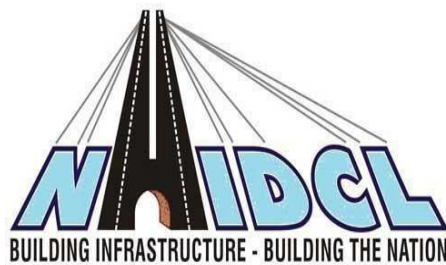


# **Technical Schedules**

**FOR**

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**



**NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**

**(NHIDCL)**

**October 2024**

Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.

TABLE OF CONTENTS	
	SCHEDULES 5
Schedule-A .....	
Site of the Project.....	
1. The Site	6
Annex – I.....	
Site .....	
Nil .....	
Annex – II .....	
Dates for providing Right of Way of Construction Zone .....	
Annex - III.....	
Alignment Plans.....	
Annex – IV .....	
Environment Clearances.....	
Schedule - B .....	
Development of the Project Highway .....	
1. Development of the Project Highway.....	
2. Rehabilitation and augmentation .....	
3. Specifications and Standards.....	
	Annex – I
Description of the Project.....	
Schedule - C.....	
Project Facilities.....	
1. Project Facilities .....	
2. Description of Project Facilities.....	
Schedule - D .....	
Specifications and Standards .....	

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

1.	Construction.....
2.	Design Standards.....

**Annex – I.....**

**Specifications and Standards for Construction .....**

**ATTACHMENT-DI .....**

**TECHNICAL SPECIFICATIONS FOR ROAD & BRIDGE.....**

Schedule - E

**Maintenance Requirements .....**

1.	Maintenance Requirements .....
2.	Repair/rectification of Defects and deficiencies.....
3.	Other Defects and deficiencies .....
4.	Extension of time limit .....
5.	Emergency repairs/restoration.....
6.	Daily inspection by the Contractor.....
7.	Pre-monsoon inspection / post-monsoon inspection.....
8.	Repairs on account of natural calamities.....

Annex -I

Repair/rectification of Defects and deficiencies.....

Table -1: Maintenance Criteria for Pavements.....

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

Schedule - F

Applicable Permits.....

1.	Applicable Permits .....
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**Schedule – G.....**

**Annex-I .....**

**Form of Bank Guarantee.....**

**Form for Guarantee for Advance Payment .....**

Schedule - H

**Contract Price Weightages .....**

**Schedule - I .....**

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

<b>Drawings</b> .....	
1. Drawings .....	
2. Additional Drawings.....	
<b>Annex – I</b> .....	
List of Drawings .....	
<b>Schedule - J</b> .....	
<b>Project Completion Schedule</b> .....	
1. Project Completion Schedule .....	
2. Project Milestone-I.....	
3. Project Milestone-II .....	
4. Project Milestone-III .....	
5. Scheduled Completion Date.....	
6. Extension of time.....	
<b>Schedule - K</b> .....	
<b>Tests on Completion</b> .....	
1. Schedule for Tests.....	
2. Tests .....	
3. Agency for conducting Tests.....	
4. Completion Certificate.....	
<b>Schedule - L</b> .....	
<b>Completion Certificate</b> .....	
<b>Schedule - M</b> .....	
<b>Payment Reduction for Non-Compliance</b> .....	
1. Payment reduction for non-compliance with the Maintenance Requirements .....	
2. Percentage reductions in lump sum payments on monthly basis .....	
<b>Schedule - N</b> .....	
<b>Selection of Authority’s Engineer</b> .....	
1. Selection of Authority’s Engineer .....	
2. Terms of Reference.....	
3. Appointment of Government entity as Authority’s Engineer .....	

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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Terms of Reference for Authority’s Engineer.....	
<b>Schedule - O .....</b>	
<b>Forms of Payment Statements .....</b>	<b>2</b>
1. Stage Payment Statement for Works .....	
2. Monthly Maintenance Payment Statement .....	
3. Contractor’s claim for Damages .....	
	Schedule - P
	Insurance
1. Insurance during Construction Period .....	
2. Insurance for Contractor's Defects Liability .....	
3. Insurance against injury to persons and damage to property.....	
4. Insurance to be in joint names .....	Schedule-Q
<b>Tests on Completion of Maintenance Period .....</b>	
1. Riding Quality test .....	
2. Visual and physical test .....	
<b>Schedule-R .....</b>	
<b>Taking Over Certificate .....</b>	

SCHEDULES

**Schedule-A**

(See Clauses 2.1 and 8.1)

**Site of the Project**

**1. The Site**

- (i) Site of the project highway shall include land, buildings, structures and road works as described in **Annex-I** of this Schedule-A.
- (ii) The dates of handing over the Right of Way to the Contractor are specified in **Annex-II** of this Schedule-A.
- (iii) An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement.
- (iv) The alignment plans of the Project Highway are specified in **Annex-III**.
- (v) The status of the environment clearances obtained or awaited is given in **Annex-IV**.

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Annex – I**  
**(Schedule-A)**  
**Site**

**1. Site**

The site of the project is a green field alignment commencing from km 0+000 (Bargana Village on existing Khellani-Goha-Daranga 3.5 m wide road)) to km 1+125 (on new NH-244) of length 1.125 Km i.e., Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode. The land, carriageway and structures comprising the Site are described below.

**2. Land**

The Site of the Project Highway comprises the land (sum of land already in possession and land to be possessed) as described below:

<b>Sr. No.</b>	<b>Design Chainage (km)</b>		<b>Formation Width (m)</b>	<b>Remarks</b>
	<b>From</b>	<b>To</b>		
1	0	1+125	3-5	As per TCS and site condition

**3. Carriageway- Nil.**

**4. Major Bridges- Nil**

**5. Minor Bridges- Nil**

**6. Road over-bridges (ROB)/ Road under-bridges (RUB) - Nil**

**7. Grade separators- Nil**

**8. Railway level crossings- Nil**

**9. Underpasses (vehicular, non-vehicular)- Nil**

**10. Others**

Nil



**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**Annex – II**

(As per Clause 8.3 (i))

**(Schedule-A)**

**Dates for providing Right of Way of Construction Zone**

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

Sl. No.	From (Km)	To (Km)	Length (Km)	Width (m)	Date of providing Right of Way*
1.	0+000	1+125	1.125	10-12	On appointed date

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

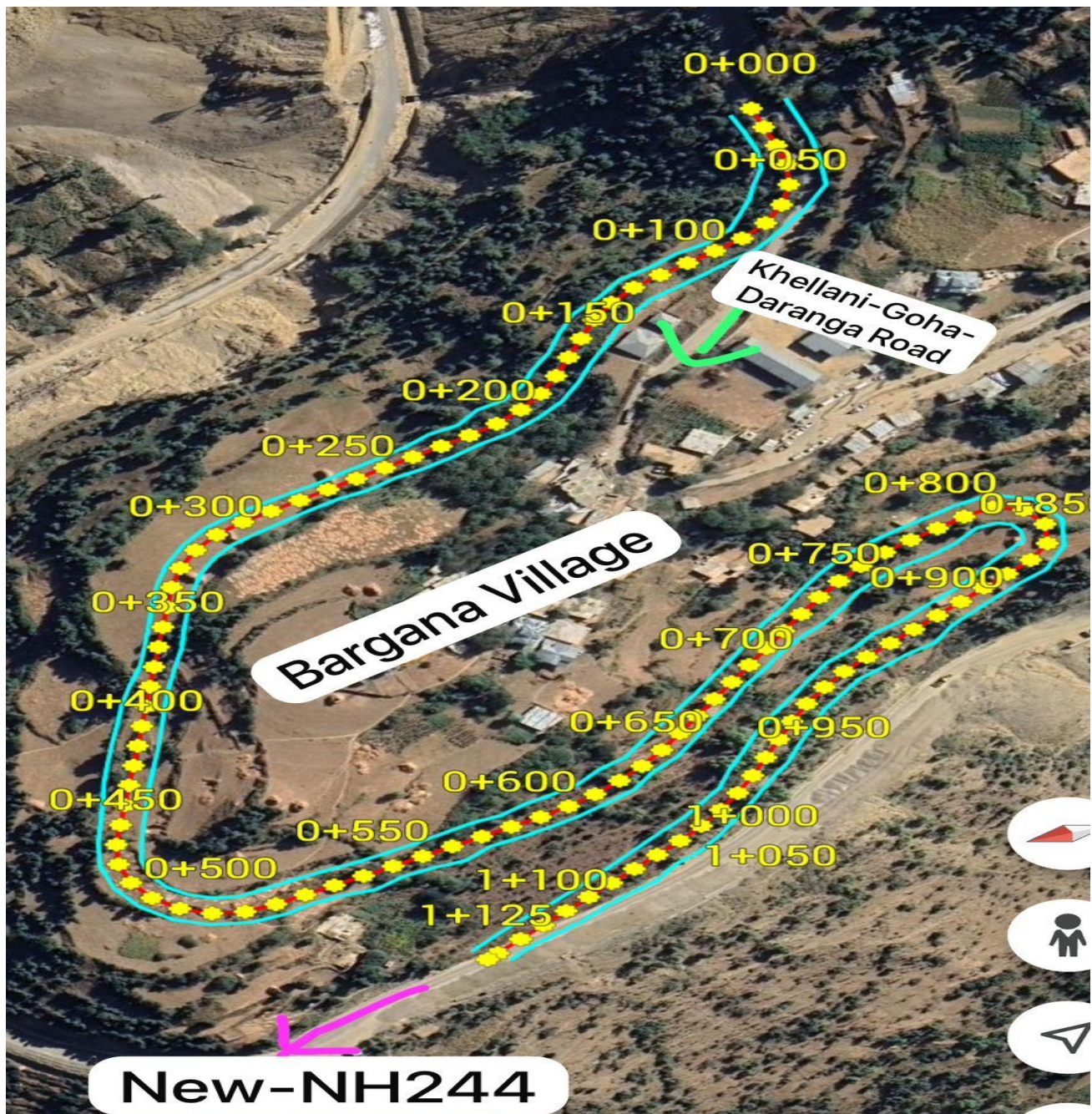
**Annex - III**

(Schedule-A)

**Alignment Plans**

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

- (i) The alignment of the Project Highway is enclosed in alignment plan & indicated below. Finished Road Level indicated in the alignment plan shall be followed by the contractor as minimum FRL. In any case, the finished road level of the project highway shall not be less than those indicated in alignment plan. The contractor shall, however, improve/upgrade the road profile as indicated in Annex-III based on site/design requirement.





**Annex – IV**

(Schedule-A)

**Environment Clearances**

As per EIA notification 2006 and its amendment S.O.2559 (E) Dt 22<sup>nd</sup> August 2013, S.O 996(E) Dt 10<sup>th</sup> April 2015, S.O 382(E) Dt 3<sup>rd</sup> February 2015 Environmental Clearance Exempted from the purview of the Environmental Impact Assessment.

**[To be published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section(ii)]**

**MINISTRY OF ENVIRONMENT AND FORESTS  
NOTIFICATION**

New Delhi, the 22<sup>nd</sup> August, 2013

S.O. 2559 (E).- Whereas by notification of the Government of India in the Ministry of Environment and Forests vide number S.O.1533(E), dated the 14<sup>th</sup> September, 2006 issued under sub-section (1) and clause (v) of sub-section (2) of section (3) of the Environment (Protection) Act, 1986 read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government directed that on and from the date of its publication, the required construction of new projects or activities or the expansion or modernization of existing projects or activities listed in the Schedule to the said notification entailing the capacity addition with change in process or technology and or product mix shall be undertaken in any part of India only after prior environmental clearance from the Central Government or as the case may be, by the State level Environment Impact Assessment Authority, duly constituted by the Central Government under sub-section (3) of section 3 of the said Act, in accordance with the procedure specified therein;

And whereas the Government of India in the Ministry of Environment and Forests had constituted a High Level Committee under the Chairmanship of Member (Environment and Forests and Science and Technology), Planning Commission, vide OM No.21-270/2008-IA.III dated the 11<sup>th</sup> December, 2012 to review the provisions of Environmental Impact Assessment Notification, 2006 relating to granting Environmental Clearances for Roads, Buildings and Special Economic Zone projects and provisions under the OM dated the 7<sup>th</sup> February, 2012 issued by the Ministry of Environment and Forests regarding guidelines for High Rise Buildings;

And whereas one of the terms of reference (ToR) of the Committee was to review the requirement of Environmental Clearance for highway expansion projects upto the right of way of 60 meters and length of 200 kms under Environmental Impact Assessment notification;

And whereas the Committee has submitted its report to the Ministry and on this ToR, the Committee has recommended exempting highway expansion projects from the requirement of scoping and that Environmental Impact Assessment or Environment Management Plan for highway expansion projects may be prepared on the basis of model ToRs to be posted on Ministry's website and in respect of requirement of environmental clearance, the Committee has recommended that expansion of National Highway projects up to 100 kms involving additional right of way or land acquisition upto 40 mts on existing alignments and 60 mts on re-alignments or by-passes may be exempted from the preview of the notification;

**Schedule - B**

(See Clause 2.1)

**Development of the Project Highway**

**1. Development of the Project Highway**

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

**2. Rehabilitation and augmentation**

Rehabilitation and augmentation shall include the works as described in Annex-I of this Schedule-B and in Schedule-C.

**3. Specifications and Standards**

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**Annex – I**

**(Schedule-B)**

**Description of the Project**

Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.

**1. Widening of Existing Highway**

- i. The Project Highway shall follow the new alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A.

SL. No.	Design Chainage (km)		Length (km)	Remarks
	From	To		
1	0	1+125	1.125	Single lane 3.75 m wide road with 1 m Earthen Shoulder on Both Sides

- ii. Width of Carriageway

- (a) Single lane 3.75 m wide road with 1 m Earthen Shoulder on Both Sides shall be undertaken in accordance with the typical cross section's drawings attached along with Schedule B.
- (b) Except as otherwise provided in this agreement, the width of the paved carriageway and cross-sectional features shall confirm to paragraph 1.1 above.

**2. Geometric Design and General Features**

**(i) General**

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

**(ii) Design speed**

The minimum design speed shall be of 30 km/hr. for mountainous/hilly terrain as per IRC: SP-73:2018.

**(iii) Improvement of the existing road geometrics**

In the following sections, where improvement of the existing road geometrics to the prescribed standards.

Sl. No.	Stretch (from km to km)	Type of deficiency	Remarks
Nil			

**(iv) Right of Way**

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

**(v) Type of shoulders**

- (a) 1 m Earthen Shoulder on Both Sides to be provided that shall be covered with 150 mm thick compacted layer of granular material for link road.
- (b) Design and specifications of granular material shall conform to the requirements specified in the relevant Manual.

**(vi) Lateral and vertical clearances at under passes**

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

(a) Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per the provision of relevant Manual.

(b) Lateral clearance: The width of the opening at the underpasses shall be as follows:

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

**(vii) Lateral and vertical clearances at overpasses**

(a) Lateral and vertical clearances at overpasses shall be as per the provision of relevant Manual.

(b) Lateral clearance: The width of the opening at the overpasses shall be as follows:

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

**(viii) Service roads**

Service roads shall be constructed at the locations and for the lengths indicated below:

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

**(ix) Grade separated structures**

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

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

In the case of grade separated structures, the type of structure and the level of the Project Highway and the crossroads shall be as follows:

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

**(x) Cattle and pedestrian underpass/overpass**

Cattle and pedestrian underpass/ overpass shall be constructed as follows:

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

Sl. No.	Location	Type of crossing
Nil		

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

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

TCS Detail	TCS Type	Design Length in m	Remarks
Single lane 3.75 m wide road with 1 m Earthen Shoulder on Both Sides with left side revetment wall/breast wall (Height of Cut< 6m) and right side retaining wall (height upto 6m ), New Construction.	TCS-1	583	The TCS mentioned here are based upon minimum site requirement. The exact assessment may differ as per actual site requirement. Contractor need to assess the same and bid accordingly.
Single lane 3.75 m wide road with 1 m Earthen Shoulder on Both Sides with left side revetment wall/breast wall (Height of Cut< 6m) and right side fill, New Construction.	TCS-2	247	
Single lane 3.75 m wide road with 1 m Earthen Shoulder on Both Sides with right side revetment wall/breast wall (Height of Cut< 3 m) and left side retaining wall (height upto 6m ), New Construction.	TCS-3	20	
Single lane 3.75 m wide road with 1 m Earthen Shoulder on Both Sides with right side revetment wall/breast wall (Height of Cut< 6m) and left side retaining wall (height upto 6m ), New Construction.	TCS-4	275	
Single lane 3.75 m wide road with 1 m Earthen Shoulder on Both Sides with both side revetment wall/breast wall (Height of Cut< 2.5 m), New Construction.	TCS-5		
Single lane 3.75 m wide road with 1 m Earthen Shoulder on Both Sides with left side revetment wall/breast wall (Height of Cut< 2.5 m) and right side retaining wall (height upto 6m ), New Construction.	TCS-6		
Single lane 3.75 m wide road with 1 m Earthen Shoulder on Both Sides with left side revetment wall/breast wall (Height of Cut< 3m) and right side fill, New Construction.	TCS-7		
<b>Total Length in m</b>		<b>1225</b>	

**3. Intersections and Grade Separators**

All intersections and grade separators shall be as per the provision of relevant Manual.

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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(i) At-grade intersections

Sl. No.	Location of intersection	Type of intersection	Other features	Remarks
1	0+000	Y	Minor	To old Goha Khellani Road
2	1+225	Y	Major	To new NH-244



**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

- (ii) Grade separated intersection with/without ramps

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

**4. Road Embankment and Cut Section**

- (i) Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/ cuttings shall conform to the Specifications and Standards given in Section 4 of the Manual and the specified cross sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

- (ii) Raising of the existing road.

The existing road shall be raised in the following sections:

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

**5. Pavement Design**

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

- (ii) Type of pavement

Flexible pavement is proposed for the project highway in accordance with IRC: 37-2018

Layer	Thickness (mm)
BC	30
DBM	55
WMM	250
GSB	200
Subgrade	500
<b>Total Thickness</b>	<b>1035</b>

- (iii) Design requirements

- (a) Design Period and strategy

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

- (b) Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for a minimum design traffic of 10(MSA) million standard axles.

- (c) Contractor has to provide 1 passing point at min 400 m from either side of start and end point of road.

**6. Roadside Drainage**

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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Sr. No.	Design Chainage		Design Length	Roadside Drain Length (m)	Remarks
	From	To	(m)		
1	0	840	840	840	The lengths and chainages mentioned here are an approximate assessment. The exact length and chainages may vary as per actual site condition. Contractor need to assess the same and bid accordingly.
2	840	855	15	30 (B/S)	
3	855	1125	270	270	
TOTAL= 1145 m				1140 m	

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**7. Design of Structures**

(i) General

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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

Sl. No.	Location at km	Span Arrangement No.x Length (m)	Remarks
Nil			

(c) Cross-section of the new culverts in Project Highway shall conform to the typical cross-sections given in the provision of relevant Manual.

**(ii) Culverts**

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

---

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

Sr. No.	Design Chainage in km	Span arrangement (Clear Span x Clear Height) in m	Structure Type	REMARKS
1	0+015	2x2	RCC BOX	The chainages and span mentioned herein are approximate assesment. Exact chainages & span may differ as per actual site requirement. Contractor need to assess the same and bid accordingly.
3	0+450	2x2	RCC BOX	
3	0+920	3x3	RCC BOX	

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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\*Specify modifications, if any, required in the road level, etc.

(b) Widening of existing culverts:

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

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

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

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

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

**(iii) Bridges**

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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

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

Sl. No.	Bridge location (km)	Salient details of existing bridge	Adequacy or otherwise of the existing waterway, vertical clearance, etc.*	Remarks
Nil				

\*Attach GAD

(ii) The following narrow bridges shall be widened:

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

@ Attach cross-section

(b) Additional new bridges

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

**Major Bridge: -Nil**

**Minor Bridge: -Nil**

**Bridge cum Viaduct: - Nil**

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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

Sl. No.	Location at km	Remarks
Nil		

- (d) Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows:

Sl. No.	Location at km	Remarks
Nil		

- (e) Drainage system for bridge decks

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

- (f) Structures in marine environment

Refer to the provision of relevant Manual and specify the necessary measures/ treatments for protecting structures in marine environment, where applicable.

- (iv) Rail-road bridges

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

- (b) Road over-bridges

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

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

- (c) Road under-bridges

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



**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

Sl. No.	Location of Level crossing (Chainage km)	Number and length of span (m)
Nil		

- (v) Grade separated structures

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

- (vi) Repairs and strengthening of bridges and structures

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

- (a) Bridges

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

- (b) ROB /RUB

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

- (c) Overpasses/Underpasses and other structures

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

- (vii) List of Bridges and Structures

Nil

**8. Design of Tunnel**

Nil

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**9. Traffic Control Devices and Road Safety Works**

- (i) Traffic control devices and road safety works shall be provided in accordance with the section 9 of the manual referred to in Schedule D.
- (ii) Specifications of the reflective sheeting as per IRC: 67-2012 shall be provided.

**9.1 Crash Barrier**

- (a) Thrie Beam Metal crash barrier shall be provided along the project highway as per section 9 of the manual. It shall be provided at Culvert/ bridge approaches on both sides and at location of embankment with height greater than or equal to 3m, preferably throughout the stretch.
- (b) The concrete crash barrier/ railing of bridge and culvert shall be painted in black and white stripes in general.

**9.2 Transverse Rumble strip**

Transverse rumble strips in the form of thermoplastic bar marking shall be provided to warn the drivers to reduce the speed for safety. Stripes shall be in full width of pavement. The stripes shall be provided at sharp curves, village approaches, location approaching access road, intersections and any other hazardous locations on the project highway. Guidelines of IRC-35 shall be followed.

**9.3 Road Marking and Signage**

- (iii) The following road marking, signage and safety devise shall be used on the project which is minimum. Further if any shall be in accordance with the section 9 of the manual referred to in Schedule D.

**The minimum quantity of Traffic signages and pavement marking as per IRC: 35-2015 are tabulated here:**

From Km 0+000 To Km 1+125 of Length 1.125 Km				
Sl. No.	Traffic Signages, Road Marking and other appurtenances	unit	Nos./Remarks	Note
1	Road Marking: -Lines, dashes, arrows	sqm	Covering full stretch.	
2	900 mm triangular	Nos.	23	
3	900 mm Octagon STOP Sign	Nos.	2	
4	Rectangular 1200 X 900 mm	Nos.	2	
5	Rectangular 1200 x 1800 mm	Nos.	2	
6	Rectangular 800x600 mm	Nos.	6	
7	5th Km Stone	Nos.	0	
8	Ordinary Km Stone	Nos.	2	
9	Hectometer Stone	Nos.	0	
10	Raised Road Marker (Studs)	Nos.	500	
11	Boundary pillars	Nos.	100	
12	2 inches wide 3 M retro reflective tape on posts of Metallic Crash Barrier	m	On each and every post of metallic crash barrier	

**10. Roadside Furniture**

Roadside furniture shall be provided in accordance with the provision of relevant Manual for **Main Road**.

Delineators = 100 Nos. ((Min. in accordance to latest IRC 79). Further Contractor has to provide one overhead gantry at the start of link road

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**11. Compulsory Afforestation**

Refer to the provision of relevant Manual and specify the number of trees which are required

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

to be planted by the Contractor as compensatory afforestation.

**12. Hazardous Locations**

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

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

**13. Special Requirement for Hill Road**

This shall be provided accordance with section 13 of the Manual.

The side slope shall be protected by using suitable slope protection measures all along the highway on Hill side and valley side. The Retaining wall/Toe wall, RE/RS Wall & B/Wall shall be constructed as per requirement of site condition in accordance with manual requirement. However, minimum length of protection works shall be construction as per details given below and the typical section of protection work are given in **Schedule B-1**.

- a) Retaining wall/Toe wall, RCC/Counterfort R/Wall shall be constructed with minimum length is 400 m as per site condition of stone masonry in cement mortar 1:3 or any other better material acceptable to the Authority Engineer. Contractors need to assess the same and bid accordingly.

Retaining/Toe/RCC/Counterfort R/Wall					
Design Chainage in (km)		Length in (m)	Height Adopted in m	Remarks	Note
From	To				
0	60	60	5-6 m	Rcc Wall	The lengths, heights and chainages mentioned here are an approximate assessment. The exact length, heights and chainages may vary as per actual site condition. Contractor need to assess the same and bid accordingly.
60	70	10	1-2 m	Toe Wall	
130	160	30	4-5 m	R/Wall	
190	200	10	4-5 m	R/Wall	
360	370	10	3-4 m	R/Wall	
400	410	10	1-2 m	Toe Wall	
510	520	10	2-3 m	R/Wall	
540	570	30	3-4 m	R/Wall	
580	630	50	2-3 m	R/Wall	
640	650	10	5-6 m	Rcc Wall	
730	750	20	4-5 m	R/Wall	
770	780	10	4-5 m	R/Wall	
780	790	10	4-5 m	R/Wall	
790	800	10	4-5 m	R/Wall	
830	840	10	3-4 m	R/Wall	
860	880	20	3-4 m	R/Wall	
880	950	70	3-4 m	R/Wall	
950	970	20	1-2 m	Toe Wall	
<b>Total Length</b>		<b>400 m</b>			

- b) Breast wall shall be constructed with minimum length is 350 m on link road, as per site condition of stone masonry in cement mortar or any other better material acceptable to the Authority Engineer. Contractor needs to assess the same and bid accordingly.

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

Breast Wall					
Design Chainage in (km)		Length in (m)	Height Adopted in m	Remarks	Note
From	To				
30	50	20	2-3 m	B/wall	The lengths, heights and chainages mentioned here are an approximate assessment. The exact length, heights and chainages may vary as per actual site condition.
50	100	50	2-3 m	B/wall	
500	550	50	2-3 m	B/wall	
650	700	50	2-3 m	B/wall	
750	770	20	2-3 m	B/wall	
860	890	30	2-3 m	B/wall	
900	930	30	2-3 m	B/wall	
950	990	40	2-3 m	B/wall	
1010	1020	10	2-3 m	B/wall	
1030	1070	50	2-3 m	B/Wall	Contractor need to assess the same and bid accordingly.
Total Length		350 m			

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**14. SAFETY AND TRAFFIC MANAGEMENT DURING CONSTRUCTION: -**

- i) Portable Type Barricade in Construction Zone.
- ii) Traffic Signs & making for Diversion and Temporary shed for Landslide Area.
- iii) Landslide & Snow Clearance.

**15. Change of Scope**

The length of Structures and bridges, Muck disposal sites 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**.

**16. Chainage wise indicative widening scheme with applicable typical Cross section**

S. No.	Chainage		Length	TCS No.	TCS Description
	From	To			
1	0	30	30	TCS-6	TCS-6 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and Retaining wall on RHS (Fill height up to 6.0m)
2	30	110	80	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
3	110	130	20	TCS-2	TCS-2 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and RHS Fill height up to 2.0m)
4	130	160	30	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
5	160	170	10	TCS-2	TCS-2 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and RHS Fill height up to 2.0m)
6	170	195	25	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
7	195	205	10	TCS-7	TCS-7 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and RHS Fill (Fill height up to 6.0m)
8	205	220	15	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
9	220	340	120	TCS-7	TCS-7 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and RHS Fill (Fill height up to 6.0m)

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

10	340	360	20	TCS-2	TCS-2 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and RHS Fill height up to 2.0m)
11	360	400	40	TCS-6	TCS-6 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and Retaining wall on RHS (Fill height up to 6.0m)
12	400	420	20	TCS-7	TCS-7 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and RHS Fill (Fill height up to 6.0m)
13	420	430	10	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
14	430	450	20	TCS-2	TCS-2 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and RHS Fill height up to 2.0m)
15	450	495	45	TCS-7	TCS-7 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and RHS Fill (Fill height up to 6.0m)
16	495	510	15	TCS-2	TCS-2 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and RHS Fill height up to 2.0m)
17	510	520	10	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
18	520	540	20	TCS-2	TCS-2 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and RHS Fill height up to 2.0m)
19	540	580	40	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
20	580	600	20	TCS-7	TCS-7 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and RHS Fill (Fill height up to 6.0m)
21	600	645	45	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
22	645	660	15	TCS-7	TCS-7 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and RHS Fill (Fill height up to 6.0m)
23	660	670	10	TCS-2	TCS-2 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and RHS Fill height up to 2.0m)

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

24	670	725	55	TCS-7	TCS-7 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and RHS Fill (Fill height up to 6.0m)
25	725	740	15	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
26	740	760	20	TCS-6	TCS-6 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and Retaining wall on RHS (Fill height up to 6.0m)
27	760	775	15	TCS-1	TCS-1 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on LHS (Height of cut<6.0m) and Retaining wall on RHS (Fill height up to 6.0m)
28	775	800	25	TCS-6	TCS-6 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and Retaining wall on RHS (Fill height up to 6.0m)
29	800	825	25	TCS-7	TCS-7 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and RHS Fill (Fill height up to 6.0m)
30	825	840	15	TCS-6	TCS-6 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and Retaining wall on RHS (Fill height up to 6.0m)
31	840	855	15	TCS-5	TCS-5 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS and RHS (Height of cut<2.50m on both side)
32	855	880	25	TCS-4	TCS-4 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on RHS (Height of cut<6.0m) and Retaining wall on LHS (Fill height up to 6.0m)
33	880	915	35	TCS-3	TCS-3 : Single lane carriageway with earthen shoulder on both side and PCC drain on RHS (Height of cut<3.0m) and Retaining wall on LHS (Fill height up to 6.0m)
34	915	950	35	TCS-4	TCS-4 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on RHS (Height of cut<6.0m) and Retaining wall on LHS (Fill height up to 6.0m)
35	950	970	20	TCS-3	TCS-3 : Single lane carriageway with earthen shoulder on both side and PCC drain on RHS (Height of cut<3.0m) and Retaining wall on LHS (Fill height up to 6.0m)
36	970	1000	30	TCS-4	TCS-4 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on RHS (Height of cut<6.0m) and Retaining wall on LHS (Fill height up to 6.0m)
37	1000	1015	15	TCS-3	TCS-3 : Single lane carriageway with earthen shoulder on both side and PCC drain on RHS (Height of cut<3.0m) and Retaining wall on LHS (Fill height up to 6.0m)



**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

38	1015	1070	55	TCS-4	TCS-4 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on RHS (Height of cut<6.0m) and Retaining wall on LHS (Fill height up to 6.0m)
39	1070	1095	25	TCS-3	TCS-3 : Single lane carriageway with earthen shoulder on both side and PCC drain on RHS (Height of cut<3.0m) and Retaining wall on LHS (Fill height up to 6.0m)
40	1095	1110	15	TCS-4	TCS-4 : Single lane carriageway with earthen shoulder on both side and Rivetment/Breast wall on RHS (Height of cut<6.0m) and Retaining wall on LHS (Fill height up to 6.0m)
41	1110	1124.55	15	TCS-7	TCS-7 : Single lane carriageway with earthen shoulder on both side and PCC drain on LHS (Height of cut<2.50m) and RHS Fill (Fill height up to 6.0m)
Total			1125		

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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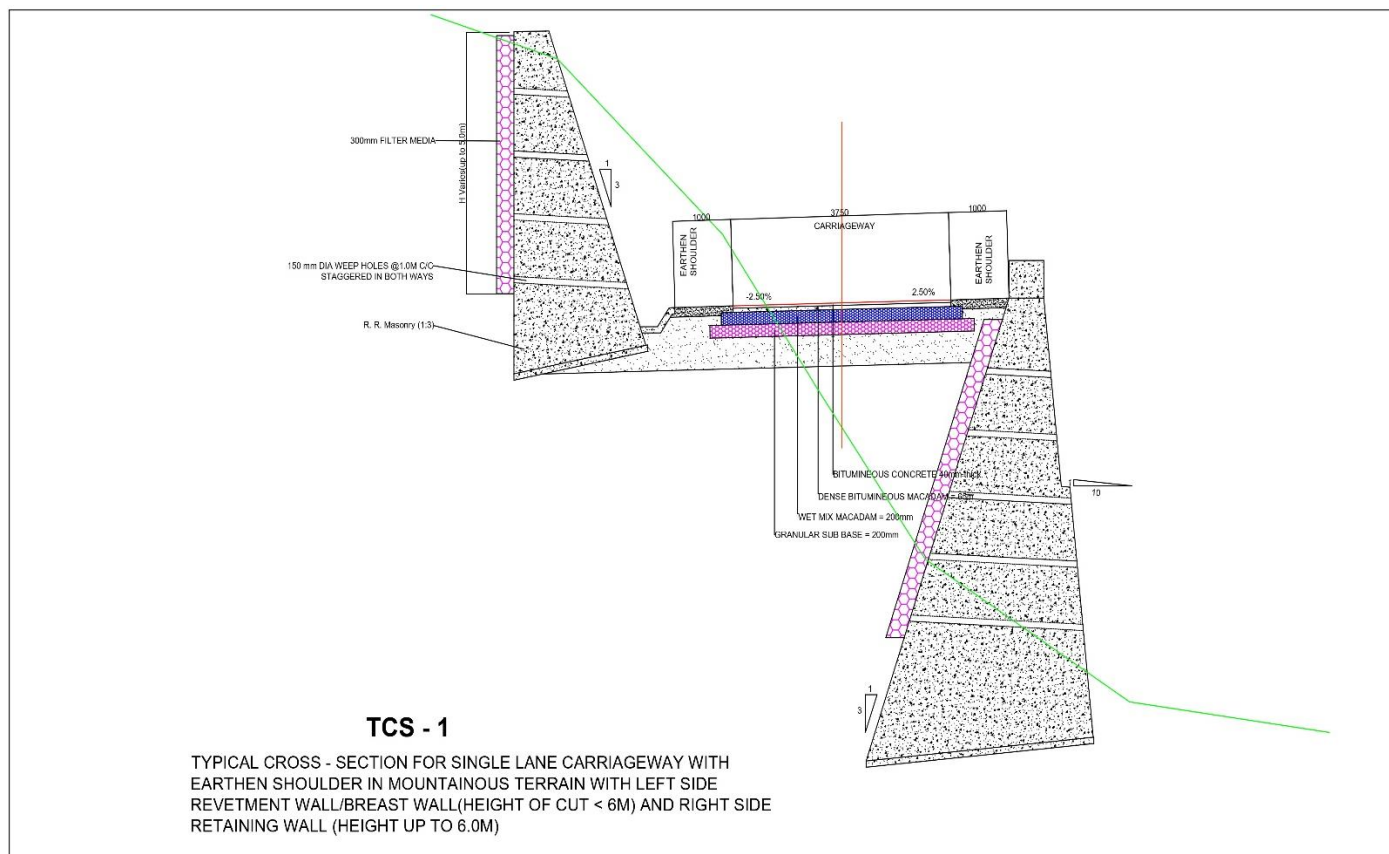
**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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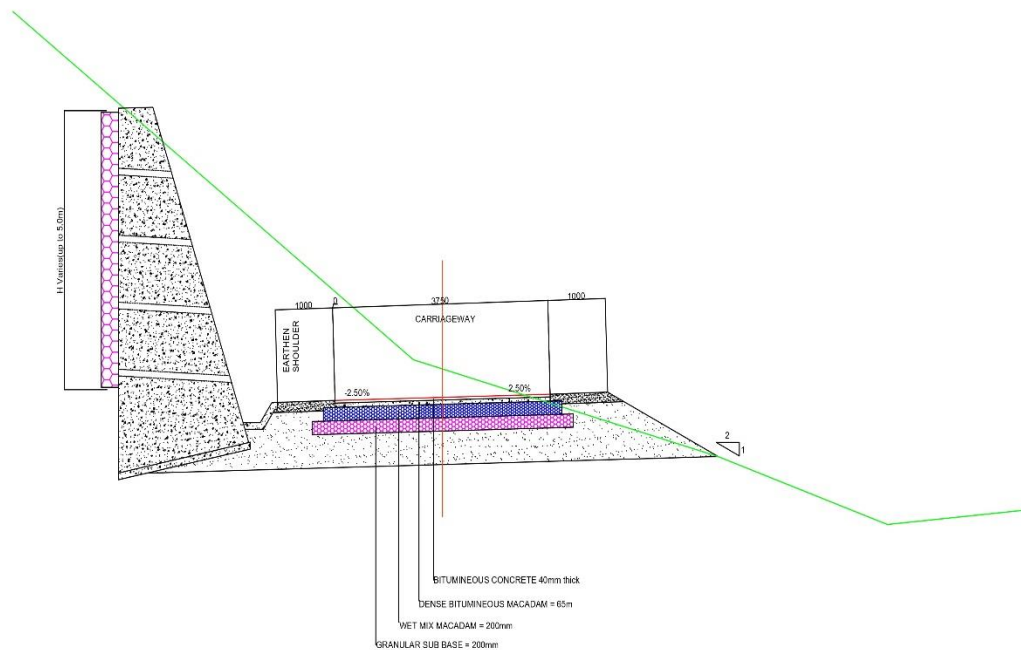
**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**TCS**



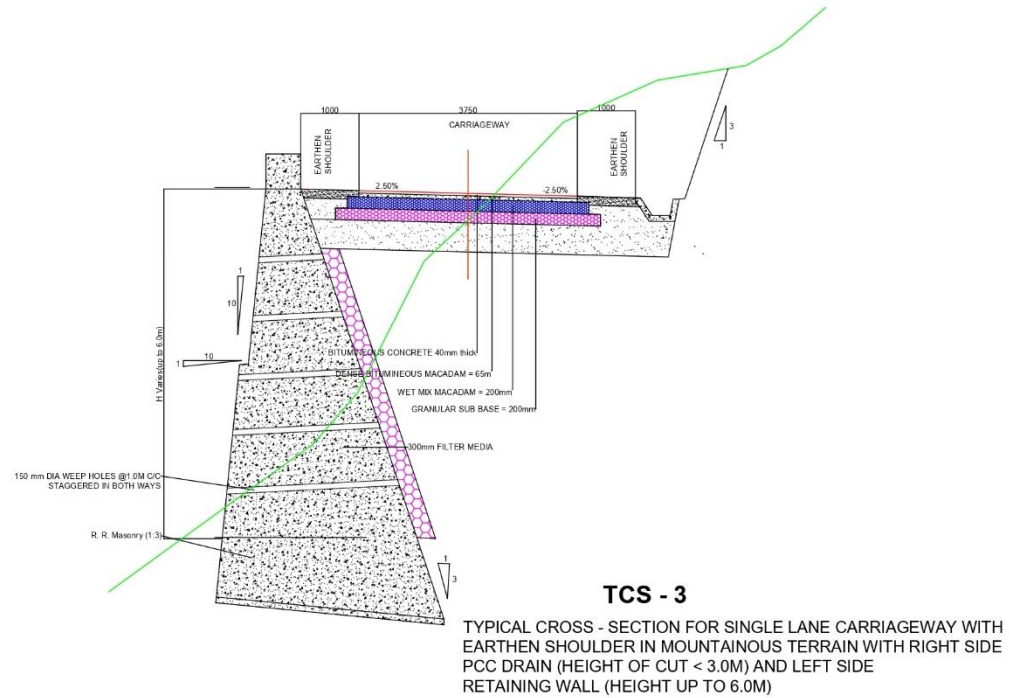
**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**



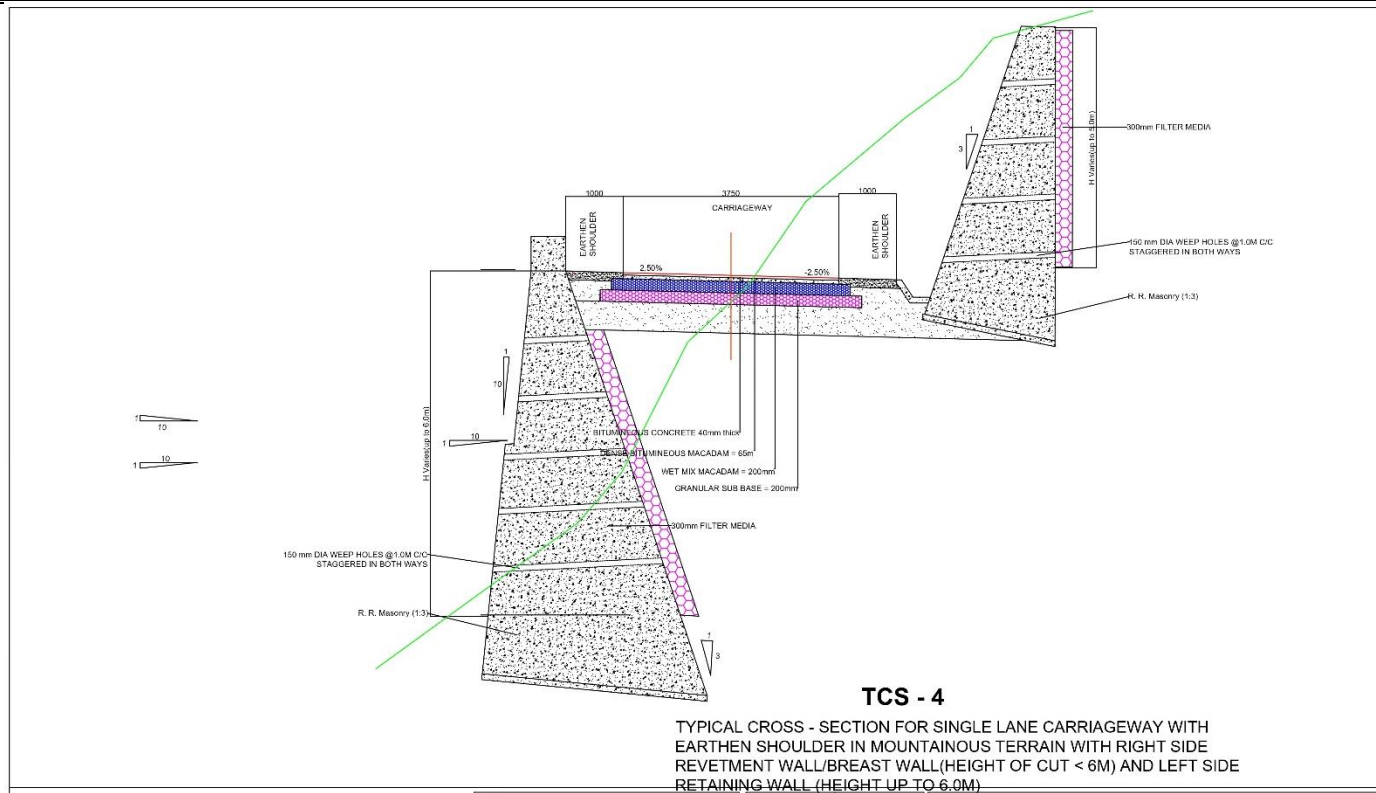
**TCS - 2**

TYPICAL CROSS - SECTION FOR SINGLE LANE CARRIAGEWAY WITH EARTHEN SHOULDER IN MOUNTAINOUS TERRAIN WITH LEFT SIDE REVETMENT WALL/BREAST WALL(HEIGHT OF CUT < 6M) AND RIGHT SIDE FILL

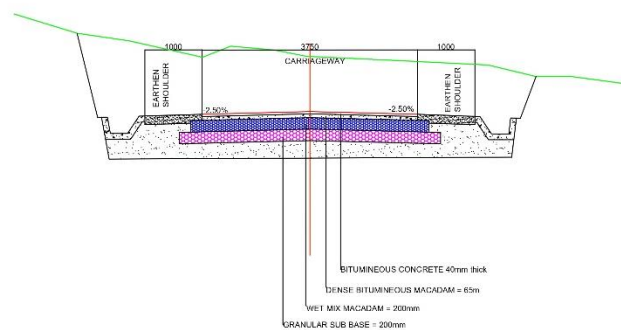
**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**



**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**



**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**



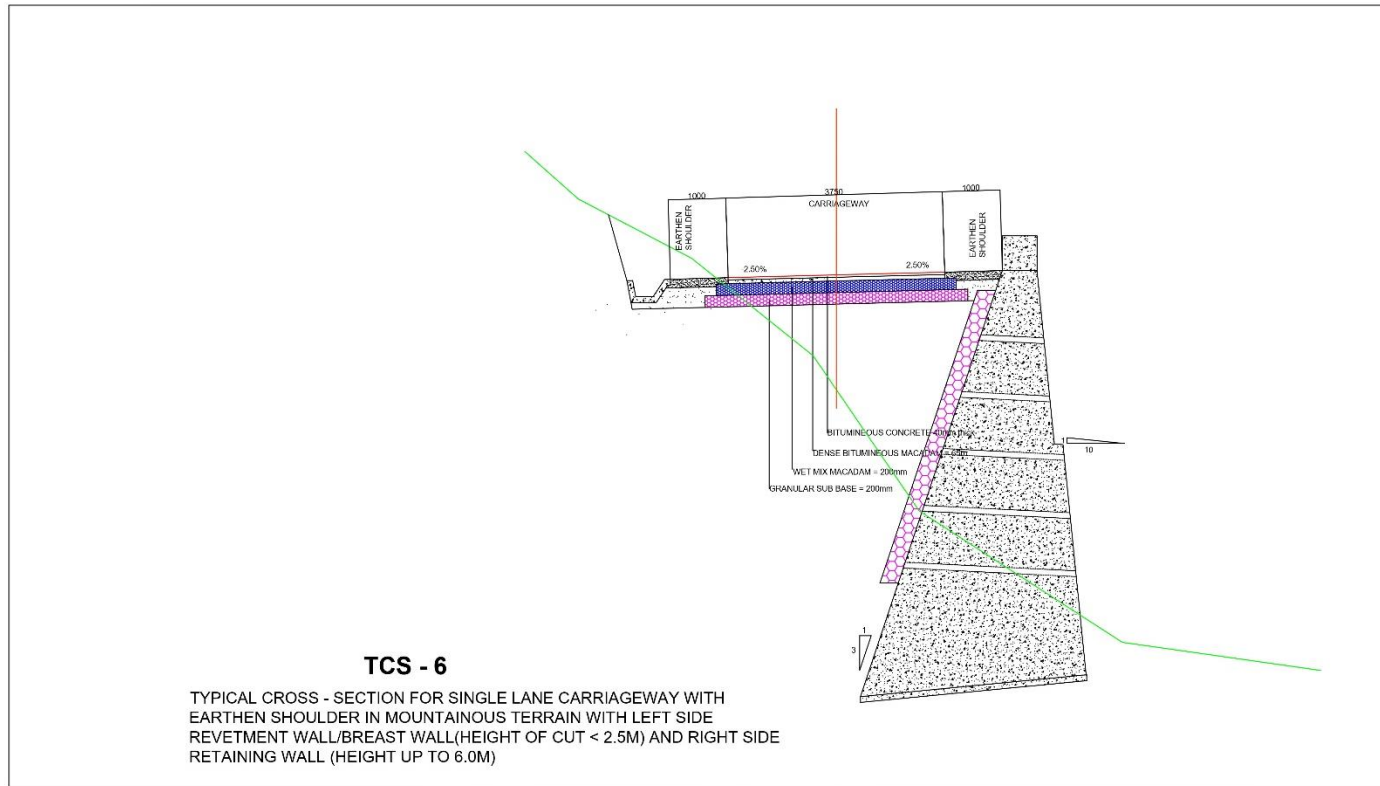
**TCS - 5**

TYPICAL CROSS - SECTION FOR SINGLE LANE CARRIAGEWAY WITH  
EARTHEN SHOULDER IN MOUNTAINOUS TERRAIN WITH BOTH SIDE  
REVTMENT WALL/BREAST WALL(HEIGHT OF CUT < 2.5M)



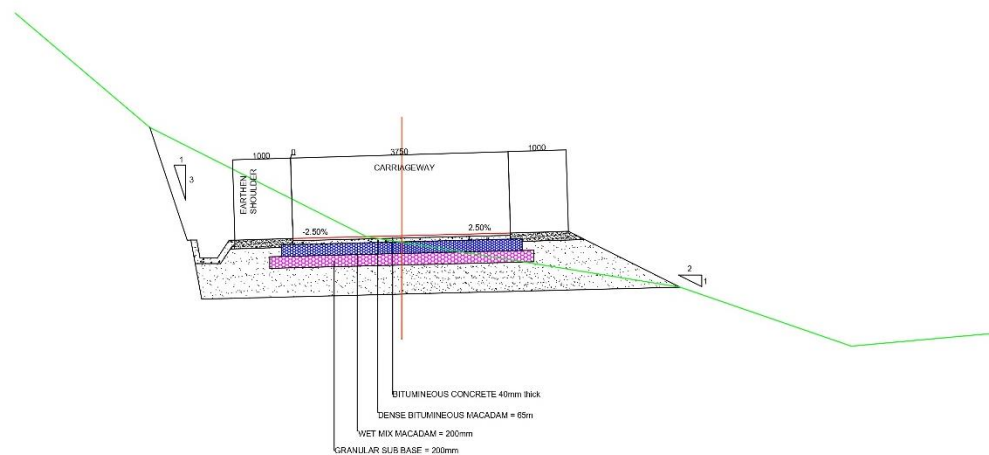
**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**TCS - 7**

TYPICAL CROSS - SECTION FOR SINGLE LANE CARRIAGEWAY WITH EARTHEN SHOULDER IN MOUNTAINOUS TERRAIN WITH LEFT SIDE REVETMENT WALL/BREAST WALL(HEIGHT OF CUT < 3.0M) AND RIGHT SIDE FILL

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**17. Muck Dumping Location:**

The muck to be generated shall be appropriately dumped in tips at various suitable locations so that it does not degrade the various elements of the natural environment. For final disposal of the material convenient locations to be identified by contractor and shall be maintained as per Environment Management Plan.

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Schedule B-1**

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

Sl. No.	Type of Utility	Unit	Quantity	Remarks
<b>A</b>	<b>Electrical Utilities</b>			
A1	Electrical poles	Nos.	20	As per site requirement (Cost of Felling of Trees already incorporated in Schedule-H under heads Excavation upto subgrade)
C	Felling of Trees	Nos.	15	

**Schedule - C**  
(See Clause 2.1)  
**Project Facilities**

- 1. Project Facilities**  
Nil
  
- 2. Description of Project Facilities**  
Nil

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Schedule - D**

(See Clause 2.1)

**Specifications and Standards**

**1. Construction**

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

**2. Design Standards**

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Annex – I**

(Schedule-D)

**Specifications and Standards for Construction**

**1. Specifications and Standards**

The specifications & standards for Single lane shall read in conjugation with Manual of Specifications and Standards for Two-Laning of Highways IRC: SP:73-2018, Hill Road Manual (IRC:SP: 48- 2023) Guidelines referred to as the Manual, and MORTH Specifications for Road and Bridge Works herein after. All Materials works and construction operations for single lane shall conform to the Manual of Specifications and Standards for Two-Laning of Highways IRC: SP:73-2018, Hill Road Manual (IRC:SP: 48- 2023) Guidelines referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

**2. Deviations from the Specifications and Standards**

- (i) The terms "Concessionaire", "Independent Engineer" and "Concession Agreement" used in the Manual shall be deemed to be substituted by the terms "Contractor", "Authority's Engineer" and "Agreement" respectively.
- (ii) Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:

<b>Sr. No.</b>	<b>Item</b>	<b>Clause referred in Manual</b>	<b>Provision as per Manual</b>
1	Gradient	2.9.7.2	Mountainous & steep terrain (ruling gradient shall be 5.0 % and limiting shall be 6.0%)
2	Typical Cross section	2.16	
3	Typical Cross Section	2.6.1, 2.7 and 2.16	



**ATTACHMENT-DI**  
**TECHNICAL SPECIFICATIONS FOR ROAD & BRIDGE**

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Table of Contents**

1.1 Site Information General

1.1.4 Seismic Zone

2 GENERAL REQUIREMENTS

2.1 Part-I: General Technical Specifications

2.2 Part-II: Supplementary Technical Specifications

2.3 PART-III Specifications for Miscellaneous Works

CLAUSE 102 DEFINITIONS

CLAUSE 106 CONSTRUCTION EQUIPMENT

CLAUSE 108 SITE INFORMATION

CLAUSE 109 SETTING OUT

CLAUSE 111 PRECAUTIONS FOR SAFEGUARDING THE ENVIRONMENT

Sub-Clause 111.1 General

Sub-Clause 111.2 Borrow Pits for Embankment Construction

Sub-Clause 111.3 Quarry Operations

Sub-Clause 111.5 Pollution from Hot-Mix Plant and Batching Plants

Sub-Clause 111.8.2 Air Quality

Sub-Clause 111.8.3 Water Sources and Water Quality

Sub-Clause 111.20 Control and Disposal of Wastes

Sub-Clause 111.14 Equipment and Vehicles used for the Works

Sub-Clause 111.15 Noise Control

Sub-Clause 111.16 Vibration Control

Sub-Clause 111.17 Measurement

CLAUSE 112 ARRANGEMENT FOR TRAFFIC DURING CONSTRUCTION

Sub-Clause 112.6 Measurement for Payment and Rates

CLAUSE 114 SCOPE OF RATES FOR DIFFERENT ITEMS OF WORK

CLAUSE 115 METHODOLOGY AND SEQUENCE OF WORK

Sub-Clause 115.1 Submission of Method Statement

Sub-Clause 115.2 Approval of Proprietary Product/Process/System

CLAUSE 120 FIELD LABORATORY

Sub-Clause 120.3 Ownership

Sub-Clause 120.4 Maintenance

Sub-Clause 120.5 Rate

SECTION 200 Site Clearance

CLAUSE 201 CLEARING AND GRUBBING

CLAUSE 202 DISMANTLING CULVERTS, BRIDGES AND OTHER STRUCTURES/ PAVEMENTS

SECTION 300 Earthwork, Erosion Control and Drainage

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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CLAUSE 301 EXCAVATION FOR ROADWAY AND DRAINS

CLAUSE 304 EXCAVATION FOR STRUCTURES

CLAUSE 305 EMBANKMENT CONSTRUCTION

Sub-Clause 305.2.2.2 Borrow Materials

Sub-Clause 305.2.2.4 Compaction Requirements

Sub-Clause 305.3 Construction Operations

Sub-Clause 305.8 Measurement for Payment

CLAUSE 306 SOIL EROSION AND SEDIMENTATION CONTROL

SECTION 400 Sub-Bases, Bases (Non-Bituminous) and Shoulders

CLAUSE 401 GRANULAR SUB -BASE

Sub-Clause 401.2.2 Physical Requirements

CLAUSE 406 WET MIX MACADAM SUB -BASE/BASE

Sub-Clause 406.4 Opening to Traffic

SECTION 500 Base and Surface Courses (Bituminous)

Sub-Clause 501.2 Materials

Sub clause 501.2.1 Binder

Binder of VG-30/VG-10 grade shall be used or if available viscosity grade of bitumen shall be used in accordance with IS: 73

CLAUSE 505 DENSE BITUMINOUS MACADAM

CLAUSE 507 BITUMINOUS CONCRETE

Binder of CRMB-60 grade shall be used.

SECTION 800 Traffic Signs, Markings and Other Road Appurtenances

CLAUSE 803 ROAD MARKINGS

CLAUSE 806 ROAD DELINATORS

# Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.

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## **TECHNICAL SPECIFICATIONS**

- 1** The Technical Specifications contained herein shall be read in conjunction with the other Bidding Documents as specified in Volume-IX.

### **1.1 Site Information General**

- 1.1.1** The information given hereunder and provided elsewhere in these documents is given in good faith by the Employer, but the Contractor shall satisfy himself regarding all aspects of site conditions and no claim will be entertained on the plea that the information supplied by the Employer is erroneous or insufficient.

The area in which the works are located is in hilly/mountainous terrain, the project road starts from 33°05'09"N 75°28'02"E and ends at 33°05'16"N 75°27'48"E in the UT of Jammu & Kashmir.

### **1.1.2 Climatic Conditions**

- 1.1.2.1** The temperature in this region is as under:

- i)** During summer months, the average maximum temperature recorded is 30°C
- ii)** During winter months, the minimum average temperature is -2°C.
- iii)** The location receives about 920 mm of average annual rainfall, with March being the wettest month.

### **1.1.3 Seismic Zone**

The stretch lies in Seismic Zone-IV as defined in Fig. 18 of IRC: 6-2017.

## **2 GENERAL REQUIREMENTS**

The Technical Specifications in accordance with which the entire work described hereinafter shall be constructed and completed by the Contractor shall comprise of the following:

### **2.1 Part-I: General Technical Specifications**

The General Technical Specifications shall be the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS" (Fifth Revision, April 2013), issued by the Ministry of Road Transport and Highways, Government of India and published by the Indian Roads Congress, henceforth called MORT&H Specifications and deemed to be bound into this document.

### **2.2 Part-II: Supplementary Technical Specifications**

The Supplementary Technical Specifications shall comprise of various Amendments/Modifications/ Additions to the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS" referred to in Part-I above and Additional Specifications for item of works which are not covered in Part-I.

- 2.3** A clause or a part thereof in "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (Fifth Revision April 2013)", referred in Part-I above, where Amended/Modified/Added upon, and incorporated in Part-II, referred to above, such Amendment/Modification/ Addition supersedes the relevant Clause or part of the Clause.

- 2.3.1** The Additional Specifications shall comprise of specifications for item of works which not covered in Part-I.

- 2.3.2** When an Amended/Modified/Added Clause supersedes a Clause or part thereof in the said Specifications, then any reference to the superseded Clause shall be deemed to refer to the Amended/Modified/Added Clause or part thereof.

- 2.3.3** In so far as Amended/Modified/Added Clause may come in conflict or be inconsistent with any of the provisions of the said MORT&H Specifications under reference; the

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

Amended/Modified/Added Clause shall always prevail.

- 2.3.4 The following Clauses in the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (Fifth Revision April 2013",) have been Amended/Modified/Added upon

Sr. No.	Section No.	Section Title	Clause No.
1.	100	General	102,106,108,109, 111,112,114,115 and 121
2.	200	Site Clearance	201 and 202
3.	300	Earthwork, Erosion Control and Drainage	301,304,305 and 306
4.	400	Sub-base, Bases (Non-Bituminous) and Shoulders	401and 406
4.	500	Bases and Surface Courses (Bituminous)	501,505 and 507
5.	800	Traffic signs, Markings and other Road Appurtenances	803,806 and 811 as well as IRC :119-2015
6.	2100	Open Foundations	2104

**2.4 PART-III Specifications for Miscellaneous Works**

Technical Specifications for Miscellaneous works shall be the latest "Specifications volume I to VI, 1996 for Civil Works and General Specifications for Electrical Works PART I – INTERNAL, PART – II, EXTERNAL for electric work 1994 as published by the Central Public Works Department (CPWD), Government of India" and deemed to be bound into this document.

- 2.5 The latest edition till 60 days before the final date of submission of the bid of all specifications / standard shall be applicable.

# **Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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## **SCOPE OF WORKS**

### **Road Works**

Site clearance; setting-out and layout; widening to intermediate lane with shoulder on both sides and strengthening including camber corrections; construction of new road; bituminous pavements remodeling/construction of junctions; supplying and placing of drainage channels, flumes, guard posts, guard rails and other related items; construction of cross drainage works, and other related works; road markings, road signs and kilometer/ hectometre stones; protective works for roads/ bridges; all aspects of quality assurance of various components of works; rectification of the defects in the completed works during the Defect Liability Period; submission of "As built" drawings and any other related documents; and other items of work as may be required to be carried out for completing the works in accordance with the drawings and provisions of the Contractor insure safety.

### **Other Items**

Execution of any other items of work for the construction and completion of the Works in accordance with the provisions of the Contract including all incidental items as well as preparation and submittal of reports, plans as may be required.

During the period of the Contract the right of way and all existing roads shall be kept open for traffic and maintained in a safe and usable condition. Residents along and adjacent to the works are always to be provided with safe and convenient access to their properties. Traffic control and traffic diversions shall be used as necessary to protect the works and maintenance will be carried out as directed by the Engineer and provided in the Contract.

Any other items as required to fulfil all contractual obligations as per the Bid Documents.

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Schedule - E**

(See Clauses 2.1 and 14.2)

**Maintenance Requirements**

**1. Maintenance Requirements.**

- (i) The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.
- (ii) The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfilment of the Maintenance obligations by the Contractor.
- (iii) All Materials works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

[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 Highway poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

**6. Daily inspection by the Contractor**

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

**7. Pre-monsoon inspection / Post-monsoon inspection**

## **Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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

### **8. Repairs on account of natural calamities**

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



**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**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.

**Table -1: Maintenance Criteria for Safety Related Items and Other Furniture Items:**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Road Signs	Shape Position and	Shape and Position as per IRC: 67- 2012. Signboard should be clearly visible for the design speed of the section.	Daily	Visual with video/image backup	Improvement of shape, in case if shape is Damaged. Relocation as per requirement change of signboard	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 15 Days in case	IRC:67-2012
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of each Signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.			RC:67-2012

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
						of Gantry/Cantilever Sign boards 48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual postsigns) 1 Month in case of Gantry/Cantilever Sign boards	

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**Table 2: Maintenance Criteria for Hill Roads**

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

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	2 (Two) hours
(iii)	Snow requiring clearance	1 (One) hours

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

**A. Flexible Pavement**

Nature of Defect or deficiency		Time limit for repair/ rectification
<b>(a) Granular earth shoulders, side slopes, drains and culverts</b>		
(i)	Damage to or silting of culverts and side drains	7 (seven) days
(ii)	Desilting of drains in urban/semi- urban areas	24 (twenty-four) hours
(iii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
<b>(b) Roadside furniture including road sign and pavement marking</b>		
(i)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(ii)	Damaged/missing signs road requiring replacement	7 (seven) days

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

<b>Bridges</b>	
<b>(a) Superstructure</b>	
(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures
	within 48 (forty-eight) hours within 15 (fifteen) days or as specified by the Authority's Engineer
<b>(b) Foundations</b>	
(i)	Scouring and/or cavitation
	15 (fifteen) days
<b>(c) Piers, abutments, return walls and wingwalls</b>	
(i)	Cracks and damages including settlement and tilting, spalling, scaling
	30 (thirty) days
<b>(d) Bearings (metallic) of bridges</b>	
(i)	Deformation, damages, tilting or shifting of bearings
	15 (fifteen) days Greasing of metallic bearings once in a year
<b>(e) Joints</b>	
(i)	Malfunctioning of joints
	15 (fifteen) days
<b>(f) Other items</b>	
(i)	Deforming of pads in elastomeric bearings
	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes
	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers
	3 (three) days (immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches
	7 (seven) days
(v)	Damage to wearing coat
	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds
	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway
	15 (fifteen) days
<b>(g) Hill Roads</b>	
(i)	Damage to retaining wall/breast wall
	7 (seven) days
(ii)	Landslides requiring clearance
	12 (twelve) hours
(iii)	Snow requiring clearance
	24 (twenty-four) hours

[Note: Where necessary, the Authority may modify the time limit for repair/rectification, or add to the nature of Defect or deficiency before issuing the bidding document, with the approval of the competent authority.]

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Schedule - F**

(See Clause 4.1 (vii) (a))

**Applicable Permits**

**1. Applicable Permits**

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

**Schedule – G**

(See Clauses 7.1 and 19.2)

**Annex-I**

(See Clause 7.1)

**Form of Bank Guarantee**

**[Performance Security/Additional Performance Security]**

[Executive Director, National Highways & Infrastructure Development Corporation Limited, Jammu] WHEREAS:

- (A) \_\_[name and address of contractor] (Hereinafter called the “**Contractor**”) and [name and address of the authority], (hereinafter called the “**Authority**”) have entered into an agreement (hereinafter called the “**Agreement**”) for the **Rectification of Black Spots /Accident Prone locations on Batote-Khellani Road stretch by Installation of Metallic Crash Barrier, Road Signages, raising of outer earthen shoulders etc., along with Clearance of landslide & Snow on NH-244 in the UT of Jammu & Kashmir in F.Y 2023-24** (the “**EPC**”) basis, subject to and in accordance with the provisions of the Agreement
- (B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period}(as defined in the Agreement)in a sum of Rs.....cr.(Rupees..... crore) (the “**Guarantee Amount**”).
- (C) We, through our branch at (the “**Bank**”) have agreed to furnish this bank guarantee (hereinafter called the “**Guarantee**”) by way of Performance Security.

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager 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 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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

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

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.

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**

[Executive Director, National Highways & Infrastructure Development Corporation Limited, Jammu] WHEREAS:

- (A) [name and address of contractor] (hereinafter called the “**Contractor**”) has executed an agreement (hereinafter called the “**Agreement**”) with the [name and address of the authority], (hereinafter called the “**Authority**”) for **Rectification of Black Spots /Accident Prone locations on Batote-Khellani Road stretch by Installation of Metallic Crash Barrier, Road Signages, raising of outer earthen shoulders etc., along with Clearance of landslide & Snow on NH-244 in the UT of Jammu & Kashmir in F.Y 2023-24** (the “**EPC**”) basis, subject to and in accordance with the provisions of the Agreement.
- (B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @Bank Rate + 3% advance payment (herein after called “**AdvancePayment**”) equal to 10% (ten percent) of the Contract Price; and that the Advance Payment shall be made in two instalments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such instalment to remain effective till the complete and full repayment of the instalment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} instalment of the Advance Payment is Rs. ----- cr. (Rupees crore) and the amount of this Guarantee is Rs. ----- cr. (Rupees ----- crore) (the “**Guarantee Amount**”) \$.
- (C) We, ..... through our branch at..... (the “**Bank**”) have agreed to furnish this bank guarantee (hereinafter called the “**Guarantee**”) for the Guarantee Amount.

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

The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

1. A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
2. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
3. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

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



4. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
5. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
6. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
7. The Guarantee shall cease to be in force and effect on \*\*\*\*\$unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.
8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
10. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature) (Name) (Designation) (Code Number) (Address)

#### NOTES:

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

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

- (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 – III**

*(Schedule - G)*

*(See Clause 7.5.v)*

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

The Managing Director,  
National Highways & Infrastructure Development Corporation Limited  
New Delhi

**WHEREAS:**

- (A) [name and address of contractor] (hereinafter called the “**Contractor**”) has executed an agreement (hereinafter called the “**Agreement**”) with the [name and address of the authority], (hereinafter called the “**Authority**”) for the construction of the \*\*\*\*\* section of [National Highway No. \*\*] on Engineering, Procurement and Construction (the “**EPC**”) basis, subject to and in accordance with the provisions of the Agreement.
- (B) In accordance with Clause 7.5.3 of the Agreement, the Contractor may withdraw the retention money (hereinafter called the “**Retention Money**”) after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.
- (C) We, ..... through our branch at ..... (the “**Bank**”) have agreed to furnish this bank guarantee (hereinafter called the “**Guarantee**”) for the amount of Rs. - ----- cr. (Rs----- crore) (the “**Guarantee Amount**”).

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

1. The Bank hereby unconditionally and irrevocably undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of General Manager in the National Highways & Infrastructure Development Corporation Limited (NHIDCL) , that the Contractor has committed default in the due and faithful performance of all or any of its obligations for under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in

- default shall be final, and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
  4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
  5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Retention Money and any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
  6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Retention Money.
  7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
  8. The Guarantee shall cease to be in force and effect 90 (ninety) days after the date of the Completion Certificate specified in Clause 12.4 of the Agreement.
  9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares 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.

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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 up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This guarantee shall also be operatable at our ..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
13. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of NHIDCL, details of which is as under:

Sr. No.	Particulars	Details
1.	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2.	Beneficiary Bank Account No.	76411010002171
3.	Beneficiary Bank Branch Name and Address	Canara Bank, Channi-Himmat Branch. Canara Bank, Channi-Himmat, Jammu, J&K, 180015
4.	Beneficiary Bank Branch IFSC	CNRB0002975

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 See Clauses 10.1 (iv) and 19.3

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**Schedule - H**

See Clause 10.1 (iv) & 19.3

**Contract Price Weightages**

- 1.1 The Contract Price for this Agreement is **Rs. 6.02 Cr excluding GST**.
- 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 of Payment	Percentage Weightage
1	2	3	4
<b>Road works including culverts.</b>	<b>40.60 %</b>	<b>B. Construction of New Intermediate-lane alignment (Flexible pavement)</b>	
		(i) Earthwork up to top of sub-grade	51.16 %
		(ii) Non-Bituminous subbase & Base Course (i.e., GSB & WMM)	16.91 %
		(iii) Bituminous Base & Wearing Course	14.81 %
		<b>D - New culverts</b>	
		(i) Culverts (length < 6m)	17.12 %

Item	Weightage in percentage to the Contract Price	Stage of Payment	Percentage Weightage
1	2	3	4
<b>Other Works</b>	<b>59.40 %</b>	(i) Roadside drains	2.34 %
		(ii) Road signs, markings, km stones, safety devices,	11.49 %
		(iii) Junctions	2.47 %
		(iv) Protection works i.e. Retaining wall/Toe wall/Gabion wall etc.	58.40 %
		(v) Slope Protection (Hill Side) i.e., B/Wall, Revetment Wall etc.	25.30 %

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**1.3 Procedure of estimating the value of work done**

**1.3.1 Road works**

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

**Table 1.3.1**

Stage of Payment	Percentage - Weightage	Payment Procedure
<b>B.1 - construction of new flexible pavement including culvert</b>		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 10% of total length, whichever is less.
(i) Earthwork up to top of sub-grade	51.16 %	
(ii) Non-Bituminous subbase & Base Course (i.e., GSB & WMM)	16.91 %	
(iii) Bituminous Base & Wearing Course	14.81 %	
<b>D - New culverts</b>		For Culverts payment will be made on completion of each culvert.
(i) Culverts (length < 6m)	17.12 %	

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

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

Where P= Contract Price

L = Total length in km

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

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**1.3.2 Other works.**

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

**Table 1.3.4**

<b>Stage of Payment</b>	<b>Weightage</b>	<b>Payment Procedure</b>
(i) Road-side drains	2.34 %	Unit of measurement is linear length in km Payment shall be made on prorata basis on completion of a stage in a length of not less than 5% (five per cent) of the scope of work.
(ii) Road signs, markings, km stones, safety devices, Utility duct..	11.49 %	Unit of measurement is linear length in Nos./sqm Payment shall be made on prorata basis on completion of a stage in a length of not less than 10 % (ten per cent) of the scope of work.
(iii) Junctions	2.47 %	Payment shall be made on pro rata basis for completion of Each junction.
(iv) protection works on valley side including at structures location (Retaining wall/Toe wall)	58.40 %	Payment shall be made on pro rata basis on completion of a stage in running meter length.
(v) Slope Protection (Hill Side) i.e. Breast wall/Revetment wall	25.30 %	Payment shall be made on pro rata basis on completion of a stage in running meter length

**2. Procedure for payment for Maintenance**

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

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**Schedule - I**

(See Clause 10.2 (iv))

**Drawings**

**1. Drawings**

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

**2. Additional Drawings.**

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



**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244  
in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**Annex – I**

(Schedule - I)

**List of Drawings**

1. The Project drawings, as defined in Clause 1.1, Definitions, Article 1, Definitions and Interpretation, Part-I: Preliminary, of the Contract Agreement shall consist:
  - (a) Working Drawings of all the components/elements of the Project as determined by Authority Engineer/Authority, and
  - (b) As-built drawings for the Project components/elements as determined by AE/Authority. As-built drawings shall be duly certified by Authority Engineer.
2. A minimum list of the drawings of the various components/elements of the Project and project facilities required to be submitted by the Contractor is given below:

**A. STANDARD DRAWINGS**

Detail of Mandatory Regulatory Signs  
Detail of Mandatory Regulatory Signs & Compulsory Direction Control and Other Signs  
Detail of Informatroy Signs  
Detail of Cautionary Signs-TS  
Detail of cautionary warning signs  
Detail of cautionary warning signs  
Details of route marking (chevron marking)  
Details of road marking  
Details of directional signs  
Details Toe drain  
Details of pitching, filter material, chute drain and energy dissipation basin-std  
Details of double head metal beam crash barrier  
Drain retaining wall & Plum concrete  
Gabion wall

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Schedule - J**

(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 Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

**2. Project Milestone-I**

- (i) Project Milestone-I shall occur on the date falling on the 120<sup>th</sup>(One hundred twenty) days from the Appointed Date) (the "**Project Milestone-I**").
- (ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 33% (thirty three per cent) of the Contract Price.

**3. Project Milestone-II**

- (i) Project Milestone-II shall occur on the date falling on the 240<sup>th</sup>(Two hundred forty) days from the Appointed Date) (the "**Project Milestone-I**").
- (ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 67% (Sixty seven per cent) of the Contract Price

**4. Scheduled Completion Date**

- (i) The Scheduled Completion Date shall occur on the 365<sup>th</sup>(Three Hundred and Sixty five) day from the Appointed Date.
- (ii) On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

**5. 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 (ii))

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

**2. Tests**

**A. Road and Bridge**

- (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 [\*\*\*].
- (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 kilometre.
- (iii) Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Nondestructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
- (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.

**B. Other Tests**

- (i) Environmental audit: The Authority's Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and Applicable Permits.

## Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.

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

### 3. Agency for conducting Tests

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

### 4. Completion Certificate

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

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

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

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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

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

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Schedule - L**

(See Clause 12.2)

**Completion Certificate**

- 1 I, ..... (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated ..... (the "**Agreement**"), for Rectification of Black Spots /Accident Prone locations on Batote-Khellani Road stretch by Installation of Metallic Crash Barrier, Road Signages, raising of outer earthen shoulders etc., along with Clearance of landslide & Snow on NH-244 in the UT of Jammu & Kashmir in F.Y 2023-24 (the "**Project Highway**") on Engineering, Procurement and Construction (EPC) basis through ..... (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.
- 2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the.....day of 20..., Scheduled Completed

Date for which was the ..... day of .....20 .....

SIGNED, SEALED AND DELIVERED

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

(Signature)

(Name) (Designation)(Address)

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

**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**

- (i) Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.
- (ii) Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.
- (iii) 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 on monthly basis**

- (i) The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
<b>(a)</b>	<b>Carriageway/Pavement</b>	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
<b>(b)</b>	<b>Road, Embankment, Cuttings, Shoulders</b>	
(i)	Edge drop, inadequate cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, rain cuts, disturbed pitching, vegetation growth, pruning of trees	5%
<b>(c)</b>	<b>Bridges and Culverts</b>	
(i)	Desilting, cleaning, vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
(iii)	Painting, repairs/replacement kerb, railings, parapets, guideposts/crash barriers	5%
<b>(d)</b>	<b>Roadside Drains</b>	
(i)	Cleaning and repair of drains	5%
<b>(e)</b>	<b>Road Furniture</b>	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5 <sup>th</sup> km stones	5%
<b>(f)</b>	<b>Miscellaneous Items</b>	
(i)	Removal of dead animals, broken down/accidental vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
<b>(g)</b>	<b>Defects in Other Project Facilities</b>	5%

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

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

Where,

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

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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M1= Monthly lump-sum payment in accordance para 1.2 above of this Schedule M2= Monthly lump-sum payment in accordance para 1.2 above of this Schedule L1= Non- complying length L = Total length of the road,

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

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

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

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**Schedule - N**

(See Clause 18.1 (i))

**Selection of Authority's Engineer**

**1. Selection of Authority's Engineer**

- (i) 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.
- (ii) 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.

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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**Annex - I**

(Schedule - N)

**Terms of Reference for Authority's Engineer**

**1. Scope**

- (i) 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 in to between the [name and address of the Authority] (the "Authority") and ..... (the "Contractor") Rectification of Black Spots /Accident Prone locations on Batote-Khellani Road stretch by Installation of Metallic Crash Barrier, Road Signages, raising of outer earthen shoulders etc., along with Clearance of landslide & Snow on NH-244 in the UT of Jammu & Kashmir in F.Y 2023-24 on Engineering, Procurement, Construction (EPC) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

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

- (ii) The TOR shall apply to construction and maintenance of the Project Highway.

**2. Definitions and interpretation**

- (i) 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.
- (ii) 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.
- (iii) The rules of interpretation stated in Article 1 of the Agreement shall apply, mutatis mutandis, to this TOR.

**3. General**

- (i) 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.
- (ii) 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), (c) or (d) above and which creates a financial liability on either Party.
- (iii) 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.
- (iv) The Authority's Engineer shall inform the Contractor of any delegation of its duties and

**Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

---

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

(v) in accordance with the provisions of Clause 18.2.

## **Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.

- (vi) In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

#### **4. Construction Period**

- (i) 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.
- (ii) The Authority's Engineer shall review and approve any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.
- (iii) The Authority's Engineer shall review and approve 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.
- (iv) The Authority's Engineer shall complete the review and approve of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.
- (v) The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.
- (vi) 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.
- (vii) The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.
- (viii) 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.
- (ix) 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 (ix), 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

## **Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode.**

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modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.

- (x) 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.
- (xi) The timing of tests referred to in Paragraph 4 (ix), and the criteria for acceptance/rejection of their results shall be determined by the Authority's Engineer in accordance with the 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.
- (xii) 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.
- (xiii) The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.
- (xiv) In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- (xv) The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.2.
- (xvi) 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.
- (xvii) 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.
- (xviii) The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate, as the case may be. For carrying out its functions under this Paragraph 4 (xviii) and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

### **5. Maintenance Period**

- (i) 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.
- (ii) The Authority's Engineer shall undertake regular inspections, at least once every month, to

**Rectification of Black Spots /Accident Prone locations on Batote-Khellani Road stretch by Installation of Metallic Crash Barrier, Road Signages, raising of outer earthen shoulders etc., along with Clearance of landslide & Snow on NH-244 in the UT of Jammu & Kashmir in F.Y 2023-24 on EPC Mode**

evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.

- (iii) The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.
- (iv) 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.
- (v) The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

**6. Determination of costs and time**

- (i) The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- (ii) The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.
- (iii) The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

**7. Payments**

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

- (i) 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.
- (ii) 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.
- (iii) 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.
- (iv) 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.
- (v) The Authority's Engineers 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 (i), 19.6 (i), and 19.8 (i))

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

- (i) The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:
  - (a) insurance of Works, Plant and Materials and an additional sum of [15 (fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and
  - (b) insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.
- (ii) The insurance under sub para (a) and (b) of paragraph 1(i) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

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

The Contractor shall affect 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**

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

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

- (ii) 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"), for **Construction of Link Road from Bargana Village on old Goha - Khellani Road to New NH-244 in the UT of Jammu & Kashmir in F.Y 2024-25 on EPC Mode** (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis .....through (Name of Contractor), hereby certify that the Tests on completion of Maintenance ..... Period ..... in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the  
Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

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