

## PROJECT NOTES

### 0.1 BACKGROUND

This report discussed about the road sections under Package-I. The project road under Package-I starts from Malout at Km 84.600 (Design Ch. 38+664) of NH 07 and ends at Sadhuwali (Punjab/Rajasthan border) at Km 32.550 (Design Ch. 33+000) of NH 62 section having total design length of 69.600 Km in the State of Punjab. The project road section under Package-I divided into two sections and as shown in Table 0.1:

Table 0.1: Details of Road sections under Package-I

Road section	Existing Chainage (Km)		Design Chainage (Km)		Length (Km)
	Start Chainage	End Chainage	Start Chainage	End Chainage	
Malout – Abohar of NH-07	84+600	48+400	38+664	75+264	36.600
Abohar - Sadhuwali of NH-62	0+000	32+550	0+000	33+000	33.000
Total Length (Km)					69.600

### 0.2 PROJECT DEVELOPMENT DESCRIPTIONS

#### 0.2.1 General

The project road under Package-I start from Malout at Km 84.600 of NH 07 and ends at Sadhuwali (Punjab/Rajasthan border) at Km 32.550 of NH 62 section. The existing carriageway width of feeder route from Malout – Abohar - Sadhuwali is mainly 2 lane carriage way except in some stretches.

The details of carriageway for Malout – Abohar - Sadhuwali road section are given in Table 0.2:

Table 0.2: Details of existing carriageway

Si. No.	Existing Chainage (Km)		Length (Km)	Type of Carriageway	Width of Carriageway (m)	Width of Paved Shoulders (m)
	From	To				
Malout to Abohar (NH 07)						
1	84+600	84+200	0.4	BT	7.0	1.5
2	84+200	81+600	2.6	BT	7.0	1.5
3	81+600	67+400	14.2	BT	7.0	1.5
4	67+400	66+200	1.2	BT	7.0	1.5
5	66+200	48+400	17.8	BT	7.0	1.5
	Total Length (Km)		36.20			
Abohar to Sadhuwali (NH 62)						

*Four laning from Malout (Design Km 38.664, Existing Km 84.600 of NH-07) via Abohar to Sadhuwali (Design Km 33.000, Existing Km 32.550 of NH-62) Design Length = 69.600 Km in the State of Punjab under Bharatmala Pariyojana on Hybrid Annuity Mode.*

Si. No.	Existing Chainage (Km)		Length (Km)	Type of Carriageway	Width of Carriageway (m)	Width of Paved Shoulders (m)
	From	To				
1	0+000	0+100	0.100	BT	7.0	1.5
2	0+100	4+000	3.900	BT	7.0	1.5
3	4+000	8+700	4.700	BT	7.0	1.5
4	8+700	10+000	1.300	BT	7.0	1.5
5	10+000	22+200	12.200	BT	7.0	1.5
6	22+200	23+000	0.800	BT	7.0	1.5
7	23+000	32+550	9.550	BT	7.0	1.5
	Total Length (Km)		32.550			

### 0.2.2 Nodal Settlements on the Project Road

There are few built-up areas along the project road. Major built up locations along the project corridor has been summarized in the table Table 0.3

Table 0.3: Summary of Built-up areas on Malout - Abohar-Sadhuwali section

Si. No.	Built-up stretch (Township)	Existing Chainage (Km)		Length in (Km)
		From	To	
Malout to Abohar (NH 07)				
1	Malout	84+600	82+000	2.600
2	Kabarwala	76+700	76+400	0.300
3	Balluana	67+400	66+500	0.900
4	Abohar	56+000	55+400	0.600
Abohar to Sadhuwali (NH 62)				
1	Khuiyan Sarwar	10+000	8+500	1.500
2	Girdanwali	16+700	16+200	0.500
3	Kalarkheda	23+100	22+200	0.900
Total Length (Km)				7.300

### 0.2.3 Traffic Volume

The summary of the expected Average Annual Daily Traffic (AADT) for the project stretch is given in Table 0.4

Table 0.4: Annual Average Daily Traffic (AADT of 2019 Year)

Si. No.	Road Section	Total Vehicles	Traffic (Total PCU) (2019)
1	Malout - Abohar of NH-7	8191	11086
2	Abohar - Sadhuwali of NH-62	11012	14663

Four laning from Malout (Design Km 38.664, Existing Km 84.600 of NH-07) via Abohar to Sadhuwali (Design Km 33.000, Existing Km 32.550 of NH-62) Design Length = 69.600 Km in the State of Punjab under Bharatmala Pariyojana on Hybrid Annuity Mode.

0.2.4 Proposed Developmental Plan

The typical cross-section has been finalized to maintain the uniformity of the project corridor. The proposed Row for the project is 40-50m. The typical cross-section description is given in Table 0.5.

Table 0.5: TCS Descriptions

Si. No.	TCS	Description	Length (km)
1	TCS-1	Concentric Widening of Existing 2 Lane Road to 4 Lane + PS in Rural Section	33.370
2	TCS-2	Eccentric Widening on LHS of Existing 2 Lane Road to 4 Lane + PS in Rural Section	12.675
3	TCS-3	Proposed 4-lane Bypass/Realignment/Bridge Approach	3.298
4	TCS-4	Concentric widening of existing 2 lane road to 4-lane+PS in Urban section with 7.0m service road on both sides	5.340
5	TCS-5	Eccentric widening on LHS of existing 2 lane road to 4-lane+PS in Urban section with 7.0m service road on both sides	1.215
6	TCS-6	Proposed 4-lane Flyover/VUP/LVUP/SVUP with 7.0m service road on both sides	10.910
7	TCS-7	Proposed 4-lane ROB Approach in rural section with service road on both sides	1.250
Total Length (Km)			68.058

Note: Except Structure length and Toll Plaza location.

0.2.5 Proposal for Bypasses/Realignment

The summary for proposed Bypasses/Realignments is tabulated in Table 0.6:

Table 0.6: Summary of Bypasses/Realignments

Si. No.	Design Chainage (Km)		Length (m)	Remarks
	From	To		
Bypasses				
NIL				
Realignment				
1	45+800	46+120	320	Malout - Abohar section of NH-07
2	51+500	52+050	550	
3	64+650	65+150	500	
4	5+320	5+820	500	Abohar - Sadhuwali section of NH-62
5	10+900	11+500	600	
6	15+500	16+100	600	
7	32+220	32+590	370	
8	32+632	32+950	318	

Four laning from Malout (Design Km 38.664, Existing Km 84.600 of NH-07) via Abohar to Sadhuwali (Design Km 33.000, Existing Km 32.550 of NH-62) Design Length = 69.600 Km in the State of Punjab under Bharatmala Pariyojana on Hybrid Annuity Mode.

Si. No.	Design Chainage (Km)		Length (m)	Remarks
	From	To		
Bypasses				
NIL				
Realignment				
	Total Length (m)		3758	

#### 0.2.6 Proposed Pavement

##### (a) Main Carriageway

Design of Flexible Pavement shall be carried out in accordance with section 5 of the manual for Malout - Abohar of NH-07 section is for 50 MSA (Minimum) & Abohar - Sadhuwali section of NH-62 is for 78 MSA (Minimum) for CBR of 8% and design period of 20 years.

Minimum Thickness of Flexible Pavement shall be as given the table below:

Pavement Layer	Malout – Abohar (NH-7) Ch. 38+664 to Ch.75+264 (L=36.60 km)	Abohar – Sadhuwali (NH-62) Ch. 0+000 to Ch. 33+000 (L=33.00 km)
BC	40	40
DBM	110	120
WMM	250	250
GSB	200	200
Subgrade	500	500

However, Concessionaire shall ensure the pavement design for its adequacy based on the latest traffic counts and properties of available material w.r.t to IRC: 37-2018, traffic analysis shall be as per specifications and standards mentioned in Schedule-D. If any additional MSA is required based on Concessionaire's analysis, the same shall be accommodated at Concessionaire's cost, in consultation with the Independent Engineer.

##### (b) SERVICE/SLIP ROAD

flexible pavement for service/ slip road shall be designed for minimum design traffic for 10 msa.

##### (c) Rigid Pavement for Toll Plaza Location

Pavement composition thickness for rigid pavement at Toll plaza location is given below.

Material Type	Thickness (mm)
Pavement Quality Concrete (M-40)	300
Dry Lean Concrete (M-10)	150
Granular Sub-base	200
Subgrade	500

Note: The concessionaire shall design pavement layer as per IRC 37-2018, the same shall be approved from IE.

0.2.7 Junction Improvement

There are 41 nos. of junctions on the project road, out of which, 9 nos. are major junctions & 32 nos are minor junction.

(A) Major Intersection

Si. No	Existing Chainage (Km)	Design Chainage (Ch)	Side	Junction Type (Cross +/T or Y)	LHS	RHS	Proposal	Remarks
					Leads to			
1	83+350	39+920	Both	+	Dabwali Dhab	Fazilka	VUP	SH-40
2	67+250	56+550	Both	+	Kera Khera	Baluaana	VUP	Proposed due to Major built up Location
3	58+920	64+900	RHS	T		Abohar City	VUP	Abohar Bypass
4	53+400	69+830	Both	+	Hanumangarh	Abohar City	VUP	SH-14
5	50+450	71+845	Both	+	Kikar khera	Abohar City	VUP	Proposed due to Built-up
6	48+400	74+785	Both	+	Sadhuwali	Abohar City	AT Grade	VUP will be Proposed on Abohar – Fazilka section
7	9+460	9+465	Both	+	Daulatpura	Khuian Sarwar	VUP	Proposed due to major built up Location
8	23+000	23+015	Both	+	Kallar Khera		VUP	Proposed due to major built up Location
9	30+110	30+110	Both	+	Gumjal		VUP	Proposed due to major built up Location

## (B) Minor Intersection

Si. No	Existing Chainage (Km)	Design Chainage	Side	Junction Type (Cross +/T or Y)	LHS	RHS	Proposal	Remarks
					Leads to			
1	83+900	38+980	RHS	T		Malout	At grade	
2	81+850	39+210	LHS	T	Harjinder Nagar		At grade	
3	81+000	39+800	Both	+	Malout	Burj Sidhwan	At grade	
4	77+700	45+650	LHS	T	Burj Sidhwan		At grade	
5	76+700	46+592	Both	+		Kabarwala	VUP Gr-2	Proposed due to Built-up
6	75+800	47+100	LHS	Y	Burja		At grade	
7	74+800	48+100	RHS	T		Kattyanwali	At grade	
8	72+750	50+495	Both	+	Pakki Tibbi	Katyanwali	VUP Gr-2	Proposed due to Built-up
9	70+690	52+540	Both	+	Pakki Tibbi	Local Road	At grade	
10	66+850	56+330	Both	+	Local Road	Baluaana	At grade	
11	65+960	57+210	RHS	T		Chanan Khera	At grade	
12	65+000	58+770	Both	+	Local Road	Local Road	At grade	
13	62+330	60+900	Both	+	Basiyan	Gobindgarh	At grade	
14	61+250	62+000	RHS	T		Gobindgarh	VUP Gr-2	
15	57+520	65+645	Both	+	Basiyan	Abohar City	At grade	
16	55+800	67+400	Both	+	Sito Gunno	Abohar City	AT Grade	
17	54+510	68+680	Both	+	Kala Tibba	Abohar City	At grade	
18	47+900	74+785	Both	+	Sadhuwali	Abohar City	At grade	
19	1+830	1+830	RHS	T		Maharaja Polytechnic College	At grade	

Four laning from Malout (Design Km 38.664, Existing Km 84.600 of NH-07) via Abohar to Sadhuwali (Design Km 33.000, Existing Km 32.550 of NH-62) Design Length = 69.600 Km in the State of Punjab under Bharatmala Pariyojana on Hybrid Annuity Mode.

Si. No	Existing Chainage (Km)	Design Chainage	Side	Junction Type (Cross +/T or Y)	LHS	RHS	Proposal	Remarks
					Leads to			
20	2+620	2+620	Both	+	Dharampura	Tani Mehal Singh	At grade	
21	3+000	3+000	RHS	T	Killianwali	Local Road	At grade	
22	4+928	4+928	Both	+	Dharam Pura	Saiyadwala	VUP Gr-2	Proposed due to Built-up
23	6+680	6+680	RHS	T		Saiyadwala	At grade	
24	7+830	7+830	LHS	T	Sappanwali		At grade	
25	9+240	9+240	Both	+	Khuian Sarwar	Khuian Sarwar	At grade	
26	9+520	9+660	LHS	T		Daulatpura	At grade	
27	11+070	11+060	RHS	T		Dewan Kheda	At grade	
28	16+660	16+650	LHS	T	Jandwala Hanwanta		At grade	
29	18+540	18+540	LHS	Y	Maujgarh		VUP Gr-2	Proposed due to Built-up
30	19+000	19+000	RHS	T		Tutwala	At grade	
31	27+030	27+040	Both	+	Village Road	Usmankhera	At grade	
32	29+150	29+260	LHS	+	Gumjal		At grade	

Four laning from Malout (Design Km 38.664, Existing Km 84.600 of NH-07) via Abohar to Sadhuwali (Design Km 33.000, Existing Km 32.550 of NH-62) Design Length = 69.600 Km in the State of Punjab under Bharatmala Pariyojana on Hybrid Annuity Mode.

There is no major bridge on the project road section under Malout-Abohar-Sadhuwali.

0.2.8 Proposal of Bridges, Culverts and other Structures

The Development Proposal of Minor Bridge is given in below Tables.

a) Minor Bridges

Table 0.7: Details of existing Minor Bridges

Si. No.	Existing Chainage	Design Chainage	Detail of existing structure				Development Proposal			
			No of Spans	Span/Dia. (m)	Total width	Super structure	Proposal	Proposed span arrangement	Proposed Structure type	Total Width
Malout - Abohar section										
1	75+565	47+683	3	10.4 + 10.6 + 10.4	8.3	RCC Solid Slab	Widening + Additional New 2 Lane	1 x 32	PSC I Girder	1x 13.5 (Widening) + 1x13.5 (New Construction)
2	71+315	51+943	1	1 x 8.0 (C. Span)	12.9	RCC Box	Additional New 2 Lane	1 x 8.0 (C. Span)	RCC Box	1x 12.9 (Existing) + 1x13.5 (New Construction)
3	51+750	71+442	1	1 x 8.65	12.5	RCC Solid Slab	Additional New 2 Lane	1 x 8.65	RCC Box	1x12.5 (Existing) + 1 x 13.5 (New Construction)
4	50+165	73+007	1	1 x 11.2	12.0	RCC Solid Slab	Additional New 2 Lane	1 x 11.2	RCC Box	1x12.0 (Existing) + 1 x 13.5 (New Construction)
Abohar - Sadhuwali section										
1	5+565	5+591	4	4 x 7.2 (C.Span)	12.9	RCC Box	Additional New 2 Lane	1 x 29	PSC I Girder	1x12.9 (Existing)+ 1 x 13.5 (New Construction)
2	11+110	11+079	1	1 x 6.0 (C.Span)	12.9	RCC Solid Slab	Additional New 2 Lane	1 x 6.0 (C.Span)	RCC Box	1x12.9 (Existing)+ 1 x 13.5 (New Construction)
3	32+635	32+612	5	5 x 8.3	12.9	RCC Solid Slab	Additional New 2 Lane	1 x 42	Steel Truss	1x12.9 (Existing)+ 1 x 13.5 (New Construction)

Four laning from Malout (Design Km 38.664, Existing Km 84.600 of NH-07) via Abohar to Sadhuwali (Design Km 33.000, Existing Km 32.550 of NH-62) Design Length = 69.600 Km in the State of Punjab under Bharatmala Pariyojana on Hybrid Annuity Mode.

b) Culverts

The detailed improvement of culvert is given below:

Si. No	Reconstruction	Widening/Retained	Total
1	74	91/2	167

c) Details of Proposed New Vehicular Underpasses

The details of proposed VUP are given below:

Table 0.8: Details of proposed VUP

Si. No.	Design Chainage	Span arrangement No. x L x H in (m)	Width of structure (m)	Remarks
1	39+920	1 x (15.0+25.0+15.0) x 5.5	22.2	SH-40
2	56+550	1 x 24.0 x 5.5	22.2	Baluaana Major Built-up
3	64+900	1 x 27.0 x 5.5	22.2	To Abohar
4	69+830	1 x 27.0 x 5.5	22.2	SH-14
5	71+845	1 x 24.0 x 5.5	22.2	To Kikkar Khera
6	9+465	1 x 24.0 x 5.5	22.2	Daulatpura Major Built-up
7	23+015	1 x 24.0 x 5.5	22.2	Kallar Khera Major Built-up
8	30+110	1 x 27.0 x 5.5	22.2	Gumjal Major Built-up

d) Details of Proposed Light Vehicular Underpasses

Table 0.9: Details of proposed Light Vehicular Underpasses

Si. No.	Design Chainage	Span arrangement No. X L X H (m)	Width of structure (m)	Remarks
1	46+592	1 x 12.0 x 4.0	22.2	Kabarwala
2	50+495	1 x 12.0 x 4.0	22.2	Kattyan Wali
3	62+000	1 x 12.0 x 4.0	22.2	Gobindgarh
4	4+928	1 x 12.0 x 4.0	22.2	Saiyadwala
5	18+540	1 x 12.0 x 4.0	22.2	Maujgarh

e) Proposal for ROB

Table 0.10: Details of proposed ROB

Si. No.	Existing Chainage (Km)	Design Chainage	Over all Width	Span Arrangement	Remarks
1	56+370	66+790	2 x 13.0	1x18 + 1x24 + 1x36 + 1x24 + 1x18	Abohar Bypass

0.3 TOLL PLAZA

Location of toll plazas has been proposed based on the traffic dispersal pattern at the respective homogenous sections, road geometry and vertical profile of the road and the surrounding area. The location and details of the toll plaza is given in Table 0.11.

Table 0.11: Details of Toll Plaza

Si. No.	Existing Chainage (Km)	Design Chainage (Km)	Location	No. of Lanes	Remarks
1	69+800 (NH-07)	53+400 (NH-07)	Near Baluaana	16 Lanes (8 Lane each side)	As per Section 10 of Manual IRC: SP 84-2019
2	13+850 (NH-62)	13+900 (NH-62)	Near Khuian Sarwar	16 Lanes (8 Lane each side)	As per Section 10 of Manual IRC: SP 84-2019

0.4 REST AREA

Rest area shall be provided at following locations of project road:

Table 0.12: Locations of Rest Area

Si. No.	Existing Chainage (Km)	Design Chainage	Side
Nil			

0.5 BUS BAY WITH SHELTER AND TRUCK LAY BYE

Busbay with shelter/Bus shelter shall be provided at following locations of project road:

Table 0.13: Locations of Rest Area

Si. No.	Design Chainage	Side	Busbay with Shelter/Bus Shelter	Remarks
1	39+800	RHS	Bus Shelter	Malout - Abohar section
2	40+000	LHS	Bus Shelter	
3	46+500	RHS	Bus Shelter	
4	46+650	LHS	Bus Shelter	
5	56+500	RHS	Bus Shelter	
6	56+600	LHS	Bus Shelter	
7	64+400	LHS	Bus bay with Shelter	

Four laning from Malout (Design Km 38.664, Existing Km 84.600 of NH-07) via Abohar to Sadhuwali (Design Km 33.000, Existing Km 32.550 of NH-62) Design Length = 69.600 Km in the State of Punjab under Bharatmala Pariyojana on Hybrid Annuity Mode.

Si. No.	Design Chainage	Side	Busbay with Shelter/Bus Shelter	Remarks	
8	64+500	RHS	Bus bay with Shelter		
9	67+200	RHS	Bus Shelter		
10	67+600	LHS	Bus bay with Shelter		
11	69+700	RHS	Bus Shelter		
12	69+950	LHS	Bus Shelter		
13	71+800	RHS	Bus Shelter		
14	71+900	LHS	Bus Shelter		
15	0+200	LHS	Bus Shelter		Abohar - Sadhuwali section
16	0+300	RHS	Bus Shelter		
17	4+850	RHS	Bus Shelter		
18	5+000	LHS	Bus Shelter		
19	9+400	RHS	Bus Shelter		
20	9+550	LHS	Bus Shelter		
21	16+300	RHS	Bus Shelter		
22	16+600	LHS	Bus Shelter		
23	18+450	RHS	Bus Shelter		
24	18+600	LHS	Bus Shelter		
25	22+950	RHS	Bus Shelter		
26	23+100	LHS	Bus Shelter		
27	26+950	RHS	Bus bay with Shelter		
28	27+100	LHS	Bus bay with Shelter		
29	30+050	RHS	Bus Shelter		
30	31+050	LHS	Bus Shelter		

Table 0.14: Locations of Truck Lay bye

Si. No.	Existing Chainage (Km)	Design Chainage	Side
1	Malout - Abohar of NH-07	60+600	LHS
2	Malout - Abohar of NH-07	60+700	RHS

0.6 PRELIMINARY COST ESTIMATE

0.6.1 Civil Cost

The project cost on above items has been worked out based on development proposal of the project corridor. The Civil cost of the project road section under Package-I as assessed at this stage is given below.

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Table 0.15: Summary of Civil Cost Estimate

ABSTRACT OF COST (MALOUT - ABOHAR - SADHUWALI)				
SI. NO.	BILL NO.	DESCRIPTION	AMOUNT (Cr.)	PERCENT (%)
1	Bill No 1	SITE CLERANCE AND DISMANTLING	3.41	0.52%
2	Bill No 2	EARTH WORK	59.34	8.99%
3	Bill No 3	GRANULAR SUB-BASE AND BASE COURSES	139.00	21.06%
4	Bill No 4A	BITUMINOUS COURSES	172.60	26.16%
5	Bill No 4B	RIGID PAVEMENT	0.00	0.00%
6	Bill No 5	CROSS DRAINAGE WORKS	16.50	2.50%
7	Bill No 6	BRIDGE'S, UNDERPASS, FLYOVER ETC. & RE WALL	155.60	23.58%
8	Bill No 7	DRAINAGE AND PROTECTIVE WORKS	40.06	6.07%
9	Bill No 8	TRAFFIC SIGNS, MARKINGS AND ROAD APPURTENCES	25.78	3.91%
10	Bill No 9	MISCELLANEOUS ITEMS	8.92	1.35%
11	Bill No 10	TOLL PLAZA	37.07	5.62%
12	Bill No 11	MAINTENANCE	1.62	0.25%
A		TOTAL CIVIL COST (A) =	659.89	100.00%
		TOTAL CIVIL COST IN Cr.	659.89	

#### 0.6.1 TOTAL PROJECT COST

The total project cost for project road section under Package-I based on construction packaging option is given below in Table 0.16.

Table 0.16: Total Project Cost Package- I

Si. No.	Description	Amount (Cr.)
A	Base Civil Cost	659.89
B	Cost of pre-construction activities (221.00 Cr.)	
	Land Acquisition (115 Cr.) + R& R Cost (40 Cr.)	155.0
	Utility Shifting Cost (EP, Water pipe line, HP and HT Line etc...)	36.0
	Environment & Forest Clearance (in Cr.)	30.0
	Total Capital Cost (Cr.) (A+B)	880.89 Cr.

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## 0.7 RESULTS OF FINANCIAL ANALYSIS

The main objective of financial analysis is to assess the likely returns to the investors under realistic conditions/assumptions.

The total landed costs for the proposed road at the end of the construction period has been estimated by adding the capitalized interest during construction (IDC). The total landed cost at the time of commissioning (start of 2020-21) is thus estimated is given Table 0.17

Table 0.17: Total Landed Cost including IDC

Si. No.	Particulars	Amount (Rs Crores)
A	Concessionaire Cost	
1	Civil Construction Cost base year (2020-21)	880.9
2	Physical Contingencies Charges (1% Civil Construction Cost)	8.81
3	Estimated Project Cost (EPC), base year	889.68
4	IC & Preoperative Expenses (1% of EPC)	8.90
5	Concessionaire Cost incl. of Financing and Interest, IDC (TPC)	1031.50
6	Finance Charges (1.0% of Debt)	6.88
7	Escalation @ 5.0% per annum (on TPC)	52.82
8	Viability Gap Funding VGF	0.00
	During Construction period	0.00
	During Operation Period	0.00
9	Concessionaire Cost of Project after Grant	1031.50
	Amount of Debt Considered	66.7%
	Interest During Construction, IDC	73.2

Based on the project structure traffic study and toll rate analysis, financial feasibility analysis has been carried out as per the methodology outlined in earlier sections. The minimum Equity IRR (Return on Equity) considered for the project is 15%. As per current scenario, existing traffic is low. Financial indicators are presented in Table 0.18 below.

Table 0.18: Financial Indicators

Si. No.	Particulars	Results	Results
		(At 15% Equity IRR)	(At Maximum Permissible VGF of 40% of TPC)
1	Equity IRR	15%	9.80%
2	Expected VGF (in %)	61.0%	401.0%
3	Expected VGF (Rs. in Crore)	603.0	1003.0
4	Total Project Cost (Rs. in Crore)	989.0	984.7
5	NPV of the Equity @ 12% discount rate (Rs. in Crore)	76.1	Negative

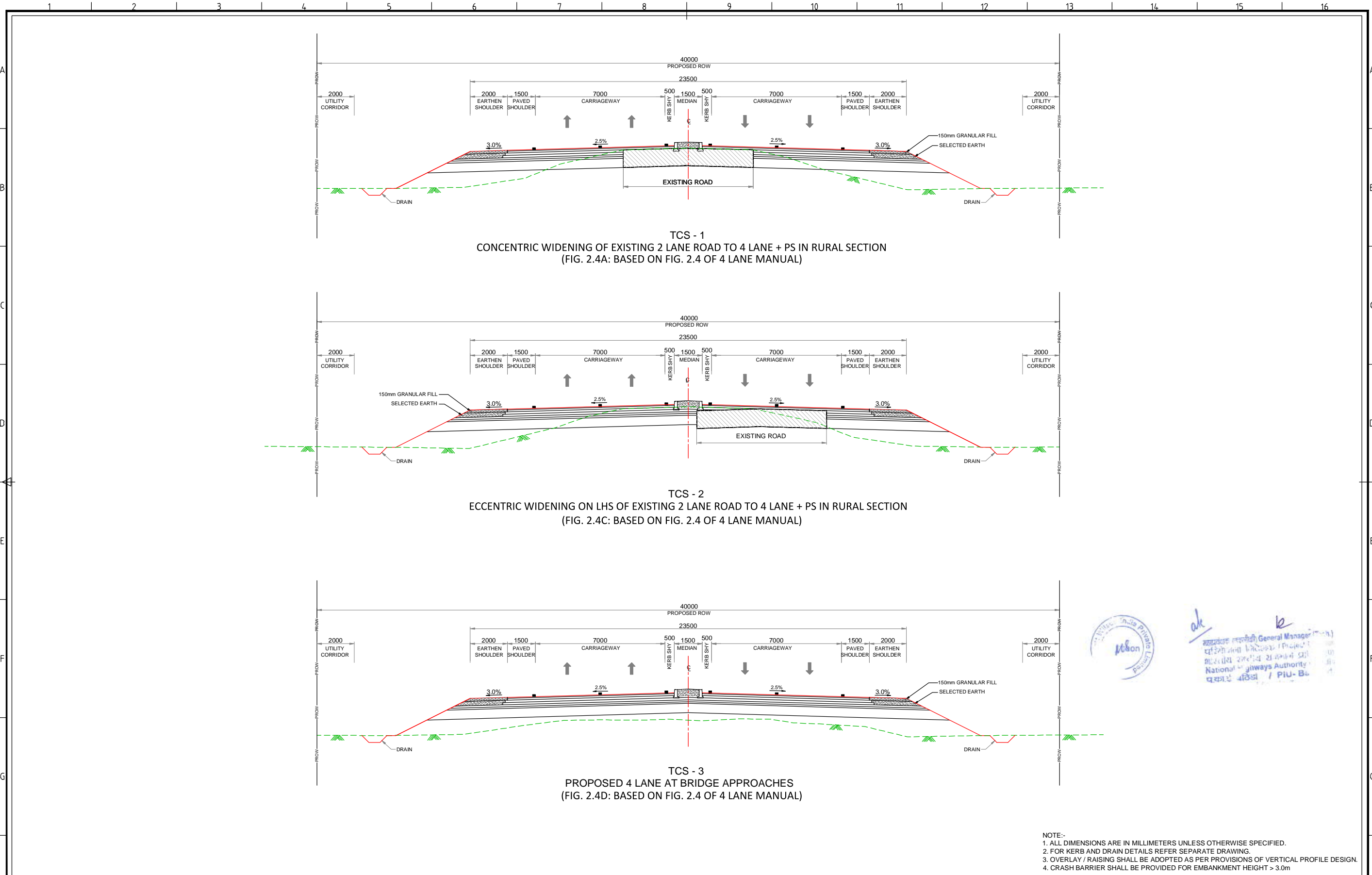
From the above table it can be concluded that the project is financially Not Viable on BOT (Toll) basis with 40% Grant and 30 years Concession Period. Hence the project is recommended to be taken up on Hybrid Annuity mode.

0.8 CONCLUSION AND RECOMMENDATION

Consultant recommends the project road to be developed on Hybrid Annuity Mode.




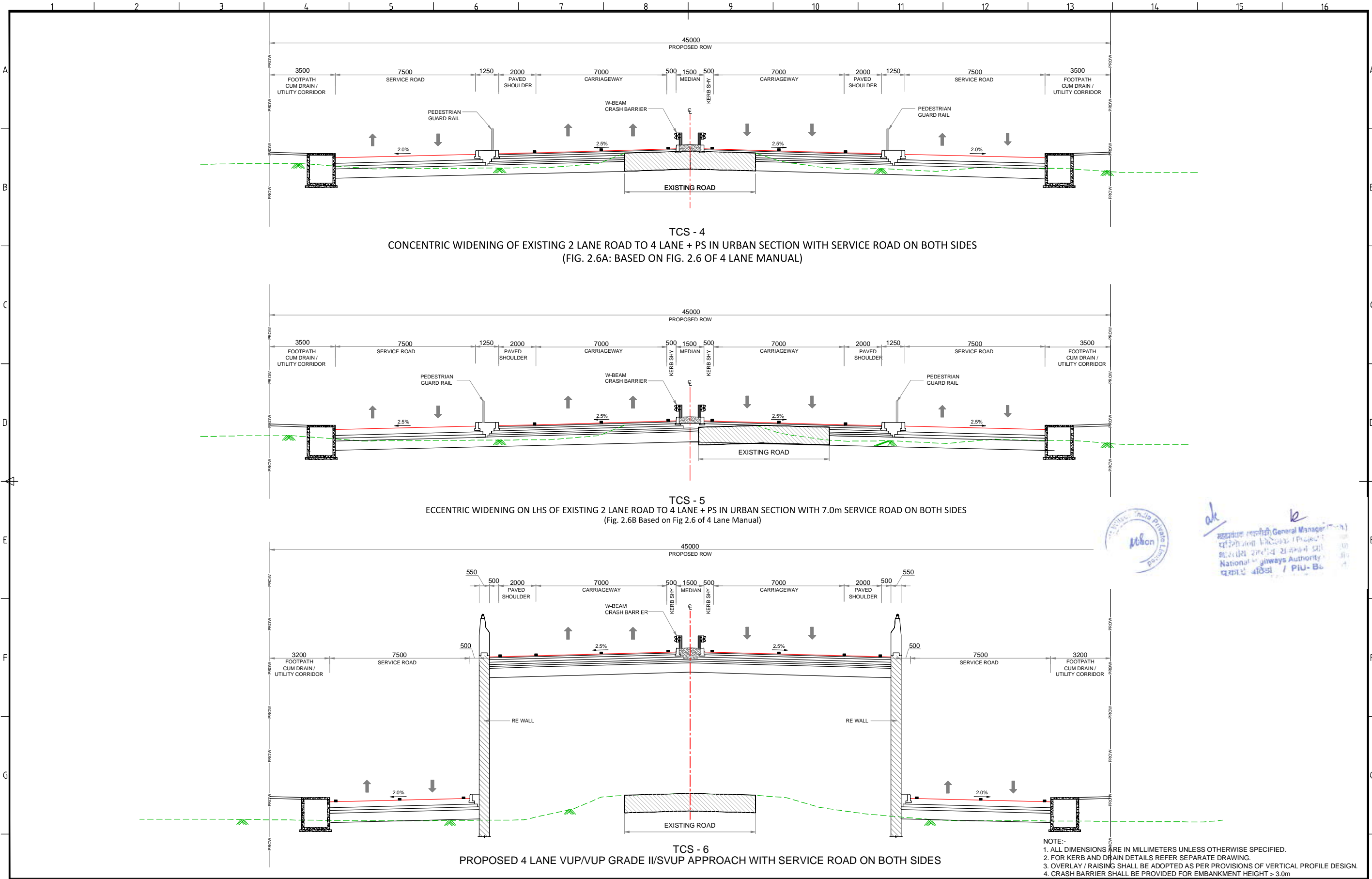
ak k  
सहायक व्यवस्थापक (General Manager) (प्र.सं.)  
परियोजना निदेशक / Project  
शासकीय सहायक संचालक / SA  
National Highways Authority  
पञ्जाब प्रदेश / PIU- B



ak  
 General Manager  
 National Highways Authority  
 of India (NHAI)

NOTE:-  
 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.  
 2. FOR KERB AND DRAIN DETAILS REFER SEPARATE DRAWING.  
 3. OVERLAY / RAISING SHALL BE ADOPTED AS PER PROVISIONS OF VERTICAL PROFILE DESIGN.  
 4. CRASH BARRIER SHALL BE PROVIDED FOR EMBANKMENT HEIGHT > 3.0m

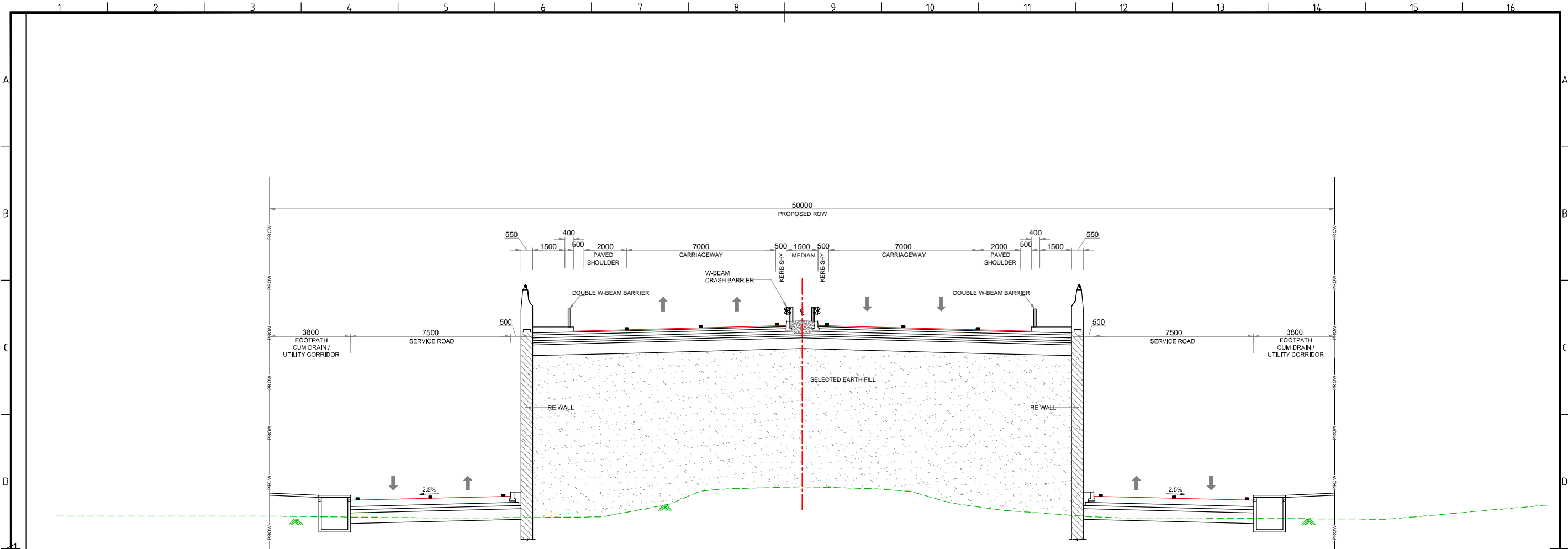
SCALE :- <b>NTS</b>		STATUS :- <b>DRAFT DETAILED PROJECT REPORT</b>		CLIENT:-  <b>NATIONAL HIGHWAYS AUTHORITY OF INDIA (NHAI)</b>		CONSULTANTS:- <b>URS AECOM</b> URS Scott Wilson India Pvt. Ltd. In Association with AECOM India Private Limited 3rd Floor, Building No.-8A, DLF Cyber City, Gurgaon-122002, Haryana, India © AECOM India Pvt. Ltd. 2014 The information contained in this document produced by AECOM is solely for the use of the Client identified on the cover sheet for the purpose for which it has been prepared and AECOM undertakes no duty to or accepts any responsibility to any third party who may rely upon this document. All rights reserved. No section or element of this document may be reproduced, stored, electronically stored or transmitted in any form without the written permission of AECOM.		PROJECT:- <b>CONSULTANCY SERVICES FOR PREPARATION OF DPR FOR DEVELOPMENT OF ECONOMIC CORRIDORS, INTER CORRIDORS, FEEDER ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT MOVEMENT IN INDIA UNDER BHARATMALA PARIYOJANA: LOT-2/PUNJAB/PACKAGE-1</b>		TITLE: <b>TYPICAL CROSS SECTION (Malout - Abohar - Sadhuwali Section)</b>		DWG NO.: - URS-60542289-FD-DWG-CR- TCS-0001-R0	
PURPOSE :- <b>NOT FOR CONSTRUCTION</b>		DATE:- October 2019		PAPER :- A2		DRAWN (A) NY		DESIGN (B) SK		CHECKED (C) SV		APPROVED (D) MSR	



ak  
b  
General Manager  
National Highways Authority  
PIU-B

- NOTE:-
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
  2. FOR KERB AND DRAIN DETAILS REFER SEPARATE DRAWING.
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SCALE :-		STATUS :-		CLIENT:-		CONSULTANTS:-		PROJECT:-		TITLE:		DWG NO. :- URS-60542289-FD-DWG-CR- TCS-0002-R0	
NTS		DRAFT DETAILED PROJECT REPORT		NATIONAL HIGHWAYS AUTHORITY OF INDIA (NHAI)		URS AECOM		CONSULTANCY SERVICES FOR PREPARATION OF DPR FOR DEVELOPMENT OF ECONOMIC CORRIDORS, INTER CORRIDORS, FEEDER ROUTES TO IMPROVE THE EFFICIENCY OF FREIGHT MOVEMENT IN INDIA UNDER BHARATMALA PARIYOJANA: LOT-2/PUNJAB/PACKAGE-1		TYPICAL CROSS SECTION (Malout - Abohar - Sadhuwali Section)		DATE:- October 2019 PAPER :- A2	
PURPOSE :-		NOT FOR CONSTRUCTION										DRAWN (A) DESIGN (B) CHECKED (C) APPROVED (D)	
REV	DATE	DESCRIPTION OF REVISION										NY SK SV MSR	



TCS - 7  
 PROPOSED 4 LANE ROB APPROACH IN RURAL SECTION  
 (Fig. 7.4A1 Based on Fig 7.4A of 4 Lane Manual)

*ak*  
*k*  
 General Manager  
 National Highways Authority of India  
 P.O. Box 1000, New Delhi - 110001

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REV	DATE	DESCRIPTION OF REVISION											