

# **Schedules**

**SCHEDULE-A**  
(See Clause 2.1 & 8.1)

**1 THE SITE**

- 1.1** Site for the construction of 4 (Four) Minor Bridges at km 21.717 , km 23.150 , km 88.300 & km 92.100 on NH-4 in the Union Territory of Andaman & Nicobar Islands shall include the land, structures and road works as described in **Annex-I** of this **Schedule-A**.
- 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 Representative and the Concessionaire 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 bridge project with approaches are specified in **Annex-III**. In the case of sections where no modification in the existing alignment 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 modified. The proposed profile of the Project bridges shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The contractors however, improve/upgrade the Road Profile as indicated in **Annex-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)**  
**Site for Two – Lane minor bridges**

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

**1. The Site**

The Site for the construction of 4 (Four) Minor Bridges at km 21.717 , km 23.150 , km 88.300 & km 92.100 on NH-4 in the Union Territory of Andaman & Nicobar Islands. The Andaman and Nicobar Islands, a Union territory of India comprising 572 islands of which 37 are inhabited, are a group of islands at the juncture of the Bay of Bengal and the Andaman Sea. The territory is about 150 km (93 mi) north of Aceh in Indonesia and separated from Thailand and Myanmar by the Andaman Sea. It comprises two island groups, the Andaman Islands (partly) and the Nicobar Islands, separated by the 150 km wide Ten Degree Channel (on the 10°N parallel), with the Andamans to the North of this latitude, and the Nicobars to the south (or by 179 km). The Andaman Sea lies to the east and the Bay of Bengal to the west.

**2. Referencing System**

Kilometer stones are existing in length of the project highway. It is called the “Existing Chainage”. During topography survey with Total Station, observations made are referred to “Design Chainage”. The relationship between the “Existing Chainage” and the “Design Chainage” as per field surveys of the location of existing km stones using the Total Station for the **“Bridge project with approaches”** is **given at Appendix A-I**.

The Site of the Project Structure comprises the existing structures below:

Sr.. no	Type	Type of bridge	Existing Chainage (Km)	Existing span arrangement
1	Minor Bridge	2 single lane parallel bridges (i)Bailey (ii) Arch	21+742	(i) 1 x 25 (ii) 12 x 1.25
2	Minor Bridge	2 single lane parallel bridges (i)Bailey (ii) Arch	23+160	(i) 1 x 25 (ii) 10 x 1.25
3	Minor Bridge	Bailey bridge with solid slab	88+300	1x12+1x30.40+1x12
4	Minor Bridge	Bailey bridge with solid slab	92+100	1x12+1x30.40+1x12

### 3. Carriageway

There is a small variation in the profile of the carriageway along the project corridor.. The shoulders are generally in fair to good condition throughout the project road. The details of sections indicating different carriageway configurations as observed during reconnaissance survey are given below.

S. No.	From (Km)	To (Km)	Length (m)	Carriageway Width(m)	Type of pavement
1	21+622	21+820	198	3.75	BT
2	23+020	23+260	240	3.75	BT
3	88+140	88+402	262	3.75	BT
4	91+980	92+320	340	3.75	BT

**4. Major Bridges: - Nil**

S.No.	Section	Existing Chainage (km)	Design Chainage (km)	Type of Structure			No. of Spans with span length (m)	width in M	
				Foundation	Sub-structure	Superstructure		Clear Width	overall width
Nil									

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

**6. Grade separators: - NIL**

**7. Railway level crossings: - Nil**

**8. Underpasses (Vehicular /Non Vehicular):- NIL**

**9. Culverts: - NIL**

The Site has the following **Slab/ box culverts**:

Sr. No	Existing Chainage (Km)	Design Chainage	Type of Culvert (Slab/Box)	No. x Span / Opening with Span Length (m)	Width (m)	
					Clear Width (m)	Overall Width
				NIL		

**10. Bus bays: -NIL**

**11. Truck Lay byes: -NIL**

**12. Major Junctions: -NIL**

The details of major junctions are as follows:

Sr. No.	Location		At Grade	Separator	Category of cross road			
	At Km	Location			NH	SH	MDR	Others

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

**13. Minor junctions: - NIL**

The details of the minor junctions are as follows:

<b>Sr.</b>	<b>Location (Design Chainage)</b>	<b>Location</b>	<b>Type</b>	<b>Type of Road SH/MDR/VR/ PMGSY</b>
1		NIL		

**14. Bypasses: - NIL**

**15. Other structures: - NIL**

Annex - II  
(Schedule-A)

**Dates for providing Right of Way**

**The approaches to the minor bridges are accommodated within the available Right of Way.**

The existing ROW details are mentioned below

Bridge Chainage (KM)	Chainage (KM)		ROW (m)			Date of providing ROW
	From	to	Left	Right	Total	
21+622 to 21+876	21600	21625	10	9.75	19.75	At appointed date
	21625	21650	10	10	20	
	21650	21675	8.5	5.5	14	
	21675	21700	8	7.5	15.5	
	21700	21725	7.5	9.5	17	
	21725	21750	7	11	18	
	21750	21775	6	3	9	
	21775	21800	8	10	18	
	21800	21825	7	7	14	
	21825	21850	7	7	14	
	21850	21875	7	8	15	
	21875	21900	7	8	15	
23+000 to 23+274	22993	23025	6	6	12	
	23025	23050	7	2	9	
	23050	23075	9	3	12	
	23075	23100	5.75	5	10.75	
	23100	23125	5.5	5.5	11	
	23125	23150	5.75	5.25	11	
	23150	23175	7.25	5.5	12.75	
	23175	23200	7.25	5	12.25	
	23200	23225	6	8	14	
	23225	23250	6	4	10	
	23250	23275	7.75	4	11.75	
88+140 to 88+402	88+140	88+402	30	30	60	
91+980 to 92+320	91+140	92+320	30	30	60	

Annex - III  
(Schedule-A)

**Alignment Plans**

The existing alignment of the Bridge project with approaches shall be modified in the following sections as per the alignment plan indicated below:

- (i) The alignment of the bridge project with approaches is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be followed by the contractor as minimum FRL. In any case, the finished road level of the project bridges shall not be less than those indicated in the alignment plan. The contractor shall, however, improve / upgrade the Road profile as indicated in Annex-III based on site/design requirement.
- (ii) Traffic Signage plan of the bridge project with approaches showing numbers & location of traffic signs is enclosed. The contractor shall, however, improve/upgrade upon the traffic signage plan as indicated in Annex-III based on site/design requirement as per IRC: SP: 99 & IRC: 67



Annex - IV  
(Schedule-A)

**Environment Clearances**

The following environment clearances are awaited: Coastal Zone Regulation (CRZ)

## **SCHEDULE - B**

**(See Clause 2.1)**

### **Development of the Project Bridges**

#### **1. Development of the Project Bridges**

Development of the Project bridges shall include design and construction of the Project structures as described in this Schedule-B and in Schedule-C. The alignment plans of the Project structures are specified in Annex-III of Schedule A.

The proposed profile of the Project minor bridges shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The contractors however, improve/upgrade the Road Profile as indicated in Annex-III of Schedule A based on site/design requirement.

#### **2. Rehabilitation and augmentation**

Rehabilitation, upgradation and augmentation shall include two-Laning of minor bridges and reconstruction/new construction of the Project Bridges as described in Annex-I of this Schedule-B and Schedule-C.

#### **3. Specifications and Standards**

The Project bridges 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 4 nos Two lane Minor Bridges**

**1 RECONSTRUCTION / NEW CONSTRUCTION OF MINOR BRIDGES**

The Site of four number minor bridges at Km 21.742 & Km 23.160 in CRZ area and at Km 88.300 & Km 92.100 in Jarwa area on NH-4 in Andaman & Nicobar Island. The Andaman and Nicobar Islands, a Union territory of India comprising 572 islands of which 37 are inhabited, are a group of islands at the juncture of the Bay of Bengal and the Andaman Sea. The territory is about 150 km (93 mi) north of Aceh in Indonesia and separated from Thailand and Myanmar by the Andaman Sea. It comprises two island groups, the Andaman Islands (partly) and the Nicobar Islands, separated by the 150 km wide Ten Degree Channel (on the 10°N parallel), with the Andamans to the north of this latitude, and the Nicobars to the south (or by 179 km). The Andaman Sea lies to the east and the Bay of Bengal to the west.

**1.1 WIDTH OF CARRIAGEWAY**

1.2 Two laning of bridges shall be undertaken in accordance with the typical cross section drawings.

S. No.	Approach Start From (Km)	Approach end at (Km)	Length (m)	Carriageway Width(m)	Type of pavement for approaches	Type of pavement for structures
1	21+610	21+830	220	7.5 + 1.5 footpath both sides	Flexible	Rigid
2	23+000	23+290	290	7.5 + 1.5 footpath both sides	Flexible	Rigid
3	88+200	88+400	200	9	Flexible	Rigid
4	91+993	92+208	215	9	Flexible	Rigid

**Note:**

1) Cross-section at Minor Bridge approaches are to be followed matching to adjoining cross-sections with suitable transition.

**1.2.1 Toll Plaza Location: NIL**

- 1.2.2 Except as otherwise provided in this Agreement, the Linear dimension and width of the Carriageway and Cross-Sectional features shall conform to paragraph 1.2 above & Cross Sections given at Schedule D. Invert levels of the longitudinal drains shall be decided as per adjoining draining area and properties, which is approved by Authority Engineer.

## **2 GEOMETRIC DESIGN AND GENERAL FEATURES**

### **2.1 Design speed**

The design speed shall be as per Clause no. 2.2 of IRC SP 73: 2018 for rolling terrain with minimum Design speed of 80 Kmph. However in exceptional case for minor bridge at Km 23+155 the minimum design speed can be 30 Kmph due to land constraints and site conditions.

### **2.2 Improvement of the Existing road Geometrics**

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

S.No.	Chainage of curve	Side of Curve	Type of deficiency	Remark
1	23+073	RHS	Radius<250m	Shippighat
2	23+189	RHS	Radius<250m	
3	23+290	LHS	Radius<250m	
4	88+213	LHS	Radius<250m	Jarwa – IA
5	88+270	RHS	Radius<250m	
6	92+043	LHS	Radius<250m	Jarwa - IB
7	92+156	LHS	Radius<250m	

### **2.3 Vertical Curve Length**

Vertical curve length has been considered as per profile.

### **2.4 Right of Way**

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

### **2.5 Lateral and Vertical Clearances at Underpasses**

- 2.6.1 Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per the Schedule 'D' (Manual). Underpass shall be constructed at following

locations:-

Sr. No.	Design Chainage	Location and name of cross road	Span Arrangement	Width of overpass	Remark
NIL					

2.6.2 Junction layout shall be as per the Manual ((IRC- SP - 73:2018) prescribed in the design standards of Schedule 'D'.

## 2.7 Lateral and Vertical Clearances at Overpasses

2.7.1 Lateral and vertical clearances at overpasses shall be as per the Manual (IRC- SP - 73:2015) prescribed in the design standards of Schedule 'D'.

2.7.2 Lateral and vertical clearances at overpasses and provision of guardrails/crash barriers shall be as per the Manual ((IRC- SP - 73:2018) prescribed in the design standards of Schedule 'D'. Underpass shall be constructed at following locations:-

Sr. No.	Design Chainage	Name of Intersecting Roads	Proposed Span arrangement (m)	Total Width of the Structure (m)	Remark
----- NIL -----					

## 2.8 Service/Slip roads :-

Service/Slip roads shall be constructed at the underpass/overpass locations as indicated below:

Sr. No.	Design Chainage		Length (m)	Width (m)	Side	Remark
	From	To				
	NIL					

## 2.9 Grade Separated Structures

2.9.1 Grade separated structures shall be constructed as per Manual ((IRC- SP - 73:2018) prescribed in the design standards of Schedule 'D'. The requisite particulars are given below:

Sr. No.	Design Chainage of structure	Length (m)	Number & length of span (m)	Approach Gradient & RE Walls	Remarks, if any
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Nil

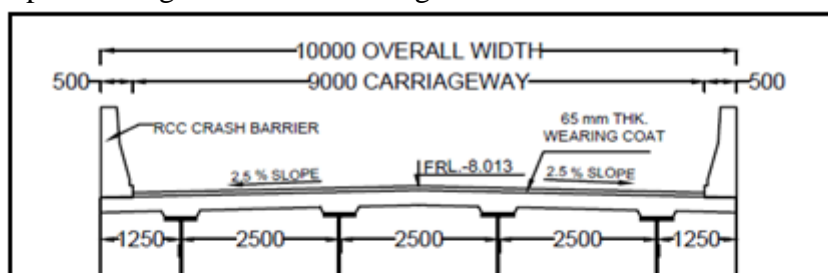
2.9.2 In the case of grade separated structures, the type of structure and the level of the Project Highway and the cross roads shall be as follows: [Refer to the Manual ((IRC- SP - 73:2018) in the design standards of Schedule 'D' and specify the type of vehicular under pass/ overpass structure and whether the cross road is to be carried at the existing level, raised or lowered]

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

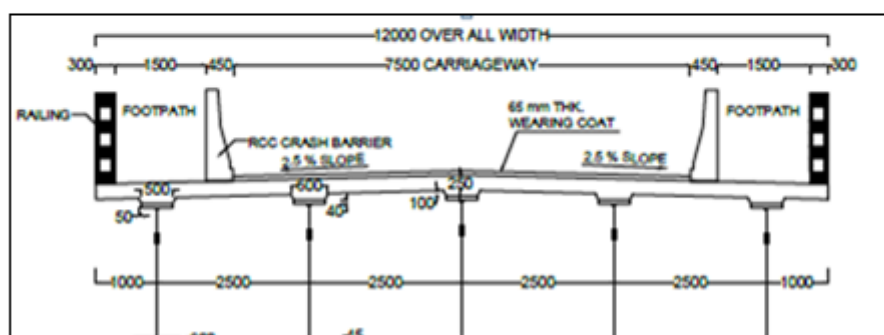
2.10 Cattle and pedestrian Underpass /Overpass :- NIL

2.11 Typical cross-sections of the project bridges:-

With reference to MoRT&H circular No. RW/NH/33044/2/88-S&R(B) dated 21.10.2009, the proposed bridge cross-sections is given below.



**Cross section for Minor bridges at Km 88+300 and Km 92+100**

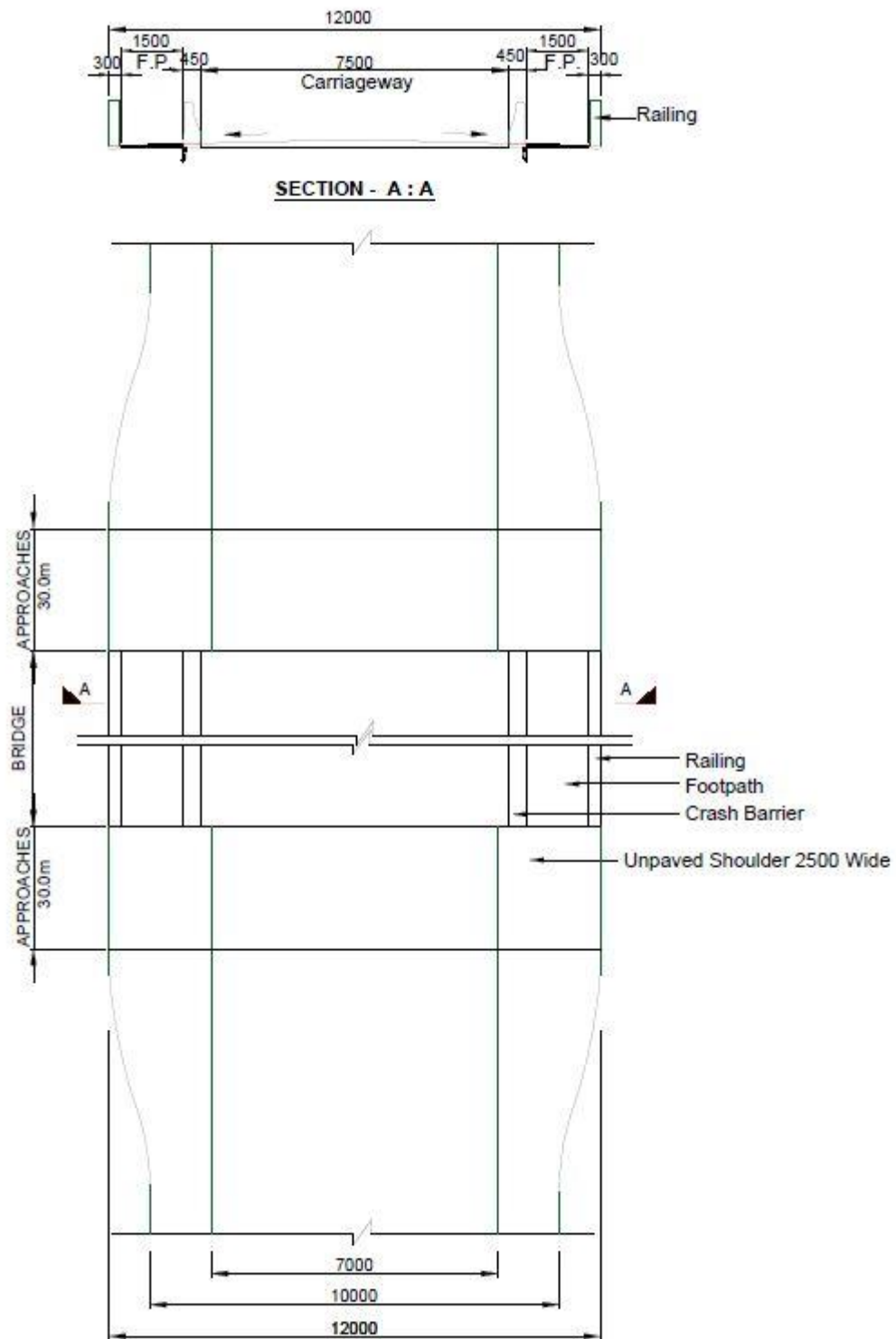


**Cross section for Minor bridges at Km 21+717 and Km 23+155**

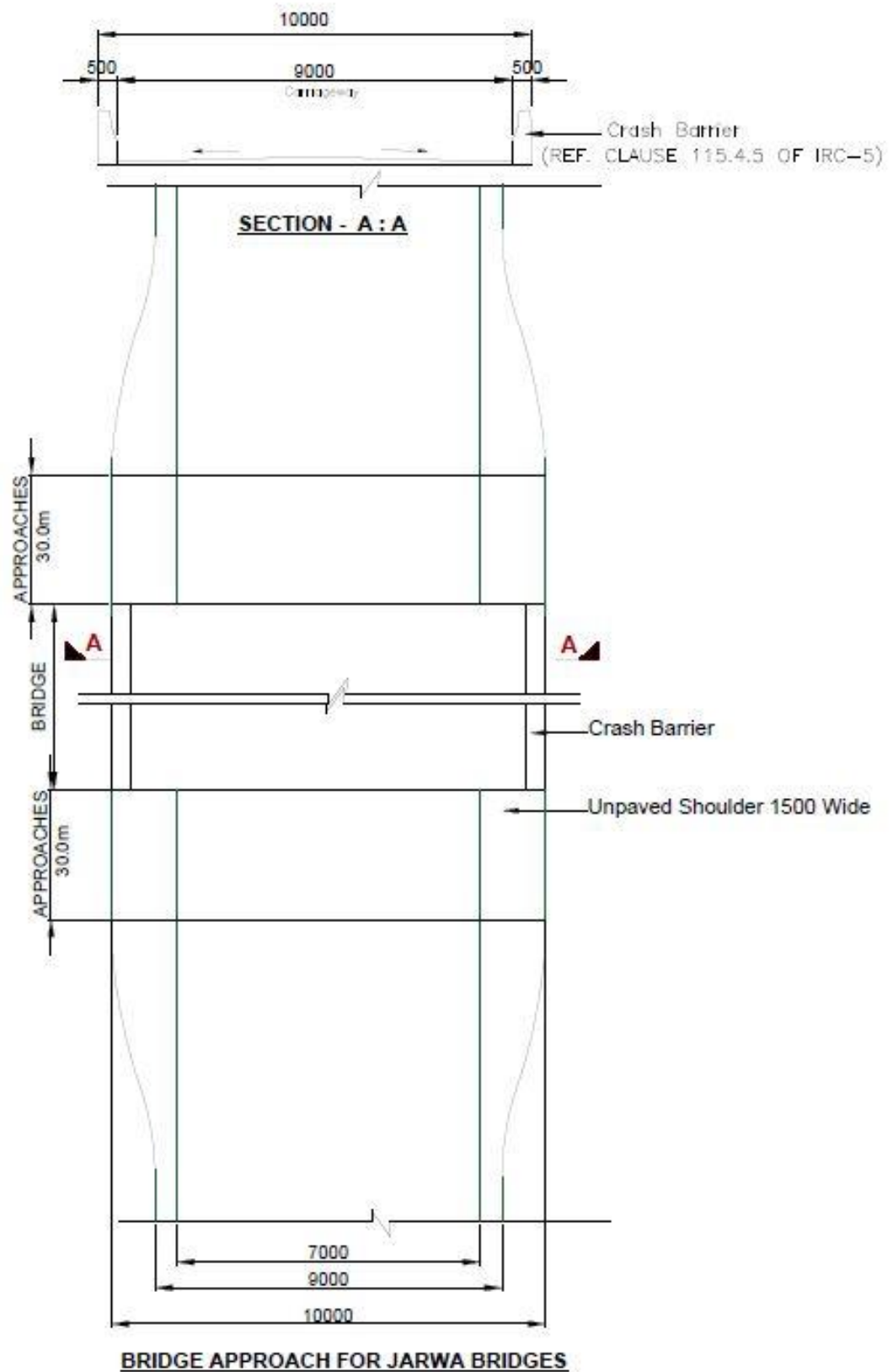
### Bridge approaches

Bridge location (Km)	Approach start (Km)	Approach end (Km)	Approach start (Km)	Approach end (Km)	Total length (m)
21+717	21+610	21+702	21+732	21+830	190
23+155	23+000	23+140	23+170	23+290	160

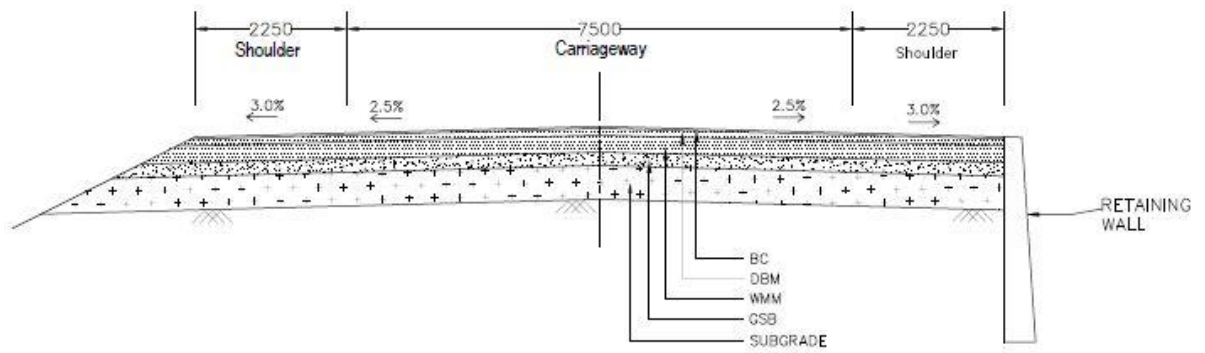
88+300	88+200	88+280	88+320	88+400	160
92+100	91+993	92+080	92+120	92+208	175



**BRIDGE APPROACH FOR JODA KILAN & SIPPY GHAT BRIDGES**

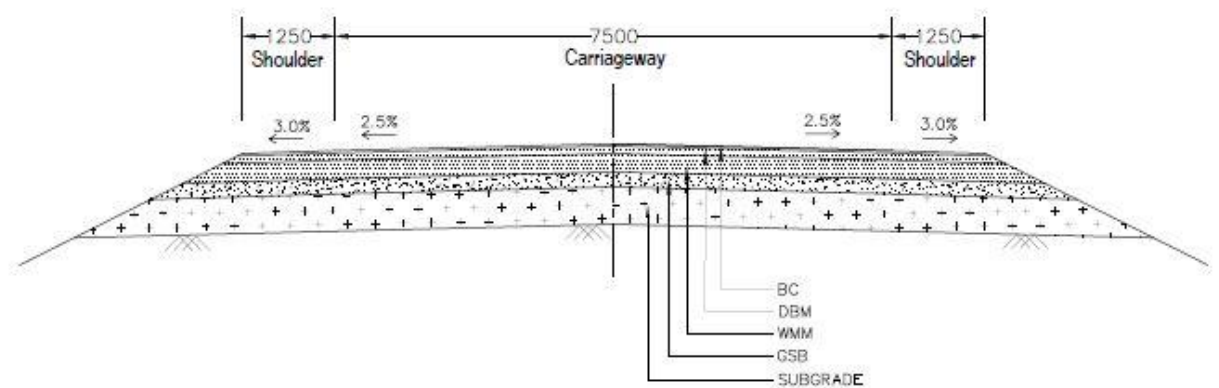






TYPICAL CROSS SECTION OF ROAD AT APPROACH

CROSS SECTION FOR MINOR BRIDGE AT KM 21+717 AND KM 23+155



TYPICAL CROSS SECTION OF ROAD AT APPROACH

CROSS SECTION FOR MINOR BRIDGE AT KM 88+300 AND KM 92+100

**NOTE :**

- 1) The Cross Section for approach road are only for 30m length both side of the minor Bridge and does not involve the tapering portion.
- 2) Superelevation shall be Calculated as per the Horizontal Geometrics Detail.

**3 INTERSECTIONS AND GRADE SEPARATORS**

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

**(a) At-grade intersections**

1. Major Junction –NIL
2. Minor Junction – NIL

**(b) Grade Separators - NIL**

**4 ROAD EMBANKMENT AND CUT SECTION**

- 4.1** Reconstruction and up-gradation 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.

## **5 PAVEMENT DESIGN**

- 5.1** The pavement composition has been considered for 7% CBR and 20 MSA traffic as per IRC:37-2018. The crust thickness for bridge approaches is given below:

<b>Crust thickness for bridge approaches</b>	
BC (mm)	30
DBM (mm)	100
WMM (mm)	250
GSB (mm)	200

### **5.2 Type of pavement :-**

Flexible Pavement shall be constructed in approach roads and rigid at structure locations.

### **5.3 Design requirements**

#### **5.3.1 Design Period and Strategy**

Flexible pavement at approach roads shall be constructed for New Pavements or Reconstruction of the existing road. Pavement shall be designed for a minimum design period of 20 years and minimum CBR of sub-grade should be 7%. Stage construction shall not be permitted.

#### **5.3.2 Design Traffic**

The traffic considered for design of pavement is 20MSA.

## **6.0 DESIGN OF STRUCTURES**

### **6.1 General**

- 6.1.1** All bridges shall be designed and constructed in accordance with Manual and shall confirm to the cross-sectional features and other details specified therein.

- 6.1.2** (a) Width of the carriageway of New / Re - Constructed Minor Bridges shall be as follows:

S. No.	Approach start From (Km)	Approach end at (Km)	Length (m)	Carriageway Width(m)	Type of pavement for approaches	Type of pavement for structures
1	21+610	21+830	220	7.5 + 1.5 footpath both sides	Flexible	Rigid
2	23+000	23+290	290	7.5 + 1.5 footpath both sides	Flexible	Rigid
3	88+200	88+400	200	9.0	BT	
4	91+993	92+208	215	9.0	BT	

#### **6.2.1 Culverts - NIL**

#### **6.2.2 Reconstruction of existing culverts: NIL**

##### **A) Box Culvert/ Slab Culvert / Arch Bridge: NIL**

##### **B) Reconstruction of Existing Pipe Culvert Culverts : NIL**

#### **6.2.3 Widening of Existing Culverts : NIL**

##### **(a) HPC for Major Junction – NIL**

##### **(b) Misc provision of CD works: - NIL**

##### **(c) Box Culvert – NIL**

##### **(d) Canal Slab – NIL**

**6.2.4** Repairs/replacements of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as per the manual.

**6.2.5** Floor protection works shall be provided as specified in the relevant IRC Codes and Specifications.

## 6.3 Bridges

### 6.3.1 Existing Minor bridges to be re-constructed : 2 nos

- (i) The existing bridges at the following locations shall be re-constructed: [Refer to the Manual ((IRC- SP - 73:2018) prescribed in the design standards of Schedule 'D']

S. No	Bridge location (Existing), Km	Bridge location (Design), Km	Ex. Bridge and Span Arrangement	Proposed Bridge and Span Arrangement
1	21+742 (Jodi Kilan)	21+717	Bailey 1 x 25	Composite Steel structure with modular superstructure 1x30
2	23+160 (Shippighat)	21+155	Bailey 1 x 25	Composite Steel structure with modular superstructure 1x30

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

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

### 6.3.2 Additional new minor bridges: 2 nos

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

S. No	Bridge location (Existing), Km	Bridge location (Design), Km	Ex. Bridge and Span Arrangement	Proposed Bridge and Span Arrangement
1	88+300 (Jarwa I (A))	88+300	SS/Bailey 1x12 + 1x30.4 + 1x12	Composite Steel structure with modular superstructure 1x40
2	92+100 (Jarwa I (B))	92+100	SS/Bailey 1x12 + 1x31.4 + 1x12	Composite Steel structure with modular superstructure 1x40

The railings of all existing bridges shall be replaced by crash barriers as per manual.

**6.3.3** Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as per manual.

#### **6.3.4 Drainage System for Bridge Decks:**

An effective drainage system for bridge decks shall be provided as specified the Manual.

#### **6.3.5 Structures in marine environment : - 2 nos minor bridges**

<b>S. No</b>	<b>Bridge location (Existing), Km</b>	<b>Bridge location (Design), Km</b>	<b>Ex. Bridge Type Span Arrangement</b>	<b>Existing span arrangement (no x length (m))</b>	<b>Proposed Bridge and Span Arrangement</b>
<b>1</b>	21+742 (Jodi Kilan)	21+717	2 single lane parallel bridges (i)Bailey (ii) Arch	(iii) 1 x 25 (iv) 12 x 1.25	Composite Steel structure with modular superstructure 1x30
<b>2</b>	23+160 (Shippighat)	23+155	2 single lane parallel bridges (i)Bailey (ii) Arch	(iii) 1 x 25 (iv) 10 x 1.25	Composite Steel structure with modular superstructure 1x30
<b>3</b>	88+300 (Jarwa I (A))	88+300	SS/Bailey	1x12 + 1x30.4 + 1x12	Composite Steel structure with modular superstructure 1x40
<b>4</b>	92+100 (Jarwa I (B))	92+100	SS/Bailey	1x12 + 1x31.4 + 1x12	Composite Steel structure with modular superstructure 1x40

#### **6.3.6 Requirement for the Marine conditions for Bridges & Structures**

All the four bridges falls under marine environment for which special requirements is needed to protect the structures in adverse marine condition. Details are given below:

Requirement for the marine conditions for the Bridges and structures									
S.No.	Bridge Locations and Retaining Structures	Concrete		Reinforcement steel		Painting/Protective Coating			
		Exposure Condition	Code Reference	Exposure Condition	Code Reference	Concrete Surface		Structural Steel in superstructure	
						Type of Painting	Code Reference	Type of Painting	Code Reference
1	21+717	Extreme	(As per IS 456:2000 Table 3 and IRC 112:2019)	Extreme	IRC 112:2019 Clause 18.2.3.2	Anti Corrosive paint	IRC 78:2014 Clause 709.5.3 and IS :14428-1997 for marine/coastal environments	Chlorinated Rubber	Table 1900-3 Sr. No 5 of MORTH Specification 2013 and IS 14428:1997 clause 4.4
2	23+155	Extreme	(As per IS 456:2000 Table 3 and IRC 112:2019)	Extreme	IRC 112:2019 Clause 18.2.3.2	Anti Corrosive paint	IRC 78:2014 Clause 709.5.3 and IS :14428-1997 for marine/coastal environment	Chlorinated Rubber	Table 1900-3 Sr No 5 of MORTH Specification 2013 and IS 14428:1997 clause 4.4
3	88+300	Severe	(As per IS 456:2000 Table 3 and IRC 112:2019)	Severe	IRC 112:2019 Clause 18.2.3.2	Anti Corrosive paint	IRC 78:2014 Clause 709.5.3 and IS :14428-1997 for marine/coastal environment	Chlorinated Rubber	Table 1900-3 Sr No 5 of MORTH Specification 2013 and IS 14428:1997 clause 4.4
4	92+100	Severe	(As per IS 456:2000 Table 3 and IRC 112:2019)	Severe	IRC 112:2019 Clause 18.2.3.2	Anti Corrosive paint	IRC 78:2014 Clause 709.5.3 and IS :14428-1997 for marine/coastal environment	Chlorinated Rubber	Table 1900-3 Sr No 5 of MORTH Specification 2013 and IS 14428:1997 clause 4.4

#### **6.4. ROB (Road Over Bridge):**

ROB shall be constructed at following location:

<b>Sr. No.</b>	<b>Location (km)</b>	<b>Spam Arrangement (m)</b>	<b>Width</b>	<b>Remark</b>
NIL				

#### **6.5 Grade Separated Structures - NIL**

#### **6.6 Repairs and Strengthening of Bridges and Structures**

The existing bridges and structures to be repaired/strengthened, and the nature and extent of repairs /strengthening required are given below [Refer to the Manual (IRC- SP - 73:2018) prescribed in the design standards of Schedule 'D']

A. Bridges: NIL

B. ROB / RUB: - NIL

C. Overpasses/Underpasses and other structures: - NIL

### **7 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS**

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

**7.2** Specifications of the reflective sheeting shall be provided in accordance with Section 9 of the Manual.

**7.3** Details shall be as approved by Authority Engineer.

### **8 ROADSIDE FURNITURE**

**8.1** Roadside furniture shall be provided in accordance with the provisions of Section 9 of the Manual.

Note: All Traffic Signs for Road Users would be provided as per Manual. However the Contractor shall provide minimum numbers of Cautionary, Mandatory, Warning and Informatory Traffic Sign Boards.

## 9 COMPULSORY AFFORESTATION

Landscaping and tree plantation shall be provided as per Manual (IRC- SP - 73:2018) prescribed in the design standards of Schedule 'D' keeping in view IRC: SP-21-2009.

## 10. HAZARDOUS LOCATIONS

Metal beam crash barrier W shaped shall be provided at locations of bridge approaches. Heavy duty metal beam crash barriers shall be provided in 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. Details are as mentioned below:

Sr.no.	Location	Length (m) of crash barrier
1	Minor bridge at Km 21+717	130
2	Minor bridge at Km 23+155	140
3	Minor bridge at Km 88+300	90

## 11. SLOPE PROTECTION

It is important to stabilize the slope for ensuring longevity of the slope and the road. Slope stability shall be accomplished in accordance with IRC:SP:48-1998. Rip rap/rock armour shall be provided (upto HTL) on the face exposed to sea for minor bridges at Km 21+717 and Km 23+155. The quantity and type of retaining wall is given below:

Sr.no.	Location	Length (m) of retaining wall	Type of retaining wall
1	Minor bridge at Km 21+717	130	RCC with Rip rap/Rock armour (upto HTL)
2	Minor bridge at Km 23+155	140	RCC with Rip rap/Rock armour (Upto HTL)
3	Minor bridge at Km 88+300	90	PCC

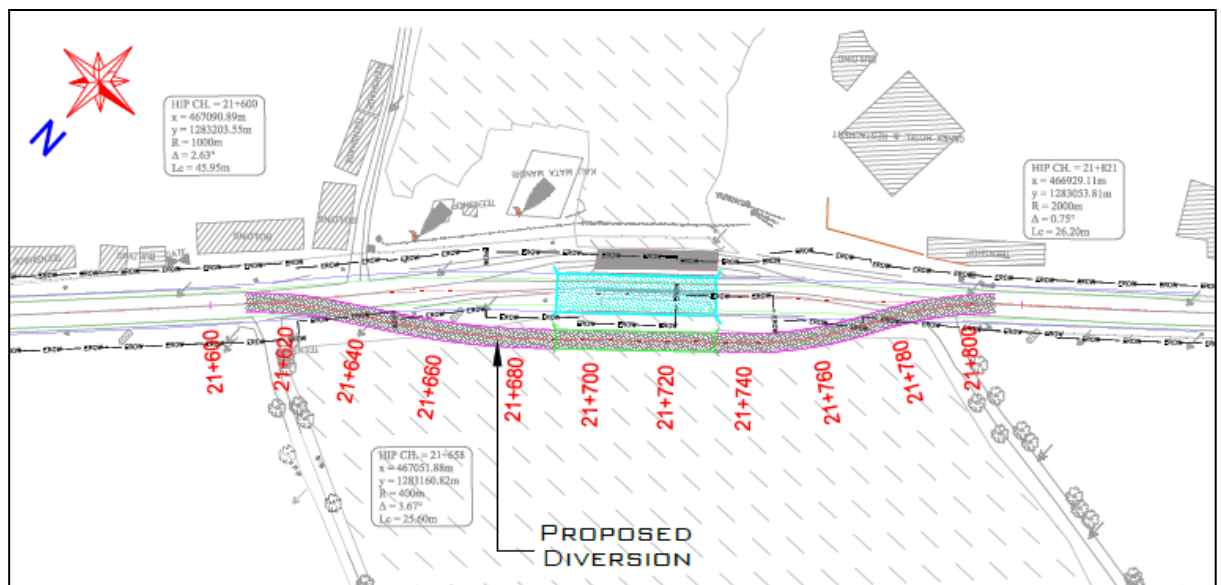


## 12 TEMPORARY DIVERSION

The traffic diversion for minor bridges at Km 21+717 and Km 23+155 is proposed for one way traffic, since the existing arch bridge is of single lane standards which will be used for the traffic coming from the other way.

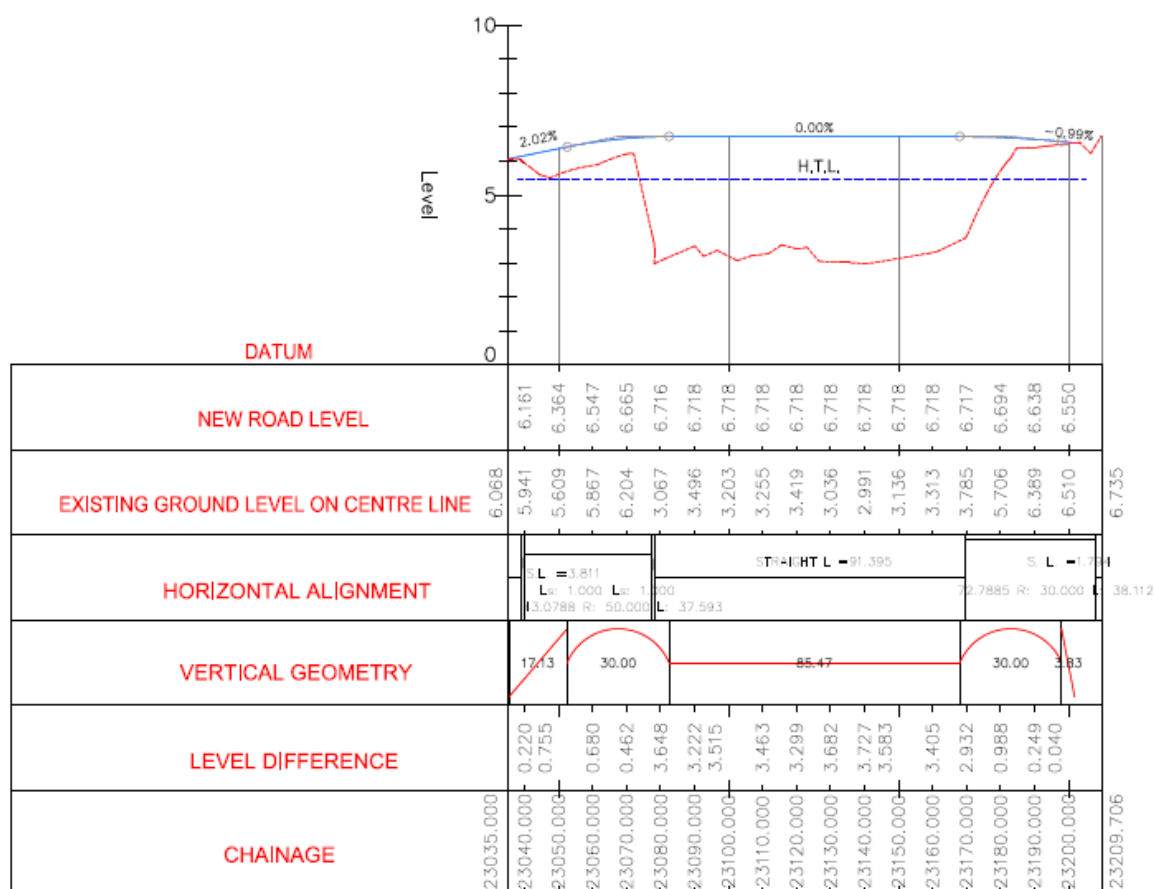
This is a temporary arrangement which shall be dismantled after construction.

Temporary Diversion Details						
Location	Length of temporary structure (m)	Type of temporary structure	Length of approaches (m)	Type of road	Width of temporary diversion	Geometrics
Minor bridge at Km 21+717	109	Two layer of hume pipe of 1.5m diameter	105	WMM	Single lane	As per plan and profile
Minor bridge at Km 23+155	103.05	Two layer of hume pipe of 1.5m diameter	71.65	WMM	Single lane	As per plan and profile



Traffic Diversion Plan for minor bridge at Km 21+717





Profile of Traffic Diversion Plan for minor bridge at Km 23+155.

### 13 CHANGE OF SCOPE

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

SCHEDULE - C  
(See Clause 2.1)

**PROJECT FACILITIES**

**1 Project Facilities**

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

- (a) Toll Plaza[s];
- (b) Roadside furniture;
- (c) Pedestrian facilities;
- (d) Landscaping
- (e) Truck lay-byes;
- (f) Bus-bays and bus shelters;
- (g) Rest areas and public utility centers
- (h) Others
  - (i) Highway Lighting
  - (ii) Highway Patrol
  - (iii) Ambulance
  - (iv) Crane Services

**2 Description of Project Facilities**

Each of the Project Facilities is described below:

**a) Toll Plazas: NIL**

**b) Road side Furniture shall be provided as follows: -**

**(i) Traffic Signs and Pavement Markings**

Traffic Signs and Pavement Markings Traffic signs and pavement markings shall include road side signs, overhead signs, curve mounted signs and road marking along the project highway. The locations for these provisions shall be finalised in consultation with Independent Engineer and as per latest IRC Standard.

**(ii) Concrete Crash Barrier / Metal Beam Crash Barrier / Separators (MS railings)**

The minimum length of Concrete Crash Barrier, Metal beam crash barrier, and Separator (M.S. Railings) shall be provided as per Schedule D and for safety of traffic & users.

**(iii) Traffic Safety Devices in Consultation with AE& Latest IRC Standards**

**c) Pedestrian Facilities**

The additional pedestrians' facilities in the form of guard rails, footpath, lighting etc. shall be provided in built-up area and high embankment of structures as per MoRT&H circular No. RW/NH/33044/2/88-S&R (B) dated 21.10.2009

**d) Landscaping and Tree Plantation**

The landscaping and tree plantation shall be provided. The locations for these provisions shall be finalized in consultation with the Independent Engineer.

**e) Truck Lay-byes : NIL**

Sr. no.	Proposed Ch
NIL	

**f) Bus-byes and Bus Shelter : Nil**

**g) Rest Area: Nil**

**h) Others**

**1. Highway Lighting**

Lighting shall be provided at bridges at Km 21+717 and Km 23+155 at the bridge approaches with minimum 40 Lux to be maintained.

**2. Highway Patrol**

Not applicable

**3. Ambulances**

Not applicable

**4. Crane Services**

Not applicable

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 Bridges.

**2. Design Standards**

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

- Manual of Specifications and Standards for two Lanning of Highways (IRC: SP:73-2018), referred to herein as the Manual.
- MoRT&H circular No. RW/NH/33044/2/88-S&R(B) dated 21.10.2009
- Tentative Guidelines for the Design of Flexible Pavement (IRC:37-2018)
- Relevant IRC/BIS specification for the prevention of Corrosion of the structure in the Marine Environment.

Annex - I  
(Schedule-D)

## Specifications and Standards for Construction

### 1 Specifications and Standards

All Materials, works and construction operations shall confirm to the Manual of Specifications and Standards for Four-Lanning of Highways (IRC:SP:73-2018), and Manual of Specifications and Standards for Two-Lanning of Highways (IRC:SP:73-2018), referred to as the Manuals, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

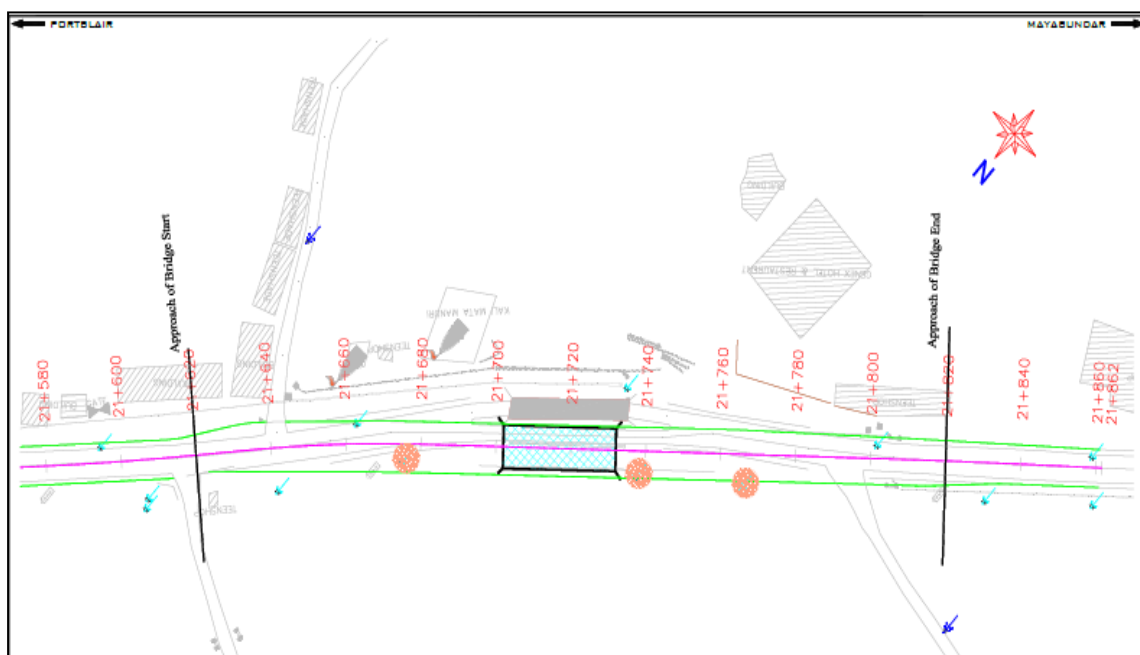
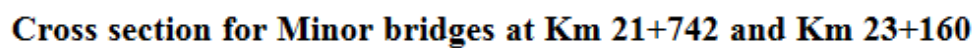
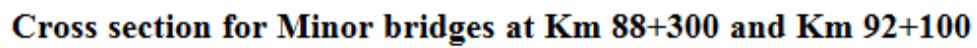
### 2 Deviations from Specifications and Standards

- 2.1 The terms “Concessionaire”, “Independent Engineer” and “Concession Agreement” used in the Manual shall be deemed to be substituted by the terms “Contractor”, “Authority's Engineer” and “Agreement” respectively.
- 2.2 Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent as mentioned below:

*The bridge structures, approaches and tapering with the existing road shall be as per MoRT&H circular No. RW/NH/33044/2/88-S&R(B) dated 21.10.2009*

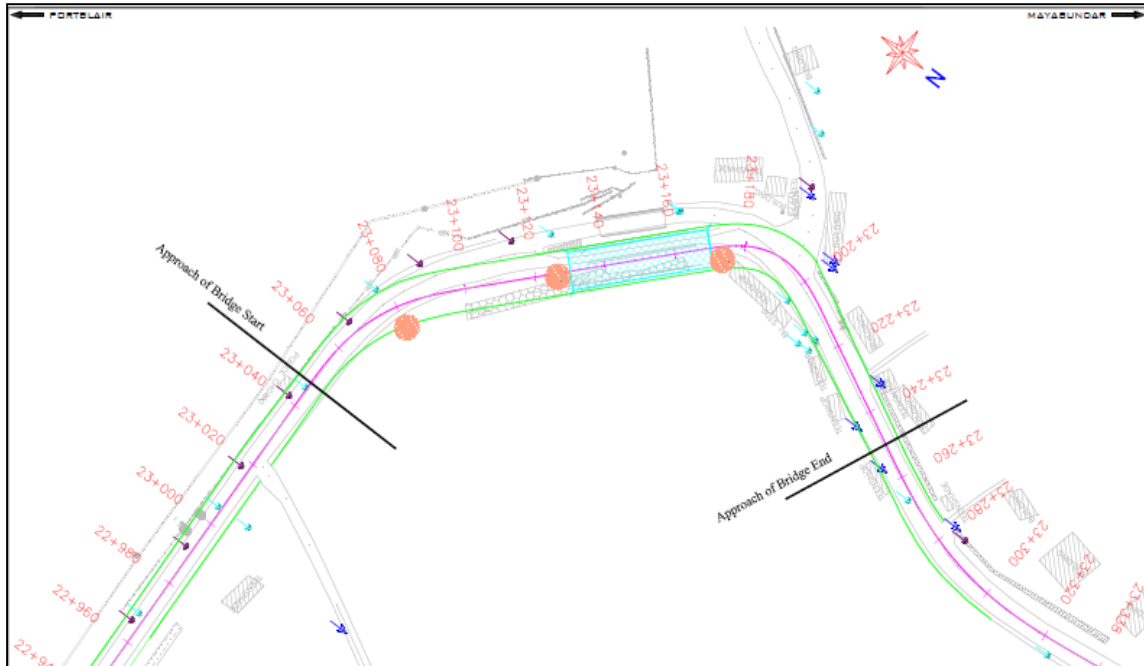
SL. NO.	Clause No. Of manual	Provision as per Manual ( IRC:SP:73-2018)	Deviation
1	CL. 2.2	Design Speed: Ruling or minimum Design speed shall be followed	Deigns speed shall be reduced or best fit to the extent of available land. The same is mentioned in the Plan & Profile drawings given in <b>Annexure-III of Schedule A.</b>
2	CL. 2.9.4	Radius of Horizontal Curves	Radius of Horizontal curves shall be as per the alignment plan shown in Plan & Profile drawings given in <b>Annexure-III of Schedule A.</b>

With reference to MoRT&H circular No. RW/NH/33044/2/88-S&R(B) dated 21.10.2009, the proposed bridge cross-sections is given below.

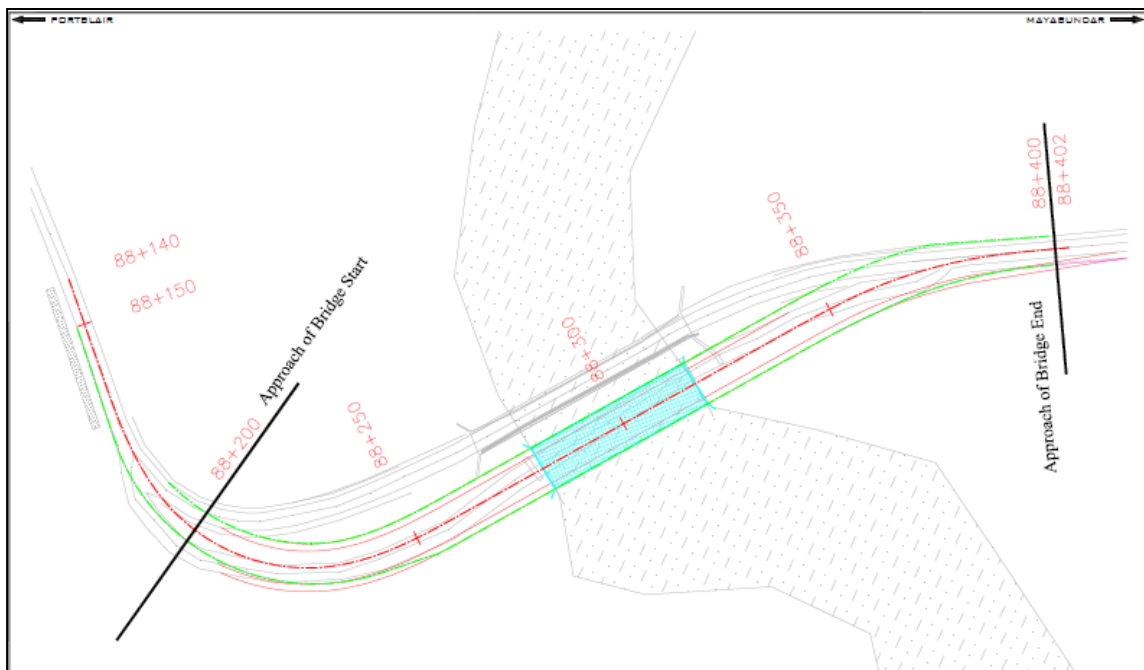




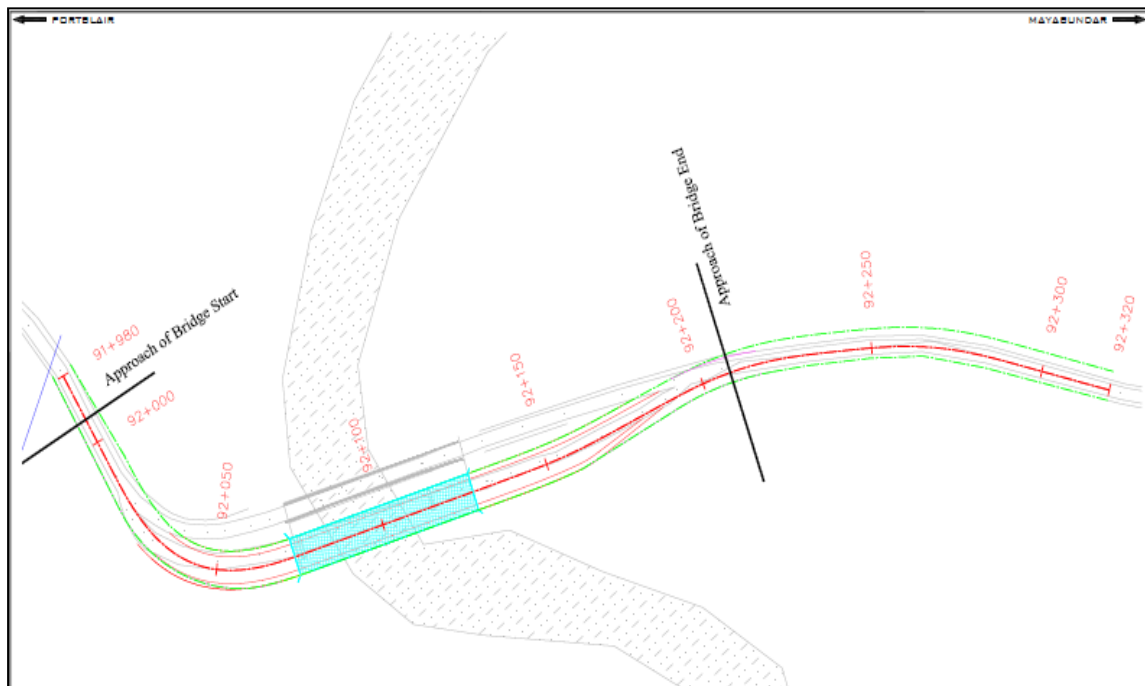
Minor bridge at Km 21+717 (Jodi Kilan)



Minor bridge at Km 23+155 (Shippighat)



Minor bridge at Km 88+300 (Jarwa – IA)



Minor bridge at Km 92+100 (Jarwa IB)

## **SCHEDULE - E**

*(See Clause 2.1 and 14.2)*

### **MAINTENANCE REQUIREMENTS**

#### **1. Maintenance Requirements**

- 1.1. The Contractor shall, at all-time maintain the Project Bridges 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 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 Bridges 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 Bridges 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: SP:35. 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 torrential rains, floods, earthquake or other natural disasters shall be undertaken by the Contractor at its own cost and/or out of the proceeds of insurance.

# 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>1</b>	Landslide protection work on hill side	
(i)	SDA & DT Mesh loose deshaping/Torn/Withheld from original position	7 days
(ii)	Civil work benches & drains/drain pipes & chambers	24 Hour
<b>2</b>	Landslide protection Gallery	
(i)	Over burden and removal of loose earth from top of Gallery structure	02 days
(ii)	Cracks in pavement and joints	03 days
(iii)	Visible minor crack in super structure	05 days
(iv)	Claim/repair of utility duct, drain Metal Crash Barrier & Railing	03 days
<b>3.</b>	Restoration of Irrigation Channel	
(i)	Clearing of chamber and repair of pipe work, clamps, joints and civil works	02 days
(ii)	Repair of steel support structure	07 days
<b>4</b>	Repair of drinking water supply pipe line (PPR Pipe)	24 Hrs
<b>5</b>	River protection work	07 days
<b>6</b>	Cattle fencing, access path to villagers	02 days
<b>7</b>	Instrumentation Monitoring, Restoration/functioning of Instrumentation, including submission of digital reading of each Instruments	05 days

Note:- for Maintenance specification reference is to be made:-

- (i) MoRTH specification 3004:2, 3004:3, 3004:4
- (ii) IRC -82 /2015, IRC -81 /2015 & IRC: SP 80/2008

## **Schedule-F**

(See Clause 3.1.5(a))

### **APPLICABLE PERMITS**

#### **1. Applicable Permits**

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) License for use of explosives;
- (d) Permission of the State Government for drawing water from river/reservoir;
- (e) License 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, clearances or approvals required under Applicable Laws.

- 1.2 Applicable permits, as required, relating to environmental protection and conservation shall have been produced by the Authority in accordance with the provisions of this Agreement

## **Schedule-G**

(See Clause 7.1.1, 7.5.3 and 19.2)

### **FORM OF BANK GUARANTEE**

#### **Annex-I**

(See Clause 7.1.1)

#### **PERFORMANCE SECURITY**

The Managing Director, NHIDCL,  
3<sup>rd</sup> Floor, PTI Building, Sansad Marg,  
New Delhi

#### **WHEREAS:**

- (A) \_\_\_\_\_ [name and address of contractor] (hereinafter called “the Contractor”) and [National Highways and Infrastructure Development Corporation Limited], (“the Authority”) have entered “Construction of 4 (Four) Minor Bridges at km 21.717 , km 23.150 , km 88.300 & km 92.100 on NH-4 in the Union Territory of Andaman & Nicobar Islands on EPC basis (2<sup>nd</sup> Call)”
- (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 and Defects Liability Period and maintenance period (as defined in the Agreement) in a sum of Rs. .... Crore (Rupees .... Crore) (the “Guarantee Amount”).
- (C) We, ..... through our branch at ..... (the “Bank”) have agreed to furnish this bank guarantee (hereinafter called the “Guarantee”) by way of Performance Security.

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



1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during and 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 [Executive Director, NHIDCL], 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 difference 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 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 performance security shall cease to be in force and effect upto 90 days after the end of the Defects Liability Period as set forth in Clause 17.1 of EPC 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 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 authorized 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 para 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This guarantee shall also be operable 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 there under claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

13. Intimation regarding issuance of this Bank Guarantee shall be sent to Authority's Bank through SFMS gateway as per the details below:

14.

S.No.	Particulars	Details
1	Name of Beneficiary	National Highways & 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.

**Annex-II**  
**(Schedule-G)**  
**(See Clause 19.2)**

**Form for Guarantee for Advance Payment**

The Managing Director,  
NHIDCL,  
3<sup>rd</sup> Floor, PTI Building, Sansad Marg,  
New Delhi

**WHEREAS:**

- (A) [Name and address of contractor] (hereinafter called “the Contractor”) has executed an agreement (hereinafter called the “Agreement”) with the [National Highways and Infrastructure Development Corporation Limited, Government of India], (hereinafter called “the Authority”) for the “Construction of 4 (Four) Minor Bridges at km 21.717 , km 23.150 , km 88.300 & km 92.100 on NH-4 in the Union Territory of Andaman & Nicobar Islands on EPC basis (2<sup>nd</sup> Call)” through Engineering, Procurement & Construction (EPC) Basis Contract”, 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 Advance Payment (hereinafter called “Advance Payment”) equal to 10% (ten per cent) of the contract price for mobilization expenses and acquisition of equipment; and that the Advance Payment shall be made in two installments subjects to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equal to the amount of each 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; and the amount of (first/second) installments of the Advance payments is Rs. \*\*\*\*\* crore) (the “Guarantee Amount”).
- (C) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor Advance Payment (hereinafter called “Advance Payment”) equal to 10% (ten per cent) of the contract price for mobilization expenses and acquisition of equipment; and that the Advance Payment shall be made in two installments subjects to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equal to the amount of each 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; and the amount of (first/second) installments of the Advance payments is Rs. \*\*\*\*\* crore) (the “Guarantee Amount”).

- (D) We, ..... through our branch at ..... (the “Bank”) have agreed to furnish this bank guarantee (hereinafter called the “Guarantee”) for the Guarantee Amount.

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid installment 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 [Executive Director in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the installment 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

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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 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 90 (ninety) days after the end of the one year from the date of payment of the installment of the Advance Payment, as set forth in Clause 19.2 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 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 authorized 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 para 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. Notwithstanding anything contained herein before, our liability under this Bank Guarantee is restricted to Rs. \_\_\_\_\_ (Rs. \_\_\_\_\_ in words) and the guarantee shall remain valid till \_\_\_\_\_. Unless a

claim or a demand in writing is served upon us on or before \_\_\_\_\_ all our liability under this Bank Guarantee shall cease.

13. This guarantee shall also be operable 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 there under claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

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)

1. The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
2. 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
3. Bank Guarantee has been sent to authority's bank through SFMS gateway as per the details below: -

S. No	Particulars	Details
1	Name of Beneficiary	National Highways & 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, 1st Parliament Street, New Delhi-110001



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

**Form for Guarantee for Advance Payment**

The Managing Director,  
NHIDCL,  
3<sup>rd</sup> Floor, PTI Building, Sansad Marg,  
New Delhi

WHEREAS:

- (A) [Name and address of contractor] (hereinafter called “**the Contractor**”) has executed an agreement (hereinafter called the “**Agreement**”) with the [National Highways and Infrastructure Corporation Limited, Government of India], (hereinafter called “**the Authority**”) for the “**Construction of 4 (Four) Minor Bridges at km 21.717 , km 23.150 , km 88.300 & km 92.100 on NH-4 in the Union Territory of Andaman & Nicobar Islands on EPC basis(2ndCall)**” through Engineering, Procurement & Construction (EPC) Basis Contract”, 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 Advance Payment (hereinafter called “**Advance Payment**”) equal to 10% (ten per cent) of the contract price for mobilization expenses and acquisition of equipment; and that the Advance Payment shall be made in two installments subjects to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equal to the amount of each 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; and the amount of (first/second) installments of the Advance payments is Rs. \*\*\*\*\* crore) (the “**Guarantee Amount**”).
- (C) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor Advance Payment (hereinafter called “**Advance Payment**”) equal to 10% (ten per cent) of the contract

price for mobilization expenses and acquisition of equipment; and that the Advance Payment shall be made in two installments subjects to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equal to the amount of each 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; and the amount of (first/second) installments of the Advance payments is Rs. \*\*\*\*\* Crore) (the "Guarantee Amount").

(D) We, ..... through our branch at ..... (the "Bank") have agreed to furnish this bank guarantee (hereinafter called the "Guarantee") for the Guarantee Amount.

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid installment 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 [Executive Director in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the installment 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 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 90 (ninety) days after the end of the one year from the date of payment of the installment of the Advance Payment, as set forth in Clause 19.2 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 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 authorized 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 para 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

12. Notwithstanding anything contained herein before, our liability under this Bank Guarantee is restricted to Rs.\_\_\_\_\_ (Rs. \_\_\_\_\_ in words) and the guarantee shall remain valid till \_\_\_\_\_. Unless a claim or a demand in writing is served upon us on or before \_\_\_\_\_ all our liability under this Bank Guarantee shall cease.
13. This guarantee shall also be operable 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 there under claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

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)

- 1 The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
2. 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
3. Bank Guarantee has been sent to authority's bank through SFMS gateway as per the details below: -

S. No	Particulars	Details
1	Name of Beneficiary	National Highways & 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, 1st Parliament Street, New Delhi-110001

## SCHEDULE-H

(See Clause 19.3)

### Contract Price Weightages

- 1.1 The Contract Price for this Agreement is Rs ( ) Civil Cost.
- 1.2 Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below:

Item	Weightage in percentage to the Contract Price		Stage for Payment	% weightage	% Weightage v/s Overall Project
1	2		3	4	5
<b>(A) Reconstruction of Minor Bridges (length &gt;6m and &lt; 60 m)</b>	69.673%	1.	<u>Foundation:</u> On completion of the foundation work including foundations for wing and return walls, abutments, piers	43.195%	30.095%
		2.	<u>Sub-structure:</u> On completion of abutment, piers upto the abutment / pier cap including wing/ return / retaining wall upto top	12.678%	8.833%
		3.	<u>Super-structure:</u> On completion of the super structure in all respect including Girder, Deck Slab, bearings	44.127%	30.744%

<b>(B.) Approach roads</b>	11.362%	4.	<u>Approaches:</u> On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect, tests on completion in all respect and fit for use	27.985%	3.180%
		5.	Other Ancillary works: On completion of wearing coat expansion joints, hand rails, crash barriers, road signs & markings tests on completion in all respect	72.015%	8.182%
<b>(C.) Other Engineering works</b>	18.965%	6.	Road signs, markings, km stones, boundary stones, safety devices etc.		
		a	Traffic sign	3.072%	0.583%
		b	Pavement marking	2.304%	0.437%
		c	Traffic blinker LED Delineator, stud, reflective payment marker, tree reflector	3.072%	0.583%
		d	Road furniture	3.072%	0.583%
		e	Site clearance	3.839%	0.728%
		7.	Road side plantation		
		a	Road side plantation & median plantation	0.000%	0.000%
		b	Safety and traffic management during construction (Diversion)	32.040%	6.077%
		8.	Protection works		
		a	Retaining wall	49.030%	9.299%
		b	Crash Barrier	3.573%	0.678%

### 1.3 Procedure of estimating the value of work done.

#### 1.3.1 Minor bridges including approaches

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

**Table 1.3.1**

	Stage for Payment	Percentage weightage	Payment Procedure
	1	2	3
<b>(A)</b>	<b>Reconstruction of Minor Bridges (length &gt;6m and &lt; 60 m)</b>	<b>69.673%</b>	
<b>1</b>	Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers	43.195%	Payment against foundation shall be made on pro- rata basis on completion of each foundation of each bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
<b>2</b>	Sub-structure: On completion of abutment, piers upto the abutment / pier cap including wing/ return / retaining wall upto top	12.678%	Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of each bridge.
<b>3</b>	Super-structure: On completion of the super structure in all respect including Girder, Deck Slab, bearings	44.127%	Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub- clause. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above



<b>(B)</b>	<b>Approach roads</b>	<b>11.362%</b>	
<b>4</b>	Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect, tests on completion in all respect and fit for use	27.985%	Payment shall be made on pro-rata basis on completion of each a stage i.e. completion of each approach in all respect. Specified in the column of "Stage of Payment" in this sub-clause.
<b>5</b>	Other Ancillary works: On completion of wearing coat expansion joints, hand rails, crash barriers, road signs & markings tests on completion in all respect	72.015%	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified for each bridge.
<b>(C)</b>	<b>Other Engineering works</b>	<b>18.965%</b>	
<b>6</b>	Road signs, markings, km stones, boundary stones, safety devices etc.		
a	Traffic sign	3.072%	Unit of measurement is linear in Kim Payment shall be made on pro rata basis on completion of a stage in a length on not less than 10% (ten percent) of the total length.
b	Pavement marking	2.304%	
c	Traffic blinker LED Delineator, stud, reflective payment marker, tree reflector	3.072%	
d	Road furniture	3.072%	
e	Site clearance	3.839%	
<b>7</b>	Road side plantation		
a	Road side plantation & median plantation	0.000%	
b	Safety and traffic management during construction (Diversion)	32.040%	Unit of measurement is linear length payment shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
<b>8</b>	Protection works		
a	Retaining wall	49.030%	Unit of measurement is linear length. Payment 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.
b	Crash Barrier	3.573%	Unit of measurement is linear length. Payment 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.

### **1.3.2 Major Bridge works**

Procedure for estimating the value of Major Bridge works shall be as stated in table 1.3.2:

**Table 1.3.2**

Stage of Payment	Weightage	Payment Procedure
-NA-		

### **1.3.3 Rail-road bridges**

Procedure for estimating the value of Rail-road bridges works shall be as stated in table 1.3.3:

**Table 1.3.3**

Stage of Payment	Weightage	Payment Procedure
-NA-		

### **1.3.4 Structures –Elevated sections and Reinforced Earth Wall**

Procedure for estimating the value of structure work shall be as stated in table 1.3.3:

**Table 1.3.4**

Stage of payment	Weightage	Payment procedure
-NA-		

## **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 installments 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 in 10.2 of this agreement, the contractor shall furnish to the Authority's Engineer, free of cost, all drawings listed in Annexure-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 Annexure-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 Annexure-I of this Schedule-I

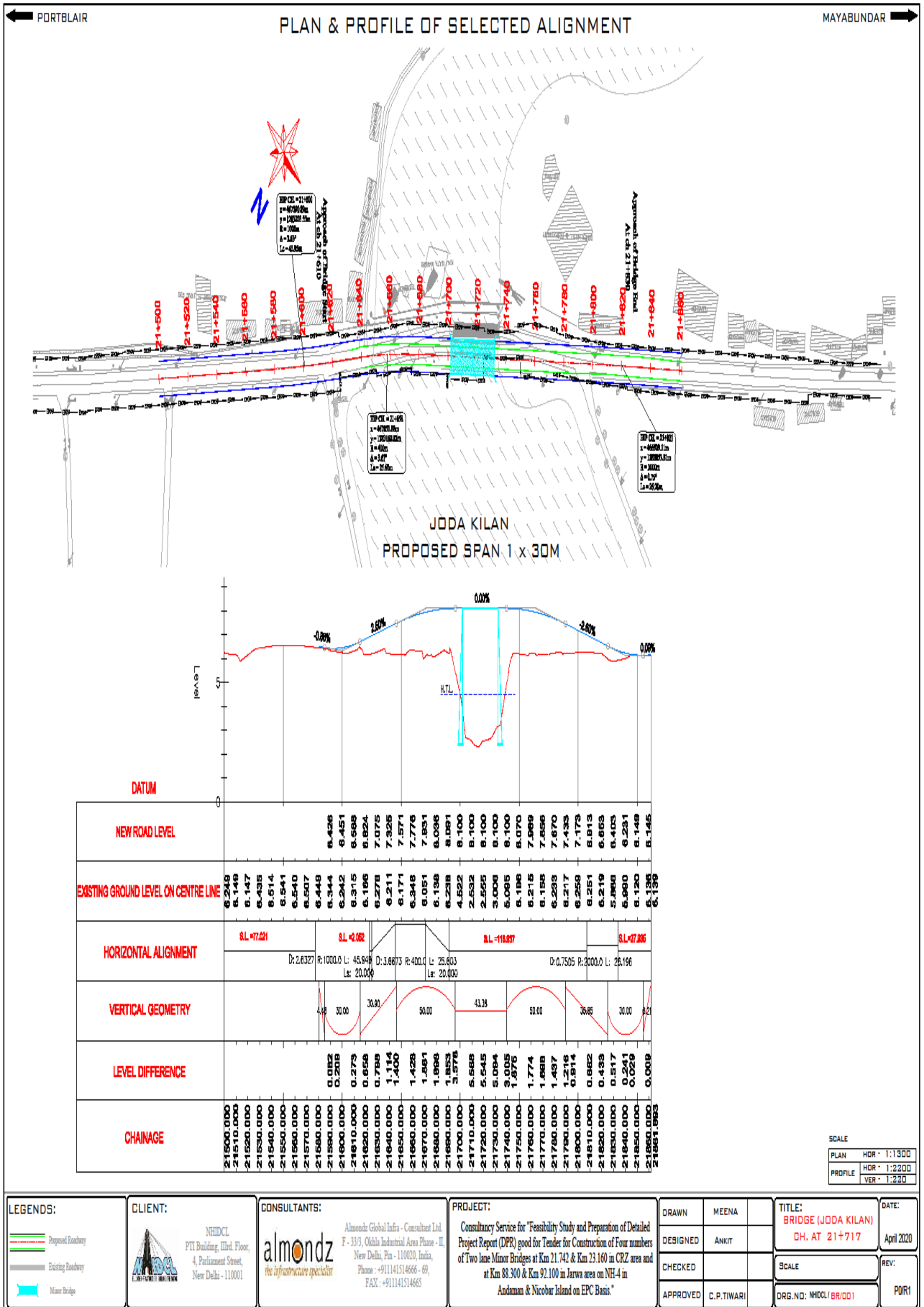
## **Annexure – I – List of Drawings**

*(Schedule – I)*

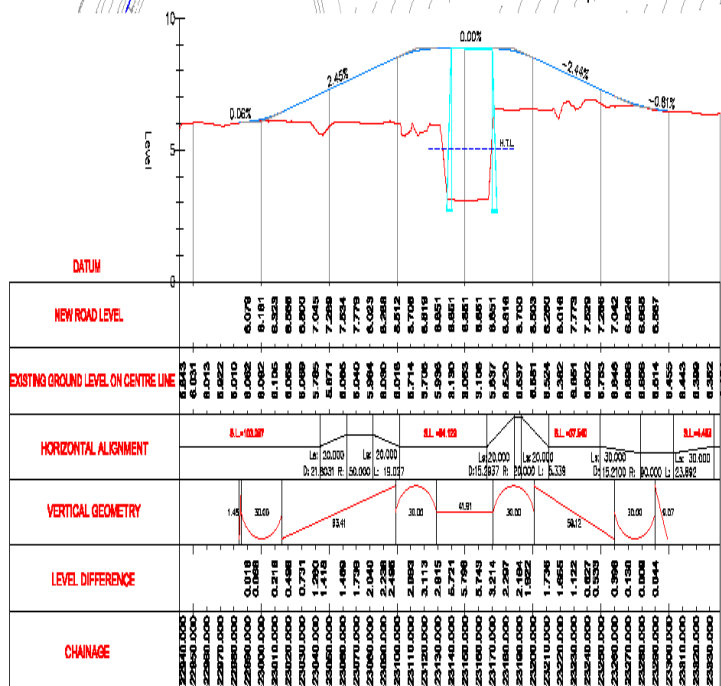
- (a) Working drawings of all components/elements of the project bridges as determined by the Authority's Engineer/NHIDCL, and
- (b) As-built drawings for the project bridges components/elements as determined by the Authority Engineer/NHIDCL. As-built drawings shall be duly certified by Authority Engineer.

A broad list of drawings of the various components/elements of the project bridges and project facilities required to be submitted by the contactor is given below:

- 1.) Plan and Profile
- 2.) General Arrangement drawings (GAD's)



Plan view of the proposed Sippy Ghat bridge showing the new design centreline and previous design centreline. The bridge is a 30m span T-beam bridge. The plan view shows the bridge crossing a river, with the new design centreline (red line) and previous design centreline (blue line) clearly marked. The bridge is flanked by approach roads. A north arrow is shown in the top right corner. Key data points for the new design centreline are provided in a box: HTP Ch. = 23+197,  $x = 465773.99\text{m}$ ,  $y = 1282745.42\text{m}$ ,  $R = 50\text{m}$ ,  $\Delta = 14.14^\circ$ ,  $L_p = 6.94\text{m}$ . Key data points for the previous design centreline are provided in a box: HTP Ch. = 23+197,  $x = 465773.99\text{m}$ ,  $y = 1282745.42\text{m}$ ,  $R = 50\text{m}$ ,  $\Delta = 14.14^\circ$ ,  $L_p = 6.94\text{m}$ . The bridge is labeled "SIPPY GHAT PROPOSED SPAN 1 x 30M". The approach roads are labeled "Approach of Bridge Start At ch. 23+100" and "Approach of Bridge End At 23+200".



SCALE

PLAN	HQR - 1:1300
PROFILE	HQR - 1:2200
	VER - 1:220

Proposed Roadway

Existing Roadway

Minor Bridge



NHIDCL  
PTI Building, 11th Floor,  
4, Parliament Street,  
New Delhi - 110001

almondz  
the infrastructure specialist

Almondz Global Infra - Consultant Ltd.  
F- 33/3, Okhla Industrial Area Phase - II  
New Delhi, Pin - 110020, India,  
Phone : +911141514666 - 69,  
FAX : +911141514665

Consultancy Service for "Feasibility Study and Preparation of Detailed Project Report (DPR) good for Tender for Construction of Four numbers of Two lane Minor Bridges at Km 21.742 & Km 23.160 in CRZ area and at Km 88.300 & Km 92.100 in Jarwa area on NH-4 in Andaman & Nicobar Island on EPC Basis."

DESIGNED	ANKIT
CHECKED	
APPROVED	S. S. TIWARI

BRIDGE (SIPPY GH  
CH. AT 23+155

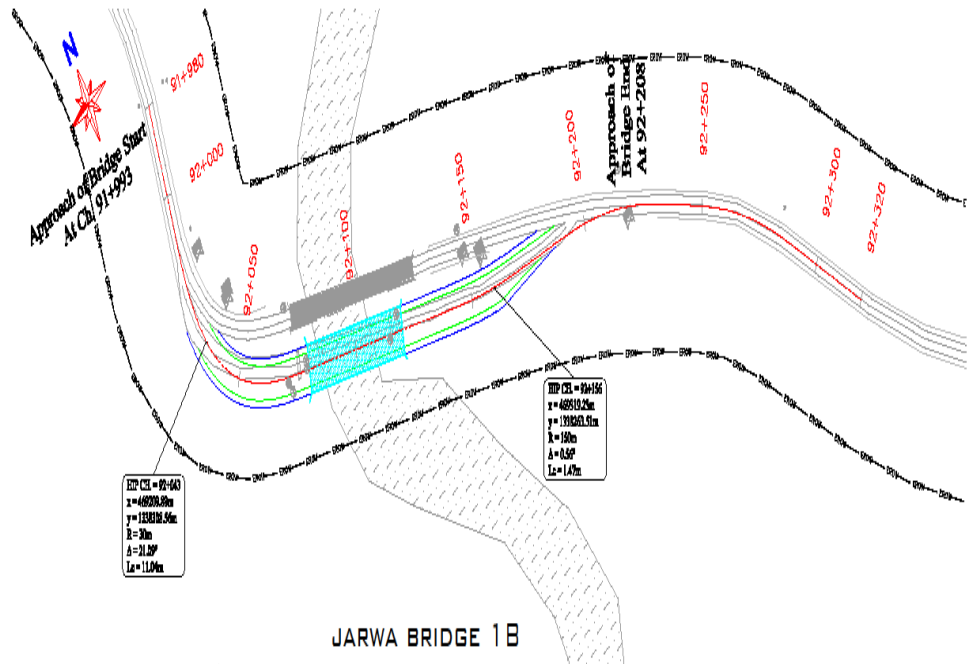
SCALE

DWG. NO: BRIDGE / 88/000

REV:	April 2020
P0/R1	

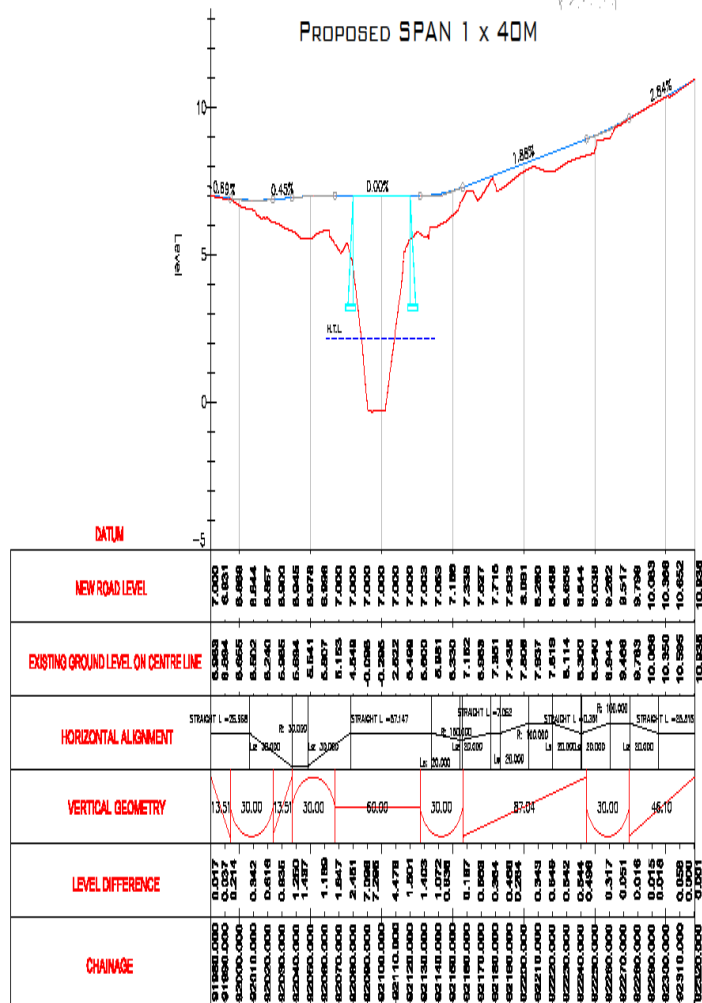


# PLAN & PROFILE OF SELECTED ALIGNMENT



## JARWA BRIDGE 1B

PROPOSED SPAN 1 x 40M



SCALE	
PLAN	HDR : 1:1500
PROFILE	HDR : 1:2200
	VER : 1:220

LEGENDS:

Proposed Roadway  
 Existing Roadway  
 Minor Bridge

CLIENT:

NHIDCL  
PTI Building, 11th Floor,  
4, Parliament Street,  
New Delhi - 110001

CONSULTANTS:

Almondz  
Almondz Global Infra - Consultant Ltd.  
F - 33/3, Okhla Industrial Area Phase - II,  
New Delhi, Pin - 110020, India,  
Phone : +91114514666 - 69,  
FAX : +91114514665

PROJECT:

Consultancy Service for "Feasibility Study and Preparation of Detailed Project Report (DPR) good for Tender for Construction of Four numbers of Two lane Minor Bridges at Km 21.742 & Km 23.160 in CRZ area and at Km 88.300 & Km 92.100 in Jarwa area on NH-4 in Andaman & Nicobar Island on EPC Basis."

DRAWN

MEENA

TITLE:

JARWA BRIDGE 1B

DATE:

April, 2020

DESIGNED

ANKIT

SCALE

REV:

POR1

CHECKED

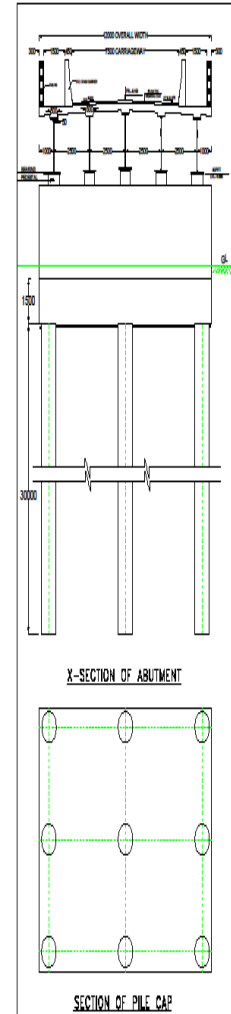
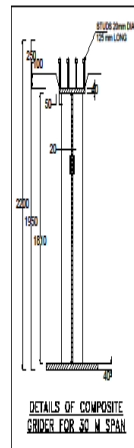
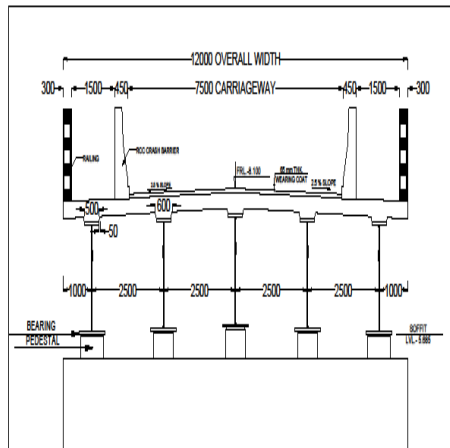
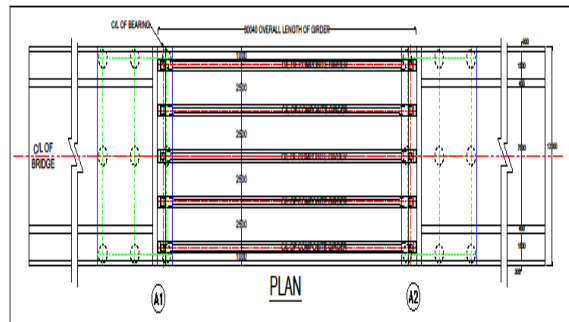
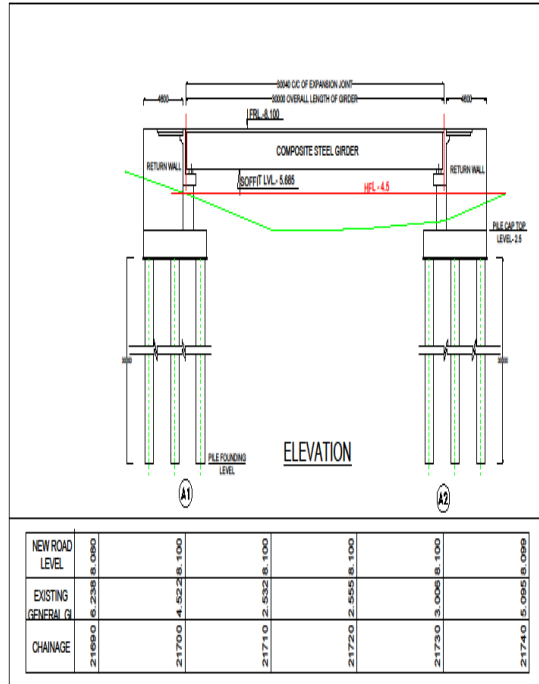
DRG.NO: NHIDCL/BR/004

APPROVED

C.P.TIWARI





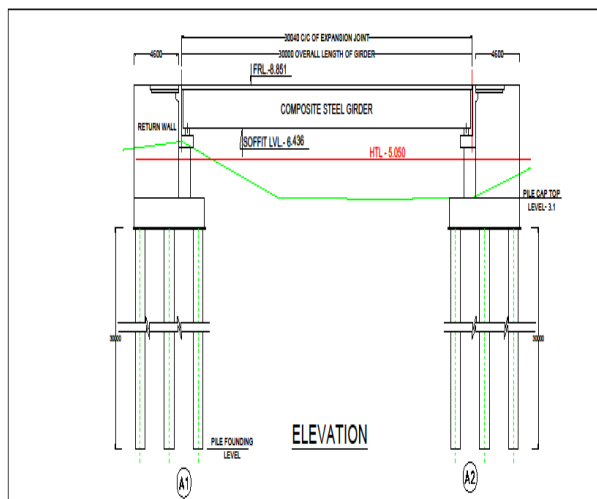
**GAD's**



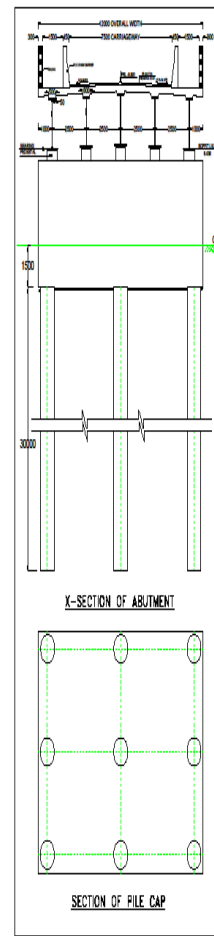
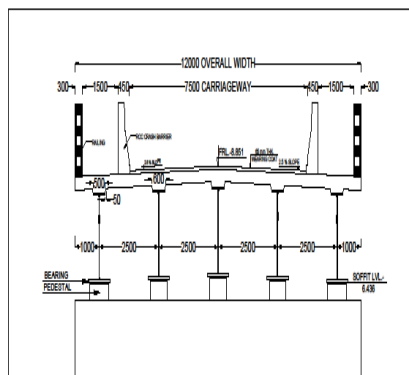
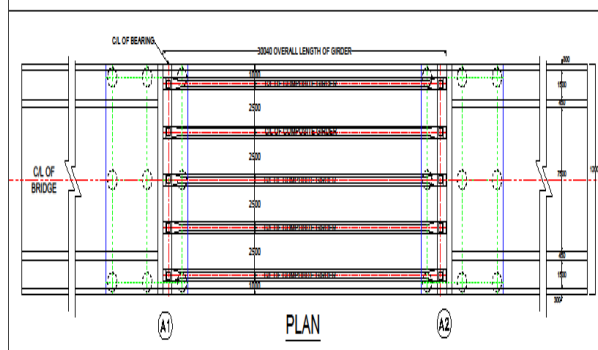
#### NOTES :-

1. TYPE OF BRIDGE - BRIDGE ON BACK WATER
2. LENGTH OF BRIDGE - 30.040 M (1 SPAN @ 1X30 C/C)
3. OVERALL WIDTH - 12 M
4. CLEAR WIDTH - 7.50 M
5. FORMATION LEVEL - R.L. 8.100
6. SOFFIT LEVEL - R.L. 5.685
7. H.F.L. - R.L. 4.50
8. L.W.L. - R.L. 2.532
9. FOUNDATION - PILE FOUNDATION
10. TYPE OF ABUTMENT - R.C.C. WALL TYPE
11. TYPE OF BEARING - POT/PTFE
12. EXPANSION JOINTS - STRIP SEAL EXPANSION JOINT
13. WEARING COAT - R.C.C. WEARING COAT
14. SEISMIC ZONE - III

<b>CLIENT:</b>  NHDC P.T.I. Building, 11th Floor, 4, Parliament Street, New Delhi - 110001	<b>CONSULTANTS:</b>  Almond Global Infra - Consultant Ltd. F-33/3, Okhla Industrial Area Phase - II, New Delhi, Pin - 110020, India, Phone : +911141514666 - 69, FAX : +911141514665	<b>PROJECT:</b> Consultancy Service for "Feasibility Study and Preparation of Detailed Project Report (DPR) good for Tender for Construction of Four numbers of Two lane Minor Bridges at Km 21.742 & Km 23.160 in CRZ area and at Km 88.300 & Km 92.100 in Jarwa area on NH-4 in Andaman & Nicobar Island on EPC Basis."	<b>DRAWN</b> AJAY PANDEY <b>DESIGNED</b> Dr. YOGITA GUPTA <b>CHECKED</b> <b>APPROVED</b> C.P. TIWARI	<b>TITLE:</b> GAD OF RIVER BRIDGE AT CRZ-II (TAKADA KALAN) <b>SCALE</b> ORG. NO: NHDC/	<b>DATE:</b> Feb. 20 <b>REV:</b> P01
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NEW ROAD LEVEL	8.819	8.851	8.851	8.851	8.851	8.851
EXISTING GENERAL GL	5.300	5.983	3.130	3.053	3.108	5.637
CHAINAGE	23120	23130	23140	23150	23160	23170



#### NOTES :-

1. TYPE OF BRIDGE - BRIDGE ON BACK WATER
2. LENGTH OF BRIDGE - 30.040 M (1 SPAN @ 1X30 C/C)
3. OVERALL WIDTH - 12 M
4. CLEAR WIDTH - 7.50 M
5. FORMATION LEVEL - R.L. 8.851
6. SOFFIT LEVEL - R.L. 6.436
7. H.T.L. - R.L. 5.050
8. L.W.L. - R.L. 3.053
9. FOUNDATION - PILE FOUNDATION
10. TYPE OF ABUTMENT - R.C.C. WALL TYPE
11. TYPE OF BEARING - POT PTFE
12. EXPANSION JOINTS - STRIP SEAL EXPANSION JOINT
13. WEARING COAT - R.C.C. WEARING COAT
14. SEISMIC ZONE - III

#### CLIENT:

NHIDCL  
PTI Building, 10th Floor,  
4, Parliament Street,  
New Delhi - 110001

#### CONSULTANTS:

Almondt Global Infra - Consultant Ltd.  
F-333, Okhla Industrial Area Phase-II,  
New Delhi, Pin-110020, India,  
Phone: +91114514666-69,  
FAX: +91114514665

#### PROJECT:

Consultancy Service for "Feasibility Study and Preparation of Detailed Project Report (DPR) good for Tender for Construction of Four numbers of Two lane Minor Bridges at Km 21.742 & Km 23.160 in CRZ area and at Km 28.300 & Km 92.100 in Jarwa area on NH-4 in Andaman & Nicobar Island on EPC Basis."

#### DRAWN

AJAY PANDEY

#### DESIGNED

DR. YOGITA GUPTA

#### CHECKED

G.P. TIWARI

#### APPROVED

G.P. TIWARI

#### TITLE:

GAD OF RIVER BRIDGE AT KM-21.742  
(SUPPLY GEAR)

#### SCALE

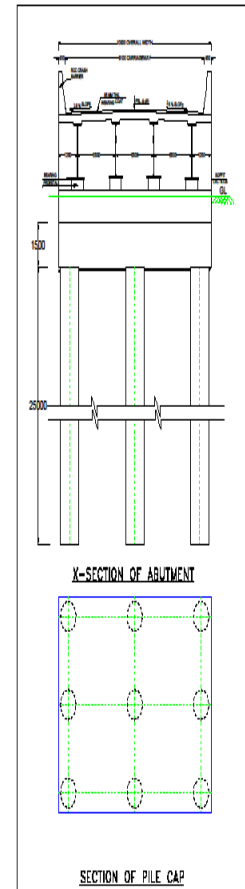
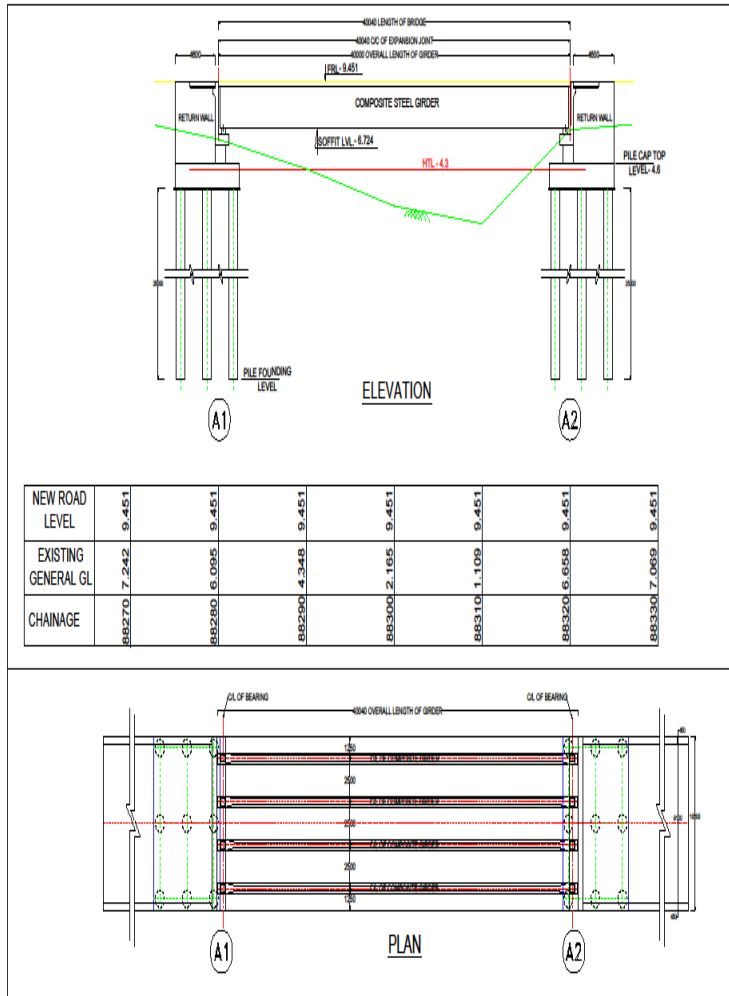
DRG. NO: NHIDCL

#### DATE:

Feb. 20

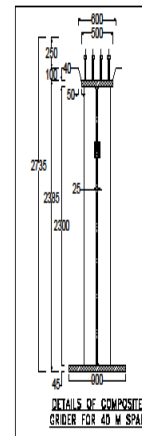
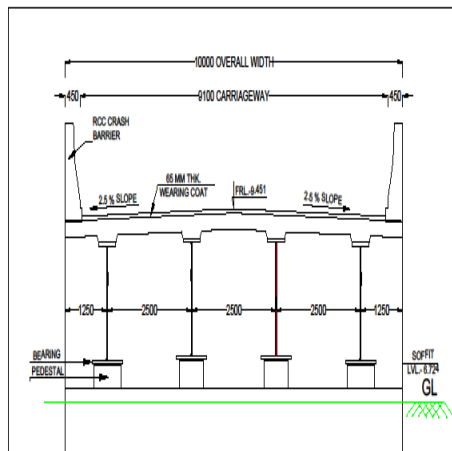
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
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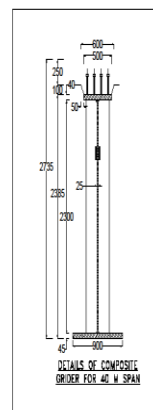
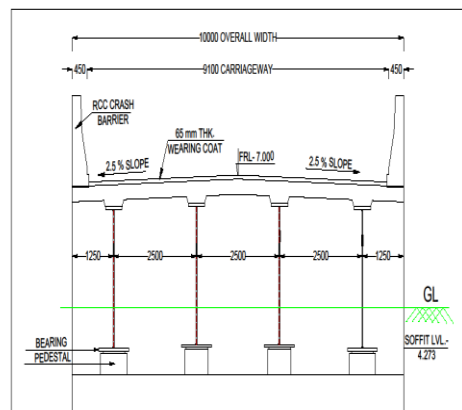
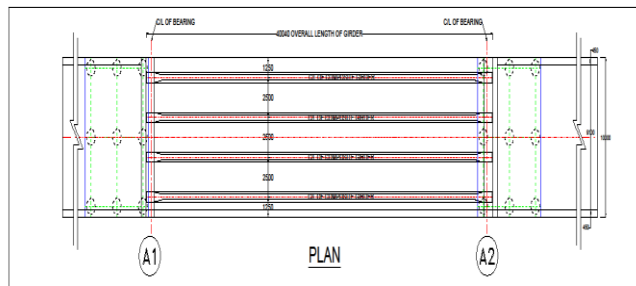
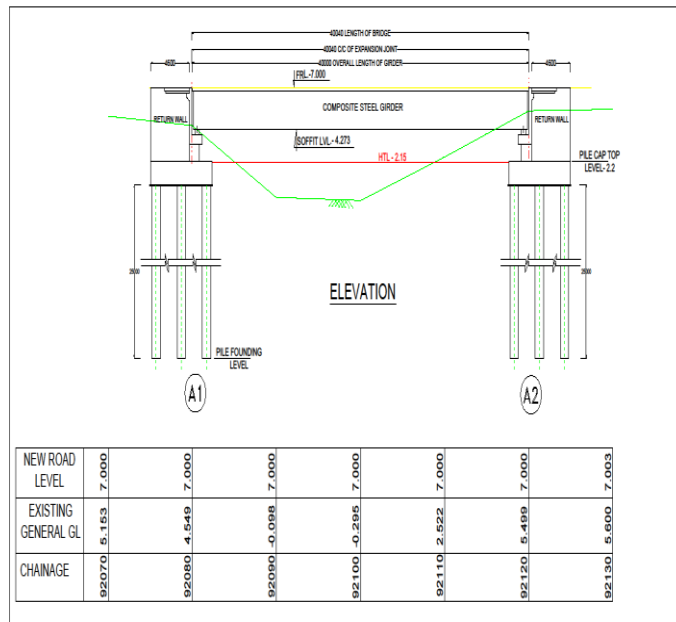


#### NOTES :-

1. TYPE OF BRIDGE - BRIDGE ON BACK WATER
2. LENGTH OF BRIDGE - 40.040 M (1 SPAN @ 1X40 C/C)
3. OVERALL WIDTH - 10 M
4. CLEAR WIDTH - 9.1 M
5. FORMATION LEVEL - R.L. 9.451
6. SOFFIT LEVEL - R.L. 6.724
7. H.T.L. - R.L. 4.3
8. L.W.L. - R.L. 1.109
9. FOUNDATION - PILE FOUNDATION
10. TYPE OF ABUTMENT - R.C.C. WALL TYPE
11. TYPE OF BEARING - POT PTFE
12. EXPANSION JOINTS - STRIP SEAL EXPANSION JOINT
13. WEARING COAT - R.C.C. WEARING COAT
14. SEISMIC ZONE - III





<b>CLIENT:</b>  NHIDCL PTI Building, 11th Floor, 4, Parliament Street, New Delhi - 110001	<b>CONSULTANTS:</b>  Almonds Global Infra - Consultant Ltd. F-33/3, Okhla Industrial Area Phase - II, New Delhi, Pin - 110020, India, Phone: +911141514666 - 09, FAX: +911141514665	<b>PROJECT:</b> Consultancy Service for "Feasibility Study and Preparation of Detailed Project Report (DPR)" good for Tender for Construction of Four numbers of Two lane Minor Bridges at Km 21.742 & Km 23.160 in CRZ area and at Km 88.300 & Km 92.100 in Jarwa area on NH-4 in Andaman & Nicobar Island on EPC Basis.	<b>DRAWN:</b> AJAY PANDEY <b>DESIGNED:</b> DR. YOGITA GUPTA <b>CHECKED:</b> <b>APPROVED:</b> D.P. TIWARI	<b>TITLE:</b> CAD OF BRIDGE AT CH-88+302 <b>SCALE:</b> DRG. NO: NHID/	<b>DATE:</b> Feb. 20 <b>REV:</b> PDR1
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#### NOTES :-

1. TYPE OF BRIDGE - BRIDGE ON BACK WATER
2. LENGTH OF BRIDGE - 40.040 M (1 SPAN @ 1X40 C/C)
3. OVERALL WIDTH - 10 M
4. CLEAR WIDTH - 9.1 M
5. FORMATION LEVEL - R.L. 7.000
6. SOFFIT LEVEL - R.L. 4.273
7. H.F.L. - R.L. 2.15
8. L.W.L. - R.L. -0.295
9. FOUNDATION - PILE FOUNDATION
10. TYPE OF ABUTMENT - R.C.C. WALL TYPE
11. TYPE OF BEARING - POT PTFE
12. EXPANSION JOINTS - STRIP SEAL EXPANSION JOINT
13. WEARING COAT - R.C.C. WEARING COAT
14. SEISMIC ZONE - III

<b>CLIENT:</b>  NHIDCL PTI Building, IIIrd Floor, 4, Parliament Street, New Delhi - 110001	<b>CONSULTANTS:</b>  Almondz Global Infra - Consultant Ltd. F-33/3, Okhla Industrial Area Phase - II, New Delhi, Pin - 110020, India, Phone : +911141514666 - 69, FAX : +911141514665	<b>PROJECT:</b> Consultancy Service for "Feasibility Study and Preparation of Detailed Project Report (DPR) good for Tender for Construction of Four numbers of Two lane Minor Bridges at Km 21.742 & Km 23.160 in CRZ area and at Km 88.300 & Km 92.100 in Jarwa area on NH-4 in Andaman & Nicobar Island on EPC Basis."	<b>DRAWN</b> AJAY PANDEY <b>DESIGNED</b> DR. YOGITA GUPTA <b>CHECKED</b> <b>APPROVED</b> C.P. TIWARI	<b>TITLE:</b> <b>GAD OF BRIDGE AT CH-92+097</b> <b>SCALE</b> DRG. NO: NHIDCL/	<b>DATE:</b> Feb. 20 <b>REV:</b> P0/R1
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*(See Clause 10.3 (ii))*

## 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.

### 2. Project Milestone-I

(i) Project Milestone-I shall occur on the 50<sup>th</sup> day from the Appointed Date (the “**Project Milestone-I**”)

(ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the retaining walls and part of approaches and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 15% (fifteen per cent) of the Contract Price.

### 3. Project Milestone-II

(i) Project Milestone-II shall occur on the date falling on the 95<sup>th</sup> day from the Appointed Date (the “**Project Milestone-II**”)

(ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Bridge approach roads & foundation and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 30% (thirty per cent) of the Contract Price.

### 4. Project Milestone-III

(i) Project Milestone-III shall occur on the date falling on the 135<sup>th</sup> day from the Appointed Date (the “**Project Milestone-III**”)

(ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the foundation and part of substructure and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than

60% (sixty per cent) of the Contract Price

## 5. Project Milestone-IV

- (i) The Scheduled Completion Date shall occur on date falling on the [180<sup>th</sup>] day from the Appointed Date. (the “**Project Milestone-IV**”)
- (ii) Prior to the occurrence of Project Milestone-IV, the Contractor shall have continued with construction of the Bridges (superstructure) and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 100% (Hundred per cent) of the Contract Price

## 6. Scheduled Completion Date

- (i) The Scheduled Completion Date shall occur on the [180<sup>th</sup>] day from the Appointed Date.
- (ii) On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

## 7. 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.

## SCHEDULE-K

(See Clause 12.1.2)

## Tests on Completion

## **1. Schedule for Tests**

- (i) 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 Bridges 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.
- (ii) The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Bridges 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**

- (i) 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: all the tests specified in IRC code, manual and MORTH specifications for the road and Bridge works, 5th revision, 2013.
- (ii) Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a Network Survey Vehicle (NSV) fitted with latest equipments and the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for each kilometer.
- (iii) Tests for bridges: All 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) meters or more shall also be subjected to load testing.
- (iv) 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, except tests as specified in clause 5, but shall include measuring the reflectivity of road markings and road signs; and measuring the illumination level (lux) of lighting using requisite testing equipment.

- (v) Environmental audit: The Authority's Engineer shall carry out a check to determine conformity of the Bridge project with the environmental requirements set forth in Applicable Laws and Applicable Permits.
- (vi) Safety Audit: The Authority's Engineer shall carry out or cause to be carried out, a safety audit to determine conformity of the Project bridges 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)

### COMPLETION CERTIFICATE

I, ..... (Name of the Authority's Engineer), acting as Authority's Engineer, under and in accordance with the Agreement dated ..... (the "Agreement"), for **"Construction of 4 (Four) Minor Bridges at km 21.717 , km 23.150 , km 88.300 & km 92.100 on NH-4 in the Union Territory of Andaman & Nicobar Islands on EPC basis** contract 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 Bridges with the provisions of the Agreement, and I am satisfied that the Project Bridges can be safely and reliably placed in service of the Users thereof.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

## **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 deduction 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**

1 The following percentages shall govern the payment reduction:

Nature of Defect or Deficiency		Percentage
<b>1</b>	Landslide protection work on hill side	
(i)	SDA & DT Mesh loose deshaping/Torn/Withheld from original position	20%
(ii)	Civil work including benches & drains/drain pipes & chambers	20%
<b>2</b>	Landslide protection Gallery	
(i)	Over burdun and removal of loose earth from top of Gallery structure	40%
(ii)	Cracks in pavement and joints	15%
(iii)	Visible minor crack in super structure	5%
(iv)	Claim/repair of utility duct, drain Metal Crash Barrier & hand Railing	20%
<b>3.</b>	Restoration of Irrigation Channel	

(i)	Clearing of chamber and repair of pipe work clamps joints and civil works	45%
(ii)	Repair of steel support structure	25%
4	Repair of drinking water supply pipe line (PPR Pipe)	35%
5	River protection work	10%
6	Cattle fencing, access path to villagers	15%
7	Instrumentation Monitoring, Restoration/functioning of Instrumentation, including submission of digital reading of each Instruments	35%

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

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

Where,

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

M1= Monthly lump-sum payment in accordance para 1.2 above of this Schedule M2= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

L1= Non-complying length L = Total length of

the road, L = Total length of the road,

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

## **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.

Annex - I  
(Schedule - N)

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

**1. Scope**

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 National Highways Infrastructure and Development Corporation Limited (the “**Authority**”) and ..... (the “**Contractor**”) for “**Construction of 4 (Four) Minor Bridges at km 21.717 , km 23.150 , km 88.300 & km 92.100 on NH-4 in the Union Territory of Andaman & Nicobar Islands on EPC basis**, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

(i) The TOR shall apply to construction and maintenance of the Project Bridges.

**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;
- (c) The Termination Payment; or
- (d) issuance of Completion Certificate or
- (e) 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,

#### **4 Construction Period**

4.1.1 During the Construction Period, the Authority's Engineer shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1 (vi). The Authority's Engineer shall complete such review and approval and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended 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 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 Bridges 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 Bridges 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 50 (fifty) 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 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 Bridges, 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 bridges 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 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**

5.1.1 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.

5.1.2 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.

5.1.3 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 bridges are 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.

5.1.4 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.

5.1.5 The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Bridges 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.

## **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.

## **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
  - (iii) 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

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

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

**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 last 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 whatsoever cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

**2 Insurance for Contractor's Defects Liability**

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

**3. Insurance against injury to persons and damage to property**

3.1 The Contractor shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any



physical property (except things insured under Paragraph 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 and occurring before the issue of the Performance Certificate. 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 as per the applicable laws of government and procedure in vogue.

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

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

#### **4. Insurance to be in joint names**

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

## **Schedule-Q**

*(See Clause 14.10)*

### **Tests on Completion of Maintenance Period**

**1. Riding Quality test:**

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

**2. Visual and physical test:**

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

## Schedule-R

*(See Clause 14.10)*

### Taking Over Certificate

I, ..... (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated ..... (the "**Agreement**"), Construction of 4 (Four) Minor Bridges at km 21.717 , km 23.150 , km 88.300 & km 92.100 on NH-4 in the Union Territory of Andaman & Nicobar Islands on EPC basis through .....(Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Bridges with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project bridges from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

