

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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

(Ministry of Road, Transport & Highways)
Government of India

"Balance Works for:

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Engineering, Procurement & Construction
(EPC) Mode

BID DOCUMENT (Schedule)

July 2026



National Highways & Infrastructure Development Corporation Ltd.

(A Government of India Undertaking)

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Technical Schedule

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Schedule - A

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Schedule-A
(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

- (i) Site of the [Two-Lane] Project Highway shall include the land, Buildings, structures and road works, the works executed by the previous contractor, as described in Annex-I of this Schedule-A.
- (ii) The dates of handing over the Right of Way to the Contractor are specified in **Annex-II of this Schedule-A**.
- (iii) An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in **Clause 8.2 (i) of this Agreement**.
- (iv) The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The Contractor, however, improve/upgrade the Road Profile as indicated in **Annex-III** based on site/design requirement. Any discrepancy in the FRL observed in the proposed profile or drawings shall be identified and corrected by the Contractor during the detailed design stage and implemented at site without any additional cost to the Authority.
- (v) The status of the environment clearances obtained or awaited is given in Annex-IV.
- (vi) Contractor should geotagged & mapped along with its physical dimensions' length & width and photographic condition evidence along with date & time stamped for each and every structures / building (commercial/ non-commercial), private land, land use, access roads, revenue & forest land within 100 m each side of the edge of the proposed right of way (PRoW). Contractor shall identify secondary intersecting/ access roads/cross roads, design improvement thereof.

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Annex - I
(Schedule-A)
Site

1.0 Site

The Site of the Two-Lane with paved shoulder Project Highway comprises the section of National Highway NH-510 commencing from km 58+840 to km 90+210 (except km 66+000 to 67+500) between Legship to Gyalshing in the State of Sikkim. The land, carriageway and structures comprising the Site are described below.

2.0 Land

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

Sr. No.	Existing Chainage (Km)		Design Chainage (Km)		Length in km (Design)	Existing/Av ailable ROW	Remarks
	From	To	From	To			
A	Package-V						
1	58+820	59+080	58+840	59+100	0.26	Varying from 20 m to 40 m	Existing
2	23+100	24+000	59+100	60+050	0.95		
3	-	-	60+050	66+000	5.95		New Alignment. Also, refer Annex-II of this Schedule-A
4	-	-	67+500	75+000	7.5		
B	Package-VI						
5	-	-	75+000	90+210	15.210		New Alignment. Also, refer Annex-II of this Schedule-A

3.0 Carriageway

Project Highway is mostly in new alignment. Previous Contractor has executed part works for 2 Lane with paved shoulders configuration. The type of existing pavement is flexible. Details of works executed by the previous Contractor are annexed herewith as Annex-V.

4.0 Major Bridges

The Site includes the following Major Bridge:

Sr.No.	Type of Structure		
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	Chainage (km)	Foundation	Sub Structure	Super Structure	No of Spans with span length (m)	Width (m)
1	58+888	Open	RCC Pier	Box Girder	1x21 + 1x60 + 1x21	12

5.0 Road over-bridges (ROB)/ Road under-bridges (RUB)

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

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

6.0 Grade Separators

The Site includes the following grade separators:

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

7.0 Minor bridges

The Site includes the following minor bridges:

Sr.No.	Chainage (km)	Type of Structure			No of Spans with span length (m)	Width (m)
		Foundation	Sub Structure	Super Structure		
1	NL Road at Km 23.885	Open	RCC abutment	RCC Slab	1x10	13.0
2	NL Road at Km 23.100	Open	RCC abutment	Composite Steel truss	1x48	13.0

8.0 Railway level crossings

The Site includes the following railway level crossings:

Sr. No.	Location (km)	Remarks
Nil		

9. Underpasses (vehicular, non-vehicular)

The Site includes the following underpasses:

Sr. No.	Chainage (km)	Type of Structure	No. of Spans with span length (m)	Width (m)
Nil				

10. Culverts

(i) The Site has the following existing culverts:

Sr. No.	Design Chainage (m)	Type of Culvert	Span/Opening with span length (m)	Width (m)	Remarks
1	23+675	RCC Box	1 x 2	10.0	NL Road
2	60+190	RCC Box	2X2	10.0	NH-510

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3	60+340	RCC Box	2X2	10.0	NH-510
4	60+780	RCC Box	2X2	10.0	NH-510
5	60+905	RCC Box	2X2	10.0	NH-510
6	61+310	RCC Box	2X2	10.0	NH-510
7	61+715	RCC Box	2X2	10.0	NH-510
8	61+800	RCC Box	2X2	10.0	NH-510
9	63+870	RCC Box	2X2	10.0	NH-510
10	64+040	RCC Box	2X2	10.0	NH-510
11	64+520	RCC Box	2X2	10.0	NH-510
12	65+050	RCC Box	2X2	10.0	NH-510
13	71+380	RCC Box	2X2	10.0	NH-510
14	71+645	RCC Box	2X2	10.0	NH-510
15	71+860	Slab	1x1.5	6.0	PMGSY Road
16	71+929	Slab	1x1.5	6.0	PMGSY Road
17	72+086	Slab	1x1.5	6.0	PMGSY Road
18	72+687	Slab	1x1.5	6.0	PMGSY Road
19	72+809	Slab	1x1.5	6.0	PMGSY Road
20	72+840	RCC Box	2X2	10.0	NH-510
21	72+973	Slab	1x1.5	6.0	PMGSY Road
22	73+290	RCC Box	2X2	10.0	NH-510
23	73+480	RCC Box	2X2	10.0	NH-510
24	73+640	RCC Box	2X2	10.0	NH-510
25	73+900	RCC Box	2X2	10.0	NH-510
26	74+035	Slab	1x1.5	6.0	PMGSY Road
27	75+858	Slab	1x1.5	6.0	PMGSY Road
28	75+000	RCC Box	2X2	10.0	NH-510
29	75+140	RCC Box	2X2	10.0	NH-510
30	75+540	RCC Box	2X2	10.0	NH-510
31	75+880	RCC Box	2X2	10.0	NH-510
32	75+980	RCC Box	2X2	10.0	NH-510
33	78+250	RCC Box	2X2	10.0	NH-510
34	79+503	RCC Box	2X2	10.0	NH-510
35	80+270	RCC Box	2X2	10.0	NH-510
36	80+380	RCC Box	2X2	10.0	NH-510
37	80+600	RCC Box	2X2	10.0	NH-510
38	80+740	RCC Box	2X2	10.0	NH-510
39	81+120	RCC Box	2X2	10.0	NH-510
40	81+520	RCC Box	2X2	10.0	NH-510
41	81+800	RCC Box	2X2	10.0	NH-510
42	81+990	RCC Box	2X2	10.0	NH-510
43	82+250	RCC Box	2X2	10.0	NH-510
44	82+450	RCC Box	2X2	10.0	NH-510
45	82+793	Slab	1x1.5	6.0	PMGSY Road
46	82+914	Slab	1x1.5	6.0	PMGSY Road
47	82+970	RCC Box	2X2	10.0	NH-510
48	83+221	Slab	1x1.5	6.0	PMGSY Road
49	83+383	Slab	1x1.5	6.0	PMGSY Road
50	83+480	RCC Box	2X2	10.0	NH-510
51	83+600	RCC Box	2X2	10.0	NH-510
52	84+040	RCC Box	2X2	10.0	NH-510

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53	84+125	RCC Box	2X2	10.0	NH-510
54	84+610	RCC Box	2X2	10.0	NH-510
55	84+740	RCC Box	2X2	10.0	NH-510
56	85+057	RCC Box	2X2	10.0	NH-510
57	85+390	RCC Box	2X2	10.0	NH-510
58	85+700	RCC Box	2X2	10.0	NH-510
59	85+800	RCC Box	2X2	10.0	NH-510
60	85+967	RCC Box	2X2	10.0	NH-510
61	86+210	RCC Box	2X2	10.0	NH-510
62	86+450	RCC Box	2X2	10.0	NH-510
63	86+500	RCC Box	2X2	10.0	NH-510
64	86+910	RCC Box	2X2	10.0	NH-510
65	87+010	RCC Box	2X2	10.0	NH-510
66	87+176	RCC Box	2X2	10.0	NH-510
67	87+200	RCC Box	2X2	10.0	NH-510
68	87+300	RCC Box	2X2	10.0	NH-510
69	87+400	RCC Box	2X2	10.0	NH-510
70	87+760	RCC Box	2X2	10.0	NH-510
71	87+860	RCC Box	2X2	10.0	NH-510
72	88+200	RCC Box	2X2	10.0	NH-510
73	88+390	RCC Box	2X2	10.0	NH-510
74	88+495	RCC Box	2X2	10.0	NH-510
75	89+400	RCC Box	2X2	10.0	NH-510
76	89+719	Slab	1x1.5	6.0	PMGSY Road
77	90+141	Slab	1x1.5	6.0	PMGSY Road

(ii) Previous Contractor has executed works of Culverts whose details are annexed herewith as **Annex-V**.

11. Bus bays

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

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

12. Truck Lay byes

The details of truck lay byes are as follows:

Sr. No.	Chainage (km)	Length (m)	Right Hand Side	Left Hand Side
Nil				

13. Road side drains

The details of the roadside drains are as follows

Sr. No.	Location		Type	
	From km	To km	Masonry/CC (Pucca)	Earthen (Kutcha)
A	Package-V			

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Sr. No.	Location		Type	
	From km	To km	Masonry/CC (Pucca)	Earthen (Kutcha)
1	58+915	59+080	✓	-
2	23+100	24+00	✓	-
B	Package-VI			
3	80+370	80+500	✓	-
4	80+500	80+580	✓	-
5	80+710	80+813	✓	-
6	80+910	80+950	✓	-
7	80+950	81+127	✓	-
8	81+139	81+315	✓	-
9	81+437	81+516	✓	-
10	81+531	81+742	✓	-
11	81+628	81+727	✓	-
12	81+797	81+897	✓	-
13	81+897	81+975	✓	-
14	82+000	82+050	✓	-
15	82+050	82+240	✓	-
16	82+259	82+327	✓	-
17	82+327	82+353	✓	-
18	82+353	82+460	✓	-
19	82+798	82+962	✓	-
20	83+237	83+312	✓	-
21	84+150	84+250	✓	-

14.0 Major junctions

The details of major junctions are as follows:

Sr. No.	Location at	At grade	Separated	Category of Cross Road			
				NH	SH	MDR	Others
1	59+080	✓	-	✓	-	-	-
2	90+210	✓	-	✓	-	-	-

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

15.0 Minor junctions

The details of the minor junctions are as follows:

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Sr. No.	Location at	Type	
		Y- junction	Cross road
NIL			

16. Bypasses

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

Sr. No.	Name of bypass (town)	Chainage		Length (in Km)
		From km	To km	
NIL				

17. Other structure:**(i) Retaining wall**

The details of the retaining wall are as follows:

(ii) Breast wall

The details of the Breast wall are as follows:

18. Details of Existing Utilities: Already executed by previous Contractor.

19. Executed and damaged stretch

The executed works, including box culvert, bridge works, protection works, earthworks, pavement works and other related components carried out at the site, which are found to be damaged, shall be the responsibility of the EPC Contractor to dismantle and reconstruct. Furthermore, during the construction period, if any repair or rectification work is required due to defects, damages, or improper execution, the EPC Contractor shall promptly undertake and complete such works at no additional cost to the Authority/Employer.

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Annex - II

(As per Clause 8.3 (i))

(Schedule-A)**Annex-II Dates for providing Right of Way of Construction Zone**

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

Sl. No.	From km to km	Length (Km)	Width (m)	Date of providing Right of Way*
(1)	(2)	(3)	(4)	(5)
(i) Full Right of Way (full width)	Km 58.84 to 75.00	14.66	Varies from 16.50 m to 40 m	On Appointed Date
	(except km 66.00 to 67.50)			
	Km 75.000 to 90.21	15.21		
(ii) Part Right of Way (part width)	NIL			
(iii) Balance Right of Way (width)	NIL			

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

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Annex - III
(Schedule-A)
Alignment Plans

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

- (i) The alignment of the Project Highway is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be followed by the contractor as minimum FRL. In any case, the finished road level of the project highway shall not be less than those indicated in the alignment plan. The contractor shall, however, improve/upgrade the Road profile as indicated in Annex-III based on site/design requirement.
- (ii) Traffic Signage plan of the Project Highway showing numbers & location of traffic signs are enclosed. The contractor however improve /upgrade upon the traffic signage plan as indicated in Annex-III based on site/design requirement as per the relevant specifications/IRC Codes/ Manual, in addition to MoRTH Circular no. RT-25035/07/2023-RS (Part) (221534), dated 20.07.2023.

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Annex - IV

(Schedule-A)

Annex-IV Environment Clearances

Sr.No.	Clearances	Present Status
1	Environment Clearance	Not Applicable
2	Wildlife Approval	Not Applicable
3	Forest Clearance	Obtained

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Annexure-V
(Schedule-A)

(A) SUBGRADE

Chainage (Km)		Length (m)
From	To	
Package-V		
58+942	59+000	58.00
59+000	59+070	70.00
59+450	59+950	500.00
60+270	60+370	100.00
60+370	60+430	60.00
60+650	60+810	160.00
60+810	60+940	130.00
60+940	61+000	60.00
61+000	61+337	337.00
61+337	61+350	13.00
61+350	61+420	70.00
61+420	61+450	30.00
61+450	61+550	100.00
61+550	61+610	60.00
61+610	61+670	60.00
61+670	61+720	50.00
61+720	61+740	20.00
61+740	61+765	25.00
61+765	61+800	35.00
61+800	61+830	30.00
61+830	61+860	30.00
61+860	61+900	40.00
61+900	61+920	20.00
61+920	61+950	30.00
61+950	61+975	25.00
61+975	62+000	25.00
62+000	62+025	25.00
62+025	62+060	35.00
62+060	62+085	25.00

Chainage (Km)		Length (m)
From	To	
Package-VI		
75+100	75+150	50.00
75+150	75+250	100.00
75+250	75+280	30.00
75+280	75+350	70.00
75+350	75+400	50.00
75+400	75+460	60.00
75+460	75+550	90.00
75+550	75+600	50.00
75+600	75+650	50.00
75+700	75+760	60.00
75+760	75+800	40.00
75+900	76+000	100.00
76+000	76+100	100.00
76+100	76+180	80.00
76+180	76+250	70.00
76+600	76+760	160.00
76+760	76+900	140.00
77+260	77+320	60.00
77+320	77+400	80.00
77+400	77+470	70.00
77+470	77+540	70.00
77+540	77+600	60.00
77+600	77+640	40.00
77+720	77+780	60.00
77+780	77+840	60.00
77+840	77+880	40.00
77+880	77+920	40.00
77+930	77+970	40.00
77+970	78+000	30.00

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

62+085	62+115	30.00
62+115	62+140	25.00
62+140	62+160	20.00
62+160	62+180	20.00
62+180	62+240	60.00
62+240	62+410	170.00
62+410	62+435	25.00
62+435	62+470	35.00
62+470	62+500	30.00
62+500	62+540	40.00
62+540	62+590	50.00
62+590	62+640	50.00
62+640	62+670	30.00
62+670	62+700	30.00
62+700	62+740	40.00
62+740	62+790	50.00
62+790	62+850	60.00
62+850	62+880	30.00
62+880	62+920	40.00
62+920	62+955	35.00
62+955	63+000	45.00
63+000	63+090	90.00
63+090	63+150	60.00
63+150	63+230	80.00
63+230	63+250	20.00
63+250	63+301	51.00
63+369	63+390	21.00
63+390	63+420	30.00
63+420	63+450	30.00
63+450	63+480	30.00
63+480	63+500	20.00
63+500	63+530	30.00
63+530	63+560	30.00
63+560	63+580	20.00
63+580	63+620	40.00
63+620	63+650	30.00
63+650	63+680	30.00
63+680	63+720	40.00
63+720	63+770	50.00

78+000	78+020	20.00
78+020	78+050	30.00
78+050	78+100	50.00
78+100	78+140	40.00
78+140	78+190	50.00
78+190	78+200	10.00
78+200	78+230	30.00
78+230	78+270	40.00
78+270	78+300	30.00
78+300	78+360	60.00
78+360	78+400	40.00
78+400	78+450	50.00
78+450	78+500	50.00
78+500	78+540	40.00
78+540	78+590	50.00
78+590	78+630	40.00
78+630	78+670	40.00
78+680	78+720	40.00
78+720	78+770	50.00
78+770	78+800	30.00
78+800	78+840	40.00
78+840	78+880	40.00
78+880	78+920	40.00
78+920	79+000	80.00
79+000	79+120	120.00
79+120	79+250	130.00
79+250	79+370	120.00
79+370	79+520	150.00
79+520	79+690	170.00
79+690	79+800	110.00
80+000	80+050	50.00
80+050	80+100	50.00
80+100	80+150	50.00
80+150	80+200	50.00
80+200	80+250	50.00
80+250	80+300	50.00
80+300	80+350	50.00
80+350	80+400	50.00
80+400	80+450	50.00

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

63+770	63+800	30.00
63+800	63+850	50.00
63+850	63+900	50.00
63+900	63+920	20.00
63+920	63+950	30.00
63+950	64+000	50.00
64+000	64+050	50.00
64+050	64+100	50.00
64+100	64+130	30.00
64+130	64+180	50.00
64+180	64+280	100.00
64+280	64+300	20.00
64+300	64+320	20.00
64+320	64+340	20.00
64+340	64+360	20.00
64+360	64+380	20.00
64+380	64+400	20.00
64+400	64+420	20.00
64+420	64+440	20.00
64+440	64+580	140.00
64+580	64+600	20.00
64+600	64+620	20.00
64+620	64+640	20.00
64+640	64+660	20.00
64+660	64+680	20.00
64+680	64+700	20.00
64+700	64+720	20.00
64+720	64+750	30.00
64+750	64+820	70.00
64+820	64+840	20.00
64+840	64+860	20.00
64+860	64+880	20.00
64+880	64+900	20.00
64+900	64+920	20.00
64+920	64+940	20.00
64+940	64+960	20.00
64+960	64+980	20.00
64+980	65+000	20.00
65+000	65+020	20.00

80+450	80+500	50.00
80+500	80+550	50.00
80+550	80+600	50.00
80+600	80+620	20.00
80+620	80+720	100.00
80+720	80+910	190.00
80+910	80+950	40.00
80+950	80+970	20.00
80+970	81+000	30.00
81+000	81+130	130.00
81+130	81+140	10.00
81+140	81+300	160.00
81+300	81+370	70.00
81+400	81+420	20.00
81+420	81+530	110.00
81+530	81+580	50.00
81+580	81+630	50.00
81+630	81+680	50.00
81+680	81+730	50.00
81+730	81+780	50.00
81+780	81+800	20.00
81+800	81+810	10.00
81+810	81+860	50.00
81+860	81+910	50.00
81+910	81+980	70.00
81+980	82+000	20.00
82+000	82+050	50.00
82+050	82+100	50.00
82+100	82+150	50.00
82+150	82+200	50.00
82+200	82+250	50.00
82+250	82+300	50.00
82+300	82+350	50.00
82+350	82+400	50.00
82+400	82+450	50.00
82+450	82+500	50.00
82+500	82+550	50.00
82+550	82+700	150.00
82+700	82+750	50.00

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

65+020	65+040	20.00
65+040	65+060	20.00
65+060	65+080	20.00
65+080	65+100	20.00
65+100	65+120	20.00
65+120	65+140	20.00
65+140	65+160	20.00
65+160	65+180	20.00
65+180	65+200	20.00
65+200	65+220	20.00
65+220	65+240	20.00
65+240	65+260	20.00
65+260	65+280	20.00
65+280	65+300	20.00
65+300	65+320	20.00
65+320	65+340	20.00
65+340	65+360	20.00
65+360	65+380	20.00
65+380	65+400	20.00
65+400	65+420	20.00
65+420	65+440	20.00
65+440	65+460	20.00
65+460	65+480	20.00
65+480	65+500	20.00
65+500	65+710	210.00
65+710	65+800	90.00
67+700	67+820	120.00
67+820	68+000	180.00
68+000	68+140	140.00
68+300	68+500	200.00
68+500	68+750	250.00
68+750	69+000	250.00
69+000	69+300	300.00
69+300	69+380	80.00
69+380	69+670	290.00
69+670	69+760	90.00
69+760	69+950	190.00
70+700	70+800	100.00
70+940	70+960	20.00

82+750	82+800	50.00
82+800	82+850	50.00
82+850	82+900	50.00
82+900	82+950	50.00
82+950	83+000	50.00
83+000	83+020	20.00
83+020	83+060	40.00
83+080	83+100	20.00
83+100	83+120	20.00
83+120	83+350	230.00
83+350	83+400	50.00
83+400	83+450	50.00
83+450	83+500	50.00
83+500	83+550	50.00
83+550	83+680	130.00
84+650	84+700	50.00
84+710	84+760	50.00
84+760	84+810	50.00
84+810	84+860	50.00
84+860	84+960	100.00
84+960	85+000	40.00
85+000	85+056	56.00
85+160	85+200	40.00
85+200	85+280	80.00
85+350	85+450	100.00
85+450	85+540	90.00
85+540	85+660	120.00
85+660	85+750	90.00
85+780	85+830	50.00
85+830	85+880	50.00
85+880	85+930	50.00
85+930	85+980	50.00
85+980	86+000	20.00
86+000	86+030	30.00
86+030	86+080	50.00
86+080	86+110	30.00
87+200	87+420	220.00
87+420	87+470	50.00
87+470	87+520	50.00

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

71+000	71+070	70.00
71+140	71+200	60.00
71+200	71+235	35.00
71+235	71+270	35.00
71+270	71+300	30.00
71+300	71+320	20.00
71+320	71+340	20.00
71+340	71+360	20.00
71+360	71+390	30.00
71+390	71+420	30.00
71+420	71+450	30.00
71+450	71+475	25.00
71+475	71+500	25.00
71+500	71+550	50.00
71+550	71+600	50.00
71+600	71+660	60.00
71+660	71+690	30.00
71+690	71+730	40.00
71+730	71+750	20.00
71+750	71+810	60.00
71+810	71+840	30.00
71+840	71+860	20.00
71+860	71+900	40.00
71+900	71+935	35.00
71+935	71+965	30.00
71+965	72+000	35.00
72+000	72+030	30.00
72+030	72+060	30.00
72+060	72+090	30.00
72+090	72+120	30.00
72+120	72+150	30.00
72+150	72+180	30.00
72+180	72+210	30.00
72+210	72+250	40.00
72+250	72+280	30.00
72+280	72+300	20.00
72+300	72+320	20.00
72+320	72+380	60.00
72+510	72+540	30.00

87+520	87+570	50.00
87+570	87+620	50.00
87+620	87+670	50.00
87+670	87+730	60.00
87+730	87+870	140.00
87+870	87+920	50.00
87+920	87+970	50.00
87+970	88+000	30.00
88+000	88+040	40.00
88+040	88+100	60.00
88+100	88+200	100.00
88+200	88+280	80.00
89+050	89+100	50.00
89+150	89+300	150.00
89+320	89+370	50.00
89+370	89+420	50.00
89+420	89+440	20.00
TOTAL PKG-V		10,016.00

Note: Damaged Works are to be rectified by the Contractor.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

72+540	72+630	90.00
72+630	72+650	20.00
72+650	72+680	30.00
72+680	72+710	30.00
72+710	72+740	30.00
72+740	72+760	20.00
72+760	72+800	40.00
72+800	72+830	30.00
72+830	72+860	30.00
72+860	72+900	40.00
72+900	72+925	25.00
72+925	72+950	25.00
72+950	73+000	50.00
73+000	73+070	70.00
73+300	73+370	70.00
73+520	73+620	100.00
73+620	73+670	50.00
73+670	74+000	330.00
74+000	74+160	160.00
74+540	74+550	10.00
74+550	74+700	150.00
74+750	74+950	200.00
74+950	75+000	50.00
TOTAL PKG-V		11,070.00

Note: Damaged Works are to be rectified by the Contractor.

(B) GSB

Chainage		Length (m)
From	To	
Package-V		
58+940	59+070	130.00
59+450	59+550	100.00
59+550	59+650	100.00
59+650	59+750	100.00
59+750	59+850	100.00
59+850	59+950	100.00
60+310	60+400	90.00
60+700	60+800	100.00
60+800	60+900	100.00

Chainage		Length (m)
From	To	
Package-VI		
75+120	75+266	146.00
75+266	75+500	234.00
80+050	80+150	100.00
80+360	80+400	40.00
80+400	80+500	100.00
80+500	80+560	60.00
80+560	80+620	60.00
80+620	80+720	100.00
80+720	80+900	180.00

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

60+900	61+100	200.00
61+100	61+200	100.00
61+200	61+337	137.00
61+337	61+350	13.00
61+350	61+373	23.00
61+373	61+450	77.00
61+450	61+550	100.00
61+550	61+600	50.00
61+600	61+720	120.00
61+720	61+800	80.00
61+850	61+950	100.00
61+950	62+100	150.00
62+100	62+200	100.00
62+200	62+300	100.00
62+300	62+385	85.00
62+385	62+417	32.00
62+417	62+600	183.00
62+600	62+850	250.00
62+850	62+950	100.00
62+950	63+170	220.00
63+170	63+280	110.00
63+370	63+570	200.00
63+570	63+700	130.00
63+700	63+870	170.00
64+050	64+140	90.00
64+180	64+270	90.00
64+270	64+350	80.00
64+350	64+370	20.00
64+370	64+460	90.00
64+460	64+530	70.00
64+530	64+650	120.00
64+650	64+880	230.00
64+920	65+020	100.00
65+040	65+150	110.00
65+150	65+200	50.00
65+200	65+210	10.00
65+210	65+310	100.00
65+310	65+750	440.00
71+200	71+250	50.00

80+900	81+020	120.00
81+020	81+100	80.00
81+100	81+150	50.00
81+150	81+230	80.00
81+230	81+280	50.00
81+280	81+330	50.00
81+330	81+360	30.00
81+400	81+470	70.00
81+470	81+530	60.00
81+530	81+580	50.00
81+580	81+630	50.00
81+630	81+680	50.00
81+680	81+730	50.00
81+730	81+780	50.00
81+780	81+800	20.00
81+800	81+900	100.00
81+900	81+950	50.00
82+000	82+050	50.00
82+050	82+150	100.00
82+150	82+260	110.00
82+260	82+300	40.00
82+300	82+360	60.00
82+360	82+410	50.00
82+410	82+460	50.00
82+460	82+510	50.00
82+510	82+550	40.00
82+550	82+620	70.00
82+700	82+770	70.00
82+770	82+864	94.00
82+864	82+914	50.00
82+914	82+974	60.00
82+974	83+030	56.00
83+080	83+120	40.00
83+120	83+360	240.00
83+360	83+460	100.00
83+460	83+560	100.00
83+560	83+570	10.00
84+750	84+850	100.00
84+850	84+950	100.00

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

71+250	71+370	120.00
71+410	71+500	90.00
71+500	71+600	100.00
71+600	71+700	100.00
71+700	71+950	250.00
71+950	72+070	120.00
72+070	72+180	110.00
72+180	72+220	40.00
72+250	72+300	50.00
72+300	72+380	80.00
72+800	73+000	200.00
73+540	73+605	65.00
73+615	73+715	100.00
73+715	73+885	170.00
73+885	74+019	134.00
74+029	74+120	91.00
TOTAL PKG-V		7220.00

Note: Damaged Works are to be rectified by the Contractor.

84+950	85+056	106.00
85+320	85+390	70.00
85+390	85+540	150.00
85+540	85+660	120.00
85+660	85+720	60.00
87+200	87+400	200.00
87+400	87+700	300.00
87+700	88+000	300.00
88+000	88+200	200.00
88+200	88+280	80.00
89+150	89+300	150.00
TOTAL PKG-VI		5406.00

Note: Damaged Works are to be rectified by the Contractor.

(C) WMM

Chainage		Length (m)
From	To	
Package-V		
58+942	59+070	128.00
59+450	59+550	100.00
59+550	59+650	100.00
59+650	59+750	100.00
59+750	59+850	100.00
59+850	59+950	100.00
60+310	60+400	90.00
60+700	60+870	170.00
60+870	60+950	80.00
60+950	61+350	400.00
61+350	61+450	100.00
61+450	61+550	100.00
61+550	61+650	100.00
61+650	61+850	200.00
61+900	62+175	275.00
62+175	62+200	25.00

Chainage		Length (m)
From	To	
Package-VI		
75+120	75+300	180.00
80+380	80+400	20.00
80+400	80+620	220.00
80+620	80+900	280.00
80+900	81+000	100.00
81+000	81+100	100.00
81+100	81+150	50.00
81+150	81+250	100.00
81+250	81+350	100.00
81+400	81+500	100.00
81+500	81+600	100.00
81+600	81+700	100.00
81+700	81+800	100.00
81+800	81+900	100.00
81+900	81+950	50.00
82+000	82+080	80.00

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

62+300	62+385	85.00
62+385	62+600	215.00
62+600	62+800	200.00
62+800	63+000	200.00
63+000	63+250	250.00
63+450	63+860	410.00
64+050	64+140	90.00
64+280	64+460	180.00
64+460	64+530	70.00
64+530	64+700	170.00
64+700	64+900	200.00
65+060	65+300	240.00
65+300	65+500	200.00
65+500	65+660	160.00
71+220	71+250	30.00
71+250	71+370	120.00
71+410	71+500	90.00
71+500	71+550	50.00
71+550	71+600	50.00
71+600	71+700	100.00
71+700	71+800	100.00
71+800	71+950	150.00
71+950	72+070	120.00
72+070	72+180	110.00
72+180	72+220	40.00
72+250	72+300	50.00
72+300	72+380	80.00
72+800	73+000	200.00
73+540	73+605	65.00
73+615	73+715	100.00
73+715	73+885	170.00
73+885	74+019	134.00
74+029	74+120	91.00
TOTAL PKG-V		6688.00

Note: Damaged Works are to be rectified by the Contractor.

82+080	82+100	20.00
82+100	82+260	160.00
82+260	82+360	100.00
82+360	82+460	100.00
82+460	82+510	50.00
82+510	82+620	110.00
82+700	82+770	70.00
82+770	82+870	100.00
82+870	82+970	100.00
82+970	83+030	60.00
83+080	83+120	40.00
83+120	83+550	430.00
84+750	84+800	50.00
84+800	84+850	50.00
84+850	85+050	200.00
87+200	87+700	500.00
87+800	88+280	480.00
TOTAL PKG-VI		4400.00

Note: Damaged Works are to be rectified by the Contractor.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(e) DBM

Chainage		Length (m)
From	To	
Package-V		
58+940	59+070	130.00
59+450	59+550	100.00
59+550	59+650	100.00
59+650	59+750	100.00
59+750	59+850	100.00
59+850	59+950	100.00
60+800	60+960	160.00
60+960	61+210	250.00
61+210	61+330	120.00
61+330	61+340	10.00
61+340	61+500	160.00
61+500	61+670	170.00
61+670	61+800	130.00
61+930	62+130	200.00
62+130	62+180	50.00
62+290	62+400	110.00
62+400	62+550	150.00
62+550	62+720	170.00
62+720	62+950	230.00
62+950	63+180	230.00
63+470	63+700	230.00
63+700	63+860	160.00
64+185	64+400	215.00
64+400	64+600	200.00
64+720	64+960	240.00
65+060	65+330	270.00
65+350	65+380	30.00
65+400	65+470	70.00
65+490	65+590	100.00
65+610	65+660	50.00
71+460	71+500	40.00
71+500	71+560	60.00
72+060	72+160	100.00
73+320	73+450	130.00
73+480	73+610	130.00

Chainage		Length (m)
From	To	
Package-VI		
80+380	80+400	20.00
80+400	80+620	220.00
80+720	81+120	400.00
81+120	81+350	230.00
81+410	81+900	490.00
82+040	82+080	40.00
82+080	82+500	420.00
82+500	82+580	80.00
82+700	82+780	80.00
82+780	82+970	190.00
82+970	83+040	70.00
83+100	83+350	250.00
83+350	83+570	220.00
84+750	84+840	90.00
84+850	85+055	205.00
87+260	87+700	440.00
87+800	88+280	480.00
TOTAL PKG-VI		3925.00

Note: Damaged Works are to be rectified by the Contractor.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

73+650	73+805	155.00
73+805	74+005	200.00
74+035	74+120	85.00
TOTAL PKG-V		5235.00

Note: Damaged Works are to be rectified by the Contractor.

(e) Culverts

Sr. No.	Chainage	Type	Size/ Opening	Remarks
Package-V				
1	60+190	Type-1	2X2	Part Completed
2	60+340	Type-1	2X2	Part Completed
3	60+780	Type-1	2X2	Completed
4	60+905	Type-1	2X2	Completed
5	61+310	Type-1	2X2	Completed
6	61+715	Type-1	2X2	Completed
7	61+800	Type-1	2X2	Completed
8	63+870	Type-1	2X2	Completed
9	64+040	Type-1	2X2	Completed
10	64+520	Type-1	2X2	Completed
11	65+050	Type-1	2X2	Completed
12	71+380	Type-1	2X2	Completed
13	71+645	Type-1	2X2	Part Completed
14	71+860	Type-1	2X2	Completed
15	71+929	Type-1	2X2	Completed
16	72+080	Type-1	2X2	Part Completed
17	72+687	Type-1	2X2	Completed

Sr. No.	Chainage	Type	Size/ Opening	Remarks
Package-VI				
1	75+000	Type-1	2X2	Part Completed
2	75+140	Type-1	2X2	Part Completed
3	75+540	Type-1	2X2	Part Completed
4	75+880	Type-2	1X3	Part Complete
5	75+980	Type-1	2X2	Part Completed
6	78+250	Type-1	2X2	Part Completed
7	79+503	Type-1	2X2	Part Completed
8	80+270	Type-1	2X2	Completed
9	80+380	Type-1	2X2	Completed
10	80+600	Type-1	2X2	Completed
11	80+740	Type-1	2X2	Completed
12	81+120	Type-1	2X2	Completed
13	81+520	Type-1	2X2	Part Completed
14	81+800	Type-1	2X2	Completed
15	81+990	Type-1	2X2	Completed
16	82+250	Type-1	2X2	Completed

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

18	72+840	Type-1	2X2	Completed
19	72+973	Type-1	2X2	Completed
20	73+290	Type-1	2X2	Completed
21	73+480	Type-1	2X2	Completed
22	73+640	Type-1	2X2	Completed
23	73+900	Type-1	2X2	Part Completed
24	74+035	Type-1	2X2	Part Completed

Note: Damaged Works are to be rectified by the Contractor.

17	82+450	Type-1	2X2	Part Completed
18	82+970	Type-1	2X2	Part Completed
19	83+480	Type-1	2X2	Completed
20	83+600	Type-1	2X2	Completed
21	84+040	Type-1	2X2	Completed
22	84+125	Type-1	2X2	Part Completed
23	84+610	Type-1	2X2	Part Completed
24	84+740	Type-1	2X2	Part Completed
25	85+057	Type-1	2X2	Completed
26	85+390	Type-1	2X2	Completed
27	85+700	Type-1	2X2	Completed
28	85+800	Type-1	2X2	Completed
29	85+967	Type-1	2X2	Completed
30	86+210	Type-1	2X2	Completed
31	86+450	Type-1	2X2	Completed
32	86+500	Type-1	2X2	Completed
33	86+910	Type-1	2X2	Completed
34	87+010	Type-1	2X2	Completed
35	87+176	Type-1	2X2	Completed
36	87+200	Type-1	2X2	Damaged
37	87+300	Type-1	2X2	Completed
38	87+400	Type-1	2X2	Completed

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

39	87+760	Type-1	2X2	Completed
40	87+860	Type-1	2X2	Completed
41	88+200	Type-1	2X2	Part Completed
42	88+390	Type-1	2X2	Completed
43	88+495	Type-1	2X2	Completed
44	89+400	Type-1	2X2	Completed

Note: Damaged Works are to be rectified by the Contractor.

(f) Bridge

Location	Span (m)	Remarks
63+335	1x20 + 1x48	a. PSC I Girder b. 01 span of 1x20 completed. c. Balance Work (1x48): A2 foundation & Substructure balance. Superstructure (incl. Girder, Expansion Joints, bearing etc), Approaches & Miscellaneous works are also balance.
74+335	1x20+1x48+1x20	a. PSC I Girder b. Foundation and Sub-structure completed. c. Superstructure (incl. Girder, Expansion Joints, bearing etc), Approaches & Miscellaneous works are balance.

(g) Retaining Wall

Chainage		Length (m)
From	To	
Package-V		
58+945	58+965	020
58+965	58+975	010
58+975	58+985	010
58+985	58+995	010
58+995	59+010	015
59+010	59+057	047
60+195	60+223	028
60+223	60+233	010
60+253	60+293	040
60+300	60+330	030
60+340	60+350	010
60+380	60+430	050

Chainage		Length (m)
From	To	
Package-VI		
75+000	75+010	010
75+010	75+030	020
75+090	75+110	020
75+110	75+120	010
75+132	75+150	018
75+150	75+160	010
75+160	75+170	010
75+170	75+180	010
75+180	75+200	020
75+200	75+215	015
75+215	75+230	015
75+230	75+250	020

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

60+770	60+790	020
60+790	60+800	010
60+800	60+810	010
60+985	60+995	010
60+995	61+005	010
61+005	61+015	010
61+070	61+085	015
61+085	61+100	015
61+100	61+110	010
61+110	61+120	010
61+130	61+140	010
61+140	61+150	010
61+150	61+160	010
61+160	61+170	010
61+170	61+180	010
61+180	61+190	010
61+190	61+200	010
61+200	61+212	012
61+212	61+238	026
61+268	61+281	013
61+610	61+615	005
61+615	61+635	020
61+635	61+645	010
61+645	61+665	020
61+665	61+670	005
61+670	61+680	010
61+680	61+690	010
61+690	61+700	010
61+700	61+720	020
61+720	61+735	015
61+735	61+750	015
61+750	61+760	010
61+760	61+775	015
61+775	61+790	015
61+790	61+820	030
61+870	61+895	025
61+895	61+920	025
61+920	61+931	011
62+060	62+070	010
62+070	62+100	030
62+100	62+120	020

75+250	75+270	020
75+810	75+820	010
75+840	75+850	010
75+850	75+860	010
75+860	75+870	010
75+870	75+880	010
75+880	75+890	010
75+900	75+920	020
75+920	75+940	020
75+940	75+950	010
75+950	75+965	015
75+965	75+980	015
75+980	75+990	010
75+990	76+010	020
76+010	76+030	020
76+030	76+070	040
77+830	77+840	010
77+840	77+860	020
77+980	78+000	020
78+000	78+020	020
78+020	78+040	020
78+040	78+050	010
78+050	78+065	015
78+065	78+095	030
78+180	78+245	065
78+255	78+275	020
78+275	78+295	020
78+295	78+340	045
78+400	78+420	020
80+200	80+210	010
80+210	80+220	010
80+220	80+240	020
80+250	80+280	030
80+350	80+380	030
80+380	80+400	020
80+400	80+420	020
80+420	80+440	020
80+440	80+460	020
80+460	80+470	010
80+470	80+490	020
80+490	80+520	030

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

62+120	62+140	020
62+140	62+150	010
62+150	62+160	010
62+216	62+230	014
62+240	62+250	010
62+250	62+260	010
62+260	62+270	010
62+270	62+320	050
62+546	62+580	034
62+580	62+620	040
62+885	62+915	030
62+915	62+935	020
62+935	62+985	050
62+985	63+014	029
63+014	63+044	030
63+044	63+080	036
63+100	63+120	020
63+687	63+700	013
63+700	63+710	010
63+710	63+720	010
63+720	63+740	020
63+740	63+750	010
63+750	63+770	020
63+770	63+780	010
63+780	63+790	010
63+790	63+800	010
65+090	65+110	020
65+110	65+135	025
65+155	65+173	018
65+190	65+220	030
65+220	65+240	020
65+690	65+710	020
70+700	70+750	050
70+750	70+770	020
70+860	70+880	020
70+880	70+900	020
70+900	70+910	010
70+910	70+945	035
71+300	71+330	030
71+610	71+645	035
71+645	71+670	025

80+520	80+530	010
80+540	80+570	030
80+570	80+590	020
80+600	80+610	010
80+610	80+620	010
80+620	80+641	021
80+641	80+651	010
80+680	80+700	020
80+700	80+715	015
80+725	80+745	020
80+745	80+775	030
80+775	80+780	005
80+780	80+790	010
80+930	80+936	006
80+940	80+960	020
80+960	80+980	020
80+990	81+000	010
81+000	81+040	040
81+040	81+057	017
81+185	81+200	015
81+200	81+225	025
81+230	81+250	020
81+250	81+270	020
81+270	81+280	010
81+280	81+300	020
81+300	81+320	020
81+320	81+340	020
81+340	81+360	020
81+360	81+380	020
81+380	81+390	010
81+390	81+400	010
81+400	81+420	020
81+420	81+435	015
81+435	81+450	015
81+450	81+460	010
81+460	81+480	020
81+480	81+490	010
81+530	81+540	010
81+540	81+560	020
81+560	81+570	010
81+570	81+580	010

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

71+670	71+680	010
71+680	71+685	005
71+770	71+800	030
71+800	71+825	025
71+825	71+850	025
71+850	71+893	043
71+893	71+902	009
71+902	71+922	020
71+922	71+940	018
71+940	71+950	010
71+950	71+960	010
72+040	72+060	020
72+130	72+150	020
72+150	72+170	020
72+170	72+200	030
72+200	72+220	020
72+220	72+240	020
72+240	72+250	010
72+250	72+270	020
72+270	72+280	010
72+280	72+300	020
72+300	72+330	030
72+330	72+340	010
72+340	72+360	020
72+360	72+380	020
72+475	72+505	030
72+505	72+535	030
72+585	72+607	022
73+150	73+175	025
73+175	73+200	025
73+550	73+565	015
73+565	73+580	015
73+580	73+600	020
73+600	73+620	020
73+620	73+640	020
73+650	73+670	020
73+670	73+690	020
73+750	73+780	030
73+780	73+800	020
73+800	73+850	050
73+850	73+890	040

81+580	81+590	010
81+590	81+610	020
81+610	81+620	010
81+620	81+640	020
81+640	81+648	008
81+820	81+840	020
81+840	81+850	010
81+850	81+860	010
81+950	81+960	010
81+960	81+970	010
81+970	81+980	010
81+980	81+990	010
81+990	82+010	020
82+010	82+025	015
82+025	82+040	015
82+110	82+130	020
82+130	82+140	010
82+140	82+160	020
82+160	82+170	010
82+170	82+180	010
82+180	82+200	020
82+200	82+220	020
82+220	82+230	010
82+400	82+420	020
82+600	82+638	038
82+660	82+685	025
82+700	82+710	010
82+710	82+740	030
82+740	82+745	005
82+710	82+740	030
82+770	82+780	010
82+780	82+795	015
82+795	82+810	015
82+810	82+820	010
82+820	82+840	020
82+890	82+905	015
82+905	82+920	015
82+920	82+930	010
82+950	82+960	010
82+970	82+980	010
82+980	83+000	020

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

73+900	73+920	020
73+920	73+930	010
74+100	74+130	030
74+145	74+165	020
74+960	75+000	040
TOTAL PKG-V		2,763.00

Note: Damaged Works are to be rectified by the Contractor.

83+100	83+110	010
83+015	83+040	025
83+040	83+050	010
83+050	83+057	007
83+057	83+067	010
83+067	83+090	023
83+150	83+170	020
83+170	83+180	010
83+200	83+220	020
83+220	83+230	010
83+290	83+330	040
83+330	83+340	010
83+340	83+360	020
83+360	83+380	020
83+380	83+400	020
83+400	83+420	020
83+460	83+480	020
83+480	83+490	010
83+570	83+590	020
83+611	83+615	004
83+628	83+632	004
83+680	83+690	010
83+690	83+700	010
84+043	84+046	003
84+053	84+074	021
84+074	84+110	036
84+110	84+120	010
84+155	84+185	030
84+200	84+230	030
84+565	84+601	036
84+601	84+646	045
84+690	84+700	010
84+738	84+745	008
84+755	84+760	005
84+760	84+800	040
84+800	84+815	015
84+865	84+885	020
84+885	84+905	020
84+916	84+940	024
85+011	85+022	011
85+022	85+049	027

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

85+049	85+054	005
85+058	85+066	009
85+111	85+120	009
85+120	85+130	010
85+130	85+140	010
85+140	85+164	024
85+164	85+194	030
85+242	85+270	028
85+270	85+290	020
85+330	85+350	020
85+420	85+466	046
85+660	85+690	030
85+690	85+697	007
85+710	85+730	020
85+730	85+760	030
85+760	85+783	023
85+785	85+800	015
85+800	85+822	022
85+830	85+840	010
85+840	85+860	020
85+860	85+870	010
85+940	85+950	010
85+950	85+980	030
86+051	86+076	025
86+187	86+205	018
86+239	86+264	025
86+264	86+289	025
86+289	86+299	010
86+417	86+446	029
86+454	86+470	016
86+510	86+530	020
86+913	86+991	078
87+038	87+116	078
87+125	87+174	049
87+174	87+184	010
87+184	87+193	009
87+760	87+770	010
87+770	87+850	080
87+850	87+870	020
88+030	88+060	030
88+060	88+080	020

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

88+080	88+110	030
88+200	88+230	030
88+230	88+245	015
88+255	88+280	025
88+280	88+290	010
88+323	88+340	017
88+340	88+366	026
89+030	89+040	010
89+040	89+060	020
89+060	89+080	020
89+150	89+170	020
89+220	89+240	020
89+240	89+256	016
89+340	89+390	050
89+400	89+410	010
89+410	89+420	010
89+420	89+430	010
89+430	89+440	010
89+440	89+450	010
TOTAL PKG-VI		4374

Note: Damaged Works are to be rectified by the Contractor.

(h) Breast Wall

Chainage		Length (m)
From	To	
60+230	60+260	30.000
60+260	60+300	40.000
60+300	60+325	25.000
60+965	60+990	25.000
60+990	61+015	25.000
61+015	61+040	25.000
61+040	61+060	20.000
61+060	61+070	10.000
61+080	61+107	27.000
61+565	61+582	17.000
61+582	61+605	23.000
61+915	61+935	20.000
62+305	62+325	20.000
62+325	62+347	22.000
62+580	62+599	19.000
62+599	62+610	11.000

Chainage		Length (m)
From	To	
75+160	75+180	020
75+180	75+200	020
75+200	75+210	010
75+210	75+220	010
75+220	75+240	020
75+240	75+250	010
75+250	75+265	015
75+265	75+270	005
75+270	75+280	010
75+280	75+310	030
75+310	75+320	010
75+320	75+330	010
75+330	75+340	010
75+340	75+350	010
75+350	75+360	010
75+360	75+370	010

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-VI)**

62+610	62+640	30.000
62+640	62+660	20.000
62+660	62+672	12.000
63+495	63+530	35.000
63+530	63+556	26.000
63+700	63+725	25.000
63+725	63+750	25.000
64+040	64+050	10.000
64+050	64+080	30.000
64+137	64+152	15.000
64+176	64+186	10.000
64+186	64+208	22.000
64+220	64+240	20.000
64+365	64+385	20.000
64+385	64+405	20.000
64+405	64+425	20.000
64+425	64+445	20.000
64+445	64+465	20.000
64+830	64+840	10.000
64+955	64+965	10.000
64+965	64+980	15.000
64+980	64+990	10.000
70+680	70+705	25.000
70+890	70+900	10.000
70+900	70+910	10.000
71+000	71+012	12.000
71+130	71+160	30.000
71+230	71+250	20.000
71+250	71+290	40.000
71+290	71+300	10.000
71+300	71+360	60.000
71+360	71+370	10.000
71+410	71+460	50.000
71+460	71+500	40.000
71+500	71+540	40.000
71+540	71+580	40.000
71+580	71+590	10.000
71+590	71+600	10.000
71+600	71+615	15.000

75+370	75+380	010
75+380	75+390	010
75+390	75+400	010
75+400	75+410	010
75+410	75+430	020
75+430	75+450	020
75+450	75+512	062
75+530	75+550	020
75+550	75+560	010
75+560	75+570	010
75+570	75+600	030
75+600	75+620	020
75+620	75+640	020
75+640	75+660	020
75+660	75+680	020
75+680	75+705	025
75+770	75+780	010
75+780	75+820	040
75+820	75+840	020
75+840	75+850	010
75+900	75+910	010
75+910	75+920	010
75+920	75+930	010
75+930	75+940	010
75+940	75+960	020
75+960	75+970	010
75+980	75+990	010
77+220	77+240	020
77+240	77+260	020
77+520	77+530	010
77+530	77+540	010
77+540	77+550	010
78+300	78+310	010
80+150	80+165	015
80+165	80+180	015
80+180	80+191	011
80+191	80+210	019
80+210	80+220	010
80+220	80+230	010

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

71+665	71+690	25.000
71+690	71+710	20.000
71+710	71+760	50.000
71+760	71+790	30.000
71+877	71+887	10.000
71+887	71+937	50.000
71+940	71+950	10.000
71+950	72+000	50.000
72+000	72+070	70.000
72+110	72+130	20.000
72+130	72+150	20.000
72+150	72+170	20.000
72+170	72+200	30.000
72+310	72+320	10.000
72+320	72+330	10.000
72+330	72+350	20.000
72+350	72+365	15.000
72+365	72+380	15.000
72+453	72+476	23.000
72+488	72+500	12.000
72+500	72+510	10.000
72+520	72+540	20.000
72+550	72+590	40.000
72+590	72+610	20.000
72+610	72+620	10.000
72+620	72+630	10.000
TOTAL PKG-V		1836.000

Note: Damaged Works are to be rectified by the Contractor.

80+230	80+240	010
80+240	80+255	015
80+265	80+300	035
80+300	80+320	020
80+320	80+345	025
80+345	80+360	015
80+370	80+420	050
80+420	80+435	015
80+435	80+445	010
80+550	80+570	020
80+570	80+580	010
80+580	80+590	010
80+590	80+600	010
80+610	80+620	010
80+670	80+680	010
80+680	80+690	010
80+690	80+700	010
80+700	80+710	010
80+710	80+720	010
80+900	80+930	030
80+930	80+970	040
80+970	80+980	010
80+980	80+990	010
80+990	81+000	010
81+000	81+010	010
81+010	81+020	010
81+020	81+030	010
81+030	81+050	020
81+050	81+070	020
81+070	81+080	010
81+080	81+095	015
81+095	81+110	015
81+230	81+250	020
81+250	81+270	020
81+270	81+290	020
81+290	81+310	020
81+310	81+330	020
81+330	81+350	020
81+350	81+360	010
81+410	81+420	010

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

81+420	81+430	010
81+430	81+450	020
81+450	81+470	020
81+650	81+670	020
81+670	81+680	010
81+690	81+710	020
81+710	81+735	025
81+810	81+830	020
81+850	81+880	030
81+880	81+900	020
81+900	81+920	020
81+920	81+940	020
81+940	81+950	010
81+950	81+970	020
81+970	81+975	005
81+990	82+000	010
82+000	82+010	010
82+010	82+040	030
82+040	82+050	010
82+685	82+701	016
82+745	82+765	020
82+790	82+805	015
82+805	82+820	015
82+820	82+830	010
82+830	82+840	010
82+840	82+860	020
82+860	82+870	010
82+870	82+890	020
83+257	83+287	030
83+380	83+390	010
83+390	83+410	020
83+410	83+420	010
83+570	83+620	050
84+562	84+610	048
84+623	84+646	023
84+649	84+669	020
84+669	84+715	046
84+860	84+890	030
84+890	84+900	010
84+900	84+920	020
84+920	84+940	020

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

84+940	84+960	020
84+960	84+980	020
84+980	84+990	010
84+990	85+030	040
85+359	85+389	030
85+392	85+402	010
85+407	85+438	031
85+450	85+500	050
85+660	85+690	030
86+280	86+300	020
87+257	87+277	020
87+277	87+300	023
87+300	87+334	034
87+454	87+464	010
87+492	87+531	039
87+960	87+979	019
87+980	88+040	060
88+090	88+120	030
88+120	88+170	050
88+245	88+257	012
88+257	88+275	018
88+290	88+320	030
88+980	89+030	050
89+030	89+040	010
TOTAL PKG-VI		2971

Note: Damaged Works are to be rectified by the Contractor.

(i) Drain

Chainage		Length (m)
From	To	
Package-V		
59+388	59+488	100
59+488	59+588	100
59+588	59+688	100
59+688	59+820	132
71+300	71+365	065
71+452	71+560	108
71+560	71+750	190
71+750	71+860	110
71+950	72+050	100
72+050	72+150	100
TOTAL PKG-V		1105

Chainage		Length (m)
From	To	
Package-VI		
80+365	80+595	230
80+715	80+820	105
80+825	81+042	217
81+052	81+200	148
81+365	81+448	083
81+458	81+495	037
81+595	81+650	055
81+650	81+690	040
81+721	81+900	179
81+920	82+220	300
82+220	82+273	053

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-VI)**

Note: Damaged Works are to be rectified by the Contractor.

82+300	82+410	110
82+731	82+895	164
83+154	83+252	098
Total PKG-VI		1819

Note: Damaged Works are to be rectified by the Contractor.

(i) Gabion Wall for Road Works

Chainage		Length (m)
From	To	
Package-V		
75+535	75+545	10.00
82+050	82+110	60.00
82+110	82+122	12.00
82+122	82+140	18.00
82+140	82+160	20.00
82+160	82+175	15.00
82+175	82+195	20.00
82+195	82+250	55.00
85+300	85+328	28.00
88+155	88+200	45.00
88+200	88+264	64.00
TOTAL PKG-VI		347.00

Note: Damaged Works are to be rectified by the Contractor.

Chainage		Length (m)
From	To	
Package-VI		
61+100	61+110	10.00
61+110	61+120	10.00
61+120	61+130	10.00
61+130	61+140	10.00
62+800	62+850	50.00
63+070	63+080	10.00
63+080	63+092	10.00
63+760	63+840	80.00
63+840	63+860	20.00
63+890	63+950	60.00
63+950	63+960	10.00
63+960	63+970	10.00
63+970	63+980	10.00
63+980	63+990	10.00
63+990	64+000	10.00
64+000	64+010	10.00
64+010	64+020	10.00
64+020	64+030	10.00
64+260	64+270	10.00
64+270	64+278	10.00
64+522	64+532	10.00
65+780	65+810	30.00
68+765	68+775	10.00
68+775	68+795	20.00
68+795	68+805	10.00
68+805	68+813	8.00
68+813	68+850	37.00
68+850	68+874	24.00
68+874	68+901	27.00

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

69+100	69+120	20.00
69+130	69+145	15.00
69+145	69+153	8.00
69+157	69+177	20.00
69+177	69+220	43.00
69+700	69+720	20.00
69+720	69+740	20.00
69+740	69+760	20.00
69+760	69+780	20.00
69+780	69+800	20.00
71+275	71+290	15.00
71+440	71+448	8.00
71+540	71+555	15.00
71+555	71+570	15.00
71+570	71+585	15.00
73+770	73+850	80.00
74+055	74+077	22.00
74+090	74+115	25.00
TOTAL PKG-VI		947.00

Note: Damaged Works are to be rectified by the Contractor.

(k) Gabion Wall for Dumping Yard

Location	Side	Length (m)
Package-V		
60+500	RHS	100
62+000	RHS	30
71+500	RHS	35
71+470	RHS	30
72+750	RHS	255
72+800	RHS	175
73+100	RHS	90
64+250	RHS	100
73+430	RHS	30
74+430	RHS	38
TOTAL PKG-V		883

Note: Damaged Works are to be rectified by the Contractor.

(l) Toe Wall along Road

Chainage		Length (m)
From	To	
Package-V		

Location	Side	Length (m)
Package-VI		
75+500	RHS	30
75+770	RHS	30
75+800	RHS	25
78+100	RHS	40
79+800	RHS	30
89+600	RHS	30
75+550	RHS	150
76+200	RHS	35
TOTAL PKG-VI		370

Note: Damaged Works are to be rectified by the Contractor.

Chainage		Length (m)
From	To	
Package-VI		

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

60+510	60+540	30.00
60+540	60+570	30.00
61+820	61+840	20.00
62+050	62+070	20.00
62+200	62+215	15.00
62+230	62+270	40.00
62+365	62+387	22.00
71+020	71+035	15.00
TOTAL PKG-V		192.00

Note: Damaged Works are to be rectified by the Contractor.

80+180	80+200	20.00
80+240	80+250	10.00
80+280	80+300	20.00
81+370	81+385	15.00
82+740	82+750	10.00
82+750	82+760	10.00
82+760	82+770	10.00
83+025	83+040	15.00
83+650	83+680	30.00
84+045	84+052	7.00
84+122	84+129	7.00
84+603	84+618	15.00
84+745	84+755	10.00
86+215	86+238	23.00
86+470	86+480	10.00
86+906	86+913	7.00
87+116	87+125	9.00
89+150	89+220	70.00
TOTAL PKG-VI		298.00

Note: Damaged Works are to be rectified by the Contractor.

(m) Toe Wall (Dumping Yard)

Location	Side	Length (m)
Package-V		
60+425	RHS	13.00
60+438	RHS	30.00
60+468	RHS	10.00
60+478	RHS	89.00
61+605	RHS	15.00
61+830	RHS	30.00
70+650	LHS	100.00
71+075	RHS	25.00
71+280	RHS	13.00
74+074	RHS	23.00
74+440	RHS	30.00
TOTAL PKG-V		378.00

Location	Side	Length (m)
Package-VI		
80+300	RHS	30.00
83+210	RHS	15.00
84+550	LHS	15.00
86+500	RHS	10.00
86+530	RHS	12.50
88+366	LHS	29.00
88+395	LHS	15.50
88+415	LHS	65.00
88+480	LHS	10.00
88+490	LHS	11.50
TOTAL PKG-VI		214.00

Note: Damaged Works are to be rectified by the Contractor

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - B

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - B

(See Clause 2.1)

Development of 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 Widening & Up-gradation/Construction of Project Highway

Widening & up-gradation/Construction of Project Highway shall include Two-Laning with paved shoulder of the Project Highway as described in Annex-I of Schedule-B and Schedule-C.

3 Specifications and Standards

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim- (**Package-VI**)

Annex -I (Schedule-B)

1. Description of Two-Lane with Paved Shoulder

The Site of the Two-Lane with paved shoulder Project Highway comprises the section of National Highway-510 commencing from Legship to Gyalshing:

(a) Package-V: From km 58+840 to km 75+000 (except from km 66+000 to 67+500)

(b) Package-VI: From km 75+000 to 90+210

The land, carriageway and structures comprising the site are described below.

1.1 Widening of the Existing Highway

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

1.2 Width of Carriageway

Two-laning with paved shoulder shall be undertaken. The paved carriageway shall be 7.0m wide with 0.9m paved shoulder on both sides in accordance with the typical cross-section drawings.

On Horizontal Curves, roadways width should be increased to provide for extra widening at Curves as per Cl. 6.8.5 of IRC: SP: 48-1998 & IRC: 52-2019.

Provided that in the built-up areas, the width of the carriageway shall be as specified in the following table:

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Sr. No	Built-up Stretch (Township)	Location		Width (m)	Typical cross-section
		From	To		
A	Package-V				
1	Legship Town (NH-510)	58+940	59+980	7	As per TCS attached
2	Rangsang Village	60+100	63+300	7	
3	Lower Bermiok Village	63+500	67+100	7	
4	Lower Martam Village	67+500	70+000	7	
5	Lower Pechrek Village	70+700	73+600	7	
6	Higoan Village	73+600	74+300	7	
7	Sardung Village	74+300	75+000	7	
B	Package-VI				
8	Sardung Village	75+000	76+400	7	As per TCS attached
9	Lichyum Village	76+400	80+800	7	
10	Tikchek Village	80+800	85+400	7	
11	Kingsa Village	85+400	90+210	7	
12	Gyalshing Town (on Existing NH-510)	Peling Fatak	90+210	Existing road width	

- (i) From Peling Fatak of existing NH-510 to Design Km 90+210 of new alignment (Merging with New Alignment) shall be restore and rehabilitate the pavement work and shoulder and side drain

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

2. Geometric Design and General Features

2.1 General

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the Manual, referred to as the Manual in Sch-D or another relevant IRC codes.

2.2 Design Speed

The design speed shall be the minimum design speed of 30/40 km/h for hilly terrain, except at hairpin bends.

2.3 Improvement of the Existing Road Geometrics

In the following sections, where improvement of the existing road geometries to the prescribed standards is not possible, the existing road geometries shall be

Balance Works for:

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(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

improved to the extent possible within the given right of way, and proper road signs and safety measures shall be provided:

Sl. No	Stretch (from km to km)	Type of deficiency	Remarks
As per Alignment plan			

2.4 Right of Way

(a) Details of the Right of Way are given in Annexure-II of Schedule A.

(b) **Provision of Additional Right of way (RoW):** - The requirements of land and access to the lands beyond Row are inevitable during execution of protection works'. Additional land should be acquired at culverts/structures locations to channellise hill side stream for the construction of catch water drains (CWDs) for effective interception and disposal of hill runoff which can lead to erosion, slope instability, and pavement deterioration. This provision is essential to prevent uncontrolled surface runoff from entering the formation, to prevent surface runoff from directly reaching roadways, buildings, or other critical structures. Also, to implement safety measures effectively additional land if necessary should be acquired at the locations where slope stabilization anchors (e.g., soil nails, rock bolts) extend beyond RoW.

2.5 Type of Shoulders

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

Sr. No.	Design Chainage Stretch (in km)		Length (m)	Fully paved shoulders	Footpaths	Reference to cross section
	Start	End				
As per TCS.						

b) In open country, paved shoulders of 0.9m width shall be provided on both hill and valley sides. The Earthen shoulder, as given below, at the valley side shall be covered with a 150mm thick compacted layer of granular material:

Description	Width of Earthen Shoulder (m)
Open Country normal section	1.00 m

c) Design and specifications of paved shoulders and granular material shall conform to the requirements specified in the relevant Manual.

2.6 Lateral and vertical clearances at underpasses

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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

Sr. No.	Design Chainage (km)	Silent features	Minimum length of the Viaduct to be provided	Road to be carried over/under the structure	Type of Structure	Location	Remarks
Nil							

2.7 Lateral and vertical clearances at overpasses

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

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

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

2.8 Service Roads

Service roads' width shall be constructed as per the relevant manual at the locations and for the lengths indicated below:

Sl. No	Design Chainage (Km)		Bridge Length (m)	Length (km)	Side
	From	To			
Nil					

2.9 Grade Separated Structures

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

Sr. No.	Locations	Length	Number of Span	Approach		Remarks, if any
				A1	A2	
Nil						

(b) 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: [Refer to the 156 provision of the relevant Manual and specify the type of vehicular underpass/ overpass structure and whether the crossroad is to be carried at the existing level, raised or lowered]

Balance Works for:

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

2.10 Cattle and pedestrian underpass/overpass:

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

Sr. No.	Location	Type of crossing
Nil		

2.11 Typical cross-section of the Project Highway

TCS of Type	Description	Remarks
As per TCS attached		

3. Intersections and Grade Separators:

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

Existing intersections that are deficient shall be improved to the prescribed standards.

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

(i) At-grade intersections

(a) Major Junctions

At grade major junctions shall be improved at intersecting roads with the Project highway, as given below:

Sl. No	Location of intersection (Design Chainage)	Type of intersection	Other features
A	Package-V		

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

1	Km 60+050	Y-intersection	Intersecting road to be developed/constructed for at least 120 m in length.
B	Package-VI		
2	Km 90+210	Y-intersection	Intersecting road to be developed/constructed for at least 120 m in length.

(b) Minor Junctions

At grade minor junctions shall be improved at intersecting roads with the Project highway, as given below:

Sl. No	Location of intersection (Design Chainage)	Type of intersection	Other features
A	Package-V		
1	Km 70+960	Y- Junction	Intersecting road to be developed/constructed for at least 60 m in length.
2	Km 72+990	Y- Junction	
3	Km 74+940	Y- Junction	
B	Package-VI		
4	Km 76+760	Y- Junction	Intersecting road to be developed/constructed for at least 60 m in length.
5	Km 82+525	Y- Junction	
6	Km 83+485	Y- Junction	
7	Km 80+444	Y- Junction	
8	Km 85+160	Y- Junction	
9	Km 88+180	Y- Junction	

(ii) Grade-separated intersections with/ without ramps:

Sl. No.	Location	Salient features	Minimum Length of viaduct to be provided	Roads 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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(ii) **Raising of the existing road:** The existing road shall be raised as per the given Plan & Profile.

(iii) Additional Provision in case of Hill Roads: -

The design and execution of all cut slopes, hillside scaling, and valley slope stabilization works shall strictly conform to the firmed-up geotechnical and geological baseline metrics compiled in Table below. These parameters have been verified through detailed subsurface borings executed at intervals of 500 meters or closer at critical zones, including deep cuts, high fills, landslide-prone stretches, and structural bridge abutments as per "Expert Committee Report on Cost Effective Long Term Remedial Measures for landslide Prone Areas in Hilly Regions issued by Ministry vide circular No RW/NH-33044/55/2021-S&R(P&B) pt/Hill Slope Monitoring dated 28.11.2024.

For deep cut sections exceeding a vertical height of 6.0 meters, the baseline data reflects borehole exploration extended to the full cutting depth above the finished road level or a minimum of 5.0 meters into a competent stratum, whichever was achieved earlier. Representative bulk samples from coarse-grained soils, gravels, or bouldery strata have been tested via Large Scale Shear Box testing apparatus to ensure realistic shear strength values.

The firmed-up parameters, structural cross-sections, and baseline work item quantities detailed herein represent the absolute minimum contractual requirements for the project. Any subsequent change in parameters or modification of protection systems proposed by the Contractor during actual execution must be vetted and validated by the same independent third party institution nominated by the Authority (e.g., THDCIL, GSI, NIRM or others) before approval.

5. PAVEMENT DESIGN

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(ii) **Type of pavement:-** Flexible pavement shall be adopted. The contractor shall accordingly carry out pavement design (i.e. GSB/WMM/DBM/BC) after conducting requisite tests as per standard and specifications.

(iii) **Design requirement:-** Design requirement for the flexible pavement shall be in accordance with section 5 of the latest IRC: SP-73 and IRC:37.

(a) Design Period and Strategy

Flexible pavement shall be designed for a minimum design 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 design traffic of 20 million standard axles.

(iv) Construction/Reconstruction of Stretches

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

Sr.No.	Stretch in Km		Remarks
	From	To	
As per Annex-V of Schedule A			

6. ROADSIDE DRAINAGE

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

Cement Concrete Lined Drain of trapezoidal shape as shown in the different typical cross sections in length mentioned below to be constructed:

Sr. No.	Chainage		Length in m	Remarks
	From	To		
A	Package-V			
1	58+840	66+000	18425	Trapezoidal line drain
2	67+500	75+000		
3	Catch water drain		1000	
B	Package-VI			
4	75+000	90+210	11867	Trapezoidal line drain
5	Catch water drain		1000	

6.2 Additional Provision in case of Hill Roads : -

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

The roadside and slope drainage network for hilly terrains shall be designed as a multi-tiered system engineered to prevent surface runoff from infiltrating treated slope configurations or causing destructive toe erosion. The drainage layout scope shall explicitly include:

(a) Contour / Catch Water Drains (Expert Committee Code G12e): Reinforced lean concrete drains constructed around the upper periphery of treated slopes to cut off and safely bypass surface runoff water from entering active construction zones.

(b) Channelization of Natural Hilly Streams and Nalas (Codes G12a to G12d): All cross-discharging natural watercourses intersecting the highway alignment must be structurally lined and channelized using Cement Concrete (CC) channels, anchored CC channels, or high-capacity Gabion Revetment Mattress channels, dimensioned precisely based on the catchment peak discharge values.

(c) Sub-surface Internal Drainage Networks (Code G02a): Strategic installation of continuous horizontal rows of sub-surface semi-perforated PVC pipes wrapped with non-woven geotextile. These must be oriented specifically to intersect internal water-bearing rock joints, relieving internal hydrostatic pore water pressures within active slope bodies."

6.3 Chute Drain.

Surface runs off on a hill slope flows down in the form of natural gulleys/chutes. The water entrapped in the catch water drains is also brought down by connecting them with existing natural gulleys. It is therefore desired to provide lined chutes to lead the discharge to the catch pit of culvert or to a natural drainage channel.

Sr. No	Chainage	Length of Chute	Clear Width of Chute	Remarks
Package-VI				
1	80+246	165.00	1.85	Type-1
2	80+360	95.00	1.85	Type-1
3	80+501	70.00	1.85	Type-1
4	80+714	15.00	1.85	Type-1
5	80+948	140.00	1.85	Type-1
6	81+291	35.00	1.85	Type-1
7	81+437	35.00	1.85	Type-1
8	83+864	55.00	1.85	Type-1
9	83+944	80.00	1.85	Type-1
0	84+170	60.00	1.85	Type-1
11	84+502	235.00	3.20	Type-3
12	84+573	50.00	3.20	Type-3
13	84+619	335.00	2.70	Type-2

Balance Works for:

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(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Sr. No	Chainage	Length of Chute	Clear Width of Chute	Remarks
14	84+924	190.00	1.85	Type-1
15	85+253	30.00	1.85	Type-1
16	85+580	30.00	1.85	Type-1
17	86+362	300.00	2.70	Type-2
18	86+438	205.00	2.70	Type-2
19	86+940	20.00	1.85	Type-1
20	87+006	55.00	2.70	Type-2
21	87+122	160.00	1.85	Type-1
22	87+641	220.00	1.85	Type-1
23	87+744	200.00	1.85	Type-1
24	88+130	90.00	1.85	Type-1
25	88+158	70.00	1.85	Type-1
26	88+291	25.00	1.85	Type-1
27	88+382	50.00	1.85	Type-1
Total Length (PKG-V & VI)		3015 m		

7. DESIGN OF STRUCTURES

(i) General

- a. All bridges, culverts and structures shall be designed and constructed in accordance with the provisions of the relevant Manual and shall conform to the cross-sectional features and other details specified therein.
- b. Width of the carriageway of new bridges and structures shall be as follows:

Sl. No.	MNB/MJB at km	Width of carriageway and cross-sectional features
A	Package-V	
1	63+335	Total Deck Width = 13 m (Typical Cross Section attached)
2	70+090	
3	70+620	
4	74+355	
B	Package-VI	
5	76+368	Total Deck Width = 13 m (Typical Cross Section attached)

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

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c. The following structures shall be provided with a footpath, as per the provisions of IRC:

Sl. No.	Location at km	Remarks
NIL		

d. All bridges shall be high-level bridges.

e. The following structures shall be designed to carry utility services as per site requirement.

Sr. No.	Bridge at km	Utility service to be carried	Remarks
A	Package-V		
1	63+335	Optical fiber cable & Electrical Cable	
2	70+090		
3	70+620		
4	74+355		
B	Package-VI		
5	76+368	Optical fiber cable & Electrical Cable	

f. Cross-section of the new culverts and Bridges at deck level for the Project Highway shall conform to the typical cross-sections given.

(ii) **Culverts**

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

b. Reconstruction of existing culverts:

The existing culverts at the following locations shall be reconstructed as new culverts:

Sr. No.	Chainage (m)	Type	Span /opening	Remarks
NIL				

c. **Widening of Existing Culverts:** All existing culverts that are not to be reconstructed shall be widened to the roadway width of the Project Highway as per the details below. 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			

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

d. Additional New culverts (RCC Box type) shall be constructed as per particulars given in the table below:

Sr. No.	Chainage (m)	Type	Span X Depth	Remarks
A	Package-V			
1	62+079	BOX-TYPE-1	2 X 2	Proposed
2	62+360	BOX-TYPE-1	2 X 2	Damaged. Reconstuction
3	62+720	BOX-TYPE-1	2 X 2	Damaged. Reconstuction
4	62+780	BOX-TYPE-1	2 X 2	Damaged. Reconstuction
5	62+880	BOX-TYPE-1	2 X 2	Damaged. Reconstuction
6	62+950	BOX-TYPE-1	2 X 2	Damaged. Reconstuction
7	63+460	BOX-TYPE-1	2 X 2	Damaged. Reconstuction
8	64+330	BOX-TYPE-1	2 X 2	Proposed
9	64+859	BOX-TYPE-1	2 X 2	Proposed
10	65+340	BOX-TYPE-1	2 X 2	Proposed
11	65+507	BOX-TYPE-1	2 X 2	Proposed
12	65+758	BOX-TYPE-1	2 X 2	Proposed
13	67+666	BOX-TYPE-1	2 X 2	Proposed
14	67+995	BOX-TYPE-1	2 X 2	Proposed
15	68+113	BOX-TYPE-1	2 X 2	Proposed
16	68+511	BOX-TYPE-1	2 X 2	Proposed
17	68+763	BOX-TYPE-1	2 X 2	Proposed
18	68+990	BOX-TYPE-1	2 X 2	Proposed
19	69+136	BOX-TYPE-1	2 X 2	Proposed
20	69+492	BOX-TYPE-1	2 X 2	Proposed
21	69+851	BOX-TYPE-1	2 X 2	Proposed
22	70+351	BOX-TYPE-1	2 X 2	Proposed
23	70+860	BOX-TYPE-1	2 X 2	Proposed
24	71+125	BOX-TYPE-1	2 X 2	Proposed
25	72+235	BOX-TYPE-1	2 X 2	Proposed
26	72+518	BOX-TYPE-1	2 X 2	Proposed
27	73+075	BOX-TYPE-1	2 X 2	Proposed
28	74+684	BOX-TYPE-3	4 X 4	Proposed
29	74+819	BOX-TYPE-1	2 X 2	Proposed
B	Package-VI			
30	75+517	BOX-TYPE-1	2 X 2	Proposed
31	75+763	BOX-TYPE-1	2 X 2	Proposed
32	76+667	BOX-TYPE-1	2 X 2	Proposed
33	76+876	BOX-TYPE-1	2 X 2	Proposed

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

34	77+094	BOX-TYPE-4	6 X 4	Proposed
35	77+187	BOX-TYPE-1	2 X 2	Proposed
36	77+492	BOX-TYPE-1	2 X 2	Proposed
37	77+865	BOX-TYPE-1	2 X 2	Proposed
38	78+551	BOX-TYPE-1	2 X 2	Proposed
39	78+622	BOX-TYPE-1	2 X 2	Proposed
40	78+992	BOX-TYPE-1	2 X 2	Proposed
41	79+262	BOX-TYPE-1	2 X 2	Proposed
42	79+567	BOX-TYPE-1	2 X 2	Proposed
43	79+822	BOX-TYPE-1	2 X 2	Proposed
44	80+003	BOX-TYPE-2	3 X 3	Proposed
45	80+948	BOX-TYPE-1	2 X 2	Proposed
46	81+291	BOX-TYPE-1	2 X 2	Proposed
47	81+608	BOX-TYPE-1	2 X 2	Proposed
48	82+673	BOX-TYPE-1	2 X 2	Proposed
49	82+793	BOX-TYPE-4	6 X 4	Proposed
50	83+864	BOX-TYPE-1	2 X 2	Proposed
51	84+502	BOX-TYPE-2	3 X 3	Proposed
52	86+709	BOX-TYPE-3	4 X 4	Proposed
53	87+200	BOX-TYPE-1	2 X 2	Proposed
54	88+607	BOX-TYPE-1	2 X 2	Proposed
55	88+780	BOX-TYPE-1	2 X 2	Proposed
56	88+823	BOX-TYPE-1	2 X 2	Proposed
57	89+202	BOX-TYPE-1	2 X 2	Proposed
58	89+719	BOX-TYPE-1	2 X 2	Proposed
59	89+933	BOX-TYPE-1	2 X 2	Proposed
60	90+141	BOX-TYPE-1	2 X 2	Proposed

- e. Repair/Replacement of railing/Parapets, flooring, and protection works of the existing culverts shall be undertaken as follows:

Sr. No.	Location at Km	Type of Work Required
A	Package-V	
1	60+190	The contractor has to construct the wing wall, Apron, Catchpit, parapet walls etc.
2	60+340	
3	60+950	
4	65+050	
5	72+080	
6	73+900	
7	74+035	
B	Package-VI	
8	75+000	The contractor has to construct the wing wall, Apron, Catchpit, parapet walls etc.
9	75+399	
10	75+720	
11	75+980	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

12	78+181	
13	78+478	
14	79+279	
15	81+590	
16	82+420	
17	82+897	
18	84+000	
19	84+557	
20	84+675	
21	87+638	

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

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

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

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

(ii) The following narrow bridges shall be widened:

Sr. No.	Location (Km)	Existing Width (m)	Extent of Widening (m)	Cross-section at deck level for widening
NIL				

(b) Additional New Bridges

New Bridges at the following locations on the Project Highway shall be constructed. GADs for new bridges are attached in the drawings folder, and minimum span arrangements, as shown in the GAD's are to be followed.

Sr. No.	Location	Span length (m)	Remarks
1	63+335	68 m (1x20 + 1x48)	a. PSC I Girder

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

			b. 01 span of 1x20 completed. c. Balance Work (1x48): A2 foundation & Substructure balance. Superstructure (incl. Girder, Expansion Joints, bearing etc), Approaches & Miscellaneous works are also balance.
2	70+090	48 m (1x48)	PSC I Girder
3	70+620	70 m (1x70)	RCC Arch
4	74+355	88 m (1x20 + 1x48 + 1x20)	a. PSC I Girder b. Foundation and Sub-structure completed. c. Superstructure (incl. Girder, Expansion Joints, bearing etc), Approaches & Miscellaneous works are balance.
5	76+368	10 m (1x10)	RCC Box

Note: In case, the Span arrangement is modified by the EPC Contractor as per site requirement, the same shall be done with the approval of the Competent Authority and without any additional financial implication. Notwithstanding, the span/length shall be treated as minimum.

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

Sr. No.	Location (km)	Remarks
Nil		

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

Sr. No.	Location (km)	Remarks
1	58+888	Repair of RCC railings

(e) **Drainage System for Bridge Decks:** An effective drainage system for bridge decks shall be provided as specified in the provisions of the relevant Manual.

(f) **Structures in Marine Environment:** Nil

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(iv) Rail-Road Bridges

(a) Design, Construction and detailing of ROB/RUB shall be specified in the provision of the relevant Manual.

(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:

Sr. 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 Annexe-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 of extent of repairs/strengthening to be carried out
1	58+888	- Applying epoxy mortar over leached, honey combed and spalled concrete surface and exposed steel reinforcement. - Applying pre-packed cement based polymer mortar of strength 45 mpa at 28 days for replacement of spalled concrete. - Replacement of Expansion Joints. - Laying of Wearing coat.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(b) ROB/RUB

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

(c) Overpasses/Underpasses and other structures

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

(viii) List of Bridges and Structures

The following is a list of Bridges and Structures

Sl. No.	Location	Type of Structures
1	63+335	Bridge
2	70+090	Bridge
3	70+620	Bridge
4	74+355	Bridge
5	76+368	Bridge

8. Traffic Control Devices and Road Safety Works

- (i) Traffic control devices and road safety works shall be provided in accordance with the provisions of the relevant Manual.
- (ii) Specifications of the reflective sheeting shall be Class C sheeting described in IRC:67 and type VIII/IX/XI as per ASTM D 4956-09 fixed over Aluminium or Aluminium Composite Material.
The minimum nos. are as hereunder-

Sr. No.	Item of Work	Quantity
1	Retro-reflective Traffic Sign Board	
a	60 cm Equilateral Triangle	130 Nos.
b	60 Cm Circular	180 Nos.
c	60 cm X 45 Cm Rectangular	60 Nos.
d	0.9 Sqm Size Board	16 Nos.
2	Ordinary Km Stone	25 Nos.
3	5 th Km Stone	7 Nos.
4	Hectometer Stone	121 Nos.
5	Boundary Pillars	447 Nos.
6	Overhead Sign Board	2 No.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(iii) **Road Marking:** The road markings with hot applied thermoplastic paint consisting of different lane markings, directional arrows, chevron marking, letterings, transverse bar marking (speed calming measure) etc. shall cover the entire Project Highway and at all junctions/intersections as per relevant code, manual and relevant MoRT&H circular.

Minimum qty : 10952 sqm

(iv) **Road studs:** The Reflective Pavement Markers (RRPM) i.e. road studs of prismatic retroreflective type conforming to ASTM D 4280, Table 9.1 of Manual to be provided following placement details as per IRC:35. The colour pattern of road studs for edge line and center line with respect traffic movement is to be adopted as per Manual and as per relevant MoRT&H Circular.

Minimum number of road studs of different colours: 10952 no.

(v) **Road Delineators:** Minimum 754 no. of road delineators to be provided as per the Manual and the relevant IRC code.

9. Roadside Furniture

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

(ii) Overhead Traffic Signs: Location and Size

The location & size of overhead traffic signs shall be as hereunder:

Location	Remarks
Km 58+950	Clear height of gantry = 6.0 m
Km 90+000	

10. Compulsory Afforestation: NIL

11. Hazardous Locations

The safety barriers shall also be provided at the hazardous locations which shall be finalized in consultation with the Authority Engineer. Minimum safety barriers shall be provided:

(a) Thrie Beam Crash Barriers along with reflectors : 8.00 km

(b) Parapet Wall : 13.371 km

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

12. Special Requirement for Hill Roads

This section contains the mandatory execution requirements, verification procedure, and muck control site provisions as per '*Expert Committee Report on Cost Effective Long Term Remedial Measures for landslide Prone Areas in Hilly Regions issued by Ministry vide circular No RW/NH-33044/55/2021-S&R(P&B) pt/Hill Slope Monitoring dated 28.11.2024 and Ministry circular No RW/NH-33044/37/2025-S&R(P&B) dated 07.11.2025*':-

12.1-Hill Side Excavation and Cutting Methodology

(i) Stepped Benching: All major hill cutting activities shall be carried out in a stepped, terraced, or benched configuration rather than vertical or continuous steep un-benched cuts, maximizing structural resilience.

(ii) Top-to-Bottom Execution: Mechanical excavation works must proceed strictly from the top of the designated cutting profile downward to mitigate localized rotational failure risks.

(iii) Simultaneous Protection: Surficial and structural protection works (including shotcreting, drapery netting, and active rock anchoring) must be implemented concurrently alongside the mechanical excavation sequence.

12.2 Details of Protection Works

a) Retaining Wall:

The minimum requirement of a retaining wall is as follows, which may increase as per final drawings and design approved by the competent authority. The Contractor is required to conduct a detailed investigation to assess the work based on site survey, investigations and assessment before commencement of work. Any increase in length within 10% of the total scope mentioned herein shall not constitute a Change of Scope.

Sr. No	Chainage		Length (m)	Min. Height (m)	Type	Remarks
	From	To				
A	Package-V					
1	59+027	59+057	30	4	Plum Concrete	
2	60+274	60+287	13	3	Plum Concrete	
3	60+320	60+330	10	5	Plum Concrete	
4	60+340	60+350	10	4	Plum Concrete	
5	60+350	60+355	5	2	Plum Concrete	
6	60+355	60+365	10	2	Plum Concrete	
7	60+365	60+379	14	3	Plum Concrete	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

8	60+615	60+625	10	2	Plum Concrete	
9	60+845	60+855	10	2	Plum Concrete	
10	60+855	60+865	10	3	Plum Concrete	
11	60+865	60+875	10	4	Plum Concrete	
14	60+875	60+885	10	4	Plum Concrete	
15	60+885	60+895	10	4	Plum Concrete	
16	60+895	60+905	10	4	Plum Concrete	
17	60+905	60+915	10	4	Plum Concrete	
18	60+915	60+925	10	4	Plum Concrete	
19	60+925	60+935	10	4	Plum Concrete	
20	60+935	60+945	10	4	Plum Concrete	
21	61+025	61+035	10	4	Plum Concrete	
22	61+035	61+045	10	3	Plum Concrete	
23	61+045	61+055	10	2	Plum Concrete	
24	61+060	61+070	10	2	Plum Concrete	
25	61+305	61+315	10	5	RCC Relief Shelves	
26	61+315	61+325	10	4	RCC Relief Shelves	
27	61+395	61+405	10	5	RCC Relief Shelves	
28	61+405	61+415	10	12	RCC Relief Shelves	
29	61+415	61+425	10	8	RCC Relief Shelves	
30	61+425	61+435	10	3	Plum Concrete	
31	61+455	61+465	10	2	Plum Concrete	
32	61+465	61+475	10	3	Plum Concrete	
33	61+475	61+485	10	4	Plum Concrete	
34	61+485	61+495	10	2	Plum Concrete	
35	61+495	61+505	10	2	Plum Concrete	
36	61+505	61+515	10	2	Plum Concrete	
37	61+515	61+525	10	3	Plum Concrete	
38	61+525	61+535	10	4	Plum Concrete	
39	61+555	61+565	10	4	Plum Concrete	
40	61+565	61+575	10	8	Plum Concrete	
41	61+575	61+585	10	10	RCC Relief Shelves	
42	61+585	61+595	10	10	RCC Relief Shelves	
43	61+595	61+605	10	8	RCC Relief Shelves	
44	61+605	61+615	10	5	RCC Relief Shelves	
45	61+715	61+725	10	2	Plum Concrete	
46	61+725	61+735	10	4	Plum Concrete	
47	61+735	61+745	10	5	Plum Concrete	
48	61+790	61+820	30	2	Plum Concrete	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

49	61+855	61+865	10	12	RCC Relief Shelves	
50	61+875	61+885	10	4	Plum Concrete	
51	61+895	61+905	10	8	RCC Relief Shelves	
52	62+150	62+160	10	2	Plum Concrete	
53	62+195	62+205	10	6	RCC Relief Shelves	
54	62+205	62+215	10	4	RCC Relief Shelves	
55	62+270	62+280	10	3	Plum Concrete	
56	62+280	62+290	10	4	Plum Concrete	
57	62+290	62+300	10	3	Plum Concrete	
58	62+300	62+310	10	3	Plum Concrete	
59	62+310	62+320	10	4	Plum Concrete	
60	62+325	62+335	10	2	Plum Concrete	
61	62+335	62+345	10	5	Plum Concrete	
62	62+345	62+355	10	5	RCC Relief Shelves	
63	62+355	62+365	10	2	Plum Concrete	
64	62+365	62+375	10	2	Plum Concrete	
65	62+425	62+435	10	3	Plum Concrete	
66	62+435	62+445	10	4	Plum Concrete	
67	62+445	62+455	10	3	Plum Concrete	
68	62+505	62+515	10	3	Plum Concrete	
69	62+515	62+525	10	4	Plum Concrete	
70	62+525	62+535	10	4	Plum Concrete	
71	62+535	62+545	10	3	Plum Concrete	
72	62+546	62+555	9	4	Plum Concrete	
73	62+555	62+565	10	3	Plum Concrete	
74	62+565	62+575	10	3	Plum Concrete	
75	62+575	62+585	10	4	Plum Concrete	
76	62+585	62+595	10	6	RCC Relief Shelves	
77	62+605	62+620	15	4	Plum Concrete	
78	62+615	62+625	10	2	Plum Concrete	
79	62+635	62+645	10	2	Plum Concrete	
80	62+645	62+655	10	4	Plum Concrete	
81	62+655	62+665	10	2	Plum Concrete	
82	62+885	62+895	10	2	Plum Concrete	
83	62+895	62+905	10	2	Plum Concrete	
84	62+905	62+915	10	4	Plum Concrete	
85	62+935	62+945	10	2	Plum Concrete	
86	63+014	63+025	11	2	Plum Concrete	
87	63+025	63+035	10	2	Plum Concrete	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

88	63+035	63+045	10	2	Plum Concrete	
89	63+045	63+055	10	3	Plum Concrete	
90	63+055	63+065	10	5	RCC Relief Shelves	
91	63+065	63+070	5	5	RCC Relief Shelves	
92	63+215	63+225	10	2	Plum Concrete	
93	63+275	63+285	10	2	Plum Concrete	
94	63+275	63+285	10	2	Plum Concrete	
95	63+275	63+285	10	3	Plum Concrete	
96	63+285	63+295	10	5	Plum Concrete	
97	63+475	63+485	10	2	Plum Concrete	
98	63+675	63+685	10	3	Plum Concrete	
99	64+110	64+120	10	2	Plum Concrete	
100	64+145	64+155	10	2	Plum Concrete	
101	64+155	64+165	10	4	Plum Concrete	
102	64+315	64+325	10	3	Plum Concrete	
103	64+325	64+335	10	6	Plum Concrete	
104	64+335	64+345	10	5	RCC Relief Shelves	
105	64+345	64+355	10	8	RCC Relief Shelves	
106	64+345	64+355	10	2	Plum Concrete	
107	64+570	64+580	10	3	Plum Concrete	
108	64+585	64+595	10	2	Plum Concrete	
109	64+600	64+615	15	2	Plum Concrete	
110	64+615	64+625	10	2	Plum Concrete	
111	64+625	64+635	10	5	RCC Relief Shelves	
112	64+635	64+640	5	2	Plum Concrete	
113	64+640	64+645	5	5	RCC Relief Shelves	
114	64+955	64+965	10	2	Plum Concrete	
115	64+965	64+975	10	3	Plum Concrete	
116	64+975	64+985	10	2	Plum Concrete	
117	65+090	65+135	45	4	Plum Concrete	
118	65+155	65+173	18	2	Plum Concrete	
119	65+190	65+220	30	3	Plum Concrete	
120	65+220	65+240	20	2	Plum Concrete	
121	65+245	65+255	10	5	RCC Relief Shelves	
122	65+335	65+345	10	3	Plum Concrete	
123	65+675	65+685	10	2	Plum Concrete	
124	65+690	65+700	10	5	Plum Concrete	
125	65+700	65+710	10	5	RCC Relief Shelves	
126	65+725	65+735	10	3	Plum Concrete	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

127	65+735	65+745	10	3	Plum Concrete	
128	65+745	65+755	10	4	Plum Concrete	
129	69+625	69+635	10	3	Plum Concrete	
130	69+635	69+645	10	4	Plum Concrete	
131	69+645	69+655	10	5	Plum Concrete	
132	69+655	69+665	10	6	RCC Relief Shelves	
133	69+665	69+675	10	8	RCC Relief Shelves	
134	69+675	69+685	10	6	RCC Relief Shelves	
135	69+685	69+695	10	6	RCC Relief Shelves	
136	69+695	69+705	10	2	Plum Concrete	
137	70+045	70+055	10	4	Plum Concrete	
138	70+115	70+125	10	5	Plum Concrete	
139	70+700	70+710	10	4	Plum Concrete	
140	70+710	70+720	10	3	Plum Concrete	
141	70+720	70+730	10	3	Plum Concrete	
142	70+730	70+740	10	3	Plum Concrete	
143	70+740	70+750	10	3	Plum Concrete	
144	70+750	70+760	10	3	Plum Concrete	
145	70+760	70+770	10	3	Plum Concrete	
146	70+775	70+785	10	3	Plum Concrete	
147	70+785	70+795	10	3	Plum Concrete	
148	70+795	70+805	10	2	Plum Concrete	
149	70+860	70+870	10	2	Plum Concrete	
150	70+870	70+880	10	4	Plum Concrete	
151	70+880	70+890	10	4	Plum Concrete	
152	70+890	70+945	55	2	Plum Concrete	
153	71+085	71+095	10	3	Plum Concrete	
154	71+095	71+105	10	2	Plum Concrete	
155	71+105	71+115	10	2	Plum Concrete	
156	71+115	71+125	10	5	RCC Relief Shelves	
157	71+155	71+165	10	2	Plum Concrete	
158	71+165	71+175	10	2	Plum Concrete	
159	71+175	71+185	10	3	Plum Concrete	
160	71+185	71+195	10	4	Plum Concrete	
161	71+225	71+235	10	2	Plum Concrete	
162	71+300	71+330	30	3	Plum Concrete	
163	72+825	72+835	10	2	Plum Concrete	
164	73+150	73+200	50	4	Plum Concrete	
165	73+155	73+165	10	2	Plum Concrete	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

166	73+165	73+175	10	4	Plum Concrete	
167	73+365	73+375	10	3	Plum Concrete	
168	73+375	73+385	10	3	Plum Concrete	
169	73+735	73+745	10	3	Plum Concrete	
170	74+110	74+120	10	3	Plum Concrete	
171	74+120	74+130	10	2	Plum Concrete	
172	74+135	74+145	10	2	Plum Concrete	
173	74+145	74+155	10	2	Plum Concrete	
174	74+150	74+160	10	3	Plum Concrete	
175	74+165	74+175	10	5	RCC Relief Shelves	
176	74+175	74+185	10	2	Plum Concrete	
177	74+175	74+185	10	8	RCC Relief Shelves	
178	74+185	74+195	10	8	RCC Relief Shelves	
179	74+195	74+205	10	8	RCC Relief Shelves	
180	74+205	74+215	10	8	RCC Relief Shelves	
181	74+215	74+225	10	8	RCC Relief Shelves	
182	74+225	74+235	10	2	Plum Concrete	
183	74+225	74+235	10	5	RCC Relief Shelves	
184	74+235	74+245	10	5	RCC Relief Shelves	
185	74+245	74+255	10	5	RCC Relief Shelves	
186	74+255	74+265	10	2	Plum Concrete	
187	74+265	74+275	10	2	Plum Concrete	
188	74+275	74+285	10	3	Plum Concrete	
189	74+285	74+295	10	2	Plum Concrete	
190	74+285	74+295	10	5	RCC Relief Shelves	
191	74+395	74+405	10	5	RCC Relief Shelves	
192	74+525	74+535	10	2	Plum Concrete	
193	74+535	74+545	10	3	Plum Concrete	
194	74+545	74+555	10	5	Plum Concrete	
195	74+555	74+565	10	5	RCC Relief Shelves	
196	74+565	74+575	10	5	RCC Relief Shelves	
197	74+575	74+585	10	6	RCC Relief Shelves	
198	74+585	74+595	10	6	RCC Relief Shelves	
199	74+595	74+605	10	2	Plum Concrete	
200	74+605	74+615	10	3	Plum Concrete	
201	74+605	74+615	10	8	Plum Concrete	
202	74+615	74+625	10	3	Plum Concrete	
203	74+615	74+625	10	8	RCC Relief Shelves	
204	74+625	74+635	10	2	Plum Concrete	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

205	74+625	74+635	10	8	RCC Relief Shelves	
206	74+635	74+645	10	6	RCC Relief Shelves	
207	74+645	74+655	10	5	RCC Relief Shelves	
208	74+655	74+665	10	4	RCC Relief Shelves	
209	74+665	74+675	10	3	Plum Concrete	
210	74+665	74+675	10	8	RCC Relief Shelves	
211	74+675	74+685	10	12	RCC Relief Shelves	
212	74+675	74+685	10	14	RCC Relief Shelves	
213	74+685	74+695	10	12	RCC Relief Shelves	
214	74+695	74+705	10	3	Plum Concrete	
215	74+815	74+825	10	2	Plum Concrete	
216	74+960	75+000	40	2	Plum Concrete	
B	Package-VI					
217	76+788	76+795	7	3	Plum Concrete	
218	76+885	76+895	10	3	Plum Concrete	
219	76+895	76+905	10	3	Plum Concrete	
220	76+975	76+985	10	3	Plum Concrete	
221	76+985	76+995	10	4	Plum Concrete	
222	77+000	77+100	100	3	Plum Concrete	
223	77+560	77+600	40	4	Plum Concrete	
224	78+045	78+055	10	4	Plum Concrete	
225	78+055	78+065	10	5	RCC Relief Shelves	
226	78+065	78+075	10	5	RCC Relief Shelves	
227	78+075	78+085	10	8	RCC Relief Shelves	
228	78+085	78+095	10	3	Plum Concrete	
229	78+095	78+105	10	3	Plum Concrete	
230	78+370	78+396	26	2	Plum Concrete	
231	78+450	78+555	105	2	Plum Concrete	
232	78+555	78+565	10	3	Plum Concrete	
233	78+565	78+575	10	2	Plum Concrete	
234	78+575	78+625	50	2	Plum Concrete	
235	78+652	78+680	28	4	Plum Concrete	
236	78+870	78+895	25	5	RCC Relief Shelves	
237	78+895	78+905	10	5	RCC Relief Shelves	
238	78+905	78+980	75	4	Plum Concrete	
239	79+005	79+015	10	2	Plum Concrete	
240	79+015	79+025	10	5	RCC Relief Shelves	
241	79+025	79+035	10	2	Plum Concrete	
242	79+095	79+105	10	3	Plum Concrete	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

243	79+225	79+235	10	5	RCC Relief Shelves	
244	79+235	79+245	10	10	RCC Relief Shelves	
245	79+645	79+655	10	14	RCC Relief Shelves	
246	79+655	79+665	10	14	RCC Relief Shelves	
247	79+665	79+675	10	5	RCC Relief Shelves	
248	79+675	79+685	10	14	RCC Relief Shelves	
249	79+685	79+695	10	5	RCC Relief Shelves	
250	79+695	79+705	10	8	RCC Relief Shelves	
251	79+715	79+725	10	8	RCC Relief Shelves	
252	79+785	79+795	10	10	RCC Relief Shelves	
253	79+795	79+805	10	2	Plum Concrete	
254	79+805	79+815	10	10	RCC Relief Shelves	
255	79+805	79+815	10	7	RCC Relief Shelves	
256	79+815	79+825	10	14	RCC Relief Shelves	
257	79+815	79+825	10	14	RCC Relief Shelves	
258	79+825	79+835	10	14	RCC Relief Shelves	
259	79+825	79+835	10	14	RCC Relief Shelves	
260	79+925	79+935	10	14	RCC Relief Shelves	
261	79+935	79+945	10	4	Plum Concrete	
262	79+945	79+955	10	2	Plum Concrete	
263	79+955	79+965	10	2	Plum Concrete	
264	79+965	79+975	10	4	Plum Concrete	
265	79+965	79+975	10	3	Plum Concrete	
266	79+975	79+985	10	2	Plum Concrete	
267	79+975	79+985	10	3	Plum Concrete	
268	79+985	79+995	10	2	Plum Concrete	
269	79+985	79+995	10	3	Plum Concrete	
270	79+995	80+005	10	4	Plum Concrete	
271	79+995	80+005	10	3	Plum Concrete	
272	84+300	84+450	150	2	Plum Concrete	
273	84+480	84+580	100	4	Plum Concrete	
274	86+550	86+645	95	3	Plum Concrete	
275	86+645	86+655	10	2	Plum Concrete	
276	86+655	86+680	25	2	Plum Concrete	
277	86+800	86+875	75	2	Plum Concrete	
278	86+875	86+900	25	3	Plum Concrete	
279	87+100	87+300	200	2	Plum Concrete	
280	87+480	87+520	40	3	Plum Concrete	
281	87+500	87+520	20	5	RCC Relief Shelves	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

282	87+740	87+780	40	5	RCC Relief Shelves	
283	88+450	88+600	150	3	Plum Concrete	
284	89+575	89+595	20	2	Plum Concrete	
285	89+595	89+605	10	8	RCC Relief Shelves	
286	89+605	89+615	10	2	Plum Concrete	
287	89+605	89+615	10	4	Plum Concrete	
288	89+615	89+625	10	8	RCC Relief Shelves	
289	89+625	89+640	15	5	RCC Relief Shelves	
290	89+715	89+725	10	2	Plum Concrete	
291	89+720	89+735	15	4	Plum Concrete	
292	89+735	89+745	10	3	Plum Concrete	
293	89+745	89+805	60	3	Plum Concrete	
294	89+805	89+850	45	4	Plum Concrete	
TOTAL (PKG-V & VI)			4446			

b) BREAST WALL

The minimum requirement of the Breast wall is as follows, which may increase as per final drawings and design approved by the competent authority. The Contractor is required to conduct a detailed investigation to assess the work based on site survey, investigations and assessment before commencement of work. Any increase in length within 10% of the total scope mentioned herein shall not constitute a Change of Scope.

Sr.No.	Chainage		Length	Min. Height (m)
	From	To		
A	Package-V			
1	60+103	60+182	79	3
2	60+515	60+576	61	2
3	60+783	60+860	77	3
4	60+784	60+830	46	2
5	61+168	61+250	82	2
6	61+810	61+860	50	2
7	63+380	63+490	110	3
8	63+385	63+465	80	2
9	63+396	63+475	79	3
10	64+000	64+040	40	3
11	64+150	64+175	25	2
12	64+208	64+220	12	2

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

13	64+650	64+767	117	2
14	64+710	64+825	115	2
15	65+150	65+250	100	2
16	65+240	65+380	140	2
17	65+350	65+430	80	2
18	65+425	65+490	65	2
19	65+750	65+810	60	2
20	67+895	67+985	90	2
21	68+010	68+105	95	2
22	68+520	68+665	145	2
23	69+295	69+375	80	2
24	69+870	70+040	170	2
25	70+705	70+710	5	3
26	70+825	70+890	65	3
27	70+910	70+960	50	3
28	71+012	71+110	98	2
29	71+870	71+877	7	2
30	72+720	72+780	60	2
31	72+970	73+070	100	2
32	73+550	73+650	100	2
33	74+030	74+060	30	3
34	74+170	74+195	25	2
35	74+200	74+270	70	2
B	Package-VI			
36	75+700	75+800	100	2
37	76+760	76+820	60	3
38	77+100	77+200	100	3
39	77+260	77+380	120	2
40	77+420	77+520	100	2
41	77+550	77+640	90	3
42	78+310	78+530	220	2
43	78+570	78+680	110	2
44	78+890	78+950	60	2
45	78+950	79+000	50	3
46	79+450	79+650	200	3
47	80+390	80+450	60	2
48	81+950	82+000	50	3
49	83+070	83+195	125	3
50	83+420	83+550	130	3

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

51	83+600	83+850	250	2
52	84+200	84+300	100	3
53	84+500	84+600	100	2
54	87+000	87+040	40	2
55	87+200	87+280	80	3
56	88+340	88+400	60	3
57	89+030	89+080	50	2
58	89+150	89+188	38	2
59	89+180	89+220	40	3
60	89+280	89+400	120	2
61	89+430	89+490	60	3
62	89+695	89+795	100	2
63	89+900	89+970	70	2
Total (PKG-V & VI)			5291	

c) Gabion Wall

The minimum requirement of the Gabion Wall is as follows, which may increase as per final drawings and design approved by the competent authority. The Contractor is required to conduct a detailed investigation to assess the work based on site survey, investigations and assessment before commencement of work. Any increase in length within 10% of the total scope mentioned herein shall not constitute a Change of Scope

Sl.No	Chainage		Side	Length (m)	Minimum Height (m)	Remarks
	From	To				
A	Package-V					
1	64+035	64+090	LHS	55	3	
2	67+600	69+620	LHS	2020	2	
B	Package-VI					
3	77+300	77+380	RHS	80	2	
4	77+640	77+720	LHS	80	2	
5	80+240	80+250	LHS	10	2	
6	86+750	86+900	LHS	150	3	
7	87+070	87+150	LHS	80	3	
8	89+500	89+533	LHS	33	3	
Total (PKG-V & VI)				2508		

(d) Protection works in Disposal/Dumping yard:

The minimum qty to be executed in disposal/dumping yard shall be as hereunder:

Item of work	Height	Length
Gabion Wall	2 m	749 m
	3 m	749 m
Toe Wall	2 m	429 m
	3 m	429 m
Total		2356 m

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(e) Other Protection Works

The minimum requirement for Protection work is as follows. The Contractor is required to conduct detailed investigation to assess the work based on site survey, investigations and assessment before commencement of work. Any increase in area within 10% of total scope mentioned herein shall not constitute a Change of Scope.

Sr. No.	Description of Item	Unit	Quantity
1	Crib Work (F300)	sqm	3000
2	Crib Work (F500)	sqm	1000
3	Anchor Work	Rm	1000
4	Rock-Bolt Work	Rm	600
5	Toe Wall for Road (2.00 m high)	Rm	300
6	Toe Wall for Road (3.00 m high)	Rm	330

(f) LOCATION of SINKING & SLIDING AREA

Sr. No.	Design		Length in m	Avg. Height in m	Site Condition	Treatment Proposed
	To	From				
1	65380	65425	45	10	Sliding	Crib Work, Anchor Work & Rock-bolt Work
2	70710	70750	40	10	Sliding	Crib Work, Anchor Work & Rock-bolt Work
3	71893	71915	22	10	Sliding	Crib Work, Anchor Work & Rock-bolt Work
4	73152	73170	18	10	Sliding	Crib Work, Anchor Work & Rock-bolt Work
5	75860	75900	40	10	Sliding	Crib Work, Anchor Work & Rock-bolt Work
6	76155	76640	485	12	Sliding	Crib Work, Anchor Work & Rock-bolt Work
7	76890	77100	210	25	Sliding	Crib Work, Anchor Work & Rock-bolt Work
8	77640	77685	45	15	Sliding	Crib Work, Anchor Work & Rock-bolt Work
9	79710	79770	60	12	Sliding	Crib Work, Anchor Work & Rock-bolt Work
10	79834	80000	166	10	Sliding	Crib Work, Anchor Work & Rock-bolt Work
11	83015	83045	30	10	Sliding	Crib Work, Anchor Work & Rock-bolt Work
12	88440	88535	95	10	Sliding	Crib Work, Anchor Work & Rock-bolt Work

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Sr. No.	Design		Length in m	Avg. Height in m	Site Condition	Treatment Proposed
	To	From				
13	88750	88830	80	15	Sliding	Crib Work, Anchor Work & Rock-bolt Work
14	89940	90085	145	12	Sliding	Crib Work, Anchor Work & Rock-bolt Work
15	90160	90190	30	10	Sliding	Crib Work, Anchor Work & Rock-bolt Work

(g) Bio Engineering

Vetiver Plantation, Hydro Seeding and Hydro Mulching etc. or similar works to be done for slope protection and site mitigation measure up to a height of 8-15 m all along the slopes in each cutting location except hard rock location which needs to be protected to appropriate applicable technologies, if required. As per Engineering Guidelines on Landslide Mitigation Measure for Indian Roads IRC: SP-106-2015. Clause 8.3.8.1, Table 8.7.

(h) Dismantling of Structures

Dismantling of existing structures like culvert, bridges, retaining wall, acquired houses and other damaged structures comprising of masonry, cement, concrete, woodwork, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of materials and stacking the serviceable material with all lifts and lead of 1000 meter/dumping yard.

(i) Disposal of cut materials

Disposal of cut materials at designed disposal area. Spreading & Compaction of Roadway cutting and excavation from drain and foundation of other structures surplus materials in layer not exceeding 300 mm thickness at selected disposal location by Dozer at least four passes including construction of approach road to dumping site.

(j) Executed and damaged stretch

The executed works, including box culvert, bridge works, protection works, earthworks, pavement works and other related components carried out at the site, which are found to be damaged, shall be the responsibility of the EPC Contractor to dismantle and reconstruct. Furthermore, during the construction period, if any repair or rectification work is required due to defects, damages, or improper execution, the EPC Contractor shall promptly undertake and complete such works at no additional cost to the Authority/Employer.

(k) The tension cracks in the crown area within the influence area/zone in a 300m wide strip should also be identified, if any, and marked on the map. The repair of identified tension crack is within the scope of Works.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(l) Dumping Sites: The contractor shall arrange dumping sites, if any, for stacking/disposal of excavated material/debris. Un-controlled or inappropriate muck disposal can give rise to a variety of problems.

(m) Design for slope stabilisation measures: In case the Contractor or Concessionaire proposes to deviate from the specified slope stabilisation measures, he shall indicate the alternative proposed along with detailed design and supporting data and investigations. The Authority shall have the design with supporting data and investigations vetted from a specified Government agency having expertise in slope stabilisation measures. However, where the DPR has not provided for slope stabilisation measures, the Contractor or Concessionaire shall suggest slope stabilisation measures along with detailed design and supporting data and investigations. In such cases too, the Authority shall have the design with supporting data and investigations vetted from a specified Government agency having expertise in slope stabilisation measures.

(n) Cutting of Slope: To ensure slope stability and minimize environmental impact, hill cutting should be carried out in stepped or benched sections rather than through complete or vertical cuts. Cutting should start from top to bottom. This method reduces the risk of landslides, improves drainage management, and facilitates safer construction practices. Additionally, protective works shall also be planned & implemented alongside with the excavation process.

13. CHANGE OF SCOPE

13.1 The length of Structures and bridges specified hereinabove shall be treated as 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.

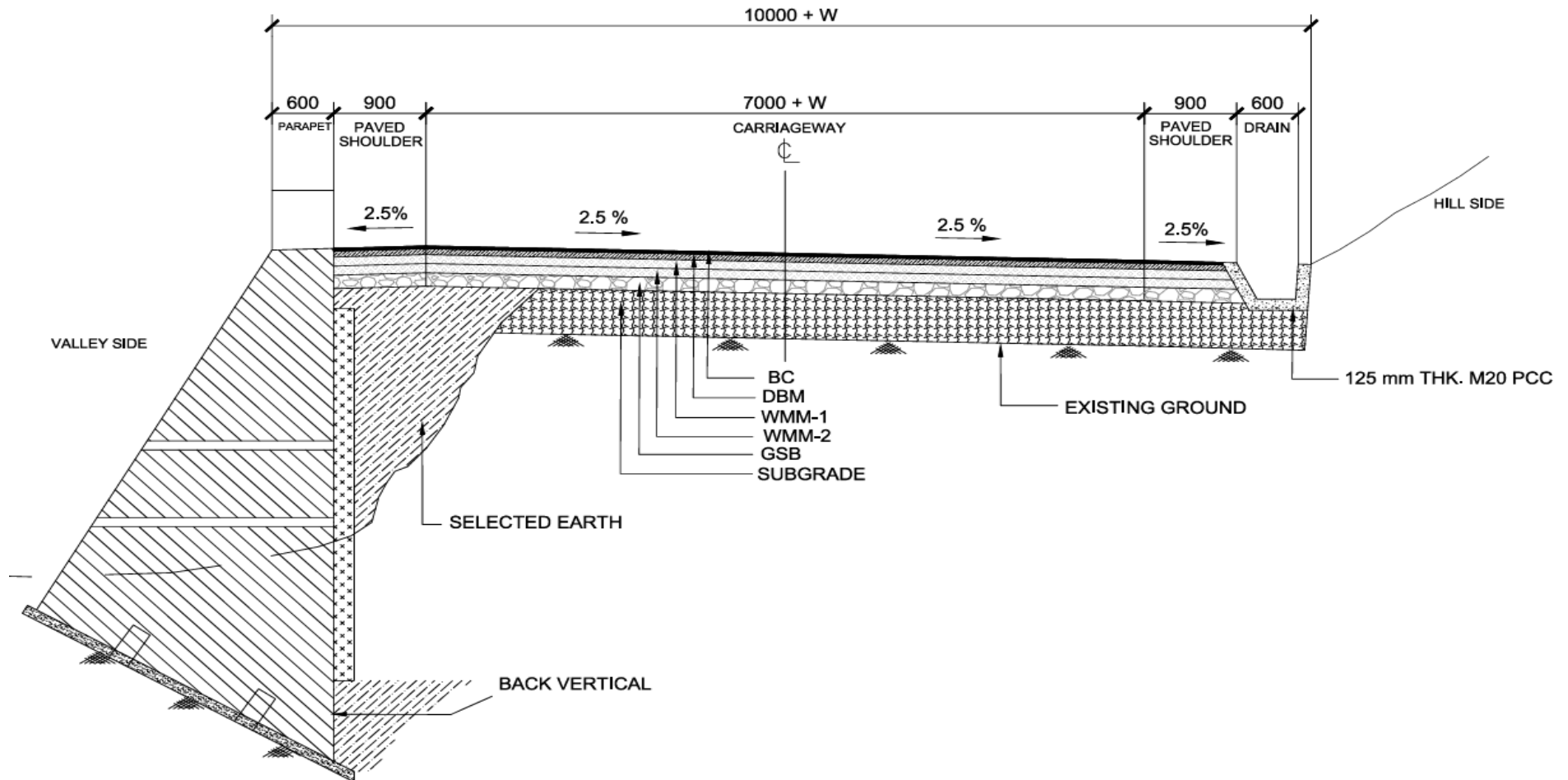
13.2 The layout dimensions, structural cross-sections, linear horizontal spans, and vertical heights of all retaining walls, breast walls, concrete face cladding panels, shotcreting setups, cross-drainage channels, and rockfall barriers specified under this Schedule-B represent mandatory project minimum requirements firmed up by the Authority. Any localized quantitative change upto 10% for items measured in linear meters, or up to 10% for items measured in square meters or cum of a designated landslide stretch given in Table 12.2, shall not constitute a Change of Scope (CoS), nor shall they qualify for additional financial variations, save and except for alterations executed strictly outside these thresholds under Article 13.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Typical Cross Section



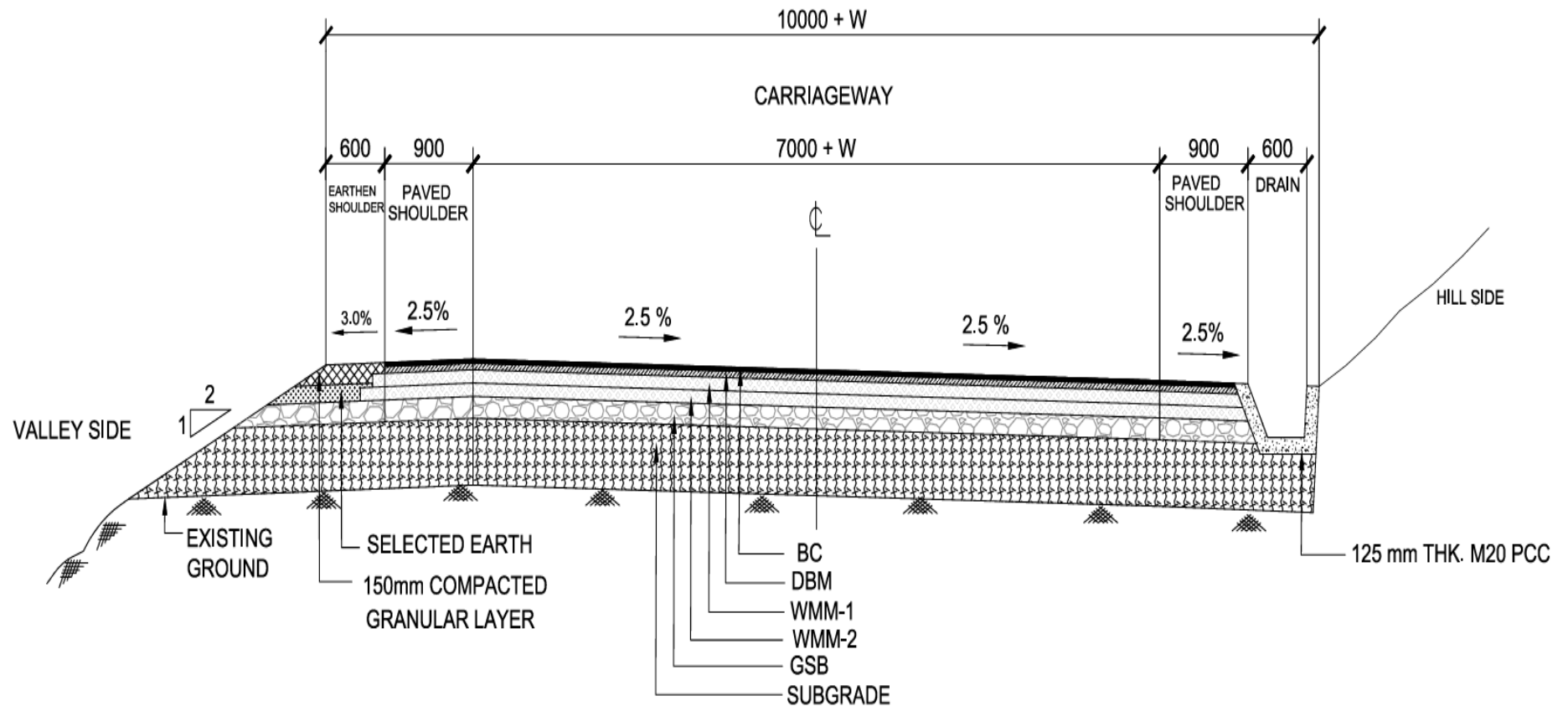
TCS - 01

TYPICAL PAVEMENT DETAILS FOR RETAINING WALL PORTION

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

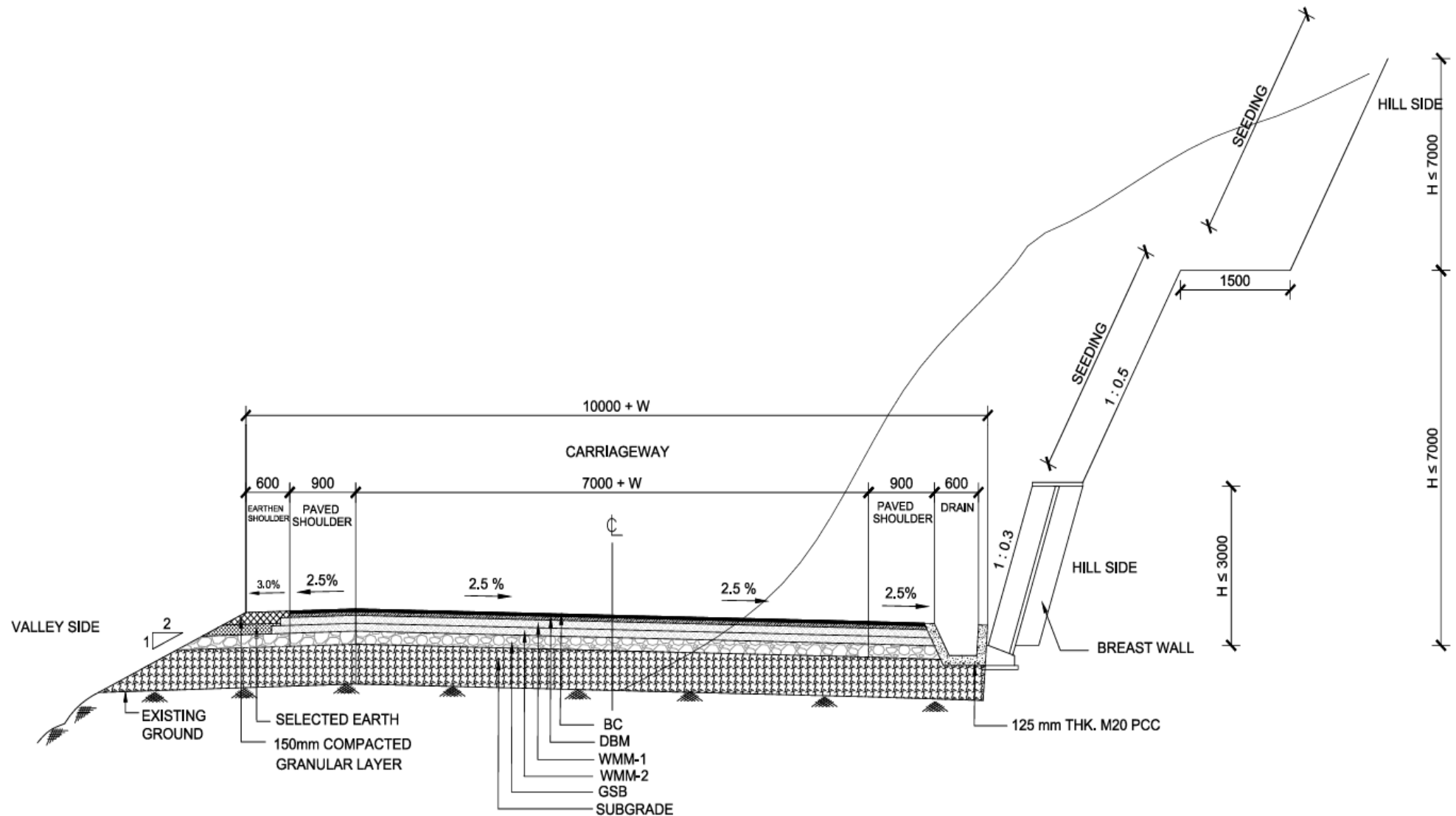


TCS - 02

TYPICAL PAVEMENT DETAILS FOR MAIN ROAD

Balance Works for:

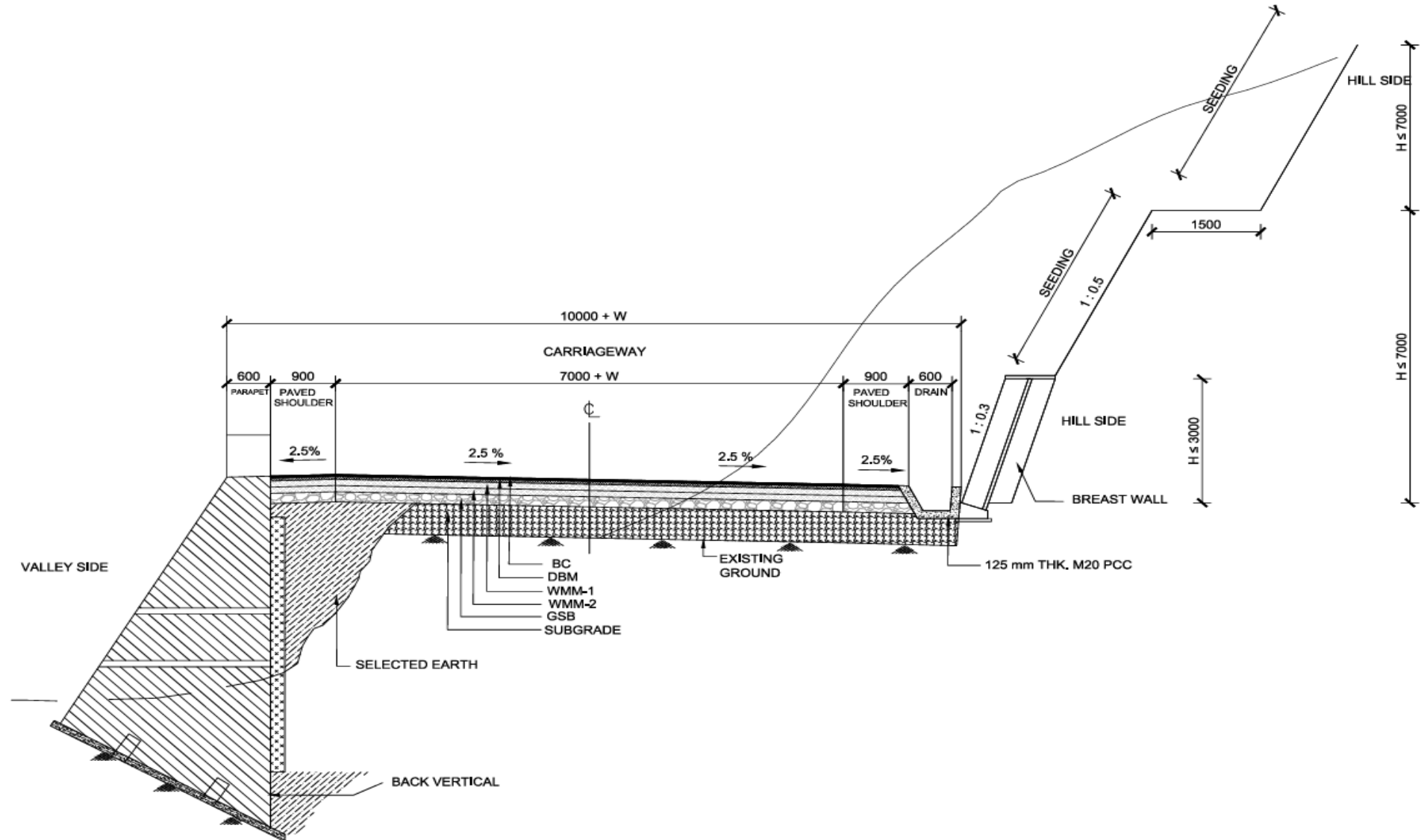
- (i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).
- (ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**



Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**



TCS - 04

TYPICAL PAVEMENT DETAILS FOR RETAINING WALL PORTION & BREAST WALL PORTION

Balance Works for:

- (i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.
- (ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - C

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (Package-V).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-(Package-VI)

Schedule - C
(See Clause 2.1)

PROJECT FACILITIES For 4-Laning

1. Project Facilities

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

- (a) ~~_____ toll plaza;~~
- (b) road side furniture;
- (c) ~~_____ pedestrian facilities;~~
- (d) tree plantation;
- (e) truck lay-byes;
- (f) bus bays and bus shelters;
- (g) ~~_____ rest areas;~~
- (h) Others to be specified: street lighting

2. Description of Project Facilities

Each of the project facilities is described below:

2.1 Toll Plaza

Toll plaza shall be designed as per the guidelines of manual and it is provided at following locations:

Sl. No.	Toll Plaza Location (Design Chainage in Km)
NIL	

2.2 Road side furniture

As described in Annex-I of Schedule-B, including the below mentioned facility:

2.2.1 Identification & boundary stones:

Sl. No.	Project facility	Location	Design requirements	Other essential details
1	5th Kilometer stones	Km 58+840 to 90+210 (Except km 66+00 to 67+500)	As per Manual and relevant IRC code.	-
2	Kilometer stones			
3	Hectometer stones			
4	Boundary stones			

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

2.3 Pedestrian facilities : Nil

2.4 Tree plantation : As per Manual.

2.5 Truck lay-byes : Nil

2.6 Bus bays and bus shelters: 02 nos

Sr. No.	Proposed Chainage (km)	Remarks
1	60+500	Bus Bay along with shelter
2	74+300	Bus Bay along with shelter
3	83+500	Bus Bay along with shelter
4	90+210	Bus Bay along with shelter

*Above locations are tentative and actual location shall be decided in consultation with Authority's Engineer.

2.7 Rest areas : Nil

2.8 Highway Lighting

Lighting shall be provided at the following locations (minimum 40 Lux to be maintained):

(i) Street Lighting at an interval of maximum 25 m shall be provided in bridges including its approaches, built up areas, Toll Plaza, Bus-Bays & Bus stops, Truck Lay-Bys, Minor Junction and Major Junctions and as per manual recommended in schedule-D.

(ii) High Mast Lightening shall also be provided at all Major & Minor junctions, Toll Plaza locations.

2.9 Others : 02 nos

Sr. No.	Proposed Chainage (km)	Remarks
1	70+520	View Point
2	90+210	Viewpoint

*Above locations are tentative and actual location shall be decided in consultation with Authority's Engineer.

Balance Works for:

- (i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.
- (ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule- D

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - D

(See Clause 2.1)

Specifications and Standards

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

2. Design Standards:

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

Manual of Specifications and Standards for Two Laning of Highways (IRC: SP: 73 2018), referred to herein as the Manual.;

IRC-37: 2018 Guidelines for the design of flexible pavements;

Code for Practice of Road Signs IRC- 67: 2022;

The Hill Road Manual IRC SP:48: 2023 should be referred.

The NGT Order dated 01.11.2018 should be followed for disposal of muck.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Annex - I

(Schedule-D)

Annex-I Specifications and Standards for Construction

1. Specifications and Standards

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for Two-Lanning of Highways (IRC: SP:73), referred to as the Manual and MORTH Specifications for Road and Bridge Works. In addition, provisions of relevant Codes, Standards, Specifications, Guidelines etc. of IRC, MoRTH, AASHTO, ASTM, Euro Codes and British Codes shall also be referred. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

1.1 Design Standards for special slope protection works

- (i) Hill Road Manual IRC SP: 48:2023
- (ii) MoRT&H OM no. RW/NH-33044/55/2021-S&R (P&B) pt./Hill Slope Monitoring (Computer No. 219394), dated 28.11.2024
- (iii) IRC- HRB- Special Report-23 -State of the Art: Design and Construction of Rock fall Mitigation systems.
- (iv) IRC: SP: 42 - 2014, Guidelines of Road Drainage.
- (v) IRC SP: 116-2018 - Guidelines for Design and Installation of Gabion Structures.
- (vi) BS 8006-1:2010+A1:2016-Code of Practice for Strengthened /Reinforced Soil& other fills.
- (vii) BS 8081:2015+A2:2018 - Code of Practice for Grouted Anchors.
- (viii) FHWA-NHI-14-007 - Soil Nail Walls Reference Manual (FHWA GEC 007), 2015.
- (ix) FHWA-IF-99-015 - Ground Anchors and Anchored System (GEC No. 4), 1999.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase “A” on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase “A” on EPC Mode in the State of Sikkim-**(Package-VI)**

(x) IS 16014:2018, Mechanically Woven, Double-Twisted, Hexagonal Wire Mesh Gabions, Rivet Mattresses, Rock Fall Netting and Other Products for Civil Engineering Purposes (Galvanized Steel Wire or Galvanized Steel Wire with Polymer Coating) – Specification.

(xi) IS 14268: 2017 - Uncoated Stress Relieved Low Relaxation Seven-Wire (Ply) Strand for Prestressed Concrete— Specification.

(xii) IS: 1893-1 (2016), –Criteria for Earthquake Resistant Design of Structure, Bureau of Indian Standards, and New Delhi.

(xiii) Ministry of Road Transport and Highways (MORTH), –Specifications for Road and Bridges Works - Fifth Revision.

(xiv) Geological, geotechnical& Geophysical investigations as per IRC: 78, Specifications for drilling, coring testing etc. issued by ISI. BIS, MoRT&H and other relevant codes are applicable.

(xv) Other Indian / International Standards applicable as per Good Industry Practice.

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 for the below:

Clause Referred in Manual	Item	Provision as per Manual	Modified Provision	Remarks
2.2.1	Minimum design speed in hilly terrain.	40 kmph	At some locations listed below, where the horizontal curve radius is not meeting the	Speed is restricted for Curve having radius less 50m.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

			criteria as per manual	
2.6.1	Width of shoulders in mountainous and steep terrain (Hilly Area)	Paved shoulder (open country) = 1.50 m (each side) Earthen shoulder (open country) = 1.00 m (valley side)	As defined in clause 2 (vii) (b) of Annex-I of Sch-B	

The following Policy circulars of MoRTH shall be also complied:

Sl. No.	Policy circular No.	Dated	Subject
1	Efile No. RW/NH-33044/55/2021-S&R(P&B)Pt./ Hill slope monitoring (Computer No. 219394)	28th November 2024	Expert Committee Report on Cost Effective Long Term Remedial Measures for landslide prone areas in hilly regions.
2	Efile No. RW/NH-34066/09/2017/S&R(B) (Computer no. 185417)	12th February 2021	Reinforcing Steel Bars (Clause 1000.9.3.1 of Ministry's specification for Roads and Bridge Works).
3	E-file No. RW/NH-33044/22/2020-S&R (P&B) (Computer No. 186381)	4th June 2024	Width of shoulder (Paved earthen) for National Highways
4	Efile no. RW/NH-35072/05/2018-S&R(P&B) (Computer No. 165688)	19th April 2024	Recommended Bitumen type & grade for different climate & traffic loading for National Highway and Expressway works in India
5	Efile No. RW/NH-35072/05/2018-S&R(P&B) (E165688)	23rd August 2023	Use of Bitumen: Demand Supply, Type & grade, specifications, source of procurement and quality in construction of National Highway Projects
6	Efile No. RW/NH-36098/25/2022-S&R (P&)/Pt.	16th March 2023	Safety in road construction zone in National Highway Projects - effective and adequate measures to be taken

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

7	Efile No. RW/NH-36098/17/2022/S&R(B)	2nd January 2023	Provisions of crash barriers in existing bridge.
8	NH-12037/170/2025/TUNNEL	05th December 2025	Guidelines for Preparation and Mitigation of Road Tunnel Collapses
9	NH-12037/166/2025/Tunnel	27th January 2026	Standard Operating Procedure for passage of vehicles carrying hazardous material through tunnels on National Highways
10	RW/NH-33044/37/2025-S&R (P&B) (Computer No.-255492)	07 th November 2025	Additional Augmented and Systematic Remedial Measures to Address Concerns regarding Construction of National Highways in Hilly Regions

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - E

(See Clauses 2.1 and 14.2)

Maintenance Requirements

1. Maintenance Requirements

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

The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfilment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.

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.

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)** 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

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

8. Repairs on account of natural calamities

All damages occurring to the Project Highway on account of a Force Majeure Event or wilful 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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Annex - I
(Schedule-E)

Annex-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 Pavements:

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
Flexible Pavement (Pavement of MCW, Service Road, approaches of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Potholes	Nil	< 0.1 % of area and subject to limit of 10 mm in depth	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC 82: 2015 and Distress Identification Manual for Long Term Pavement Performance Program, FHWA 2003 (http://www.tfhrc.com/pavement/ltp/reports/03031/)	24-48 hours	MORT&H Specification 3004.2
	Cracking	Nil	< 5 % subject to limit of 0.5 sqm for any 50 m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1 % of area	Daily	Length Measurement Unit like Scale, Tape, odometer etc.		2-7 days	IRC:82-2015
	Bleeding	Nil	< 1 % of area	Daily			3-7 days	MORT&H Specification 3004.4
	Ravelling/ Stripping	Nil	< 1 % of area	Daily			7-15 days	IRC:82-2015 read with IRC SP 81
	Edge Deformation / Breaking	Nil	< 1 m for any 100 m section and width < 0.1 m at any location, restricted to 30 cm from the edge	Daily			7- 15 days	IRC:82-2015
	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer SCRM	Class I Profilometer : ASTM E950 (98) :2004 -Standard Test Method for measuring Longitudinal Profile of Travelled	180 days	IRC:82-2015
	Skid Number	60SN	50SN	Bi-Annually			180 days	BS: 7941-1: 2006

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/Repair	Maintenance Specifications
		Desirable	Acceptable					
	Pavement Condition Index	3	2.1	Bi-Annually	(Sideway-force Coefficient Routine Investigation Machine or equivalent)	Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	180 days	IRC:82-2015
	Other Pavement Distresses			Bi-Annually			2-7 days	IRC:82-2015
	Deflection/Remaining Life			Annually	Falling Weight Deflecto meter	IRC 115: 2014	180 days	IRC:115-2014
Rigid Pavement (Pavement of MCW, Service Road, Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Roughness BI	2200mm/km	2400mm/km	Bi-Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM E1656 -94: 2000	180 days	IRC:SP:83-2008
	Skid	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway-force Coefficient Routine Investigation Machine or equivalent)	IRC:SP:83-2008	180 days	IRC:SP:83-2008
		Minimum SN	Traffic Speed (Km/h)					
		36	50					
		33	65					
		32	80					
		31	95					
		31	110					
Embankment/ Slope	Edge drop at shoulders	Nil	40mm	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC SP:73-2018, IRC 36-2010 & IRC 56-2011	7-15 days	MORT&H Specification 408.4
	Slope of camber/cross fall	Nil	<2% variation in prescribed slope of camber /cross fall	Daily			7-15 days	MORT&H Specification 408.4
	Embankment Slopes	Nil	<15 % variation in prescribe side slope	Daily			7-15 days	MORT&H Specification 408.4

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

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

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

Table -2: Maintenance Criteria for Rigid Pavements:

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
CRACKING						
1	Single Discrete Cracks Not intersecting with any joint	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	w < 0.2 mm. hair cracks		
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car	Seal without delay	Seal, and stitch if L > 1m. Within 7days
			3	w = 0.5 - 1.5 mm, discernible from fast-moving car		
			4	w = 1.5 - 3.0 mm	Seal, and stitch if L > l m. Within 7 days	Staple or Dowel Bar Retrofit, FDR for affected portion. Within 15days
			5	w > 3 mm.		
2	Single Transverse (or Diagonal) Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.2 mm, hair cracks	Route and seal with epoxy. Within 7 days	Staple or Dowel Bar Retrofit. Within 15days
			2	w = 0.2 - 0.5 mm, discernible from slow vehicle		
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route, seal and stitch, if L > 1 m. Within 7 days	Full Depth Repair Dismantle and reconstruct affected.
			4	w = 3.0 - 6.0 mm	Dowel Bar Retrofit. Within 15 days	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
					5	w > 6 mm, usually associated with spalling, and/or slab rocking under traffic
3	Single Longitudinal Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.5 mm, discernible from slow moving vehicle	Seal with epoxy, if L > 1 m. Within 7 days	Staple or dowel bar retrofit. Within 15days
			2	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route seal and stitch, if L > l m. Within 15 days	-
			3	w = 3.0 - 6.0 mm	Staple, if L > 1 m. Within 15 days	Partial Depth Repair with stapling. Within 15 days
			4	w = 6.0 - 12.0 mm, usually associated with spalling	Not Applicable, as it may be full depth	
			5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic		
4	Multiple Cracks intersecting with one or more joints	w = width of crack	0	Nil, not discernible	No Action	-
			1	w < 0.2 mm, hair cracks	Seal, and stitch if L > l m. Within 15 days	
			2	w = 0.2 - 0.5 mm. discernible from slow vehicle		
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinstall subbase, Reconstruct whole slab as per specifications within 30 days
			4	w = 3.0 - 6.0 mm panel broken into 2 or 3 pieces		
			5	w > 6 mm and/or panel broken into more than 4 pieces		
5	Corner Break		0	Nil, not discernible	No Action	-

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action		
					For the case $d < D/2$	For the case $d > D/2$	
		w = width of crack L = length of crack	1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to secure broken parts Within 7 days	Seal with epoxy seal with epoxy Within 7days	
			2	w < 1.5 mm; L < 0.6 m, only one corner broken			
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC:SP: 83-2008) Within 15 days	Full depth repair	
			4	w > 1.5 mm; L > 0.6 m or three corners broken			
			5	three or four corners broken			
			6	Punch-out (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)	w = width of crack L = length (m/m2)	0	Nil, not discernible
1	w < 0.5 mm; L < 3 m/m ²	Seal with low viscosity epoxy to secure broken parts. Within 15days					
2	either w > 0.5 mm or L < 3 m/m ²						
3	w > 1.5 mm and L < 3 m/m ²	Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement. Within 30days					
4	w > 3 mm, L < 3 m/m ² and deformation						
5	w > 3 mm, L > 3 m/m ² and deformation						
Surface Defects							
7	Ravelling or Honeycomb type surface	r = area damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	Short Term	Long Term	
				No action.	Local repair of areas damaged and liable to be damaged. Within 15 days		
			1	r < 2 %			
			2	r = 2 - 10 %	Bonded Inlay, 2 or 3 slabs if Affecting. Within 30 days		Not Applicable
			3	r = 10-25%			
			4	r = 25 - 50 %			
5	r > 50% and h > 25 mm	Reconstruct slabs, 4 or more slabs if affecting.					

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
8	Scaling	r = damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	Within 30 days	Not Applicable
			1	$r < 2 \%$	Short Term No action.	
			2	$r = 2 - 10 \%$	Local repair of areas damaged and liable to be damaged. Within 7days	
			3	$r = 10 - 20\%$	Bonded Inlay within 15 days	
			4	$r = 20 - 30 \%$		
			5	$r > 30 \%$ and $h > 25 \text{ mm}$	Reconstruct slab within 30 days	
9	Polished Surface/Glazing	t = texture depth, sand patch test	0		No action.	Not Applicable
			1	$t > 1 \text{ mm}$		
			2	$t = 1 - 0.6 \text{ mm}$	Monitor rate of deterioration	
			3	$t = 0.6 - 0.3 \text{ mm}$		
			4	$t = 0.3 - 0.1 \text{ mm}$		
			5	$t < 0.1 \text{ mm}$	Diamond Grinding if affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days	
10	Pop out (Small Hole), Pothole Refer Para 8.4	n = number/m ² d = diameter h = maximum depth	0	$d < 50 \text{ mm}; h < 25 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	No action.	Not Applicable
			1	$d = 50 - 100 \text{ mm}; h < 50 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	Partial depth repair 65 mm deep. Within 15 days	
			2	$d = 50 - 100 \text{ mm}; h > 50 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$		
			3	$d = 100 - 300 \text{ mm}; h < 100 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$	Partial depth repair 110mm i.e.10 mm more than the depth of the hole. Within 30 days	
			4	$d = 100 - 300 \text{ mm}; h > 100 \text{ mm}; n < 1 \text{ per } 5 \text{ m}^2$		
			5	$d > 300 \text{ mm}; h > 100 \text{ mm}; n > 1 \text{ per } 5 \text{ m}^2$	Full depth repair. Within 30 days	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Joint Defects						
			5	w > 80 mm, and L > 25%	50 - 100 mm deep repair. H = w + 20% of w. Within 30 days	
13	Faulting (or Stepping) in Cracks or Joints	f = difference of level	0	not discernible, < 1 mm	No action.	No action.
			1	f < 3 mm		
			2	f = 3 - 6 mm	Determine cause and observe, take action for diamond grinding	Replace the slab as appropriate.
			3	f = 6 - 12 mm	Diamond Grinding	Within 30days
			4	f= 12 - 18 mm	Raise sunken slab.	Replace the slab as appropriate. Within 30days
			5	f> 18 mm	Strengthen subgrade and sub-base by grouting and raising sunken slab	
14	Blow-up or Buckling	h = vertical displacement from normal profile	0	Nil, not discernible	Short Term	Long Term
			1	h < 6 mm	No Action	
			2	h = 6 - 12 mm		
			3	h = 12 - 25 mm	Install Signs to Warn Traffic within 7 days	
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	shattered slabs, ie 4 or more pieces	Replace broken slabs.	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Joint Defects						
					Within 30 days	
15	Depression	h = negative vertical displacement from normal profile L =length	0	Not discernible, h < 5 mm	No action.	Not Applicable
			1	h = 5 - 15 mm		
			2	h = 15-30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen subgrade. Reinstate pavement at normal level if L < 20 m. Within 30 days	
			5	h > 100 mm		
16	Heave	h = positive vertical displacement from normal profile. L = length	0	Not discernible. h < 5 mm	Short Term	Long Term
					No action.	Scrabble
			1	h = 5 - 15 mm	Follow up.	
			2	h = 15 - 30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Stabilise subgrade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		
17	Bump		0	h < 4 mm	No action	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Joint Defects						
		h = vertical displacement from normal profile	1	h = 4 - 7 mm	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	h = 7 - 15 mm	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			5	h > 15 mm	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days
18	Lane to Shoulder Drop-off	f = difference of level	0	Nil, not discernible < 3mm	Short Term	Long Term
					No action.	
			1	f = 3 - 10 mm	Spot repair of shoulder within 7 days	
			2	f = 10 - 25 mm		
			3	f = 25 - 50 mm	Fill up shoulder within 7 dayss	
			4	f = 50 - 75 mm		For any 100 m stretch Reconstruct shoulder, if affecting 25% or more of stretch. Within 30days
			5	f > 75 mm		
Drainage						
19	Pumping	quantity of fines and water expelled	0	not discernible	No Action	
			1 to 2	slight/ occasional Nos < 10%	Repair cracks and joints Without delay.	Inspect and repair sub-drainage at

Balance Works for:

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(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Joint Defects						
		through open joints and cracks Nos	3 to 4	appreciable/ Frequent 10 - 25%	Lift or jack slab within 30 days.	distressed sections and upstream.
		Nos/ 100 m stretch	5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade and subbase. Replace slab. Within 30 days	
20	Ponding	Ponding on slabs due to blockage of drains	0-2	No discernible problem	No action.	Action required to stop water damaging foundation within 30 days.
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days, Follow up	
			5	Ponding, accumulation of water observed	-do-	

Balance Works for:

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(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Highway	Availability of Safe Sight Distance	As per IRC: 52-2019, a minimum of safe stopping sight distance shall be available throughout.			Monthly	Manual Measurements with Odometer along with video/ image backup	Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments. In case of permanent structure or design deficiency: Removal of obstruction/improvement of deficiency at the earliest Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.		IRC : 52-2019
Pavement Marking	Wear	<70% of marking remaining			Bi-Annually	Visual Assessment as per Annexure-F of IRC:35-2015	Re - painting	Cat-1 Defect - within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015
	Day time Visibility	During expected life Service Time Cement Road - 130mcd/m ² /lux Bituminous Road - 100mcd/m ² /lux			Monthly	As per Annexure-D of IRC:35-2015	Re - painting	Cat-1 Defect - within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015
	Night Time Visibility	<u>Initial and Minimum Performance for Dry Retro reflectivity during night time:</u>			Bi-Annually	As per Annexure-E of IRC:35-2015	Re - painting	Cat-1 Defect - within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		Design Speed	(RL) Retro Reflectivity (mcd/m ² /lux)						
			Initial (7 days)	Minimum Threshold level (TL) & warranty period required up to 2 years					
		Up to 65	200	80					
		65 - 100	250	120					
		Above 100	350	150					
		Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity): Initial 7 days Retro reflectivity: 100 mcd/m ² /lux Minimum Threshold Level: 50 mcd/m ² /lux							
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7days): 55BPN Min. Threshold: 44BPN *Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc			Bi-Annually	As per Annexure-G of IRC:35-2015		Within 24 hours	IRC:35-2015
Road Signs	Shape and Position	Shape and Position as per IRC:67-2022. 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.	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs	IRC:67-2022

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
					Relocation as per requirement	(Single and Dual post signs) 15 Days in case of Gantry/Cantilever Sign boards	
	Retro reflectivity	As per specifications in IRC:67-2022	Bi-Annually	Testing of each signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.	Change of signboard	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 1 Month in case of Gantry/ Cantilever Sign boards	IRC:67-2022
Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	RC 86:1983
	Kerb Painting	<u>Functionality</u> : Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	RC 35:2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC:SP 73-2018 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:73-2018, IRC:35-2022
	Pedestrian Guardrail	<u>Functionality</u> : Functioning of guardrail as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:73-2018,
	Traffic Safety Barriers	<u>Functionality</u> : Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:73-2018, IRC:119-2015

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	End Treatment of Traffic Safety Barriers	<u>Functionality:</u> Functioning of End Treatment as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:73-2018, IRC:119-2015
	Attenuators	<u>Functionality:</u> Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:2014, IRC:119-2015
	Guard Posts and Delineators	<u>Functionality:</u> Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC: 79 - 2019
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2022
	Traffic Blinkers	<u>Functionality:</u> Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:73-2018,
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:73-2018
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:73-2018,
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:73-2018,
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:73-2018,
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:73-2018,

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Trees and Plantation including median plantation	Obstruction in a minimum head-room of 5.5 m above carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC: SP:73-2018,
	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC:SP:73-2018,
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of Trees	Immediate	IRC:SP:73-2018,
Rest Areas	Cleaning of toilets	-	Daily	-	-	Every 4 hours	
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	
Other Project Facilities and Approach roads	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus- shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily	-	Rectification	15 days	IRC:SP:73-2018,

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Table 4: Maintenance Criteria for Structures and Culverts:

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Pipe/box/slab culverts	Free waterway/unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-2019 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-2019 and IRC SP:69-2011
	Structurally sound	Spalling of concrete not more than 0.25 sqm	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC: SP:40-2019.	15 days	IRC SP 40-2019 and MORTH Specifications clause 2800
		Cracks wider than 0.3 mm not more than 1m aggregate length					
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sqm, damage to solid apron	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-2019 and IRC: SP:13-2004.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		(concrete apron) not more than 1 sqm					
Bridges including ROB's Flyover etc. as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge -Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811.
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-1990.	Repairs and replacement of safety barriers as the case may be	3days	IRC: 5-2015, IRC SP: 73-2018 and IRC SP: 40-2019.
	Rusted reinforcement	Not more than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.	15 days	IRC SP: 40-2019 and MORTH Specification n 1600.
	Spalling of concrete	Not more than 0.50 sq.m					
	Delamination	Not more than 0.50 sq.m					

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-2019 and MORTH Specification 2800.
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH specifications 2600 & 2700.
	Deflection due to permanent loads and live loads	Within design limits.	Once in every 10 years for spans more than 40 m	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-2015.
	Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	Once in every 5 years for spans more than 30m and every 10 years for spans between 15 to 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications
	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Replace of seal in expansion joint	15 days	MORTH specifications 2600 and IRC SP: 40-2019.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		rain water through expansion joint in case of buried and asphalt plug and copper strip joint.					
	Debris and dust in strip seal expansion joint	No dust or debris in expansion joint gap.	Monthly	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specifications 2600 and IRC SP: 40-2019.
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab. Providing sealant around the drainage spout if any leakages observed.	3 days	MORTH specification 2700.
Bridge-substructure	Cracks/spalling of concrete/ rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-2019 and MORTH specification 2800.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture of reinforcement or rubber	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced, in order to get uniform load transfer on to bearings.	3 months	MORTH specification 2810, IRC 83 and IRC SP: 40-2019.
Bridge Foundation	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells in major Rivers.	Suitable protection works around pier/abutment	1 month	IRC SP: 40-2019, MORTH specification 2500
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sq.m, damage to solid apron (concrete apron) not more than 1 sq.m	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching.	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-2019 and IRC: SP:13-2022.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Slope Protection (Landslide & Sinking)	Movement & deformation in landslide & sinking zones	Movement & deformation beyond permissible limit should be made good to the design standard	14 Days	Once in month/ as when noticed	Standard method as approved by the Authority QA/QC plan of the contractor	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier	Refer the Schedule B and Schedule D
	Any material or defect development in workmanship used in protection work	The material and workmanship specification should be in accordance with Schedule B and Schedule D	14 Days	Once in month/ as when noticed	Standard method as approved by the Authority QA/QC plan of the contractor	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	Refer the Schedule B and Schedule D
Tunnel - Lining and side walls	Peeling off (honeycomb, scaling, spalling, cracking)	Peeling off of concrete not more than 0.25sqm	Annually / Daily	Detailed inspection	Repairs to peeling off (honey comb, scaling, spalling, cracking)	24 hours	
	Water leakage	No water dripping down to road surface	Daily	Daily inspection	Installation of leak prevention trough	15 days	
	Steel corrosion	Not more than 0.25 sqm	Annually	Detailed inspection of all components as per IRC/International guidelines	All the corroded reinforcement shall be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar/concrete	15 days	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Insufficient effective lining thickness	Effective thickness needs to be secured	In case possibility of in-sufficient effective lining thickness is estimated by detailed inspection	Detailed investigation by electromagnetic wave and core boring of lining concrete	Detailed design shall be conducted in close coordination with the Authority to determine countermeasure works, such as inner reinforcement lining by concrete/continuous fiber sheet	1 year	
	Corrosion of Steel Fibers in Steel Fiber Concrete	Not more than 0.25 sqm	Annually	Detailed inspection of all components as per IRC/International guidelines	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar/concrete	15 days	
Tunnel - Entrance	Peeling off (honey comb, scaling, cracking)	not more than 0.25sqm	Daily/Annually	Daily inspection/Detailed inspection	Repairs to peeling off (honey-comb, scaling, cracking)	24 hours	
	Inclination, movement, settlement, joints, etc. caused by external forces.	Deterioration does not affect structural soundness	Annually	Detailed inspection	Detailed de-sign shall be conducted in close coordination with the Authority to determine counter-measure works	1 year	
	Scour	Scour shall not be affect safety of tunnel/road-way structure	Bi-Annually	Basic inspection and Detailed inspection	Suitable protection works around tunnel entrance	1 month	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Tunnel - Leak prevention trough/Flaking prevention facility	Corrosion of trough/flaking prevention net	No corrosion	Annually	Detailed inspection	Replacement of corroded parts with new trough/flaking prevention net, or all the corroded parts shall be thoroughly cleaned from rusting and applied with anti-corrosive coating	7 days	
	Cracking, deformation, defect, and water leakage of trough/flaking prevention net	No water dripping down to road surface	Daily	Visual inspection on Board and distant visual inspection	Replacement of deteriorated trough/flaking prevention net with new parts	24 hours	
	Corrosion of bolts and nuts (Mounting Bracket)	No corrosion	Annually	Detailed inspection	Replacement of corroded parts with new trough/flaking prevention net, or all the corroded parts shall be thoroughly cleaned from rusting and applied with anti-corrosive coating	24hours	
	Falling out or loosening of bolts and nuts (Mounting Bracket)	All bolts and nuts installed properly	Annually	Detailed inspection	Installation of new bolts and nuts	24hours	
	Floating, cracked, or flaked filling prevention sheet	Free from floating, crack, and flaking	Annually	Detailed inspection	Replacement of floating, cracked, or flaked filling prevention sheet with new sheet	3 months	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

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Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Cracks, corrosion, deformation, defects, or back-lash of hand-rail	Free from cracks, corrosion, deformation, defects, or backlash	Annually/Daily	Detailed inspection	Replacement of deteriorated handrail with new handrail	1 month	
	Deformation, failure, or defect of audit corridor observer corridor	Free from deformation, failure, or defect	Annually	Detailed inspection	Replacement of deteriorated parts of audit corridor observer with new parts	1 month	
	Cracks, deformation, defects of ceiling board	Deterioration does not affect structural soundness	Annually	Detailed inspection	Replacement of deteriorated parts with new parts or monitoring	3 months	
	Water leakage of ceiling board	No water dripping down to road surface	Daily	Daily inspection	Installation of leak prevention trough	15 days	
	Cracks, corrosion, deformation, and defects of wire	Deterioration does not affect traffic safety	Annually/Daily	Detailed inspection/ Daily inspection	Replacement of deteriorated wire with new wire	1 month	
	Cracks, corrosion, deformation, defects, back-lash of main body attachment	Deterioration does not affect traffic safety	Annually/Daily	Detailed inspection/ Daily inspection	Replacement of deteriorated main body attachment with new attachment	1 month	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Fracture, crack, corrosion deformation, defect, backlash of mounting bracket	Deterioration does not affect	Annually/Daily	Detailed inspection/ Daily inspection	Replacement of deteriorated mounting bracket with new bracket	1 month	
	Fracture /looseness, fall-off/crack/corrosion of bolts and nuts, Anchors	All bolts and nuts installed properly	Annually	Detailed inspection	Installation of new bolts and nuts	24hours	
Tunnel – Drainage facilities	Deformation and fracture of catchment and circular channel	Drainage function is secured	Daily/Annually	Daily inspection/ detailed inspection	Replacement of deteriorated catchment/circular channel with new catchment/circular channel	1 month	
	Damage, corrosion, or deformation of the lid of catchment and circular channel	Drainage function is secured	Daily/Annually	Daily inspection/ detailed inspection	Replacement of deteriorated catchment/circular channel with new catchment/circular channel	1 month	

Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Table 5: Maintenance Criteria for Hill Roads

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

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	12 (Twelve) hours
(iii)	Snow requiring clearance	24 (Twenty Four) hours
Tunnel		
(i)	Damage to Riding Surface inside the tunnel will be governed by stipulations for Road	As stated in preceding sections
(ii)	Damage of Air monitoring sensors / Ventilation system	Temporary measures within 24 hrs and permanent measures within 15 days

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

A. Flexible Pavement

Nature of Defect or deficiency		Time limit for repair/rectification
(b) Granular earth shoulders, side slopes, drains and culverts		
(i)	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi- urban areas	24 (twenty four) hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c) Road side furniture including road sign and pavement marking		
(i)	Damage to shape or position, poor visibility or loss of retro- reflectivity	48 (forty eight) hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(iii)	Damaged/missing signs road requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days
(d) Road lighting		
(i)	Any major failure of the system	24 (twenty four) hours
(ii)	Faults and minor failures	8 (eight) hours
(e) Trees and plantation		
(i)	Obstruction in a minimum head- room of 5 m above carriageway or obstruction in visibility of road signs	24 (twenty four)hours
(ii)	Removal of fallen trees from carriageway	4 (four) hours

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Nature of Defect or deficiency		Time limit for repair/rectification
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(iv)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(f) Rest area		
(i)	Cleaning of toilets	Every 4 (four) hours
(ii)	Defects in electrical, water and sanitary installations	24 (twenty four) hours
(g) [Toll Plaza]		
(h)	Other Project Facilities and Approach roads	
(i)	Damage in approach roads, pedestrian facilities, truck lay-byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts], Rain water harvesting/Artificial Recharge Unit and service roads	15 (fifteen) days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a) Superstructure		
(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures	within 48 (forty eight) hours within 15 (fifteen) days or as specified by the Authority's Engineer
(b) Foundations		
(i)	Scouring and/or cavitation	15 (fifteen) days
(c) Piers, abutments, return walls and wing walls		
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d) Bearings (metallic) of bridges		

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Nature of Defect or deficiency		Time limit for repair/rectification
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
(e) Joints		
(i)	Malfunctioning of joints	15 (fifteen) days
(f) Other items		
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g)	Slope Protection (Landslide & Sinking)	
	Any damage, Temporary measures Permanent measures	within 48 (forty eight) hours within 15 (fifteen) days or as specified by the Authority's Engineer
(g) Hill Roads		
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours
(iii)	Snow requiring clearance	24 (twenty four) hours
(h) Tunnel		
(i)	Damage to Riding Surface inside the tunnel will be governed by stipulations for Road	As stated in preceding sections

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Nature of Defect or deficiency		Time limit for repair/rectification
(ii)	Damage of Air monitoring sensors / Ventilation system	Temporary measures within 24 hrs and permanent measures within 15 days

[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.]

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

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Schedule - F

(See Clause 4.1 (vii)(a))

Applicable Permits

1. Applicable Permits

The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:

- a. Permission of the State Government for extraction of boulders from quarry;
- b. Permission of Village Panchayats and Pollution Control Board for installation of crushers;
- c. 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.

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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - G

(See Clauses 7.1 and 19.2)

Form of e-Bank Guarantee

Annex-I

(See Clause 7.1)

[Performance Security/Additional Performance Security]

To,

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

WHEREAS:

- (A) _____ [name and address of contractor] (hereinafter called the "**Contractor**") and National Highways & Infrastructure Development Corporation, 1st & 2nd Floor, Tower A, World Trade Centre, Nauroji Nagar, New Delhi - 110029, (hereinafter called the "**Authority**") have entered into an agreement (hereinafter called the "**Agreement**") for "**Construction of 2-lane specification road with Paved shoulder of existing stretch between Legship to Gyalshing of NH-510) (Design chainage from km 58.84 to km 90.21 (except km 66.00 to 67.50)) including re-alignment (Greenfield Alignment) under SARDP-NE Phase 'A' on EPC mode in the state of Sikkim (Balance Work)**" on Engineering, Procurement and Construction (the "**EPC**") basis, subject to and in accordance with the provisions of the Agreement.
- (B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs.... cr. (Rupees crore) (the "**Guarantee Amount**").
- (C) We, through our branch at (the "**Bank**") have agreed to furnish this bank guarantee (*hereinafter called the "**Guarantee**"*) by way of Performance Security.

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

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 NHIDCL that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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. Additionally, the claim period shall be 01 (one) year beyond the validity of Guarantee.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This guarantee shall also be operatable at our..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or 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, detail of which is as under:

S. No.	Particulars	Details
1.	Name of Beneficiary	National Highways & Infrastructure Development Corporation Ltd. (NHIDCL)
2.	Name of Bank	Canara Bank
3.	Account No.	8598201005819
4.	IFSC Code	CNRB0008598

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Annex - II

(Schedule - G)

(See Clause 19.2)

Annex-Form for Guarantee for Advance Payment

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

WHEREAS:

.....[name and address of contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "**Agreement**") with the National Highways & Infrastructure Development Corporation, 1st & 2nd Floor, Tower A, World Trade Centre, Nauroji Nagar, New Delhi - 110029, (hereinafter called the "**Authority**") have entered (hereinafter called the "**Authority**") for "**Balance Works for: (i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (Package-V).** (ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**" on Engineering, Procurement and Construction (the "**EPC**") basis, subject to and in accordance with the provisions of the Agreement

(A) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @*Bank Rate* + 3% advance payment (herein after called "**Advance Payment**") equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two instalments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such instalment to remain effective till the complete and full repayment of the instalment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} instalment of the Advance Payment is Rs. ----- cr. (Rupees ----- crore) and the amount of this Guarantee is Rs. ----- cr. (Rupees ----- crore) (the "**Guarantee Amount**")^{\$}.

(B) We... ..Through our branch at (The "**Bank**") have agreed to furnish this bank guarantee (*hereinafter called the "Guarantee"*) for the Guarantee Amount.

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under 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 Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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 NHIDCL, that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**
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 on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder. Additionally, the claim period shall be 01 (one) year beyond the validity of Guarantee.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This guarantee shall also be operatable at our..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
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 MORT&H, details of which is as under:

S. No.	Particulars	Details
1.	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited (NHIDCL)
2.	Name of Bank	Canara Bank

^{\$} 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).

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

3.	Account No.	8598201005819
4.	IFSC Code	CNRB0008598

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Annexure-IV of Schedule-G

(See Clause 19.2)

**Format of Insurance Surety Bond
[Performance Security]**

To

The Managing Director,

National Highway & Highway Development Corporation Ltd.

1st Floor, Tower-A, World Trade Centre, Nauroji Nagar

New Delhi- 110029

WHEREAS _____ [name and address of Contractor] (hereafter called the "Contractor") has undertaken, in pursuance of Letter of Acceptance (LOA) No. _____ Dated _____ for construction of for "**Balance Works for: (i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (Package-V). (ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-(Package-VI)**" (hereinafter called the "Contract").

AND WHEREAS the Contract requires the Contractor to furnish an [Performance Security] for due and faithful performance of its obligations, under and in accordance with the Contract, during the [Construction Period/ Defects Liability Period and Maintenance Period) in a sum of Rs cr. (Rupees crore) (the "Surety Bond amount").

AND WHEREAS we, through our branch at (the "Surety Insurer") have agreed to furnish this Surety Bond by way of Performance security.

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

1. The Surety Insurer 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 Contract, 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 Surety Bond 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 of National Highway & Highway Development Corporation Ltd], 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 Contract shall be conclusive, final and binding on the Surety Insurer. The Surety Insurer 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 Contract and its decision that the Contractor is in default shall be final and binding on the Surety Insurer, 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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

3. In order to give effect to this Surety Bond, the Authority shall be entitled to act as if the Surety Insurer were the principal debtor and any/Change in the constitution of the Contractor and/or the Surety Insurer, 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 Surety insurer under this Surety Bond.

4 It shall not be necessary, and the Surety Insurer hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Surety Insurer its demand under this Surety Bond.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Surety Insurer under this Surety Bond, to vary at any time, the terms and conditions of the Contract or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Contract 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 Contract and/or the securities available to the Authority, and the Surety Insurer 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 Surety Insurer from its liability and obligation under this Surety Bond and the Surety Insurer hereby waives all of its rights under any such law.

6. This Surety Bond is in addition to and not in substitution of any other Surety Bond or security now or which may hereafter be held by the Authority in respect of or relating to the Contractor for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Contract.

7. Notwithstanding anything contained hereinbefore, the liability of the Surety Insurer under this Surety Bond is restricted to the Surety Bond Amount and this Surety Bond 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 Surety Insurer under this Surety Bond all rights of the Authority under this Surety Bond shall be forfeited and the Surety Insurer shall be relieved from its liabilities hereunder

8. The Surety Bond shall cease to be in force and effect on ****§. Unless³ a demand or claim under this Surety Bond is made in writing before expiry of the Surety Bond, the Surety Insurer shall be discharged from its liabilities hereunder. Additionally, the claim period shall be 01 (one) year beyond the validity of ISB.

9. The Surety Insurer undertakes not to revoke this Surety Bond 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 Surety Bond and the undersigned has full powers to do so on behalf of the Surety Insurer.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Surety Insurer 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 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 Surety Bond 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 Contract.

12. This Guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

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)

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - H

(See Clauses 10.1 (iv) and 19.3)

Contract Price Weightages

1.1 The Contract Price for this Agreement is Rs.....

1.2 In initial period, Contractor shall do only the formation cutting and protection measures thereof in part length. The subsequent works shall start for those sections only where the formation cutting and protection measures remain stable-

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

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
I. Road works including culverts, widening and repair of culverts.	44.53%	A- Widening and/or strengthening and/or repair of existing/part completed road	
		(1) Earthwork up to top of the embankment	1.39%
		(2) Sub-Grade	0.02%
		(3) Sub-Base Course	1.81%
		(4) Non Bituminous Base Course	2.06%
		(5) Bituminous Base Course	7.02%
		(6) Wearing Coat	0.51%
		(7) Widening and/or repair of culverts	1.18%
		B.1- Reconstruction/ New realignment/ bypass (Flexible pavement)	
		(1) Earthwork up to top of the embankment	10.75%
		(2) Sub-Grade incl Earthen Shoulder	0.76%
		(3) Sub Base Course	14.15%
		(4) Non-Bituminous Base Course*	17.73%
		(5) Bituminous Base Course	18.42%
		(6) Wearing Coat	14.71%
		D- Re-Construction and New culverts on existing road, realignments, bypasses :	
		Culverts (length < 6 m)	9.49%
III. Major Bridge (length)	12.79%	A.1- Widening and repairs of Major Bridges	
		(1) Foundation	0.00%

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

h > 60 m.) works and ROB/RUB/ elevated sections/flyovers including viaducts, if any		i) Pile Foundation	0.00%
		ii) Open Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.34%
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.)	0.09%
		(6) Wing walls/return walls	0.00%
		(7) Guide Bunds, River Training works etc.	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	0.00%
		A.2- New Major Bridges	
		(1) Foundation	
		(i) Well Foundation	0.00%
		(ii) Pile Foundation	0.00%
		(iii) Open Foundation	13.72%
		(2) Sub-structure	7.11%
		(3) Super-structure (including bearings)	73.97%
		(4) Wearing Coat including expansion joints	1.85%
		(5) Miscellaneous Items (like hand rails, crash barriers, road markings etc.)	2.44%
		(6) Wing walls/return walls	0.00%
		(7) Guide Bunds, River Training works etc.	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope, etc.)	0.48%
		C.2-New Elevated Section/Flyovers/ Grade Separators	
		(1) Foundation	
		(i) Well Foundation	0.00%
		(ii) Pile Foundation	0.00%
		(iii) Open Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.)	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
	5.11%	A.2- New Minor bridges (length >6 and <60 m.)	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

II. Minor Bridges/ Underpasses / Overpasses		(1) Foundation: On completion of the foundation work of abutments and piers	14.00%
		(2) Sub-structure: On completion of abutments and piers with abutment/ pier cap.	24.55%
		(3) Super-structure: On completion of the super-structure upto deck slab including bearings.	58.86%
		(4) Miscellaneous Works : On completion of wearing coat, expansion joint, crash barrier, railings, protection works and any remaining work associated to bridge including tests on bridge.	1.62%
		(5) Approaches: On completion of approaches including wing walls/ return walls, Retaining walls, stone pitching, protection works for floor, embankment slope etc. complete in all respect and fit for use.	0.97%
		(6) Guide Bunds and River Training Works: On completion of Guide Bunds and river Training Works complete in all respects	0.00%
IV. Other works	37.57%	(i) Toll Plaza	0.00%
		(ii) Road side drains including catch water & chute drain	
		(a) Drain	11.55%
		(b) Cover Slab	0.00%
		(c) Chute drain	4.61%
		(iii) Road signs, markings, km stones, safety devices etc.	6.24%
		(iv) Overhead gantry mounted signs	0.10%
		(v) Project facilities (a) Bus Bays (b) Truck lay-byes (c) Rest areas (d) View points (e) others	2.34%
		(vi) Road side plantation	0.00%
		(vii) Protection works# other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROBs/RUBs.	
		(a) Crash Barrier (MBCB)	9.82%
		(b) Crash Barrier (Parapet Wall)	3.48%
		(c) Retaining Wall	26.37%
		(d) Breast Wall	15.24%
		(e) Toe Wall	0.11%
		(f) Gabion Wall	5.21%
		(e) Other protection works	0.00%

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

		Crib Works	2.09%
		Anchor Works	2.63%
		Rock bolt Works	0.13%
		(g) Turfing with sods	0.21%
		(viii) Safety and traffic management during construction	0.00%
		(ix) Junction	
		(a) Minor	1.17%
		(b) Major	0.66%
		(x) Dismantling of Structures (Retaining wall, Breast Wall, Culvert, Residential/Commercial structure etc.)	1.39%
		(xi) Clearance of landslide	0.33%
		(xii) Dumping yard	
		(a) Spreading & Compaction of surplus material etc	0.20%
		(b) Gabion Wall	3.41%
		(c) Plum Toe Wall	2.03%
		(xiii) Dismantling of Existing Pavement	0.68%

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
A.1- A- Widening and/or strengthening and/or repair of existing/part completed road		
(1) Earthwork up to top of the embankment	1.39%	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length or 500 m length, whichever is less.
(2) Sub-Grade	0.02%	
(3) Sub Base Course	1.81%	
(4) Non-Bituminous Base Course*	2.06%	
(5) Bituminous Base Course	7.02%	
(6) Wearing Coat	0.51%	

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(7) Widening and/or repair of culverts	1.18%	Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of atleast one culvert.
B.1- Reconstruction/New realignment/bypass (Flexible pavement)		
(1) Earthwork up to top of the embankment	10.75%	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length or 500 m length, whichever is less.
(2) Sub-Grade	0.76%	
(3) Sub Base Course	14.15%	
(4) Non-Bituminous Base Course	17.73%	
(5) Bituminous Base Course	18.42%	
(6) Wearing Coat	14.71%	
D- Re-Construction and New culverts on existing road, realignments, bypasses: (1) Culverts (length < 6m)	9.49%	Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of atleast one culvert. 75% of the cost will be payable on completion of box/ abutments and slab/pipe and head wall. Remaining 25% will become payable on completion of protection works including return/wing walls and any other work associated with culverts.

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

Cost per km = P x weightage for road work x weightage for bituminous work x (1/L)

Where P = Contract Price

L = Total length in km

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

Note: The length affected due to law and order problems or litigation during execution including the length not handed over to the Contractor under clause 8.3 of this Contract Agreement 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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

1.3.2 Minor Bridges and Underpasses/Overpasses :

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

Table 1.3.2

Stage of Payment	Weightage	Payment Procedure
1	2	3
A.2- New minor bridges		
(i) Foundation: On Completion of the foundation work of abutments and piers.	14.00%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges. (i) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage completion of atleast two foundations of each bridge. In case where load testing is specified for foundation, the trigger of first payment shall include load testing also.
(ii) Sub – structure: On completion of abutments and piers with abutment/ pier cap.	24.55%	(ii) Sub - structure – Payment shall be made on pro-rata basis on completion of stage i.e. completion of atleast one sub-structure upto abutment/ pier cap level of each bridge.
(iii) Super-structure: On Completion of the super-structure upto deck slab including bearings.	58.86%	(iii) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e., completion of super-structure of at least one span upto deck slab including bearing as specified in the column of "Stage of Payment" in this sub- clause. If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(iv) Miscellaneous Works:	1.62%	(iv) Miscellaneous Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of wearing coat, expansion joint, crash barrier, railing, protection works, drainage and any other remaining work associated to bridge including tests on bridge for each bridge
v) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works for floor, embankment slope etc. complete in all respect and fit for use.	0.97%	(v) Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches including wing walls/ return walls, retaining walls, stone pitching in all respect as specified in the column of "Stage of Payment" in this sub- clause for each bridge.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(vi) Guide Bunds and River Training Works: On completion of Guide Bunds and river Training Works complete in all respects	0.00%	(vi) Guide Bunds and River Training Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bunds and River training Works in all respects as specified for each bridge.
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1.3.3 Major Bridge works, ROB/RUB and Structures.

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

Table 1.3.3

Stage of Payment	Weightage	Payment Procedure
1	2	3
A.1- Widening and/or repairs of Major Bridges		Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridges.
(1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the major Bridge as specified here in under.
(i) Pile Foundation	0.00%	(i) Pile Foundation
(a) Piling – On completion of pile upto bottom of pile cap		(a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorata basis.
(b) Pile Cap : On completion of pile cap		(b) Pile Cap : Payment of 30% on pro- rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Open Foundation	0.00%	(ii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	0.00%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro- rata basis on completion of a stage i.e. completion of atleast one sub- structure of abutments/piers upto abutment/pier cap level of each of the major bridge.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(3) Super-structure (including bearings)	0.00%	(3) Super-structure: Payment shall be made on prrata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under : If pre-cast RCC/PSC/Steel girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Wearing Coat including expansion joints	0.34%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major bridge.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	0.09%	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each major bridge.
(8) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.
A.2- New Major Bridge		Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridges.
(1) Foundation		(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the major Bridge as specified here in under.
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap	0.00%	
(ii) Pile Foundation	0.00%	(i) Pile Foundation
(a) Piling – On completion of pile upto bottom of pile cap	0.00%	(a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorata basis.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(b) Pile Cap : On completion of pile cap	0.00%	(b) Pile Cap : Payment of 30% on pro- rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Open Foundation	13.72%	(ii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	7.11%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro- rata basis on completion of a stage i.e. completion of atleast one sub- structure of abutments/piers upto abutment/pier cap level of each of the major bridge.
(3) Super-structure (including bearings)	73.97%	(3) Super-structure: Payment shall be made on prrata basis on completion of a stage i.e. completion of superstructure upt deck slab including bearings of at least one span as specified here in under : If pre-cast RCC/PSC/Steel girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Wearing Coat including expansion joints	1.85%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major bridge.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	2.44%	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each major bridge.
(6) Wing walls/return walls	0.00%	
(7) Guide Bunds, River Training works etc.	0.00%	
(8) Approaches (including Retaining walls, stone pitching and protection works)	0.48%	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.

1.3.4 Other works

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

Table 1.3.4

Stage of Payment	Weightage	Payment Procedure
1	2	3

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(i) Toll Plaza	0.00%	Unit of measurement is each completed toll plaza. Payment for each toll plaza shall be made on pro rata basis with respect to the total of all toll plazas as specified here in under :
(ii) Road side drains including catch water & chute drain		
(a) Drain	11.55%	a) Drains: Unit of measurement is linear length in metre. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 100 m on one side.
(b) Cover Slab	0.00%	(b) Cover slabs: Unit of measurement is linear length in metre. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 100 m on one side.
(c) Chute drain	4.61%	c) Chute drain: Unit of measurement is linear length in metre. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 100 m.
(iii) Road signs, markings, km stones, safety devices etc.	6.24%	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than one Km on both sides.
(iv) Overhead gantry mounted signs	0.10%	Unit of measurement is each number. Payment shall be made on pro-rata basis on completion of each overhead gantry mounted sign.
(v) Project facilities (a) Bus Bays (b) Truck lay-byes (c) Rest areas (d) View points (e) others	2.34%	Unit of measurement is each number. Payment shall be made on pro rata basis for completed facilities.
(vi) Road side plantation	0.00%	Unit of measurement is linear length in Km. Payment shall be made on pro rata basis on completion of one Km.
(vii) Protection works# other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROB/RUBs.		
(a) Crash Barrier (MBCB)	9.82%	Unit of measurement is linear length.
(b) Crash Barrier (Parapet Wall)	3.48%	Payment against items (a), (b), (c), (d), (e) & (f) shall be made on pro rata basis on completion of a stage in a

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(c) Retaining Wall	26.37%	length of not less than 10% (ten percent) of the total length or 100 m whichever is less.
(d) Breast Wall	15.24%	
(e) Toe Wall	0.11%	
(f) Gabion Wall	5.21%	
(g) Other protection works	0.00%	Unit of measurement is sqm. Payment shall be made on pro rata basis on completion of a stage in area of not less than 10% (ten percent) of the total area.
Crib Works	2.09%	
Anchor Works	2.63%	
Rock bolt Works	0.13%	
(h) Turfing with sods	0.21%	
(viii) Safety and traffic management during construction	0.00%	
(ix) Junction		
(a) Minor	1.17%	Unit of measurement is each number. Payment shall be made on pro rata basis for completed junction.
(b) Major	0.66%	
(x) Dismantling of Structures (Retaining wall, Breast Wall, Culvert, Residential/Commercial structure etc.)	1.39%	Unit of measurement is linear length. Payment against shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten percent) of the total length or 100 m whichever is less.
(xi) Clearance of landslide	0.33%	
(xii) Dumping yard		
(a) Spreading & Compaction of surplus material etc	0.20%	Unit of measurement is linear length. Payment against shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten percent) of the total length or 100 m whichever is less.
(b) Gabion Wall	3.41%	
(c) Plum Toe Wall	2.03%	
(xiii) Dismantling of Existing Pavement	0.68%	

2. Procedure for payment for Maintenance

(i) The cost for maintenance shall be as stated in Clause 14.1 (i)

(ii) Payment for Maintenance shall be made in accordance with the provisions of Clause 19.7.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Annex - I

(Schedule - I)

List of Drawings

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

- a) Detailed Drawings of Plan & Profile with Horizontal intersection Point, Vertical Intersection Points, elements of curves, and sight distances etc.
- b) Detailed Drawings of Cross-section at 50.0m interval along the alignment.
- c) Typical Cross-section with details of pavement thickness.
- d) Detailed Drawings of all Junctions/intersections.
- e) Detailed drawing for culverts.
- f) Detailed Drawings of road drainage measures and drainage Plan.
- g) Detailed Drawings of slope protection measures like Secured Drapery in Hill Side and RCC and Plum concrete retaining wall in Valley Side.
- h) Drawings of road furniture items including traffic signage, markings, safety barriers (Thrie beam) etc.
- i) Detailed Utility Shifting Drawings (Electrical, HT/EHT Line and Water Supply line etc.)
- j) Detailed Drawings of Major & Minor Bridges, Tunnel etc.
- k) Any other drawing relevant to the Project Highway as desired by Authority/Client.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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

2. Project Milestone-I

(i) Project Milestone-I shall occur on the date falling on the **255th (Two Hundred Fifty Five)** day from the Appointed Date (the "**Project Milestone-I**").

(ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 10% (ten per cent) of the Contract Price.

3. Project Milestone-II

(i) Project Milestone-II shall occur on the date falling on the **438th (Four Hundred Thirty Eight)** day from the Appointed Date (the "**Project Milestone- II**").

(ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 35% (thirty-five per cent) of the Contract Price **and should have started construction of all structures**

4. Project Milestone-III

(i) Project Milestone-III shall occur on the date falling on the **620th (Six Hundred Twenty)** day from the Appointed Date (the "**Project Milestone-III**").

(ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)** amount not less than 70% (seventy per cent) of the Contract Price and should have started construction of all project facilities.

5. Scheduled Completion Date

- (i) The Scheduled Completion Date shall occur on the **730th (Seven Hundred Thirty)** day from the Appointed Date.
- (ii) On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

6. Extension of time

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - K

(See Clause 12.1 (ii))

Tests on Completion

1. Schedule for Tests

Tests

- I. **Visual and physical test:** The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests required are to be decided by the Authority/Authority's Engineer at the time of physical tests as per standard.
- 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 equipment's and the maximum permissible roughness for purposes of this Test shall be 2,000 (two thousand) mm for each kilometre.
- III. **Tests for bridges/viaducts:** All major and minor bridges/viaducts shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Non-destructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges/viaducts with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
- IV. **Test for Tunnels:** Authority engineer shall collect all the tunnel monitoring data and check to confirm all displacements have ceased within tolerance limit. Permanent lining shall be checked for any visible defect such as crack, spalling or seepage further rebound hammer and UPV tests to be conducted at doubtful parts of lining. Functioning of drainage system to be checked. Testing and commissioning of E&M and ventilation system Systems.
- V. **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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**
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.

VI. **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.

VII. **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.

2. 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.

3. Completion Certificate

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

4. 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 defects of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of pavement	Falling Weight Deflectometer (FWD)	At least once a year
4	Bridges	Mobile Bridge Inspection Unit (MBU)	At least twice a year (As per survey months defined for the state basis rainy season)

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Sr. No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - L

(See Clause 12.2)

- 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 **"Balance Works for: (i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (Package-V). (ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-(Package-VI)"** on Engineering, Procurement and Construction (the "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 of20.... .

SIGNED, SEALED AND DELIVERED

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

(Signature)

(Name)

(Designation) (Address)

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

S. No.	Item/Defect/Deficiency	Percentage
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(iv)	Any Defects in Special slope protection works	10%
(d)	Roadside Drains	
(i)	Cleaning and repair of drains	5%
(e)	Road Furniture	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5 th km stones	5%
(f)	Miscellaneous Items	
(i)	Removal of dead animals, broken down/accidented vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(d)	Tunnels	
(i)	Any defect in the permanent lining	10%
(ii)	Drainage issue inside tunnel, water ponding, potholes or damage to lanes or walkway	10%
(iii)	Problem with firefighting system, PA system, signage , air monitoring inside the tunnel or any other defect in E&M or ventilation facility	15%
(iv)	Cleaning and repair of drains	5%

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

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

Where,

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

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Schedule - N

(See Clause 18.1 (i))

Selection of Authority's Engineer

1. Selection of Authority's Engineer

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.

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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Annex - I

(Schedule - N)

Annex-I: 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 into National Highways & Infrastructure Development Corporation Ltd., 1st & 2nd Floor, Tower A, World Trade Centre, Nauroji Nagar, New Delhi - 110029 (the "Authority") and (the "Contractor") for "Balance Works for: (i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (Package-V). (ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-(Package-VI)" on Engineering, Procurement and Construction (the "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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(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 responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2.

(v) 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.

Construction Period

Balance Works for:

- (i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.
- (ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**
- (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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)** 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 management. For purpose of this paragraph 4 (ix), the tests specified in the MoRTH Specifications for Road and Bridge Works and respective Indian Roads Congress Standards/Guidelines/Manuals, together with any Indian/International other Standards mentioned therein including any modifications/substitutions thereof shall be deemed to be tests confirming to Good Industry Practice for quality management.

(x) The Authority's Engineer shall witness all the quality control tests carried out by the Contractor at its site laboratory/main laboratory/field/plants. These include tests for all materials, mixes, products, etc. Authority's Engineer shall also witness all tests of finished products like bearing in the manufacturers' laboratory as mandated in respective standards. Authority's Engineer will also conduct review of quality control documents in respect manufactured of materials/finished factory products etc. as per IRC:SP:112.

(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 MORTH specifications for Road & Bridge works and respective Indian Roads Congress Standards/Guidelines/Manuals together with any other Indian/International Standards referred thereto. The tests. shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(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

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.

The Authority's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.

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.

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.

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.

Determination of costs and time

The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.

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

Payments

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).

Authority's Engineer shall -

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

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.

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.

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.

Other duties and functions

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

Miscellaneous

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.

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.

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.

The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.

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

Notwithstanding 100% test checks by the AE, nothing shall relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Authority's Engineer or the Authority be liable for the same in any manner; and if errors, omissions, ambiguities, inconsistencies, inadequacies or other Defects are found in the Quality, they and the construction works shall be corrected at the Contractor's cost.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

Schedule - O

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

Forms of Payment Statements

1. Stage Payment Statement for Works

(a) The Stage Payment Statement for Works shall state:

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:

iv. For the Works executed (excluding Change of Scope orders);

v. For Change of Scope Orders, and

vi. Taxes deducted

2. Monthly Maintenance Payment Statement

(i) 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);

(ii) Amounts reflecting adjustments in price under Clause 19.12; and

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

(iii) 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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim- (**Package-VI**)

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

3. Insurance against injury to persons and damage to property

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

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)** 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. 2,00,00,000/- (Rupees Two Crore only), and it shall be contractor's responsibility for any liability beyond the amount specified in the agreement.

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.

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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 kilometre.

2. Visual and physical test:

The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include measurement of cracking, rutting, stripping and potholes and shall be as per the requirement of maintenance mentioned in Schedule-E. ~~Inspection of permanent lining inside the tunnels to be done visually in case of doubt the rebound hammer and UPV tests to be carried out. Site inspection test for functionality of all E&M and ventilation system for tunnels to be done.~~

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (**Package-V**).

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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 "Balance Works for: (i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim (Package-V). (ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**" on Engineering, Procurement and Construction (the "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)

Balance Works for:

(i) Construction of 2-Lane Specification Road with Paved Shoulders as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship and Gyalshing of NH-510 (Design Chainage Km 58+840 to Km 75+000) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim **(Package-V)**.

(ii) Construction of 2-Lane Specification Road with Paved Shoulder as Re-alignment (Greenfield Alignment) of Existing Stretch between Legship to Gyalshing of NH-510 (Design Chainage from Km 75.000 to Km 90.210) under SARDP-NE Phase "A" on EPC Mode in the State of Sikkim-**(Package-VI)**

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