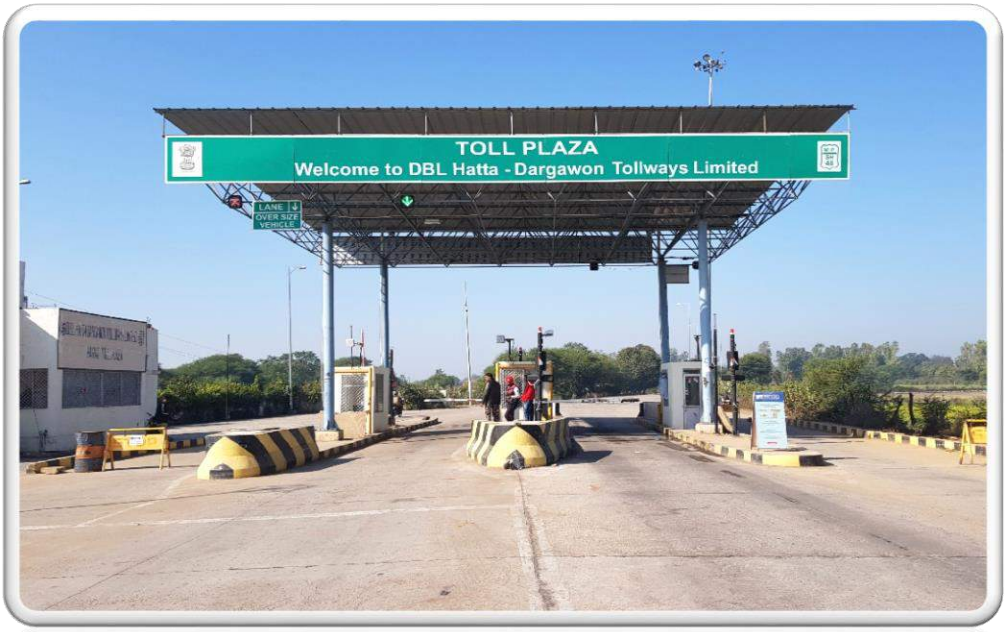
SHREM FINANCIAL PRIVATE LIMITED

Development of Hata – Fatehpur– Rajpura – Silapuri – Bajna - Darguwa (SH-48) Road in the State of Madhya Pradesh on BOT (Toll+Annuity) Basis

TECHNICAL DUE DILIGENCE REPORT



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SUBMITTED BY

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This document has been issued and amended as follows:

Report No.	Issue	Date	Description
RU-DD Report-Hata-Darguwa	02	February 2021	Technical Due Diligence Report

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CHAPTER 1. INTRODUCTION

1.1 General

DBL HATA DARGAWAN Tollways Limited (herein after referred to as the "Concessionaire") had augmented the existing road from Km. 0+000 (Hata town) to Km. 64+400 (Dargawan Tihara) in the state of Madhya Pradesh, in accordance with the provisions of the Concession Agreement (CA) executed with Madhya Pradesh Road Development Corporation Limited (herein after referred to as the "MPRDC") on 10.08.2015.

Project highway starts at Hata town (Km. 0+000) and ends at Dargawan Tihara (Km. 64+400) passing through Baroda, Fatehpur, Bari, Rajpura, Bhojpura in the state of Madhya Pradesh on Design, Build, Finance, Operate and Transfer (DBFOT) Toll + Annuity basis.

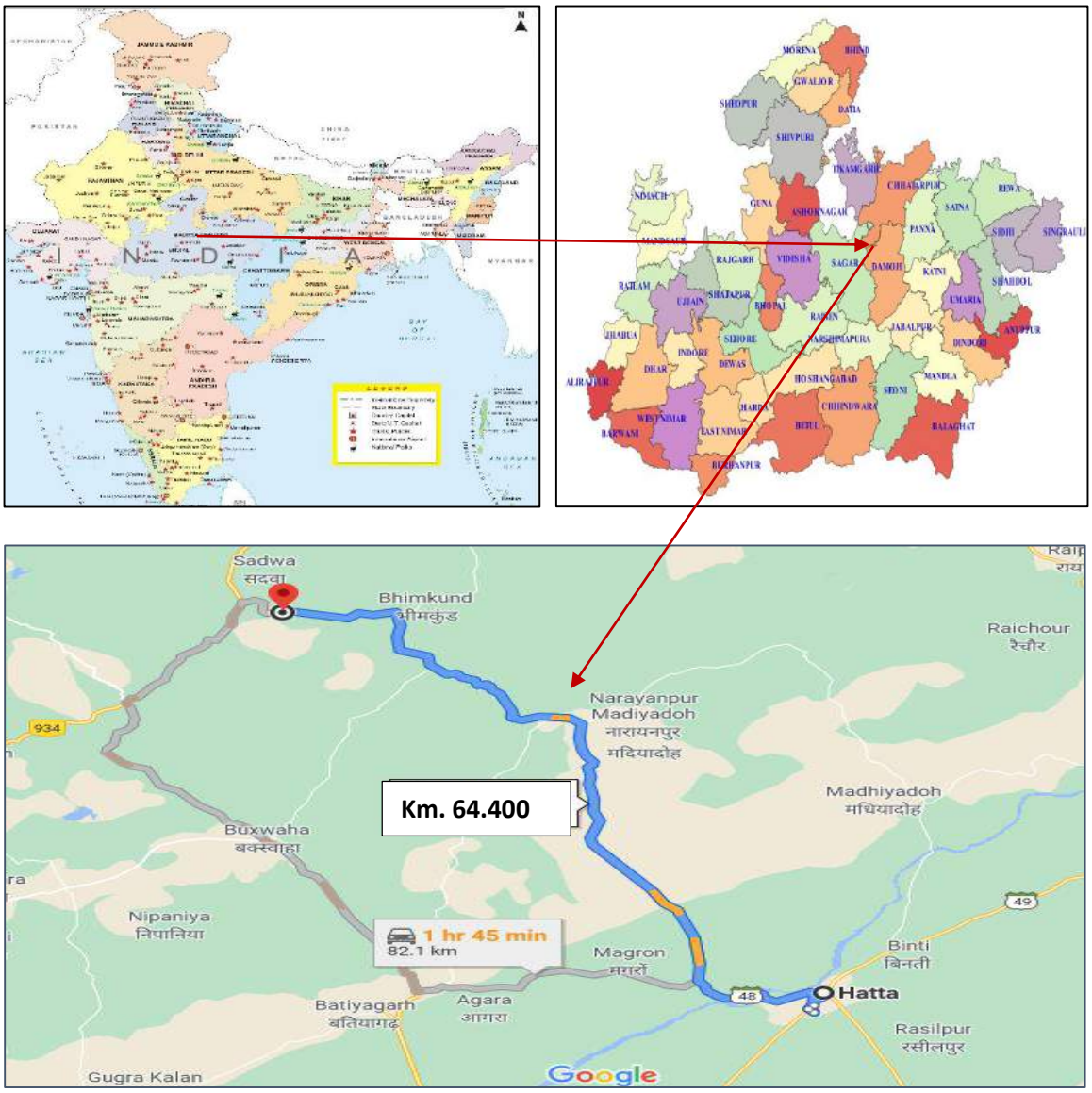

Figure 1.1: Project Location Map

SHREM ROADWAYS PRIVATE LIMITED (SRPL) acquired DBL HATA DARGAWAN TOLL WAYS LIMITED vides agreement dated 26th March 2018.

SHREM FINANCIAL PRIVATE LIMITED (SFPL) appointed RUKY Projects Pvt. Ltd. as consultants for detailed Technical Due Diligence Services of the above Road Project to know-how the present condition of Carriageway and Structures, probable costs of Operations and Maintenance during balance Concession period, additional road safety requirements if any and to review the traffic potential and to estimate the projected Toll Collection etc.

1.2 The Project Data

Table 1.1: The Project Data

S.No.	Particulars	Details
1	Name of the project	Construction, operation and maintenance of road from Hata-Fatehpura-Rajpura-Silapuri-Bajna-Dargawan (SH-48) road on BOT.
2	Road Type	SH-48
3	Name of the Authority	Madhya Pradesh Road Development Corporation Limited
4	Name of the Concessionaire	DBL HATA DARGAWAN Toll ways Limited
5	Name of the EPC Contractor	Dilip Buildcon Limited
6	Date of LOA	06.06.2015
7	Date of Agreement	10.08.2015
8	Design length as per Schedule B of CA	64.400 Kms.
9	Actual length constructed	64.400 Kms.
10	Project lane configuration	2 Lane
11	EPC cost	87.14 Cr.
12	Nature of contract	BOT (Toll + Annuity)
13	Toll collected by	Concessionaire
14	Concession period	15 years from the appointed date
15	Appointed date	10.04.2016
16	Concession end date	09.04.2031
17	Construction period	730 days from the appointed date.
18	Schedule completion date	09.04.2018
19	Date of issuance of provisional certificate (Commercial operation date)	07.03.2017
20	Annuity amount (every six months)	7.02 Cr
21	Total number of annuities payable	26 No's
22	First annuity payment date	06.09.2017
23	Total number of annuity paid	7 Nos.

1.3 Scope of consultancy services

The scope of work includes providing Due Diligence of the project road and providing estimate of the anticipated maintenance works. Scope of the work as defined in the consultancy work order is listed below:

- Review of various contractual documents
- Collection of historic/past toll revenue data
- Collection of historic/past classified Traffic data from toll plaza and to estimate the projected traffic to arrive at revenue projections.
- Carryout detailed assessment of pavement condition and propose maintenance plan along with BOQ.
- Review of latest BBD/BI test report
- Carrying out inventory & condition survey of all elements of road like embankment slope, plantation, road furniture, tolling system etc., of the project.
- Carrying out inventory & condition survey of all structures (Major Bridges, Minor Bridges, ROB, RE Wall, Flyovers, VUPs, PUPs, Culverts etc.), suggest any rehabilitation & maintenance requirements along with BOQ.
- Carryout review of tolling system to evaluate the efficiency and functionality of tolling system and to identify and give suggestions to improve if any setbacks in the system.
- Carryout out road safety audit on Project highway and provide suggestions for improvement.
- Assess and Provide BOQ and cost estimate for routine & periodic maintenance including O&M.
- Review of punch list items, NCR's to identify any uncompleted works as on date of submission of report.
- Review of validity of insurance and statutory compliances related to Project.
- Review of correspondences exchanged between parties on contract related issues and claims etc.
- Submission of detailed report on technical due diligence of the project.

CHAPTER 2. PROJECT DESCRIPTION & TECHNICAL DETAILS

2.1 Salient Features of the Project

The salient features described in the following Table 2.1 to be developed as per schedule B and Schedule C of Concession Agreement (CA) including Change of scope.

Table 2.1: Salient Features

S.No.	Particulars	As per CA	As per COS	As per Site
1	Total Length of 2Lane (Flexible)	64.40 Kms.	-	64.400 Kms.
2	Toll Plaza	1 Nos.	-	1 No.
3	Bus Bays / Bus Shelters	14 Nos.	-	14 Nos.
4	Major Junction	3 Nos.	-	3 Nos.
5	Minor Junctions	11 Nos.	-	11 Nos.
6	Major Bridges	02 Nos.	-	02Nos.
7	Minor Bridges	15 Nos.	-	15 Nos.
8	Pipe Culverts	73 Nos.	+1 Nos.	74 Nos.
9	Slab/Box Culverts	20 Nos.	-	20 Nos.

2.2 Typical Cross Section (TCS) Schedule

During construction the Concessionaire has followed the Typical Cross Section given in the following figures and schedule of cross sections as given in the Table 2.2 below.

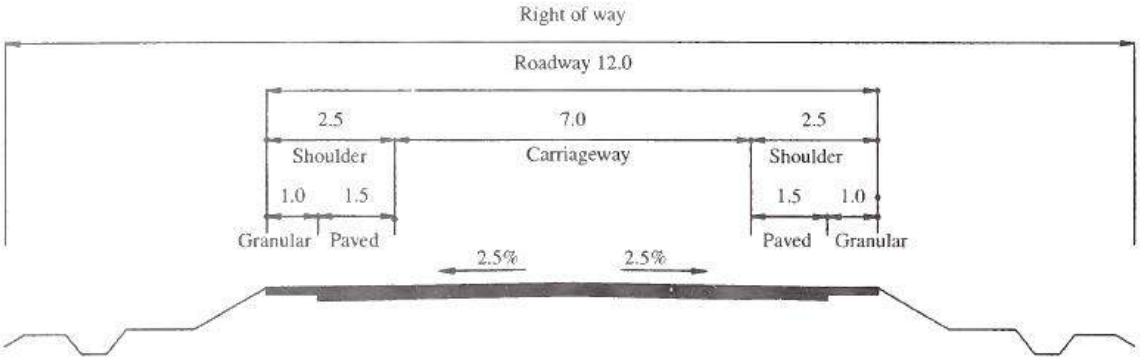

Figure 2.1: TCS 2.3 2-Lane Carriageway with Paved Shoulder (Built-up)

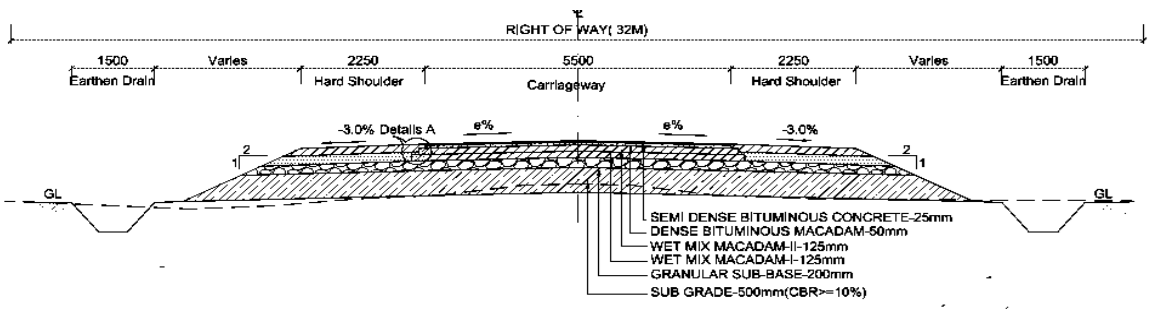

Figure 2.2: **TCS 2.6 Intermediate Lane with Hard Shoulder**

TCS schedule is provided below.

Table 2.2: TCS Schedule

S.No.	From Chainage (Km.)	To Chainage (Km.)	Length (m)	TCS Type
1	0+000	0+320	320	TCS.2.3
2	0+320	0+500	180	TCS.2.3
3	0+500	1+700	1200	TCS.2.3
4	1+700	6+900	5200	TCS.2.6
5	6+900	7+200	300	TCS.2.3
6	7+200	9+050	1850	TCS.2.6
7	9+050	9+600	550	TCS.2.3
8	9+600	15+000	5400	TCS.2.6
9	15+000	16+000	1000	TCS.2.3
10	16+000	21+400	5400	TCS.2.6
11	21+400	22+300	900	TCS.2.3
12	22+300	28+200	5900	TCS.2.6
13	28+200	28+500	300	TCS.2.3
14	28+500	34+350	5850	TCS.2.6
15	34+350	34+750	400	TCS.2.3
16	34+750	35+250	500	TCS.2.6
17	35+250	35+900	650	TCS.2.3
18	35+900	41+500	5600	TCS.2.6
19	41+500	42+300	800	TCS.2.3
20	42+300	52+400	10100	TCS.2.6
21	52+400	53+700	1300	TCS.2.3
22	53+700	56+500	2800	TCS.2.6
23	56+500	57+150	650	TCS.2.3
24	57+150	58+000	850	TCS.2.6
25	58+000	58+350	350	TCS.2.3
26	58+350	58+900	550	TCS.2.6
27	58+900	59+200	300	TCS.2.3
28	59+200	59+500	300	TCS.2.6
29	59+500	60+000	500	TCS.2.3
30	60+000	61+900	1900	TCS.2.6
31	61+900	62+500	600	TCS.2.3
32	62+500	63+700	1200	TCS.2.6
33	63+700	64+400	700	TCS.2.3

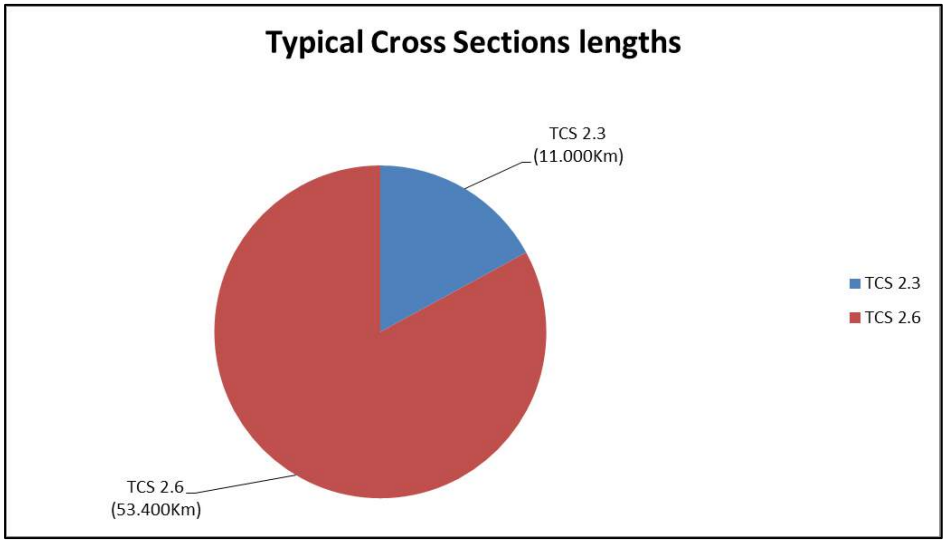

Figure 2.3: Pictorial Diagram of TCS Lengths.

2.3 Road Side Drainage

- To facilitate quick disposal of storm water from the Carriageway and to avoid accumulation of drainage on the Carriageway, side drains are constructed along the main carriageway on both flanks as specified in Schedule B of the CA in strict adherence to the Standard Specifications set forth in Schedule D of the CA.

2.4 Service Roads

Service roads are not provided along the entire stretch of the project road as per provisions of Schedule B of the CA.

2.5 Bypass/Realignment

Bypass/Realignment are not provided along the entire stretch of the project road as per provisions of Schedule B of the CA.

2.6 Intersections

As per provisions of Schedule B of the CA, 3 Major Junctions and 11 Minor Junctions are provided. Details are given below.

Table 2.3: Summary of Junctions

S.No.	Chainage (Km.)	Type	Side	Major/Minor	Location
1	0+000	T	LHS	Major	To Damoh
2	1+250	T	RHS	Minor	To Hata
3	3+350	T	LHS	Minor	To Village
4	5+800	T	RHS	Minor	To Village
5	7+075	T	LHS	Minor	To Village
6	9+200	T	LHS	Minor	To Village

S.No.	Chainage (Km.)	Type	Side	Major/Minor	Location
7	15+375	T	RHS	Minor	To Village
8	15+950	T	RHS	Minor	To Village
9	22+350	T	LHS	Minor	To Village
10	28+100	T	RHS	Minor	To Village
11	35+275	T	RHS	Minor	To Village
12	37+100	T	LHS	Minor	To Village
13	47+625	T	BHS	Major	To Jatashankar RHS, Baxwaha LHS
14	64+400	T	BHS	Major	To Chatarpur RHS, Sagar LHS

2.7 Grade Separated Structures and underpasses

There are no Grade separated structures in the Project, as per provisions of Schedule B of the CA.

2.8 Road Under Bridge

There is no Road under Bridge in the Project, as per provisions of Schedule B of the CA.

2.9 Summary of the Pavement Details

Table 2.4: Summary of Pavement Details

S.No.	Description	Flexible (Kms.)	Rigid (Kms.)	Remarks
1	2 Lane with earthen shoulder	53.740	---	Fig 2.1 of Schedule D of CA (TCS 2.6)
2	2 Lane with paved shoulder	10.660	---	Fig 2.3 of Schedule D of CA (TCS 2.3)
3	4 Lane	---	---	Fig 2.2 of Schedule D of CA
4	Total length of the project	64.400	---	---
TYPE OF ALIGNMENT				
5	New alignment	---	---	---
6	Realignment	---	---	---
7	Strengthening	---	---	---
8	Reconstruction	64.400	---	---
9	Total length of the project	64.400	---	---

2.10 Summaryof Structures:

Summary of Structures as per provisions of schedule B of the CA is given below.

Table 2.5: Summary of Structures

S.No.	Description	Major Bridges	Minor Bridges	Hume Pipe Culverts	Box/Slab Culverts
1	Retained	1	6	57	9
2	Widening	---	6	---	8
3	Reconstruction	1	3	---	---
4	New	---	---	8	3
5	Improvement	---	---	8	---
6	Total	02	15	73	20

2.11 Toll Plazas

As per Schedule C of the CA provisions, one Toll Plaza has been constructed at Km. 6+100. Salient features of Toll Plaza are provided below.

- Each side comprises of, one normal lane and one extra wide lane.
- The lane width in normal lanes is 3.2 m and extra lane is of 4.5 m width.
- Single canopy is provided to cover the toll lanes.
- Toll plaza has been constructed as per standards set forth in Schedule D of CA having facilities like lighting, water supply and firefighting Arrangements.
- C.C. Cameras are installed and monitored in administrative building.

2.12 Bus shelters

As per the provisions of Schedule C of the CA bus shelters are provided at 14 locations. Details as per Schedule C of the CA and provided as per site condition are given below.

Table 2.6: Bus shelters details

S.No.	Chainage (Km.)	Location
1	0+000	Hatta
2	6+900	Hatta
3	9+050	Baroda
4	15+000	Faehpur
5	21+400	Bari
6	28+200	Hardutolla
7	30+600	Jaupura
8	35+250	Rajpura
9	41+500	Silapuri
10	52+400	Bajana
11	56+500	Dimwara
12	59+500	Bujpura
13	61+900	Darguwan
14	64+400	Surajpura

2.13 Other Project Facilities Provided as per Schedule C of CA

- Roadside furniture: Sign boards, kilometer stones, road marking and object/hazard markers are provided in accordance with IRC-SP: 73-2007.
- Traffic safety devices: W beam crash barriers, parapet walls are provided as per the provisions of Schedule C of the CA.
- Landscaping: provided at toll plaza location and being maintained
- Tree plantation: Tree plantation is provided on both sides, for the full length of project corridor and being maintained.
- Medical Aid Post: Provided at toll plaza location and operational.
- Highway Lighting: Highway lighting is provided at Toll Plaza location and is functional.

W Beam crash barrier at approaches at Km. 4+000

Toll Plaza ahead board at Km. 6+100

Km. 10+200

Km. 6+100

Figure 2.4: Project facilities.

CHAPTER 3. ROAD INVENTORY & PAVEMENT CONDITION

3.1 General

Road Inventory and pavement condition surveys were carried out by a team of Engineers and the features noted at site are presented below.

3.2 Road Inventory

Inventory of the project road was carried out physically and is summarized in the following Table 3.1. Couple of representative photographs is given below to have a clear picture of the Project.

Table 3.1: Road Inventory

S.No.	Features	Remarks
1	Terrain	Rolling and mild hilly
2	Land Use	Built Up 14 %, Agriculture 64% and Barren 22%
3	Earthen shoulder	1.0 m to 1.5m Width on site
4	Junctions	14 Nos.
5	Toll Plaza	Km. 6+100
6	Sign boards	Sign boards are provided as per requirement
7	Road Markings	Lane markings are provided as per requirement
8	Bus Bays /shelters	14
9	Street Lighting	Highway lighting provided as per requirement
10	Avenue plantation	Provided

3.3 Pavement Condition:

Pavement Condition survey was carried out on the Project road, based on observations supplemented with simple measurements. The criteria adopted for the classification of condition of the pavement is as per 4.2.1 of IRC 81-1997.

Table 3.2: Pavement Condition Classification

Classification	Pavement condition
Good	No cracking, rutting less than 10mm
Fair	No cracking or cracking confined to single crack in the wheel track with rutting between 10mm and 20mm.
Poor	Extensive cracking and/or rutting greater than 20mm sections with cracking exceeding 20% shall be treated as failed.

Pavement surface condition assessment is a key component of infrastructure asset management. The information is used across a wide range of business processes which includes: Monitoring the performance of the road; Predicting future Pavement Conditions and assessing long term needs; Identifying rehabilitation and maintenance treatment options; investigate causes of pavement deterioration and evaluating specific treatment options; The purpose of the pavement condition survey is to provide a more accurate and detailed investigation of the pavement deterioration in order to assist in determining appropriate rehabilitation treatments.

3.4 Pavement Condition Survey:

The survey on general Pavement Condition was primarily undertaken by means of slow drive- over survey, and supplemented with measurements where ever necessary. Pavement assessment was done with the help of simple instruments using measuring tape, Straight edge. It was carried out to quantify pavement deficiency on a representative basis. Aspects of pavement condition assessment include surface defects, rut depth, cracking, potholes, patched areas, shoulder conditions etc. An overall assessment of performance serviceability of the road was also done to rate the existing pavement and shoulder condition qualitatively.

The Pavement Condition is measured under the following sub-heads:

- Shoulder- (Composition/Condition)
- Riding Quality (Good/Fair/Poor/Very Poor)
- Pavement Condition: -
  - Cracking (% of surface area)
  - Ravelling (%of surface area)
  - Potholes (%of surface area
  - Patching (%of surface area)
  - Rut depth (Moderate 10 to 20 mm & Severe >20 mm)
  - Pavement edge drop (mm)
- Road Side Drain (Non-Existing/ Partially Functional/ Functional)

Upon verification of the Pavement Condition in the above said manner, it is observed that the Pavement condition of Project road is good**.** The field measurements of the Pavement Condition survey are tabulated in the standard proforma as per IRC: SP 19 and is given in **ANNEXURE 1.** The summary of Pavement Condition is given below.

Table 3.3: Pavement condition summary

From (Km.)	To (Km.)	Length (Kms.)	Condition
0+000	64+400	64.400	Good

Km. 4+000

Km. 10+200

Km. 13+200

Km. 40+900

Figure 3.1: Representative photographs of pavement condition

CHAPTER 4. INVENTORY AND REVIEW OF STRUCTURES

4.1 General Assessment and Details of the Existing structures

Inspection of existing structures on the project section was carried out, detailed inventory and condition is examined during the site visit as per the guide lines provided in IRC SP: 52-1999 & IRC SP: 35-1990.

4.2 Inventory of Structures

There are 02 Nos Major Bridges, 15 Nos Minor Bridges, 74 Nos Pipe culverts and 20 Nos Slab/ Box culverts are there along this project road.

Table 4.1: List of Structures

S.No.	Type of Structure	Numbers
1	Major bridges	02 Nos.
2	Minor Bridge	15 Nos.
3	Pipe culverts	74 Nos.
4	Slab/Box Culverts	20 Nos.

The superstructure of the Major bridges is of RCC Girder type resting on CRSM/RCC wall type Piers and Abutments with open foundation. The Super structure of the Minor bridges is of RCC solid slab and RCC Box structures and the substructures are of PCC/RCC conventional wall type, supported on open foundations. Detailed inventory and condition survey of bridges are given in **ANNEXURE 2.** The culverts observed along the project road are mainly of two types viz. pipe culverts and RCC slab/box culverts. Detailed inventory and condition survey of culverts are given in **ANNEXURE 3.**

4.3 Details of Major Bridges

The total length of the Retained major bridge at Km. 4+480 is 175.0m with 14 spans. The superstructure consists of RCC Girder. Each pier and abutment are of regular CRM wall type with open foundations. Superstructure is seated on Elastomeric bearings.

The total length of the major bridge at Km 40+900 is 100.0m with 5 spans. The superstructure consists of RCC Girder. Each Pier is of RCC Circular and Abutment are of regular RCC wall type with open foundations Superstructure is seated on Elastomeric bearings. Expansion joints are of strip seal type. RCC crash barrier have been provided on both sides of the deck.

Table 4.2: List of Major Bridges

S.No.	Chainage (Km.)	Span	Total Length of Bridge (m)
1	4+480	14x12.5m	175.0
2	40+900	5x20.0m	100.0

The condition of the superstructure and substructure is good. Certain minor maintenance operations such as quadrant pitching, reflector plates, cleaning of drainage spouts and strip seal expansion joints are to be carried out.

Figure 4.1: Overall view of the major bridge at Km. 4+480

Figure 4.2: Overall view of the major bridge at Km. 40+900

4.4 Details of Minor Bridges

There are 15 minor bridges in the project stretch. The type of Superstructure for Minor bridges is RCC solid slab and the Substructure is PCC/RCC conventional wall type supported on open foundations. Expansion joints are buried type and bearings are tar paper and elastomeric bearings. RCC crash barriers are provided on all structures.

Table 4.3: Inventory of Minor Bridges

S.No.	Chainage (Km.)	Span	Total Length of Bridge (m)	Description
1	1+119	4x10.0m.	40	The Minor Bridge has RCC solid slab superstructure supported on RCC wall type piers and abutment. Other features are RCC crash barrier, bituminous wearing coat, and Tar paper Bearings and buried type expansion joints.
2	4+250	3x1.0m.	32	The Minor Bridge has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
3	8+870	6x8.7m.	52.2	The Minor Bridge has RCC solid slab superstructure supported on RCC wall type piers and abutment. Other features are Steel pipe railing, bituminous wearing coat, and Tar paper Bearings and buried type expansion

S.No.	Chainage (Km.)	Span	Total Length of Bridge (m)	Description
				joints.
4	9+800	1x10.0m.	11.4	The Minor Bridge has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
5	14+425	1x10.0m.	11.2	The Minor Bridge has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
6	28+200	1X8.8m.	8.8	The Minor Bridge has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
7	35+610	2x10.0m.	22.3	The Minor Bridge has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
8	40+000	3X7.0m.	21.0	The Minor Bridge has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
9	41+550	2x5.8m.	11.6	The Minor Bridge has RCC solid slab superstructure supported on PCC wall type piers and abutment. Other features are RCC crash barrier, bituminous wearing coat, and Tar paper Bearings and buried type expansion joints.
10	43+013	2x7.2m.	14.4	The Minor Bridge has RCC solid slab superstructure supported on PCC wall type piers and abutment. Other features are RCC crash barrier, bituminous wearing coat, and Tar paper Bearings and buried type expansion joints.
11	44+490	1x10.0m.	10	The Minor Bridge has RCC solid slab superstructure supported on RCC wall type piers and abutment. Other features are RCC crash barrier, bituminous wearing coat, and Tar paper Bearings and buried type expansion joints.
12	46+765	1x7.2m.	7.2	The Minor Bridge has RCC solid slab superstructure supported on PCC wall type piers and abutment. Other features are RCC crash barrier, bituminous wearing coat, and Tar paper Bearings and buried type expansion joints.
13	52+935	4x7.5m.	32.3	The Minor Bridge has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
14	56+400	2x7.6m.	15.2	The Minor Bridge has RCC solid slab superstructure supported on PCC wall type piers and abutment. Other features are RCC crash barrier, bituminous wearing coat, and Tar paper Bearings and buried type expansion joints.
15	58+450	1x10.0m.	11	The Minor Bridge has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.

Km. 4+250

Km. 8+870

Km. 9+800

Km. 28+200

Figure 4.3: Representative photos for minor bridges

The condition of the minor bridges is good. Certain minor maintenance operations such as quadrant pitching, reflector plates, cleaning of drainage spouts and strip seal expansion joints are to be carried out.

4.5 Details of Culverts

The culverts observed along the project road are mainly of two types' viz. RCC Slab/Box culverts and Pipe culverts. The condition of culverts is generally good. For some of the pipe culverts vegetation and vent cleaning is required. In general, the condition of all the structures is found satisfactory. The detailed condition of the same are given the following sections. Detailed inventory and condition survey of culverts are given in **ANNEXURE 3.**

General description of the Slab/Box Culverts

There are 20 Nos. of slab/Box culvert in the project stretch. The details of the culverts are as given below.

Table 4.4: List of Slab/Box Culverts

S.No.	Chainage (Km.)	Span (m)	Vent Size (m)
1	3+030	1 x 4.0	2.00
2	9+675	2 x 2.0	2.00
3	14+825	2 x 2.0	2.00
4	15+540	1 x 4.0	2.00
5	18+450	1 x 4.0	2.00
6	22+860	1 x 4.0	2.00
7	27+160	1 x 4.0	2.00
8	29+860	1 x 6.0	2.00
9	31+730	1 x 6.0	2.00
10	34+875	1 x 6.0	2.00
11	35+680	1 x 6.0	2.80
12	40+750	1 x 5.2	4.00
13	42+280	1 x 6.0	2.00
14	42+630	1 x 5.0	2.00
15	46+210	1 x 6.0	1.50
16	53+931	1 x 5.0	3.00
17	55+150	1 x 6.5	2.00
18	55+968	1 x 2.5	2.50
19	59+450	1 x 5.0	2.80
20	60+575	1 x 3.5	3.00

The general condition of above Box/slab culverts is good. Maintenance is to be carried out before monsoon for vent clearance, Protection works etc.

Km. 9+675

Km. 27+160

Km. 46+210

Km. 29+860

Figure 4.4: Representative Photographs of Slab/Box Culverts

General Description of the Pipe Culverts

There are 74 Nos. of pipe culverts in the project stretch. The details of the culverts are as given below.

Table 4.5: List of Pipe Culverts

S.No.	Chainage (Km.)	No. of Rows Dia(m)
1	0+025	1 x 1.0
2	1+460	1 x 1.0
3	2+960	1 x 1.0
4	6+536	1 x 1.0
5	7+630	1 x 1.0
6	8+195	1 x 1.0
7	9+175	1 x 1.0
8	11+125	1 x 1.0
9	12+940	1 x 1.0
10	13+840	1 x 1.0
11	15+100	1 x 1.0
12	15+340	1 x 1.0
13	16+738	1 x 0.90

S.No.	Chainage (Km.)	No. of Rows Dia(m)
38	58+200	1 x 1.0
39	58+550	1 x 1.0
40	59+230	1 x 1.0
41	60+750	1 x 1.0
42	61+180	1 x 1.0
43	62+340	1 x 1.0
44	63+980	1 x 1.0
45	3+410	2 x 1.0
46	9+210	2 x 1.0
47	12+050	2 x 1.0
48	14+825	2 x 1.0
49	21+100	2 x 1.0
50	24+120	2 x 1.0

S.No.	Chainage (Km.)	No. of Rows Dia(m)
14	20+050	1 x 1.0
15	22+400	1 x 1.0
16	22+750	1 x 1.0
17	23+545	1 x 1.0
18	26+290	1 x 1.0
19	26+700	1 x 1.0
20	29+470	1 x 1.0
21	37+110	1 x 0.90
22	38+680	1 x 1.0
23	39+340	1 x 1.0
24	40+500	1 x 1.0
25	41+210	1 x 1.0
26	42+810	1 x 1.0
27	45+570	1 x 1.0
28	46+390	1 x 1.0
29	48+605	1 x 1.0
30	50+550	1 x 1.0
31	51+160	1 x 1.0
32	52+870	1 x 1.0
33	54+350	1 x 1.0
34	54+450	1 x 1.0
35	54+550	1 x 1.0
36	56+701	1 x 1.0
37	56+930	1 x 1.0

S.No.	Chainage (Km.)	No. of Rows Dia(m)
51	24+510	2 x 1.0
52	25+205	2 x 1.0
53	25+865	2 x 1.0
54	31+630	2 x 1.0
55	32+100	2 x 1.0
56	33+250	2 x 1.0
57	34+040	2 x 1.0
58	35+720	2 x 1.2
59	37+970	2 x 1.0
60	47+700	2 x 1.0
61	48+980	2 x 1.0
62	49+180	2 x 1.0
63	5+560	3 x 1.0
64	7+850	3 x 1.0
65	11+560	3 x 1.0
66	13+640	3 x 1.0
67	36+990	3 x 1.0
68	42+340	3 x 1.0
69	57+560	3 x 1.0
70	60+198	4 x 1.0
71	61+700	3 x 1.0
72	62+850	3 x 1.0
73	63+980	1 x 1.0
74	64+980	1 x 1.0

The general condition of above pipe culverts is good. Maintenance is to be carried out before monsoon for vent clearance, Protection works etc.

CHAPTER 5. PAVEMENT DESIGN VALIDATION AND OVERLAY SCHEDULES

5.1 General

Review of Pavement design report includes providing insights on design life of pavement, crust thickness, history of overlays on the existing pavement, pavement condition and CA provisions for the upcoming renewal cycles.

5.2 Pavement design

The flexible pavement has low flexural strength and hence layers reflect the deformation of the lower layers / sub-grade on to the surface layer after the withdrawal of wheel load. In order to that no permanent deflections result in the subgrade, the pavement thickness is so designed that the stresses on the sub-grade soil are kept within its bearing capacity. Loading of bituminous pavement requires the stiffest layers to be placed at the top surface with successive weaker layers down to sub-grade.

The project road is already operational and the standards applicable during the design development phase of the project road are taken into account for this review. Therefore, the design of pavement has been validated based on IRC: 37-2012 publication while the current publication is IRC: 37-2018.

5.3 Review of Pavement Design

As per the pavement design approved in the project, the following conclusions are given.

Table 5.1: Flexible Pavement Design summary

S.No.	Description/ Pavement layer	Design/Adopted Parameters
1	Sub Grade CBR (%)	7%
2	Design Life (Years)	15 years
3	Design Traffic* (MSA)	3.2 MSA actual 10 MSA design
4	Surface course (BC)	40 mm
5	Binder course (DBM)	60 mm
6	Base course (WMM)	250 mm
7	Sub Base course (GSB)	230 mm

5.4 Validation of Pavement Design

The new pavement shall be designed in accordance with the IRC:37. “Guidelines for the Design of Flexible Pavements”. Rigid pavement shall be designed in accordance with the method prescribed in IRC:58. “Guidelines for the Design of Plain Jointed Rigid Pavements for Highways”.

Pavement design validation is carried out as per actual traffic from COD. As per IRC 37, Vehicle Damage Factor (VDF), Distribution of commercial vehicles and growth rate values are 3.5, 0.75 and 5% respectively. Summary is given below.

Table 5.2: Real Time Traffic From COD & Project Traffic Current Years With 5% Growth For CMSA

FY Year	AADT in Vehicles					CVPD (Veh.)	MSA	CMSA	Year	Remarks
	Car	LCV	BUS	2-AT	MAV					
2018	140	76	18	7	18	120	0.11	0.11	2	Actual
2019	316	136	23	10	31	201	0.19	0.31	3	Actual
2020	394	136	22	8	34	200	0.19	0.50	4	Actual
2021	413	143	23	9	35	210	0.20	0.70	5	Projected
2022	434	150	24	9	37	220	0.21	0.91	6	Projected
2023	456	158	25	10	39	231	0.22	1.13	7	Projected
2024	478	166	26	10	41	243	0.23	1.36	8	Projected
2025	502	174	28	11	43	255	0.24	1.61	9	Projected
2026	527	182	29	11	45	268	0.26	1.87	10	Projected
2027	554	192	30	12	47	281	0.27	2.13	11	Projected
2028	581	201	32	13	50	295	0.28	2.42	12	Projected
2029	610	211	34	13	52	310	0.30	2.71	13	Projected
2030	641	222	35	14	55	325	0.31	3.03	14	Projected
2031	673	233	37	14	57	342	0.33	3.35	15	Projected

Based on the above actual traffic, estimated MSA at 15 years is 3.35 of TP respectively. However, Traffic considered in pavement design (10 MSA) is more than estimated traffic (3.35 MSA) based on actual traffic. Hence the pavement design adopted is found in order.

Details of Pavement design for Rigid Pavement are as follows:

Table 5.3: Rigid Pavement Design for Toll Plaza

Description	Design/Adopted Thickness
CBR of sub grade	7 %
Design life in years	30
Pavement Quality Concrete (PQC) - mm	250
Dry Lean Concrete (DLC) - mm	150
Drainage Layer (GSB) - (mm)	150
Diameter of Dowel Bar (mm)	32
Length of Dowel Bar (mm)	450
Spacing of Dowel Bars (mm)	400
Diameter of Tie Bar (mm)	12 (Deformed)
Length of Tie Bar (mm)	640
Spacing of Tie Bars (mm)	710

The Pavement crust has been designed according to IRC specification and found in order, the adopted/ Constructed pavement layer thickness is adequately provided than actual/designed thickness.

5.5 Overlay during operation and maintenance

The pavement has been designed to cater traffic of 10 MSA for a design life of 15 years for Bituminous layers and Granular layers (up to end of year 2031), whereas the actual traffic is 3.35 MSA for 15 years. This implies that pavement will be structurally adequate to cater the future traffic with periodic renewal carried out under the maintenance program.

However, it is recommended to carry out traffic survey, pavement condition and pavement strength evaluation before the end of 7 years of design life and prior to the end of concession period to evaluate the requirement of overlay.

5.6 Maintenance/ Overlay schedule

Periodic Maintenance includes Profile corrective course overlaid with the periodic renewal of the wearing course of BC. The detail maintenance schedule is summarized below.

Routine maintenance - Every year
Periodic Renewal for Flexible Pavement – Proposed on or before 2023 and 2030.
Periodic Maintenance for Rigid Pavement – Re-texturing shall be done at least once in 10 years from construction.

CHAPTER 6. SAFETY AUDIT OF ROAD

6.1 General

Road Safety Audit (RSA) is defined as "the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users".

Road Safety has multi- sectorial and multi- dimensional issues. It incorporates the development and management of road infrastructure, provisions of safer vehicles, legislations and law enforcements, mobility planning, provisions of health and hospital services, child safety, urban land use planning.

A Key feature of a road safety audit is the use of a team of professionals with varied expertise. The team shall include highway safety engineers, highway design engineers, maintenance personal, and law enforcement. Additional specialties shall be added to the team as needed.

Central Road Research Institute (CRRI) has studied road safety elements extensively in the past and has come up with various manuals such as manual for safety in road design (1998), Road safety Audit Manual (2003) and Revised Road Safety Audit manual (2010). SP-88, Manual on road Safety Audit. The methodology used for the design stage audit process is based on these manuals like Type Designs for Intersections on National Highways, 1992

Table 6.1: Referred IRC Publications

IRC: 35	Code of Practice for Road Markings
IRC: 38	Guidelines for Design of Horizontal curves for highways and Design tables
IRC: 67	Code of Practice for Road signs
IRC: 73	Geometric Design standards for rural highways (non-urban)
IRC:103	Guidelines for Pedestrian Facilities
IRC: SP-15	Ribbon Development along highways and its prevention
IRC: SP-23	Vertical curves for highways
IRC: SP-41	Guidelines on design of at-grade intersections in Rural and Urban areas
IRC: SP-55	Guidelines for safety in construction zones
IRC: SP-88	Manual of Road Safety Audit

6.2 Road Safety Audit

During the site visit, it is observed that all safety items are provided as shown in the following **Table 6.2.**

Table 6.2: Safety Items

S. No.	Item Description		Status	Condition
1	Sign Boards	Chevron signs	Available as per site requirement	Good
		Village sign Board	Available as per site requirement	Good
		Informatory Boards	Available as per site requirement	Good
		Object Hazard Markers at culverts	Available as per site requirement	Good
2	Road Marking	Studs & Lane Marking	Available as per site requirement	Fair
3	Metal Beam Crash Barriers	At High Embankments	Available as per site requirement	Good

This Project Section is part of an important corridor. It is the Concessionaire's duty and responsibility to provide safe road for the commuters by assuring safe and hindrance free movement for both Traffic and Pedestrians along urban locations & habitations.

Few Observations on the road furniture in safety aspects for the project road are mentioned below:

- At few locations reflectors were missing on the sign boards and few sign boards were also damaged.
- Retro Reflective stickers need to be provided for metal beam crash barriers for night time road users at all locations and damaged metal beam crash barriers requires maintenance regularly

Accident Warning board at Km. 0+500

Speed Limit board at Km. 4+000

W Beam MCB at approaches at Km. 4+000

Safety at bridge approaches at Km. 4+250

Pedestrian Crossing board at Km. 8+000

Pedestrian Crossing board at Km. 15+540

Figure 6.1: Representative photos during road safety audit

6.3 Conclusion

Safety arrangements are done for road users along the project road same are found to be in conformity with project highway requirements and good industry practice. However, a continues monitoring on safety arrangements is highly appreciated during the operation and maintenance period.

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CHAPTER 7. TOLL PLAZA & HTMS

7.1 General

There is one toll Plazas on the project road at Km. 6+100. Each side comprises of 1 normal lanes, 1 extra wide lane. The lane width in normal lanes is 3.2 m and in extra wide lane is 4.5 m. The width of islands provided is 1.8 m. The single canopy is provided to cover the toll lanes. Toll plaza building is G+1 floor building which houses control room, UPS and Pantry.

7.2 Tolling Equipment and Control Room Equipment's

List of equipment provided at toll plaza and control room is given below.

Table 7.1: List of equipment provided at toll plaza and control room

S.No.	Equipment Description	Quantity
Lane Equipment		
1	Over Head Lane Signals (OHLS)	2
2	Barrier	2
3	LPIC	4
4	Automatic Vehicle Classifier (AVC)	2
5	Traffic light	4
6	Retro Frequency Identification (RFID) Reader	4
7	Printer	2
8	Booth camera	4
9	Audit camera	2
10	Intercom (Internal)	1
11	Keyboard	1
12	Lan hardware / optical fiber	1
13	Panic Foot Switch	4
14	Violation Alarm	4
Equipment in Control Room & Other Rooms		
Control Room		
1	Monitor	1
2	Workstation	1
3	Keyboard	1
4	Mouse	1
Server Room		
1	Server	1
2	Monitor	1
3	POE TENDA	1
4	HIKVISION NVR (Net Work Video Recorder)	1
5	control room camera	1
1.	Building camera	1

S.No.	Equipment Description	Quantity
POS Room		
1	Monitor	1
2	Workstation	1
3	Keyboard	1
4	Mouse	1
5	Printer	1

7.3 Vehicles

The list of vehicles, which were observed at site for operation of highway and toll plaza, is presented below**.**

Table 7.2: List of Vehicles

S.No.	Vehicle Type	No of Vehicles
1	Patrol Vehicle	2
2	Ambulance	1

Toll Plaza at Km. 6+100 **Toll Building at Km. 6+100**

Figure 7.1: Representative Photos of Toll Plaza at Km. 6+100

CHAPTER 8. TRAFFIC CENSUS AND TOLL REVENUE

8.1 Traffic Census

In accordance with clause 22.1, the Concessionaire shall install, maintain and operate electronic/computerized traffic counters at each of the Toll Plazas and collect data relating to the number and types of vehicles using the Project Highway. A weekly statement of such data shall be complied and furnished forthwith by the Concessionaire to MPRDC substantially in the form specified in Schedule N of CA.

Accordingly, the Concessionaire provided toll plaza wise details. Based on the data made available the summarized annual classified Traffic census details for the past two years are provided in Table 8.1 below. The Actual traffic data recorded below has been taken as a basis to calculate AACGR % (Average Annual Compound Growth Rate).

Table 8.1: Year wise Traffic (Vehicles) Details as per schedule N of CA

FY Year	Car	LCV	Bus	Truck	MAV	Total Traffic
Apr 2018-Mar 2019	115293	49705	8345	3787	11424	188554
Apr 2019-Mar 2020	144024	49843	7922	3102	12264	217155
					AACGR* (%)	**15.17**

*AACGR- Annual Average Compound Growth Rate

8.2 Actual Revenue Collection

In accordance with clause 19.5, "During the operation period, the Concessionaire shall furnish to MRPDC within 7 days of completion of each month, a statement of fee substantially in the form set forth in Schedule-M (Monthly fee statement)". As per provisions of CA the concessionaire submitted monthly fee statement and the summary of form submitted under Schedule M during the financial year 2019-20 is given under as Table 8.2.

Table 8.2: Summary of 2019-20 Tollable traffic and revenue collected at Toll Plaza

Description	Car	Car(pass)	LCV	Bus	Truck	MAV	Total
In Nos.	74530	768	31906	7870	3052	12257	130383
Toll Revenue collection in Rs.	2608550	61450	2794940	1437940	673860	5417030	12993770

The figures shown in Table 8.1 are Real time traffic data (AADT) on project road for the past two years and the growth rate is calculated to be 15.17%. It is pertinent to note that the figures given in Table 8.1 are inclusive of exempted /non tollable traffic.

The figures shown in Table 8.2 are actual tollable traffic based on which the toll revenue collected and is excluding of exempted/non tollable traffic. For the realistic estimate of the traffic growth and projected revenue calculation actual traffic based on which FY 2019-20 revenue collected (Table 8.2) is considered as a base year traffic and the projected traffic growth rate is restricted to 5%.

Based on the base year traffic and growth rate as explained above traffic projections from year 2019-20 to till end of Concession period toll plaza wise are calculated and summarized below in Table 8.3.

Table 8.3: Projected traffic

FY Year	AADT in Vehicles					CVPD* (Veh.)	AADT in PCU					CVPD* (PCU)	Remarks
	Car	LCV	BUS	2-AT	MAV		Car	LCV	BUS	2-AT	MAV		
PCU Factor							1	1.5	3	3	4.5		
2020	206	87	22	8	34	151	206	131	65	25	151	372	Actual
2021	217	92	23	9	35	158	217	138	68	26	159	391	Projected
2022	227	96	24	9	37	166	227	145	71	28	167	410	Projected
2023	239	101	25	10	39	175	239	152	75	29	175	431	Projected
2024	251	106	26	10	41	183	251	159	79	30	184	452	Projected
2025	263	112	28	11	43	193	263	167	83	32	193	475	Projected
2026	276	117	29	11	45	202	276	176	87	34	203	499	Projected
2027	290	123	30	12	47	212	290	184	91	35	213	523	Projected
2028	305	129	32	12	50	223	305	194	96	37	223	550	Projected
2029	320	136	33	13	52	234	320	203	100	39	234	577	Projected
2030	336	142	35	14	55	246	336	214	105	41	246	606	Projected
2031	353	150	37	14	57	258	353	224	111	43	258	636	Projected

*CVPD: Commercial vehicle per day (LCV+BUS+2 AT+MAV)

8.3 Toll Revenue Calculations

The toll revenue for horizon year is calculated based on the input from the above data, actual toll rates collected on base year (2019-20), with Traffic growth, WPI growth and toll efficiency has been assumed 5%, 4% and 100% respectively and other inputs considered in revenue calculations is given in Table 8.4.

Table 8.4: Toll Revenue inputs

Particular	Toll plaza 1
Location	Km. 6+100
4 lane length in kms.	0
2 lane length in kms.	64.42
Agreement Date	10-08-2015
Appointed Date	10-04-2016
Concession period	15
Commercial operation date	06-03-2017
Concession End Date	09-04-2031
Traffic study year	2020
Vehicle Type	**AADT**
Car/Jeep/Van	206
2-axle Bus	87
LCV/LGV	22
2A-Truck	8
MAV (2A-6A)	34

Particular	Toll plaza 1
Growth Rate (%)	5%

The split trip type based on the available toll data from Concessionaire is used to derive the annual toll collection for each plaza. The revenue estimated and presented below. Detailed toll revenue estimation is given in **ANNEXURE 4.**

Table 8.5: Toll Revenue Estimated (in Rs. lakhs)

Financial Year	Annual Revenue of TP1 at Km. 6+100	Remarks
2019-20	129.9377	Actual
2020-21	141.9371	Projected
2021-22	156.3655	Projected
2022-23	169.5336	Projected
2023-24	183.5495	Projected
2024-25	198.7709	Projected
2025-26	217.6724	Projected
2026-27	235.0047	Projected
2027-28	253.4879	Projected
2028-29	276.8745	Projected
2029-30	298.0787	Projected
2030-31	320.8868	Projected
2031-32	8.509685	9 Days

CHAPTER 9. OPERATION AND MAINTENANCE

9.1 General

As per Article 17 of the Concession Agreement (CA), the Concessionaire will operate and maintain the Project road by itself or through O & M Contractors and comply with specification and standards, and other requirements set forth in the Agreement, Good Industry Practice, Applicable Laws, applicable permits and manufacturer guidelines and instructions with respect to toll system.

9.2 Inspection

Inspection system followed is illustrated as divided into the following 3 types.

- **Visual Inspection:** Visual inspections are done at frequent intervals and are intended to determine any potential traffic hazards to the road user or hampering the aesthetics of the project stretch. Visual inspections are meant to identify defects that constitute an imminent or immediate hazard to the public.

- **Detailed Inspection:** Detailed Inspections often require some measuring instruments, are done less frequently and are intended more towards determining performance and behavior of various elements. These inspections also indicate, need (if any) for thorough inspections. Detailed inspections are carried out primarily to establish programs of periodic or major maintenance tasks, and enhancement requirements not requiring urgent execution

- **Thorough Inspection:** Thorough Inspections are aimed at finding the cause and remedy of specific problems and at specific locations. Specialist's inspections are required once in a while. Thorough Inspections shall be carried out with highly sophisticated instruments

The inspection procedures will assist in identifying the need for replacement or renewal under planned program of maintenance and rehabilitation. The elements viz pavement, drainage, shoulders / slopes / Earthworks, structures and buildings are covered.

Maintenance program will be submitted to authority not later than 45 days prior to beginning of each accounting year during the operation period.

9.3 Operations

Traffic Flow Operation & Traffic Management Plan

Following are the obligations of the Concessionaire for the regular and emergency operations of the Project road and Project Facilities.

i. Permitting smooth and uninterrupted flow of traffic during normal operating conditions.
ii. Functioning of the Toll System including charging and collecting the fees from the road user in accordance with the CA.
iii. carrying out preventive and periodic maintenance of the Project road;
iv. undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices;

v. undertaking major maintenance such as resurfacing of pavements, repairs to structures, and repairs and refurbishment of tolling system and other equipment;
vi. Functioning of the lighting system;
vii. Functioning of the Patrolling System
viii. Functioning of rescue and medical aid services
ix. Ambulance as and when required
x. Functioning of the Project Facilities
xi. Administrative, Operational and Maintenance Base Camp
xii. Truck Lay byes
xiii. Pickup Bus stops / Bus Bays
xiv. Protection of the environment and provision of equipment and materials therefore;
xv. Operation and maintenance of all communication, control and administrative systems necessary for the efficient operation of the Project road
xvi. Complying with Safety Requirements in accordance with Article 18.

9.4 Operation of Toll Plaza

There are two lanes in each direction operating at toll plaza, middle lanes are used by Car/LCV for collecting toll and extra wide lanes are utilized by wide vehicles like Bus/Trucks/Tractors and toll exempted vehicles. The cash collected is deposited on daily basis to the escrow account. In case of ETC system Toll collection is connected with Network system and directly deposited into the Escrow account

9.5 Maintenance of Project road

The maintenance methodology and yearly maintenance programme will guide the Maintenance team to undertake the routine & periodic maintenance works of the Project Facilities. This programme is the basic indicator of the intended works to be carried out by the Maintenance Team over a period of one year. Road maintenance can be carried out in four ways as listed below.

i. Preventive Maintenance
ii. Routine Maintenance
iii. Periodic Maintenance
iv. Special repairs

Preventive Maintenance

Preventive maintenance is an organized, systematic process of applying a series of preventive treatments over the life of the pavement to minimize life cycle costs.

The strategy of applying periodic treatments at appropriate times in a pavement's life is economical than applying treatment at the end of pavement's life. Preventive maintenance is designed to retard pavement deterioration. Regular preventive maintenance will be carried out to ensure adherence to the Design Requirements and specifications throughout the Concession period. Preventive Maintenance shall include the activities related to each element and the system as a whole of the Project Preventive Maintenance for Structures is estimated by the consultant. The condition data collected from site was used to arrive at the appropriate treatments and quantities. Rates from Schedule of Rates (SOR) of MP, was used to arrive at the cost.

The flexible pavement is in good condition and hence doesn't require any immediate or preventive interventions.

Routine Maintenance:

Routine maintenance, which involves repairing of cracks, replacement of safety girders along the highway, clearance of debris following accidents, ensuring functionality of sign posts, maintenance of a security set-up, and such other activities.

Periodic Maintenance

In contrast to preventive maintenance treatments, periodic maintenance treatments are ideally applied on pavements to improve surface integrity and waterproofing, or to improve skid resistance, without increasing the strength of the pavement significantly. They are sometimes referred to as "functional overlays," as they are intended to restore or enhance the ability of the roadway to serve its purpose (function), but do not increase the load-carrying capabilities. If the pavement failure is more and demands for a "structural overlay" they are intended to increase load-carrying capabilities of the project road.

The details of periodic maintenance schedule are given below.

Table 9.1: Schedule and status of for Periodic Maintenance

S. No.	Scheduled Major Maintenance	Year	Status at site
1	1st Periodic Maintenance	2023	Planned to Execute
2	2nd Periodic Maintenance	2030	Planned to Execute

Special Repairs

The group of activities performed to restore the roadway following damage due to natural calamities such as heavy floods, sand storms, hurricanes, cyclones, earthquakes or landslides which shall be unpredictable. The affected Project road shall be rectified, and the system shall be restored to function as per Programme prepared in consultation with Independent Engineer. Typical activities include,

a. Culvert and bridge repairs
b. Retaining wall repairs and construction;
c. Construction of Diversions;
d. Floodway repairs; and
e. Flood damage restoration works, etc.

9.6 Review of Test Reports:

Bump Integrator Test:

Maintenance of road is dependent on several factors, one of which is the condition of Pavement surface. As such Roughness is the measurement of the riding quality, which in turn is the effect of total surface deterioration. Bump Integrator (BI) is one of the equipment needed for roughness

measurement. The roughness of pavement surface is designated as uneven index value and expressed as surface roughness from which the condition of the road can be assessed.

The test was conducted in the month of Aug. 2020. As per Schedule K of the CA, If the roughness value exceeds 3000mm in a Km, the stretch shall be rectified. No stretch exceeded the permissible limit of 3000 mm in the Project road.

Benkelman Beam Deflection (BBD):

The performance of flexible pavement is closely related to the elastic deflection of pavement under the wheel loads. The deformation or elastic deflection under a given load depends upon subgrade soil type, its moisture content and compaction, the thickness and the quality of pavement courses, drainage conditions, pavement surface temperatures etc. BBD method is widely followed to evaluate the structural capacity of pavement and for estimation and design of overlay for strengthening of any weak pavement.

Concessionaire has conducted the test in Jan 2020. The test report has been verified and found within permissible limits as per IRC 81.

9.7 O&M Forecast

The O&M costs were estimated based on various parameters of CA, design reports and BBD/BI test results. The cost summary is given below, and detailed cost estimations are given in **ANNEXURE 5.**

Table 9.2: Proposed Plan for Future Operation & Maintenance Cost (In Crores)

Year	Routine maintenance (In crores)	Incidental maintenance (In crores)	Periodic / Major maintenance	Operational Expenses	Total cost per year
2020	0.360	0.176		0.30	0.84
2021	0.370	0.182		0.31	0.86
2022	0.381	0.187		0.32	0.89
2023	0.393	0.193	10.04	0.33	10.96
2024	0.405	0.199		0.34	0.94
2025	0.417	0.205		0.35	0.97
2026	0.429	0.211		0.36	1.00
2027	0.442	0.217		0.37	1.03
2028	0.455	0.224		0.38	1.06
2029	0.469	0.230		0.40	1.09
2030	0.483	0.237	12.02	0.41	13.15
2031	0.012	0.006		0.01	0.03
Total	**4.62**	**2.27**	**22.06**	**3.89**	**32.83**

CHAPTER 10. REVIEW OF CONCESSION AGREEMENT

10.1 Scope of Work (Article 2)

Article 2 provides the scope of work, which includes the following.

- construction of the Project road on the Site set forth in Schedule-A and as specified in Schedule-B together with provision of Project Facilities as specified in Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D of the CA.
- operation and maintenance of the Project road in accordance with the provisions of Concession Agreement (CA).
- performance and fulfillment of all other obligations of the Concessionaire in accordance with the provisions of this CA and matters incidental.

10.2 Letter of Award

After evaluation of the bids received, Authority will select one bidder considering their score in technical and financial bids. Further Authority will issue a Letter called LOA (Letter of Award) to the selected bidder requiring the execution of agreement within stipulated time. The issued LOA copy given in **ANNEXURE 6.**

10.3 Conditions precedent (Article 4)

Conditions precedent to be fulfilled by the Authority

- Providing adequate Right of Way
- Providing necessary approvals as per the CA

Conditions precedent to be fulfilled by the Concessionaire

Provide performance security to the Authority

- Executed and procured Escrow Agreement & Substitution Agreement.
- Procured all applicable permits specified in Schedule E of the CA.
- Executed financing Agreements and delivering 3 copies of Financial Package.
- Delivered to the Authority confirmation in original of the correctness of their representations and warranties set forth in Agreement and a legal opinion from the legal opinion from the legal counsel of the Concessionaire.

10.4 Major Obligations of the Concessionaire (Clause 5.1)

- The Concessionaire shall obtain necessary permits in conformity with the applicable laws.
- Procure appropriate rights for obtaining materials.
- Perform and fulfil its obligations under financing Agreements.
- To make reasonable efforts to facilitate the acquisition of land required for execution.
- Transfer the Project road upon termination of the CA.

10.5 Obligations relating to the Competing Roads (Clause 6.3)

Neither Authority nor any Governmental Instrumentality shall construct the Competing Road before 10th Anniversary of the Appointed Date.

10.6 Performance Security (Article 9)

- The Concessionaire shall submit the Performance security to the Authority within 180 days from the date of the Agreement,
- The Performance security shall remain in force and effect for a period of one year from the Appointed Date.
- Performance Security shall be released upon the Concessionaire expending on Project Construction an Aggregate sum that is not less than 20% of the Total Project Cost.

10.7 Provisional Completion Certificate (Clause 14.3)

- Upon completion of works in accordance with the specifications and standards set forth in the Schedule B, C and D of CA and after determining the tests on completion successful the Independent engineer shall issue the Completion Certificate in the form set forth in Schedule J of the CA. Provisional Completion Certificate given in **ANNEXURE 7.**

10.8 Completion Certificate (Clause 14.4)

- Upon completion of Punch list items appended to the Provisional Completion Certificate within 90 days of issuance of Provisional Complete Certificate, Completion Certificate shall be issued to the Concessionaire.

10.9 Commercial Operation Date (COD) (clause 15.1)

- COD shall be the date on which the Provisional Completion Certificate is issued by the Independent Engineer.

- With COD the Project shall enter into commercial service and the Concessionaire is entitled to demand and collect Fee.

10.10 Change of scope (Article 16)

Change of scope proposals were initiated during construction period and consented by the MPRDC and the same are given in **ANNEXURE 9**

10.11 O&M Obligations of the Concessionaire (Clause 17.1)

- Permitting safe, smooth and uninterrupted flow of traffic on the Project road.
- Collecting and appropriating the Fee.
- Minimizing the disruption to traffic in the event of accidents.
- Undertaking routine maintenance including prompt repairs of pot holes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices
- Undertaking major maintenance such as resurfacing of pavements, repairs and refurbishments of tolling system and other equipment.
- Preventing any un authorized use of the Project road.

- Protection of environment and provision of equipment and materials.
- Complying with safety Requirements in accordance with the provisions of the CA.

10.12 Maintenance Requirements (Clause 17.2)

The Contractor shall procure that at all times during the Operations Period; the Project road conforms to the maintenance requirements set forth in Schedule K of the CA (the "**Maintenance Requirements**").

10.13 Maintenance Manual (Clause 17.3)

No later than 180 (one hundred and eighty) days prior to the Scheduled Two Laning Date, the Contractor shall, in consultation with the Independent Engineer, evolve a repair and maintenance manual (the "**Maintenance Manual**") for the regular and preventive maintenance of the Project in conformity with the Specifications and Standards, Maintenance Requirements, Safety Requirements and Good Industry Practice, and shall provide 5 (five) copies thereof to the Authority and 2 (two) copies to the Independent Engineer. The Maintenance Manual shall be revised and updated once every 3 (three) years and the provisions of this Clause shall apply, mutatis mutandis, to such revision.

10.14 Maintenance Programme (Clause 17.4)

- On or before COD and no later than 45 days prior to the beginning of each Accounting year during the Operation Period as the case may be the Concessionaire shall provide to the Authority and Independent Engineer its proposed annual programme of preventive, urgent and the schedule maintenance.

- The Concessionaire has been submitting the Annual Maintenance Programme regularly as per the above clause.

10.15 Damages for breach of Maintenance Obligations (Clause 17.8):

- In the event that the Contractor fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be in breach of the Agreement and the Concessionaire shall be entitled to recover Damages, to be calculated and paid for each day of delay until the breach is cured, at the higher of the following.
- 0.5% (zero decimal five percent) of the Average Daily Fee, and
- 0.1% (zero point one per cent) of the cost of such repair or rectification as estimated by the Independent Engineer.

10.16 Monthly status reports (Clause 19.1)

During the Operation Period, the Contractor shall, no later than 7 (seven) days after the close of each month, furnish to the Concessionaire, the Authority and the Independent Engineer a monthly report stating in reasonable detail the condition of the Project including its compliance or otherwise with the Maintenance Requirements, Maintenance Manual, Maintenance Program and Safety Requirements, and shall promptly give such other relevant information as may be required by the Concessionaire, Independent Engineer or the Authority. In particular, such report shall separately identify and state in reasonable detail the defects and deficiencies that require rectification.

10.17 Monthly Fee Statement (Clause 19.5)

During the Operations Period, the Contractor shall furnish to the Concessionaire and the Authority, if required by the Contractor, within 7 (seven) days of completion of each month, a statement of Fee substantially in the format set out in the CA ("Monthly Fee Statement").

10.18 Annuity (Article 25)

The Annuity payment of Rs 7.02 Crores is due and payable by the Authority to the Concessionaire for each six months after COD as set forth in Clause 25.2.1 and Schedule Y of CA.

Table 10.1: Status of Annuity Payments

Particulars	Payment Paid on
Ist Annuity	4-Oct-17
2nd Annuity	31-Mar-18
3rd Annuity	27-Sep-18
4th Annuity	20-Mar-19
5th Annuity	9-Sep-19
6th Annuity	7-Mar-20
7th Annuity	7-Sep-20
8th Annuity	-
9th Annuity	-
10th Annuity	-
11th Annuity	-
12th Annuity	-
13th Annuity	-
14th Annuity	-
15th Annuity	-

10.19 Concession Fee (Article 26)

- In consideration of the grant of Concession the Concessionaire shall pay Concession Fee of Rs.1.00 per year during the Concession Period.
- Concession Fee shall be paid in advance within 90 days of the commencement of the Accounting Year.
- Yearly the Concessionaire is paying the Concession Fee to the MPRDC.

10.20 Toll fee (Clause 27.1.1)

Toll Fees Shall be revised annually in accordance with Clause 27.2.1.

10.21 Change in Law (Article 41)

The Contractor acknowledges that the Contractor shall be responsible for any consequences arising from any Change in Law and the Contractor shall at its own costs and expenses, undertake the compliance with any such Change in Law, however, in the event any receivables are obtained by the Concessionaire from the Authority, towards the losses incurred by the Concessionaire on account of Change in Law, then the Contractor shall ensure that such receivables are passed to the Concessionaire.

CHAPTER 11. INSURANCE

11.1 Details of Insurance

As per clause 32.1 of the Concession Agreement (CA), the Concessionaire shall effect and maintain at its own cost during the Operation Period such insurances for such maximum sums as may be required under the Financing Agreements and the Applicable laws, and such insurances as may be necessary or prudent in accordance with Good Industry Practice. Insurance copies are provided in **ANNEXURE 8**.

Accordingly, the Concessionaire has procured the following insurances for mitigating the risks

Table 11.1: Insurance Details

Name of the Policy	Insurance Company	Policy No	Effective Period		Description of Property
			From	To	
Civil Engineering Completed Risk	National Insurance Co. Ltd	32130044190001995	27.3.2020	26.3.2021	Road and structures, tollbooth, Equipment. Road furniture etc.
Electronic Equipment Insurance Policy schedule	Oriental Insurance Company Ltd	171200/44/2021/69	7.12.2020	6.12.2021	EEI Equipment-Road and bridge stretch connecting from Hata to Dargawon
Employees compensation Insurance Policy	HDFC ERGO General Insurance Co Ltd	3114203678157100000	12.10.2020	11.10.2021	Employees compensation belongs to Road paving, tarring and road making of DBL and sub-contractor engaged in DBL, Engineers, Supervisors, Managers, daily labour etc.

CHAPTER 12. CONCLUSION

12.1 General

Based on detailed site inspection, review of various documents and reports as described in the preceding chapters technical over view of the Project is provided below.

12.2 Pavement Condition

The overall project pavement condition is good. RCC drains are constructed in Built up locations and earthen drains in rural locations resulting in, effective drainage system along the project road. Shoulder condition is fair.

12.3 Condition of Structures

General condition of Bridges is good. Major defects were not noticed. General condition of Culverts is good. Observed vegetation growth in vents of Box and Hume Pipe culverts and they are getting cleared during regular maintenance period.

12.4 Traffic Growth

Based on real time, traffic data was extracted. The traffic growth observed is 15.17%, whereas 5% fairly accurate growth is considered while evaluating forecast of traffic volumes.

12.5 Project Facilities

Toll Plaza is located at Km.6+100 and is operational. Toll Plaza is operated by ETC Toll collection system and connected by network system monitored in administrative building. Bus bays are in fair condition. Medical Aid posts found functional. Avenue plantation and landscaping at Toll Plaza is provided and being maintained. Highway lighting is provided at toll plaza locations and found functional.

12.6 Road safety

Pavement marking is in fair condition and number of sign boards are provided as per site requirement. The condition of sign boards & other road appurtenances like metal beam crash barriers is fair.

12.7 Maintenance

- The routine maintenance being carried out by O&M contractor effectively. Based on documents reviewed, time to time observations made by client/Authority, being complied and no outstanding NCR's are to be attended as on date.
- Major maintenance (MM)/Periodic maintenance to be carried out in the year 2023.

12.8 Epilogue

The project is designed and constructed as per the stipulated specifications besides maintenance work, being carried out timely and effectively to keep the road in traffic worthy and safe at all times.

ANNEXURES

Annexure 1: Pavement Condition

Condition: G=Good, F=Fair, P=Poor & VP=Very poor Rutting: M=Moderate & S=Severe Drain: LD=Lined open Drain, ULD=Unlined Drain, CD=Covered Drain, NO=No drain, PF=Partial Function, F= Functional

Chainage (Km.)		Pavement Condition						Riding Quality		Pavement Edge Drop (cm)	Shoulder		Embankment Condition (Good/Fair / Poor)	Road Side Drain		Remarks
From	To	Cracking (%)	Raveling (%)	Potholing (%)	Bleeding (%)	Rutting	Patching (%)	Speed (km/hr.)	Quality (G/F/P /VP)		Composition	Condition (Fair / Poor/ Damaged)		Type (LD/ULD/CD/NO)	Condition (PF/F)***	
0+000	1+000	2	3	1					F		ES	F	F	ULD	PF	
1+000	2+000	2	3						F		ES	F	F	ULD	PF	
2+000	3+000								G		ES	F	F	ULD	PF	
3+000	4+000		1			M			F		ES	F	F	ULD	PF	
4+000	5+000								G		ES	F	F	ULD	PF	
5+000	6+000								G		ES	F	F	ULD	PF	
6+000	7+000	2	3						F		ES	F	F	ULD	PF	
7+000	8+000								G		ES	F	F	ULD	PF	
8+000	9+000	2	3	1					F		ES	F	F	ULD	PF	
9+000	10+000								G		ES	F	F	ULD	PF	
10+000	11+000								G		ES	F	F	ULD	PF	
11+000	12+000		1			M			F		ES	F	F	ULD	PF	
12+000	13+000								G		ES	F	F	ULD	PF	
13+000	14+000								G		ES	F	F	ULD	PF	
14+000	15+000								G		ES	F	F	ULD	PF	
15+000	16+000								G		ES	F	F	ULD	PF	
16+000	17+000								G		ES	F	F	ULD	PF	
17+000	18+000								G		ES	F	F	ULD	PF	
18+000	19+000								G		ES	F	F	ULD	PF	
19+000	20+000								G		ES	F	F	ULD	PF	
20+000	21+000								G	2	ES	F	F	ULD	PF	
21+000	22+000								G		ES	F	F	ULD	PF	
22+000	23+000								G		ES	F	F	ULD	PF	
23+000	24+000								G		ES	F	F	ULD	PF	
24+000	25+000								G		ES	F	F	ULD	PF	
25+000	26+000								G		ES	F	F	ULD	PF	
26+000	27+000								G		ES	F	F	ULD	PF	
27+000	28+000								G		ES	F	F	ULD	PF	
28+000	29+000								G		ES	F	F	ULD	PF	
29+000	30+000								G		ES	F	F	ULD	PF	
30+000	31+000								G		ES	F	F	ULD	PF	
31+000	32+000								G		ES	F	F	ULD	PF	
32+000	33+000								G	2	ES	F	F	ULD	PF	
33+000	34+000								G		ES	F	F	ULD	PF	

Condition: G=Good, F=Fair, P=Poor & VP=Very poor Rutting: M=Moderate & S=Severe Drain: LD=Lined open Drain, ULD=Unlined Drain, CD=Covered Drain, NO=No drain, PF=Partial Function, F= Functional

Chainage (Km.)		Pavement Condition						Riding Quality		Pavement Edge Drop (cm)	Shoulder		Embankment Condition (Good/Fair / Poor)	Road Side Drain		Remarks
From	To	Cracking (%)	Raveling (%)	Potholing (%)	Bleeding (%)	Rutting	Patching (%)	Speed (km/hr.)	Quality (G/F/P /VP)		Composition	Condition (Fair / Poor/ Damaged)		Type (LD/ULD/CD/NO)	Condition (PF/F)***	
34+000	35+000								G		ES	F	F	ULD	PF	
35+000	36+000								G		ES	F	F	ULD	PF	
36+000	37+000								G		ES	F	F	ULD	PF	
37+000	38+000								G		ES	F	F	ULD	PF	
38+000	39+000								G		ES	F	F	ULD	PF	
39+000	40+000		1				3		F		ES	F	F	ULD	PF	
40+000	41+000								G		ES	F	F	ULD	PF	
41+000	42+000								G		ES	F	F	ULD	PF	
42+000	43+000								G		ES	F	F	ULD	PF	
43+000	44+000								G		ES	F	F	ULD	PF	
44+000	45+000								G		ES	F	F	ULD	PF	
45+000	46+000								G		ES	F	F	ULD	PF	
46+000	47+000								G		ES	F	F	ULD	PF	
47+000	48+000								G		ES	F	F	ULD	PF	
48+000	49+000								G		ES	F	F	ULD	PF	
49+000	50+000								G		ES	F	F	ULD	PF	
50+000	51+000								G		ES	F	F	ULD	PF	
51+000	52+000								G		ES	F	F	ULD	PF	
52+000	53+000								G		ES	F	F	ULD	PF	
53+000	54+000								G		ES	F	F	ULD	PF	
54+000	55+000								G		ES	F	F	ULD	PF	
55+000	56+000								G		ES	F	F	ULD	PF	
56+000	57+000								G		ES	F	F	ULD	PF	
57+000	58+000								G		ES	F	F	ULD	PF	
58+000	59+000								G		ES	F	F	ULD	PF	
59+000	60+000								G		ES	F	F	ULD	PF	
60+000	61+000								G		ES	F	F	ULD	PF	
61+000	62+000								G		ES	F	F	ULD	PF	
62+000	63+000								G		ES	F	F	ULD	PF	
63+000	64+000								G		ES	F	F	ULD	PF	
64+000	64+400								G		ES	F	F	ULD	PF	

Annexure 2: Condition of Structures

S.No	Chainage (Km.)	Type of Structure	Substructure	Superstructure	Expansion Joint	Approach slabs	Drainage spouts	Wearing coat	Bearings	Quadrant Pitching
1	1+119	Minor Bridge	Good	Good	Fair	Fair	Fair	Fair	-	Vegetation observed
2	4+250	Minor Bridge	Good	Good	-	Fair	Fair	Fair	-	Good
3	4+480	Major Bridge	Good	Good	Fair	Fair	Fair	Fair	-	Good
4	8+870	Minor Bridge	Good	Good	Fair	Fair	Fair	Fair	-	Good
5	9+800	Minor Bridge	Good	Good	-	Fair	Fair	Fair	-	Good
6	14+425	Minor Bridge	Good	Good	-	Fair	Fair	Fair	-	Good
7	28+200	Minor Bridge	Good	Good	-	Fair	Fair	Fair	-	Good
8	35+610	Minor Bridge	Good	Good	-	Fair	Fair	Fair	-	Good
9	40+000	Minor Bridge	Good	Good	-	Fair	Fair	Fair	-	Good
10	40+900	Major Bridge	Good	Good	Fair	Fair	Fair	Fair	-	Good
11	41+550	Minor Bridge	Good	Good	Fair	Fair	Fair	Fair	-	Good
12	43+013	Minor Bridge	Good	Good	Fair	Fair	Fair	Fair	-	Good
13	44+490	Minor Bridge	Good	Good	Fair	Fair	Fair	Fair	-	Good
14	46+765	Minor Bridge	Good	Good	Fair	Fair	Fair	Fair	-	Good
15	52+935	Minor Bridge	Good	Good	-	Fair	Fair	Fair	-	Good
16	56+400	Minor Bridge	Good	Good	Fair	Fair	Fair	Fair	-	Good
17	58+450	Minor Bridge	Good	Good	-	Fair	Fair	Fair	-	Good

Annexure 3: Condition of Culverts

Condition of Box/slab Culverts

S.No	Chainage (Km.)	Box/Slab	Return wall	Quadrant pitching	Toe wall	Aprons	Remarks
1	3+030	Good	Good	Fair	Fair	Fair	-
2	9+675	Good	Good	Fair	Fair	Fair	-
3	14+825	Good	Good	Fair	Fair	Fair	-
4	15+540	Good	Good	Fair	Fair	Fair	-
5	18+450	Good	Good	Fair	Fair	Fair	-
6	22+860	Good	Good	Fair	Fair	Fair	-
7	27+160	Good	Good	Fair	Fair	Fair	-
8	29+860	Good	Good	Fair	Fair	Fair	-
9	31+730	Good	Good	Fair	Fair	Fair	-
10	34+875	Good	Good	Fair	Fair	Fair	-
11	35+680	Good	Good	Fair	Fair	Fair	-
12	40+750	Good	Good	Fair	Fair	Fair	-
13	42+280	Good	Good	Fair	Fair	Fair	-
14	42+630	Good	Good	Fair	Fair	Fair	-
15	46+210	Good	Good	Fair	Fair	Fair	-
16	53+931	Good	Good	Fair	Fair	Fair	-
17	55+150	Good	Good	Fair	Fair	Fair	-
18	55+968	Good	Good	Fair	Fair	Fair	-
19	59+450	Good	Good	Fair	Fair	Fair	-
20	60+575	Good	Good	Fair	Fair	Fair	-

Condition of Hume Pipe Culverts

S. No	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
1	0+025	Good	Fair	Fair	Fair
2	1+460	Good	Fair	Fair	Fair
3	2+960	Good	Fair	Fair	Fair
4	6+536	Good	Fair	Fair	Fair
5	7+630	Good	Fair	Fair	Fair
6	8+195	Good	Fair	Fair	Fair
7	9+175	Good	Fair	Fair	Fair
8	11+125	Good	Fair	Fair	Fair
9	12+940	Good	Fair	Fair	Fair
10	13+840	Good	Fair	Fair	Fair
11	15+100	Good	Fair	Fair	Fair
12	15+340	Good	Fair	Fair	Fair
13	16+738	Good	Fair	Fair	Fair
14	20+050	Good	Fair	Fair	Fair
15	22+400	Good	Fair	Fair	Fair
16	22+750	Good	Fair	Fair	Fair
17	23+545	Good	Fair	Fair	Fair
18	26+290	Good	Fair	Fair	Fair
19	26+700	Good	Fair	Fair	Fair
20	29+470	Good	Fair	Fair	Fair
21	37+110	Good	Fair	Fair	Fair
22	38+680	Good	Fair	Fair	Fair
23	39+340	Good	Fair	Fair	Fair
24	40+500	Good	Fair	Fair	Fair
25	41+210	Good	Fair	Fair	Fair
26	42+810	Good	Fair	Fair	Fair
27	45+570	Good	Fair	Fair	Fair
28	46+390	Good	Fair	Fair	Fair
29	48+605	Good	Fair	Fair	Fair
30	50+550	Good	Fair	Fair	Fair
31	51+160	Good	Fair	Fair	Fair
32	52+870	Good	Fair	Fair	Fair
33	54+350	Good	Fair	Fair	Fair
34	54+450	Good	Fair	Fair	Fair
35	54+550	Good	Fair	Fair	Fair
36	56+701	Good	Fair	Fair	Fair
37	56+930	Good	Fair	Fair	Fair
38	58+200	Good	Fair	Fair	Fair

S. No	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
39	58+550	Good	Fair	Fair	Fair
40	59+230	Good	Fair	Fair	Fair
41	60+750	Good	Fair	Fair	Fair
42	61+180	Good	Fair	Fair	Fair
43	62+340	Good	Fair	Fair	Fair
44	63+980	Good	Fair	Fair	Fair
45	3+410	Good	Fair	Fair	Fair
46	9+210	Good	Fair	Fair	Fair
47	12+050	Good	Fair	Fair	Fair
48	14+825	Good	Good	Fair	Good
49	21+100	Good	Fair	Fair	Good
50	24+120	Good	Good	Fair	Fair
51	24+510	Good	Good	Fair	Fair
52	25+205	Good	Good	Fair	Fair
53	25+865	Good	Good	Fair	Fair
54	31+630	Good	Good	Fair	Good
55	32+100	Good	Good	Fair	Good
56	33+250	Good	Good	Fair	Good
57	34+040	Good	Good	Fair	Good
58	35+720	Good	Good	Fair	Good
59	37+970	Good	Good	Fair	Good
60	47+700	Good	Good	Fair	Good
61	48+980	Good	Good	Fair	Good
62	49+180	Good	Good	Fair	Good
63	5+560	Good	Good	Fair	Fair
64	7+850	Good	Good	Fair	Fair
65	11+560	Good	Good	Fair	Fair
66	13+640	Good	Good	Fair	Good
67	36+990	Good	Good	Fair	Good
68	42+340	Good	Good	Fair	Good
69	57+560	Good	Good	Fair	Good
70	60+198	Good	Good	Fair	Good
71	61+700	Good	Good	Fair	Good
72	62+850	Good	Good	Fair	Good
73	63+980	Good	Good	Fair	Good
74	64+980	Good	Good	Fair	Good

Annexure 4: Toll Revenue Calculations

Toll Plaza- at Km. 6+100

1. **Tollable Traffic considered for Toll Revenue in No.s (AADT):**

Table-1: Details of Tollable Traffic (Base Year 2019-20)

Vehicle Type	Traffic (AADT)
	Km. 6+100
Car/Taxi/Van	206
LCV	87
Bus	22
Truck	8
MAV	34

2. **Traffic Growth Rates**

Table-2: Details of Growth rates adopted

Year	Car	LCV	BUS	Truck	MAV
2019-25	5.00	5.00	5.00	5.00	5.00
2025-32	5.00	5.00	5.00	5.00	5.00

3. **Trip Distribution Ratio as per the Toll Data.**

Table-3: Details of Trip Distribution (Base Year 2019-20)

Vehicle Type	Single Trip	Local Pass	Total
Car/Taxi/Van	99%	1%	100%
LCV	100%	0%	100%
Bus	100%	0%	100%
Truck	100%	0%	100%
MAV	100%	0%	100%

4. **Toll Rates :**

Table-4: Details of Toll Fee (Base Year 2019-20)

Vehicle Type	Toll Fee at Km.6.100
Car/Taxi/Van	35.00
LCV	90.00
Bus	185.00
Truck	220.00
MAV	440.00

Toll Plaza- at Km. 6+100 Revenue:

Years	Car/Jeep	Car/Jeep (local pass)	LCV	Bus	Trucks	MAV	Total in Rs	Total in Lakh.	Cumulative (in Lacs)
2019-20	2608550	61450	2794940	1437940	673860	5417030	12993770	129.9377	129.9377
2020-21	2738978	68555.16	3182624	1570065	737058	5896434	14193713	141.9371	271.8748
2021-22	3286773	71982.91	3341755	1735335	807559.2	6393144	15636549	156.3655	428.2403
2022-23	3451112	80028.06	3693518	1867654	865602.5	6995445	16953360	169.5336	597.7739
2023-24	3623667	88697.77	4072104	2056697	945979.9	7567800	18354946	183.5495	781.3234
2024-25	3804851	93132.66	4479314	2209754	1032231	8257805	19877088	198.7709	980.0943
2025-26	4494480	102936.1	4703280	2425707	1124742	8916093	21767238	217.6724	1197.767
2026-27	4719204	108082.9	5162919	2602362	1202452	9705453	23500472	235.0047	1432.771
2027-28	4955164	119161.4	5656763	2848756	1307666	10461276	25348787	253.4879	1686.259
2028-29	5781025	131077.5	5939601	3052238	1420396	11363110	27687448	276.8745	1963.134
2029-30	6070076	137631.4	6496439	3333044	1541130	12229547	29807868	298.0787	2261.212
2030-31	6373580	151081.8	7094111	3566998	1644286	13258619	32088676	320.8868	2582.099
2031-32	6692259	165533.1	7735310	3886682	1781310	14250405	850968.5	8.509685	2590.609

Annexure 5: O&M Costs

Routine Maintenance cost for 1 year

S.No.	Item		Unit	No	Frequency per year	Quantity	Rate	Amount	Remarks
1	General Cleaning in Carriageway & Shoulders Rural area	Monthly	Km.	64.4	12	4	350	1,081,920	04 Nos. of Labour
2	General Cleaning in Carriageway & Shoulders Urban area	Twice in a month	Km.	10.66	24	4	350	358,176	04 Nos. of Labour
3	Watering in Median Plants	Once in Week	Km.	10.66	52	1	1939	1,074,826	01 Nos. of Labour
4	Watering in Avenue plants	Once in Week	Km.	0	52	0	1939	-	
5	Median Maintenance (Grass cutting and plant trimming)	Once in Month	Km.	10.66	12	0	21000	-	02 Nos. of Labour - 2 x 350 = 700 x 30 = 2,52,000
6	ROW Cleaning	Half yearly	Km.	32.2	2	5	350	112,700	5 Nos. of l Labour per KM (50% of the Project length)
7	Cleaning of Culverts	Half yearly	Nos.	93	2	2	650	241,800	3 Nos. of Labour along with JCB or Excavator
8	Road Furniture Cleaning	Quarterly	Km.	64.4	4	2	350	180,320	02 Nos. of Labour
9	Maintenance of Bus shelters	Monthly	Nos.	15	6	2	350	63,000	2 nos/ Bus shelter/month
10	General Cleaning in Building & Facilities	Daily	Nos.	1.00	6	60	350	126,000	02 Nos. of Labour for 30 days
11	Bridges	Half yearly	Nos.	15	2	2	350	21,000	02 Nos. of Labour for removal of vegetation/Structure
								3,259,742	
	EQUIPMENT SUPPLY							-	
1	TRUCK TIPPER 6-8 CUM CAPACITY	Monthly	Nos.	1	12	1	200000	200,000	(2000000 is the cost of vehicle, considering 10% Rental per year)

S.No.	Item		Unit	No	Frequency per year	Quantity	Rate	Amount	Remarks
									including maintenance
2	Water Tanker Cap 12 KL for Median	Monthly	Nos.	0.0	12	0	440000	-	(2200000 is the cost of vehicle, considering 20% Rental per year) including maintenance
3	Tractor Mounted Water tanker Cap 6 KL for RoW	Monthly	Nos.		12		160000	-	(800000 is the cost of vehicle, considering 20% Rental per year) including maintenance
4	Mechanical Sweeper	Monthly	Nos.		12		500000	-	(2500000 is the cost of vehicle, considering 20% Rental per year) including maintenance
5	Grass cutter	Monthly	Nos.	0.0	12	0	12000	-	(12000/year)
6	Manhoise/ Skyscrapper	Monthly	Nos.		12		400000	-	(2000000 is the cost of vehicle, considering 20% Rental per year) including maintenance
7	Bikes	Monthly	Nos.	3.0	12	0	2500	6,000	Per Supervisor/Per Month
8	Building Maintenance	Yearly			12	1		-	
9	Toll plaza AMC	Yearly	Nos.		12	1	5000	60,000	10000/month
								266,000	

1	Patrolling vehicle	Monthly	Nos.	12			10000	0	(1500000 is the cost of vehicle, considering 10% Rental per year) including maintenance
2	Ambulance	Monthly	Nos.	12		1	10000	10000	(1200000 is the cost of vehicle, considering 10% Rental per year) including maintenance (1 Ambulance/toll plaza)
3	Tow away trucks and Crane	Monthly	Nos.	12			40000	0	(2000000 is the cost of vehicle,

S.No.	Item		Unit	No	Frequency per year	Quantity	Rate	Amount	Remarks
									considering 20% Rental per year) including maintenance
4	Consumables for Medical Aid Post and Ambulance	Monthly	Nos.	12		1	2500	30000	2500 Per month for per set (Per set - Per toll plaza)
5	Consumables for Route Patrolling & Crane	Monthly	Nos.	12		1	2500	30000	2500 Per month for per set (Per set - Per toll plaza)
								70,000	
								3,595,742.00	

Incidental cost for 1 year

	Item		Unit	No	Frequency	Quantity	Rate	Amount	Remarks
1	Road marking	Half yearly	Sqm.	1	1	1503	516	775,548	33 % of Total Project length on B/S for 1 year
2	Carriageway Maintenance (Pot Holes etc.)	Yearly	Sqm.	1	1	302	168	50,736	5% of Flexible Pavement
3	Maintenance of Earthen Shoulder	Half yearly	Cum.	1	3	966	225	652,050	5% of total Shoulder length throughout the project
4	Sign Board	Quarterly	Km.	1	1	13	4000	52,000	2.5 % of Total sign boards per half year (considered 500 nos)
5	MBCB	Monthly	RMT.			37.5	2400	90,000	2.5% of Total qty per year - (considered 2400 per number)
6	Mile Stone (KM Stone/ HM Stone / ROW stone etc.)	Quarterly	Nos.	64.4	4	16	2250	144,000	5 % of total stones per year (unable to understand the backup)
7	ROW Fencing (If available)	Quarterly	Km.		4			-	10 % of total ROW fencing per year
8	Kerb	Yearly	Km.	0	1	0.0	250	-	2 % of total Kerbings per year
9	Electrical Poles	Yearly	Nos.	0	1	0	55000	-	3 % of total poles per year
10	Replacement of Rigid pavement Panels	Yearly	Ls.	1	1	0.00	4000	-	Considered 1% of the total volume

S.No.	Item		Unit	No	Frequency per year	Quantity	Rate	Amount	Remarks
11	Providing Reinforced cement concrete crash barrier at the edges of the bridge structures constructed with M-40 grade concrete with HYSD-Fe 500 TMT reinforcement concrete per Rmt conforming to IRC:21 and fixing with dowel bars 16 mm dia to old concrete using epoxy grout as per drawing and Technical Specifications and as directed by the Engineer.	Yearly	RMT.	0		0	3985	-	3% of Length replacement in every 5 years (Quantity to be estimated)
Total amount for 1 Year								**1,764,334**	

Operational Expenses

S.No.	PARTICULARS	Amount
1	Man Power	₹ 11,88,000
2	Fuel for Generator & Vehicles	₹ 13,92,000
3	Electricity	₹ 3,30,000
4	Stationary	₹ 10,000
5	Replacement of Electrical Fixtures	₹ 33,827
6	Refurbishment of Toll Plaza Equipment	₹ 75,000
	Total Amount	**₹ 30,28,827**

Major Maintenance Summary

Description	Due date	Base cost	Esc Period	Escalation Rate per Year	Cost of MMR on due date @ 5% Escalation	In crores
Date of Estimation	20-01-2021					
1st Major Maintenance - Highway	01-04-2023	**9,41,71,380**	2.20	3.0%	**10,03,86,691**	**10.04**
2nd Major Maintenance - Highways	01-04-2030	9,41,71,380	9.20	3.0%	**12,01,62,681**	**12.02**
				Total	**₹ 22,05,49,372**	**22.06**

Major Maintenance BOQ

S.No.	DESCRIPTION	Unit	QUANTITY	RATE	AMOUNT	QUANTITY	RATE	AMOUNT
	Chapter 4. Pavement (Asphalt & Concrete)							
1	Providing and applying tack coat with Rapid Setting Bitumen Emulsion using emulsion pressure distributor on the prepared bituminous/granular surface cleaned with mechanical broom, Ref. to Technical specification 503.			-			-	
(a)	On Bituminous surface @ 2.0 kg to 3.0 kg/10 sqm.	Sqm	4,82,780.00	14.00	67,58,920	4,82,780.00	14.00	67,58,920
2	Providing and laying bituminous concrete using a batch type Hot Mix Plant using crushed aggregates of size (table 500-17), premixed with VG Grade Bitumen and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers, Pneumatic Tyre Rollers to achieve the desired compaction as per Technical specification clause No. 507 and mix design conforming the IRC -111 and IRC 37.	Cum	-	7,480.00		-	7,480.00	

S.No.	DESCRIPTION	Unit	QUANTITY	RATE	AMOUNT	QUANTITY	RATE	AMOUNT
	Providing and laying bituminous concrete using a batch type Hot Mix Plant using crushed aggregates of size	Cum	6,034.75	6,800.00	4,10,36,300	6,034.75	6,800.00	4,10,36,300
	Micro surfacing	Sqm	2,41,390.00	160.00	3,86,22,400	2,41,390.00	160.00	3,86,22,400
3	Repair of joint Grooves with Epoxy Mortar Repair of spalled joint grooves of contraction joints, longitudinal joints and expansion joints in concrete pavements using epoxy mortar or epoxy concrete)	MTRS	-	250.00		-	250.00	
4	Texturing of Rigid pavement (considereing 50% for 7 years)	Sqm	-	130.00		-	130.00	
	Total				**8,64,17,620**			**8,64,17,620**
	Chapter 9 Junctions, Traffic Signs Marking and Other Appurtenances			-			-	
1	Providing and laying of **cement concrete kerb without channel** (M-20 Grade) over WMM foundation using kerb laying machine & proper curing complete, as per drawing & technical specification clause no.409, 1700 and as per the instructions of Employer's representative. - **Consider 5% for construction period.**	Rmt	-	380.00		-	380.00	
2	Providing and laying lane markings of hot applied thermoplastic compound 2.5 mm thick including reflectorizing glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes,Ref.	Sqm	15,026.67	516.00	77,53,760	15,026.67	516.00	77,53,760

S.No.	DESCRIPTION	Unit	QUANTITY	RATE	AMOUNT	QUANTITY	RATE	AMOUNT
	to Technical specification 803.							
3	Road Studs	Nos	-	750.00		-	750.00	
4	Kerb painting		-	250.00		-	250.00	
	Total Chapter 9			-	**77,53,760**		-	**77,53,760**
	Grand Total				**9,41,71,380**			**9,41,71,380**

Annexure 6: Letter of Award

MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD.
(Govt. of M.P. Undertaking)
45-A, Arera Hills, Bhopal-462 011
Tel.: (O) 0755-2765196, 205, 213, 216 (EPABX), 0755-2550995, Fax : 91-755-2572643
Website : www.mprdc.nic.in

No. MPRDC/BOT/II-F-Bajna/2015/ 3437
Bhopal, dated 06, June,2015

M/s Dilip Buildcon Ltd.,
Plot No. 05,
Inside Govind Narayan Singh Gate,
Chuna Bhatti, Kolar Road,
Bhopal
Fax: 4089998

Sub: **Regarding, Strengthening, Widening, Maintaining and Operating of Hata-Fatehput-Rajpura-Silapuri-Bajna-Dargawon (SH-48) Road on BOT (Toll + Annuity)basis**

In response to your Pre-Qualification, you have submitted Technical and Financial Bid for development of **Hata-Fatehput-Rajpura-Silapuri-Bajna-Dargawon (SH-48) Road on BOT (Toll + Annuity) basis**. In this connection, kindly refer to the clarification, addendum etc. issued from time to time before submission of the tender document.

Also refer to your bid documents containing an unconditional price bid of **₹ 7,02,00,000.00 (Rupees seven crores two lacs only)** as Annuity Amount payable in terms of Clause.25 of the Concession Agreement.

Pursuant to our acceptance of your tender and decision to award the work to you, we request you to send your acceptance and sign the Concession Agreement within the time stipulated in the Tender.

Thanking you,

Yours faithfully

Encl: **Duplicate copy of LoA**

(Arun Paliwal)
General Manager

Connecting People Through quality infrastructure

Annexure 7: **Provisional Completion Certificate**

ISO 9001 : 2008
Certified Company

MSV International, Inc.
D-7, South City-1, Gurgaon-122001
Haryana, India \
Tel. 0091-124-4002603, 04
Fax : 0091-124-4002605
E-mail : info@msvgroup.com

Bhopal Office :
5, Rishi Nagar, Char Imli,
Bhopal (M.P.)
Phone : 0755-2430131

Ref No.: MSV/ Sagar Zone/2017/1450 **Date: 07.03.2017**

To,
The Project Manager
M/s DBL Hata Dargawan Tollways Ltd.
Hata Darguwan Road Project, Fatepur Base Camp.
At Km 17+100 on SH 48 village fatepur Tah. Hata
District- Damoh (M.P.) Pin code – 470775

Sub: Independent Engineer for Up-gradation, Strengthening, Widening, Operation and Maintenance of **"Hata Fatehpur – Rajpura- Silapuri-Bahna Darguwan Road"**. M.P.State Highway Project under Sager Zone on BOT (Toll + Annuity) Basis. Reg. **Provisional Completion Certificate of Hata – Dargawon Road.**

Ref:- Your letter No. DBL/ Hata – Dargawon/MPRDC/2015/171 Dated 09.02.2017.

Dear Sir,

As you have requested vide your letter under reference, Please find enclosed herewith **"Provisional Completion Certificate"** of Hata – Dargawon Road, issued in pursuance to provision of clause 14.3 with the Punch list of remaining work.

Thanking You,

Sincerely
For MSV International Inc.,

MSV International Inc. Team Leader Sagar Zone, BHOPAL

Sanjay Sharma
Team Leader

Copy to i. The Engineer In Chief MPRDC Bhopal, Enclosed Provisional completion certificate with punch list for further necessary action please.
ii The Divisional Manager MPRDC, Sagar
iii. The Director Project MSV International Inc., Gurgaon

Enclosed: As above

Annexure 8: Insurance

पॉलिसी अनुसूची/Policy Schedule - Civil Engineering Completed Risk

Policy Number:
321300441910001995

जारीकरण कार्यालय/Issuing Office
कार्यालय कोड /Office Code: 321300
कार्यालय पता /Office Address: BHOPAL DIVISION II B-8, Indrapuri, B H E L, Bhopal, Madhya Pradesh - 462022
State Code: 23 , Madhya Pradesh
GSTIN: 23AAACN9367F1ZB
Contact Number: 755 2682822
eMail: 321300@nic.co.in
Mobile Number:

व्यवसाय स्रोत/Business Source: 910355
बिक्री चैनल कोड/Sales Channel Code: 91035500000001
नाम /Name: Aspire Insurance Brokers Pvt Ltd - HO Contact Number: 8291914810
सह दलाल कोड / Co Broker Code

Customer Care Toll Free Number:
1800 345 0330
email:customer.support@nic.co.in

ग्राहक का नाम /Customer Name: DBL HATA DARGAWON TOLLWAYS LTD
पता Address: PLOT NO 5, INSIDE GOVIND NARAYAN SINGH GATE, CHUNA BHATTI, KOLAR ROAD , BHOPAL-462016, City: BHOPAL, District: BHOPAL, State: MADHYA PRADESH, PIN: 462016
Cell: 9826292328

ग्राहक आईडी /Customer ID: 9701881847
फोन /Phone:
ई-मेल /E-Mail:
पैन /PAN: AAFCD4156J

पॉलिसी 27/03/2020 को 00:00 से 26/03/2021 की मध्यरात्रि तक प्रभावी /Policy Effective from 00:00 hours, on 27/03/2020 to midnight of 26/03/2021

पुरस्कार/Premium	₹ 8,99,824.00	कवर नोट संख्या और तारीख/ Cover Note Number and Date	NA
CGST	₹ 80,984.00		
SGST/UTGST	₹ 80,984.00		
IGST	₹ 0.00		
केरल बाढ़ उपकर/Kerala Flood Cess	₹ 0.00	प्रस्ताव संख्या और तारीख/Proposal Number and Date	880020032708718 2 Dt: 27/03/2020
कम जीएसटी_टीडीएस / Less GST_TDS	₹ 0.00		
पुनर्प्राप्त योग्य मुद्रांक शुल्क /Recoverable Stamp Duty	₹ 0.00	रसीद संख्या और तारीख/Receipt Number and Date	32130081191000766 6 Dt: 27/03/2020
		पिछली पॉलिसी संख्या और समाप्ति तारीख/ Previous Policy Number and Expiry Date	NA
कुल /Total Amount	₹ 10,61,792.00		

(Rupees Ten Lakh Sixty One Thousand Seven Hundred Ninety Two Only)

Location: Hata-Fatehpur-Rajpura- Silapuri-Bajna-Dargaown (SH-48) Road, Punjab Patiala, Rajpura, 140401.

Sr.No	Type of Risk	Description Of Risk	Earthquake Zone	Sum Insured of the risk(₹)	Excess(₹)
1	Roads	ROAD AND STRUCTURE Toll Building & Booths, TMS, HTMS, Office & It Equipment, Electronic Equipment, Road Furniture, Fixturs, Electrical Poles Lighting & Fittings, Signboard & Safety Barrier	Zone III	63,50,00,000.00	1,00,000.00
2	Roads		Zone III	6,50,00,000.00	1,00,000.00

खण्ड खंड/पृष्ठांकनों एवं वारंटी / Clauses, Endorsements and Warranties Applicable Policy is subject to following conditions : POLICY IS SUBJECT TO THE FOLLOWING CONDITIONS

1 Excess applicable under the policy is: (a) Upto SI of Rs 500 Cr = 10% of Claim subject to Minimum of Rs 5 lacs & (b) SI above 500 Cr & upto 1500 Cr = 10% of Claim subject to Minimum of Rs 10 lacs. Entire Road package will be treated as One location for application of Excess
2 Policy is Applicable for Roads & Road side structures & Toll plazas & Bridges & Flyovers on Land
3 No Coverage for (Road) Transportation Tunnels
4 No Coverage for Marine Vessel Impact Damage
5 Each 72 hour period will be treated as One occurrence/event for STFI & EQ for application of Excess

Printed on 27/03/2020 by ID: 75159

Page no: 1

Signer: ATUL JERATH
Date: Fri, Dec 11 2020 12:21:30 IST
Location: NOIDA
Reason: Signing Policy for OICL

ELECTRONIC EQUIPMENT INSURANCE POLICY SCHEDULE

Policy No	: **171200/44/2021/69**	**Prev Policy No**	:
Cover Note No	:	Cover Note Dt	:
Insured's Code	: 96499054	Issuing Office Code	: 171200
Insured's Name	: DBL HATA DARGAWON TOLLWAYS LTD. (GSTIN: 23AAFCD4156J1ZQ)	Issuing Office Name	: CBU Vadodara (GSTIN: 24AAACT06
Address	: Road Hatta Fatehpur Rajpura Silapuri Bajna Dargawon (MP),	Address	: Ist FLOOR, KIRTI TOWER, TILAK ROAD VADODARA GUJARAT 390001
Tel /Fax /Email	: DAMOH 470775 / / 0 / avni.sheth@unisoninsurance.net	Tel /Fax /Email	: 0265-2427075 / 0265-2436654 / 171200@orientalinsurance.co.in

Agent/Broker Details

Dev.Off.Code	:
Agent/Broker	: **LC0000000179 (1149)UNISON INSURANCE BROKING SERVICES P LTD**
Address	: **601-602 ,6TH FLOOR AURAM NR VASNA,HP PETROL PUMP MARKAND DESAI RAOD VADODARA 390015 GUJARAT INDIA,MOB NO 9898295111 PHONE NO 0265-2252274,BARODA,GUJARAT,390007**
Tel/Fax/Email	: **0265-2252274/0265-2357445/0265-2350033/**

Period of Insurance : FROM 00:00 ON 07/12/2020 TO MIDNIGHT OF 06/12/2021

Collection No & Dt : DC_I_INDCSH 3214001222 - 07/12/2020 GST INVOICE NO :2419689119 UIN :0

Gross Premium : 2,787 GST : 502 Stamp Duty : 1 Total : 3,289

RISK DETAILS

Section I : EEI - EQUIPMENT

Sum Insured : 61,90,056

1 Location of the Risk : AS PER LIST ATTACHED
Road and bridge stretch connecting from Hata to Dargawon

MADHYA PRADESH - 470775

Sl No.	Description of Items	Manufacturer Name	Year of Manufacture	Annual Maintenance Contract	Identification No.	Escalation %	Sum Insured
1	AS PER LIST	AS PER LIST	2018		AS PER LIST		61,90,056

Deductible / Excess for : AS PER LIST ATTACHED

Excess :

(a) For equipment with value upto Rs. 1 lakh
1) For PC : 5% of claim amount subject to minimum of Rs.2500/-

2) For Equipment other than PC :
(i) Equipment (other than Winchester Drive and/or Hard Disc)- 5% of claim amount subject to a minimum of Rs.1000/-

(ii) Winchester Drive and/or Hard Disc-10% of claim amount subject to a minimum of Rs.2500/-

(b) For equipment with value more Rs. 1 lakh -
1) Equipment (other than Winchester Drive) - 5% of claim amount subject to a minimum of Rs.2,500/-

Place : -
Date : 07/12/2020

For and on behalf of
The Oriental Insurance Company Limited

This is an electronically generated document (Policy Schedule).The Policy document duly stamped will be sent by post.

In case of any query regarding the Policy please call Toll Free No. 1800 11 8485 and 011 33208485.

Authorised Signatory

CIN: U66010DL1947GOI007158 All the Amounts mentioned in this policy are in Indian Rupee Page 1 of 2

IRDA Regn. No. 556 - Now you can buy and renew selected policies online at www.orientalinsurance.org.in

HDFC ERGO General Insurance Company Limited

October 12, 2020

DBL HATA DARGAWON TOLLWAY LIMITED

PLOT NO. 5, GOVIND NARAYAN SINGH GATE,
CHUNA BHATTI, BHOPAL,MADHYA PRADESH,
BHOPAL,
MADHYA PRADESH,462016.

Dear Customer,

Sub: Employees Compensation Insurance Policy No: 3114203678157100000

We thank you for having preferred us for your *Insurance* requirements. We at HDFC ERGO General Insurance believe "***Insurance***" as not only to be an assurance to indemnify in the event of unfortunate circumstances, but one that signifies protection and support, which you can count on when you need it most.

The Insurance Policy enclosed herewith is a written agreement providing confirmation of our responsibility towards you that puts insurance coverage into effect against stipulated perils.

Please note that the policy has been issued based on the information contained in the proposal form and / or documents received from you or your representative / broker.

Name of the Intermediary	:	GLOBAL INSURANCE BROKERS PVT LTD
Intermediary Code	:	200113159601

Where the proposal form is not received, information obtained from you or your representative /broker, whether orally or otherwise, is captured in the policy document.

If you wish to contact us in reference to your existing policy and /or other general insurance solutions offered by us, you may write to our correspondence address as mentioned below. Alternatively, you may visit our website www.hdfcergo.com . To enable us to serve you better, you are requested to quote your Policy Number in all correspondences.

Thanking you once again for choosing HDFC ERGO General Insurance Company Limited and looking forward to many more years of association.

Yours sincerely,

Authorised Signatory

3114203678157100000 Page 1 of 14

HDFC ERGO General Insurance Company Limited (Formerly HDFC General Insurance Limited)
U66030MH2007PLC177117
Registered & Corporate Office:
1st Floor,HDFC House, 165 - 166 Backbay Reclamation,
H. T. Parekh Marg, Churchgate, Mumbai - 400 020

Customer Service Address:
D-301, 3rd Floor, Eastern Business District (Magnet Mall),
LBS Marg, Bhandup (West), Mumbai - 400 078

UIN : IRDAN125P0017V02201112 | IRDAI Reg No.146 | CIN :
Toll Free Number: 1800 2700 700
Telephone : +91 22 6638 3600 Fax: 91 22 6638 3699
Email : care@hdfcergo.com

HDFC ERGO General Insurance Company Limited

Certificate of Insurance cum Policy Schedule

Policy No. 3114203678157100000 **Employees Compensation Insurance**

Insured Name	DBL HATA DARGAWON TOLLWAY LIMITED (PAN Number:AACCD6124B)			**Business**	OTHERS
Correspondence Address	PLOT NO. 5, GOVIND NARAYAN SINGH GATE,CHUNA BHATTI, BHOPAL,MADHYA PRADESH,BHOPAL,MADHYA PRADESH,462016.				
Mobile		**Phone**		**E Mail**		**Policy Issuance Date**	12/10/2020

Period of Insurance	From Date & Time	12/10/2020 00:01 AM	To Date & Time	11/10/2021 Midnight

LAW

The Policy covers Liability of the Insured under the following Law(s) shown as covered, subject to claim being otherwise admissible as per terms, conditions and exclusions of the Policy and subject to Limit of Indemnity as stipulated against each Law:

Sr. No.	Law	Limit of Indemnity
a.	Employee's Compensation Act, 1923 and subsequent amendments thereof prior to the date of issue of this Policy	Subject otherwise, to the terms, conditions & Exclusions of the Policy, the amount of liability incurred by the Insured
b.	Common Law	Subject otherwise, to the terms, conditions & Exclusions of the Policy, the amount of liability incurred by the Insured, but not exceeding:-
		a) Limit Per Employee for any number of accidents during Period of Insurance ₹. Unlimited
		b) Limit Per Accident for any number of Employees ₹.Unlimited
		c) Aggregate Limit for all accidents and claims arising there from during the Period of Insurance ₹.Unlimited

EC-13-0005
3114203678157100000 Page 2 of 14

HDFC ERGO General Insurance Company Limited

Details of Employees Covered

Description of work done by Employees	Declared Number of Employees	Declared Wages during the Period of Insurance	Place/Places of Employment
Road Paving, Tarring and Road Making - All categories of employees of DBL & Sub-contractor engaged in DBL - Highly Skilled, Skilled, Semi-Skilled, Unskilled, Engineers, Supervisors, Managers, Daily Labour Etc.	10	2400000.00	Strengthening, Widening, Maintaining & Operating of Hata-Fatehpur-Rajpura-Silapuri-Bajna-Dargaow n (SH-48) Road on BOT (Toll+Annuity) basis

Premium Details (₹)

Basic Premium	**1387.00**
Integrated Tax 18%	**250.00**
Total Premium	**1637.00**

GST Registration No: 24AABCL5045N1ZE.The contract will be cancelled ab intio in case; the consideration under the policy is not realized.

List of Endorsements

Endt No	Description	Effective Date
EC_12_0003	Contractors Employees	12 October 2020
WC-02-0008	Tariff Endorsement	12 October 2020
EC-13-0006	Insurance Contract	12 October 2020
EC-13-0005	Policy Schedule	12 October 2020
WC-02-0010	Medical Expenses Exclusion clause	12 October 2020
EC-13-0007	Communicable Disease Exclusion	12 October 2020
	1) Warranted that there are no known losses and /or circumstances leading to losses (except for the claims and / or circumstances already reported to HDFC ERGO General Insurance Co. Ltd. 2) This policy document is issued basis the information provided though request for quotation and/ or unsigned proposal form and / or other details provided by the insured / insurance intermediary and/ or though discussions and our final quote sheet issued to you enabling the insurer to decide the terms and conditions of insurance contract. Your are requested to inform us within 15 days of receipt of the policy document in the event of any error or omission in the information provided. Business : Construction of Road, Building and Other civil work related to	12 October 2020

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HDFC ERGO General Insurance Company Limited (Formerly HDFC General Insurance Limited) U66030MH2007PLC177117
Registered & Corporate Office: 1st Floor,HDFC House, 165 - 166 Backbay Reclamation, H. T. Parekh Marg, Churchgate, Mumbai - 400 020
Customer Service Address: D-301, 3rd Floor, Eastern Business District (Magnet Mall), LBS Marg, Bhandup (West), Mumbai - 400 078
UIN : IRDAN125P0017V02201112 | IRDAI Reg No.146 | CIN :
Toll Free Number: 1800 2700 700
Telephone : +91 22 6638 3800 Fax: 91 22 6638 3899
Email : care@hdfcergo.com

Annexure 9: Change of Scope

CIN No.: U45203MP2004SGC016758

MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD.
(Govt. of M.P. Undertaking)
45 - A, Arera Hills, Bhopal - 462 011, Madhya Pradesh
Tel.: (O) 0755-2765205, 2527202 - 299 (PRL Line) **Fax:** +91-755-2572643
Website: www.mprdc.nic.in

L.No. 3823 /MPRDC/ BOT/Hatta-Dargawan Road/ COS/2016, Bhopal dt. 2-6-17

To,

M/s DBL Hata-Darguwa Tollways
Plot No. 5, Inside Govind Narayan Singh
Gate, Chuna Bhatti, Kolar Road
Bhopal

Team Leader,
MSV International INC.,
7, Rishi Nagar, Char Imli,
Bhopal (M.P.)

Sub:-Independent Engineer for strengthening, widening, operation & maintenance of Hata-Fatehpur-Rajpura-Bajna-Dargawan Road under BOT (Annuity) basis. Regarding remaining item of Change of Scope.

Ref:- TL, MSV International INC letter No. MSV/BPL/Sagar Zone/2017/1507, dt. 05.05.2017

The Advisory Committee in its meeting held on dated 27.05.2017 & has agreed for In-principle approval of the proposals of works under change of scope as forwarded by IE through the letter under reference. Minutes of Advisory Committee meeting for change of scope, as approved by Managing Director MPRDC, is also enclosed herewith.

You are requested to calculate the financial implication of all works under change of scope approved by MPRDC as per the as built drawings and actual work done on site & submit to this office upto 15.06.2017.

Chief Engineer (BOT)
MPRDC, Bhopal

Endt..No. ...../MPRDC/BOT/Hatta-Dargawan Road/ COS/2016, Bhopal dt.....

Copy to-

1. General Manager, MPRDC Bhopal.
2. Divisional Manager, MPRDC, Division Sagar.

-for information & necessary action.

Sd/-
Chief Engineer (BOT)
MPRDC, Bhopal

Connecting People Through quality infrastructure

Change of scope for Hata Fatehpur – Rajpura- Silapuri-Bahna Darguwa Road Project

"Change of scope for Hata Fatehpur – Rajpura- Silapuri-Bahna Darguwa Road Project"on BOT (Toll + Annuity) Basis , are as under

MINUTES OF MEETING AT MPRDC BHOPAL

Meeting of advisory committee of MPRDC for "**Change of scope for Hata Fatehpur – Rajpura- Silapuri-Bahna Darguwa Road "** on BOT (Toll + Annuity) Basis , has been conduted in the office of MPRDC on dated 27.05.2017

Following officials were present in the meeting:-

1. Shri A.S.Chendke, Technical Advisor, MPRDC
2. Shri Anil Chansoria, Engineer-in Chief (BOT), MPRDC
3. Shri Sunil Kumar Mukatii, GM (BOT). MPRDC
4. Shri Sanjay Shrama ,Team Leader(Independent Engineer)

The works of change of scope recommended by Independent Engineer vide its letter no. MSV/BPL/Sagar Zone/2016/ 1507 Date:05.05.2017 have been discussed by the committee & decisions taken are recorded below :

Change of scope for Hatta Dargawan Road Project

S N	Location in Km	Existing /Detail schedule 'A'	Provision as per Schedule 'B'	Proposal submitted by concessnaioare	Reasons & Recommendation of Indpendent Engineer on submitted proposal	Descision of Committee
i)	8+870	Solid Slab + C Abt & pier 6x8.7, 8.5 width fair condition	Widening with 12m width	This is the Existing Solid slab 6x8.7, 8.5 width submersible bridge is in good condition, there is no need widening of 12 m width for submersible bridge. Hence this bridge may be retained and wideinig is considered as a (-) negetive Change of Scope	This is the Existing Solid slab 6x8.7, 8.5 width submersible bridge is in good condition, there is no need widening of 12 m width for submersible bridge. Hence this bridge may be retained and wideinig is considered as a (-) negetive Change of Scope	The Advisory Committee agrees with the reasons & recommendation of TL for Negative change of scope for wideining of Minor Bridge .
ii)	64+098	Not in Schedule 'A'	Not in Schedule "B"	Local villagers demanding 1Iume Pipe Culvert Hence, HPC 1x1000 mm is proposed	As per site condition,at junction of NH-86 and SH-48 HPC 1 x 1000 width of 12.0m is required to drain out the rain water across the road. Hence, it will be+ve Change of Scope.	The Advisory Committee agrees with the reasons & recommendation of TL for Possitive change of scope for construction of 1Rw 1000 mm HPC

Authorised Representative
M/s DBL, Hata- Dargawaan Tollway Pvt. Ltd.

Sh. Sanjay Shrama
Team Leader
Independent Engineer

Sh. Sunil Kumar Mukati,
GM (BOT), MPRDC)

Sh. Ashutosh Mishra
CE (BOT), MPRDC)

Shri Anil Chansoria
Engineer In-Chief (BOT),
MPRDC, Bhopal

Shri A.S. Chendke
Technical Advisor
(MPRDC) Bhopal