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## **LIST OF ABBREVIATIONS**

<b>AADT</b>	Annual Average Daily Traffic
<b>AASHTO</b>	American Association of State Highways and Transportation Officials
<b>ADB</b>	Asian Development Bank
<b>ADT</b>	Average Daily Traffic
<b>BBD</b>	Benkelman Beam Deflection
<b>BM</b>	Bituminous Macadam
<b>BOQ</b>	Bill of Quantities
<b>CBR</b>	California Bearing Ratio
<b>CD</b>	Cross Drainage
<b>DPR</b>	Detailed Project Report
<b>EIA</b>	Environmental Impact Assessment
<b>EIRR</b>	Economic Internal Rate of Return
<b>EMP</b>	Environmental Management Plan
<b>ESA</b>	Environmental and Social Assessment
<b>FMC</b>	Field Management committees
<b>GPS</b>	Global Positioning System
<b>GSB</b>	Granular Sub-Base
<b>ICB</b>	International Competitive Bidding
<b>IMD</b>	Indian Meteorological Department
<b>IRC</b>	Indian Roads Congress
<b>IS</b>	Indian Standard
<b>MoEF</b>	Ministry of Environment and Forests
<b>MoRTH</b>	Ministry of Road Transport & Highways
<b>NGOs</b>	Non-Government Organizations
<b>NPV</b>	Net Present Value
<b>NSEW</b>	North-South East-West
<b>OD Survey</b>	Origin Destination Survey
<b>ONGC</b>	Oil & Natural Gas Corporation

<b>PAP</b>	Project Affected Person
<b>PCU</b>	Passenger Car Units
<b>PIA</b>	Project Influence Area
<b>PWD</b>	Public Works Department
<b>QAP</b>	Quality Assurance Plan
<b>RAP</b>	Resettlement Action Plan
<b>R &amp; R</b>	Resettlement and Rehabilitation
<b>RCC</b>	Reinforcement Cement Concrete
<b>ROW</b>	Right of Way
<b>RUCS</b>	Road User Cost Study
<b>SDBC</b>	Semi Dense Bituminous Concrete
<b>SPM</b>	Suspended Particulate Matter
<b>TBM</b>	Temporary Bench Mark
<b>TOR</b>	Terms of Reference
<b>VOC</b>	Vehicle Operating Costs

## 1. PROJECT BACKGROUND

### 1.1 General

**Ministry of Road Transport & Highways (MoRTH)** intends to take up the “Consultancy Services for preparation of Feasibility Study and Detailed Project Report for Construction of 2 lane/2 lane with paved shoulder from Kohima to Nagaland/Manipur border section of NH-29 (Old NH-150) in the State of Nagaland under SARDP Phase-B on EPC Mode”.

The Ministry of Road Transport & Highways (MoRTH) appointed **M/s. Feedback Infra Pvt. Ltd. (FIPL)** for providing the required “Consultancy services for Preparation of Feasibility Study and Detailed Project Report for Construction of 2 lane/2 lane with paved shoulder from Kohima to Nagaland/Manipur border section of NH-29 (Old NH-150) in the State of Nagaland under SARDP Phase-B on EPC Mode”. The Contract Agreement for the assignment was signed on 12<sup>th</sup> May 2015 and through letter NH-12011/12/2014/NG/SARDP-NE dated 27<sup>th</sup> May, 2015 consultants were instructed to commence the Assignment and the project activities thereafter.

The project has been included under BharatmalaPariyojan for their Improvement / development by National Highways and Infrastructure Development Corporation limited (NHIDCL), through vide letter no.NH-12037/27/2018/Bharatmala/SARDP-NE/Zone-V, dated 28<sup>th</sup> September, 2018.

### 1.2 Project Description

The project highway starts from Km 3.000 of NH- 29 (old NH-150) and ends at Km 132.000 of NH-29 ( old NH-150) near Jessami in Manipur State. The end point of the road also intersects on NH-202 (old NH-155). The existing length of the project road is Km 132.000.

After the discussion with CE (NER)- MORTH, it was decided to obsolete from Km 3.000 to Km 7.880 of the project reach. This was deleted because it was already awarded to other consultant for DPR preparation. Hence the start of the project road is from Km 7.880 of NH- 29 (old NH-150) and end point remains the same. Now the length of project road is 124.120 Kms.

The Project Highway passes through districts Kohima and Phek in the state of Nagaland and Ukhrul in the state of Manipur. It connects important Town / Villages namely Kohima, Chakabama, Kiruma, Fpsutsero, Misulumi, Enhulum, Chizami, Losami, Laniye and Jessami.

The existing length of the Project Highway is about 124.120 kms while the design length of the project road is 121.090 kms (Ch. 7.880 to Ch. 128.970). There is no requirement of bypassing any town/ village along the entire project Highway. The entire project road is divided into six packages and the details are given in table below;

The key plan of the project highway is shown in figure below;

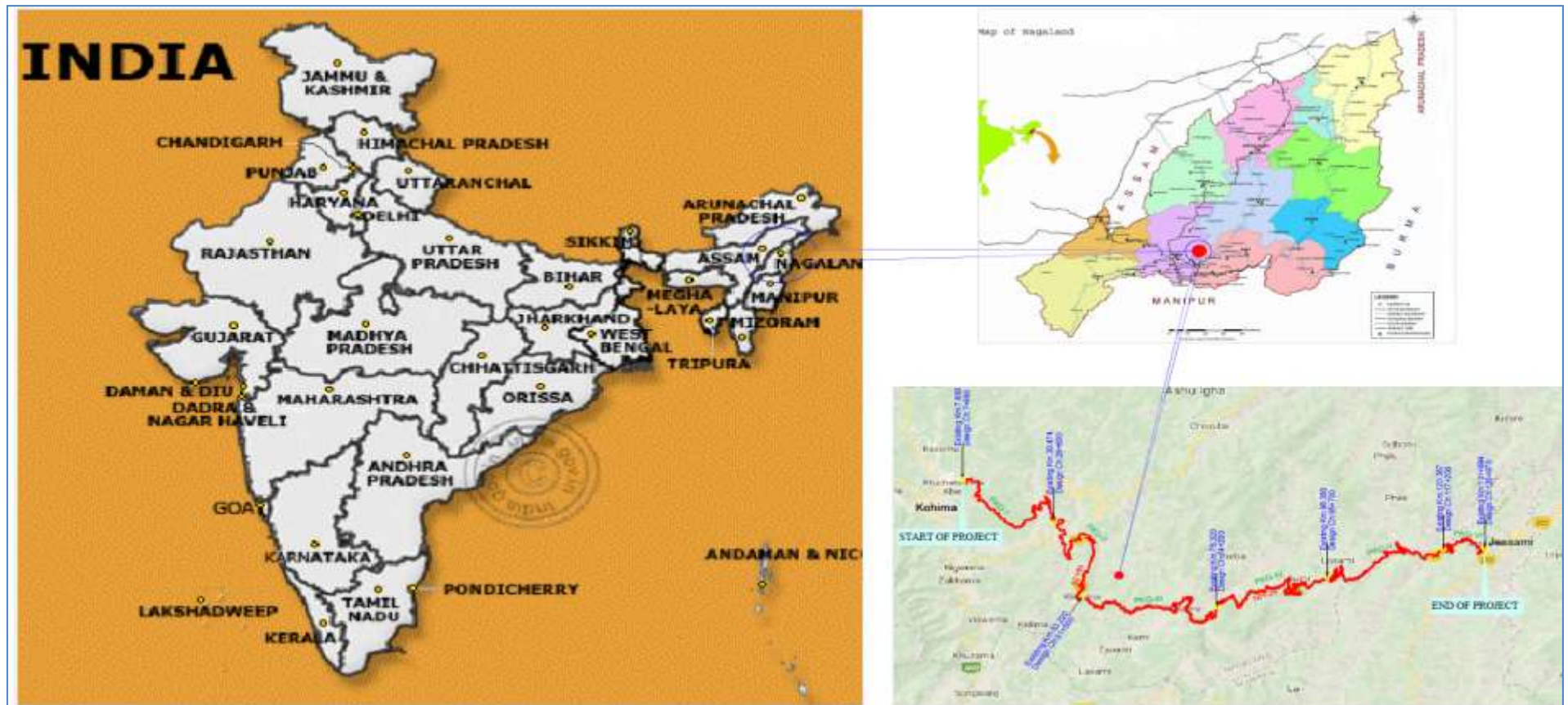


Figure 1-1 Key Plan of the Project Highway

### 1.2.1 Construction Packages

The entire Project Highway has been divided into Six Construction Packages and the details are given in table below;

**Table 1-1 Details of Construction Packages**

Package No	Existing Location (Km)		Design Chainage (Ch.)		Total Length (Km)		Name of nearest Town/ Village	
	From	To	From	To	Existing	Design	From	To
I	7.880	30.474	7+880	29+600	27.474	21.72	Chedama Road junction	Near Junction of Kigwema Road, Chakabama
II	30.474	53.22	29+600	51+500	22.746	21.9	Near Junction of Kigwema Road, Chakabama	Near Kikruma Village
III	53.22	76.32	51+500	74+200	23.1	22.7	Near Kikruma Village	Near Mesulum Village
IV	76.32	98.38	74+200	95+700	22.06	21.5	Near Mesulum Village	Near Chizami
V	98.38	120.37	95+700	117+200	21.987	21.5	Near Chizami	Nagaland/ Manipur Border
VI	120.37	131.89	117+200	128+970	11.527	11.77	Nagaland/ Manipur Border	At junction of NH-29 (Old NH-150) with NH-202 (Old NH-155) near Jessami Village in Manipur State

### 1.2.2 Redefining the “Project Highway” with reference to Construction Package-II

As per ToR all the DPR submissions are to be submitted as construction package-wise, therefore from here onwards “The Project Highway” referred shall be confined to the section of that particular construction package only.

Therefore, this Final Detailed Project Report pertains to “Construction of 2 lane/ 2 lane with paved shoulder from Junction of Kigwema Road, Chakahabama in Nagaland State section of NH-29 from existing km 30.474 (Design Ch. 29+600) to km 53.220 (Design Ch. 51+500) - Construction Package – II” only.



### 1.3 Project Preparation Stages

Project preparation activities have been split into four stages as given below;

- Stage 1: Quality Assurance Plan (QAP) and Inception Report (IR)
- Stage 2: Feasibility Report, Strip Plan and Clearances
- Stage 3: Land Acquisition Report and Preliminary Project Report (PPR)
- Stage 4: Detailed Project Report (DPR)

*This Report covers the Stage 4, Detailed Project Report only.*

### 1.4 Structure of the Detailed Project Report

The Detailed Project Report is prepared as per ToR and presented as below:

#### **Volume – I : Main Report**

- 0 Executive Summary
- 1. Project Background
- 2. Social Analysis of the Project
- 3. Engineering Surveys & Investigations
- 4. Traffic Studies & Demand Forecast
- 5. Improvement Proposals and Designs
- 6. Cost Estimates
- 7. Environmental Aspects
- 8. Economic and Financial Analysis
- 9. Conclusions

#### **Appendix to Main Report**

- Appendix-A : Affected Structures
- Appendix-B : Road inventory
- Appendix-C : Road and pavement condition survey
- Appendix-D : Pavement investigations
  - Appendix-D-1: BBD survey & Analysis
  - Appendix-D-2: Axle load survey & Analysis
- Appendix-E : Details of Existing Bridges
- Appendix-F : Details of Existing Culverts
- Appendix-G : Traffic surveys
  - Appendix-G-1: Classified vehicle counts
  - Appendix-G-2: Origin-destination survey
- Appendix-H: Traffic projections

#### **Volume – II : Design Report (Part-I)**

- 1. Design Standards
- 2. Design Proposals

**Volume – II : Design Report (Part-II)**

- 1.1 Design Criteria for Structures
- 1.2 Hydrological and Hydrologic Study
- 1.3 Protection Work
- 1.4 Improvement Proposals and Designs of Structures

**Annexure A - Structure Calculations**

**Volume – III : Material Report**

**Volume – IV : Environmental Assessment Report including Environmental Management Plan (EMP)**

**Volume – V : Technical Specifications**

**Volume – VI : Rate Analysis**

**Volume – VII : Cost Estimates**

**Volume – VIII : Bill of Quantities (BoQ)**

**Volume – IX : Drawings**

- Part – A : Highway Drawings
- Part – B : Structures Drawings

**Volume – X : Civil Work Contract Agreement**