <b>Approaches</b> : Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respects as specified.
<b>B.1-Widening and Repair of (a) ROB (b) RUB</b>	<b>0.00%</b>	
(i) Foundation	0.00%	(i) <b>Foundation</b> : Cost of each ROB/RUB shall be determined on pro rate basis with respect to the total liner length (m) of the ROB/RUBs. Payment foundation shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of foundation of the ROB/RUB subject to completion of atleast two foundation of the ROB/RUB.  In case where load testing is required for foundation, the trigger of frist payment shall include load testing also where specified.
(ii) Sub-structure	0.00%	(ii) <b>Sub Structure</b> : Payment against sub structure shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of sub structure of the ROB/RUB subject to completion of atleast two sub structure of abutments/piers upto abutment/pier cap level of the ROB/RUB.
(iii) Super-structure (including bearings)	0.00%	(iii) <b>Super Structure</b> : Payment shall be made on pro rate basis on completion of a stage i.e completion of super structure including bearing of atleast one span in all respects as specified.
(iv) Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified as specified	0.00%	(iv) <b>Wearing Coat</b> : Payment shall be made on completion of (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under including drainage facility complete in all respects as specified as specified.
(v) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	(v) <b>Miscellaneous</b> : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.

(vi) wing wall/return walls	0.00%	(vi) <b>Wing walls/return walls</b> : Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls, stone pitching and protection work	0.00%	(vii) <b>Approaches</b> : Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respectc as specified.
<b>B.2-New ROB/RUB (a) ROB (b) RUB</b>	<b>0.00%</b>	
(i) Foundation	0.00%	(i) <b>Foundation</b> : Cost of each ROB/RUB shall be determined on pro rate basis with respect to the total liner length (m) of the ROB/RUBs. Payment foundation shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of foundation of the ROB/RUB subject to completion of atleast two foundation of the ROB/RUB.  In case where load testing is required for foundation, the trigger of frist payment shall include load testing also where specified.
(ii) Sub-structure	0.00%	(ii) <b>Sub Structure</b> : Payment against sub structure shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of sub structure of the ROB/RUB subject to completion of atleast two sub structure of abutments/piers upto abutment/pier cap level of the ROB/RUB.
(iii) Super-structure (including bearings)	0.00%	(iii) <b>Super Structure</b> : Payment shall be made on pro rate basis on completion of a stage i.e completion of super structure including bearing of atleast one span in all respects as specified.
(iv) Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid payment under RUB including drainage facility complete in all respects as specified as specified	0.00%	(iv) <b>Wearing Coat</b> : Payment shall be made on completion of (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under including drainage facility complete in all respects as specified as specified.
(v) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	(v) <b>Miscellaneous</b> : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.
(vi) wing wall/return walls	0.00%	(vi) <b>Wing walls/return walls</b> : Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls, stone pitching and protection work	0.00%	(vii) <b>Approaches</b> : Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respect as specified.
<b>C.1-Widening and repair of Elevated Section/Flyovers/Grade Separators</b>	<b>0.00%</b>	
(i) Foundation	0.00%	(i) <b>Foundation</b> : Cost of each structure shall be determined on pro rate basis with respect to the total liner length (m) of the structure Payment against foundation shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of foundation of the structure subject to completion of atleast two foundation of the structure.  In case where load testing is required for foundation, the trigger of frist payment shall include load testing also where specified.
(ii) Sub-structure	0.00%	(ii) <b>Sub Structure</b> : Payment against sub structure shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of sub structure of the structure subject to completion of atleast two sub structure of abutments/piers upto abutment/pier cap level of the structure.

(iii) Super-structure (including bearings)	0.00%	(iii) <b>Super Structure</b> : Payment shall be made on pro rate basis on completion of a stage i.e completion of super structure including bearing of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	0.00%	(iv) <b>Wearing Coat</b> : Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified
(v) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	(v) <b>Miscellaneous</b> : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.
(vi) wing wall/return walls	0.00%	(vi) <b>Wing walls/return walls</b> : Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection work)	0.00%	(vii) <b>Approaches</b> : Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respectc as specified.
<b>C.2-New Elevated Section/Flyovers/Grade Separators</b>	<b>0.00%</b>	
(i) Foundation	0.00%	(i) <b>Foundation</b> : Cost of each structure shall be determined on pro rate basis with respect to the total liner length (m) of the structure Payment against foundation shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of foundation of the structure subject to completion of atleast two foundation of the structure.  In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Sub-structure	0.00%	(ii) <b>Sub Structure</b> : Payment against sub structure shall be made on pro rate basis on completion of a stage i.e not less than 25% of the scope of sub structure of the structure subject to completion of atleast two sub structure of abutments/piers upto abutment/pier cap level of the structure.
(iii) Super-structure (including bearings)	0.00%	(iii) <b>Super Structure</b> : Payment shall be made on pro rate basis on completion of a stage i.e completion of super structure including bearing of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	0.00%	(iv) <b>Wearing Coat</b> : Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified
(v) Miscellaneous items like hand rails, crash barriers, road marking etc	0.00%	(v) <b>Miscellaneous</b> : Payment shall be made on completion of all miscellaneous work like hand rail, crash barriers, road marking etc. Complete in all respects as specified.
(vi) wing wall/return walls	0.00%	(vi) <b>Wing walls/return walls</b> : Payment shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection work)	0.00%	(vii) <b>Approaches</b> : Payment shall be made on completion of both approaches including stone pitching, protection works, etc complete in all respects as specified.

**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 DG(RD)&SS,MoRT&H**

**Note: (2) The Schedule for exclusive tunnel project may be prepared as per site reuirement before bidding with due approval of DG(RD)&SS,MoRT&H**

#### 1.3.4 Others works

Procedure for estimating the value of others works done shall be as stated in table 1.3.4:

**TABLE 1.3.4**

STAGE OF PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
------------------	----------------------	-------------------

(i)Toll Plaza	0.00%	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro rate basis with respect to the total of all toll plazas.
(ii)Road side drain	4.54%	Unit of measurement is linear length in Km. Payment shall be made on pro rate basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(iii) Road signs, marking, Km stones, Safety devices etc.	0.51%	
(iv)Project facilities		Payment shall be made on pro rate basis for completed facilities.
(a)Bus bays	0.41%	
(b)Truck lay-byes	0.00%	
(c.) Rest areas	0.00%	
(d) Others	0.07%	
(v) Road side Plantation	0.00%	Unit of measurement is linear length. Payment shall be made on pro rate basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(vi) Repair of protection works other than approaches to the bridges elevated section/flyovers/grade separators and ROB/RUBs	0.00%	
(vii) Safety and traffic management during construction	0.00%	payment shall be made on pro rate basis every six month.
(viii) Slope Protection Works as special requirement for hill road	0.00%	Unit of measurement is linear length in Km. Payment shall be made on pro rate basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(a)Hydro Seeding of Cut Slopes in Soil	0.32%	
(b)Seeding and Mulching with Jute net all along the perpetual slide locations	0.99%	
(c.) Catchwater Drain	0.00%	
(d) Gabion Structure on hill side/valley side of varying height between 1 to 6 metre depending upon the slope	0.00%	
(e) Breast wall	6.12%	
(f) Sub Surface drain with perforated pipe for collection of seepage water to avoid sinking of pavement	0.00%	
(g) Parapet wall	0.99%	
(h) Retaining Wall	5.66%	
i) Minor Junction	1.69%	
j) Gabion Wall	0.80%	
k) Crash barrier	2.19%	

## 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 installment in accordance with the provisions of Clause 19.7

SCHEDULE - I  
(See Clause 10.2.4)

**DRAWINGS**

**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.

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300  
(Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis  
under SARDP-NE”.

Annex - I  
(Schedule - I)

**List of Drawings**

[Note : The Contractor is required to furnish all the drawings as per the manual and clause 10.2]

SCHEDULE - J  
(See Clause 10.3.2)

**PROJECT COMPLETION SCHEDULE**

**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. Further, Ministry circular no. RW/NH-39013/23/2015/NHDP-IVA dated-16.08.2017 shall constitute a part of Contract Agreement.*

**2 Project Milestone-I**

- 2.1 Project Milestone-I shall occur on the date falling on the 180th (One Hundred Eighty) day from the Appointed Date (the “**Project Milestone-I**”).
- 2.2 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**

- 3.1 Project Milestone-II shall occur on the date falling on the 550th (Five Hundred and Fiftieth) day from the Appointed Date (the “**Project Milestone-II**”).
- 3.2 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 40% (thirty per cent) of the Contract Price.

**4 Project Milestone-III**

- 4.1 Project Milestone-III shall occur on the date falling on the [915th (Nine Hundred fifteen)] day from the Appointed Date (the “**Project Milestone-**

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

**III”).**

- 4.2 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 80% (sixty per cent) of the Contract Price.

**5 Scheduled Completion Date**

- 5.1 The Scheduled Completion Date shall occur on the [1095th (One Thousand Ninety Five)] day from the Appointed Date.
- 5.2 On or before the Scheduled Completion Date, the Contractor shall have 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.

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

## SCHEDULE - K

*(See Clause 12.1.2)*

### **Tests on Completion**

#### **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 as per the 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 Nondestructive 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 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**



- 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.
- 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.

SCHEDULE - L  
(See Clause 12.2 and 12.4)

**PROVISIONAL CERTIFICATE**

I, ..... (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated ..... (the "**Agreement**"), for construction of the **"2 Laning of existing Hunli-Anini from design Km 120.000 to Km 130.300 (Total Length =10.300 Kms) in the State of Arunachal Pradesh on EPC basis under SARDP-NE"** (the "**Project Highway**") on Engineering, Procurement and Construction (EPC) basis through ..... (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.

- 1 Works that are incomplete on account of Time Extension have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such works in the time and manner set forth in the Agreement. In addition, certain minor works are incomplete and these are not likely to cause material inconvenience to the Users of the Project Highway or affect their safety. The Contractor has agreed and accepted that as a condition of this Provisional Certificate, it shall complete such minor works within 30 (thirty) days hereof. These minor works have also been specified in the aforesaid Punch List.
- 2 In view of the foregoing, I am satisfied that the Project Highway from km \*\* to km \*\* can be safely and reliably placed in service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the ..... day of ..... 20.....

ACCEPTED, SIGNED, SEALED

SIGNED, SEALED AND

AND DELIVERED

DELIVERED

For and on behalf of

For and on behalf of

CONTRACTOR by:

AUTHORITY's ENGINEER by:

(Signature)

(Signature)

**"2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE"**

## COMPLETION CERTIFICATE

- 1 *I, ..... (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated ..... (the "Agreement"), for "2 Laning of existing Hunli-Anini from design Km 120.000 to Km 130.300 (Total Length =10.300 Kms) in the State of Arunachal Pradesh on EPC basis under SARDP-NE" (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis 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.*
- 2 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 the ..... day of ..... 20.....

SIGNED, SEALED AND DELIVERED

For and on behalf of

the Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

**"2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE".**

SCHEDULE - M  
(See Clauses 14.6, 15.2 and 19.7)

**PAYMENT REDUCTION FOR NON-COMPLIANCE**

**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
<b>(a)</b>	<b>Carriageway/Pavement</b>	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
<b>(b)</b>	<b>Road, Embankment, Cuttings, Shoulders</b>	
(i)	Edge drop, inadequate crossfall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
<b>(c)</b>	<b>Bridges and Culverts</b>	
(i)	Desilting, cleaning, vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

S. No.	Item/Defect/Deficiency	Percentage
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
<b>(d)</b>	<b>Roadside Drains</b>	
(i)	Cleaning and repair of drains	5%
<b>(e)</b>	<b>Road Furniture</b>	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5 <sup>th</sup> km stones	5%
<b>(f)</b>	<b>Miscellaneous Items</b>	
(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%
<b>(g)</b>	<b>Defects in Other Project Facilities</b>	5%

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

$$R = P / IOO \times M \times L1 / L$$

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

M = Monthly lump-sum payment in accordance with the Bid

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.

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

SCHEDULE - N  
(See Clause 18.1.1)

**SELECTION OF AUTHORITY'S ENGINEER**

**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.

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

Annex – I  
(Schedule - N)

**TERMS OF REFERENCE FOR AUTHORITY’S ENGINEER**

**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 [name and address of the Authority] (the “Authority”) and ..... (the “Contractor”) for “2 Laning of existing Hunli-Anini from design Km 120.000 to Km 130.300 (Total Length =10.300 Kms) in the State of Arunachal Pradesh on EPC basis under SARDP-NE”, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.*

**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 Clauses 1.2, 1.3 and 1.4 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;

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

- (c) the Termination Payment; or
  - (d) any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding Rs. 5,000,000 (Rs. fifty lakh).
- 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 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 10.1.6. The Authority's Engineer shall complete such review 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 upto 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 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 the Quality Assurance Plan submitted

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**



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 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 assurance. For purposes of this Paragraph 4.9, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
- 4.10 The Authority's Engineer shall test check at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- 4.11 The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/ rejection of their results shall be determined by the Authority's

**"2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE".**

Engineer in accordance with the Quality Control Manuals. 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 12.4.
- 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.
- 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 or Provisional Certificate, as the case may be. For carrying out its functions

**"2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE".**

under this Paragraph 4.18 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.
- 6.3 The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

## **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 10.2.4 (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.

**“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.**

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

## SCHEDULE - O

*(See Clauses 19.4.1, 19.6.1, and 19.8.1)*

### **Forms of Payment Statements**

#### **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 19.3.1 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 13.2.3 (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
  - (i) Total of (i) and (ii) above.
- (g) Net claim: (e) – (f) (iii);
- (h) The amounts received by the Contractor upto 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

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.

### **3. Contractor's claim for Damages**

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

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300  
(Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis  
under SARDP-NE”.

SCHEDULE - P  
(See Clause 20.1)

**INSURANCE**

**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 paragraph 1.1 (a) and (b) 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 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 the project cost.

3.2 The insurance shall be extended to cover liability for all loss and damage to

“2 Laning of existing Hunli-Anini from Design Km 120.000 to Km 130.300 (Total length = 10.300 Kms in the state of Arunachal Pradesh on EPC basis under SARDP-NE”.



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.