

NATIONAL HIGHWAYS AUTHORITY OF INDIA

**(MINISTRY OF ROAD TRANSPORT & HIGHWAYS)
GOVERNMENT OF INDIA**

**Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section
from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km
286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-
Phase-II/BOT/I/J&K)**

CONCESSION AGREEMENT SCHEDULES

(Design, Build, Finance, operate and Transfer on Annuity Basis)

BETWEEN

**National Highways Authority of India,
Plot No. G-5&6, Sector -10, Dwarka, New Delhi – 110075**

AND

SRINAGAR BANIHAL EXPRESSWAY LIMITED

**Regd. Office : 6-3-1089/G/10&11, Gulmohar Avenue, Rajbhavan road,
Somajiguda, Hyderabad-500082 India**

VOLUME - II

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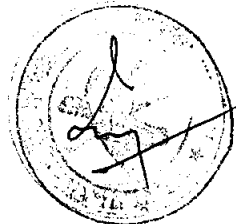
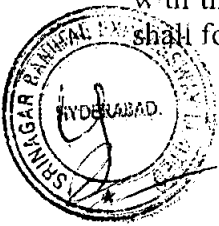
SCHEDULE – A
(See Clause 10.1)

4001

SITE OF THE PROJECT

1 The Site

- 1.1 Site of the Four-Lane Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.
- 1.2 An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Concessionaire, and such inventory shall form part of the memorandum referred to in Clause 10.3.1 of the Agreement.
- 1.3 Additional land required for Toll Plazas, Traffic Aid Posts, Medical Aid Posts and vehicle rescue posts or for construction of works specified in the Change of Scope Order issued under Clause 16.2.3 of this Agreement shall be acquired in accordance with the provisions of Clause 10.3.6 of this Agreement. Upon acquisition, such land shall form part of the Site and vest in the Authority.



Site for [Four-Laning]

1. Site

The Site of the Four-Lane divided Project Highway comprises the section of National Highway 1A commencing km 187.000 to 189.350 and km 220.700 to km 286.110 i.e. the Srinagar- Banihal section in the State of Jammu & Kashmir. The land, carriageway and structures comprising the Site are described below.

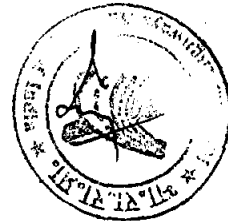
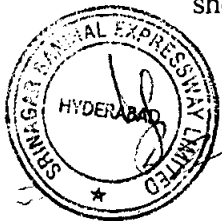
2. Land

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

S. No.	Existing Chainage (km)	Location	ROW (In Meter)
1.	187.000	220.700	15.24 New land acquisition for Banihal bypass km 187.00 to km 189.35
2.	220.700	221.275	15.67
3.	221.275	224.815	Quazigund Bypass (New Land Acquisition)
4.	224.815	238.080	15.67
5.	238.080	252.080	Bijbehara & Khannabal Bypass (New Land Acquisition)
6.	251.080	262.665	15.67
7.	262.665	269.805	Awantipura Bypass (New Land Acquisition)
8.	269.805	276.000	15.67
9.	276.000	286.11	Pampore Bypass (New Land Acquisition)

3. Carriageway

The present carriageway of the Project Highway is a 2-lane carriageway with paved shoulders varying from 0.3m to 1.00 m in its entire length.



4. Major Bridges

The Site includes the following Major Bridges:

03

S. No.	Name of Bridge	Bridge/ Structure No.	Design Chainage (kms.)	Carriage way Width (m)	Span Arrangement & Total Length	Type of Structure		
						Foundation	Sub-structure	Super Structure
1	2	3	4	5	6	7	8	9
1	Rambiara/Sangam	253/1	252.848	7.25	15.35+39.80+39.50+39.50 = 134.15	Open/Well	RCC Wall Type Abutment	PSC I-Girder & RCC Slab in main spans & RCC T-Beam & slab in end span on Jammu side

5. Railway Over Bridges/ Rail Under Bridge:-

The Site includes the no Railway Over Bridges/ Rail Under Bridge:

6. Grade Separators

The Site includes the following Grade Separators:

S.No	Chainage (In Km)	Type of Structure	No. of Spans	Width (In m)
NIL				

7. Minor Bridges:-

The Site includes the following Minor Bridges:

S.No.	Name of Bridge	Bridge/ Structure No.	Design Chainage (kms.)		Carriage way Width (m)	Span Arrangement & Total Length	Type of Structure		
			New (kms)	Old (kms)			Foundation	Sub structure	Super Structure
1.	Changlu	189/1	188.715	188.175	7.30	2 x 12.8 = 25.6	Open	Stone Masonary wall type	RCC T-Beam & Slab
2.	Wagund	221/1	220.784	220.700	6.40	1 x 15.35	Open	Stone Masonary wall	RCC T-Beam & Slab

Rehabilitation, Strengthening and Four laning of Banihal to Srinagar of NH-1A from km 187.000 to km 89.350 (Banihal Bypass) and km 220.700 to km 286.110 of NH-1A in the state of Jammu & Kashmir (Package No. NHDP Phase-I/2011/J&K)



S.N o.	Name of Bridge	Bridge/ Structu re No.	Design Chainage (kms.)		Carriage way Width (m)	Span Arrangeme nt & Total Length	Type of Structure		
			New (kms)	Old (kms)			Foundati on	Sub structu re type	Super Structure
	Kailwal	263/1	262.076	262.112	7.50	3 x 4	Open	RCC wall type	Three Cell Box Culvert

8. Total number of structures

The total number of structures on the Site is noted below:

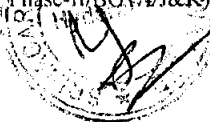
(a)	No. of Major Bridges	-	01
(b)	No. of Railway Over Bridges	-	Nil
(c)	No. of Grade Separators	-	Nil
(d)	No. of Minor Bridges	-	03
(e)	No. of Vehicular and Non Vehicular Underpasses	-	Nil
(f)	No. of Box/Arch Culverts	-	10
(g)	No. of Pipe Culverts	-	03
(h)	No. of Slab Culverts	-	159

9. Bus bays and Truck Lay byes

The total number of bus bays and truck lay byes on the Project Highway is noted below:

(a)	No. of Bus bays on LHS	-	02
(b)	No. of Bus bays on RHS	-	Nil
(c)	No. of Truck lay-byes on LHS	-	Nil
(d)	No. of Truck lay-byes on RHS	-	Nil

Rehabilitation, Strengthening and Four laning of Banihal to Srinagar of NH-1A from km 187.000 to km 189.350 (Banihal Bypass) and km 220.700 to km 286.110 of NH-1A in the state of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/J&K)



SCHEDULE - B
(See Clause 2.1)

05

DEVELOPMENT OF THE PROJECT HIGHWAY

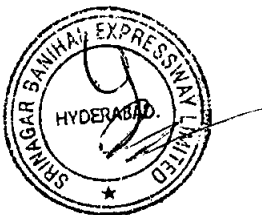
1. DEVELOPMENT OF THE PROJECT HIGHWAY

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

2. [FOUR-LANING]

2.1 [Four-Laning] shall include construction of the [Four-Lane] Project highway as described in **Annex-I** of this **Schedule-B** and **Annex-I** of **Schedule-C**.

2.2 [Four Laning] shall be undertaken and completed by the Concessionaire in conformity with the Specifications and Standards set forth in **Annex-I** of **Schedule-D**.



Annex - I
(Schedule-B)

06

DESCRIPTION OF FOUR-LANING

1 Width of Carriageway

- 1.1 The paved carriageway shall be (2x7.5) meters wide excluding the median and the paved shoulders.
- 1.2 Except as otherwise provided in this Agreement, but subject to the provisions of Annex-II of this Schedule-B, the width of the paved carriageway shall conform to clause 1.1 above.

2 Project Facilities

Project facilities shall be constructed in conformity with Annex-I of Schedule-C.

3 Specifications and Standards

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

4. Other Features of four laning**4.1 Cross Sections**

The Project Highway shall be widened to Four lane dual configuration with paved shoulder. A typical cross section alongwith different types of cross section required to be developed in different segments of the project highway are indicated in **Appendix BI**.

4.2 Alignment Plan and Longitudinal Section

Vertical profile of the project Highway will be finalized after approval of the modified alignment plans by NHAI.

4.3 Bypasses & Realignment

There are five bypasses and realignments in the project highway. The details of bypasses realignment to be provided are given at **Appendix BIII**.

4.4 Service Road

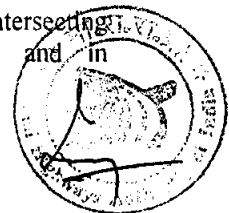
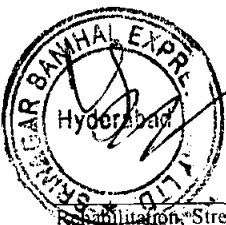
Service Roads have not been provided all along the road because there was no requirement of traffic, only small service road for Quazigund bypass to join at grade junction km 224.400 to km 225.350 to underpass has been provided. To join the pedestrian underpasses a link has been provided for pedestrians between km 279.515 to km 279.841 and km 282.250 to km 283.116. Details as per **Appendix-IV**.

4.5 Proposed Right of Way

The details of the Proposed ROW are given in **Appendix B V**.

4.6 At Grade Intersection

At grade intersections shall be provided at the intersection of service roads and all intersecting roads at locations specified in **Appendix BVI** for major intersections and in **Appendix BVII** for minor intersections.



4.7 Grade Separated Intersections

There is a proposal of one grade separator in this reach of the project Highway. Given in appendix B VIII

4.8 Underpasses

Vehicular underpass shall be provided at location given at **Appendix -BIX**

Pedestrian /cattle underpass shall be provided at location given at **Appendix -BX.**

4.9 Major bridges

Major bridges as listed in **Appendix BXI** shall be provided, widened, reconstructed, or extended

4.10 Minor bridges

Minor bridges as listed in **Appendix BXII** shall be provided, widened, reconstructed, or extended.

4.11 Culverts

Culverts shall be provided, widened, reconstructed, or extended as listed in **Appendix BXIII**

4.12 ROB/RUB

Details of ROBs to be provided are given at **Appendix BXIV**. Following points shall be taken care of:

- i). The proposed span arrangements of the ROBs are tentative and subject to change as per availability of railway boundaries/ requirement of the railways.
- ii). ROBs shall be designed, constructed and maintained as per the requirements of Railway authorities. The construction plans shall be prepared in consultation with the concerned railway authority.
- iii). The ROBs shall be constructed and maintained by the concessionaire under supervision of the Railways.
- iv) All expenditure related to construction, maintenance and supervision of ROB (except P&E charges) shall be borne by the Concessionaire.
- v) No level crossing is existing at the locations of the proposed ROBs

4.13 Entry /exit ramps

Entry /exit ramps for entering into or exiting from the project highway shall be provided wherever necessary .

4.14 Slope protection

The side slope shall be protected by using suitable slope protection measures wherever required along the present highway.

4.15 Utilities

Provision of accommodating utilities shall be made both over as well as underground wherever required.

4.16 Rainwater Harvesting

As per Ministry of Environment and Forests Notification, New Delhi dated 14.01.1997 (as amended on 13.01.1998, 05.01.1999 & 6.11.2000), the construction of Rain water, Harvesting structure is mandatory in and around Water Crisis area, notified by the Central Ground Water



Annex - II
(Schedule-B)

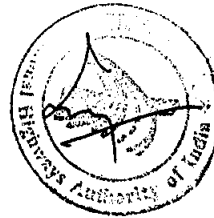
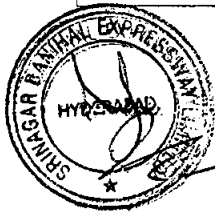
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There is no stretch for six-laning under the project.



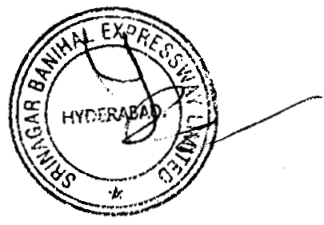
1. Typical Cross Sections - Enclosed
2. Cross Section Type along the Project Corridor.

S. No.	Design Chainage From	Design Chainage To	Length (km)	C/s Type
1.	187.000	286.110	99.11 kms	
Typical cross-section is attached for different locations in Fig 1 to 27 at the end of Schedule B				



Appendix BII

Alignment Plan and longitudinal Section are enclosed in digital form in CD marked as Appendix BII



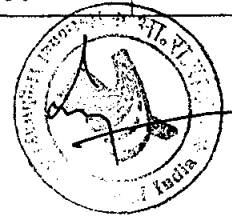
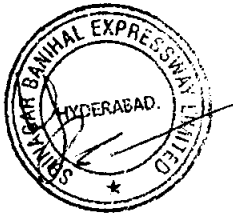
DETAILS OF BYE PASSES/REALIGNMENT

1. BYPASSES

Name of Bypass	Existing Chainage		Design Chainage		Length (Km)
	From	To	From	To	
Banihal	187.00	189.35	188.00	189.350	2.35
Qazigund	221.300	225.100	221.30	225.10	3.80
Khanabal & Bijbehara	238.080	252.080	238.30	251.000	12.70
Awantipur	262.650	269.830	262.650	270.030	7.34
Pampore	276.820	286.110	277.040	287.430	9.09

2. REALIGNMENTS

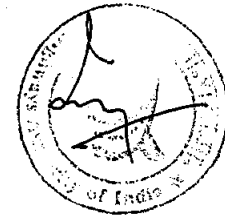
Existing Chainage		Design Chainage		Length (Km)
From	To	From	To	
187.000	189.350	188.900	189.350	2.35
219.900	220.718	219.900	220.718	0.818
220.850	221.300	220.850	221.300	0.45
220.650	228.950	228.650	228.950	0.30
230.420	230.800	230.420	230.800	0.38
230.920	231.550	230.920	231.550	0.63
232.920	234.620	232.920	234.620	1.70
252.400	253.500	252.400	253.500	1.10
261.450	262.100	261.450	262.100	0.65
275.150	275.450	275.150	275.450	0.30
276.750	277.030	276.750	277.030	0.28



DETAILS OF SERVICE ROADS

S. No.	Existing Chainage		Design Chainage		Length (m)	Width (m)	Side	C/s Type
	From	To	From	To				
1.	188.950	189.150	188.950	189.150	200	5.50	Left	
2.	224.400	225.300	224.400	225.300	900	5.50	Both	
3.	279.500	279.900	279.500	279.900	400	5.50	Both	
4.	282.300	283.300	282.300	283.300	1000	5.50	Both	

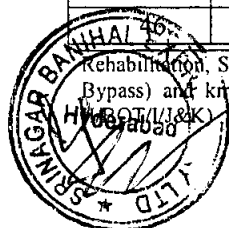
Service Roads have not been provided all along the road because there was no requirement of traffic, only small service road for Quazigund bypass to join at grade junction km 224.400 to km 225.350 underpass has been provided. To join the pedestrian underpasses a link has been provided for pedestrians between km 279.500 to km 279.900 and km 282.300 to km 283.300.



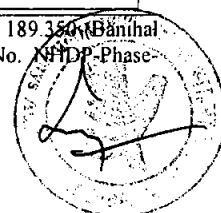
Appendix-BV

DETAILS OF PROPOSED ROW			
Sl. No.	Design Chainage		ROW (m)
1.	187.000	188.00	45
2.	188.000	189.350	60
3.	220.700	221.000	60
4.	221.000	221.220	60
5.	221.220	221.340	68
6.	221.340	222.000	60
7.	222.000	222.820	60
8.	222.820	223.000	70
9.	223.000	223.110	70
10.	223.110	224.000	60
11.	224.000	224.400	60
12.	224.400	225.000	90
13.	225.000	225.200	90
14.	225.200	226.000	60
15.	226.000	227.000	60
16.	227.000	228.000	60
17.	228.000	229.000	60
18.	229.000	229.100	60
19.	229.100	229.175	75
20.	229.175	230.000	60
21.	230.000	230.660	60
22.	230.660	230.750	80
23.	230.750	231.000	60
24.	231.000	232.000	60
25.	232.000	233.000	60
26.	233.000	233.590	60
27.	233.590	233.910	75
28.	233.910	234.000	60
29.	234.000	235.000	60
30.	235.000	236.000	60
31.	236.000	237.000	60
32.	237.000	238.000	60
33.	238.000	239.000	60
34.	239.000	240.000	60
35.	240.000	241.000	60
36.	241.000	242.000	60
37.	242.000	242.650	60
38.	242.650	243.000	80
39.	243.000	243.420	80
40.	243.420	244.000	60
41.	244.000	245.000	60
42.	245.000	245.000	60
43.	245.000	246.000	60
44.	246.000	247.000	60
45.	247.000	248.000	60
	248.000	249.000	60

13

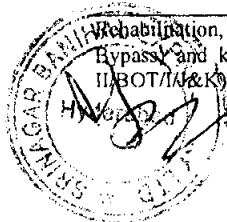


Rehabilitation, Strengthening and Four laning of Banihal to Srinagar of NH-1A from km 187.000 to km 189.350 (Banihal Bypass) and km 220.700 to km 286.110 of NH-1A in the state of Jammu & Kashmir (Package No. NHDP-Phase



47.	249.000	250.000	60
48.	250.000	251.000	60
49.	251.000	252.000	60
50.	252.000	252.400	60
51.	252.400	253.000	75
52.	253.000	253.400	75
53.	253.400	254.000	60
54.	254.000	254.840	60
55.	256.000	257.000	60
56.	257.000	258.000	60
57.	258.000	259.000	60
58.	259.000	259.950	60
59.	259.950	260.000	112
60.	260.000	260.100	112
61.	260.100	261.000	60
62.	261.000	262.000	60
63.	262.000	263.000	60
64.	263.000	264.000	60
65.	264.000	264.330	60
66.	264.330	264.680	90
67.	264.680	265.000	60
68.	265.000	265.540	60
69.	265.540	265.940	90
70.	265.940	266.000	60
71.	266.000	267.000	60
72.	267.000	268.000	60
73.	268.000	268.500	60
74.	268.500	269.000	60
75.	269.000	269.800	70
76.	269.800	270.000	60
77.	270.000	271.000	60
78.	271.000	272.000	60
79.	272.000	272.710	60
80.	272.710	272.790	65
81.	272.790	273.000	60
82.	273.000	274.000	60
83.	274.000	275.000	60
84.	275.000	275.170	60
85.	275.170	275.625	100
86.	275.625	276.000	60
87.	276.000	277.000	60
88.	277.000	277.130	60
89.	277.130	277.730	120
90.	277.730	277.930	70
91.	277.930	278.000	120
92.	278.000	278.060	120
93.	278.060	278.260	70
94.	278.260	278.620	120
95.	278.620	279.000	60

14

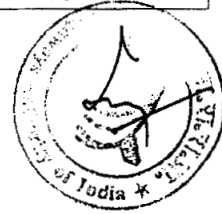


Rehabilitation, Strengthening and Four laning of Banihal to Srinagar of NH-1A from km 187.000 to km 189.350 (Banihal Bypass) and km 220.700 to km 286.110 of NH-1A in the state of Jammu & Kashmir (Package No. NHDP-Phase-II BOT/J&K)



96.	279.000	279.600	60
97.	279.600	280.000	90
98.	280.000	280.070	90
99.	280.070	281.000	60
100.	281.000	281.400	60
101.	281.400	282.000	73
102.	282.000	283.000	73
103.	283.000	283.020	73
104.	283.020	284.000	70
105.	284.000	285.000	70
106.	285.000	286.000	70
107.	286.000	287.000	70

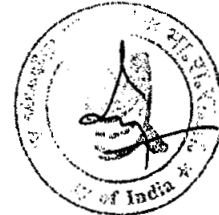
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Rehabilitation, Strengthening and Four laning of Banihal to Srinagar of NH-1A from km 187.000 to km 189.350 (Banihal Bypass) and km 220.700 to km 286.110 of NH-1A in the state of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

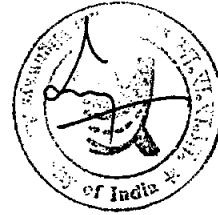
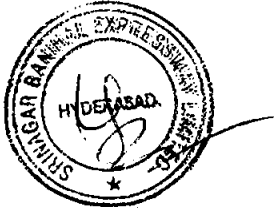
Appendix BVI**MAJOR INTERSECTIONS**

S. No.	Existing Chainage	Design Chainage	Category of Road	Type of Junction	Remarks
1.	189.350	189.350	Village road	T-intersection	
2.	221.400	221.400	Start of Qazigund bypass	Y-intersection	
3.	224.750	224.750	End of Qazigund bypass	Underpass	
4.	238.673	238.673	Start of Khanbal bypass / Bijbhera	Y-intersection	
5.	250.465	250.465	End of Khanbal bypass	Y-intersection	
6.	252.500	252.500	Village road (Sangam village)	Y-intersection	
7.	262.950	263.750	Start of Avantipur bypass	Y-intersection	
8.	269.950	269.050	End of Avantipur bypass	Y-intersection	
9.	276.890	277.127	Start of Pampore bypass	Y-intersection	
10.	286.130	287.446	End of Pampore bypass	Grade separator with Srinagar bypass	



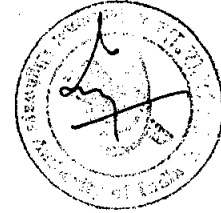
MINOR JUNCTIONS

S. No.	Existing Chainage	Design Chainage	Side (Left / Right)	Carriageway Width	Category
1.	226.200	226.370	Cross road	2 x 7.50	Cross road
2.	226.700	226.900	RHS	2 x 7.50	Village road
3.	228.700	229.150	Cross road	2 x 5.50	Cross road
4.	234.700	234.900	RHS	2 x 7.50	Village road
5.	235.800	236.060	Cross road	2 x 7.50	Cross road
6.	237.800	237.880	Cross road	2 x 7.50	Cross road
7.	257.800	257.970	Left	7.50 x 2	Road to Kachaj kote
8.	274.500	274.535	Left	2 x 7.50	Chandara village



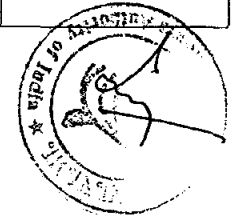
Appendix BVIII**DETAILS OF PROPOSED GRADE SEPARATED INTERSECTIONS**

S N o.	Location	Exist ing Chai nage	Design Chaina ge	Name of Inters ecting Roads	Propos ed structu ral configu ration	Prop osed Stru cture type	Proposed span arrange ment	Total width of the structure
I.	At the end of Pampore bypass and at intersection with Shri Nagar bypass	286.400	286.13/287.446 of Srinagar bypass	Sirina gar bypass with Pampo re bypass	Flyover Trumpe t type prestres sed conc. box	PSC Box	14 x 40 with total length 560.05m	2-lane carriageway with 9m width with 1.5m wide footpath on outside with 0.5m wide insurmountable kerb in between (2 x 12m)



Appendix BIX**DETAILS OF PROPOSED VEHICULAR UNDERPASSES**

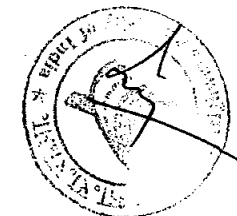
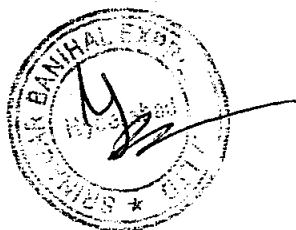
S No.	Existing Chainage	Design Chainage	Name of Intersecting Roads	Proposed structural configuration	Proposed Structure type	Proposed span arrangement	Total width of the structure (m)
1.	189.068	189.068	Between new and old road	Single cell RCC box	RCC box	1 x 13.60	24+ Median
2.	223.480	223.480	Kaccha road	RCC Box	RCC Box	1 x 13.600	24+ Median
3.	224.776	224.776	To Pampora	RCC T-beam	RCC T-beam	1 x 23.229	24+ Median
4.	240.163	240.163	Village road	RCC Box	RCC Box	1 x 13.600	24+ Median
5.	242.800	242.800	Village road	RCC Box	RCC Box	1 x 13.600	24+ Median
6.	245.506	245.506	Village road	RCC Box	RCC Box	1 x 13.600	24+ Median
7.	247.640	247.642	Village road	RCC Box	RCC Box	1 x 13.600	24+ Median
8.	264.516	264.516	Pulwama village	1 span 13.6 four lane	RCC Box	1 x 13.60	24+ Median
9.	279.841	279.841	Village	1 span 13.6 four lane	RCC Box	1 x 13.60	24+ Median
10.	262.627	282.627	Tangpora	1 span 13.6 four lane	RCC Box	1 x 13.60	24+ Median



Rehabilitation, Strengthening and Four laning of Banihal to Srinagar of NH-1A from km 187.000 to km 189.350 (Banihal Bypass) and km 220.700 to km 286.110 of NH-1A in the state of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

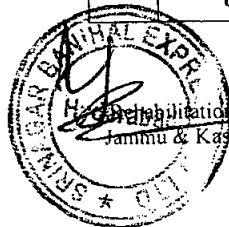
Appendix BX**DETAILS OF PROPOSED PEDESTRIAN/CATTLE UNDERPASSES**

S No.	Design Chainage	Name of Intersecting Roads	Proposed structural configuration	Proposed Structure type	Proposed span arrangement	Total width of the structure (m)
1.	246.846	Village road	1 x 7.0 RCC Box	RCC Box	1 x 7	24+ Median
2.	249.545	Village road	1 x 7.0 RCC Box	RCC Box	1 x 7	24+ Median
3.	262.030	Field, shops	1 x 7.0	RCC Box	1 x 7.0	24+ Median
4.	277.667	Kunisal	1 x 7.0	RCC Box	1 x 7.0	24+ Median
5.	278.576	Brick kilu	1 x 7.0	RCC Box	1 x 7.0	24+ Median
6.	281.740	Kacha road	1 x 7.0	RCC Box	1 x 7.0	24+ Median
7.	283.946	Kacha road	1 x 7.0	RCC Box	1 x 7.0	24+ Median
8.	284.975	Kacha road	1 x 7.0	RCC Box	1 x 7.0	24+ Median

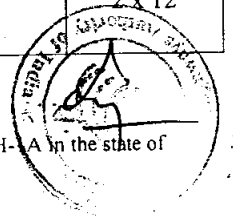


Appendix BXI**DETAILS OF NEW MAJOR BRIDGES AND REHABILITATION/REPAIR/
WIDENING SCHEME FOR EXISTING MAJOR BRIDGES****A. CONSTRUCTION OF NEW MAJOR BRIDGES**

Sl. No.	Name of Bridge	Bridge No.	Existing Chainage	Design Chainage	Type of crossing	Proposed structural configuration	Proposed Structure type	Proposed span arrangement	Total width of the structure (m)
1.	New bridge on River Bachleri	188/1	On bypass	187.300	River	RCC T-beam and slab	Bridge	4 x 30	2x12
2.	New bridge on River Bachleri	189/1	On bypass	188.575	River	RCC T-beam and slab	Bridge	4x25 (skew)	2x12
3.	New bridge on River Bachleri	190/2	On bypass	189.200	River	RCC beam and slab	Bridge	2x23.307+2x23.768 (skew)	2x12
4.	Viaduct	223/1	222.144	222.144	Canal	RCC voided slab	Viaduct	4 x 22.55+2x22.2	2x12
5.	Bridge across Jhelum river at Awantipura bypass	266/1	265.710	New chainage	Jhelum river at Awantipura bypass	PSC box	Bridge	4x40	2 x 12 Four lane
6.	Bridge across Jhelum river at Awantipura bypass	270/1	269.146	New chainage	Jhelum river at Awantipura bypass	PSC box	Bridge	4x40	2 x 12 Four lane
7.	Bridge across Jhelum river at Pampore bypass	279/1	278.167	New chainage	Jhelum river at Pampore bypass	PSC box	Bridge	5x40	Four lane 2 x 12



Strengthening and Four laning of Banihal to Srinagar of NH-1A from km 187.000 to km 189.350 (Banihal Bypass) and km 220.700 to km 286.110 of NH-1A in the state of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/J&K)

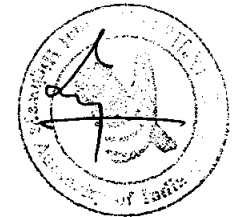


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Sl. No.	Name of Bridge	Bridge No.	Existing Chainage	Design Chainage	Type of crossing	Proposed structural configuration	Proposed Structure type	Proposed span arrangement	Total width of the structure (m)
8.	Flyover at Trumpet Interchange at intersection with Srinagar bypass	288/1	287.446	New chainage	Flyover at Trumpet Interchange	PSC box	Flyover	14x40	Four lane 2 x 12

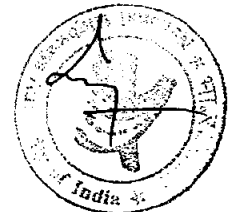
B. REHABILITATION/REPAIR/WIDENING OF EXISTING MAJOR BRIDGES

S No.	Name of Bridge	Bridge No.	Chainage (km)	Width(m)	Span Arrangement	Type of structure			Details of Rehabilitation	Details of Repair	Details of widening
						Foundation	Sub structure	Super structure			
1.	Rambiara/Sangam bridge over Jhelum	253/1	252.848	12	15+39.8+ 39.8+39.26	Well	RCC wall type abutment /RCC circular pier	PSC Box and RCC Box	Additional two lane	Additional two lane	1x12



Appendix BXII**DETAILS OF NEW MINOR BRIDGES AND REHABILITATION/REPAIR /
WIDENING SCHEME FOR EXISTING MINOR BRIDGES****A. CONSTRUCTION OF NEW MINOR BRIDGES**

Sl.No.	Bridge No.	Existing Chainage	Design Chainage	Type of crossing	Proposed structural configuration	Proposed Structure type	Proposed span arrangement	Total width of the structure(m)
1.	188/2	187.560	187.600	Dolegam nala	RCC T-beam	bridge	1 x 20.50	2 x 12
2.	189/2	188.840	188.840	New bridge	RCC voided slab	Bridge	1x17.45	2x12
3.	221/1	220.784	220.784	Wagund	RCC voided slab	Bridge	1 x 21.85	24.00
4.	239/1	239.591	239.591	Canal	RCC T-beam	Bridge	1x22.850	2x12
5.	245/1	245.889	245.889	Canal	RCC T-beam	Bridge	1x17.614	24.00
6.	250/1	250.310	250.310	Canal	RCC T-beam	Bridge	1x17.614	24.00
7.	Kailawal bridge	263/1	262.112	Kailawal bridge	PSC voided slab	Bridge	1 x 29.85	2x12

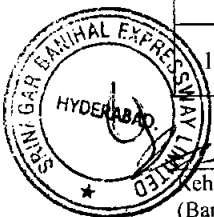
**B. REHABILITATION/REPAIR/WIDENING OF EXISTING MINOR BRIDGES - NIL**

Rehabilitation, Strengthening and Four laning of Banihal to Srinagar of NH-1A from km 187.000 to km 189.350 (Banihal Bypass) and km 220.700 to km 286.110 of NH-1A in the state of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/1/I&K)

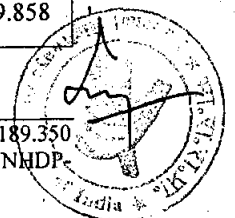
Appendix BXIII

RECONSTRUCTION SCHEME FOR CULVERTS

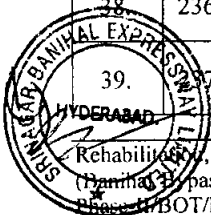
Sl.No	Existin g CD No.	Existing Chainag e	Design Chainag e	Type of Structure		Recommendatio n	Span Arrangement		Propose d total width (m)
				Existing	Propose d		Existing (m)	Propose d (m)	
1.	226/1	225.25	225.54	Box	Box	existing slab to be replaced	1 x 1.5	1.5 m x 1.5m	46.034
2.	227/1	226.300	226.55	RCC Slab	RCC Slab	Widened	1 x 1.0	-	12.44
3.		226.350	226.632	RCC Slab	RCC Slab	Widened	1 x 1.0	-	12.658
4.	227/2	226.380	226.658	RCC Slab	RCC Slab	Widened	1 x 1.0	-	12.359
5.	227/3	226.450	226.706	RCC Slab	RCC Slab	Widened	1 x 1.0	-	12.462
6.	227/4	226.650	226.921	RCC Slab	RCC Slab	Widened	1 x 1.0	-	11.505
7.	228/1	227.100	227.384	RCC Slab (IC)	RCC Slab (IC)	Widened	1 x 1.0	-	12.513
8.	228/2	227.750	228.007	RCC Slab (IC)	RCC Slab (IC)	Widened	1 x 1.0	-	5.838
9.	228/3	227.805	228.045	RCC Slab (IC)	RCC Slab (IC)	Widened	1 x 1.0	1x 0.7	13.507
10.	228/4	227.820	228.07	RCC Slab (IC)	RCC Slab (IC)	Widened	1 x 1.0	-	7.891
11.	229/1	228.020	228.275	RCC Slab	RCC Slab	Widened	1 x 1.0	-	11.804
12.	229/2	228.210	228.467	RCC Slab	RCC Slab	Widened	1 x 1.0	-	11.806
13.	229/3	228.400	228.692	HP	HP	existing slab to be replaced	1 x 0.08	1.2 m dia	25.777
14.	229/4	228.600	228.727	HP	HP	existing slab to be replaced	1 x 0.09	1.2 m dia	23.309
15.	229/5	228.750	229.007	RCC Slab (IC)	RCC Slab (IC)	Widened	1 x 1.5	-	11.541
16.	229/6	228.800	229.121	Arch/slab (IC)	Arch/slab (IC)	Widened	1 x 0.70	-	28.056
17.	229/7	228.875	229.136	Arch/slab (IC)	Arch/slab (IC)	Widened	3 x 0.70	-	32.093
18.	230/1	229.050	229.296	RCC Slab	RCC Slab	Widened	1 x 1.0	-	9.858



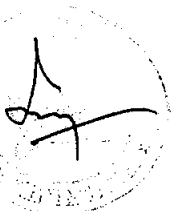
Rehabilitation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir (Package No NHDP Phase-II/BOT/I/J&K)



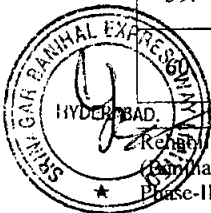
Sl.No	Existing CD No.	Existing Chainage	Design Chainage	Type of Structure		Recommendation	Span Arrangement		Proposed total width (m)
				Existing	Proposed		Existing (m)	Proposed (m)	
19.	230/2	229.800	230.015	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.06
20.	230/3	229.883	230.22	RCC Slab	RCC Slab	Replaced	1 x 1.0	2.0 m span slab	23.859
21.	231/1	230.600	230.826	RCC Slab (IC)	RCC Slab (IC)	Widened	1 x 1.0	-	13.012
22.	231/2	230.975	231.217	Box	Box	Replaced		2.0 m x 2.0 m	35.68
23.	232/1	231.100	231.334	RCC Slab	RCC Slab	Widened	1 x 1.0	-	11.282
24.	232/2	231.200	231.473	RCC Slab	RCC Slab	Replaced	1 x 1.0	2.0 m span slab	23.869
25.	232/3	231.600	231.834	RCC Slab	RCC Slab	Replaced	1 x 1.0	2.0 m span slab	23.006
26.	232/4	231.800	232.041	RCC Slab	RCC Slab	Widened	1 x 1.0	-	9.105
27.	232/5	231.900	232.162	RCC Slab	RCC Slab	Widened	1 x 1.0	-	11.206
28.	233/1	232.200	232.425	RCC Slab	RCC Slab	Widened	1 x 1.2	-	9.327
29.		232.400	232.663	RCC Slab	RCC Slab	Replaced		2.0 m span slab	23.861
30.	235/2	234.400	234.584	RCC Slab	RCC Slab	Widened	1 x 1.2	-	10.466
31.	235/3	234.480	234.649	RCC Slab	RCC Slab	Widened	1 x 1.0	-	11.206
32.	235/4	234.500	234.664	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.405
33.	235/5	234.700	234.909	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.404
34.	235/6	234.900	235.132	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.805
35.	236/1	235.100	235.352	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.405
36.	236/2	235.150	235.395	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.805
37.	236/3	235.450	235.735	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.405
38.	236/4	235.600	235.849	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.84
39.	237/1	236.275	236.495	RCC Slab	RCC Slab	Widened	1 x 1.0	-	11.105



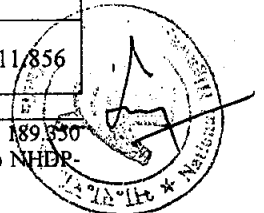
Rehabilitation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir (Package No NHDP-Phase II BOT/II&K)



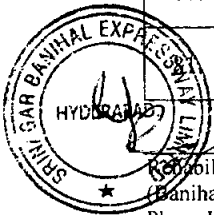
Sl.No	Existing CD No.	Existing Chainage	Design Chainage	Type of Structure		Recommendation	Span Arrangement		Proposed total width (m)
				Existing	Proposed		Existing (m)	Proposed (m)	
40.	237/2	236.300	236.526	RCC Slab	RCC Slab	Widened	1 x 1.0	-	11.106
41.	237/3	236.350	236.62	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.304
42.	237/4	236.375	236.652	RCC Slab	RCC Slab	Widened	1 x 1.0	-	12.604
43.	237/5	236.450	236.705	RCC Slab	RCC Slab	Widened	1 x 1.0	-	12.655
44.		236.500	236.73	RCC Slab	RCC Slab	Widened	1 x 1.0	-	11.305
45.	237/6	236.550	236.824	RCC Slab	RCC Slab	Widened	1 x 0.9	-	12.805
46.	237/7	236.600	236.855	RCC Slab	RCC Slab	Widened	1 x 1.0	-	9.706
47.	237/8	236.800	236.943	RCC Slab	RCC Slab	Widened	1 x 1.0	-	13.004
48.	237/8	236.820	237.004	RCC Slab	RCC Slab	Widened		2.0 m slab	13.705
49.	237/9	236.850	237.068	RCC Slab	RCC Slab	Widened	1 x 1.2	-	10.205
50.	237/10	236.900	237.112	RCC Slab	RCC Slab	Widened	1 x 1.0	-	12.106
51.	238/1	237.175	237.391	RCC Slab	RCC Slab	Widened	1 x 1.40	-	9.606
52.	238/2	237.230	237.475	RCC Slab	RCC Slab	Widened	1 x 1.0	-	10.104
53.	238/3	237.330	237.55	RCC Slab	RCC Slab	Widened	1 x 1.0	-	9.004
54.	238/4	237.350	237.567	RCC Slab	RCC Slab	Widened	1 x 1.0	-	9.205
55.		237.360	237.577	HP	HP	Replaced	1 x 0.60	1.20m slab	23.773
56.	238/5	237.450	237.706	RCC Slab	RCC Slab	Widened	1 x 0.90	-	9.306
57.	238/6	237.475	237.735	RCC Slab	RCC Slab	Widened	1 x 1.0	-	9.304
58.	238/7	237.500	237.762	RCC Slab (IC)	RCC Slab (IC)	Widened	1 x 1.0	-	15.292
59.	238/8	237.610	237.836	RCC Slab (IC)	RCC Slab (IC)	Widened	1 x 1.0	-	8.127
	238/9	237.700	237.906	RCC Slab	RCC Slab	Widened	1 x 2.5	-	11.856



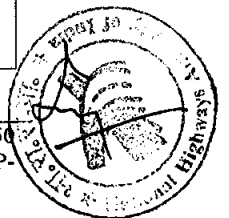
Rehabilitation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.530 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir (Package No NHDP-Phase-II/BOT/I/J&K)



Sl.No	Existing CD No.	Existing Chainage	Design Chainage	Type of Structure		Recommendation	Span Arrangement		Proposed total width (m)
				Existing	Proposed		Existing (m)	Proposed (m)	
61.	238/10	237.780	237.992	RCC Slab	RCC Slab	Replaced	1 x 1.0	2.0 m slab	23.005
62.	238/11	237.975	238.196	RCC Slab	RCC Slab	Replaced	1 x 1.0	2.0 m slab	23.004
63.	253/1	252.450	251.3	Box	Box	Replaced	1 x 0.5	3m x2 m	29.812
64.	253/2	252.500	251.36	Box (canal syphon)	Box (canal syphon)	Widened	1 x 1.0	4 m x 3m	10.683
65.	255/1	254.400	253.489	RCC Slab	RCC Slab	Replaced	1 x 1.0	3 m slab	
66.	255/2	254.517	253.59	RCC Slab	RCC Slab	Replaced	1 x 0.6	4 m slab	23.819
67.		257.015	257.080	Slab	Box	Replaced		1.5 m x 1.5 m	26
68.	259/1	258.550	258.710	RCC Slab	Slab	Widened	1x2.6x3.5	2.5 wide	26
69.	259/2	258.900	258.923	(IC)	Box	Replaced	1x1.40x0.7	2.5 m x 1.5 m	26
70.	260/1	259.310	259.254	RCC Slab	Box	Replaced	1x1.80x1.0	3 m x 2 m	26
71.	260/2	259.790	259.770	RCC Slab	Box	Replaced	1x1.80x1.5	2.5 m x 2.5 m	26
72.	261/1	260.500	260.494	Arch/slab		Widened	1x3.3x3.5	-	26
73.	261/2	260.600	260.680	RCC Slab	Slab	Replaced	1x1.0x0.8	2 m Wide	26
74.	261/3	260.700	260.750	RCC Slab	Slab	Replaced	1x1.30x1.5	2.5 m Wide	26
75.	261/4	260.840	260.840	Arch	Slab	Replaced	1x1.80x1.2 1	2.5 m Wide	26
76.	262/1	261.070	261.034	RCC Slab	Slab	Replaced	1x0.90x1.6	1.2m wide	26
77.	262/2	261.120	261.070	RCC Slab	Box	Replaced	1x0.90x1.0 5	1.2 m x 1.2 m	26
78.		270.080	270.265	(IC)	Slab	Replaced	1x1.50x0.9 5	2 m Wide	26
79.		270.200	270.445	RCC Slab	Slab	Replaced	1x2.7x0.55	3.5 m Wide	26
80.		270.600	270.855	RCC Slab	Slab	Replaced	1x1.30x0.9	2m wide	26
		271.180	271.405	RCC Slab	Slab	Replaced	1x1.1x0.45	1.5 m Wide	26

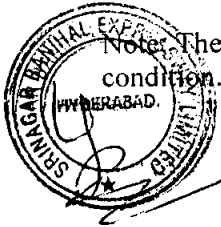


Rehabilitation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir (Package No NHDP-Phase-II/BOT/1/1&K)



Sl.No	Existing CD No.	Existing Chainage	Design Chainage	Type of Structure		Recommendation	Span Arrangement		Proposed total width (m)
				Existing	Proposed		Existing (m)	Proposed (m)	
82.		271.700	271.882	RCC Slab	Slab	Replaced		1.2 m Wide	26
83.		272.270	272.517		Slab	Replaced		1.5 m Wide	26
84.		273.300	273.500	(IC)	(IC)	widened	3.17m wide	3.17m wide	26
85.		274.520	275.208	RCC Slab	Box	Replaced	1x0.9x1.55	1.5 m x 1.8 m	26
86.		275.100	275.320	RCC Slab	Box	Replaced	1x1.30x1.93	1.5 m x 2 m	26
87.		275.310	275.530	H P	Box	Replaced	1x0.3	1.5 m x 1.5 m	26
88.		276.700	276.900	RCC Slab (Irrigation Canal)	RCC Slab (Irrigation Canal)	Retained (Blocked during construction)	1x1.8x1.7	1.8m wide	26

SLC – Slab Culvert, HPC – Hume Pipe Culvert

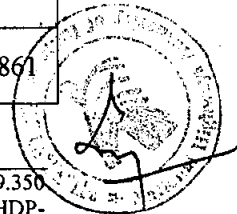
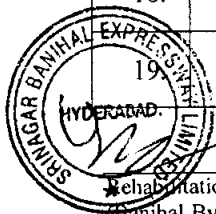


Note: The locations mentioned above are tentative and may vary according to site condition.



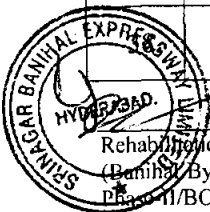
PROPOSED NEW CULVERTS

S No.	Existing Chainage/ Location	Design Chainage	Proposed Structure	Proposed size arrangement	Proposed total width (m)
1.	On Banihal bypass	187.04 0	Box	1x3x3	26
2.	On Banihal bypass	187.12 3	Box	1x3x3	26
3.	On Banihal bypass	187.34 0	Box	1x3x3	26
4.	On Banihal bypass	188.02 5	RCC Box	1x1.0 x3.0	26
5.	On Banihal bypass	188.16 0	RCC Box	1x3.0 x3.0	26
6.	On Banihal bypass	188.25 0	RCC Box	1x3.0 x3.0	26
7.	On Banihal bypass	188.93 0	RCC Box	1x3.0 x3.0	26
8.	On Banihal bypass	189.09 6	RCC Box	1x3.0 x3.0	26
9.	221.180	221.18 0	RCC Slab	2.0 m slab	21.680
10.	221.360	221.30 0	Box	2.0 m x2.0 m	40.984
11.	221.540	221.56 0	RCC Slab	2.0 m span slab	23.715
12.	221.720	221.72 0	RCC Slab	2.0 m span slab	23.861
13.	221.810	221.84 0	RCC Slab	2.0 m span slab	23.861
14.	221.990	222.02 0	Box	2.0 m x2.0 m	45.510
15.	222.420	222.39 0	Box	3.0 m slab	22.106
16.	222.970	222.82 0	RCC Slab	2.0 m span slab	23.004
17.	223.360	223.04 0	Box	2.0 m x2.0 m	35.738
18.	223.500	223.86 0	Box	3.0 m x2.0 m	27.436
19.	224.210	224.32 0	RCC Slab	2.0 m span slab	23.861

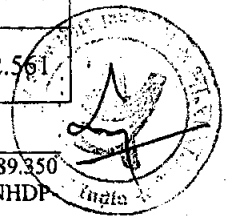


Rehabilitation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir (Package No NHDP-Phase-II/BOT/I/J&K)

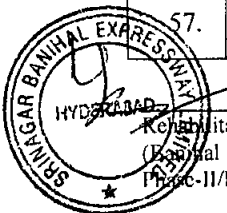
S No.	Existing Chainage/ Location	Design Chainage	Proposed Structure	Proposed size arrangement	Proposed total width (m)
20.	224.350	224.520	Box	3.0 m x2.0 m	40.740
21.	224.980	225.100	RCC Slab	3.0 m span slab	23.588
22.	232.800	233.091	RCC Slab	2.0 m slab	23.861
23.	233.050	233.262	Box	2.0 m x1.0 m	34.299
24.	233.300	233.596	Box	2.0 m x2.0 m	41.128
25.	233.750	234.000	RCC Slab	1.0 m slab	23.005
26.	233.800	234.050	RCC Slab	1.0 m slab	23.005
27.	234.200	234.395	RCC Slab	1.0 m slab	23.861
28.	238.050	238.270	RCC Slab	2.0 m slab	23.004
29.	238.100	238.400	Slab	2.0 m slab	27.487
30.	238.600	238.580	Slab	3.0 m slab	28.966
31.	238.900	238.920	Slab	2.0 m slab	22.794
32.	239.275	239.280	Slab	2.0 m slab	22.496
33.	240.275	239.440	Box	2 m x 2 m	44.263
34.		239.780	Box	2 m x 2 m	38.756
35.	239.888	239.940	Box (IC)	2 m x 2 m	35.559
36.		240.750	RCC Slab (IC)	4 m slab	20.724
37.		241.110	RCC Slab (IC)	1.5 m slab	22.610
		241.250	RCC Slab (IC)	3.0 m slab	22.561



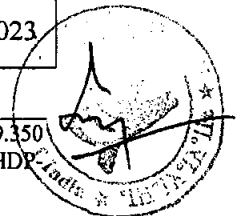
Rehabilitation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir(Package No NHDP 11/BOT/IJ&K)



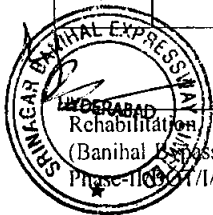
S No.	Existing Chainage/ Location	Design Chainage	Proposed Structure	Proposed size arrangement	Proposed total width (m)
39.		241.41 0	RCC Slab (IC)	1.5 m slab	22.608
40.		241.55 0	RCC Slab (IC)	1.5 m slab	22.515
41.		241.70 0	RCC Slab (IC)	1.5 m slab	23.457
42.		241.83 0	RCC Slab (IC)	1.5m slab	23.706
43.	241.975	242.10 0	RCC Slab (IC)	2.0 m slab	24.788
44.		242.21 0	RCC Slab (IC)	1.5 m slab	23.676
45.		242.60 0	Box(IC)	2 m x 2 m	35.392
46.		242.90 0	Box(IC)	3m x 2 m	65.914
47.	243.100	243.14 0	Box(IC)	5 m x2 m	67.170
48.	243.700	243.84 0	RCC Slab	4m slab	24.988
49.	243.975	244.10 0	Box(IC)	5 m x2 m	24.446
50.	244.695	244.44 0	Box(IC)	3 m x 2 m	24.833
51.	244.900	244.94 0	Box	3 m x 2 m	23.011
52.	246.250	246.26 0	Box	2 m x 2 m	24.940
53.	246.500	246.42 0	Box	3m x 2 m	24.730
54.	246.750	246.58 0	Box	4 m x 2 m	25.099
55.	247.100	247.10 0	Box	3m x 2 m	25.875
56.	247.300	247.32 0	Box	3m x 2 m	25.979
57.	248.000	248.16 0	Box	4 m x 2 m	33.023



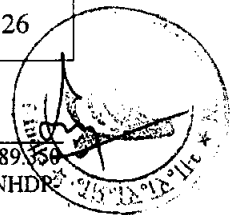
Rehabilitation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir (Package No NHDP Phase-II/BOT/1/J&K)



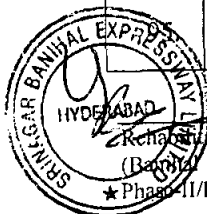
S No.	Existing Chainage/ Location	Design Chainage	Proposed Structure	Proposed size arrangement	Proposed total width (m)
58.	249.000	248.60 0	Box	3m x 2 m	35.679
59.		249.20 0	Box	2 m x 2 m	34.601
60.		249.64 0	Box	2 m x 2 m	34.719
61.		250.52 0	Box	3m x 2 m	33.477
62.					
63.	New proposed	256.40 0	Slab	1.5 m Wide	26
64.	New proposed	256.70 0	Slab	1.5 m Wide	26
65.	New proposed	257.45 0	Slab	2 m Wide	26
66.	New proposed	257.86 0	Slab	1.5 m Wide	26
67.	New proposed	258.05 0	Box	1.5 m x 1.5 m	26
68.	New proposed	258.52 0	Box	2 m x 2 m	26
69.	261.800	261.86 5	Box	3 m x 2 m	26
70.	262.200	262.29 0	Box	2 m x 1.5 m	26
71.	262.490	262.49 5	Box (canal)	1.5 m x 1.5 m	26
72.	Awantipur bypass	262.91 9	Box	4 m x 2 m	26
73.	Awantipur bypass	263.40 0	Box	2 m x 2 m	26
74.	Awantipur bypass	263.75 0	Slab	1.5m wide	26
75.	Awantipur bypass	264.01 9	Box	4 m x 2 m	26
76.	Awantipur bypass	264.66 3	Box(IC)	1.72 m x 2.5 m	26



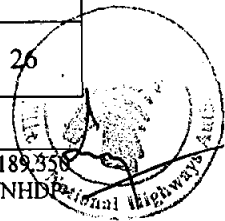
Rehabilitation and Strengthening of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir (Package No NHDR-Phase-1/07/1/J&K)



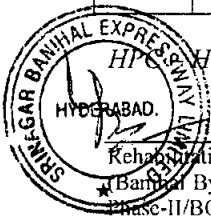
S No.	Existing Chainage/ Location	Design Chainage	Proposed Structure	Proposed size arrangement	Proposed total width (m)
77.	Awantipur bypass	265.05 9	Box	4 m x 2 m	26
78.	Awantipur bypass	265.38 3	Box (IC)	3 m x 2 m	26
79.	Awantipur bypass	266.41 9	Box	4 m x 2 m	26
80.	Awantipur bypass	267.55 9	Box	4 m x 2 m	26
81.	Awantipur bypass	267.73 3	Box (IC)	1.5 m x 1.5 m	26
82.	Awantipur bypass	268.53 9	Box	4 m x 2 m	26
83.	Awantipur bypass	268.89 6	Box (IC)	2.0 m x 2.5 m	26
84.	Awantipur bypass	269.26 7	Box (IC)	1.0 m x 0.5 m	26
85.	Awantipur bypass	269.64 1	Box (IC)	3.5 m x 2.5 m	26
86.	Awantipur bypass	269.95 0	Pipe	1.0 m dia	26
87.	Awantipur bypass	270.05 0	Box	2 m x 2 m	26
88.	New proposed	274.78 6	Slab	1.2 m Wide	26
89.	Pampore bypass	277.26 5	Box (IC)	1.7 m x 1.5 m	26
90.	Pampore bypass	277.34 0	Box	4 m x 3 m	26
91.	Pampore bypass	277.66 2	Box (IC)	1.2 m x 1.5 m	26
92.	Pampore bypass	278.94 2	Box	4 m x 3 m	26
93.	Pampore bypass	279.52 5	Box (IC)	2.54 m wide	26
94.	Pampore bypass	279.64 0	Box	4 m x 3 m	26
	Pampore bypass	280.10 8	Box (IC)	3.5 m x 2 m	26



Renovation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350
(Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir (Package No NHD
★ Phase II/BOT/I/J&K)



S No.	Existing Chainage/ Location	Design Chainage	Proposed Structure	Proposed size arrangement	Proposed total width (m)
96.	Pampore bypass	280.86 2	Box	4 m x 3 m	26
97.	Pampore bypass	281.68 2	Box	4 m x 3 m	26
98.	Pampore bypass	282.45 0	Box	4 m x 3 m	26
99.	Pampore bypass	283.48 2	Box	4m x 3 m	26
100.	Pampore bypass	283.76 6	Box (IC)	5m x 1.5m	26
101.	Pampore bypass	284.38 6	Box (IC)	3.9 m x 1.0 m	26
102.	Pampore bypass	284.68 2	Box	4 m x 3 m	26
103.	Pampore bypass	284.98 2	Box (IC)	3 m x 1.5 m	26
104.	Pampore bypass	285.60 2	Box	4 m x 3 m	26
105.	Pampore bypass	286.00 0	Box	2no. x 2m x 2m	26
106.	Pampore bypass	286.00 0	Box	3 x 2	26
107.	Pampore bypass	286.08 2	Box	4 m x 3 m	26
108.	At Trumpet	286.26 0	Box	3m x 2m	26
109.	At Trumpet	286.40 0	Box	3m x 2m	26
110.	At Trumpet	286.58 0	Box	3m x 2m	26
111.	At Trumpet	286.76 0	Box	3m x 2m	26
112.	At Trumpet	286.96 0	Box	3m x 2m	26
113.	At Trumpet	287.02 0	Box	3m x 2m	26



HPCL Hume Pipe Culvert

Rehabilitation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir (Package No NHDP-Phase-II/BOT/I/J&K)

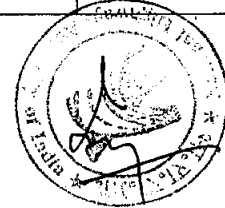


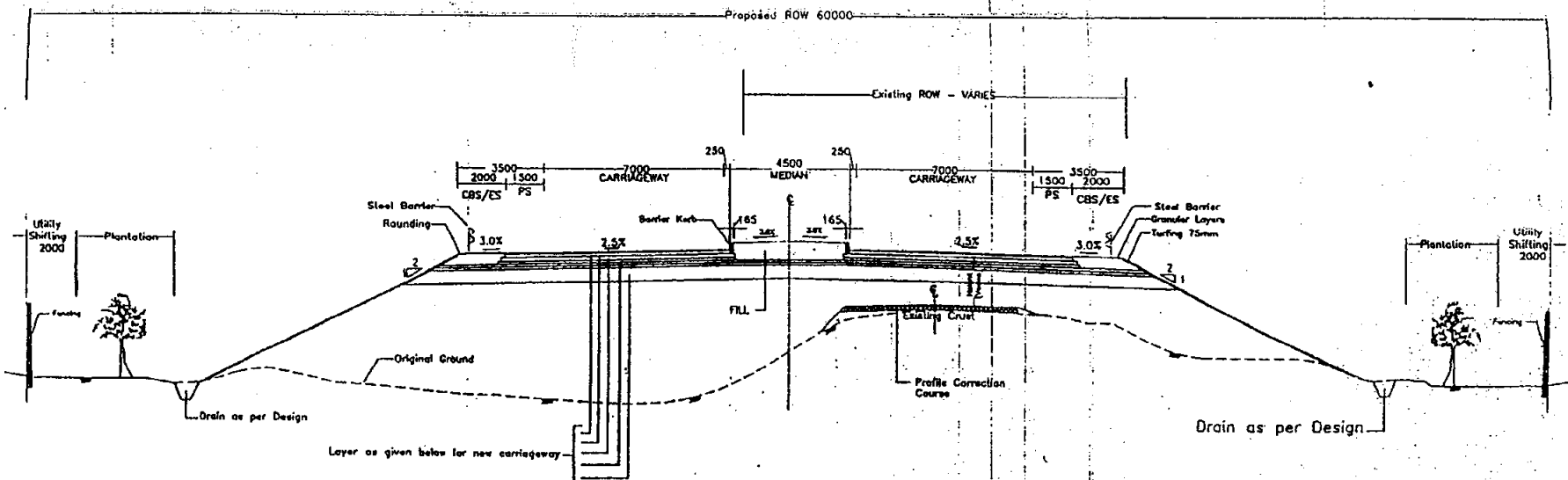
Note : The locations mentioned above are tentative and may vary according to site condition.



Appendix BXIV**DETAILS OF PROPOSED ROB/RUB**

S. No.	Location	ROB / RUB	Existing Chainage/ Design Chainage	Name of crossing	Existing structure	Proposed structural configuration	Proposed Structure type	Proposed span arrangement	Total width of the structure
1.	Srianagar Banihal railway line crossing	ROB	243.012	Katra Quazikund	Nil	ROB	PSC voided slab / RCC voided slab	1x32.5+2x19.875 Overall length 72.30	4-lane ROB(24m)





TCS 1 - TYPICAL CROSS-SECTION IN PLAIN AREA FOR 4 LANE CARRIAGEWAY IN RAISING-EXISTING ROAD BEING NOT UTILISED

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.	256.000	276.000	50	110	250	200	610

NOTE:-

- ALL DIMENSIONS ARE IN mm.
- DIMENSIONS TO BE READ & NOT SCALED.
- SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.

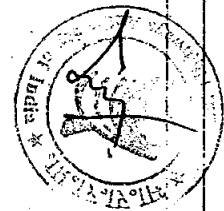
- *PS=PAVED SHOULDER
- *ES=EARTHAN SHOULDER
- *CBS=CRASH BARRIER SPACE

- FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

S.No:	Embankment Height (m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	Not Required
2.	3-6m	1.5	2.0	Not Required
3.	>6m	2.5	1.0	To be Provided

- FOR DETAILS OF CRASH BARRIER REFER DRG.No. NHAI/NH-1A/BAN-SR/CB/1/1
- FOR DETAILS OF SIDE DRAIN REFER DRG.No. NHAI/NH-1A/BAN-SR/DRN/SD/1
- FOR DETAILS OF CHUTES REFER DRG.No. NHAI/NH-1A/BAN-SR/DRN/SD/RO * 505.
- FOR DETAILS OF FENCING,BARRIER KERB REFER DRG.No. NHAI/NH-1A/BAN-SR/RM/1/3
- FOR DETAILS OF PLANTATION ARRANGMENT REFER DRG.No. NHAI/NH-1A/BAN-SR/PT/1/1

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NATIONAL HIGHWAYS AUTHORITY OF INDIA

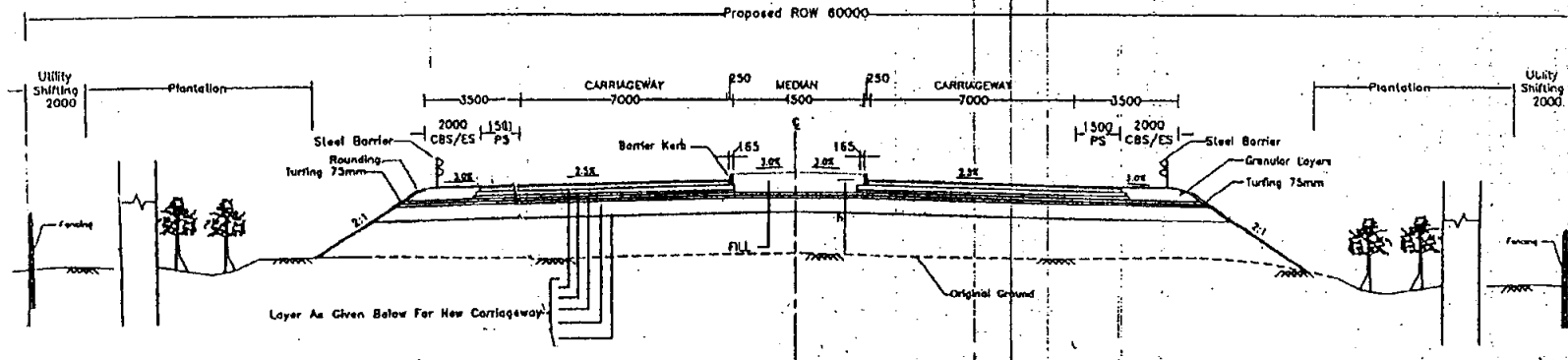
SCALE:- N.T.S

Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A),(including Srinagar Bypass) in J & K State

TYPICAL CROSS-SECTION IN PLAIN AREA FOR 4 LANE CARRIAGEWAY IN RAISING EXISTING ROAD BEING NOT UTILISED (PACKAGE-NO. NS 88/14K)

Prepared by: [Signature] Checked by: [Signature]

TENDER PURPOSE ONLY
DRAWING NUMBER
NHAI/NH-1A/BAN-SR/TCS/1/1



TCS 2 - TYPICAL CROSS SECTION IN PLAIN AREA FOR 4-LANE BYPASS-NEW CONSTRUCTION (EMBANKMENT HEIGHT < 6m)

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Challage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.	256.000	276.000	50	110	250	200	610
2.	276.000	286.000	50	115	250	200	615

NOTE:-

1. ALL DIMENSIONS ARE IN mm.
2. DIMENSIONS TO BE READ & NOT SCALED.
3. SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.

*PS=PAVED SHOULDER
*ES=EARTHAN SHOULDER
*CBS=CRASH BARRIER SPACE

4. FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	Not Required
2.	3-6m	1.5	2.0	Not Required
3.	>6m	2.5	1.0	To be Provided

5. FOR DETAILS OF CRASH BARRIER REFER DRG.No. NH4/NH-1A/BAN-SR/CB/44
6. FOR DETAILS OF SIDE DRAIN REFER DRG.No. NH4/NH-1A/BAN-SR/DRN/SD1
7. FOR DETAILS OF CHUTES REFER DRG.No. NH4/NH-1A/BAN-SR/DRN/SD4/RO & SD5
8. FOR DETAILS OF FENCING,BARRIER KERB REFER DRG.No. NH4/NH-1A/BAN-SR/RN/1,3
9. FOR DETAILS OF PLANTATION ARRANGMENT REFER DRG.No. NH4/NH-1A/BAN-SR/PT/1



33

NATIONAL HIGHWAYS AUTHORITY OF INDIA

SCALE: 1:100

Submitted to: Srinagar Bypass
of NH-1(A)

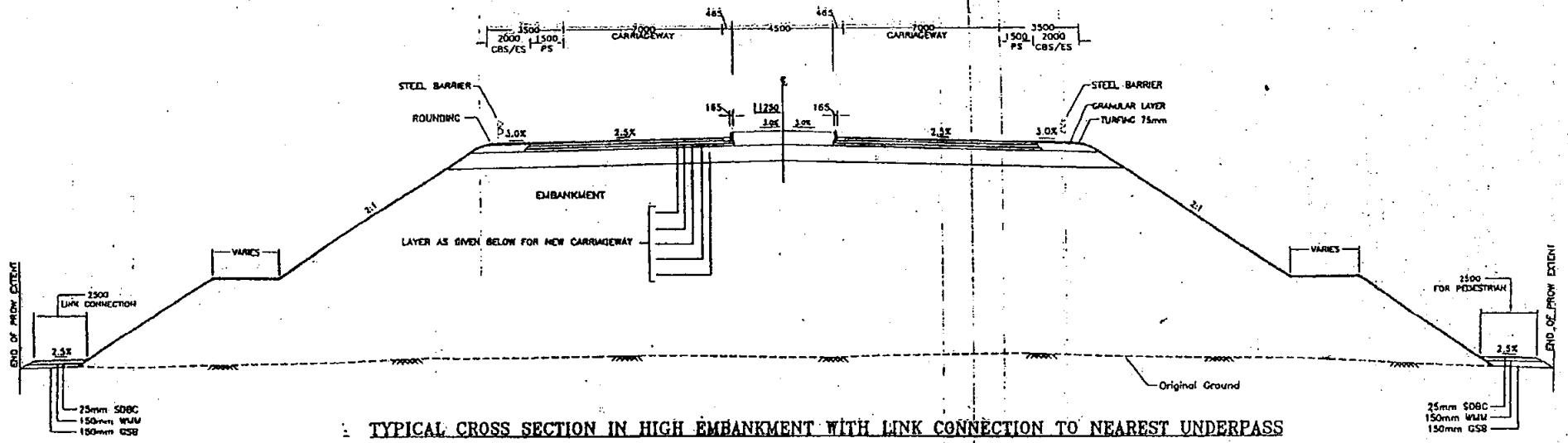
Typical Cross Section in Plain Area for 4-Lane Bypass-New Construction (Embankment Height < 6m) (Km. 256.00 to Km. 286.00) Srinagar Bypass) in J & K State (PACKAGE-NO. NS-86/18X)

Typical Cross Section in Plain Area for 4-Lane Bypass-New Construction (Embankment Height < 6m) (Km. 256.00 to Km. 286.00) (PACKAGE-NO. NS-86/18X)

3 copies each to be submitted to the following authorities: 1. Director, NHAI, New Delhi. 2. Director, NHAI, Jammu. 3. Director, NHAI, Srinagar. 4. Director, NHAI, Baramulla. 5. Director, NHAI, Anantnag. 6. Director, NHAI, Kupwara. 7. Director, NHAI, Baramulla. 8. Director, NHAI, Anantnag. 9. Director, NHAI, Kupwara.

Checked by: [Signature] Approved by: [Signature]

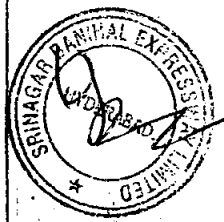
TENDER PURPOSE ONLY
DRAWING NUMBER
NH4/NH-1A/BAN-SR/TCS/2/5



TYPICAL CROSS SECTION IN HIGH EMBANKMENT WITH LINK CONNECTION TO NEAREST UNDERPASS

APPLICABLE LOCATIONS

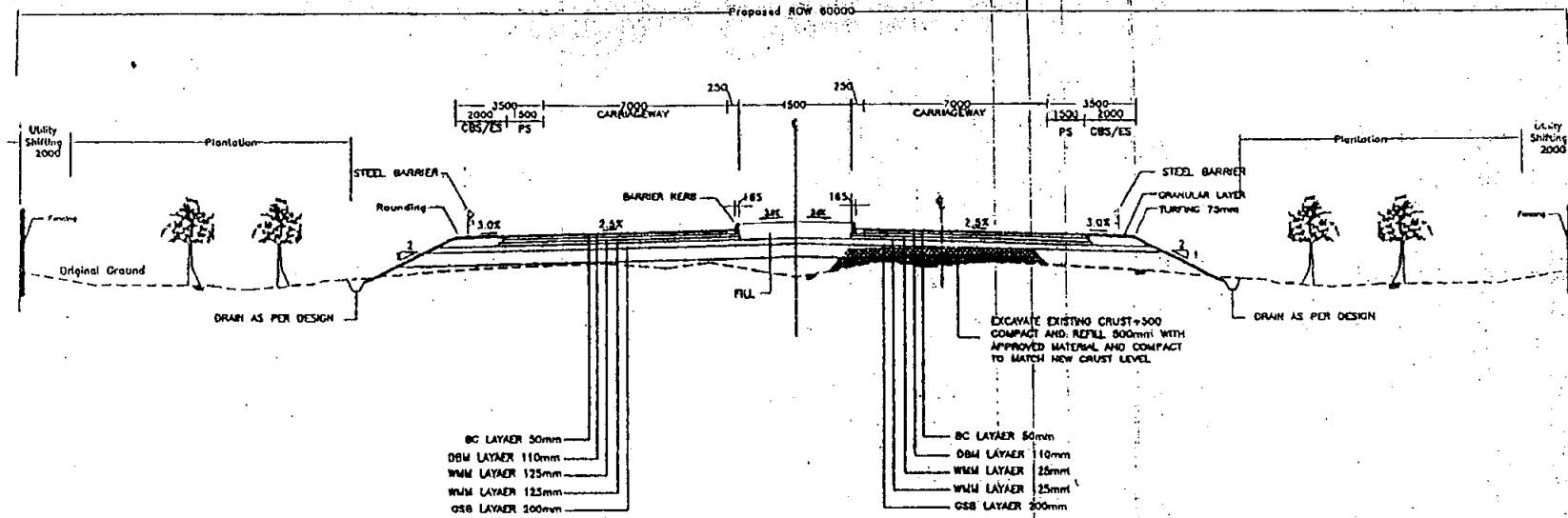
S.No.	Chainage (Km)	
	From	To
1.	279.500	279.900
2.	282.300	283.200



NOTE:-
1. ALL DIMENSIONS ARE IN MM

039

<p>NATIONAL HIGHWAYS AUTHORITY OF INDIA</p>	<p>SCALE:- 1:125</p>	<p>Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A),(including Srinagar Bypass) in J & K State</p>	<p>TYPICAL CROSS SECTION IN HIGH EMBANKMENT WITH SERVICE ROAD FOR PEDESTRIAN (PACKAGE-NO. NS 08/162)</p>	<p>Scale:-</p>	<p>Scale:-</p>	<p>YENDER PURPOSE ONLY</p>
				<p>Prepared by</p>	<p>Designed by</p>	<p>DRAWING NUMBER NH/NH-1A/BAN-SR/TCS/3/2</p>



CROSS SECTION
(Scale 1:125)

APPLICABLE LOCATIONS

S.No.	Chainage (Km)	
	From	To
1.	273.100	273.400
2.	273.500	273.900
3.	274.200	275.200
4.	275.400	276.800

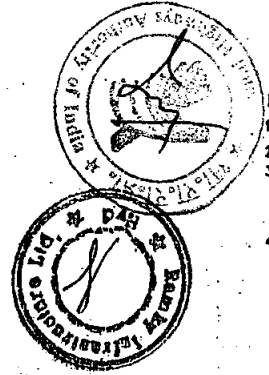
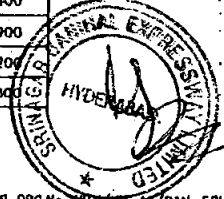
REFERENCE DRAWINGS:-

- FOR DETAILS OF CRASH BARRIER REFER DRG.No. NHAI/NH-1A/BAN-SRI/CB/1/1
- FOR DETAILS OF SIDE DRAIN REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SD1
- FOR DETAILS OF CHUTES REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SD4/RO & S05
- FOR DETAILS OF FENCING, BARRIER KERB REFER DRG.No. NHAI/NH-1A/BAN-SRI/RU/1/3
- FOR DETAILS OF PLANTATION ARRANGEMENT REFER DRG.No. NHAI/NH-1A/BAN-SRI/PT/1/1

NOTE:-

- ALL DIMENSIONS ARE IN mm.
- DIMENSIONS TO BE READ & NOT SCALED.
- SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
- FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

S.No.	Embankment Height (m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	Not Required
2.	3-6m	1.5	2.0	Not Required
3.	>6m	2.5	1.0	To be Provided



NATIONAL HIGHWAYS AUTHORITY OF INDIA

SCALE:- AS SHOWN

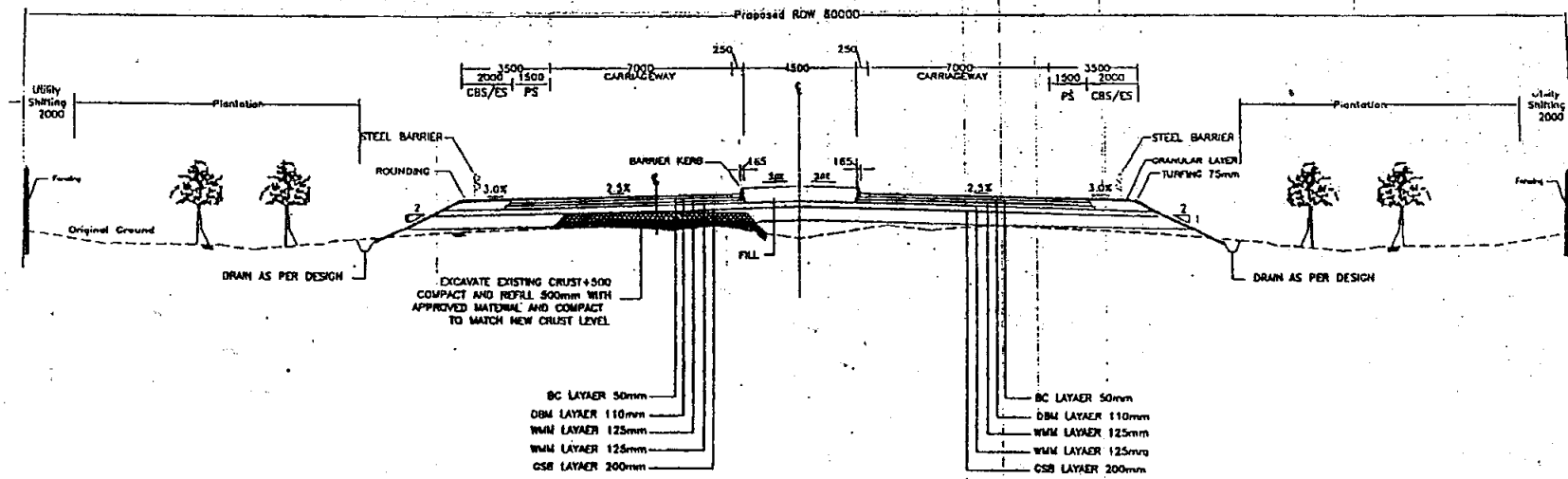
Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.298.00) of NH-1(A), (including Srinagar Bypass) in J & K State

TYPICAL CROSS-SECTION FOR LEFT SIDE WIDENING WITHOUT SERVICE ROAD (SHOULDER AFTER STRIPPING EXISTING CRUST) (PACKAGE-NO. NS 06/1A5)

SECTION/DATE	DESIGNED BY	CHECKED BY	APPROVED BY

TENDER PURPOSE ONLY
DRAWING NUMBER
NHAI/NH-1A/BAN-SRI/TCS/4/6

17J



CROSS SECTION
(Scale 1:125)

APPLICABLE LOCATIONS

S.No.	Chainage (Km)	
	From	To
1.	272.200	273.200

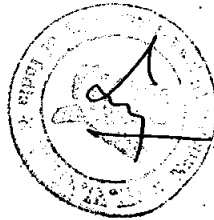
REFERENCE DRAWINGS:-

- FOR DETAILS OF CRASH BARRIER REFER DRG.No. NHAI/NH-1A/BAN-SRI/CB/1/1
- FOR DETAILS OF SIDE DRAIN REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SD/1
- FOR DETAILS OF CHUTES REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SD/RO & S/S
- FOR DETAILS OF FENCING, BARRIER KERB REFER DRG.No. NHAI/NH-1A/BAN-SRI/RM/1/1
- FOR DETAILS OF PLANTATION ARRANGEMENT REFER DRG.No. NHAI/NH-1A/BAN-SRI/PT/1/1

NOTE:-

- ALL DIMENSIONS ARE IN mm.
- DIMENSIONS TO BE READ & NOT SCALED.
- SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
- FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	Not Required
2.	3-6m	1.5	2.0	Not Required
3.	>6m	2.5	1.0	To be Provided



NATIONAL HIGHWAYS AUTHORITY OF INDIA

SCALE:-
AS SHOWN

Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.298.00) of NH-1(A), (including Srinagar Bypass) in J & K State

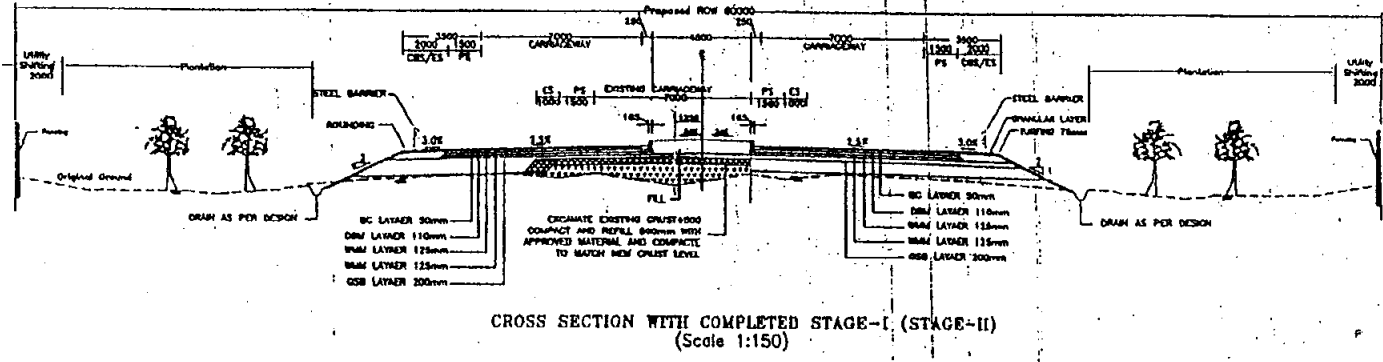
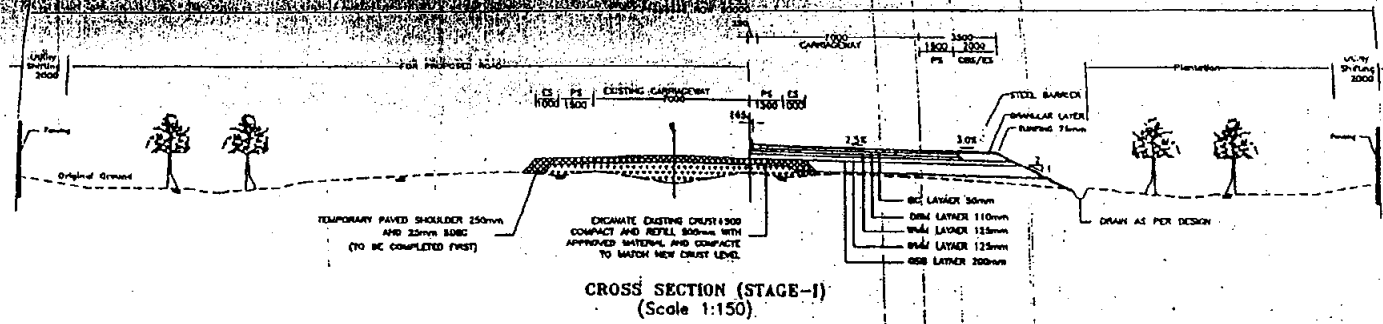
TYPICAL CROSS-SECTION FOR RIGHT SIDE WIDENING WITHOUT SERVICE ROAD (RELAYING AFTER STRIPPING EXISTING CRUST) (PACKAGE-NO. NH 00/7A/E)

SCALE: 1:125
Prepared by: J. Srinivas
Checked by: J. Srinivas

Prepared by: J. Srinivas
Checked by: J. Srinivas

TENDER PURPOSE ONLY
DRAWING NUMBER
NHAI/NH-1A/BAN-SRI/TCS/5/5

171



APPLICABLE LOCATIONS

S.No.	Chainage (Km)	
	From	To
1.	273.300	273.500
2.	273.800	274.300

REFERENCE DRAWINGS:-

1. FOR DETAILS OF CRASH BARRIER REFER DRG.No. NHAI/NH-1A/BAN-SRI/CS/1/1
2. FOR DETAILS OF SIDE DRAIN REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SO1
3. FOR DETAILS OF CHUTES REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SO4/RO & SOS
4. FOR DETAILS OF FENCING/BARRIER KERB REFER DRG.No. NHAI/NH-1A/BAN-SRI/RM/1/3
5. FOR DETAILS OF PLANTATION ARRANGEMENT REFER DRG.No. NHAI/NH-1A/BAN-SRI/PT/1/1



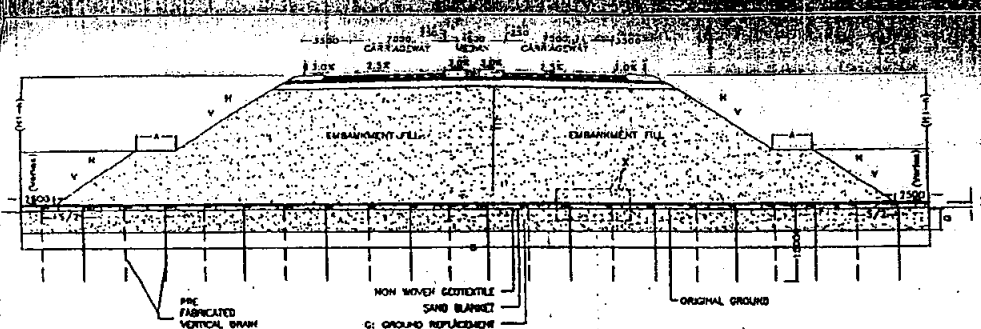
NOTE:-

1. ALL DIMENSIONS ARE IN mm.
2. DIMENSIONS TO BE READ & NOT SCALED.
3. SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
*PS=PAVED SHOULDER, *ES=EARTHAN SHOULDER, *CBS=CRASH BARRIER SPACE
4. FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

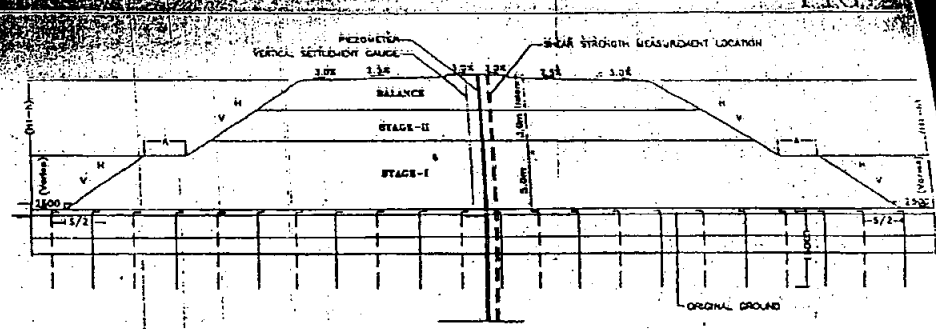
S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	Not Required
2.	3-6m	1.5	2.0	Not Required
3.	>6m	2.5	1.0	To be Provided

042

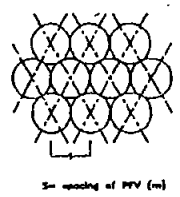
<p>NATIONAL HIGHWAYS AUTHORITY OF INDIA</p>	<p>SCALE:- AS SHOWN</p>	<p>Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A),(Including Srinagar Bypass) in J & K State</p>	<p>TYPICAL CROSS-SECTION FOR CONCENTRIC FENCING WITHOUT SERVICE ROAD (RELATING AFTER STRIPPING EXISTING CRUST) (PACKAGE-NO. NH 66/18K)</p>	<p>1. Srinagar 2. Hyderabad 3. New Delhi</p>	<p>1. Srinagar 2. Hyderabad 3. New Delhi</p>	<p>1. Srinagar 2. Hyderabad 3. New Delhi</p>	<p>1. Srinagar 2. Hyderabad 3. New Delhi</p>	<p>TENDER PURPOSE ONLY DRAWING NUMBER NHAI/NH-1A/BAN-SRI/TCS/6/B</p>
	<p>66</p>							



TCS 6 - TYPICAL CROSS SECTION OF HIGH EMBANKMENT



DETAILS OF STAGE CONSTRUCTION & LOCATIONS OF MONITORING INSTRUMENT



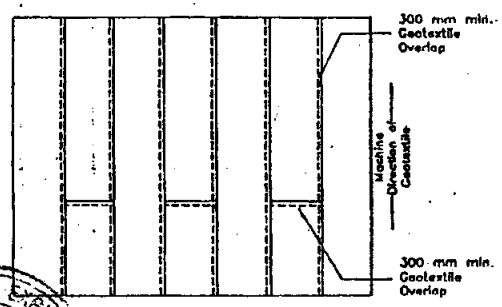
Triangular Grid Pattern of Installation of PPV Drain



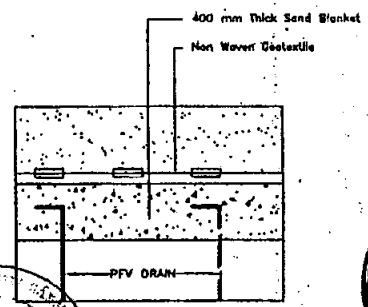
Drain anchor is fixed to the drain up, prevents soil from intruding into the mandrel during drain installation and keeps the drain in place when the mandrel is withdrawn.

Details of Stage Construction	
Height of Stage	Waiting Period for Next Stage
2 m	60 Days
1.8 m	60 Days
Balance	60 Days

- NOTE:
1. BERM BEYOND CHANGE MENTIONED IN DRAWING NO. NHAI/NH-1A/BAN-SRI/TCS/7/7/RO SHALL BE TAPEDED IN 1:20 AT BOTH ENDS.
 2. SAND BLANKET OF 400 MM THICKNESS SHALL BE PROVIDED ABOVE GROUND AT BASE OF EMBANKMENT FOR FULL WIDTH(S). IN SECTION WHERE PPV-DRAINS ARE PROVIDED.
 3. GRADING OF SAND SHALL CONFORMED TO CLASS 'D' GRADING IN TABLE 300.3 OF WORKMAN SPECIFICATION.
 4. MATERIALS USED IN REPLACEMENT OF EXCAVATED SOIL SHOULD HAVE A MINIMUM DRY DENSITY 12 kN/m³ SPECIFIC GRAVITY 2.67, COEFFICIENT OF UNIFORMITY AS SHOWN IN DRAWING NO. NHAI/NH-1A/BAN-SRI/TCS/7/7/RO.
 5. EMBANKMENT SIDE SLOPE (H:V) SHOWN IN DRAWING NO. NHAI/NH-1A/BAN-SRI/TCS/7/7/RO IS APPLICABLE ONLY UP TO THE MENTIONED BERM CHANGES (RM). BEFORE AND AFTER MENTIONED CHANGES EMBANKMENT SIDE SLOPE IS 1:2 (H:V).
 6. WIDTH OF THE SAND BLANKET AND NON WOVEN GEOTEXTILE IS EQUAL TO THE MENTIONED DRAIN REPLACEMENT WIDTH (M).
 7. FOR BERM WIDTH, SIDE SLOPE OF EMBANKMENT PPV DRAINS, SAND BLANKET RESTABLE REFER DRAWING NO. NHAI/NH-1A/BAN-SRI/TCS/7/7/RO.
 8. INSTRUMENTATION SHALL BE PROVIDED AS GIVEN IN SPECIFICATIONS & AS DIRECTED BY THE ENGINEER.
 9. PICO-METER, VERTICAL SETTLEMENT GAUGE AND SHEAR STRENGTH MEASUREMENT LOCATIONS SHOULD BE STAGGERED LONGITUDINALLY TO AVOID INTERFERENCE WITH EACH OTHER.
 10. ALL INSTRUMENTS TO BE PROTECTED BY CHAMBER OF APPROPRIATE SIZE (CONSIDERATION DEPTH WHERE NECESSARY).



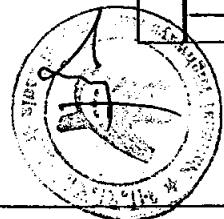
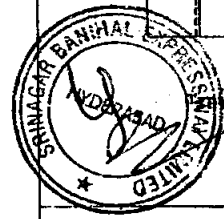
Typical Laying Arrangement of Non-woven Geotextile Separation Layer



Detail-X

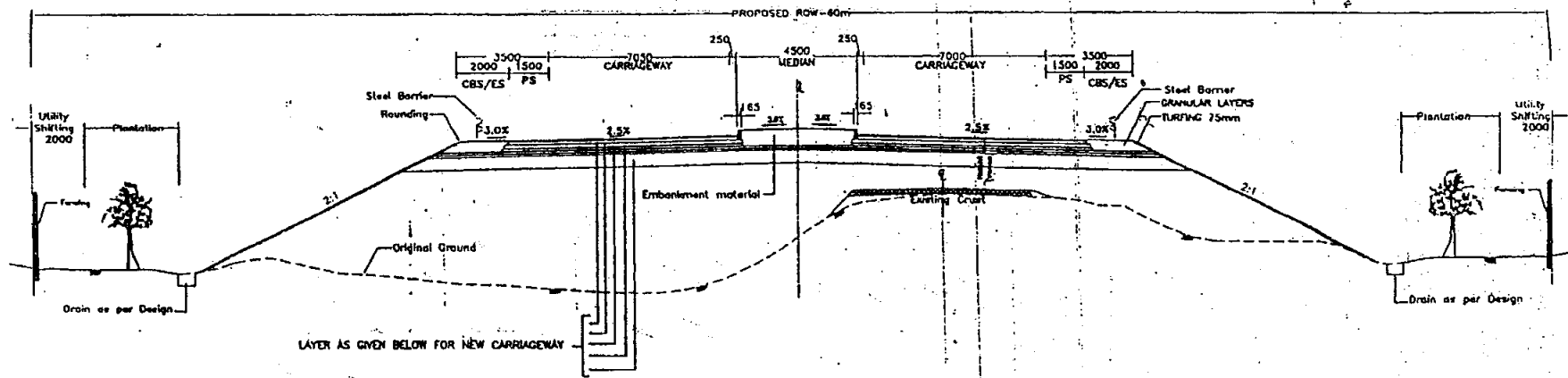
FOR LOCATION OF HIGH EMBANKMENT AND TREATMENT AREA REFER DRG. NO. NHAI/NH-1A/BAN-SRI/TCS/7/7/RO

1-3-7



873

<p>NATIONAL HIGHWAYS AUTHORITY OF INDIA</p>	<p>SCALE:- NTS</p>	<p>Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A),(including Srinagar Bypass) in J & K State</p>	<p>Typical Cross Section for 4-Lane Bypass With Stability Measure (Km. 284.00 to Km. 288.00) (PACKAGE-NO. NS 26/14K)</p>	<p>DESIGNED BY</p>	<p>CHECKED BY</p>	<p>APPROVED BY</p>
				<p>DESIGNED BY</p>	<p>CHECKED BY</p>	<p>APPROVED BY</p>
<p>FOR LOCATION OF HIGH EMBANKMENT AND TREATMENT AREA REFER DRG. NO. NHAI/NH-1A/BAN-SRI/TCS/7/7/RO</p>				<p>DRAWING NUMBER</p> <p>NHA/NH-1A/BAN-SRI/TCS/7.7.2</p>		



TCS-1:- TYPICAL CROSS-SECTION IN PLAIN AREA FOR 4 LANE CARRIAGEWAY IN RAISING-EXISTING ROAD BEING NOT UTILISED

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	BC (mm)	DSM (mm)	WMM (mm)	GSB (mm)	
1.	220.700	220.790	50	110	250	200	610
2.	225.350	226.450					
3.	250.760	251.020					
4.	251.020	252.300					
5.	253.700	END					

NOTE:-

- ALL DIMENSIONS ARE IN mm.
- DIMENSIONS TO BE READ & NOT SCALED.
- SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.

*PS=PAVED SHOULDER
*ES=EARTH SHOULDER
*CBS=CRASH BARRIER SPACE

- FOR DETAILS OF CRASH BARRIER WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

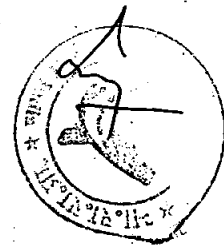
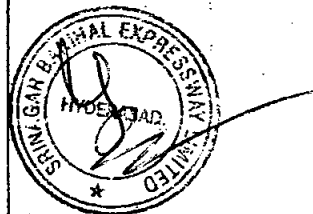
S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	NR
2.	3-6m	1.5	2.0	NR
3.	>6m	2.5	1.0	To be Provided

NR=Not Required

- FOR DETAILS OF CRASH BARRIER REFER DRG.No. NHAI/NH-1A/BAN-SR/CB/1/1
- FOR DETAILS OF SIDE DRAIN REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SOI
- FOR DETAILS OF CHUTES REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SOS

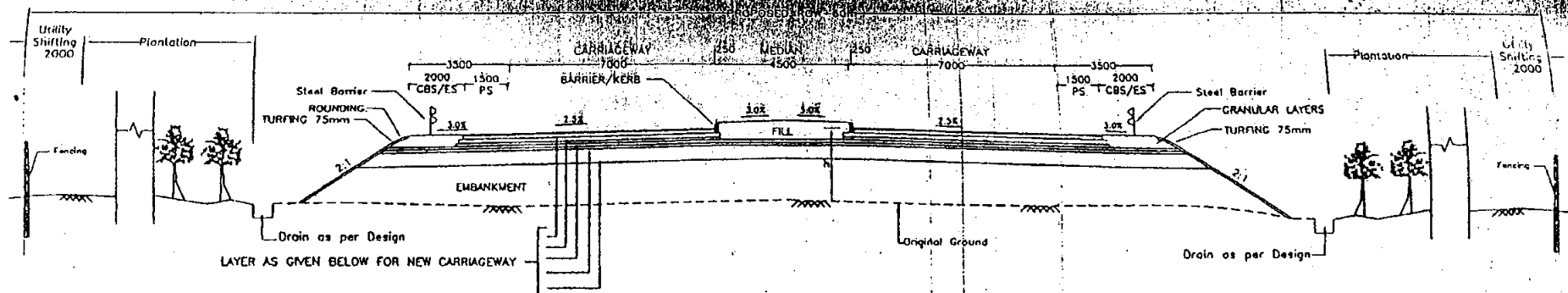
045

6-13

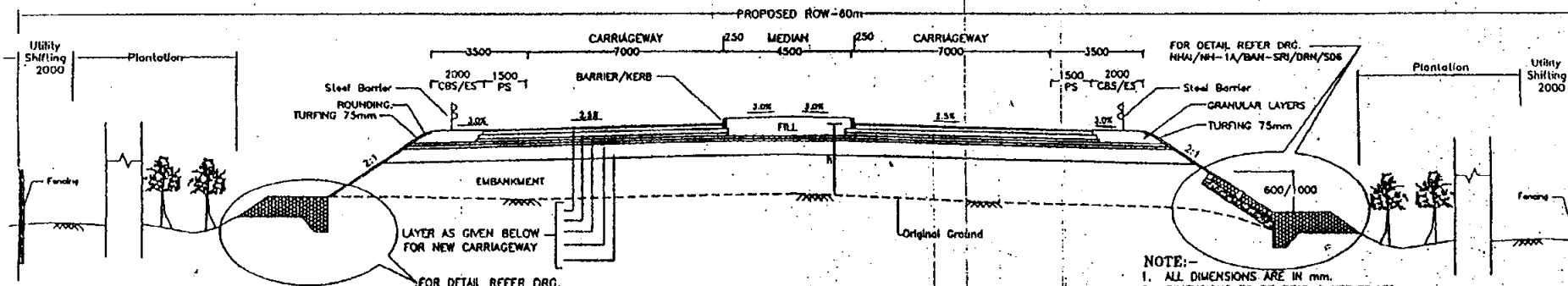


<p>NATIONAL HIGHWAYS AUTHORITY OF INDIA</p>	<p>SCALE:- N.T.S</p>	<p>Detailed Design for 4-Laning of Banthal to Srinagar Section (Km.180.00 to Km.298.00) of NH-1(A),(including Srinagar Bypass) in J & K State</p>	<p>TYPICAL CROSS-SECTION IN PLAIN AREA FOR 4 LANE CARRIAGEWAY IN RAISING-EXISTING ROAD BEING NOT UTILISED. (NS-02/18K)</p>	<p>Checked by: _____</p>	<p>Drawn by: _____</p>	<p>Reviewed by: _____</p>	<p>Approved by: _____</p>
				<p>Checked by: _____</p>	<p>Drawn by: _____</p>	<p>Reviewed by: _____</p>	<p>Approved by: _____</p>

TENDER PURPOSE ONLY
DRAWING NO: NHAI/NH-1A/BAN-SR/DS/1



TCS-2:(CASE-I)-TYPICAL CROSS SECTION IN PLAIN AREA FOR 4-LANE BYPASS-NEW CONSTRUCTION (EMBANKMENT HEIGHT < 8m)



TCS-2:(CASE-II)-TYPICAL CROSS SECTION IN PLAIN AREA FOR 4-LANE BYPASS-NEW CONSTRUCTION (EMBANKMENT HEIGHT < 8m)

- NOTE:-**
1. ALL DIMENSIONS ARE IN mm.
 2. DIMENSIONS TO BE READ & NOT SCALED.
 3. SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
 4. FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	NR
2.	3-6m	1.5	2.0	NR
3.	>6m	2.5	1.0	To be Provided.

NR=Not Required

5. FOR DETAILS OF CRASH BARRIER REFER DRG.No. NH/1A/BAN-SR/DRN/533
6. FOR DETAILS OF CHUTES REFER DRG.No. NH/1A/BAN-SR/DRN/533

**PAVEMENT LAYERS (CASE:I):-
NEW CONSTRUCTION**

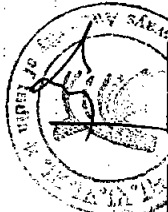
S.No.	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	BC (mm)	OBM (mm)	WMM (mm)	GSB (mm)	
1.	221.140	222.270					
2.	222.680	224.320					
3.	228.700	228.960	50	110	250	200	610
	230.810	230.900					
	232.970	234.430					

**(APPLICABLE AT KIANBAL BYPASS AREA)
PAVEMENT LAYERS (CASE:II):-
NEW CONSTRUCTION**

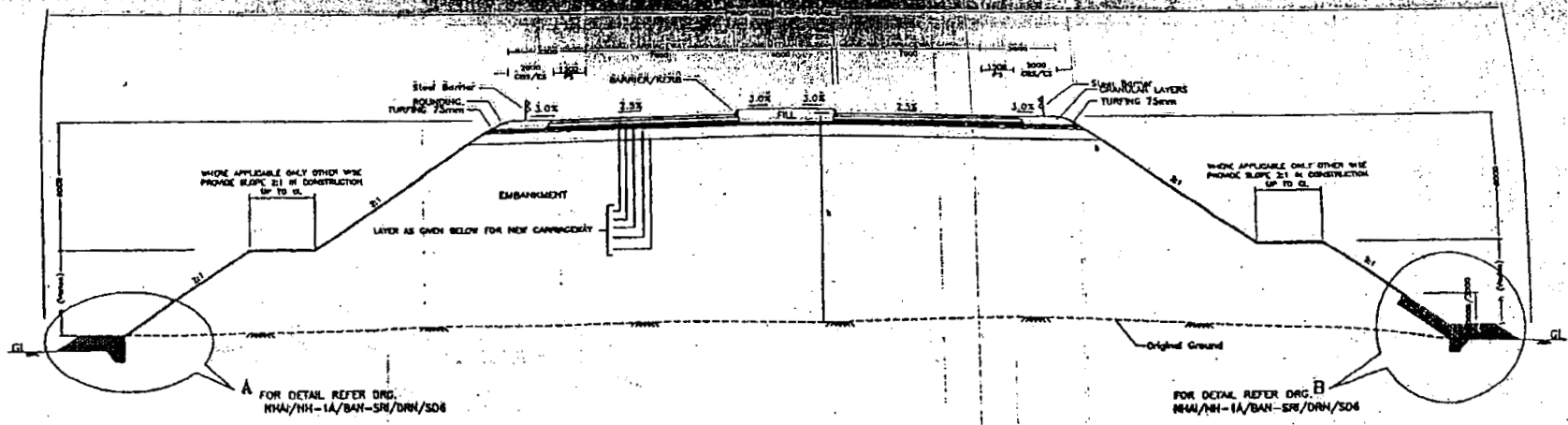
S.No.	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	BC (mm)	OBM (mm)	WMM (mm)	GSB (mm)	
7.	238.130	250.780					
8.	252.300	253.700	50	110	250	200	610

TABLE SHOWING PITCHING DETAIL

S.No.	EMBANKMENT HEIGHT	PITCHING HEIGHT	THICKNESS
1.	UP TO 3000	600	300
2.	3000 TO 6000	1000	300



NATIONAL HIGHWAYS AUTHORITY OF INDIA SCALE:- N.T.S	Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A), (including Srinagar Bypass) in J & K State	Typical Cross Section in Plain Area for 4-Lane Bypass-New Construction (Embankment Height < 8m) (NS-02/16E)	SCHEMATIC	PREPARED BY	CHECKED BY	APPROVED BY	TENDER PURPOSE ONLY DRAWING NUMBER NH/1A/BAN-SR/TCS/2
			DATE	DESIGNED BY	DRAWN BY	SCALE	



TCS-3:-TYPICAL CROSS SECTION IN PLAIN AREA FOR 4-LANE BYPASS-NEW CONSTRUCTION (EMBANKMENT HEIGHT > 8m)

- NOTE:-
1. ALL DIMENSIONS ARE IN mm.
 2. DIMENSIONS TO BE READ & NOT SCALED.
 3. SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
 4. FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE
- | S.No. | Embankment Height (m) | Paved Shoulder PS(m) | Earthen Shoulder ES(m) | Drainage Chutes |
|-------|-----------------------|----------------------|------------------------|-----------------|
| 1. | <0m | 1.5 | 2.0 | NR |
| 2. | 3-6m | 1.5 | 2.0 | NR |
| 3. | >6m | 2.5 | 1.0 | To be Provided |
- NR=Not Required
5. FOR DETAILS OF CRASH BARRIER REFER DRG.No. NHAI/NH-1A/BAN-SRI/CB/1/1
 6. FOR DETAILS OF CHUTES AND OTHER EMBANKMENT PROTECTION REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SOS
 7. BALANCING BERM IS REQUIRED FOR EMBANKMENT HEIGHT ABOVE 8m. WHERE SPECIFIED
 8. ARRANGEMENT OF PITCHING AND APRON SHOWN IN DETAIL A & B. FOR PROTECTION OF BYPASS ARE APPLICABLE IN Km 238.00 TO Km 252.00
 9. FOR DETAILS OF BERM AND SLOPES REFER DRG. NO. NHAI/NH-1A/BAN-SRI/TCS/15

TABLE SHOWING PITCHING DETAIL

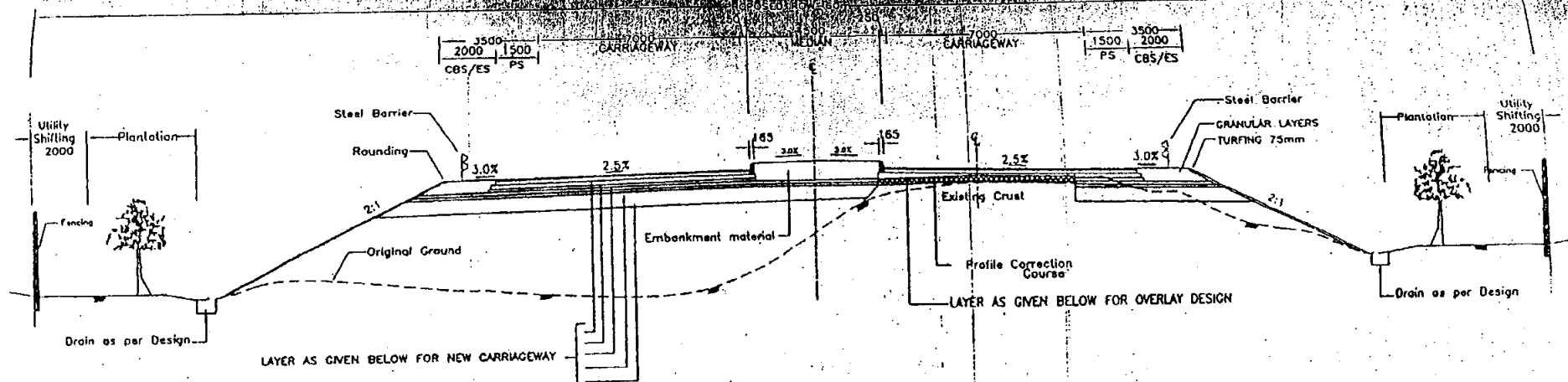
S.NO	EMBANKMENT HEIGHT	PITCHING HEIGHT	THICKNESS
1.	6000 TO 9000	2000	300
2.	ABOVE 9000	3000	500



13-41

NATIONAL HIGHWAYS AUTHORITY OF INDIA	SCALE:- 1:125	Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A), (including Srinagar Bypass) in J & K State	Typical Cross Section in Plain Area for 4-Lane Bypass-New Construction (Embankment Height > 8m) (NS-02/1&E)	CHECKED BY: _____ DATE: _____	DESIGNED BY: _____ DATE: _____	DRAWN BY: _____ DATE: _____	APPROVED BY: _____ DATE: _____
				PROJECT NO: _____	DRAWING NO: _____	SHEET NO: _____	TOTAL SHEETS: _____

TENDER PURPOSE ONLY
DRAWING NUMBER
NHAI/NH-1A/BAN-SRI/TCS/3/



TCS-4:-TYPICAL CROSS-SECTION IN PLAIN AREA FOR LEFT SIDE WIDENING-EXISTING ROAD BEING UTILISED

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: J7-200				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.	227.290	228.700	50	110	250	200	610
2.	228.960	230.220					
3.	231.960	232.640					

NOTE:-

- ALL DIMENSIONS ARE IN mm.
- DIMENSIONS TO BE READ & NOT SCALED.
- SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
*PS=PAVED SHOULDER
*ES=EARTHAN SHOULDER
*CBS=CRASH BARRIER SPACE
- FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

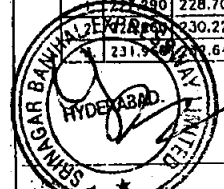
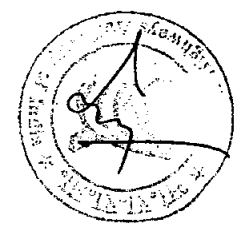
S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	NR
2.	3-6m	1.5	2.0	NR
3.	>6m	2.5	1.0	To be Provided

NR=Not Required

- FOR DETAILS OF CRASH BARRIER REFER DRG.No. NHJ/NH-1A/BAN-SRI/CB/
- FOR DETAILS OF SIDE DRAIN REFER DRG.No. NHJ/NH-1A/BAN-SRI/DRN/SOI
- FOR DETAILS OF CHUTES REFER DRG.No. NHJ/NH-1A/BAN-SRI/DRN/SOS

OVERLAY:-

S.No.	Chainage (km)		Overlay Adopted		
	From	To	BC (mm)	DBM (mm)	Total (mm)
1.	227.290	228.700	50	110	160
2.	228.960	230.220			
3.	231.960	232.640			



NATIONAL HIGHWAYS AUTHORITY OF INDIA

SCALE:- 1:100

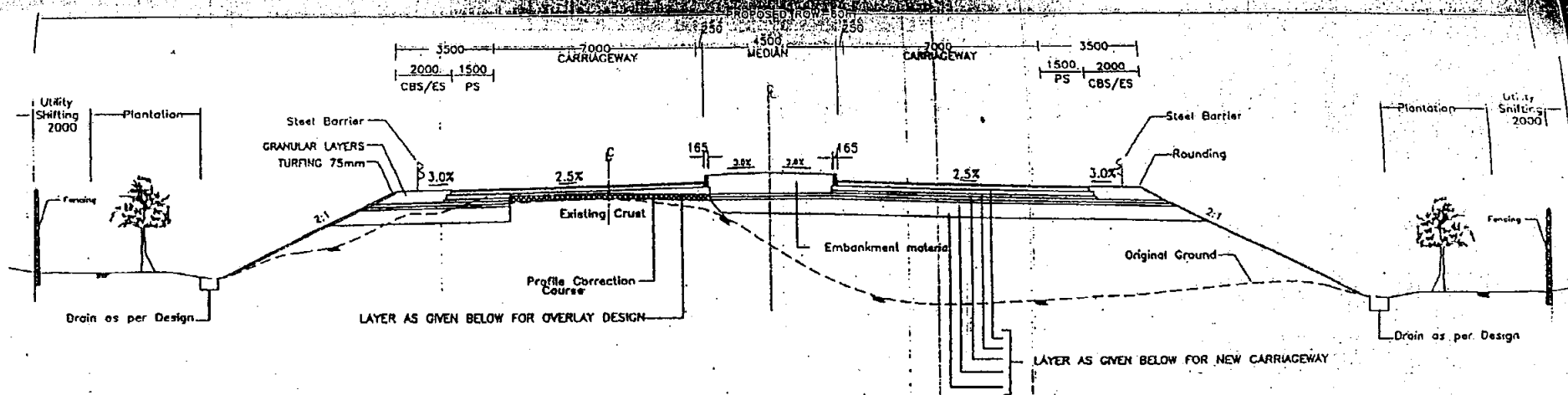
Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A), (including Srinagar Bypass) in J & K State

TYPICAL CROSS-SECTION IN PLAIN AREA FOR LEFT SIDE WIDENING WITHOUT SERVICE ROAD (PACKAGE- NS-02/J&K)

SCHEMATIC DRAWING
Checked by: [Signature]
Approved by: [Signature]

DESIGNER
Checked by: [Signature]
Approved by: [Signature]

TENDER PURPOSE ONLY
DRAWING NUMBER
NHJ/NH-1A/BAN-SRI/TCS/4



TCS-5:-TYPICAL CROSS-SECTION IN PLAIN AREA FOR RIGHT SIDE WIDENING-EXISTING ROAD BEING UTILISED

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.	225.270	225.350					
2.	226.450	227.100					
3.	230.220	230.370					
4.	230.800	230.900	50	110	250	200	610
5.	231.470	231.960					
6.	232.640	232.970					
7.	234.730	237.700					

OVERLAY:-

S.No	Chainage (km)		Overlay Adopted		
	From	To	BC (mm)	DBM (mm)	Total (mm)
1.	225.270	225.350			
2.	226.450	227.100			
3.	230.220	230.370			
4.	230.800	230.900	50	110	160
5.	231.470	231.960			
6.	232.640	232.970			
7.	234.730	237.700			

NOTE:-

- ALL DIMENSIONS ARE IN mm.
- DIMENSIONS TO BE READ & NOT SCALED.
- SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.

*PS=PAVED SHOULDER
*ES=EARTHAN SHOULDER
*CBS=CRASH BARRIER SPACE

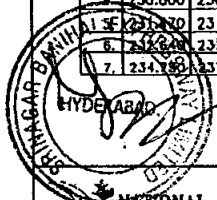
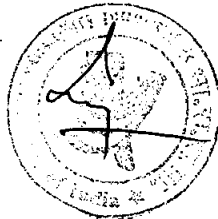
- FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	NR
2.	3-6m	1.5	2.0	NR
3.	>6m	2.5	1.0	To be Provided

NR=Not Required

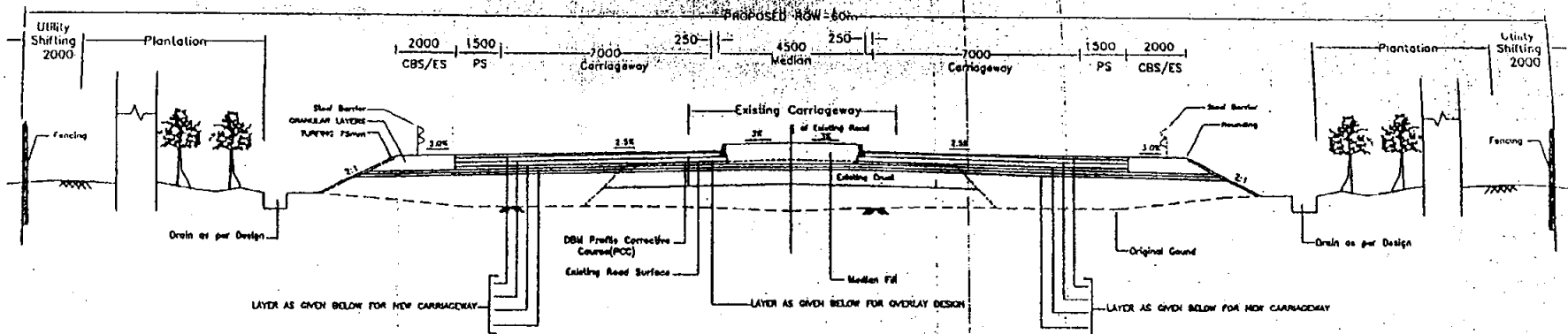
- FOR DETAILS OF CRASH BARRIER REFER DRG.No. NHAI/NH-1A/BAN-SRI/CB/1,
- FOR DETAILS OF SIDE DRAIN REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SO1
- FOR DETAILS OF CHUTES REFER DRG.No. NHAI/NH-1A/BAN-SRI/DRN/SO5

Q-43



NATIONAL HIGHWAYS AUTHORITY OF INDIA	SCALE:- 1:100	Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A),(including Srinagar Bypass) in J & K State (NS-02/1&K)	TYPICAL CROSS-SECTION IN PLAIN AREA FOR RIGHT SIDE WIDENING WITHOUT SERVICE ROAD (NS-02/1&K)	SCREENED BY: _____	CHECKED BY: _____	TENDER PURPOSE ONLY
				DRAWING NUMBER NHAI/NH-1A/BAN-SRI/TCS/5...		

079



TCS-0:-TYPICAL CROSS-SECTION IN PLAIN AREA FOR CONCENTRIC WIDENING-EXISTING ROAD BEING UTILIZED

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: 37-200				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.	227.100	227.290	50	110	250	200	610
2.	237.760	238.130					

OVERLAY:-

S.No.	Chainage (km)		Overlay Adopted		
	From	To	BC (mm)	DBM (mm)	Total (mm)
1.	227.100	227.290	50	110	160
2.	237.760	238.130			

NOTE:-

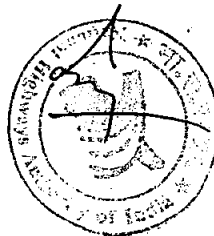
1. ALL DIMENSIONS ARE IN mm.
2. DIMENSIONS TO BE READ & NOT SCALED.
3. SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
*PS=PAVED SHOULDER
*ES=EARTHAN SHOULDER
*CBS=CRASH BARRIER SPACE

4. FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	NR
2.	3-6m	1.5	2.0	NR
3.	>6m	2.5	1.0	To be Provided

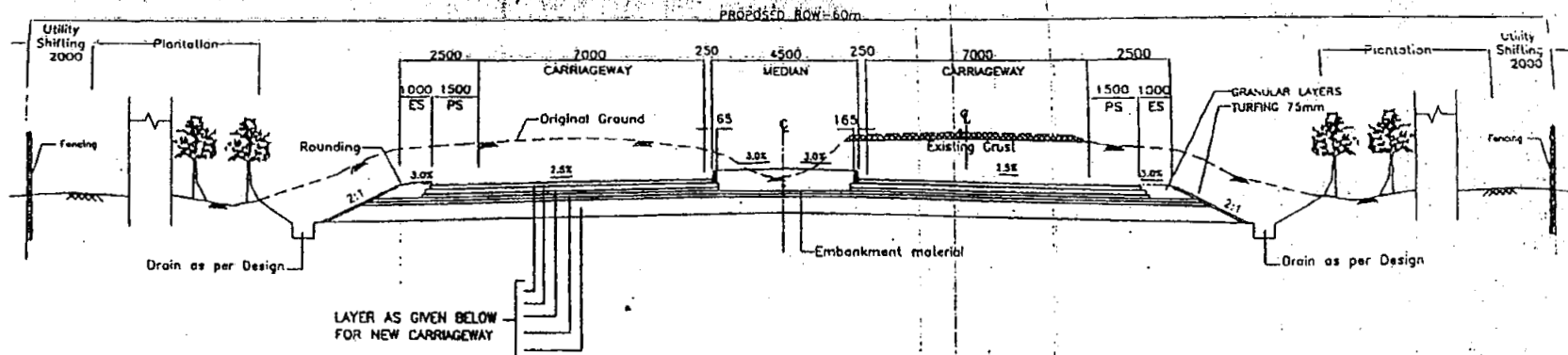
NR=Not Required

5. FOR DETAILS OF CRASH BARRIER REFER DRG.No. NH/1A/BAN-SR/CB/
6. FOR DETAILS OF SIDE DRAIN REFER DRG.No. NH/1A/BAN-SRI/DRH/SD/1
7. FOR DETAILS OF CHUTES REFER DRG.No. NH/1A/BAN-SRI/DRN/SD/5



051

NATIONAL HIGHWAYS AUTHORITY OF INDIA	SCALE:- 1:100	Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A).(Including Srinagar Bypass) in J & K State	TYPICAL CROSS-SECTION IN PLAIN AREA FOR CONCENTRIC WIDENING WITHOUT SERVICE ROAD (NS-98/1A)	DRAWN BY CHECKED BY APPROVED BY	TENDER PURPOSE ONLY DRAWING NUMBER NH/1A/BAN-SRI/TCS/6/
				DATE PROJECT NO.	SCALE SHEET NO.



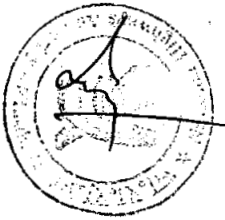
**TCS-7:-TYPICAL CROSS-SECTION IN PLAIN AREA FOR 4 LANE CARRIAGEWAY IN CUT SECTION-EXISTING ROAD NOT UTILIZED
PAVEMENT LEVEL IS LOWER THAN EXISTING**

**PAVEMENT LAYERS:-
NEW CONSTRUCTION**

S.No.	Chainage (Km)		Thickness based on IRC: 37-200				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WBM (mm)	GSB (mm)	
1.	220.790	220.890	50	110	250	200	610

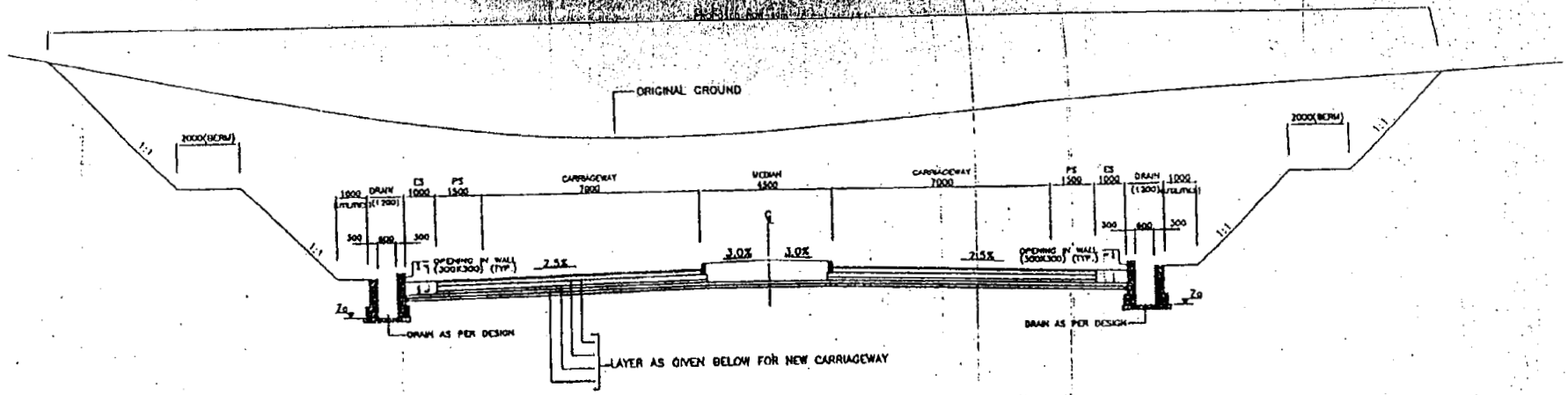
NOTE:-

1. ALL DIMENSIONS ARE IN mm.
2. DIMENSIONS TO BE READ & NOT SCALED
3. SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
*PS=PAVED SHOULDER
*ES=EARTHAN SHOULDER
4. FOR DETAILS OF SIDE DRAIN REFER DRG.No. NH/WH-1A/BAN-SR/DR/501

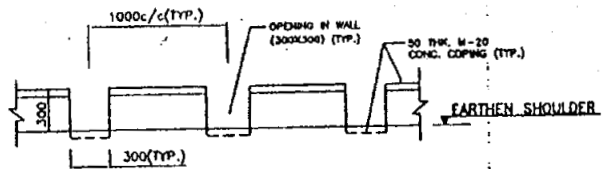


051

NATIONAL HIGHWAYS AUTHORITY OF INDIA	SCALE:- 1:100	Detailed Design for 4-Laning of Banibal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A),(including Srinagar Bypass) in J & K State	TYPICAL CROSS-SECTION IN PLAIN AREA FOR 4 LANE CARRIAGEWAY IN CUT SECTION-EXISTING ROAD NOT UTILIZED (NS-02/185)	SCHEMATIC	DESIGNED BY	CHECKED BY	APPROVED BY	TENDER PURPOSE ONLY
				DATE	DATE	DATE	DRAWING NUMBER NH/WH-1A/BAN-SR/TCS/7	



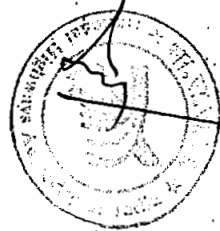
TCS-B:-TYPICAL CROSS-SECTION IN PLAIN AREA FOR 4 LANE CARRIAGEWAY (BOTH SIDE CUTTING)
(SCALE 1:75)



SECTIONAL ELEVATION 1-1
(SCALE=1:25)

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	BC (mm)	DGM (mm)	WMM (mm)	CSB (mm)	
1.	220.890	221.140	50	110	250	200	610
2.	222.270	222.660					

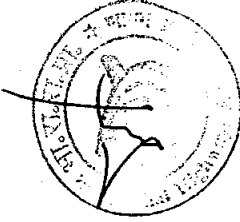
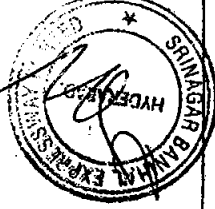


NOTES :-
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE MENTIONED
2. DIMENSIONS TO BE READ & NOT SCALED.

C52-

<p>NATIONAL HIGHWAYS AUTHORITY OF INDIA</p>	SCALE AS SHOWN	<p>Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.166.00 to Km.296.00) of NH-1(A),(including Srinagar Bypass) in J & K State</p>	<p>TYPICAL CROSS-SECTION IN PLAIN AREA FOR 4 LANE CARRIAGEWAY (BOTH SIDE CUTTING) (MS-82/1A2)</p>	<p>S. JAYARAMAN Chief Engineer Banihal to Srinagar Section (NH-1(A))</p>	<p>Checked by S. J. Jayaraman</p>	<p>Designed by S. J. Jayaraman</p>	TENDER PURPOSE ONLY
							<p>DRAWING NO : RWA/NH-1A/BAN-SN/</p>

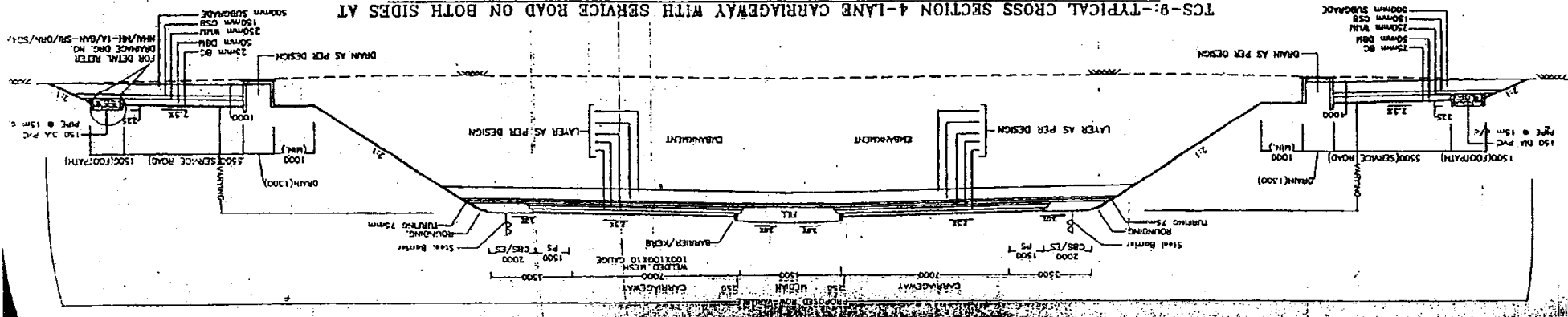
TENDER PURPOSE ONLY	DATE: 14/05/2024	PROJECT NO: NH-1A/BK-5R/25	SCALE: AS SHOWN	Detailed Design for 4-Lane of NH-1A (Including Sirajer Bypass) in J & K State	NATIONAL HIGHWAYS AUTHORITY OF INDIA
	TYPICAL CROSS SECTION 4-LANE CARRIAGEWAY WITH SERVICE ROAD ON BOTH SIDES AT END OF OZIKUND BYPASS AT KM 224+750			PACKAGE-NH-02/11K	



S.No.	Change (Km)	Thickness based on IRC: 37-2007	Total				
From	To	BC (mm)	DBM (mm)	WMM (mm)	CSB (mm)	Thickness	
1	224.400	225+350	50	110	250	200	610

PAVEMENT LAYERS:-
NEW CONSTRUCTION

TCS-9:- TYPICAL CROSS SECTION 4-LANE CARRIAGEWAY WITH SERVICE ROAD ON BOTH SIDES AT END OF OZIKUND BYPASS AT KM 224+750

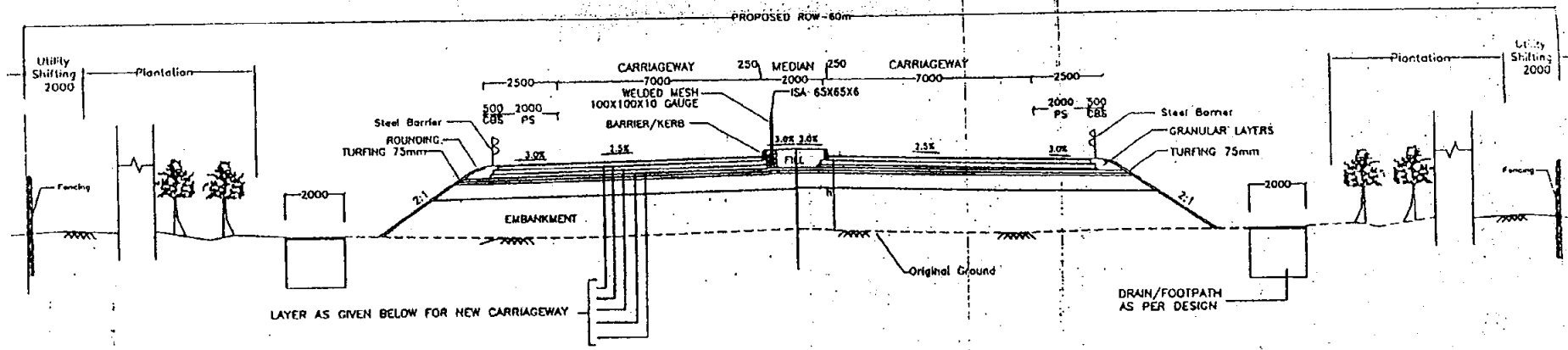


NOTE: -

1. ALL DIMENSIONS ARE IN mm.
2. FOR KEYS CHANNEL REFER SEPARATE DWG. SPECIFICATIONS.
3. DESIGN FOR REINFORCED EARTH WALL/CRASH BARRIER AS PER DESIGN & CONNECTION TO THE MAIN DRAIN AT EDGE OF THE RIGHT OF WAY.
4. GULLY CHAMBER WILL BE PROVIDED FOR DOWN PIPE.
5. FOR VAQUOT PORTION REFER CAD FOR FLOVER.
6. DESIGN OF RETAINING WALLS, REINFORCED EARTH WALL, CRASH BARRIER, BRIDGE STRUCTURE SHALL MATCH THE DESIGN OF REINFORCED EARTH MEMBERS(SUCH AS CRASH BARRIER REINFORCED EARTH PANELS) TO MAINTAIN HARMONY.
7. THE THICKNESS OF VARIOUS LAYERS OF EACH LAYER OF LAY SHALL BE DECIDED BY THE ENGINEER AS PER LIABILITY OF COMPACTING EQUIPMENT AT SITE.
8. R/C RETAINING WALL SHALL BE PROVIDED UP TO 1m HEIGHT ABOVE THE GENERAL CRUING LEVEL AND BEYOND THAT IT SHALL BE REINFORCED EARTH WALL.
9. FOR LONG SECTION AND CROSS SECTION OF DRAINS, REFER DRAINAGE DRAWING ON BOTH SIDES AT END OF OZIKUND BYPASS AT KM 224+750.
10. THE CHANGES GIVEN HERE ARE TENTATIVE, FOR EXACT CENTRE LINE OF THE EXISTING ROAD WITH REFERENCE TO THE PROPOSED CENTRE LINE OF THE MEDIAN, REFER DATA DISCLOSED.
11. RATED WATERWAY(DRW) SHALL BE LAID IN ONE OF THE CARRIAGEWAY(BOTTOM LAYER) AND SERVICE ROAD.

050

15.41



TCS-10:-TYPICAL CROSS SECTION IN URBAN AREA FOR 4-LANE-NEW CONSTRUCTION

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Thickness based on IRC: 37-200				Total Thickness (mm)
	BC (mm)	DGM (mm)	WMM (mm)	GSB (mm)	
1.	50	110	250	200	610

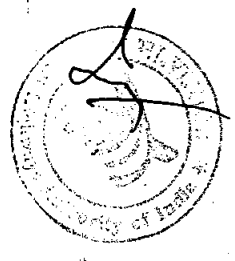
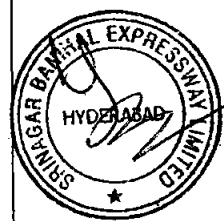
NOTE:-

- ALL DIMENSIONS ARE IN mm.
- DIMENSIONS TO BE READ & NOT SCALED.
- SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
- FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE

S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Crash Barrier Space CBS(m)	Drainage Chutes
1.	<3m	2.0	0.0	NR
2.	3-6m	2.0	0.5	NR
3.	>6m	2.5	0.5	To be Provided.

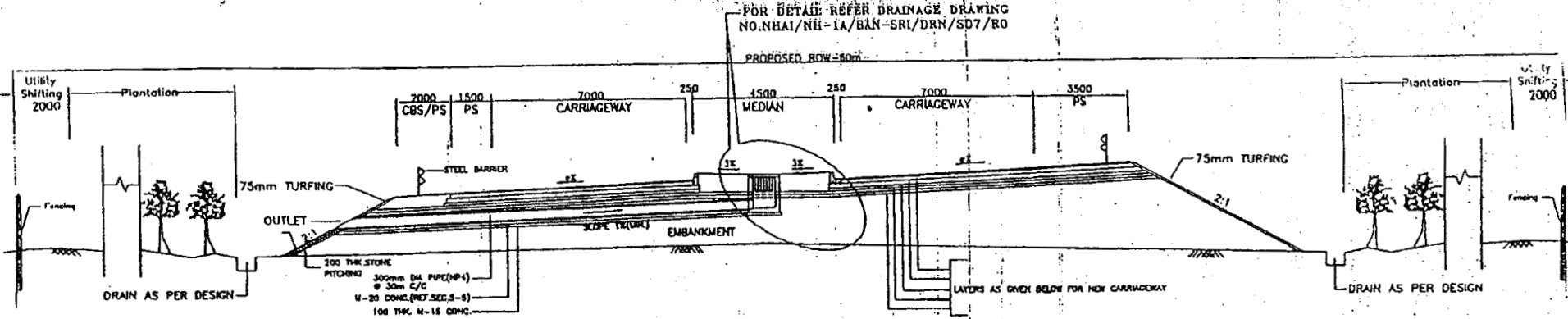
NR=Not Required

- FOR DETAILS OF CRASH BARRIER REFER DRG.No. NH4/NH-1A/BAN-SR/CB/11
- FOR DETAILS OF CHUTES REFER DRG.No. NH4/NH-1A/BAN-SR/DRN/SDS



054

NATIONAL HIGHWAYS AUTHORITY OF INDIA	SCALE:- 1:100	Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A),(including Srinagar Bypass) in J & K State	Typical Cross Section in Urban Area for 4-Lane-New Construction (NS-02/1A)	PREPARED BY: [Signature] CHECKED BY: [Signature]	DRAWING NO. NH4/NH-1A/BAN-SR/11
				TENDER PURPOSE ONLY	



TCS-11:-TYPICAL CROSS SECTION IN SUPERELEVATED AREA FOR 4-LANE BYPASS-NEW CONSTRUCTION
(SCALE 1:100)

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: 37-2003				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.			50	110	250	200	610

G4-B

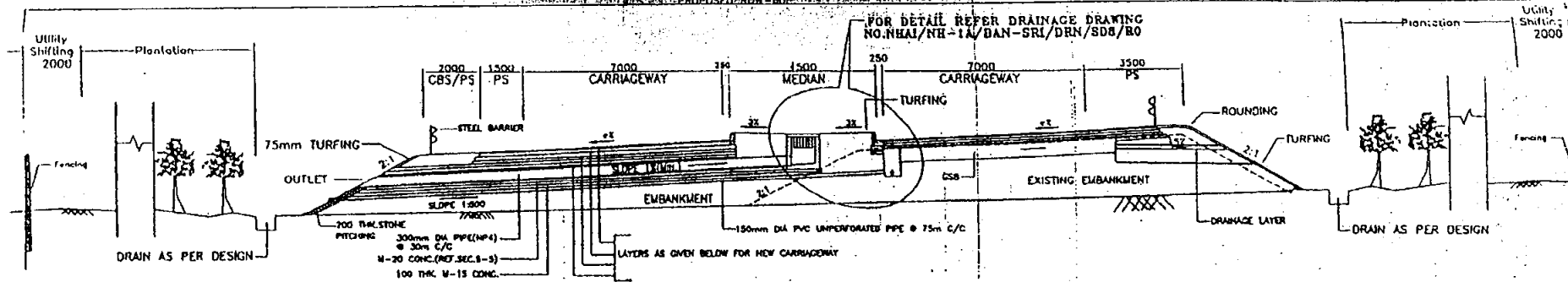


NOTES:-

- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE MENTIONED
- SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
- *PS=PAVED SHOULDER
- *ES=EARTHAN SHOULDER
- *CBS=CRASH BARRIER SPACE

055

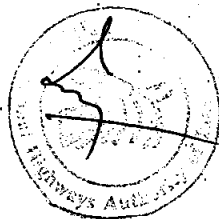
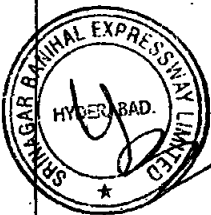
	SCALE:- AS SHOWN	Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.298.00) of NH-1(A),(including Srinagar Bypass) in J & K State	Typical Cross Section in Supervised for 4-Lane-New Construction (NS-02/1&K)	Checked by: _____ Drawn by: _____	Approved by: _____ Date: _____	TENDER PURPOSE ONLY DRAWING NO : NHAI/NH-1A/BA-N-SRI-11
				Srinagar Banihal Expressway Limited Hyderabad	Srinagar Banihal Expressway Limited Hyderabad	



TCS-12:-TYPICAL CROSS SECTION IN SUPERELEVATED AREA WHEN OUTER ROAD IS EXISTING
(SCALE 1:100)

**PAVEMENT LAYERS:-
NEW CONSTRUCTION**

S.No.	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.			50	110	250	200	610

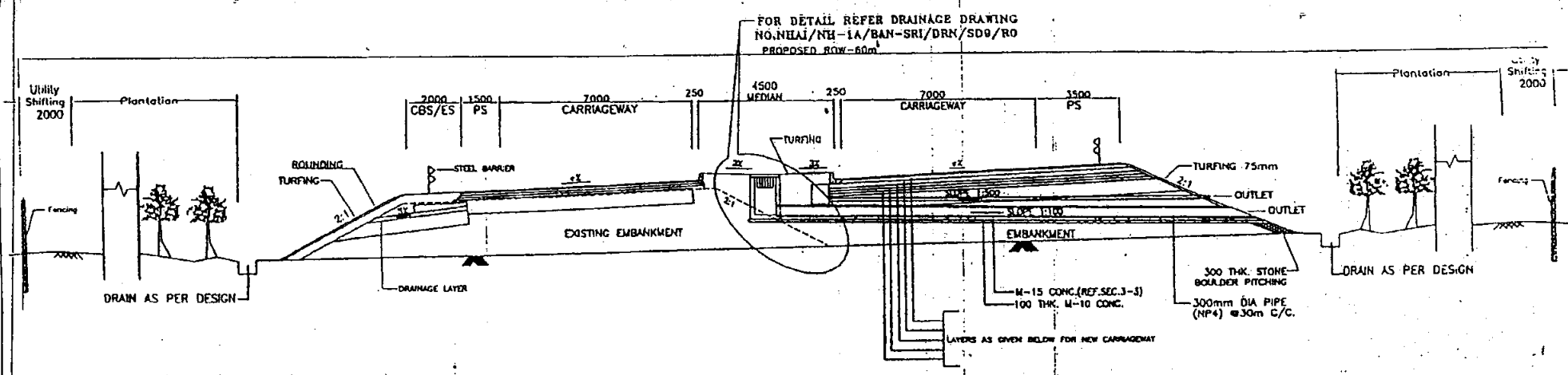


NOTES:-

1. ALL DIMENSION ARE IN mm.
2. SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
- *PS-PAVED SHOULDER
- *ES-EARTHAN SHOULDER
- *CBS=CRASH BARRIER SPACE

056

	NATIONAL HIGHWAYS AUTHORITY OF INDIA SCALE:- AS SHOWN	Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.298.00) of NH-1(A),(Including Srinagar Bypass) in J & K State	Typical Cross Section In Superelevated Area When Outer Road is Existing (NS-02/14K)	Designated by: _____ Checked by: _____ Approved by: _____ Date: _____	Checked by: _____ Approved by: _____ Date: _____	TENDER PURPOSE ONLY DRAWING NO: NHAI/NH-1A/DAN-SRI/DRN/SDS/RO
				Srinagar Bypass Expressway Limited Hyderabad	Srinagar Bypass Expressway Limited Hyderabad	Srinagar Bypass Expressway Limited Hyderabad



TCS-13:-TYPICAL CROSS SECTION IN SUPERELEVATED AREA WHEN OUTER ROAD IS PROPOSED.
(SCALE:- 1:100)

PAVEMENT LAYERS:-
NEW CONSTRUCTION

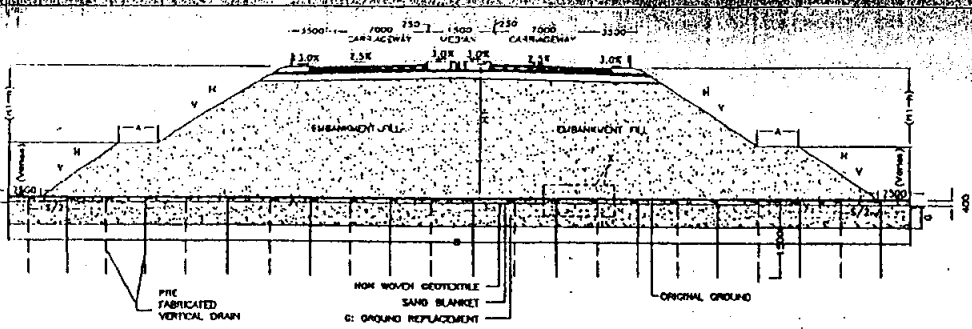
S.No.	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	8c (mm)	8BII (mm)	WMM (mm)	CSB (mm)	
1.			50	110	250	200	610



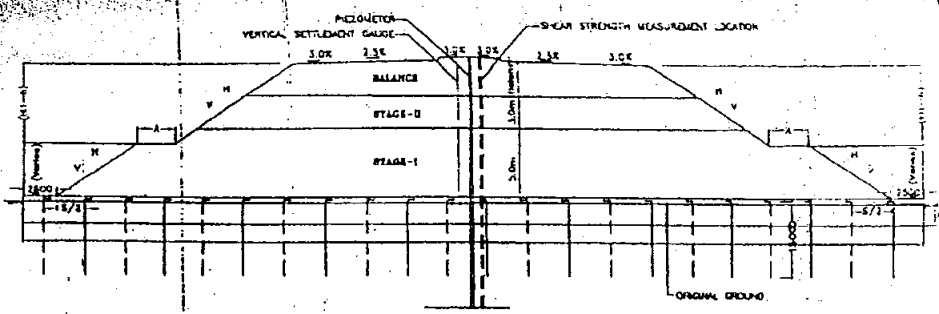
- NOTES:-
1. ALL DIMENSION ARE IN mm.
 2. SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR THE ROAD.
 - *PS=PAVED SHOULDER
 - *ES=EARTHAN SHOULDER
 - *CBS=CRASH BARRIER SPACE

057

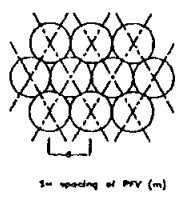
<p>NATIONAL HIGHWAYS AUTHORITY OF INDIA</p>	<p>SCALE:- AS SHOWN</p>	<p>Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.298.00) of NH-1(A),(including Srinagar Bypass) in J & K State</p>	<p>Typical Cross Section in Super-elevated Area When Outer Road is Proposed (NS-02/J&K)</p>	<p>Drawn by: [Signature]</p> <p>Checked by: [Signature]</p> <p>Approved by: [Signature]</p>	<p>TENDER PURPOSE ONLY</p>	
					<p>DRAWING NO: NHAI/NH-1A/BAN-SRI/DRN/SD9/RO</p>	



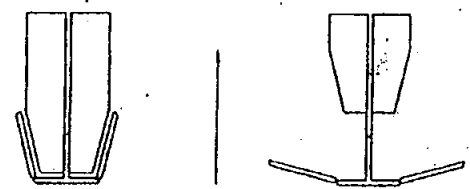
TCS 6- TYPICAL CROSS SECTION OF HIGH EMBANKMENT



DETAILS OF STAGE CONSTRUCTION & LOCATIONS OF MONITORING INSTRUMENT



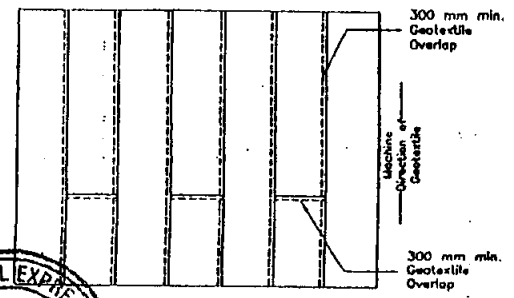
Triangular Grid Pattern of installation of PFV Drain



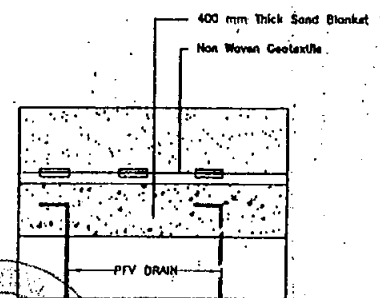
Drain anchor is fixed to the drain tip, prevents soil from intruding into the mandrel during drain installation and keeps the drain in place when the mandrel is withdrawn

Details of Stage Construction	
Height of Stage	Waiting Period for Next Stage
5 m	45 Days
8 m	60 Days
Balance	60 Days

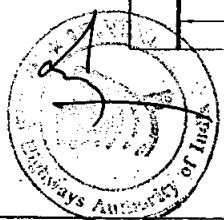
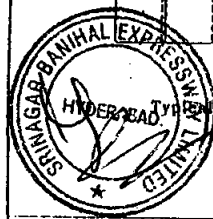
- NOTE:
1. BOM BEYOND CHAINAGE MENTIONED IN DRAWING NO. NH-1(A)/BAN-SR/ICE/1/7/RO SHALL BE SURVEYED IN 1:30 AT BOTH ENDS.
 2. SAND BLANKET OF 400 MM THICKNESS SHALL BE PROVIDED ABOVE GROUND AT BASE OF EMBANKMENT FOR FULL WIDTH (B), IN STRETCH WHERE PFV-DRAINS ARE PROVIDED.
 3. GRADING OF SAND SHALL CONFORMED TO CLASS 'Y' GRADING IN TABLE 300.3 OF MORTH SPECIFICATION.
 4. MATERIALS USED IN REPLACEMENT OF EXCAVATED SOIL SHOULD HAVE A MINIMUM DRY DENSITY 18 KN/M³, SPECIFIC GRAVITY 2.67, COHESION 85KN/M² AND ANGLE OF FRICTION 27° AS SHOWN IN DRAWING NO. NH-1(A)/BAN-SR/ICE/1/7/RO.
 5. EMBANKMENT SIDE SLOPE (V:H) SHOWN IN DRAWING NO. NH-1(A)/BAN-SR/ICE/1/7/RO IS APPLICABLE ONLY UP TO THE MENTIONED BERRY CHAINAGES (K_m). BEFORE AND AFTER MENTIONED CHAINAGES EMBANKMENT SIDE SLOPE IS 1:2 (V:H).
 6. WIDTH OF THE SAND BLANKET AND NON WOVEN GEOTEXTILE IS EQUAL TO THE MENTIONED GROUND REPLACEMENT WIDTH (B).
 7. FOR BOM WITH SIDE SLOPE OF EMBANKMENT PFV DRAINS, SAND BLANKET GEOTEXTILE AFTER DRAINING DRAWING NO. NH-1(A)/BAN-SR/ICE/1/7/RO.
 8. INSTRUMENTATION SHALL BE PROVIDED AS GIVEN IN SPECIFICATIONS & AS DIRECTED BY THE ENGINEER.
 9. PIEZOMETER, VERTICAL SETTLEMENT GAUGE AND SHEAR STRENGTH MEASUREMENT LOCATIONS SHOULD BE STAGGERED LONGITUDINALLY TO AVOID INTERFERENCE WITH EACH OTHER.
 10. ALL INSTRUMENTS TO BE PROTECTED BY CHAMBER OF APPROPRIATE SIZE (300x300x150)mm DEPTH WHERE NECESSARY.



Laying Arrangement of Non-woven Geotextile Separation Layer



Detail-X



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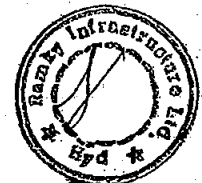
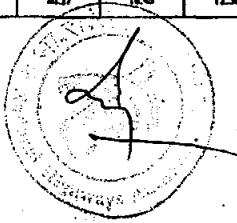
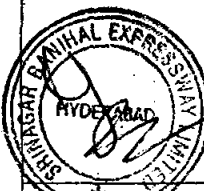
<p>NATIONAL HIGHWAYS AUTHORITY OF INDIA</p>	<p>SCALE:-NTS</p>	<p>Detailed Design for 4-Lane of Banihal to Srinagar Section (Km.188.00 to Km.206.00) of NH-1(A),(including Srinagar Bypass) in J & K State</p>	<p>Typical Cross Section for 4-Lane Stability Measure (NH-82/1A)</p>	<p>DATE: 15/08/2018</p>	<p>DESIGNED BY: [Name]</p>	<p>CHECKED BY: [Name]</p>	<p>APPROVED BY: [Name]</p>	<p>REVISIONS:</p>	<p>ORDER NO. [Number]</p>
				<p>PROJECT: [Name]</p>	<p>DESIGNED BY: [Name]</p>	<p>CHECKED BY: [Name]</p>	<p>APPROVED BY: [Name]</p>	<p>REVISIONS:</p>	<p>ORDER NO. [Number]</p>

Table 1 showing locations where ground improvement,PFV drains and Balancing berm is proposed

Sl no	Location	Ht of embankment Ht (m)	Ground Improvement Location				PFV drains Location						Berm Location							
			Grim. no. replacement depth (Q) m	Ground replacement change (Km)		Total ground replacement length (m)	Grim. no. replacement width (B) m	PFV drains changes (x-y)		Bottom width of PFV drains-B1 (m)	Length of PFV drains (m)	Depth of PFV Drains (m)	Spacing of PFV drains (S) m	Erection size of slope		Height of berm below the shoulder level (m)	Berm width (A) m	Berm cross section		Berm length (m)
				From	To			From	To					V	m			From	To	
1	High Embankment	18.5																		
2	Underpass	8.4																		
3	High Embankment	16.7					222.820	223.140	54	790	15	2	1	2						
4	Underpass	7.3					223.410	223.170	51	60	15	2	1	2						
							223.480	223.680	61	200	15	2	1	2						
5	High Embankment	7.7					224.530	224.780	52	730	15	2	1	2						
							224.785	224.890	52	165	15	2	1	2						
6	ROB	8.4					225.800	225.828	54	125	15	2	1	2						
							225.860	225.960	54	220	15	2	1	2						
7	Culvert Approach	11.8					229.100	229.170	60	70	15	2	1	2						
8	High Embankment	13.0					230.650	230.780	62	100	15	2	1	2						
9	Culvert Approach	8.7					231.160	231.240	52	80	15	2	1	2						
10	High Embankment	11.8					231.560	231.920	60	340	15	2	1	2						
11	Minor Bridge	7.5	1	239.450	239.585	135.000	55	239.450	239.585	54	135	15	2	1	2	8.0	3.0	239.450	239.585	135.000
			1	239.600	239.750	150.000	55	239.600	239.750	54	150	15	2	1	2	8.0	3.0	239.600	239.750	150.000
12	High Embankment	7.0	1	240.000	240.260	260.000	64	239.990	240.270	63	280	15	2	1	2	4.8	3.0	240.000	240.260	260.000
13	ROB	13.7	2	242.650	243.420	770.000	81	242.650	243.420	60	790	15	2	1	2	6.0	6.5	242.650	243.420	770.000
14	Underpass	7.0						245.640	245.860	60	220	15	2	1	2					
15	Underpass	6.8						247.520	247.800	53	280	15	2	1	2	5.5	3.0	247.52	247.78	260.000

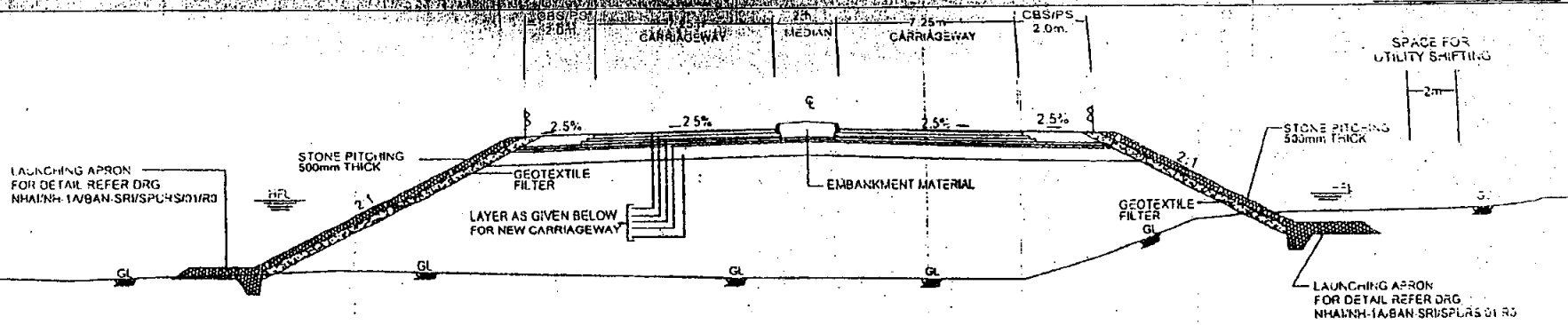
Table No. 2

"L"m	Chokage (m)		Ground replacement depth (D)		FLL soil characteristics									Source of material to be used in borrow area of km
	From	To	Width	Depth	Bulk Density (M/m ³)	Saturated Density (M/m ³)	Dry Density (M/m ³)	Moisture content (%)	Void ratio(e)	Porosity(n)	Specific Gravity	C(M/m ²)	φ (deg)	
1	239.450	239.585	1	1.0	22.01	22.25	18.80	12.30	0.36	0.28	2.64	55.00	30	Banthal Bypass 0.2km L/2
	239.600	239.750	1											
2	240.000	240.260	1	1.0	18.47	20.27	16.46	12.30	0.62	0.36	2.84	55.00	30	Banthal Bypass 0.2km L/2
3	242.650	243.420	1	2.0	18.47	20.27	16.46	12.30	0.62	0.36	2.84	60.00	28	



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<p>NATIONAL HIGHWAYS AUTHORITY OF INDIA</p>	<p>SCALE:-NTS -</p>	<p>Detailed Design for 4-Laning of Banthal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A),(including Srinagar Bypass) in J & K State</p>	<p>Tables for Stability Measure (NS-66/1&K)</p>	<p>Scrutinized by</p>	<p>Checked by</p>	<p>Drawn by</p>	<p>Approved by</p>
				<p>Checked by</p>	<p>Drawn by</p>	<p>Approved by</p>	
<p>TENDER PURPOSE ONLY</p>							<p>DRAWING NUMBER</p>
<p>NHA/NH-1A/BAN-SRI/TCS/15</p>							<p>DATE</p>



TCS:-1 TYPICAL CROSS SECTION AT Km.188+180

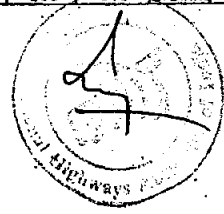
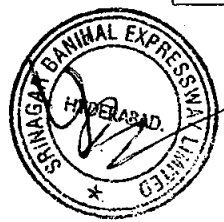
- Notes:-
1. All Dimensions Are In mm Unless Otherwise Mentioned
 2. Dimensions To Be Read & Not Scaled.
 3. For details of Drainage Chutes refer drawing No. NHA/1A/BAN-SR/DRN/SD4/R0
 4. For details of Existing Drain, Pitching etc. refer drawing No. NHA/1A/BAN-SR/DRN/SD1&SD4/R0
 5. For Crash barrier details refer drawing No. NHA/1A/BAN-SR/CB/1/R0
 6. Paved Shoulder will be as per crust design for new road
*PS=Paved shoulder
*ES=Earthen shoulder
*CBS=Crash barrier space
 7. For details of crash barrier, width of shoulder and Drainage chutes refer following table

S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Drainage Chutes
1.	<3m	2.0	NR
2.	3-6m	2.0	NR
3.	>6m	2.5	To be Provided

-NR=Not Required

PAVEMENT LAYERS:-
NEW CONSTRUCTION

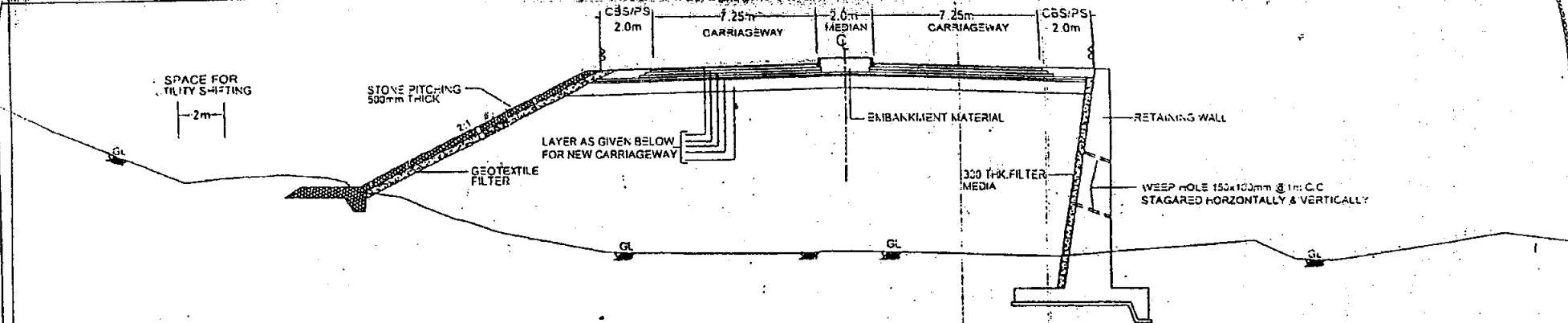
S.No.	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)	Remarks
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)		
1.	188.000	189.350	50	110	250	200	610	Applicable For Banihal Bypass, Location Where Spurs And Retaining Walls Have Been Provided Relevant Drawing Will Be Referred



(6)

6. For Spurs Location Along Embankment ref NHA/1A/BAN-SR/SP/URS/01/R0

	SCALE :- NTS	Feasibility Study and DPR for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.298.00) of NH-1(A), (Including Srinagar Bypass) in J & K State	TYPICAL CROSS SECTION AT KM. 188+180 (PACKAGE IV)	GOOD FOR CONSTRUCTION		NO	Date	Date	Description	Checked
				Checked by	Checked by	Date	Date	Description	Checked	
NATIONAL HIGHWAYS AUTHORITY OF INDIA				SCHEMATIC DRAWING		NO		Date		
NATIONAL HIGHWAYS AUTHORITY OF INDIA				TYPICAL CROSS SECTION AT KM. 188+180 (PACKAGE IV)		NO		Date		



TCS:-2 TYPICAL CROSS SECTION AT Km:189+000

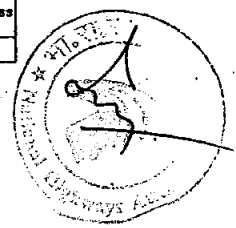
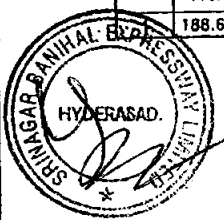
- Notes:-
1. All Dimensions Are In mm Unless Otherwise Mentioned
 2. Dimensions To Be Read & Not Scaled
 3. For details of Drainage Chutes refer drawing No. NHAI/1A/BAN-SRI/DRN/SD4/R0
 4. For details of Existing Drain, Pitching etc. refer drawing No. NHAI/1A/BAN-SRI/DRN/SD1&SD4/R0
 5. For Crash barrier details refer drawing No. NHAI/1A/BAN-SRI/CB/1/R0
 6. Paved Shoulder will be as per crust design for new road
 *PS=Paved shoulder
 *ES=Earthen shoulder
 *CBS=Crash barrier space
 7. For details of crash barrier, width of shoulder and Drainage chutes refer following table

S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Drainage Chutes
1.	<3m	2.0	NR
2.	3-6m	2.0	NR
3.	>6m	2.5	To be Provided

NR=Not Required

PAVEMENT LAYERS:
NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness BC (mm)	Based on IRC: 37/2001		
	From	To		WBM (mm)	ES (mm)	Total Thickness (mm)
	188.640	188.930	50	250	20	610



NATIONAL HIGHWAYS AUTHORITY OF INDIA

SCALE :- MTS

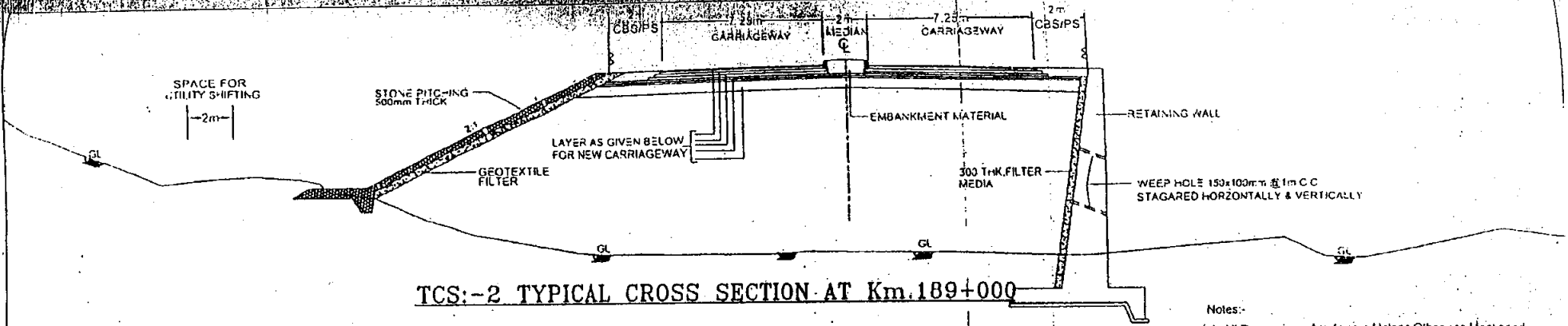
Feasibility Study and DPR for 4-Laning of ...
at Sriharipur Section (Km.185.00 to Km.296.00)
-I(A), (including Srinagar Bypass) in J & K State

TYPICAL CROSS SECTION AT
KM. 189+000
PACKAGE IV

CHITRAKOOT
I. International Consultants & Technocrats PVT. LTD.
2. J.K. Road Infra. Pvt. Ltd.

GOOD FOR CONSTRUCTION			
Prepared by	Checked by	Reviewed by	Approved by
Revision No. _____ Date _____ Checked by _____ Approved by _____			
DRAWING NO : NHAI/NB-1A/BAN-SRI/TCS/02/R0			

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TCS:-2 TYPICAL CROSS SECTION AT Km.189+000

PAVEMENT LAYERS:- (TCS-2)

NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: 37-200				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.	189.075	189.110	50	110	250	200	610

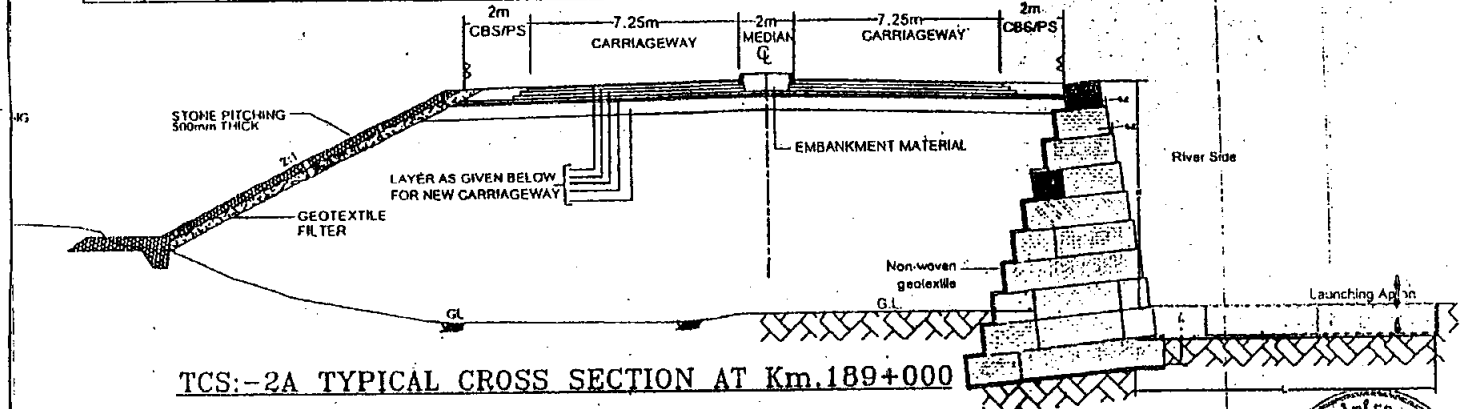
Notes:-

- All Dimensions Are In mm Unless Otherwise Mentioned.
- Dimensions To Be Read & Not Scaled.
- For details of Drainage Chutes refer drawing No. NHAI/IA/BAN-SRI/DRN/SD-I/R0
- For details of Existing Drain, Pitching etc. refer drawing No. NHAI/IA/BAN-SRI/DRN/SD-I&SD-I/R0
- For Crash barrier details refer drawing No. NHAI/IA/BAN-SRI/CB-I/R0
- Paved Shoulder will be as per crust design for new road.
*PS=Paved shoulder
*ES=Earthen shoulder
*CBS=Crash barrier space
- For details of crash barrier, width of shoulder and Drainage chutes refer following table

S.No.	Embankment Height h(m)	Paved Shoulder PS(m)	Drainage Chutes
1.	<3m	2.0	NR
2.	3-6m	2.0	NR
3.	>6m	2.5	To be Provided

NR=Not Required

25-5

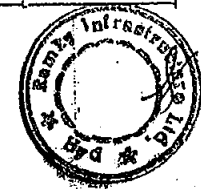
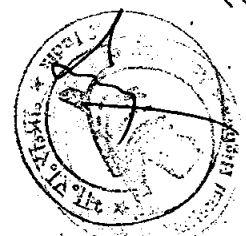
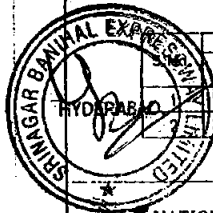


TCS:-2A TYPICAL CROSS SECTION AT Km.189+000

PAVEMENT LAYERS:- (TCS-2A)

NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: 37-200				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.	188.610	189.060	50	110	250	200	610
2.	189.110	189.150	50	110	250	200	610



062

NATIONAL HIGHWAYS AUTHORITY OF INDIA

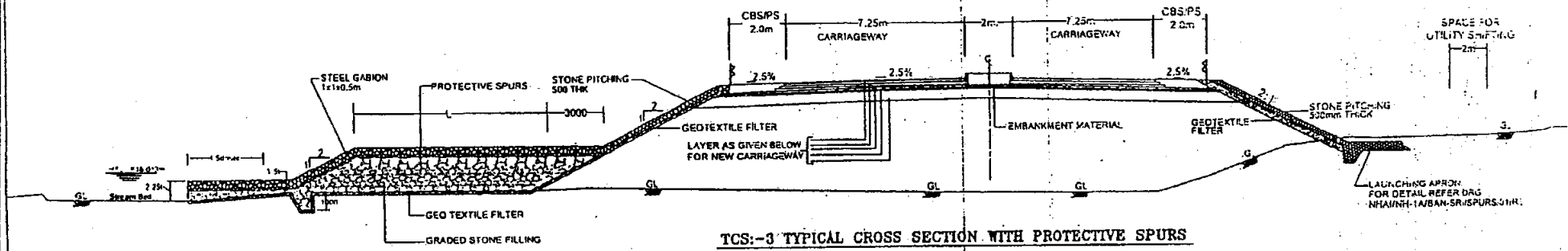
SCALE :- NTS

Feasibility Study and DPR for 4-Laning of Banthal to Srinagar Section (Km.188.00 to Km.298.00) of NH-1(A), (Including Srinagar Bypass) in J & K State

TYPICAL CROSS SECTION AT KM. 189+000 (PACKAGE IV)

SCETANGHOMI
 Instrumental Control & Instrumentation
 P. K. SINGH
 P. K. SINGH
 P. K. SINGH
 P. K. SINGH

GOOD FOR CONSTRUCTION		Date	Signature	Revision
Author	Checked	18/01/2007		
Drawn	Reviewed			
Designed	Approved			
Revisions				
DRAWING NO : NHAI/NB-1A/BAN-SRI/TCS/02/R				



TCS:-3 TYPICAL CROSS SECTION WITH PROTECTIVE SPURS

- Notes:-
1. All Dimensions Are in mm Unless Otherwise Mentioned
 2. Dimensions To Be Read & Not Scaled.
 3. For details of Drainage Chutes refer drawing No. NHAI/1A/BAN-SR/DRN/SD4/R0
 4. For details of Existing Drain, Pitching etc refer drawing No. NHAI/1A/BAN-SR/DRN/SD1&SD4/R0
 5. For Crash barrier details refer drawing No. NHAI/1A/BAN-SR/CB/1/R0
 6. Paved Shoulder will be as per crustal design for new road
 *PS=Paved shoulder
 *ES=Earthen shoulder
 *CBS=Crash barrier space
 7. For details of crash barrier, width of shoulder and Drainage chutes refer following table

S.No.	Embankment Height (m)	Paved Shoulder PS(m)	Drainage Chutes
1.	<3m	2.0	NR
2.	3-6m	2.0	NR
3.	>6m	2.5	To be Provided

NR=Not Required

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: 37-2001				Total Thickness (mm)
	From	To	BC (mm)	DBM (mm)	WMM (mm)	GSB (mm)	
1.	188.100	188.300	50	110	250	200	610

18.51



NATIONAL HIGHWAYS AUTHORITY OF INDIA

Scale:-NTS

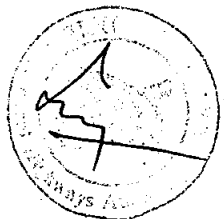
Detailed Design for 4-laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-(A), (including Srinagar Bypass) in J & K State

Typical Cross Section With Protective Spurs (Package-IV)

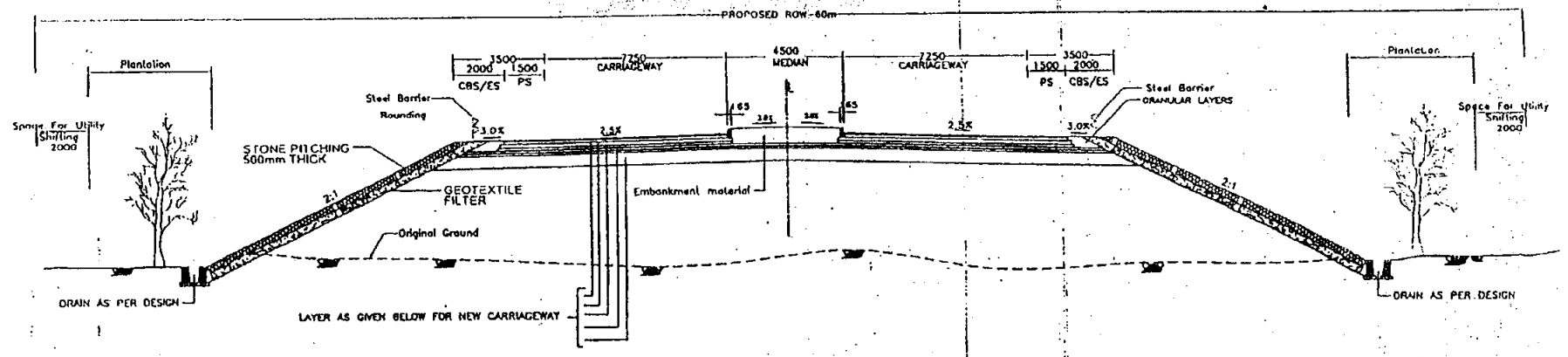
SCRIBED BY: [Signature]
 CHECKED BY: [Signature]
 DATE: [Date]

GOOD FOR CONSTRUCTION		REVISIONS	
No.	Date	Description	Checked
1.	18.05.2009	As per drawing	[Signature]
2.	18.05.2009	As per drawing	[Signature]

DRAWING NUMBER: NHAI/1A/BAN-SR/TCS/01/R0



18.51



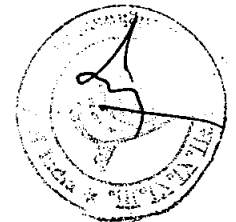
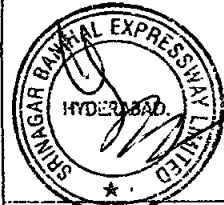
TCS-4:- TYPICAL CROSS-SECTION FOR 4 LANE CARRIAGEWAY IN RAISING.

PAVEMENT LAYERS:-
NEW CONSTRUCTION

S.No.	Chainage (Km)		Thickness based on IRC: 37-2003				Total Thickness (mm)	Drains	Remarks
	From	To	BC (mm)	DGM (mm)	WMM (mm)	GSB (mm)			
1.	188.000	188.100	50	110	250	200	610	NR	
2.	188.300	188.640	50	110	250	200	610	NR	
3.	188.930	189.350	50	110	250	200	610	NR	
4.	220.200	220.720	50	110	250	200	610	To be Provided	NO PITCHING

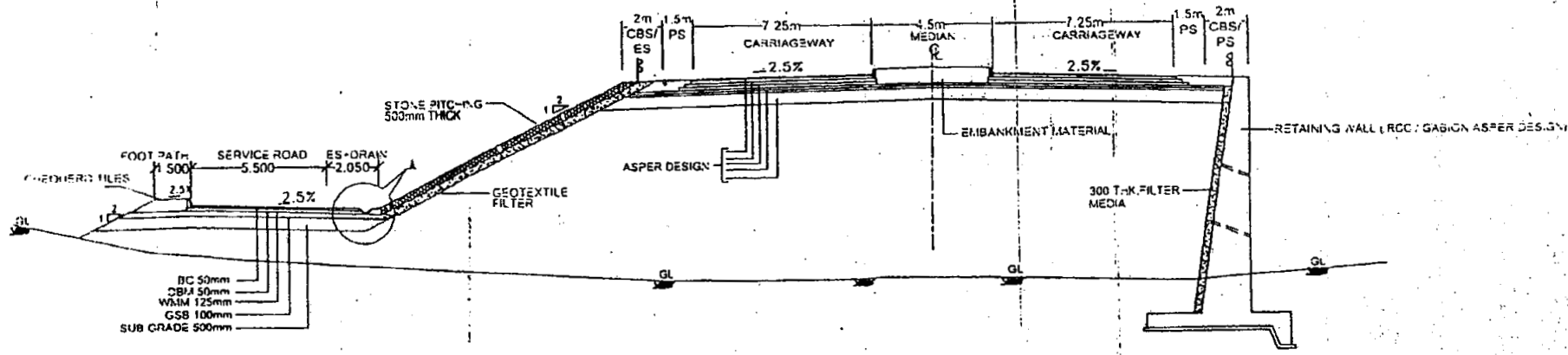
NOTE:-

- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE MENTIONED
 - DIMENSIONS TO BE READ & NOT SCALED:
 - SHOULDER WIDENING WILL BE AS PER CRUST DESIGN FOR NEW ROAD.
 - FOR DETAILS OF CRASH BARRIER, WIDTH OF SHOULDER AND DRAINAGE CHUTES REFER FOLLOWING TABLE
- | S.No. | Embankment Height h(m) | Paved Shoulder PS(m) | Earthen Shoulder ES(m) | Drainage Chutes |
|-------|------------------------|----------------------|------------------------|-----------------|
| 1. | <3m | 1.5 | 2.0 | NR |
| 2. | 3-6m | 1.5 | 2.0 | NR |
| 3. | >6m | 2.5 | 1.0 | To be Provided |
- NR=Not Required
- FOR DETAILS OF CRASH BARRIER REFER DRG.No. NH/1/NH-1A/BAN-SR/CB/17
 - FOR DETAILS OF DRAIN REFER DRG.No. NH/1/NH-1A/BAN-SRI/DRN/502
 - FOR DETAILS OF CHUTES REFER DRG.No. NH/1/NH-1A/BAN-SRI/DRN/504



NATIONAL HIGHWAYS AUTHORITY OF INDIA	SCALE:- N.T.S	Detailed Design for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.298.00) of NH-1(A),(including Srinagar Bypass) in J & K State	TYPICAL CROSS-SECTION FOR 4 LANE CARRIAGEWAY IN RAISING (PAGE IV)	Srinagar 1. Prepared by 2. Checked by 3. Drawn by	GOOD FOR CONSTRUCTION Issued by Date	Revised Drawing No. 00 Date Description (Sheet 1)
					Drawing Number NH/1/NH-1A/BAN-SRI/TCS/4/A	

064
790

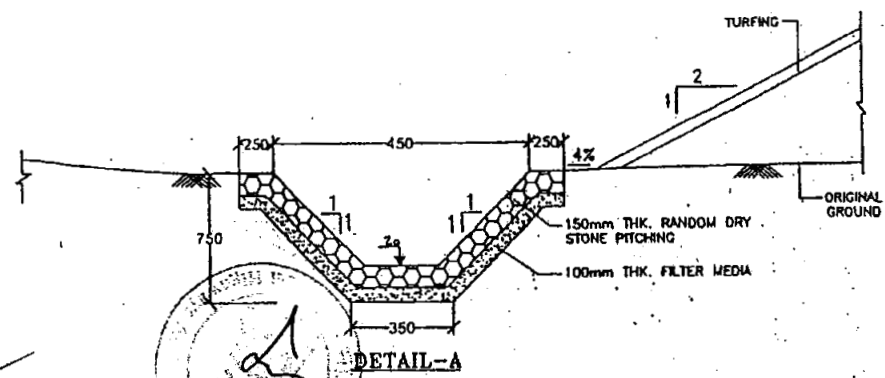


**TCS:-6A TYPICAL CROSS SECTION 4 LANE WITH SERVICE ROAD
(KM 188.950 TO KM 189.150)**

- Notes:-
- All Dimensions Are In meter Unless Otherwise Mentioned
 - Dimensions To Be Read & Not Scaled.
 - For details of Drainage Chutes refer drawing No. NHA/1A/BAN-SR/DNR/SD4/R0
 - For details of Existing Drain, Pitching etc. refer drawing No. NHA/1A/BAN-SR/DNR/SD1&SD4/R0
 - For Crash barrier details refer drawing No. NHA/1A/BAN-SR/CB1/R0
 - Paved Shoulder will be as per crust design for new road
 *PS=Paved shoulder
 *ES=Earthen shoulder
 *CBS=Crash barrier space
 - For details of crash barrier, width of shoulder and Drainage chutes refer following table

S.No	Embankment Height h(m)	Paved Shoulder PS(m)	Earthen Shoulder ES(m)	Drainage Chutes
1.	<3m	1.5	2.0	NR
2.	3-6m	1.5	2.0	NR
3.	> 6m	2.5	1.0	To be Provided

NR=Not Required



NATIONAL HIGHWAYS AUTHORITY OF INDIA

SCALE: 1: NTS

Feasibility Study and DPR for 4-Laning of Banihal to Srinagar Section (Km.188.00 to Km.296.00) of NH-1(A). (Including Srinagar Bypass) in J & K State

TYPICAL CROSS SECTION AT KM. 188+950 TO Km. 189.150 (PACKAGE No.IV)

Prepared by: [Signature]
 Checked by: [Signature]
 Approved by: [Signature]

NO	Date	Description
1	16.08.2007	GOOD FOR CONSTRUCTION

Revisions:

DRAWING NO: NHA/NE-1A/BAN-SRI/TCS/06A/1

665

SCHEDULE – C
(See Clause 2.1)

PROJECT FACILITIES

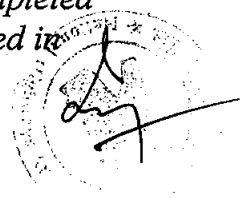
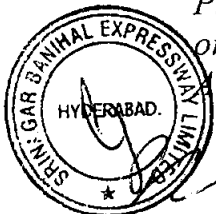
1 Project Facilities

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

- (a) Toll plazas;
- (b) Roadside furniture;
- (c) Street lighting;
- (d) Pedestrian facilities;
- (e) Landscaping and tree plantation;
- (f) Rest areas;
- (g) Truck lay-bys;
- (h) Bus-bays and bus shelters;
- (i) Cattle crossings;
- (j) Development of site for wayside amenities;
- (k) Traffic aid posts;
- (l) Medical aid posts;
- (m) Vehicle rescue posts;
- (n) Telecom system; and
- (o) Highway traffic management system.

2 Project Facilities for Four-Laning

Project Facilities forming part of Four-Laning and to be completed on or before the Project Completion Date have been described in Annex-I of this Schedule-C.



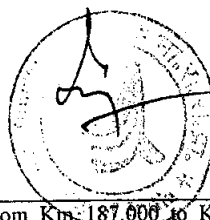
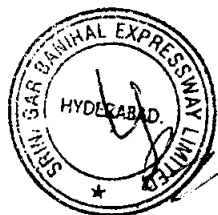
Annex - I
(Schedule-C)

Project Facilities for [Four-Laning]

1 Project Facilities

The Concessionaire shall construct the Project Facilities described in this Annex-I to form part of the Four-Lane Project Highway. The Project Facilities shall include:

- (a) Toll plazas;
- (b) Roadside furniture;
- (c) Pedestrian facilities;
- (d) Tree plantation;
- (e) Truck lay-bys;
- (f) Bus-bays and bus shelters; and
- (g) Others
 1. Highway Lighting
 2. Highway Patrol
 3. Ambulances
 4. Cranes
 5. A.T.M.S.
 6. Development of site for wayside amenities;
 7. Traffic aid posts;
 8. Medical aid posts;
 9. Vehicle rescue posts
 10. Telecom system
 11. Cattle Crossing.
 12. Project Laboratory.



2 Description of Project Facilities

Each of the Project Facilities is briefly described below:

(a) Toll Plazas

- 1.) At km. 260.000

Specifications and other requirements of the toll plaza's shall be strictly as per schedule "D"

(b) Road side Furniture

Road side furniture shall be provided in accordance with Manual of Specifications and Standards.

(c) Street Lighting:

Street lighting shall be provided in accordance with Manual of Specifications and Standards.

(d) Pedestrian Facilities

Pedestrian Facilities shall be provided in accordance with the Manual of Specifications and Standards.

(e) Landscaping and Tree Plantation

Landscaping and tree plantation shall be provided in accordance with the Manual of specifications and Standards.

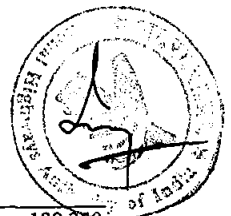
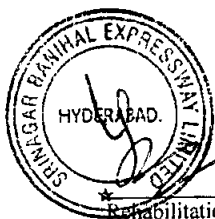
(f) Rest areas:

Rest areas shall be provided at each Toll Plaza. They shall include toilets and drinking water facilities.

(g) Truck Lay-byes

A truck lay-by is proposed to be constructed at the following locations. It shall be constructed in accordance with the Manual of Specifications and Standards.

S.No.	Location	Size(m)
1.	235.100	150 x 90
2.	190.600	100x 50



(h) Bus-byes and Bus Shelter

Bus-byes and Bus Shelter shall be provided at following locations:

<i>Sl.No</i>	<i>Location</i>
1.	189.250
2.	221.600
3.	224.549
4.	225.250
5.	226.750
6.	229.450
7.	233.200
8.	236.200
9.	238.900
10.	250.700
11.	252.350
12.	263.600
13.	263.950
14.	270.100
15.	270.350
16.	276.850
17.	277.300

(i) Vehicular Underpasses and Pedestrian/Cattle Underpasses:

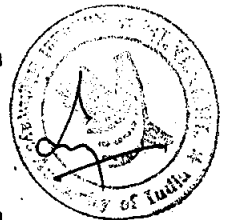
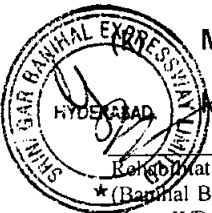
A vehicular underpass shall be provided as mentioned in Schedule B

(j) Traffic Aid Posts:

Traffic Aid Posts shall be provided at the Toll Plaza in accordance with Agreement.

Medical Aid Posts:

Medical aid posts shall be provided at the Toll Plaza in accordance with



Rehabilitation, Strengthening and Four laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350
 *(Banihal Bypass) and Km 220.700 to Km 286.110 of NH-1A in the State of Jammu & Kashmir(Package No NHDPP-Phase-II/BOT/I/J&K)

Agreement.

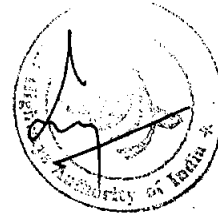
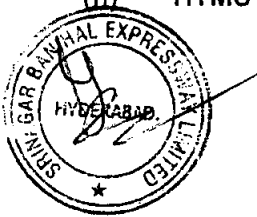
(l) **Vehicle rescue posts:**

Vehicle rescue posts shall be provided at the Toll Plaza in accordance with the Manual of Specifications and Standards.

(m) **Telecom system:**

Telecom posts shall be provided at the Toll Plazas for convenience of the users of the Project Highway.

(n) **HTMS**

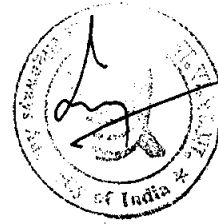
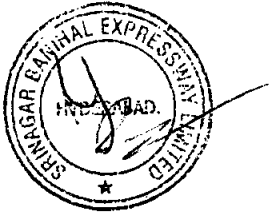


SCHEDULE - D
(See Clause 2.1)

SPECIFICATIONS AND STANDARDS

1. Four-Laning

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



Annex - I
(Schedule-D)

Specifications and Standards for Four-Laning

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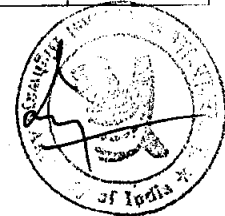
1. Manual of Specifications and Standards to apply

Subject to the provisions of Paragraph 2 of this Annex-I, Four-Laning of the Project Highway shall conform to the IRC-SP-84-2009, Manual of Specifications and Standards for Four Laning of Highways Through Public Private Partnership published by the IRC (An authenticated copy of the Manual has been provided to the Concessionaire as part of the bid documents).

2. Deviations from the Manual

Notwithstanding anything to the contrary contained in the aforesaid Manual, the following Specifications and Standards shall apply to the Four-Lane Project Highway, and for purposes of this Agreement, the aforesaid Manual shall be deemed to be amended to the extent set forth below:

Sl. No.	Item	Description	Clause No.
1	Entry and Exit point	Entry and exit ramps between the main highways and the service road may not be provided in order to minimize property impact	2.12.2.3
2	Width of service road	The width of proposed service road will be in accordance with the provision given in schedule B	2.12.2.1
3	Vehicular / Pedestrian underpass	The vehicular/ pedestrian /cattle underpasses provided are as per the details given in schedule 'B' of volume III of bid documents	2.13.2 & 2.13.3
4	Lateral /vertical clearance of underpass	The lateral and vertical clearance of proposed underpass is to be provided as per details given in schedule B	2.10.1 & 2.10.2
5	Width of paved shoulders in build up area and approaches to grade separator	Width of paved shoulders in build up area and approaches to grade separator will be 1.5m instead of 2 m	2.6.1
6	Typical cross sections	The proposal cross section has been given in schedule B which is to be followed.	2.16



073

SCHEDULE -E
(See Clause 4.1.3)

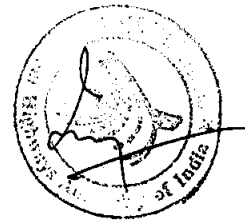
APPLICABLE PERMITS

1 Applicable Permits

1.1 The Concessionaire shall obtain, as required under the Applicable Laws, the following Applicable Permits on or before the Appointed Date, save and except to the extent of a waiver granted by the Authority in accordance with Clause 4.1.3 of the Agreement:

- (a) Permission of the State Government for extraction of boulders from quarry;
- (b) Permission of Village Panchayat 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 Asphalt Plant;
- (h) Permission of Village Panchayat and State Government for borrow earth;
- (i) Permission of State Government for cutting of trees; and
- (j) Any other permits or clearances required under Applicable Laws.

1.2 Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority as a Condition Precedent.



PERFORMANCE SECURITY

The Chairman,
National Highways Authority of India
New Delhi

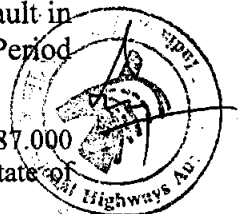
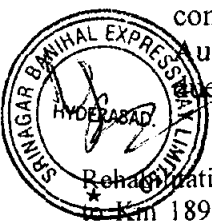
WHEREAS:

- (A) Srinagar Banihal Expressway Limited (the "Concessionaire") and the Chairman, National Highways Authority of India (the "Authority") have entered into a Concession Agreement dated 28th October, 2010 (the "Agreement") whereby the Authority has agreed to the Concessionaire undertaking Rehabilitation, Strengthening and Four-Laning of the Srinagar- Banihal section of National Highway No. 1A on Design build, Finance, operate and transfer on Annuity ("DBFOT Annuity") basis, subject to and in accordance with the provisions of the Agreement.
- (B) The Agreement requires the Concessionaire to furnish a Performance Security to the Authority in a sum of Rs.55.05 crores (Rupees Fifty Five crores and Five lakhs) (the "Guarantee Amount") as security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the Construction Period (as defined in the Agreement).
- (C) We, ***** through our Branch at ***** (the "Bank") have agreed to furnish this Bank 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 Concessionaire's obligations during the Construction 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 Concessionaire, such sum or sums upto an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an Officer not below the rank of General Manager in the National Highways Authority of India, that the Concessionaire has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Concessionaire is in default in due and faithful performance of its obligations during the Construction Period

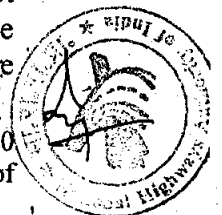
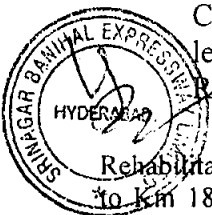
Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



under the Agreement and its decision that the Concessionaire is in default shall be final, and binding on the Bank, notwithstanding any differences between the Authority and the Concessionaire, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Concessionaire 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 Concessionaire 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 Concessionaire before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the Concessionaire 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 Concessionaire, 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 Concessionaire or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfilment, compliance and/or performance of all or any of the obligations of the Concessionaire 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, not later than 6 (six) months from the date of expiry of this Guarantee, all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Performance Security shall cease to be in force and effect when the Concessionaire shall have expended on Project construction an aggregate sum not less than 20% (twenty per cent) of the Total Project Cost which is deemed to be Rs. 220.20 cr. for the purposes of this Guarantee, and provided the Concessionaire

Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



is not in breach of this Agreement. Upon request made by the Concessionaire for release of the Performance Security alongwith the particulars required hereunder, duly certified by a statutory auditor of the Concessionaire, the Authority shall release the Performance Security forthwith.

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 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 a period of one year or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

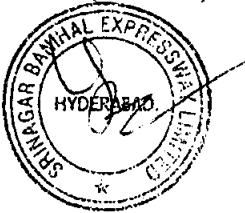
Signed and sealed this ** day of ***, 20** at ***.



SIGNED, SEALED AND DELIVERED

For and on behalf of
the BANK by:

(Signature)
(Name)
(Designation)
(Address)



Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

SCHEDULE -G
(See Clause 12.1)

PROJECT COMPLETION SCHEDULE

1 Project Completion Schedule

During Construction Period, the Concessionaire shall comply with the requirements set forth in this Schedule-G for each of the Project Milestones and the Scheduled Four-Laning Date (the "Project Completion Schedule"). Within 15 (fifteen) days of the date of each Project Milestone, the Concessionaire shall notify the Authority of such compliance alongwith necessary particulars thereof.

2 Project Milestone-I

2.1 Project Milestone-I shall occur on the date falling on the 180th (one hundred and eightieth) day from the Appointed Date (the "Project Milestone-I").

2.2 Prior to the occurrence of Project Milestone-I, the Concessionaire shall have commenced construction of the Project Highway and expended not less than 10% (ten per cent) of the total capital cost set forth in the Financial Package.

3 Project Milestone-II

3.1 Project Milestone-II shall occur on the date falling on the 450th (Four hundred and fiftieth) day from the Appointed Date (the "Project Milestone-II").

3.2 Prior to the occurrence of Project Milestone-II, the Concessionaire shall have commenced [construction of all bridges and expended not less than 35% (thirty five per cent)] of the total capital cost set forth in the Financial Package.

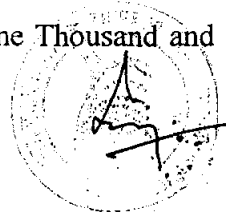
4 Project Milestone-III

4.1 Project Milestone-III shall occur on the date falling on the 750th (Seven hundred and fiftieth)] day from the Appointed Date (the "Project Milestone-III").

4.2 Prior to the occurrence of Project Milestone-III, the Concessionaire shall have commenced construction of all Project Facilities and expended not less than 70% (Seventy per cent) of the total capital cost set forth in the Financial Package.

5 Scheduled [Four-Laning] Date

5.1 The Scheduled Four-Laning Date shall occur on the 1095th (One Thousand and Ninety Fifth)day from the Appointed Date.

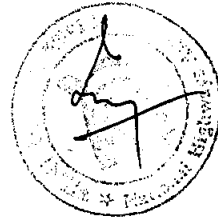
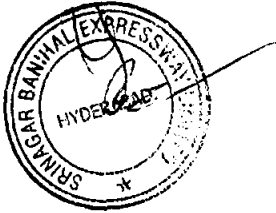


Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/II/J&K)

5.2 On or before the Scheduled Four-Laning Date, the Concessionaire shall have completed Four-Laning in accordance with this Agreement.

6 Extension of period

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



SCHEDULE -H
(See Clause 12.3)

079

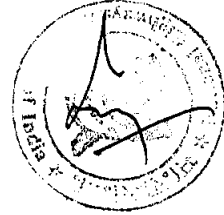
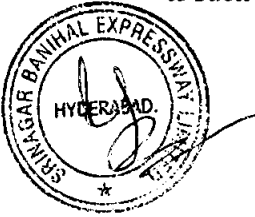
DRAWINGS

1 Drawings

In compliance of the obligations set forth in Clause 12.3 of this Agreement, the Concessionaire shall furnish to the Independent Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-H.

2 Additional drawings

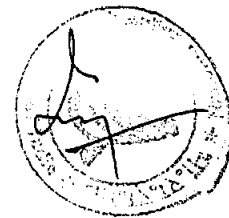
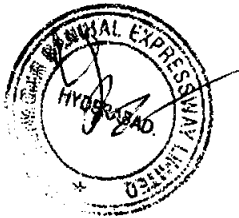
If the Independent Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Concessionaire to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect,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



List of Drawings

1. All the Drawings that the Concessionaire is required to furnish under Clause 12.3 Specifying the Drawings for Four-Laning are as under.

- Horizontal and Vertical Alignment with details of reference pillars, Horizontal Intersection Points, Vertical Intersection Points, elements of curves, and sight distances.
- Cross-section at 50m interval along the alignment within ROW
- Typical cross-section with details of pavement structures
- Detailed drawings of individual Bridges and Structures
- Detailed drawings for individual culverts
- Detailed layout drawings for intersections and interchanges
- Drawings for Road sign, Markings, Toll plaza, Bus bays, Parking areas, truck lay-bys.
- Detailed layout drawings for traffic circulation for service roads, for vehicular including cross-section drawings through vehicular and pedestrian underpasses at the project road level and the structure bed level
- Street lighting
- Landscaping & Tree plantation
- Traffic aid post
- Medical aid post
- Vehicle rescue post
- Traffic management drawings for safety in construction zones
- Detailed drawings of road side furniture and safety structures
- Any other drawings for completion of work and safety of fast & slow vehicles and pedestrians and cattle.



SCHEDULE -I
(See Clause 14.1.2)

TESTS

1 Schedule for Tests

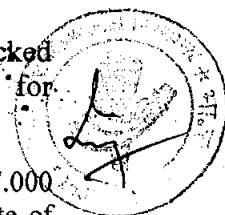
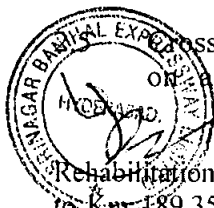
- 1.1 The Concessionaire shall, not later than 30 (thirty) days prior to the likely completion of Four-Laning, notify the Independent Engineer and the Authority of its intent to subject the Project Highway to Tests, and not later than 7 (seven) days prior to the actual date of Tests, furnish to the Independent Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Four-Laning.
- 1.2 The Concessionaire shall notify the Independent Engineer of its readiness to subject the Project Highway to Tests at any time after 7 (seven) days from the date of such notice, and upon receipt of such notice, the Independent Engineer shall, in consultation with the Concessionaire, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Independent Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 14 and this Schedule-I.

2 Tests

- 2.1 Visual and physical Test: The Independent Engineer shall conduct a visual and physical check of Four-Laning to determine that all works and equipment forming part thereof conform to the provisions of this Agreement.
- 2.2 Test drive: The Independent Engineer shall undertake a test drive of the Project Highway by a Car and by a fully loaded Truck to determine that the quality of service conforms to the provisions of the Agreement.
- 2.3 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 1,800 (one thousand and eight hundred) mm for each kilometre.
- 2.4 Pavement Composition Test: The thickness and composition of the pavement structure shall be checked on a sample basis by digging pits to determine conformity of such pavement structure with Specifications and Standards. The sample shall consist of one pit in each direction of travel to be chosen at random in each stretch of 5 (five) kilometres of the Project Highway. The first pit for the sample shall be selected by the Independent Engineer through an open draw of lots and every fifth kilometre from such first pit shall form part of the sample for this pavement quality Test.

2.5 Cross-section Test: The cross-sections of the Project Highway shall be checked on a sample basis through physical measurement of their dimensions for

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determining the conformity thereof with Specifications and Standards. For the road portion, the sample shall consist of one spot to be selected at random in each stretch of 1 (one) kilometre of the Project Highway. The first spot for the sample shall be selected by the Independent Engineer through an open draw of lots and the spots located at every one kilometre from such first spot shall form part of the sample. For the bridge portion, one spot shall be selected at random by the Independent Engineer in each span of the bridge.

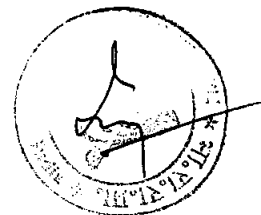
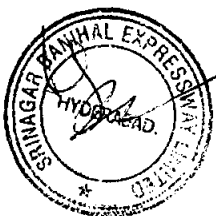
- 2.6 Structural Test for bridges: All major and minor bridges constructed by the Concessionaire shall be subjected to the Rebound Hammer and Ultrasonic Pulse Velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Nondestructive Testing Techniques, at two spots in every span, to be chosen at random by the Independent Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
- 2.7 Other Tests: The Independent Engineer may require the Concessionaire to carry out or cause to be carried additional Tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards.
- 2.8 Environmental audit: The Independent Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and Applicable Permits.
- 2.9 Safety review: Safety audit of the Project Highway shall have been undertaken by the Safety Consultant as set forth in Schedule-L, and on the basis of such audit, the Independent Engineer shall determine conformity of the Project Highway with the provisions of this Agreement.

3 Agency for conducting Tests

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

4 Completion/Provisional Certificate

Upon successful completion of Tests, the Independent Engineer shall issue the Completion Certificate or the Provisional Certificate, as the case may be, in accordance with the provisions of Article 14.



COMPLETION CERTIFICATE

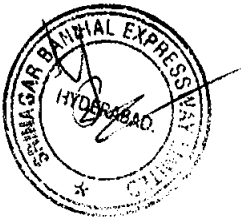
- 1 I, **** (Name of the Independent Engineer), acting as Independent Engineer, under and in accordance with the Concession Agreement dated 28th October, 2010 (the "Agreement"), for Four-Laning of the Srinagar - Banihal section (km 187.00 to km 189.350 (Banihal Bypass) and from km 220.700 to km 286.110) of National Highway No. 1A (the "Project Highway") on Design build, Finance operate and transfer on annuity (DBFOT Annuity) basis, through Srinagar Banihal Expressway Limited (Name of Concessionaire), hereby certify that the Tests specified in Article 14 and Schedule-I 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 commercial service of the Users thereof.
- 2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Four-Laning have been completed, and the Project Highway is hereby declared fit for entry into commercial operation on this the *** day of *** 20**.

SIGNED, SEALED AND DELIVERED

For and on behalf of

the INDEPENDENT ENGINEER by:

(Signature)
(Name)
(Designation)
(Address)



PROVISIONAL CERTIFICATE

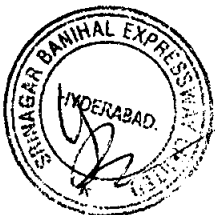
- 1 I, **** (Name of the Independent Engineer), acting as Independent Engineer, under and in accordance with the Concession Agreement dated 28th October, 2010 (the "Agreement"), for Four-Laning of the Srinagar – Banihal section (km 187.000 to km 189.350 (Banihal Bypass) and from km 220.700 to km 286.110) of National Highway No. 1A (the "Project Highway") on Design, build, Finance, operate and transfer on annuity (DBFOT Annuity) basis through Srinagar Banihal Expressway Limited (Name of Concessionaire), hereby certify that the Tests specified in Article 14 and Schedule-I of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.
- 2 Construction Works that were found to be incomplete and/or deficient have been specified in the Punch List appended hereto, and the Concessionaire has agreed and accepted that it shall complete and/or rectify all such works in the time and manner set forth in the Agreement. Some of the incomplete works have been delayed as a result of reasons attributable to the Authority or due to Force Majeure and the Provisional Certificate cannot be withheld on this account. Though the remaining incomplete works have been delayed as a result of reasons attributable to the Concessionaire, I am satisfied that having regard to the nature and extent of such incomplete works, it would not be prudent to withhold commercial operation of the Project Highway, pending completion thereof.
- 3 In view of the foregoing, I am satisfied that the Project Highway can be safely and reliably placed in commercial service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into commercial operation on this the *** day of *** 20**.

ACCEPTED, SIGNED, SEALED
AND DELIVERED
For and on behalf of
CONCESSIONAIRE by:

SIGNED, SEALED AND
DELIVERED
For and on behalf of
INDEPENDENT ENGINEER by:

(Signature)
(Name and Designation)
(Address)

(Signature)
(Name and Designation)
(Address)



Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

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SCHEDULE -K
(See Clause 17.2)

MAINTENANCE REQUIREMENTS

1 Maintenance Requirements

- 1.1 The Concessionaire shall, at all times, operate and maintain the Project Highway in accordance with the provisions of the Agreement, Applicable Laws and Applicable Permits. In particular, the Concessionaire shall, at all times during the Operation Period, conform to the maintenance requirements set forth in this Schedule-K (the "Maintenance Requirements").
- 1.2 The Concessionaire shall repair or rectify any defect or deficiency set forth in Paragraph 2 of this Schedule-K within the time limit specified therein and any failure in this behalf shall constitute a breach of the Agreement. Upon occurrence of any breach hereunder, the Authority shall be entitled to recover Damages as set forth in Clause 17.8 of the Agreement, without prejudice to the rights of the Authority under the Agreement, including Termination thereof.

2 Repair/rectification of defects and deficiencies

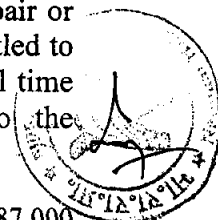
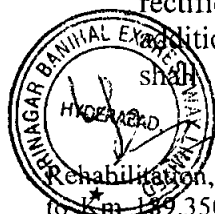
The obligations of the Concessionaire in respect of Maintenance Requirements shall include repair and rectification of the defects and deficiencies specified in Annex - I of this Schedule - K within the time limit set forth therein.

3 Other defects and deficiencies

- 3.1 In respect of any defect or deficiency not specified in Annex - I of this Schedule-K, the Concessionaire shall undertake repair or rectification in accordance with Good Industry Practice.
- 3.2 In respect of any defect or deficiency not specified in Annex - I of this Schedule-K, the Independent 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 Concessionaire within the time limit specified by the Independent Engineer.

4 Extension of time limit

Notwithstanding anything to the contrary specified in this Schedule-K, if the nature and extent of any defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Concessionaire shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Independent Engineer and conveyed to the



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Concessionaire and the Authority with reasons thereof.

5 Emergency repairs/restoration

Notwithstanding anything to the contrary contained in this Schedule-K, if any defect, deficiency or deterioration in the Project Highway poses danger to the life or property of the Users thereof, the Concessionaire shall promptly take all reasonable measures for eliminating or minimizing such danger.

6 Daily Inspection by the Concessionaire

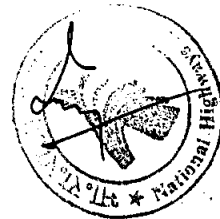
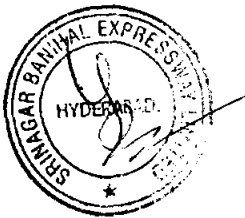
The Concessionaire shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Independent Engineer may specify. Such record shall be kept in safe custody of the Concessionaire and shall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

7 Divestment Requirements

All defects and deficiencies specified in this Schedule-K shall be repaired and rectified by the Concessionaire so that the Project Highway conforms to the Maintenance Requirements on the Transfer Date.

8 Display of Schedule - K

The Concessionaire shall display a copy of this Schedule - K at the Toll Plaza along with the Complaint Register stipulated in Article 46.



Repair/Rectification of Defects and Deficiencies

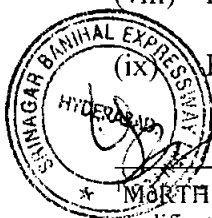
The Concessionaire shall repair and rectify the defects and deficiencies specified in this Annex-I of Schedule-K within the time limit set forth herein.¹

Nature of defect or deficiency	Time limit for repair/ rectification
--------------------------------	--------------------------------------

ROADS

(a) Carriageway and paved shoulders

- | | |
|--|--|
| (i) Breach or blockade | - Temporary restoration of traffic within 24 hours; permanent restoration within 15 days |
| (ii) Roughness value exceeding 2,500 mm in a stretch of 1 km (as measured by a standardised roughometer/bump integrator) | - 180 days |
| (iii) Pot holes | - 48 hours |
| (iv) Cracking in more than 5% of road surface in a stretch of 1 km | - 30 days |
| (v) Rutting exceeding 10 mm in more than 2% of road surface in a stretch of 1 km (measured with 3 m straight edge) | - 30 days |
| (vi) Bleeding/skidding | - 7 days |
| (vii) Ravelling/Stripping of bitumen surface exceeding 10 sq m | - 15 days |
| (viii) Damage to pavement edges exceeding 10 cm | - 15 days |
| (ix) Removal of debris | - 6 hours |



* MORTH may, in consultation with IRC, by order modify the values and periods specified herein, but such modification shall take effect only if it is included in the respective bidding documents.

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(b) Hard/earth shoulders, side slopes, drains and culverts

- (i) Variation by more than 2% in the prescribed slope of camber/cross fall - 30 days
- (ii) Edge drop at shoulders exceeding 40 mm - 7 days
- (iii) Variation by more than 15% in the prescribed side (embankment) slopes - 30 days
- (iv) Rain cuts/gullies in slope - 7 days
- (v) Damage to or silting of culverts and side drains during and immediately preceding the rainy season - 7 days
- (vi) Desilting of drains in urban/semi-urban areas - 48 hours

(c) Road side furniture including road signs and pavement marking

- Damage to shape or position; poor visibility or loss of retro-reflectivity - 48 hours

(d) Street lighting and telecom (ATMS)

- (i) Any major failure of the system - 24 hours
- (ii) Faults and minor failures - 8 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 hours
- (ii) Deterioration in health of trees and bushes - Timely watering and treatment
- (iii) Replacement of trees and bushes - 90 days
- (iv) Removal of vegetation affecting sight line and road structures - 15 days

Rest areas

- Cleaning of toilets - Every 4 hours



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(ii) Defects in electrical, water and sanitary installations - 24 hours

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(g) Toll plaza

(i) Failure of toll collection equipment or lighting - 8 hours

(ii) Damage to toll plaza - 7 days

(h) Other Project Facilities and Approach roads

(i) 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 - - 15 days

BRIDGES

(a) Superstructure of bridges

(i) Cracks
Temporary measures - within 48 hours
Permanent measures - within 45 days

(ii) Spalling/scaling - 15 days

(b) Foundations of bridges

(i) Scouring and/or cavitation - 15 days

(c) Piers, abutments, return walls and wing walls of bridges

(i) Cracks and damages including settlement and tilting - 30 days

(d) Bearings (metallic) of bridges

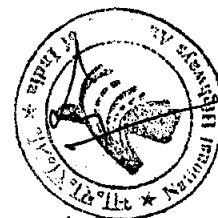
(i) Deformation - 15 days

(e) Joints in bridges

(i) Loosening and malfunctioning of joints - 15 days

(f) Other items relating to bridges

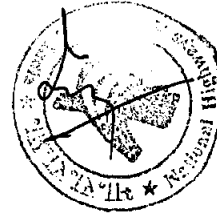
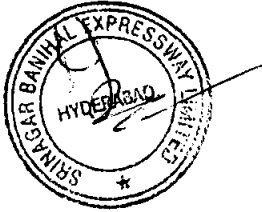
Deforming of pads in elastomeric bearings - 7 days



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- (ii) Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes - 3 days
- (iii) Damage or deterioration in parapets and handrails - 3 days
- (iv) Rain-cuts or erosion of banks of the side slopes of approaches - 15 days
- (v) Damage to wearing coat - 15 days
- (vi) Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds - 30 days
- (vii) Growth of vegetation affecting the structure or obstructing the waterway - 15 days

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Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND DELIVERED

For and on behalf of
CONCESSIONAIRE by:

(Signature)
(Name)
(Designation)
(Address)
(Fax No.)

SIGNED, SEALED AND DELIVERED

For and on behalf of
NATIONAL HIGHWAYS
AUTHORITY OF INDIA by:

(Signature)
(Name)
(Designation)
(Address)
(Fax No.)

SIGNED, SEALED AND DELIVERED

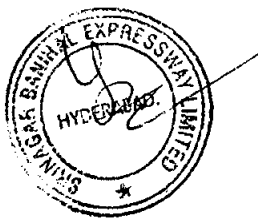
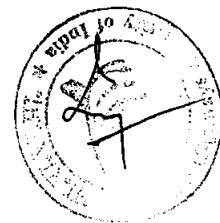
For and on behalf of
SENIOR LENDERS by the Lenders' Representative:

(Signature)
(Name)
(Designation)
(Address)
(Fax)

In the presence of:

1.

2.



Rehabilitation, Strengthening and Four Lining of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

Annex II
(Schedule K)

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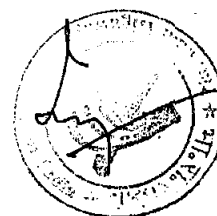
SERVICE LEVEL REQUIREMENTS – (FRAMEWORK ONLY)

The Concessionaire shall operate and maintain the highway in a manner that provides the Users Assured Lane Availability as specified in this Annex -II of Schedule -K within the time limit set forth herein.

1. Lane Availability

Item	Number of total lane sections – hrs available	Assured availability – minimum time for which lane sections are available to Users – 98% of total lane section – hrs available in an Annuity Payment Period
Assured Lane Availability	Lane section = Project Highway length (m) x number of lanes / 250 (m) Hours available = days in an Annuity Payment Period x 24	Lane section - hrs

Item	Service Level	Measurement/ Detection
Assured Availability	The availability of Carriageway assured by the Concessionaire for each Annuity Payment Period, computed as under: Assured Lane Availability = Number of lanes X Lane sections X 24 (hours) X Actual number of days in the relevant Annuity Payment Period X 98% (Lane sections = Length of lane / 250m)	Monthly Report / IE Monthly Inspection Report / IE Routine inspection



Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

SAFETY REQUIREMENTS

1 Guiding principles

- 1.1 Safety Requirements aim at reduction in injuries, loss of life and damage to property resulting from accidents on the Project Highway, irrespective of the person(s) at fault.
- 1.2 Users of the Project Highway include motorised and non-motorised vehicles as well as pedestrians and animals involved in, or associated with accidents. Vulnerable Road Users (VRU) include pedestrians as well as riders of motorised two-wheelers, bicycles and other vehicles which do not provide adequate occupant protection.
- 1.3 Safety Requirements apply to all phases of construction, operation and maintenance with emphasis on identification of factors associated with accidents, consideration of the same, and implementation of appropriate remedial measures.
- 1.4 Safety Requirements include measures associated with traffic management and regulation such as road signs, pavement marking, traffic control devices, roadside furniture, highway design elements, enforcement and emergency response.

2 Obligations of the Concessionaire

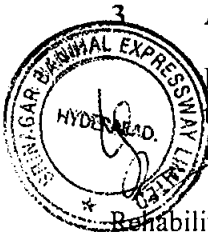
The Concessionaire shall abide by the following insofar as they relate to safety of the Users:

- (a) Applicable Laws and Applicable Permits;
- (b) Manual for Safety in Road Design, issued by MORTH;
- (c) relevant Standards/Guidelines of IRC relating to safety, road geometrics, bridges, culverts, road signs, pavement marking and roadside furniture;
- (d) provisions of this Agreement; and
- (e) Good Industry Practice.

3 Appointment of Safety Consultant

For carrying out safety audit of the Project Highway under and in accordance with this Schedule-L, the Authority shall appoint from time to time, one or more qualified firms or organisations as its consultants (the "Safety Consultant"). The

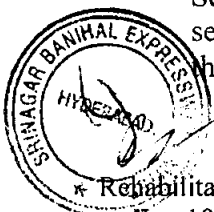
Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



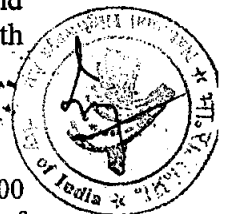
Safety Consultant shall employ a team comprising, without limitation, one road safety expert and one traffic planner to undertake safety audit of the Project Highway.

4 Safety measures during Development Period

- 4.1 Not later than 90 (ninety) days from the date of this Agreement, the Authority shall appoint a Safety Consultant for carrying out safety audit at the design stage of the Project. The Safety Consultant shall collect data on all fatal crashes and other road accidents which occurred on the Project Highway in the preceding two years by obtaining copies of the relevant First Information Reports (FIRs) from the police stations having jurisdiction. The information contained in such FIRs shall be summarised in the form prescribed by IRC/MORTH for this purpose and the data shall be analysed for the type of victims killed or injured, impacting vehicles, location of accidents and other relevant factors.
- 4.2 The Concessionaire shall provide to the Safety Consultant, in four copies, the relevant drawings containing the design details that have a bearing on safety of Users (the "Safety Drawings"). Such design details shall include horizontal and vertical alignments; sightlines; layouts of intersections; interchanges; road cross-section; bridges and culverts; side drains; provision for parked vehicles, slow moving vehicles (tractors, bullock carts, bicycles) and pedestrians; bus bays; truck lay-bys; and other incidental or consequential information. The Safety Consultant shall review the design details and forward three copies of the Safety Drawings with its recommendations, if any, to the Independent Engineer who shall record its comments, if any, and forward one copy each to the Authority and the Concessionaire.
- 4.3 The accident data and the design details shall be compiled, analysed and used by the Safety Consultant for evolving a package of recommendations consisting of safety related measures for the Project Highway. The safety audit shall be completed in a period of three months and a report thereof (the "Safety Report") shall be submitted to the Authority, in five copies. One copy each of the Safety Report shall be forwarded by the Authority to the Concessionaire and the Independent Engineer forthwith.
- 4.4 The Concessionaire shall endeavour to incorporate the recommendations of the Safety Report in the design of the Project Highway, as may reasonably be required in accordance with Applicable Laws, Applicable Permits, Manuals and Guidelines of MORTH and IRC, Specifications and Standards, and Good Industry Practice. If the Concessionaire does not agree with any or all of such recommendations, it shall state the reasons thereof and convey them to the Authority forthwith. In the event that any or all of the works and services recommended in the Safety Report fall beyond the scope of Schedule-B, Schedule-C or Schedule-D, the Concessionaire shall make a report thereon and seek the instructions of the Authority for funding such works in accordance with the provisions of Article 18.



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- 4.5 Without prejudice to the provisions of Paragraph 4.4, the Concessionaire and the Independent Engineer shall, within 15 (fifteen) days of receiving the Safety Report, send their respective comments thereon to the Authority, and not later than 15 (fifteen) days of receiving such comments, the Authority shall review the same alongwith the Safety Report and by notice direct the Concessionaire to carry out any or all of the recommendations contained therein with such modifications as the Authority may specify; provided that any works or services required to be undertaken hereunder shall be governed by the provisions of Article 18.

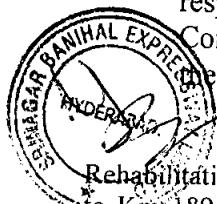
5 Safety measures during Construction Period

- 5.1 A Safety Consultant shall be appointed by the Authority, not later than 4 (four) months prior to the expected Project Completion Date, for carrying out a safety audit of the completed Construction Works.
- 5.2 The Safety Consultant shall collect and analyse the accident data for the preceding two years in the manner specified in Paragraph 4.1 of this Schedule-L. It shall study the Safety Report for the Development Period and inspect the Project Highway to assess the adequacy of safety measures. The Safety Consultant shall complete the safety audit within a period of 4 (four) months and submit a Safety Report recommending a package of additional road safety measures, if any, that are considered essential for reducing accident hazards on the Project Highway. Such recommendations shall be processed, *mutatis mutandis*, and acted upon in the manner set forth in Paragraphs 4.3, 4.4 and 4.5 of this Schedule-L.
- 5.3 The Concessionaire shall make adequate arrangements during the Construction Period for the safety of workers and road Users in accordance with the guidelines of IRC for safety in construction zones, and notify the Authority and the Independent Engineer about such arrangements.

6 Safety measures during Operation Period

- 6.1 The Concessionaire shall develop, implement and administer a surveillance and safety programme for Users, including correction of safety violations and deficiencies and all other actions necessary to provide a safe environment in accordance with this Agreement.
- 6.2 The Concessionaire shall establish a Highway Safety Management Unit (the "HSMU") to be functional on and after COD, and designate one of its officers to be in-charge of the HSMU. Such officer shall have specialist knowledge and training in road safety and traffic engineering by having attended a course conducted by a reputed organisation on the subject.
- 6.3 The Concessionaire shall keep a copy of every FIR recorded by the Police with respect to any accident occurring on the Project Highway. In addition, the Concessionaire shall also collect data for all cases of accidents not recorded by the Police but where a vehicle rolled over or had to be towed away. The

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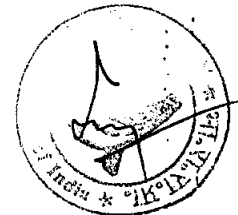
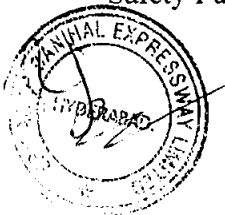


information so collected shall be summarised in the form prescribed by IRC/MORTH for this purpose. The Concessionaire shall also record the exact location of each accident on a road map. The aforesaid data shall be submitted to the Authority at the conclusion of every quarter and to the Safety Consultant as and when appointed.

- 6.4 The Concessionaire shall submit to the Authority before the 31st (thirty first) May of each year, an annual report (in ten copies) containing, without limitation, a detailed listing and analysis of all accidents of the preceding Accounting Year and the measures taken by the Concessionaire pursuant to the provisions of Paragraph 6.1 of this Schedule-L for averting or minimising such accidents in future.
- 6.5 Once in every Accounting Year, a safety audit shall be carried out by the Safety Consultant to be appointed by the Authority. It shall review and analyse the annual report and accident data of the preceding year, and undertake an inspection of the Project Highway. The Safety Consultant shall complete the safety audit within a period of 1 (one) month and submit a Safety Report recommending specific improvements, if any, required to be made to the road, bridges, culverts, markings, signs, road furniture and Project Facilities, including cattle crossings and pedestrian crossings. Such recommendations shall be processed, *mutatis mutandis*, and acted upon in the manner set forth in Paragraphs 4.3, 4.4 and 4.5 of this Schedule-L.

7 Costs and expenses

Costs and expenses incurred in connection with the Safety Requirements set forth herein, including the provisions of Paragraph 2 of this Schedule, shall be met in accordance with Article 18, and in particular, the remuneration of the Safety Consultant, safety audit, and costs incidental thereto, shall be met out of the Safety Fund.



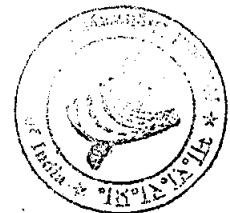
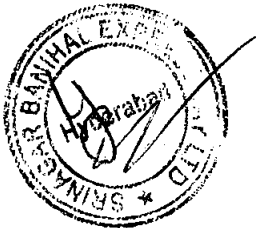
SCHEDULE –M
(See Clause 27.1.1)

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ANNUITY PAYMENT SCHEDULE

S.No.	Annuity Payment Date	Annuity Amount (Rs. Crore)
1.	Oct 24, 2014	134.82
2.	April 24, 2015	134.82
3.	Oct 24, 2015	134.82
4.	April 24, 2016	134.82
5.	Oct 24, 2016	134.82
6.	April 24, 2017	134.82
7.	Oct 24, 2017	134.82
8.	April 24, 2018	134.82
9.	Oct 24, 2018	134.82
10.	April 24, 2019	134.82
11.	Oct 24, 2019	134.82
12.	April 24, 2020	134.82
13.	Oct 24, 2020	134.82
14.	April 24, 2021	134.82
15.	Oct 24, 2021	134.82
16.	April 24, 2022	134.82
17.	Oct 24, 2022	134.82
18.	April 24, 2023	134.82
19.	Oct 24, 2023	134.82
20.	April 24, 2024	134.82
21.	Oct 24, 2024	134.82
22.	April 24, 2025	134.82
23.	Oct 24, 2025	134.82
24.	April 24, 2026	134.82
25.	Oct 24, 2026	134.82
26.	April 24, 2027	134.82
27.	Oct 24, 2027	134.82
28.	April 24, 2028	134.82
29.	Oct 24, 2028	134.82
30.	April 24, 2029	134.82
31.	Oct 24, 2029	134.82
32.	April 24, 2030	134.82
33.	Oct 24, 2030	134.82
34.	April 24, 2031	134.82

Note: Based on the Bid submitted by the Bidder / Concessionaire

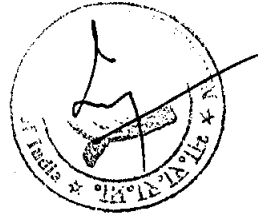
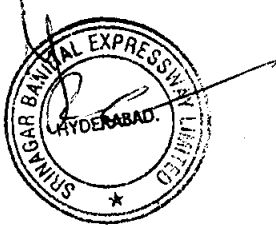


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SCHEDULE -N
WEEKLY TRAFFIC CENSUS

K-99

Deleted



Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

TRAFFIC SAMPLING

1 Traffic sampling

The Authority may, in its discretion and at its own cost, undertake traffic sampling, pursuant to Clause 22.3, in order to determine the actual traffic on the Project Highway. Such traffic sampling shall be undertaken through the Independent Engineer in the manner set forth below.

2 Manual traffic count

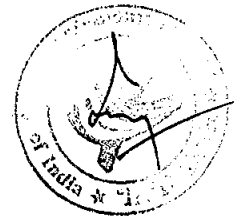
The Independent Engineer shall employ the required number of enumerators who shall count, classify and record all the vehicles as they pass by, and divide the survey into fixed time periods. The count stations shall be located near the Toll Plazas on a straight section of the road with good visibility. The survey shall be conducted continuously for a minimum of 24 (twenty four) hours and maximum of 7 (seven) days at a time. The count period shall be 15 (fifteen) minutes with results summarised hourly.

3 Automatic traffic count

For automatic traffic count to be conducted on intermittent (non-continuous) basis, the Independent Engineer shall use suitable and standardised equipment to classify and record the range of vehicles passing through the Toll Plazas. For this purpose, the counter shall be checked with at least 100 (one hundred) vehicles, including all major vehicle types, over a range of speeds to ensure that all vehicles are being counted and classified correctly.

4 Variation between manual and automatic count

Average Daily Traffic (ADT) for each type of vehicle shall be determined separately by the aforesaid two methods and in the event that the number of vehicles in any category, as counted by the manual method, varies by more than 1% (one per cent) of the number of such vehicles as counted by the automatic method, the manual and automatic count of such category of vehicles shall be repeated, and in the event of any discrepancy between the two counts in the second enumeration, the average thereof shall be deemed to be the actual traffic. For the avoidance of doubt, it is expressly agreed that the Authority may, in consultation with the Concessionaire, adopt modified or alternative processes of traffic sampling for improving the reliability of such sampling.



SELECTION OF INDEPENDENT ENGINEER

1 Selection of Independent Engineer

- 1.1 The provisions of Part II of the Standard Bidding Documents for Consultancy Assignments: Time Based (Volume V) issued by the Ministry of Finance, GOI in July, 1997 shall apply, mutatis mutandis, for invitation of bids and evaluation thereof save as otherwise provided herein.
- 1.2 The Authority shall invite expressions of interest from consulting engineering firms or bodies corporate to undertake and perform the duties and functions set forth in Schedule-Q and thereupon shortlist 10 (ten) qualified firms in accordance with pre-determined criteria. The Authority shall convey the aforesaid list of firms to the Concessionaire for scrutiny and comments, if any. The Concessionaire shall be entitled to scrutinise the relevant records of the Authority to ascertain whether the selection of firms has been undertaken in accordance with the prescribed procedure and it shall send its comments, if any, to the Authority within 15 (fifteen) days of receiving the aforesaid list of firms. Upon receipt of such comments, if any, the Authority shall, after considering all relevant factors, finalise and constitute a panel of 10 (ten) firms (the "Panel of Firms") and convey its decision to the Concessionaire.
- 1.3 The Authority shall invite the aforesaid firms in the Panel of Firms to submit their respective technical and financial offers, each in a separate sealed cover. All the technical bids so received shall be opened and pursuant to the evaluation thereof, the Authority shall shortlist 3 (three) eligible firms on the basis of their technical scores. The financial bids in respect of such 3 (three) firms shall be opened and the order of priority as among these firms shall be determined on the basis of a weighted evaluation where technical and financial scores shall be assigned respective weights of 80:20.

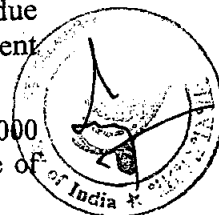
2 Fee and expenses

- 2.1 In determining the nature and quantum of duties and services to be performed by the Independent Engineer during the Development Period and Construction Period, the Authority shall endeavour that payments to the Independent Engineer on account of fee and expenses do not exceed 2% (two per cent) of the Total Project Cost. Payments not exceeding such 2% (two per cent) shall be borne equally by the Authority and the Concessionaire in accordance with the provisions of this Agreement and any payments in excess thereof shall be borne entirely by the Authority.

The nature and quantum of duties and services to be performed by the Independent Engineer during the Operation Period shall be determined by the Authority in conformity with the provisions of this Agreement and with due regard for economy in expenditure. All payments made to the Independent



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Engineer on account of fee and expenses during the Operation Period shall be borne equally by the Authority and the Concessionaire.

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3 Constitution of fresh panel

Not later than forty two months from the date of this Agreement, and every three years thereafter, the Authority shall prepare a fresh panel of firms in accordance with the criteria set forth in this Schedule-P; provided that the Authority may, at any time, prepare a fresh panel with prior written consent of the Concessionaire.

4 Appointment of government entity as Independent Engineer

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



SCHEDULE Q

(See Clause 23.2.1)

TERMS OF REFERENCE FOR INDEPENDENT ENGINEER**1 Scope**

- 1.1 These Terms of Reference for the Independent Engineer (the "TOR") are being specified pursuant to the Concession Agreement dated 28th October, 2010 (the "Agreement"), which has been entered into between the Authority and Srinagar Banihal Expressway Limited (the "Concessionaire") for Four-Laning of the Srinagar - Banihal section (km 187.000 to 189.350 (Banihal Bypass) and from km 220.700 to km 286.110) of National Highway No. 1A in the State of Jammu & Kashmir on Design build, Finance, operate and transfer on Annuity (DBFOT Annuity) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.
- 1.2 This TOR shall apply to construction, operation and maintenance of the Four-Lane Project Highway.

2 Definitions and interpretation

- 2.1 The words and expressions beginning with or in capital letters used in this TOR and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.
- 2.2 References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.
- 2.3 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Agreement shall apply, *mutatis mutandis*, to this TOR.

3 Role and functions of the Independent Engineer

- 3.1 The role and functions of the Independent Engineer shall include the following:
- (i) review of the Drawings and Documents as set forth in Paragraph 4;
 - (ii) review, inspection and monitoring of Construction Works as set forth in Paragraph 5;
 - (iii) conducting Tests on completion of construction and issuing Completion/ Provisional Certificate as set forth in Paragraph 5;
 - (iv) review, inspection and monitoring of O&M as set forth in Paragraph 6;
review, inspection and monitoring of Divestment Requirements as



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forth in Paragraph 7;

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- (vi) determining, as required under the Agreement, the costs of any works or services and/or their reasonableness;
- (vii) determining, as required under the Agreement, the period or any extension thereof, for performing any duty or obligation;
- (viii) assisting the Parties in resolution of disputes as set forth in Paragraph 9; and
- (ix) undertaking all other duties and functions in accordance with the Agreement.

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

4 Development Period

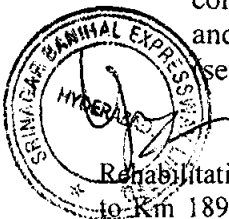
4.1 During the Development Period, the Independent Engineer shall undertake a detailed review of the Drawings to be furnished by the Concessionaire along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys and traffic surveys. The Independent Engineer shall complete such review and send its comments/observations to the Authority and the Concessionaire within 15 (fifteen) days of receipt of such Drawings. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

4.2 The Independent Engineer shall review any modified Drawings or supporting Documents sent to it by the Concessionaire and furnish its comments within 7 (seven) days of receiving such Drawings or Documents.

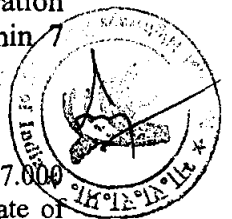
4.3 The Independent Engineer shall review the Drawings sent to it by the Safety Consultant in accordance with Schedule-L and furnish its comments thereon to the Authority and the Concessionaire within 7 (seven) days of receiving such Drawings. The Independent Engineer shall also review the Safety Report and furnish its comments thereon to the Authority within 15 (fifteen) days of receiving such report.

4.4 The Independent Engineer shall review the detailed design, construction methodology, quality assurance procedures and the procurement, engineering and construction time schedule sent to it by the Concessionaire and furnish its comments within 15 (fifteen) days of receipt thereof.

4.5 Upon reference by the Authority, the Independent Engineer shall review and comment on the EPC Contract or any other contract for construction, operation and maintenance of the Project Highway, and furnish its comments within (seven) days from receipt of such reference from the Authority.



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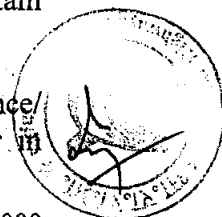
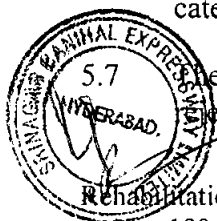
5 Construction Period

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- 5.1 In respect of the Drawings, Documents and Safety Report received by the Independent Engineer for its review and comments during the Construction Period, the provisions of Paragraph 4 shall apply, mutatis mutandis.
- 5.2 The Independent Engineer shall review the monthly progress report furnished by the Concessionaire and send its comments thereon to the Authority and the Concessionaire within 7 (seven) days of receipt of such report.
- 5.3 The Independent Engineer shall inspect the Construction Works and the Project Highway once every month, preferably after receipt of the monthly progress report from the Concessionaire, but before the 20th (twentieth) day of each month in any case, and make out a report of such inspection (the "**Inspection Report**") setting forth an overview of the status, progress, quality and safety of construction, including the work methodology adopted, the materials used and their sources, and conformity of Construction Works with the Scope of the Project and the Specifications and Standards. In a separate section of the Inspection Report, the Independent Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in the construction of the Project Highway. The Inspection Report shall also contain a review of the maintenance of the existing lanes in conformity with the provisions of the Agreement. The Independent Engineer shall send a copy of its Inspection Report to the Authority and the Concessionaire within 7 (seven) days of the inspection.
- 5.4 The Independent Engineer may inspect the Project Highway more than once in a month if any lapses, defects or deficiencies require such inspections.
- 5.5 For determining that the Construction Works conform to Specifications and Standards, the Independent Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests on a sample basis, to be specified by the Independent Engineer in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 5.5, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "**Quality Control Manuals**") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance. The Independent Engineer shall issue necessary directions to the Concessionaire for ensuring that the tests are conducted in a fair and efficient manner, and shall monitor and review the results thereof.
- 5.6 The sample size of the tests, to be specified by the Independent Engineer under Paragraph 5.5, shall comprise 10% (ten per cent) of the quantity or number of tests prescribed for each category or type of tests in the Quality Control Manuals; provided that the Independent Engineer may, for reasons to be recorded in writing, increase the aforesaid sample size by up to 10% (ten per cent) for certain categories or types of tests.

5.7 The timing of tests referred to in Paragraph 5.5, and the criteria for acceptance/rejection of their results shall be determined by the Independent Engineer in

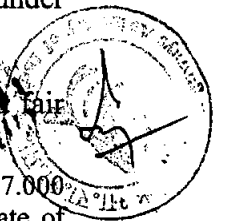
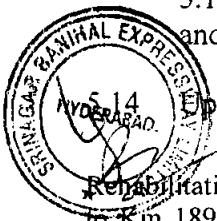
Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Concessionaire for its own quality assurance in accordance with Good Industry Practice.

- 5.8 In the event that the Concessionaire carries out any remedial works for removal or rectification of any defects or deficiencies, the Independent Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests to determine that such remedial works have brought the Construction Works into conformity with the Specifications and Standards, and the provisions of this Paragraph 5 shall apply to such tests.
- 5.9 In the event that the Concessionaire fails to achieve any of the Project Milestones, the Independent Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Independent Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Concessionaire 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 Concessionaire, the Independent Engineer shall review the same and send its comments to the Authority and the Concessionaire forthwith.
- 5.10 If at any time during the Construction Period, the Independent Engineer determines that the Concessionaire has not made adequate arrangements for the safety of workers and Users in the zone of construction or that any work is being carried out in a manner that threatens the safety of the workers and the Users, it shall make a recommendation to the Authority forthwith, identifying the whole or part of the Construction Works that should be suspended for ensuring safety in respect thereof.
- 5.11 In the event that the Concessionaire carries out any remedial measures to secure the safety of suspended works and Users, it may, by notice in writing, require the Independent Engineer to inspect such works, and within 3 (three) days of receiving such notice, the Independent Engineer shall inspect the suspended works and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.
- 5.12 If suspension of Construction Works is for reasons not attributable to the Concessionaire, the Independent Engineer shall determine the extension of dates set forth in the Project Completion Schedule, to which the Concessionaire is reasonably entitled, and shall notify the Authority and the Concessionaire of the same.
- 5.13 The Independent Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-I and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 5.13 and all matters incidental thereto, the Independent Engineer shall act under and in accordance with the provisions of Article 14 and Schedule-I.

Upon reference from the Authority, the Independent Engineer shall make a Joint Rehabilitation, Strengthening and Four Lining of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



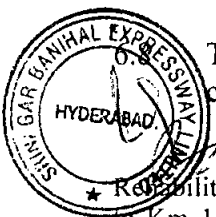
and reasonable assessment of the costs of providing information, works and services as set forth in Article 16 and certify the reasonableness of such costs for payment by the Authority to the Concessionaire.

- 5.15 The Independent Engineer shall aid and advise the Concessionaire in preparing the Maintenance Manual.

6 Operation Period

- 6.1 In respect of the Drawings, Documents and Safety Report received by the Independent Engineer for its review and comments during the Operation Period, the provisions of Paragraph 4 shall apply, mutatis mutandis.
- 6.2 The Independent Engineer shall review the annual Maintenance Programme furnished by the Concessionaire and send its comments thereon to the Authority and the Concessionaire within 15 (fifteen) days of receipt of the Maintenance Programme.
- 6.3 The Independent Engineer shall review the monthly status report furnished by the Concessionaire and send its comments thereon to the Authority and the Concessionaire within 7 (seven) days of receipt of such report.
- 6.4 The Independent Engineer shall inspect the Project Highway once every month, preferably after receipt of the monthly status report from the Concessionaire, but before the 20th (twentieth) day of each month in any case, and make out an O&M Inspection Report setting forth an overview of the status, quality and safety of O&M including its conformity with the Maintenance Requirements and Safety Requirements. In a separate section of the O&M Inspection Report, the Independent Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in O&M of the Project Highway. The Independent Engineer shall send a copy of its O&M Inspection Report to the Authority and the Concessionaire within 7 (seven) days of the inspection.
- 6.5 The Independent Engineer may inspect the Project Highway more than once in a month, if any lapses, defects or deficiencies require such inspections.
- 6.6 The Independent Engineer shall in its O&M Inspection Report specify the tests, if any, that the Concessionaire 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 Concessionaire in this behalf.
- 6.7 In respect of any defect or deficiency referred to in Paragraph 3 of Schedule-K, the Independent 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 Independent Engineer shall determine if any delay has occurred in completion of repair or remedial works in accordance with the Agreement, and



and certify the reasonableness of such costs for payment by the Authority to the Concessionaire. The Independent Engineer shall determine if any delay has occurred in completion of repair or remedial works in accordance with the Agreement, and

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shall also determine the Damages, if any, payable by the Concessionaire to the Authority for such delay.

- 6.9 The Independent Engineer shall examine the request of the Concessionaire for closure of any lane(s) of the carriageway for undertaking maintenance/repair thereof, keeping in view the need to minimise disruption in traffic and the time required for completing such maintenance/repair in accordance with Good Industry Practice. It shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Concessionaire. Upon expiry of the permitted period of closure, the Independent Engineer shall monitor the re-opening of such lane(s), and in case of delay, determine the Damages payable by the Concessionaire to the Authority under Clause 17.7.
- 6.10 The Independent Engineer shall monitor and review the curing of defects and deficiencies by the Concessionaire as set forth in Clause 19.4.
- 6.11 In the event that the Concessionaire notifies the Independent Engineer of any modifications that it proposes to make to the Project Highway, the Independent Engineer shall review the same and send its comments to the Authority and the Concessionaire within 15 (fifteen) days of receiving the proposal.
- 6.12 The Independent Engineer shall undertake traffic sampling, as and when required by the Authority, under and in accordance with Article 22 and Schedule-O.
- 6.13 As per the provisions of the Concession Agreement the Independent Engineer shall verify the invoices for Annuity payment submitted by the Concessionaire and duly adjust the same for any bonus or reduction in Annuity in accordance with Article 28 of the Concession Agreement along with the necessary documentation in this regard. The Independent Engineer shall after verification and certification of the amount claimed in the invoice alongwith adjustments, forward the invoice to Authority with necessary documentation recommending payment in full or part thereof so as to reach Authority atleast 15 days prior to the relevant Annuity Payment Date.

7 Termination

- 7.1 At any time, not earlier than 90 (ninety) days prior to Termination but not later than 10 (ten) days prior to such Termination, the Independent Engineer shall, in the presence of a representative of the Concessionaire, inspect the Project Highway for determining compliance by the Concessionaire with the Divestment Requirements set forth in Clause 38.1 and, if required, cause tests to be carried out at the Concessionaire's cost for determining such compliance. If the Independent Engineer determines that the status of the Project Highway is such that its repair and rectification would require a larger amount than the sum set forth in Clause 39.2, it shall recommend retention of the required amount in the Escrow Account and the period of retention thereof.

7.2 The Independent Engineer shall inspect the Project Highway once in every 15(fifteen) days during a period of 90 (ninety) days after Termination for determining the liability of the Concessionaire under Article 39, in respect of the defects or deficiencies specified therein. If any such defect or deficiency is found

Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.006 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

by the Independent Engineer, it shall make a report in reasonable detail and send it forthwith to the Authority and the Concessionaire.

8 Determination of costs and time

- 8.1 The Independent Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- 8.2 The Independent Engineer shall determine the period, or any extension thereof, that is required to be determined by it under the Agreement.

9 Assistance in Dispute resolution

- 9.1 When called upon by either Party in the event of any Dispute, the Independent Engineer shall mediate and assist the Parties in arriving at an amicable settlement.
- 9.2 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 Independent Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

10 Other duties and functions

The Independent Engineer shall perform all other duties and functions specified in the Agreement.

11 Miscellaneous

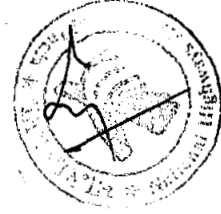
- 11.1 The Independent Engineer shall notify its programme of inspection to the Authority and to the Concessionaire, who may, in their discretion, depute their respective representatives to be present during the inspection.
- 11.2 A copy of all communications, comments, instructions, Drawings or Documents sent by the Independent Engineer to the Concessionaire pursuant to this TOR, and a copy of all the test results with comments of the Independent Engineer thereon shall be furnished by the Independent Engineer to the Authority forthwith.
- 11.3 The Independent Engineer shall obtain, and the Concessionaire shall furnish in two copies thereof, all communications and reports required to be submitted, under this Agreement, by the Concessionaire to the Independent Engineer, whereupon the Independent Engineer shall send one of the copies to the Authority along with its comments thereon.
- 11.4 The Independent 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.

11.5 Upon completion of its assignment hereunder, the Independent Engineer shall classify and list all Drawings, Documents, results of tests and other relevant records, and hand them over to the Authority or such other person as the

Authority may direct. This TOR is for the Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.100 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



Authority may specify, and obtain written receipt thereof. Two copies of the said documents shall also be furnished in micro film form or in such other medium as may be acceptable to the Authority.

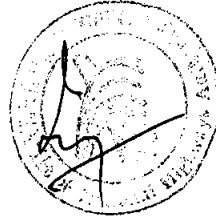
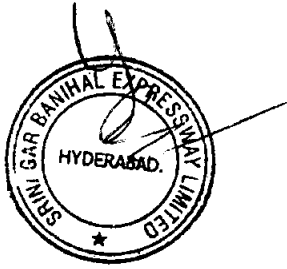


Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

SCHEDULE -R

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Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

ESCROW AGREEMENT

THIS ESCROW AGREEMENT is entered into on this the *** day of *** 20**.

AMONGST

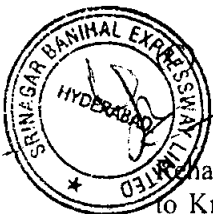
- 1 Srinagar Banihal Expressway Limited, a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at 6-3-1089/G/10&11, Gulmohar Avenue, Rajbhavan road, Somajiguda, Hyderabad-500082 India (hereinafter referred to as the "**Concessionaire**" which expression shall, unless repugnant to the context or meaning thereof, include its successors, permitted assigns and substitutes);
- 2 ****name and particulars of Lenders' Representative and having its registered office at *** acting for and on behalf of the Senior Lenders as their duly authorised agent with regard to matters arising out of or in relation to this Agreement (hereinafter referred to as the "**Lenders' Representative**" which expression shall, unless repugnant to the context or meaning thereof, include its successors and substitutes);
- 3 ****name and particulars of the Escrow Bank and having its registered office at ****(hereinafter referred to as the "**Escrow Bank**" which expression shall, unless repugnant to the context or meaning thereof, include its successors and substitutes); and
- 4 The National Highways Authority of India, established under the National Highways Authority of India Act 1988, represented by its Chairman and having its principal offices at G-5 & 6, Sector 10, Dwarka, New Delhi-110075 (hereinafter referred to as the "**Authority**" which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns).

WHEREAS:

- (A) The Authority has entered into a Concession Agreement dated 28th October, 2010 with the Concessionaire (the "**Concession Agreement**") for Four-Laning of the Srinagar - Banihal Section (km 187.000 to 189.350 (Banihal Bypass) and from km 220.700 to km 286.110 of National Highway No. 1A in the State of Jammu and Kashmir on Design, build, Finance, operate and transfer on annuity (DBFOT Annuity) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this Agreement
- (B) Senior Lenders have agreed to finance the Project in accordance with the terms and conditions set forth in the Financing Agreements.

The Concession Agreement requires the Concessionaire to establish an Escrow Account, inter alia, on the terms and conditions stated therein.

rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



NOW IT IS HEREBY AGREED as follows:

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1 DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

“**Agreement**” means this Escrow Agreement and any amendment thereto made in accordance with the provisions contained herein;

“**Concession Agreement**” means the Concession Agreement referred to in Recital (A) above and annexed hereto as Annex-A, and shall include all of its Recitals and Schedules and any amendments made thereto in accordance with the provisions contained in this behalf therein;

“**Cure Period**” means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Concessionaire, and shall commence from the date on which a notice is delivered by the Authority or the Lenders’ Representative, as the case may be, to the Concessionaire asking the latter to cure the breach or default specified in such notice;

“**Escrow Account**” means an escrow account established in terms of and under this Agreement, and shall include the Sub-Accounts;

“**Escrow Default**” shall have the meaning ascribed thereto in Clause 6.1;

“**Lenders’ Representative**” means the person referred to as the Lenders’ Representative in the foregoing Recitals;

“**Parties**” means the parties to this Agreement collectively and “**Party**” shall mean any of the Parties to this Agreement individually;

“**Payment Date**” means, in relation to any payment specified in Clause 4.1, the date(s) specified for such payment; and

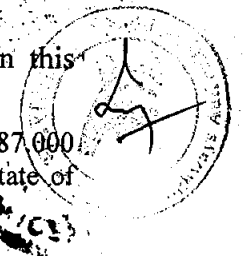
“**Sub-Accounts**” means the respective Sub-Accounts of the Escrow Account, into which the monies specified in Clause 4.1 would be credited every month and paid out if due, and if not due in a month then appropriated proportionately in such month and retained in the respective Sub Accounts and paid out therefrom on the Payment Date(s).

1.2 Interpretation

1.2.1 References to Lenders’ Representative shall, unless repugnant to the context or meaning thereof, mean references to the Lenders’ Representative, acting for and on behalf of Senior Lenders.

The words and expressions beginning with capital letters and defined in this Agreement, shall have the following meanings:—

“**Project**” means the Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



Agreement shall have the meaning ascribed thereto herein, and the words and expressions used in this Agreement and not defined herein but defined in the Concession Agreement shall, unless repugnant to the context, have the meaning ascribed thereto in the Concession Agreement.

1.2.3 References to Clauses are, unless stated otherwise, references to Clauses of this Agreement.

1.2.4 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Concession Agreement shall apply, *mutatis mutandis*, to this Agreement.

2 ESCROW ACCOUNT

2.1 Escrow Bank to act as trustee

2.1.1 The Concessionaire hereby appoints the Escrow Bank to act as trustee for the Authority, the Lenders' Representative and the Concessionaire in connection herewith and authorises the Escrow Bank to exercise such rights, powers, authorities and discretion as are specifically delegated to the Escrow Bank by the terms hereof together with all such rights, powers, authorities and discretion as are reasonably incidental hereto, and the Escrow Bank accepts such appointment pursuant to the terms hereof.

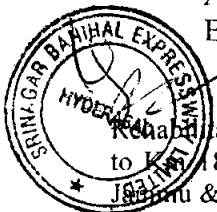
2.1.2 The Concessionaire hereby declares that all rights, title and interest in and to the Escrow Account shall be vested in the Escrow Bank and held in trust for the Authority, the Lenders' Representative and the Concessionaire, and applied in accordance with the terms of this Agreement. No person other than the Authority, the Lenders' Representative and the Concessionaire shall have any rights hereunder as the beneficiaries of, or as third party beneficiaries under this Agreement.

2.2 Acceptance of Escrow Bank

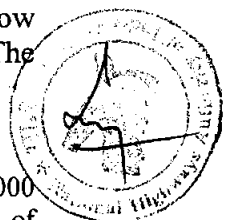
The Escrow Bank hereby agrees to act as such and to accept all payments and other amounts to be delivered to and held by the Escrow Bank pursuant to the provisions of this Agreement. The Escrow Bank shall hold and safeguard the Escrow Account during the term of this Agreement and shall treat the amount in the Escrow Account as monies deposited by the Concessionaire, Senior Lenders or the Authority with the Escrow Bank. In performing its functions and duties under this Agreement, the Escrow Bank shall act in trust for the benefit of, and as agent for, the Authority, the Lenders' Representative and the Concessionaire or their nominees, successors or assigns, in accordance with the provisions of this Agreement.

2.3 Establishment and operation of Escrow Account

2.3.1 Within 30 (thirty) days from the date of this Agreement, and in any case prior to the Appointed Date, the Concessionaire shall open and establish the Escrow Account with the **** (name of Branch) Branch of the Escrow Bank. The Escrow Account shall be denominated in Rupees.



Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km:187.000 to Km:189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



2.3.2 The Escrow Bank shall maintain the Escrow Account in accordance with the terms of this Agreement and its usual practices and applicable regulations, and pay the maximum rate of interest payable to similar customers on the balance in the said account from time to time.

2.3.3 The Escrow Bank and the Concessionaire shall, after consultation with the Lenders' Representative, agree on the detailed mandates, terms and conditions, and operating procedures for the Escrow Account, but in the event of any conflict or inconsistency between this Agreement and such mandates, terms and conditions, or procedures, this Agreement shall prevail.

2.4 Escrow Bank's fee

The Escrow Bank shall be entitled to receive its fee and expenses in an amount, and at such times, as may be agreed between the Escrow Bank and the Concessionaire. For the avoidance of doubt, such fee and expenses shall form part of the O&M Expenses and shall be appropriated from the Escrow Account in accordance with Clause 4.1.

2.5 Rights of the parties

The rights of the Authority, the Lenders' Representative and the Concessionaire in the monies held in the Escrow Account are set forth in their entirety in this Agreement and the Authority, the Lenders' Representative and the Concessionaire shall have no other rights against or to the monies in the Escrow Account.

2.6 Substitution of the Concessionaire

The Parties hereto acknowledge and agree that upon substitution of the Concessionaire with the Nominated Company, pursuant to the Substitution Agreement, it shall be deemed for the purposes of this Agreement that the Nominated Company is a Party hereto and the Nominated Company shall accordingly be deemed to have succeeded to the rights and obligations of the Concessionaire under this Agreement on and with effect from the date of substitution of the Concessionaire with the Nominated Company.

3 DEPOSITS INTO ESCROW ACCOUNT

3.1 Deposits by the Concessionaire

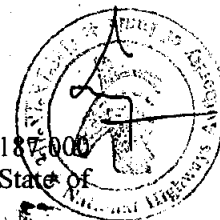
3.1.1 The Concessionaire agrees and undertakes that it shall deposit into and/or credit the Escrow Account with:

- (a) all monies received in relation to the Project from any source, including the Senior Lenders, lenders of Subordinated Debt and the Authority;
- (b) all funds received by the Concessionaire from its share-holders, in any manner or form;

all Annuity received by the Concessionaire;



* Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



- (d) any other revenues from or in respect of the Project Highway; and
- (e) all proceeds received pursuant to any insurance claims.

3.1.2 The Concessionaire may at any time make deposits of its other funds into the Escrow Account, provided that the provisions of this Agreement shall apply to such deposits.

3.2 Deposits by the Authority

The Authority agrees and undertakes that, as and when due and payable, it shall deposit into and/or credit the Escrow Account with:

- (a) Annuity and any other monies disbursed by the Authority to the Concessionaire;
- (b) Deleted;
- (c) Deleted and
- (d) Termination Payments:

Provided that the Authority shall be entitled to appropriate from the aforesaid amounts, any Concession Fee due and payable to it by the Concessionaire, and the balance remaining shall be deposited into the Escrow Account.

3.3 Deposits by Senior Lenders

The Lenders' Representative agrees, confirms and undertakes that the Senior Lenders shall deposit into and/or credit the Escrow Account with all disbursements made by them in relation to or in respect of the Project; provided that notwithstanding anything to the contrary contained in this Agreement, the Senior Lenders shall be entitled to make direct payments to the EPC Contractor under and in accordance with the express provisions contained in this behalf in the Financing Agreements.

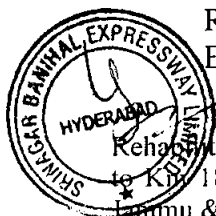
3.4 Interest on deposits

The Escrow Bank agrees and undertakes that all interest accruing on the balances of the Escrow Account shall be credited to the Escrow Account; provided that the Escrow Bank shall be entitled to appropriate therefrom the fee and expenses due to it from the Concessionaire in relation to the Escrow Account and credit the balance remaining to the Escrow Account.

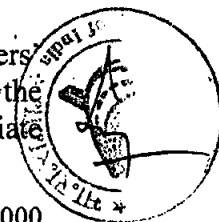
4 WITHDRAWALS FROM ESCROW ACCOUNT

4.1 Withdrawals during Concession Period

4.1.1 At the beginning of every month, or at such shorter intervals as the Lenders' Representative and the Concessionaire may by written instructions determine, the Escrow Bank shall withdraw amounts from the Escrow Account and appropriate



for the Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



them in the following order by depositing such amounts in the relevant Sub-Accounts for making due payments, and if such payments are not due in any month, then retain such monies in such Sub-Accounts and pay out therefrom on the Payment Date(s):

- (a) all taxes due and payable by the Concessionaire;
- (b) all payments relating to construction of the Project Highway, subject to and in accordance with the conditions, if any, set forth in the Financing Agreements;
- (c) O&M Expenses, subject to the ceiling, if any, set forth in the Financing Agreements;
- (d) O&M Expenses incurred by the Authority, provided it certifies to the Escrow Bank that it had incurred such expenses in accordance with the provisions of the Concession Agreement and that the amounts claimed are due to it from the Concessionaire;
- (e) Concession Fee due and payable to the Authority;
- (f) monthly proportionate provision of Debt Service due in an Accounting Year;
- (g) Deleted
- (h) all payments and Damages certified by the Authority as due and payable to it by the Concessionaire pursuant to the Concession Agreement, including repayment of Revenue Shortfall Loan;
- (i) debt service payments in respect of Subordinated Debt;
- (j) any reserve requirements set forth in the Financing Agreements; and
- (k) balance, if any, in accordance with the instructions of the Concessionaire.

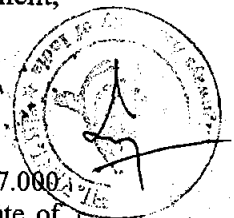
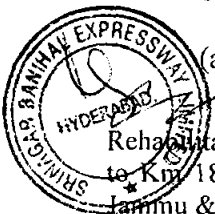
4.1.2 Not later than 60 (sixty) days prior to the commencement of each Accounting Year, the Concessionaire shall provide to the Escrow Bank, with prior written approval of the Lenders' Representative, details of the amounts likely to be required for each of the payment obligations set forth in this Clause 4.1; provided that such amounts may be subsequently modified, with prior written approval of the Lenders' Representative, if fresh information received during the course of the year makes such modification necessary.

4.2 Withdrawals upon Termination

Upon Termination of the Concession Agreement, all amounts standing to the credit of the Escrow Account shall, notwithstanding anything in this Agreement, be appropriated and dealt with in the following order:

- (a) all taxes due and payable by the Concessionaire;

Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km'187.000 to Km'189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



- (b) 90% (ninety per cent) of Debt Due excluding Subordinated Debt;
- (c) outstanding Concession Fee;
- (d) all payments and Damages certified by the Authority as due and payable to it by the Concessionaire pursuant to the Concession Agreement, including Premium, repayment of Revenue Shortfall Loan and any claims in connection with or arising out of Termination;
- (e) retention and payments arising out of, or in relation to, liability for defects and deficiencies set forth in Article 39 of the Concession Agreement;
- (f) outstanding Debt Service including the balance of Debt Due;
- (g) outstanding Subordinated Debt;
- (h) incurred or accrued O&M Expenses;
- (i) any other payments required to be made under the Concession Agreement; and
- (j) balance, if any, in accordance with the instructions of the Concessionaire.

Provided that the disbursements specified in Sub-clause (j) of this Clause 4.2 shall be undertaken only after the Vesting Certificate has been issued by the Authority.

4.3 Application of insufficient funds

Funds in the Escrow Account shall be applied in the serial order of priority set forth in Clauses 4.1 and 4.2, as the case may be. If the funds available are not sufficient to meet all the requirements, the Escrow Bank shall apply such funds in the serial order of priority until exhaustion thereof.

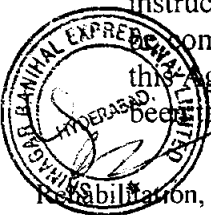
4.4 Application of insurance proceeds

Notwithstanding anything in this Agreement, the proceeds from all insurance claims, except life and injury, shall be deposited into and/or credited to the Escrow Account and utilised for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery or installation of the Project Highway, and the balance remaining, if any, shall be applied in accordance with the provisions contained in this behalf in the Financing Agreements.

4.5 Withdrawals during Suspension

Notwithstanding anything to the contrary contained in this Agreement, the Authority may exercise all or any of the rights of the Concessionaire during the period of Suspension under Article 36 of the Concession Agreement. Any instructions given by the Authority to the Escrow Bank during such period shall be complied with as if such instructions were given by the Concessionaire under this Agreement and all actions of the Authority hereunder shall be deemed to have been taken for and on behalf of the Concessionaire.

Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



5 OBLIGATIONS OF THE ESCROW BANK

5.1 Segregation of funds

Monies and other property received by the Escrow Bank under this Agreement shall, until used or applied in accordance with this Agreement, be held by the Escrow Bank in trust for the purposes for which they were received, and shall be segregated from other funds and property of the Escrow Bank.

5.2 Notification of balances

7 (seven) business days prior to each Payment Date (and for this purpose the Escrow Bank shall be entitled to rely on an affirmation by the Concessionaire and/or the Lenders' Representative as to the relevant Payment Dates), the Escrow Bank shall notify the Lenders' Representative of the balances in the Escrow Account and Sub-Accounts as at the close of business on the immediately preceding business day.

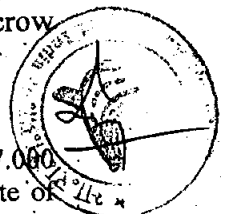
5.3 Communications and notices

In discharge of its duties and obligations hereunder, the Escrow Bank:

- (a) may, in the absence of bad faith or gross negligence on its part, rely as to any matters of fact which might reasonably be expected to be within the knowledge of the Concessionaire upon a certificate signed by or on behalf of the Concessionaire;
- (b) may, in the absence of bad faith or gross negligence on its part, rely upon the authenticity of any communication or document believed by it to be authentic;
- (c) shall, within 5 (five) business days after receipt, deliver a copy to the Lenders' Representative of any notice or document received by it in its capacity as the Escrow Bank from the Concessionaire or any other person hereunder or in connection herewith; and
- (d) shall, within 5 (five) business days after receipt, deliver a copy to the Concessionaire of any notice or document received by it from the Lenders' Representative in connection herewith.

5.4 No set off

The Escrow Bank agrees not to claim or exercise any right of set off, banker's lien or other right or remedy with respect to amounts standing to the credit of the Escrow Account. For the avoidance of doubt, it is hereby acknowledged and agreed by the Escrow Bank that the monies and properties held by the Escrow Bank in the Escrow Account shall not be considered as part of the assets of the Escrow Bank and being trust property, shall in the case of bankruptcy or liquidation of the Escrow Bank, be wholly excluded from the assets of the Escrow Bank in such bankruptcy or liquidation.



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5.5 Regulatory approvals

The Escrow Bank shall use its best efforts to procure, and thereafter maintain and comply with, all regulatory approvals required for it to establish and operate the Escrow Account. The Escrow Bank represents and warrants that it is not aware of any reason why such regulatory approvals will not ordinarily be granted to the Escrow Bank.

6 ESCROW DEFAULT

6.1 Escrow Default

6.1.1 Following events shall constitute an event of default by the Concessionaire (an "Escrow Default") unless such event of default has occurred as a result of Force Majeure or any act or omission of the Authority or the Lenders' Representative:

- (a) the Concessionaire commits breach of this Agreement by failing to deposit any receipts into the Escrow Account as provided herein and fails to cure such breach by depositing the same into the Escrow Account within a Cure Period of 5 (five) business days;
- (b) the Concessionaire causes the Escrow Bank to transfer funds to any account of the Concessionaire in breach of the terms of this Agreement and fails to cure such breach by depositing the relevant funds into the Escrow Account or any Sub-Account in which such transfer should have been made, within a Cure Period of 5 (five) business days; or
- (c) the Concessionaire commits or causes any other breach of the provisions of this Agreement and fails to cure the same within a Cure Period of 5 (five) business days.

6.1.2 Upon occurrence of an Escrow Default, the consequences thereof shall be dealt with under and in accordance with the provisions of the Concession Agreement.

7 TERMINATION OF ESCROW AGREEMENT

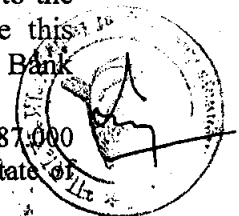
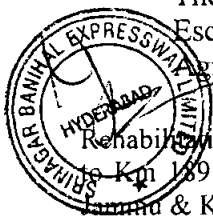
7.1 Duration of the Escrow Agreement

This Agreement shall remain in full force and effect so long as any sum remains to be advanced or is outstanding from the Concessionaire in respect of the debt, guarantee or financial assistance received by it from the Senior Lenders, or any of its obligations to the Authority remain to be discharged, unless terminated earlier by consent of all the Parties or otherwise in accordance with the provisions of this Agreement.

7.2 Substitution of Escrow Bank

The Concessionaire may, by not less than 45 (forty five) days prior notice to the Escrow Bank, the Authority and the Lenders' Representative, terminate this Agreement and appoint a new Escrow Bank, provided that the new Escrow Bank

shall be a bank licensed under the Banking Regulation Act, 1949, and shall be established in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



is acceptable to the Lenders' Representative and arrangements are made satisfactory to the Lenders' Representative for transfer of amounts deposited in the Escrow Account to a new Escrow Account established with the successor Escrow Bank. The termination of this Agreement shall take effect only upon coming into force of an Escrow Agreement with the substitute Escrow Bank.

7.3 Closure of Escrow Account

The Escrow Bank shall, at the request of the Concessionaire and the Lenders' Representative made on or after the payment by the Concessionaire of all outstanding amounts under the Concession Agreement and the Financing Agreements including the payments specified in Clause 4.2, and upon confirmation of receipt of such payments, close the Escrow Account and Sub-Accounts and pay any amount standing to the credit thereof to the Concessionaire. Upon closure of the Escrow Account hereunder, the Escrow Agreement shall be deemed to be terminated.

8 SUPPLEMENTARY ESCROW AGREEMENT

8.1 Supplementary escrow agreement

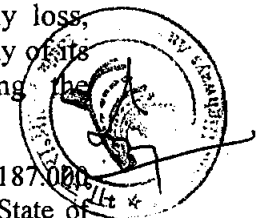
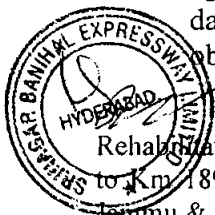
The Lenders' Representative and the Concessionaire shall be entitled to enter into a supplementary escrow agreement with the Escrow Bank providing, inter alia, for detailed procedures and documentation for withdrawals from Sub-Accounts pursuant to Clause 4.1.1 and for matters not covered under this Agreement such as the rights and obligations of Senior Lenders and lenders of Subordinated Debt, investment of surplus funds, restrictions on withdrawals by the Concessionaire in the event of breach of this Agreement or upon occurrence of an Escrow Default, procedures relating to operation of the Escrow Account and withdrawal therefrom, reporting requirements and any matters incidental thereto; provided that such supplementary escrow agreement shall not contain any provision which is inconsistent with this Agreement and in the event of any conflict or inconsistency between provisions of this Agreement and such supplementary escrow agreement, the provisions of this Agreement shall prevail.

9 INDEMNITY

9.1 General indemnity

9.1.1 The Concessionaire will indemnify, defend and hold the Authority, Escrow Bank and the Senior Lenders, acting through the Lenders' Representative, harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of any breach by the Concessionaire of any of its obligations under this Agreement or on account of failure of the Concessionaire to comply with Applicable Laws and Applicable Permits.

9.1.2 The Authority will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Authority to fulfil any of its obligations under this Agreement materially and adversely affecting the



Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

performance of the Concessionaire's obligations under the Concession Agreement or this Agreement other than any loss, damage, cost and expense arising out of acts done in discharge of their lawful functions by the Authority, its officers, servants and agents.

- 9.1.3 The Escrow Bank will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Escrow Bank to fulfil its obligations under this Agreement materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by the Escrow Bank, its officers, servants and agents.

9.2 Notice and contest of claims

In the event that any Party hereto receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under Clause 9.1 or in respect of which it is entitled to reimbursement (the "Indemnified Party"), it shall notify the other Party responsible for indemnifying such claim hereunder (the "Indemnifying Party") within 15 (fifteen) days of receipt of the claim and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim, it may conduct the proceedings in the name of the Indemnified Party and shall bear all costs involved in contesting the same. The Indemnified Party shall provide all cooperation and assistance in contesting any claim and shall sign all such writings and documents as the Indemnifying Party may reasonably require. --

10 DISPUTE RESOLUTION

10.1 Dispute resolution

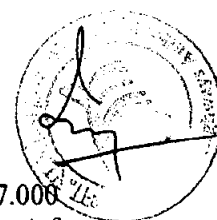
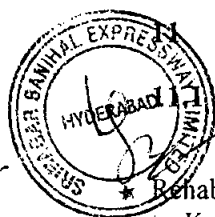
- 10.1.1 Any dispute, difference or claim arising out of or in connection with this Agreement, which is not resolved amicably, shall be decided finally by reference to arbitration to a Board of Arbitrators comprising one nominee of each Party to the dispute, and where the number of such nominees is an even number, the nominees shall elect another person to such Board. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi (the "Rules") or such other rules as may be mutually agreed by the Parties, and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996.

- 10.1.2 The Arbitrators shall issue a reasoned award and such award shall be final and binding on the Parties. The venue of arbitration shall be Delhi and the language of arbitration shall be English.

MISCELLANEOUS PROVISIONS

Governing law and jurisdiction

Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.006 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the Courts at Delhi shall have jurisdiction over all matters arising out of or relating to this Agreement.

11.2 Waiver of sovereign immunity

The Authority unconditionally and irrevocably:

- (a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;
- (b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Authority with respect to its assets;
- (c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- (d) consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgement that may be made or given in connection therewith).

11.3 Priority of agreements

In the event of any conflict between the Concession Agreement and this Agreement, the provisions contained in the Concession Agreement shall prevail over this Agreement.

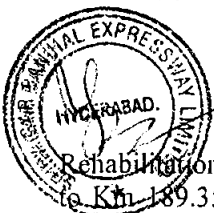
11.4 Alteration of terms

All additions, amendments, modifications and variations to this Agreement shall be effectual and binding only if in writing and signed by the duly authorised representatives of the Parties.

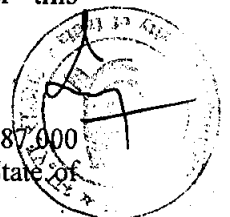
11.5 Waiver

11.5.1 Waiver by any Party of a default by another Party in the observance and performance of any provision of or obligations under this Agreement:

- (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;



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- (b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and
- (c) shall not affect the validity or enforceability of this Agreement in any manner.

11.5.2 Neither the failure by any Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by any Party to another Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

11.6 No third party beneficiaries

This Agreement is solely for the benefit of the Parties and no other person or entity shall have any rights hereunder.

11.7 Survival

11.7.1 Termination of this Agreement:

- (a) shall not relieve the Parties of any obligations hereunder which expressly or by implication survive termination hereof; and
- (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, shall not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party prior to the effectiveness of such termination or arising out of such termination.

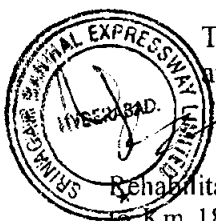
11.7.2 All obligations surviving the cancellation, expiration or termination of this Agreement shall only survive for a period of 3 (three) years following the date of such termination or expiry of this Agreement.

11.8 Severability

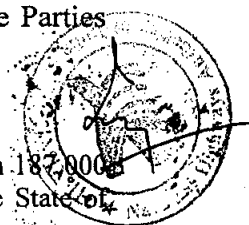
If for any reason whatever any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to dispute resolution under Clause 10.1 of this Agreement or otherwise.

11.9 Successors and assigns

This Agreement shall be binding on and shall inure to the benefit of the Parties and their respective successors and permitted assigns.



Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/II/J&K)



11.10 Notices

All notices or other communications to be given or made under this Agreement shall be in writing and shall either be delivered personally or sent by courier or registered post with an additional copy to be sent by facsimile. The address for service of each Party and its facsimile number are set out under its name on the signing pages hereto. A notice shall be effective upon actual receipt thereof, save that where it is received after 5.30 (five thirty) p.m. on a business day, or on a day that is not a business day, the notice shall be deemed to be received on the first business day following the date of actual receipt. Without prejudice to the foregoing, a Party giving or making a notice or communication by facsimile shall promptly deliver a copy thereof personally, or send it by courier or registered post to the addressee of such notice or communication. It is hereby agreed and acknowledged that any Party may by notice change the address to which such notices and communications to it are to be delivered or mailed. Such change shall be effective when all the Parties have notice of it.

11.11 Language

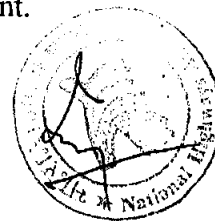
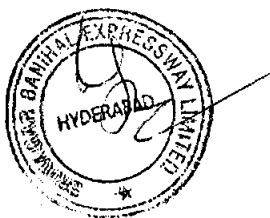
All notices, certificates, correspondence and proceedings under or in connection with this Agreement shall be in English.

11.12 Authorised representatives

Each of the Parties shall, by notice in writing, designate their respective authorised representatives through whom only all communications shall be made. A Party hereto shall be entitled to remove and/or substitute or make fresh appointment of such authorised representative by similar notice.

11.13 Original Document

This Agreement may be executed in four counterparts, each of which when executed and delivered shall constitute an original of this Agreement.



IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND
DELIVERED

For and on behalf of
CONCESSIONAIRE by:

(Signature)

(Name)

(Designation)

(Address)

(Fax No.)

SIGNED, SEALED AND
DELIVERED

For and on behalf of
SENIOR LENDERS by the
Lenders' Representative:

(Signature)

(Name)

(Designation)

(Address)

(Fax No.)

SIGNED, SEALED AND

DELIVERED

For and on behalf of
ESCROW BANK by:

(Signature)

(Name)

(Designation)

(Address)

(Fax No.)

SIGNED, SEALED AND

DELIVERED

For and on behalf of
NATIONAL HIGHWAYS
AUTHORITY OF INDIA by:

(Signature)

(Name)

(Designation)

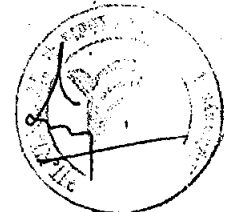
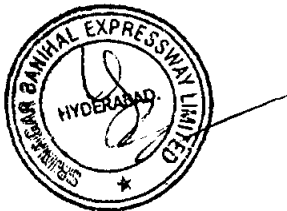
(Address)

(Fax No.)

In the presence of:

1.

2.



Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

SCHEDULE -T
(See Clause 33.2.1)

PANEL OF CHARTERED ACCOUNTANTS

1 Panel of Chartered Accountants

Pursuant to the provisions of Clause 33.2.1 of the Agreement, the Authority and the Concessionaire shall prepare a mutually agreed panel of 10 (ten) reputable firms of Chartered Accountants having their registered offices in India (the "Panel of Chartered Accountants"). The criteria for preparing such Panel and the procedure to be adopted in this behalf shall be as set forth in this Schedule-T.

2 Invitation for empanelment

2.1 The Authority shall invite offers from all reputable firms of Chartered Accountants who fulfil the following eligibility criteria, namely:

- (a) the firm should have conducted statutory audit of the annual accounts of at least one hundred companies registered under the Companies Act, 1956, of which at least ten should have been public sector undertakings;
- (b) the firm should have at least 5 (five) practising Chartered Accountants on its rolls, each with a minimum experience of ten years in the profession;
- (c) the firm or any of its partners should not have been disqualified or black-listed by the Comptroller and Auditor General of India or the Authority; and
- (d) the firm should have an office in the State or in an adjacent State with at least 2 (two) practising Chartered Accountants on its rolls in such State.

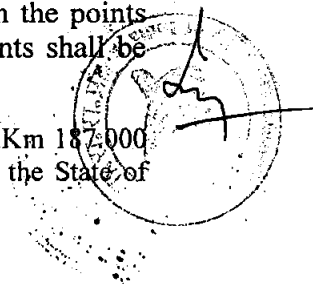
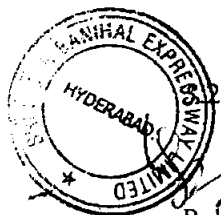
2.2 Interested firms meeting the eligibility criteria shall be required to submit a statement of their capability including the bio-data of all the practising Chartered Accountants on its rolls. In particular, each firm shall be required to furnish year-wise information relating to the names of all the companies with an annual turnover exceeding Rs. 100,00,00,000 (Rs. one hundred crore) whose annual accounts were audited by such firm in any of the preceding 5 (five) Accounting Years.

3 Evaluation and selection

3.1 The information furnished by each firm shall be scrutinised and evaluated by the Authority and 1 (one) point shall be awarded for each annual audit of the companies specified in Paragraph 2.2 above. (For the avoidance of doubt, a firm which has conducted audit of the annual accounts of any such company for five years shall be awarded five points).

The Authority shall prepare a list of all the eligible firms along with the points scored by each such firm and 10 (ten) firms scoring the highest points shall be

Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



identified and included in the draft Panel of Chartered Accountants.

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4 Consultation with the Concessionaire

The Authority shall convey the aforesaid panel of firms to the Concessionaire for scrutiny and comments, if any. The Concessionaire shall be entitled to scrutinise the relevant records of the Authority to ascertain whether the selection of firms has been undertaken in accordance with the prescribed procedure and it shall send its comments, if any, to the Authority within 15 (fifteen) days of receiving the aforesaid panel.

5 Mutually agreed panel

- 5.1 The Authority shall, after considering all relevant factors including the comments, if any, of the Concessionaire, finalise and constitute a panel of 10 (ten) firms which shall be deemed to be the mutually agreed Panel of Chartered Accountants.
- 5.2 After completion of every five years from the date of preparing the mutually agreed Panel of Chartered Accountants, or such earlier period as may be agreed between the Authority and the Concessionaire, a new panel shall be prepared in accordance with the provisions of this Schedule - T.



VESTING CERTIFICATE

- 1 The Chairman, National Highways Authority of India (the “**Authority**”) refers to the Concession Agreement dated 28th October, 2010 (the “**Agreement**”) entered into between the Authority and Srinagar Banihal Expressway Limited (the “**Concessionaire**”) for Four-Laning of the Srinagar– Banihal Section of National Highway No.1A (the “**Project Highway**”) on Design, build, Finance, operate and transfer on annuity (“**DBFOT Annuity**”) basis.
- 2 The Authority hereby acknowledges compliance and fulfilment by the Concessionaire of the Divestment Requirements set forth in Clause 38.1 of the Agreement on the basis that upon issue of this Vesting Certificate, the Authority shall be deemed to have acquired, and all title and interest of the Concessionaire in or about the Project Highway shall be deemed to have vested unto the Authority, free from any encumbrances, charges and liens whatsoever.
- 3 Notwithstanding anything to the contrary contained hereinabove, it shall be a condition of this Vesting Certificate that nothing contained herein shall be construed or interpreted as waiving the obligation of the Concessionaire to rectify and remedy any defect or deficiency in any of the Divestment Requirements and/or relieving the Concessionaire in any manner of the same.

Signed this *** day of ***, 20** at Delhi.

AGREED, ACCEPTED AND SIGNED
For and on behalf of
CONCESSIONAIRE by:

(Signature)
(Name)
(Designation)
(Address)

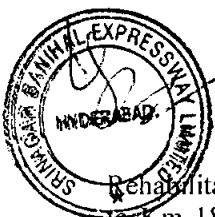
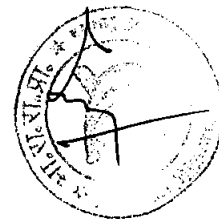
SIGNED, SEALED AND DELIVERED
For and on behalf of
NATIONAL HIGHWAYS
AUTHORITY OF INDIA by:

(Signature)
(Name)
(Designation)
(Address)

In the presence of:

1.

2.



Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)

SCHEDULE -V
(See Clause 40.3.1)

SUBSTITUTION AGREEMENT

THIS SUBSTITUTION AGREEMENT is entered into on this the *** day of *** 20**.

AMONGST

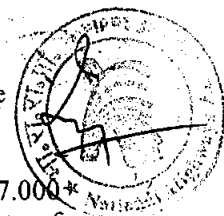
- 1 The National Highways Authority of India, established under the National Highways Authority of India Act 1988, represented by its Chairman and having its principal offices at G-5 & 6, Sector 10, Dwarka, New Delhi-110075 (hereinafter referred to as the "Authority" which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and assigns);
- 2 Srinagar Banihal Expressway Limited², a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at 6-3-1089/G/10&11, Gulmohar Avenue, Rajbhavan road, Somajiguda, Hyderabad-500082 India, (hereinafter referred to as the "Concessionaire" which expression shall unless repugnant to the context or meaning thereof include its successors and permitted assigns and substitutes);
- 3 **** name and particulars of Lenders' Representative and having its registered office at ****, acting for and on behalf of the Senior Lenders as their duly authorised agent with regard to matters arising out of or in relation to this Agreement (hereinafter referred to as the "Lenders' Representative", which expression shall unless repugnant to the context or meaning thereof include its successors and substitutes);

WHEREAS:

- (A) The Authority has entered into a Concession Agreement dated 28th October, 2010 with the Concessionaire (the "Concession Agreement") for Four-Laning of the Srinagar – Banihal Section (km 187.00 to 189.350 (Banihal Bypass) and from km 220.700 to km 286.110) of National Highway No. 1A in the State of Jammu and Kashmir on Design, build, Finance, operate and transfer basis on annuity (DBFOT Annuity), and a copy of which is annexed hereto and marked as Annex-A to form part of this Agreement.
- (B) Senior Lenders have agreed to finance the Project in accordance with the terms and conditions set forth in the Financing Agreements.

specific provisions in this document have been enclosed in square parenthesis and may be modified suitably, as necessary.

Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000* to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



- (C) Senior Lenders have requested the Authority to enter into this Substitution Agreement for securing their interests through assignment, transfer and substitution of the Concession to a Nominated Company in accordance with the provisions of this Agreement and the Concession Agreement.
- (D) In order to enable implementation of the Project including its financing, construction, operation and maintenance, the Authority has agreed and undertaken to transfer and assign the Concession to a Nominated Company in accordance with the terms and conditions set forth in this Agreement and the Concession Agreement.

NOW IT IS HEREBY AGREED as follows:

1 DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Substitution Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

“Agreement” means this Substitution Agreement and any amendment thereto made in accordance with the provisions contained in this Agreement;

“Financial Default” means occurrence of a material breach of the terms and conditions of the Financing Agreements or a continuous default in Debt Service by the Concessionaire for a minimum period of 3 (three) months;

“Lenders’ Representative” means the person referred to as the Lenders’ Representative in the foregoing Recitals;

“Nominated Company” means a company, incorporated under the provisions of the Companies Act, 1956, selected by the Lenders’ Representative, on behalf of Senior Lenders, and proposed to the Authority for assignment/transfer of the Concession as provided in this Agreement;

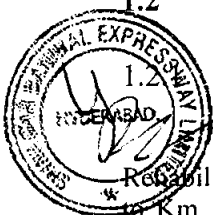
“Notice of Financial Default” shall have the meaning ascribed thereto in Clause 3.2.1; and

“Parties” means the parties to this Agreement collectively and **“Party”** shall mean any of the Parties to this Agreement individually.

1.2 Interpretation

References to Lenders’ Representative shall, unless repugnant to the context of

Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.110 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



meaning thereof, mean references to the Lenders' Representative, acting for and on behalf of Senior Lenders.

- 1.2.2 References to Clauses are, unless stated otherwise, references to Clauses of this Agreement.
- 1.2.3 The words and expressions beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein, and the words and expressions used in this Agreement and not defined herein but defined in the Concession Agreement shall, unless repugnant to the context, have the meaning ascribed thereto in the Concession Agreement.
- 1.2.4 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Concession Agreement shall apply, *mutatis mutandis*, to this Agreement.

2 ASSIGNMENT

2.1 Assignment of rights and title

The Concessionaire hereby assigns the rights, title and interest in the Concession to, and in favour of, the Lenders' Representative pursuant to and in accordance with the provisions of this Agreement and the Concession Agreement by way of security in respect of financing by the Senior Lenders under the Financing Agreements.

3 SUBSTITUTION OF THE CONCESSIONAIRE

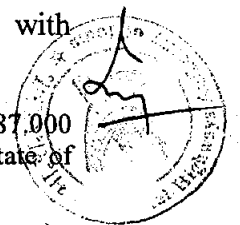
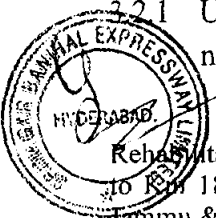
3.1 Rights of substitution

- 3.1.1 Pursuant to the rights, title and interest assigned under Clause 2.1, the Lenders' Representative shall be entitled to substitute the Concessionaire by a Nominated Company under and in accordance with the provisions of this Agreement and the Concession Agreement.
- 3.1.2 The Authority hereby agrees to substitute the Concessionaire by endorsement on the Concession Agreement in favour of the Nominated Company selected by the Lenders' Representative in accordance with this Agreement. (For the avoidance of doubt, the Senior Lenders or the Lenders' Representative shall not be entitled to operate and maintain the Project Highway as Concessionaire either individually or collectively).

3.2 Substitution upon occurrence of Financial Default

- 3.2.1 Upon occurrence of a Financial Default, the Lenders' Representative may issue a notice to the Concessionaire (the "Notice of Financial Default") along with

Rehabilitation, Strengthening and Four Laning of Srinagar to Banihal Section from Km 187.000 to Km 189.350 (Banihal Bypass) and Km 220.700 to Km 286.140 of NH 1-A in the State of Jammu & Kashmir (Package No. NHDP-Phase-II/BOT/I/J&K)



particulars thereof, and send a copy to the Authority for its information and record. A Notice of Financial Default under this Clause 3 shall be conclusive evidence of such Financial Default and it shall be final and binding upon the Concessionaire for the purposes of this Agreement.

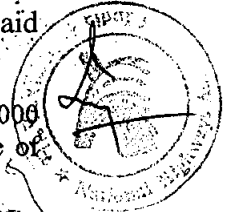
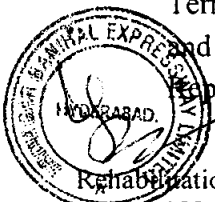
- 3.2.2 Upon issue of a Notice of Financial Default hereunder, the Lenders' Representative may, without prejudice to any of its rights or remedies under this Agreement or the Financing Agreements, substitute the Concessionaire by a Nominated Company in accordance with the provisions of this Agreement.
- 3.2.3 At any time after the Lenders' Representative has issued a Notice of Financial Default, it may by notice require the Authority to suspend all the rights of the Concessionaire and undertake the operation and maintenance of the Project Highway in accordance with the provisions of Article 36 of the Concession Agreement, and upon receipt of such notice, the Authority shall undertake Suspension under and in accordance with the provisions of the Concession Agreement. The aforesaid Suspension shall be revoked upon substitution of the Concessionaire by a Nominated Company, and in the event such substitution is not completed within 180 (one hundred and eighty) days from the date of such Suspension, the Authority may terminate the Concession Agreement forthwith by issuing a Termination Notice in accordance with the provisions of the Concession Agreement; provided that upon written request from the Lenders' Representative and the Concessionaire, the Authority may extend the aforesaid period of 180 (one hundred and eighty) days by a period not exceeding 90 (ninety) days.

3.3 Substitution upon occurrence of Concessionaire Default

- 3.3.1 Upon occurrence of a Concessionaire Default, the Authority shall by a notice inform the Lenders' Representative of its intention to issue a Termination Notice and grant 15 (fifteen) days time to the Lenders' Representative to make a representation, stating the intention to substitute the Concessionaire by a Nominated Company.
- 3.3.2 In the event that the Lenders' Representative makes a representation to the Authority within the period of 15 (fifteen) days specified in Clause 3.3.1, stating that it intends to substitute the Concessionaire by a Nominated Company, the Lenders' Representative shall be entitled to undertake and complete the substitution of the Concessionaire by a Nominated Company in accordance with the provisions of this Agreement within a period of 180 (one hundred and eighty) days from the date of such representation, and the Authority shall either withhold Termination or undertake Suspension for the aforesaid period of 180 (one hundred and eighty) days; provided that upon written request from the Lenders' Representative and the Concessionaire, the Authority shall extend the aforesaid

180 (one hundred and eighty) days; provided that upon written request from the Lenders' Representative and the Concessionaire, the Authority shall extend the aforesaid

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period of 180 (one hundred and eighty) days by a period not exceeding 90 (ninety) days.

3.4 Procedure for substitution

3.4.1 The Authority and the Concessionaire hereby agree that on or after the date of Notice of Financial Default or the date of representation to the Authority under Clause 3.3.2, as the case may be, the Lenders' Representative may, without prejudice to any of the other rights or remedies of the Senior Lenders, invite, negotiate and procure offers, either by private negotiations or public auction or tenders for the take over and transfer of the Project Highway including the Concession to the Nominated Company upon such Nominated Company's assumption of the liabilities and obligations of the Concessionaire towards the Authority under the Concession Agreement and towards the Senior Lenders under the Financing Agreements.

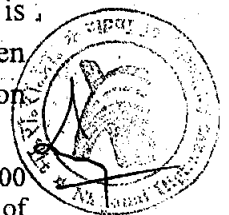
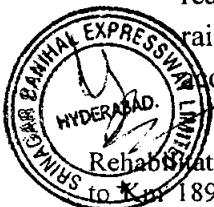
3.4.2 To be eligible for substitution in place of the Concessionaire, the Nominated Company shall be required to fulfil the eligibility criteria that were laid down by the Authority for shortlisting the bidders for award of the Concession; provided that the Lenders' Representative may represent to the Authority that all or any of such criteria may be waived in the interest of the Project, and if the Authority determines that such waiver shall not have any material adverse effect on the Project, it may waive all or any of such eligibility criteria.

3.4.3 Upon selection of a Nominated Company, the Lenders' Representative shall request the Authority to:

- (a) accede to transfer to the Nominated Company the right to construct, operate and maintain the Project Highway in accordance with the provisions of the Concession Agreement;
- (b) endorse and transfer the Concession to the Nominated Company, on the same terms and conditions, for the residual Concession Period; and
- (c) enter into a Substitution Agreement with the Lenders' Representative and the Nominated Company on the same terms as are contained in this Agreement.

3.4.4 If the Authority has any objection to the transfer of Concession in favour of the Nominated Company in accordance with this Agreement, it shall within 7 (seven) days from the date of proposal made by the Lenders' Representative, give a reasoned order after hearing the Lenders' Representative. If no such objection is raised by the Authority, the Nominated Company shall be deemed to have been accepted. The Authority thereupon shall transfer and endorse the Concession

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within 7 (seven) days of its acceptance/deemed acceptance of the Nominated Company; provided that in the event of such objection by the Authority, the Lenders' Representative may propose another Nominated Company whereupon the procedure set forth in this Clause 3.4 shall be followed for substitution of such Nominated Company in place of the Concessionaire.

3.5 Selection to be binding

The decision of the Lenders' Representative and the Authority in selection of the Nominated Company shall be final and binding on the Concessionaire. The Concessionaire irrevocably agrees and waives any right to challenge the actions of the Lenders' Representative or the Senior Lenders or the Authority taken pursuant to this Agreement including the transfer/assignment of the Concession in favour of the Nominated Company. The Concessionaire agrees and confirms that it shall not have any right to seek revaluation of assets of the Project or the Concessionaire's shares. It is hereby acknowledged by the Parties that the rights of the Lenders' Representative are irrevocable and shall not be contested in any proceedings before any court or Authority and the Concessionaire shall have no right or remedy to prevent, obstruct or restrain the Authority or the Lenders' Representative from effecting or causing the transfer by substitution and endorsement of the Concession as requested by the Lenders' Representative.

4 PROJECT AGREEMENTS

4.1 Substitution of Nominated Company in Project Agreements

The Concessionaire shall ensure and procure that each Project Agreement contains provisions that entitle the Nominated Company to step into such Project Agreement, in its discretion, in place and substitution of the Concessionaire in the event of such Nominated Company's assumption of the liabilities and obligations of the Concessionaire under the Concession Agreement.

5 TERMINATION OF CONCESSION AGREEMENT

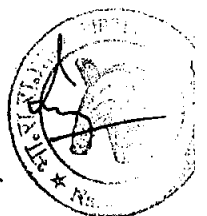
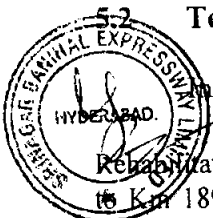
5.1 Termination upon occurrence of Financial Default

At any time after issue of a Notice of Financial Default, the Lenders' Representative may by a notice in writing require the Authority to terminate the Concession Agreement forthwith, and upon receipt of such notice, the Authority shall undertake Termination under and in accordance with the provisions of Article 37 of the Concession Agreement.

5.2 Termination when no Nominated Company is selected

At the event that no Nominated Company acceptable to the Authority is selected

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and recommended by the Lenders' Representative within the period of 180 (one hundred and eighty) days or any extension thereof as set forth in Clause 3.3.2, the Authority may terminate the Concession Agreement forthwith in accordance with the provisions thereof.

5.3 Realisation of Debt Due

The Authority and the Concessionaire hereby acknowledge and agree that, without prejudice to their any other right or remedy, the Lenders' Representative is entitled to receive from the Concessionaire, without any further reference to or consent of the Concessionaire, the Debt Due upon Termination of the Concession Agreement. For realisation of the Debt Due, the Lenders' Representative shall be entitled to make its claim from the Escrow Account in accordance with the provisions of the Concession Agreement and the Escrow Agreement.

6 DURATION OF THE AGREEMENT

6.1 Duration of the Agreement

This Agreement shall come into force from the date hereof and shall expire at the earliest to occur of the following events:

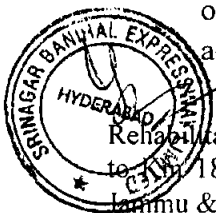
- (a) Termination of the Agreement; or
- (b) no sum remains to be advanced, or is outstanding to the Senior Lenders, under the Financing Agreements.

7 INDEMNITY

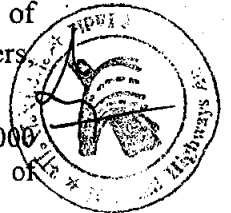
7.1 General indemnity

7.1.1 The Concessionaire will indemnify, defend and hold the Authority and the Lenders' Representative harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense of whatever kind and nature arising out of any breach by the Concessionaire of any of its obligations under this Agreement or on account of failure of the Concessionaire to comply with Applicable Laws and Applicable Permits.

7.1.2 The Authority will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Authority to fulfil any of its obligations under this Agreement, materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement or this Agreement, other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by the Authority, its officers,



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servants and agents.

- 7.1.3 The Lenders' Representative will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Lenders' Representative to fulfil its obligations under this Agreement, materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement, other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by the Lenders' Representative, its officers, servants and agents.

7.2 Notice and contest of claims

In the event that any Party hereto receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under Clause 7.1 or in respect of which it is entitled to reimbursement (the "**Indemnified Party**"), it shall notify the other Party responsible for indemnifying such claim hereunder (the "**Indemnifying Party**") within 15 (fifteen) days of receipt of the claim and shall not settle or pay the claim without the prior approval of the Indemnifying Party, such approval not to be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim, it may conduct the proceedings in the name of the Indemnified Party and shall bear all costs involved in contesting the same. The Indemnified Party shall provide all cooperation and assistance in contesting any claim and shall sign all such writings and documents as the Indemnifying Party may reasonably require.

8 DISPUTE RESOLUTION

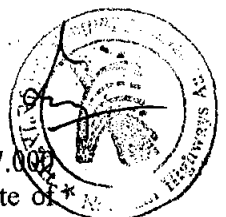
8.1 Dispute resolution

- 8.1.1 Any dispute, difference or claim arising out of or in connection with this Agreement which is not resolved amicably shall be decided by reference to arbitration to a Board of Arbitrators comprising one nominee each of the Authority, Concessionaire and the Lenders' Representative. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi (the "Rules") or such other rules as may be mutually agreed by the Parties, and shall be subject to provisions of the Arbitration and Conciliation Act, 1996.

- 8.1.2 The Arbitrators shall issue a reasoned award and such award shall be final and binding on the Parties. The venue of arbitration shall be Delhi and the language of arbitration shall be English.



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9 MISCELLANEOUS PROVISIONS

9.1 Governing law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the Courts at Delhi shall have jurisdiction over all matters arising out of or relating to this Agreement.

9.2 Waiver of sovereign immunity

The Authority unconditionally and irrevocably:

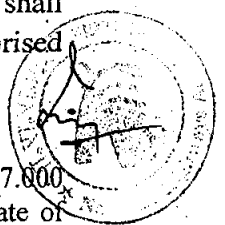
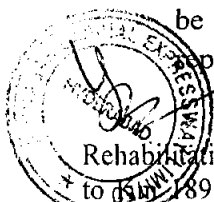
- (a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;
- (b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Authority with respect to its assets;
- (c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- (d) consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgement that may be made or given in connection therewith).

9.3 Priority of agreements

In the event of any conflict between the Concession Agreement and this Agreement, the provisions contained in the Concession Agreement shall prevail over this Agreement.

9.4 Alteration of terms

All additions, amendments, modifications and variations to this Agreement shall be effectual and binding only if in writing and signed by the duly authorised representatives of the Parties.



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9.5 Waiver

9.5.1 Waiver by any Party of a default by another Party in the observance and performance of any provision of or obligations under this Agreement:

- (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;
- (b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and
- (c) shall not affect the validity or enforceability of this Agreement in any manner.

9.5.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to another Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

9.6 No third party beneficiaries

This Agreement is solely for the benefit of the Parties and no other person or entity shall have any rights hereunder.

9.7 Survival

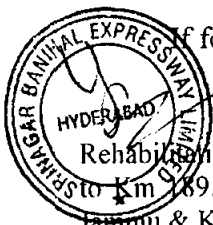
9.7.1 Termination of this Agreement:

- (a) shall not relieve the Parties of any obligations hereunder which expressly or by implication survive termination hereof; and
- (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, shall not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of or caused by acts or omissions of such Party prior to the effectiveness of such termination or arising out of such termination.

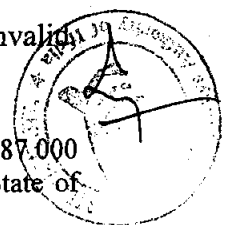
9.7.2 All obligations surviving the cancellation, expiration or termination of this Agreement shall only survive for a period of 3 (three) years following the date of such termination or expiry of this Agreement.

9.8 Severability

If for any reason whatever any provision of this Agreement is or becomes invalid



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illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to dispute resolution under Clause 8 of this Agreement or otherwise.

9.9 Successors and assigns

This Agreement shall be binding on and shall inure to the benefit of the Parties and their respective successors and permitted assigns.

9.10 Notices

All notices or other communications to be given or made under this Agreement shall be in writing, shall either be delivered personally or sent by courier or registered post with an additional copy to be sent by facsimile. The address for service of each Party and its facsimile number are set out under its name on the signing pages hereto. A notice shall be effective upon actual receipt thereof, save that where it is received after 5.30 (five thirty) p.m. on any day, or on a day that is a public holiday, the notice shall be deemed to be received on the first working day following the date of actual receipt. It is hereby agreed and acknowledged that any Party may by notice change the address to which such notices and communications to it are to be delivered or mailed. Such change shall be effective when all the Parties have notice of it.

9.11 Language

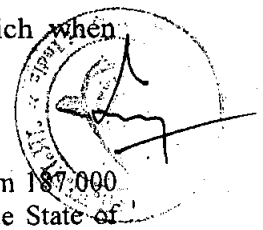
All notices, certificates, correspondence and proceedings under or in connection with this Agreement shall be in English.

9.12 Authorised representatives

Each of the Parties shall by notice in writing designate their respective authorised representatives through whom only all communications shall be made. A Party hereto shall be entitled to remove and/or substitute or make fresh appointment of such authorised representative by similar notice.

9.13 Original Document

This Agreement may be executed in three counterparts, each of which when executed and delivered shall constitute an original of this Agreement.



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