



# Environmental and Social Due Diligence of a Toll road from Bharatpur to Mahwa, Rajasthan

ISQ Asia Infrastructure I-A Pte. Ltd

: jbU Report

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15 September 2016

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## *ACRONYMS*

CA	Competent Authority
CPCB	Central Pollution Control Board
EIA	Environment Impact Assessment
EMP	Environment Management Plan
ESDD	Environmental and Social Due Diligence
EPC	Engineering Procurement Construction
EHV	Extra High Voltage
ESAP	Environmental and Social Action Plan
FPIC	Free, Prior and Informed Consent
IFC	International Finance Corporation
ISC	I-Squared Capital
MAJEL	Madhucon Agra Jaipur Expressway Limited
LA	Land Acquisition
LHS	Left Hand Side
MoEF	Ministry of Environment and Forest
NHAI	National Highway Authority of India
PD	Project Director
RoW	Right of Way
RAP	Resettlement Action Plan
RHS	Right hand Side
RSPCB	Rajasthan State Pollution Control Board
SDO	Sub Divisional Officer
SIA	Social Impact Assessment
SPV	Special Purpose Vehicle

**1.1****BACKGROUND**

ISQ Asia Infrastructure I-A Pte Ltd (ISQ) and International Finance Corporation (IFC) are evaluating an investment opportunity within a Special Purpose Vehicle (SPV) under the name of Madhucon Agra- Jaipur Expressway Limited (MAJEL) that has been set up for the operation and maintenance of the 57 km stretch of National Highway-11 (Bharatpur-Mahua stretch) near Bharatpur (hereinafter referred to as project corridor).

Madhucon Projects Limited (MPL) is a listed Public Limited Company engaged in execution of Infrastructure Projects, such as construction of National Highways, Fly-Overs, Dams, Tunnels, Aqueducts, Bridges, Coal Handling Plants, Workshops Property Development Projects including High Rise structures, Hospitality and retail industry structures etc. Madhucon has been building expressways, national highways, tunnels, flyovers and bridges in the states of Andhra Pradesh, Telangana, New Delhi, Madhya Pradesh, Assam, Uttar Pradesh, Tamil Nadu, Rajasthan, Maharashtra and Bihar.

MAJEL, is engaged in strengthening and widening the existing 57 km stretch between Bharatpur and Mahwa on NH 11. This project provides connectivity between NH-8 (connecting Mumbai-Delhi) and NH2 (connecting Kolkata-Delhi) and forms a part of the Golden Quadrilateral Project of the National Highways Authority of India (NHAI). The project has a concession period of 25 years starting October 31, 2005.

MAJEL was appointed as the Concessionaire through the Concession Agreement with the NHAI dated October 2005 under the Build, Own, Operate and Transfer (BOOT) model. MAJEL has completed the construction of the project and achieved the provisional Commercial Operation Date (COD) on 13<sup>th</sup> September 2009 as certified by the Independent Consultant- Aarvee Associates for the "Improvement, Operation and Maintenance, rehabilitation and Strengthening of the existing 2-lane road and widening to 4- lane divided highway of Bharatpur- Mahwa section from Km 63.00 to Km 120.00. The road has been operational since May 2009.

**1.1.1*****Objectives of the Study***

The overall objective of the present study is to review the project against the applicable reference framework, identify gaps and provide recommendations in the form of an Action plan to close the gaps and meet the requirements of the applicable framework. The other key objectives include:

- Categorizing the Project as Category 1,2 or 3 as defined in the screening/ESDD criteria defined in the Terms of Reference and to determine the screening requirements applicable to the Project;

- Undertaking the ESDD in line with the applicable requirements detailed in screening /ESDD criteria, which includes, where applicable, reviewing the adequacy of:
  - The Environmental and Social Impact (ESIA) process and report including the Environmental and Social Management Program(ESMP) and the Social Impact Assessment (SIA) and Resettlement Action Plan (RAP), if applicable;
  - The Environmental and Social management systems of the Project/ SPV to manage E&S risks and impacts on an ongoing basis in accordance with the provisions of the reference framework. A part of this review will include assessing the adequacy of the capacity and management structures in place to manage environmental and social risks and impacts;
- Based on the assessment, providing a detailed evaluation on compliance with the reference framework; and
- Developing a detailed and time bound Action Plan with follow-up and implementation plan details, parameters and outcome indicators to judge compliance to IFC Performance Standards requirements.

### 1.1.2 *Scope of Work*

The scope of work for the present study included the following:

- **Environment & Social Management Systems:** Review of the environmental, health and safety and social management systems of the project proponent, i.e. the SPV along with the role and influence of regulatory authorities, such as the NHAI, and assess adequacy and effectiveness to operate the road;
- **Project Footprint:** Review of the 57 km road stretch along with all associated facilities, such as the toll booths, control rooms, any labour/ staff accommodation, onsite maintenance units and set-up etc. and gather updates on project activities and plans;
- **Legislative requirements:** Check the status of environmental clearances and applicable permits, particularly conditions applicable for the operation phase of the project;
- **Land Acquisition& Resettlement & Rehabilitation:** Consultations with the community in the immediate vicinity and adjacent to the right-of-way (RoW) of the road as well as any directly impacted land owners during the right of way acquisition to assess the status of land acquisition and pending issues if any; and
- **Labour Working Conditions:** Consultations with all direct SPV employees engaged in the toll road operations along with the contracted agencies and their workers to assess workforce engagement and working conditions.

Specifically, the scope of work entailed to acquire information needed to understand as far as practicable the aspects as given below:

**Table 1.1** *Scope of the Independent Review*

SN.	Scope Criteria	Review Coverage
1	Litigation- Full information on any outstanding litigation or notices from regulatory authorities related to environmental impacts, land/RoW acquisition, labour working conditions, occupational health and safety, community health and safety.	This aspect was assessed through review of the documents provided by MAJEL and discussions with the project In charge.  The Patwari of the Project Phase was also consulted with to access available information.
2	Other risks- Full information on any stakeholder concerns (employees, local communities, NGOs, regulatory authorities, contractors, contract workers): expressed in the public domain; through grievance mechanisms; and instances of protests or civil action related to environmental impacts, land/RoW acquisition, labour working conditions, occupational health and safety, community health and safety.	This was covered through discussions with the nearby communities, sub-contractor workers as well as the MAJEL representatives of highway maintenance, HR & Administration and Patwari of the Project Phase.
3	Assessment and Management of Environment and Social Risks and Impacts- Opinion on a) an ESMS that meets the requirements of IFC PSs and applicable EHS Guidelines and b) whether an operational stage ESMP, compliant to PS has been developed and has/is being implemented; Environment, health, safety, social, and labour working condition monitoring and performance to ensure that applicable provisions of IFC PSs and WBG EHS Guidelines are being met.	This was covered through review of the available documents, site visit of the entire project corridor, review of the available literature on internet as well as discussions with MAJEL team.
4	Land and Resettlement issues- Opinion/assessment on any pending land and R&R related cases/disputes pending before courts/authority or reported Clear opinion on the risks such issues (if any) a) pose to the project and b) compliance gaps with PS 5 and c) actions required to close these gaps.	Through discussions with MAJEL team as well as the local community, review of the available land records, documents on project award and the punch list items provided by Patwari and Independent engineer reports. The process of gathering information on the land acquisition, current encumbrances and update on the compensation was done over two site visits.
5	Stakeholder/Community Engagement- Review provide opinion on operation stage Stakeholder Engagement Plan and its implementation for conformance to IFC PSs.	Through discussions with the project In-charge, and NHAI as well as discussions with the community along the ROW and especially those directly impacted and those potentially encroaching the ROW>
6	Grievance Mechanism- Adequacy and effectiveness of a functional and effective Grievance Redress system and suggestions for improvements.	Through review of the existing systems for Grievance Procedures, including existing complaints, at MAJEL and discussions with the site management and the nearby community.
7	Health & Safety- Review operational stage health & safety management system (as a part of the ESMS) and its adequacy and efficacy. Review monitoring data and provide an overall assessment on H&S performance of the project	Site Assessment and observations, and review of the Highway Safety Manual. Discussions with the maintenance workers.
8	HR/ Contractor Management- Comment on the HR/ Contractor management system/practices of the project and its compliance levels to PS 2 requirements. Key issues and gaps and suggestions to close these gaps; Assessment of Labour and employee accommodation and whether they meet PS2 provisions	Review of the existing documents like HR Manual, MAJEL's Grievance Register, MAJEL's Insurance Policy, ESI Policy and organizational chart, Provident Fund calculations, recruitment procedure, HR philosophy, resignation procedures, and salary register, consultation with the HR

SN.	Scope Criteria	Review Coverage
		personnel and discussions with contractor manager.
9	Pollution Prevention- Adequacy of Mitigation measures implemented for impacts from air/ noise/vibration in accordance with PS3 and WBG EHS Guidelines. Review monitoring data and indicate compliance levels with aforesaid standards/guidelines	Through site assessment and sensitivity mapping done using GPS and plotting of all the environmental and social features along the project corridor on both LHS and RHS, review of limited information available in the EIA report, review of the Environmental Management Plan (EMP) for the construction phase and corporate policies of MAJEL.
10	Natural Habitats- Whether the project involved forest land diversion or the route fell in the vicinity of coastal areas or large wetland areas; Based on review of literature, meetings with forest department and anecdotal information from communities provide opinion on presence or migration of any IUCN or nationally specified vulnerable, endangered or critically endangered species. If present, assess/establish whether critical habitat or not. If critical habitat, establish that CR related measures in accordance with PS 6 are in place. If not critical habitat, provide an assessment of impact on natural habitat and whether meeting natural habitat requirements of PS6 in place measures.	Through review of the EIA, site assessment, review of all Forest Department related correspondences and permissions and available secondary literature. A biodiversity specialist visited the site a second time to collect information to conduct a critical habitat analysis.
11	Indigenous peoples, tribes and communities- If road passes through scheduled areas, review process of land take in detail to understand impact on IPs, if any and whether they have been mitigated in accordance with PS7. If significant tribal population in the vicinity of the road, or significant tribal land taken or potential for loss of access to lands/resources on which tribal population dependent, assess if mitigation measures developed and implemented in accordance with PS7. Establish: no adverse impact (either historical or residual) on lands and resources under traditional or customary use of IPs (including access related impacts); no relocation of IPs from land and resources under traditional or customary use; and no adverse impact on critical cultural heritage of IPs.	Through review of available literature about the project area, discussions with the site management, site Assessment and discussion with the local community.
12	Cultural Heritage- If issues relating to cultural heritage identified at (1) and/or (2), review in detail to establish if measures implemented meet PS1 and PS8.	Through Site Assessment and review of documents provided by MAJEL.

\*Source: IFC's Terms of Reference and Proposal

## 1.2

### APPROACH AND METHODOLOGY

#### 1.2.1

#### *Project Inception*

An initial kick off -call with IFC and ISC was undertaken in Delhi on 11<sup>th</sup> August 2015 in order to obtain an overview of the project status, present ERM's scope of work and align the approach, expectations and timelines.

## 1.2.2

### *Site Assessment*

Considering the strict timelines and upcoming holidays around the 15<sup>th</sup> of August, ERM's team of Environmental and Social experts undertook a site assessment of the project corridor of Bharatpur-Mahwa stretch of NH-11 from 12<sup>th</sup> to 14<sup>th</sup> August 2015. The site visit was undertaken before a detailed document review that raised some limitations (like undertaking the screening without the relevant documents). However these gaps were filled later with subsequent visits and detailed documents reviews.

The key aspects of the site assessment included:

- Site Assessment of the entire project corridor from Bharatpur to Mahwa stretch, Administrative Block of MAJEL at Amoli Toll Plaza and Aggregate and Hot Mix Plant, and discussions with the SPV( MAJEL) at site;
- Environmental & Social sensitivity mapping along the entire project corridor by way of a drive-through along the entire project road stretch and mapping of features on both left hand side and right hand side of the corridor;
- Site Assessment of the Hot Mix Plant situated at the Amoli Toll Plaza and discussions with the workers ;
- Discussions with the Patwari and MAJEL's Management Team; and
- Stakeholder consultations near the encroachments and the cultural properties along the Project corridor as well as consultations with the maintenance workers.

The second site assessment was carried out on the 26<sup>th</sup> and 27<sup>th</sup> August to collect information pertaining to the litigations related to Biodiversity and also discussions with the Divisional Forest officer at Bharatpur and Territorial officer of Keolodeo Ghana National Park. A third and final visit was undertaken on the 1<sup>st</sup> and 2<sup>nd</sup> of October to complete the verification of all the encroachments identified by MAJEL and seek to understand the status of the same. The subsequent table illustrates the key site assessment activities and details of stakeholder consultations undertaken:

**Table 2.2** *Site Assessment Activities*

Date	Location	Activities
12 <sup>th</sup> August 2015	Jaipur ( Km 228)	<ul style="list-style-type: none"> <li>• Site Visit from Jaipur-end Point at Km 63 and proceed towards Amoli Toll Plaza;</li> <li>• Discussions with the Project Manager – Mr. Mallikarjun at MAJEL's Project Office;</li> <li>• Discussions with the HR Manager, Compliance Manager at MAJEL;</li> </ul>

Date	Location	Activities
13 <sup>th</sup> August 2015	Kanota -At Hot Mix Plant	<ul style="list-style-type: none"> <li>• Site assessment from Ludhawai Toll Plaza to Amoli Toll Plaza.</li> <li>• Visit to the Hot Mix Plant;</li> <li>• Assessment of the Hot Mix Plant;</li> <li>• Discussions with the contractor workers</li> <li>• Community consultations with encroachments</li> <li>• Discussions with the median maintenance and ROW maintenance workers</li> <li>• Community consultations with affected community</li> <li>• Discussions with the Patwari</li> </ul>
	Amoli Toll Plaza to Mahwa Project End	<ul style="list-style-type: none"> <li>• Continue with the Project road assessment from Sikandra Toll Plaza up till Mahua at project end point for both LHS and RHS</li> </ul>
14 <sup>th</sup> August 2015	Amoli Toll Plaza	<ul style="list-style-type: none"> <li>• High level discussions with The Patwari- Mr. Pandey</li> <li>• Collection of the remaining documents on land data</li> </ul>
27 <sup>th</sup> August 2015	Bharatpur Forest Department, site visit to other sensitive locations and water bodies.	<ul style="list-style-type: none"> <li>• Visual observation and examination of receptors</li> <li>• Interviews with the Divisional Forest Officers of KGNP and Bharatpur Territorial Division</li> <li>• Interviews with local communities</li> <li>• Review of secondary literature i.e. working/management plans of the national park and the territorial forest division in addition to scientific publications from the region.</li> </ul>
1 <sup>st</sup> October 2015- 2 <sup>nd</sup> October 2015	Entire Project Road Stretch	<ul style="list-style-type: none"> <li>• Verification of Encroachment and list of Cases provided by MAJEL</li> </ul>

### 1.2.3

#### *Documentation Review*

Post the site assessment, ERM shared a document request list with the client and undertook review of available public information on the Bharatpur-Mahwa Corridor of NH-11. ERM conducted a search of defined online and publicly available sources of information (relevant to the jurisdictions in which the Project corridor is located), with the objective of identifying and reporting performance issues pertaining the interest and concern to key third party stakeholders such as major non-governmental organisations (NGOs), and other interested parties. *Annexure A* provides the list of documents that were made available for review pertaining to the present project.

### 1.2.4

#### *Analysis*

##### *Project Categorisation*

As part of the due diligence process, a Project Categorisation was carried out to review MAJEL's expected social and environmental impacts. The project categorization has been completely based on the ESDD/Screening Criteria provided in the TOR suggested by ISQ/IFC This categorisation is used to reflect the intensity of impacts and to specify IFC's institutional requirements and has been discussed in details in *Section 5*.

### *Gap Assessment as per the Screening Criteria*

The description of gaps as per the applicable standards has also summarised the key issues that represent risks and are to be prioritised either because of potential for regulatory action; potential for reputational risks; and potential to delay the project schedule. To the extent feasible, the qualitative assessment has demarcated items/gaps that are within MAJEL's sphere of influence as well as aspects that are wrested with external authorities such as NHAI. The gap table identifies the key standards that were met, met with non-material gaps and not met due to fundamental gaps.

### *Action Plan Development*

The Environment and Social Action Plan (ESAP) builds on the gap assessment table. The format of the ESAP has been organised to capture: (a) summary of recommendation; (b) requirements for resources and responsibilities; (c) schedule for completion of actions and (d) indicators of completion of the actions.

## **1.3**

### **LIMITATIONS**

This due diligence exercise has been strictly undertaken based on the documents made available by MAJEL, the tight timelines within which the site assessment was done, and on limited consultations with the community and project affected people, patwari, Forest Department and other stakeholder, and information available in public domain. The other constraints with respect to the assessment are as follows:

### **1.3.1**

#### ***Information Gaps***

This due diligence exercise has been undertaken based on the following constraints:

- As Environmental Clearance (EC) is a critical license and it is understood that as the project road has been operational over 5 years, it would have definitely obtained the licence. However, this report does not provide a compliance to the conditions of the EC as it was not provided by MAJEL. The status of Environmental Clearance for the project is unclear due to the non-availability of the adequate correspondence from MoEF and NHAI. As per MAJEL, Environmental Clearance was not applicable for the Bharatpur- Mahwa section, however, based on the review of the Detailed Project report and the Environment Impact Assessment report (EIA), it is understood that the report was prepared for the entire Agra- Bharatpur- Mahwa section of NH-11;
- An attempt was made to identify those individuals who have cases running on the plots of land within the RoW, based on a summary list available with MAJEL. However, since this list only provides the khasra numbers, a complete verification on the ground could not be achieved, as the local community in many cases was not aware of any litigations; and

- An attempt was made to physically verify all the encroachments on the RoW, based on the list available with MAJEL as of on 1/09/2015; and
- However, in certain cases, the land owners or people aware of the reason for encroachment were unavailable at the time of the site visit, and thus could not be consulted.

Professional judgements expressed herein are based on facts and information provided. Wherever ERM has not been able to make a judgement or assess any process, it has highlighted that as an information gap and suggested a way forward.

### 1.3.1 *Uses of the Report*

ERM is not engaged in consulting or reporting for the purpose of advertising, sales promotion, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. Client acknowledges this report has been prepared for their and their clients' exclusive use and agrees that ERM reports or correspondence will not be used or reproduced in full or in part for such purposes, and may not be used or relied upon in any prospectus or offering circular. Client also agrees that none of its advertising, sales promotion, or other publicity matter containing information obtained from this assessment and report will mention or imply the name of ERM.

Nothing contained in this report shall be construed as a warranty or affirmation by ERM that the site and property described in the report are suitable collateral for any loan or that acquisition of such property by any lender through foreclosure proceedings or otherwise will not expose the lender to potential environmental or social liability.

## 1.4 *LAYOUT OF THE REPORT*

<i>Section 1(this section):</i>	Introduction to the Project, Scope of the Independent Review & Approach and Methodology for the study;
<i>Section 2:</i>	Applicable Reference Framework & Regulatory Status;
<i>Section 3:</i>	Project Description;
<i>Section 4:</i>	Environmental and Social Profile of the Project;
<i>Section 5:</i>	Gap Assessment to the Applicable Standards; and
<i>Section 6:</i>	Environmental and Social Action Plan (ESAP).

Annexures

<i>Annexure A:</i>	List of Documents reviewed
<i>Annexure B:</i>	ROW Data Verification
<i>Annexure C:</i>	Critical Habitat Assessment
<i>Annexure D:</i>	Photo-Documentation

This section summarises the Applicable Standards that are being used as the reference framework against which the ESDD for the Project road corridor of Bharatpur- Mahwa stretch of NH-11 has been undertaken. The outcome of this study is to assess compliance with respect to the following applicable reference framework:

- Revised IFC Performance standards 2012 as interpreted and applied through screening criteria as follows:
  - Category 1: Operating roads (2 or more years);
  - Category 2: Operating roads (1 or more years but less than 2 years); and
  - Category 3: Just operational (less than 1 year) or where there is any pending Land Acquisition (LA)
- Applicable World Bank Group/IFC EHS Guidelines, Specifically, the following World Bank Group EHS Guidelines, published on April 30, 2007:
  - IFC EHS General Guidelines ;
  - IFC EHS Guideline for Toll Roads;
- Equator Principles, June 2013; and
- Applicable local, national and international environmental and social legislation

### 2.1.1 IFC Performance Standards

Based on *Table 1.1*, the following aspects get triggered:

- Existing environment and social management systems that are prevailing within MAJEL in terms of availability of ESMP, a defined EHS Policy, organization chart with defined roles and responsibilities and risk identification procedures;
- Impacts due to land acquisition and Involuntary resettlement to consider various processes and systems to avoid / minimise social and economic impacts related to land acquisition and resettlement;
- Any critical habitats due to the high level of human activity within a km buffer of the 57 km highway stretch;
- Rights of the workers, working conditions, fair treatment, child and forced labor and rights of the migrant work force working for MAJEL as well as their sub-contractors;
- Environmental aspects along the project corridor and the existing mitigation measures that have been provided; and
- Protection of cultural heritage, as well as benefit sharing and measures to be taken during relocation of cultural heritage structures.

### 2.1.2 *WB/IFC EHS Guidelines*

The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP), as defined in IFC's Performance Standard 2: Labour & working Conditions (Occupational Health and Safety), Performance Standard 3: Resource Efficiency and Pollution Prevention.

The following EHS Guidelines were referred for the present study:

- General EHS Guidelines, 2007; and
- EHS Guidelines for Toll Roads, 2007.

### 2.1.3 *Applicable Indian EHS and Social Regulations*

Based on our understanding, the table below (Table 2.1) provides a list of applicable EHSS regulations along with its applicability to the Project and current status. All the copies of licenses and permits have been enclosed in *Annexure B*.

**Table 2.1**      *Applicable EHS and Social Regulations*

SN.	Applicable Policies and Regulations	Institution Responsible	Objective	Applicability	Status of Permits and Licenses
1.	The Environment (Protection) Act, 1986	MoEF	Umbrella legislation to protect and improve overall Environment	Consent to Establish * Consent to Operate under Air (prevention & Control of Pollution) Act-81	<ul style="list-style-type: none"> <li>Consent to Establish under section 21 (4) of the Air (Prevention &amp; Control of Pollution) Act,1981 via File No F (MUID)/Bharatpur (Weir)/1 (1)/2014-2015/8005-8009 and Dispatch Date 11/03/2015 and valid until 30.06.2017 for manufacturing of bituminous concrete of a quantity of 90000 MT per annum;</li> </ul>
2.	The Forest (Conservation) Act, 1980	State Forest Department	Protection and conservation of Forests	NHAI To obtain Forest clearance/permission of tree felling to clear the Right of Way (ROW)	<ul style="list-style-type: none"> <li>Stage I Forest clearance (FC) was obtained for the entire section from Bharatpur to Jaipur on 16th November 2005 and Final Forest Clearance was obtained in September 2006</li> </ul>
3.	The Water (Prevention and Control of Pollution) Act, 1974	CPCB, RSPCB	Prevention and control of water pollution as well as restoration of water quality	<ul style="list-style-type: none"> <li>Consent to Establish/Operate to be obtained from RSPCB for Hot Mix Plant;</li> <li>NOC to be obtained from RSPCB by NHAI</li> </ul>	<ul style="list-style-type: none"> <li>Acknowledgement of Application for <b>Consent under the Water (Prevention and Control of Pollution) Act,1974 and the Air (Prevention and Control of Pollution) Act,1981</b> for small scale/Tiny Industries under Green Category up to an investment if Rs. 5 crores via letter no RPCB /RO (Bharatpur) /SWM/Green/Gr-BTP-243/2535, dated 26.03.2014 for <b>Consent to Operate</b> for 125 kVA DG set, 87.5 kVA DG set and 40 kVA DG set at Amoli Toll Plaza NH-11, Tehsil- Weir, District- Bharatpur, valid until such time the unit modifies/changes its processes;</li> <li>Acknowledgement of Application for Consent under the Water (Prevention and Control of Pollution) Act,1974 and the Air (Prevention and Control of Pollution) Act,1981 for small scale/Tiny Industries under Green Category up to an investment if Rs. 5 crores via letter no RPCB /RO (Bharatpur) /SWM/Green/Gr-BTP-243/2534, dated 26.03.2014 for <b>Consent to Operate</b> for 75 kVA DG set, 62.5 kVA DG set and 40 kVA DG set at Ludhawai Toll Plaza NH-11, Tehsil- Sewar, District- Bharatpur, valid until such time the unit modifies/changes its processes;</li> </ul>
4.	Noise Pollution (Regulation and Control) Rules, 2000	CPCB, RSPCB	Noise pollution regulation and control	<ul style="list-style-type: none"> <li>As per the Act, ambient noise levels are to be maintained as stipulated in the rules for different</li> </ul>	As per the Noise Rules, 2000 noise levels of 55 dBA and 45 dBA during daytime and night time respectively (for residential receptors) would require to be adhered to.

				categories of areas such as residential, commercial, industrial and silence zones. Considering the context of the project, MAJEL as per the conditions laid down in the NOC by RSPCB will need to abide by the limits prescribed for residential zones.	
5.	The Air (Prevention and Control of Pollution) Act, 1981	CPCB, RSPCB	To prevent, control and reduce air pollution including noise pollution	<ul style="list-style-type: none"> <li>• Consent to Establish/Operate to be obtained from RSPCB for Aggregate &amp; Batching Plant;</li> <li>• NOC to be obtained from RSPCB by NHAI</li> </ul>	CTE obtained on date 28.11.2005 under Air (prevention & Control of Pollution ) Act-81, valid for three year from the date of issues for manufacturing 200 MT/hr of bitumen mixed road material and 2 MT per hour of cement ready material and a DG set of 150 KVA.
6.	Environmental Impact Assessment Notification, 1994	MoEF	Impact Assessment	<ul style="list-style-type: none"> <li>• Environmental Clearance (EC) to be obtained from Expert Appraisal Committee under the Notification prior to start of Construction by NHAI</li> <li>• As applicable as per the EIA Notification. NHAI was responsible for carrying out the EIA study and obtaining the EC but responsibility of implementation of the EC conditions lies with MAJEL as per the Concession Agreement</li> </ul>	<ul style="list-style-type: none"> <li>• As per the later dated 06.07.2006, ref no: MPL/NH-11/B4OT/NH/2006/847 to NHAI by MAJEL, the project does not require any Environmental Clearance and hence has requested NHAI to accord approval as no Environmental Clearance is involved in the present project.</li> </ul>
7.	The Hazardous Wastes (Management, Handling and Trans boundary	CPCB, RSPCB	Hazardous Waste Management	<ul style="list-style-type: none"> <li>• The disposal of hazardous wastes like used oil should be done as per the</li> </ul>	<ul style="list-style-type: none"> <li>• NOC has been obtained ad mentions about disposing of the used oil to the recycling authority.</li> </ul>

	Movement) Rules, 2008 as amended up to 2011			conditions provided in the NOC by RSPCB.	
8.	National Highways Act 1956	NHAI	Deals with the RoW and Land Acquisition Procedure for National Highways	<ul style="list-style-type: none"> <li>Act is applicable for the operations and maintenance of all National Highways in India. And empowers the competent authority to acquire land for the construction of National Highways.</li> </ul>	<p>Required notification under appropriate sub sections (3A, 3D, and 3G) has been published and compensation has been disbursed by the competent authority except certain punch list items. The total amount of compensation determined by the competent authority and disbursed by the NHAI was as follows:</p> <ul style="list-style-type: none"> <li>Sub district Mahwa : INR 26,826,876 on 24<sup>th</sup> April 2007,</li> <li>Sub District Sikrai: INR 95,184,571 on 4<sup>th</sup> July 2007</li> <li>Sub District Dausa: INR 29,898,499 on 4<sup>th</sup> July 2007</li> <li>Sub District Todabheem: INR 12,279,983 on 28<sup>th</sup> July 2007 ;</li> <li>Sub District Jaipur including Bassi and Sanganer: INR 672,559,844 on 24<sup>th</sup> Aug 2008</li> </ul>
9.	Shops and Establishment Act 1958	Labour Department	Employment Conditions	<ul style="list-style-type: none"> <li>Indian regulatory requirement linked with working hours, leave policies, employee welfare and provision of basic facilities to employees.</li> </ul>	<ul style="list-style-type: none"> <li>Registration obtained (Certificate no. AL037/HYD/368/2012) and renewed, valid till December 2014. .</li> </ul>
10.	Contract Labour Regulation Act, 1971; Building and Other Construction Workers Act, 1996	Labour Department	Contract Labour Management	<ul style="list-style-type: none"> <li>Indian regulatory Governs applicable working conditions, facilities, required permissions from labour department etc.</li> </ul>	<ul style="list-style-type: none"> <li><b>Labour License:</b> Contract Labour License) of contractors were reviewed and were found to be compliant under Section 12(1) of the Contract Labour (Regulation and Abolition) Act,</li> </ul>
11.	Child Labour Act, 1986 and Bonded Labour Act 1976	Labour Department	Workforce Protection	<ul style="list-style-type: none"> <li>Indian regulatory regarding Non deployment of child labour in hazardous activities and non-deployment of bonded/forced labour of any kind</li> </ul>	<ul style="list-style-type: none"> <li>No child labour and forced labour deployed by principal employer or sub-contractors as reported</li> </ul>
12.	Minimum Wages Act, 1948; Payment of Wages Act, 1936 Equal Remuneration Act, 1976	Labour Department	Wage Payment	<ul style="list-style-type: none"> <li>Indian regulatory for payment of wages, overtime, specific requirements for construction workers,</li> </ul>	<ul style="list-style-type: none"> <li>Wage registers are maintained, payment of wages is done as per latest minimum wages schedule applicable from April 2014.</li> <li>HRA and PF are provided to contract workers</li> </ul>

				insurance etc.	
13.	Workers Compensation Act, 1923 Maternity Benefits Act, 1961 Public Provident Fund Act, 1968 Employees State Insurance Act, 1948	Labour Department	Welfare	<ul style="list-style-type: none"> <li>Indian regulatory requirement for Equal compensation, grading structures, benefits to female employees, provision of Provident Fund and medical insurance.</li> </ul>	<ul style="list-style-type: none"> <li>Maternity leaves are given to women employees</li> <li>HRA, PF, Medical and Accident insurance provided to employees</li> </ul> <p>MAJEL: has the following licenses in place</p> <ul style="list-style-type: none"> <li>MAJEL Standard Fire and Special Perils Policy, 07/02/2015</li> <li>MAJEL Money Insurance Policy, 1/02/2015</li> <li>MAJEL standard Fire Business Interruption Policy, 07/02/2015</li> <li>MAJEL Public Liability Non Industrial Policy, 01/02/2015</li> <li>MAJEL Workmen Medicare Policy, 01/02/2014</li> <li>MAJEL Workmen's Compensation (General) Policy, 01/02/2014</li> <li>MAJEL Fidelity- Floater Policy, 01/02/2015</li> <li>MAJEL Plate glass Insurance Policy, 01/02/2015</li> <li>MAJEL Standard Fire and Special Perils Policy, 07/02/2015</li> </ul> <p>It was reported that MAJEL has applied for the renewal of all these policies, however documents for the same were not available for review.</p>
14.	Industrial Model Standing Orders Act, 1947 Trade Union Act, 1926 Industrial Disputes Act, 1957	Labour Department	Industrial Relations	<ul style="list-style-type: none"> <li>Indian regulatory requirement of forms of collective bargaining in form employee association, forums or trade unions and regular engagement with senior management.</li> </ul>	<ul style="list-style-type: none"> <li>Trade union or any form of workers association/organisation not present</li> </ul>

This section reviews the status of the compliance against the conditions mentioned in Consent to Operate and Forest Clearance. The present project did not require Environmental Clearance for the widening and strengthening of the existing highway section from Bharatpur to Mahwa (km 63 to km 120) of NH-11 due to the following reasons;

- There was no “ reserve forest” area involved in this road stretch from km 63-km 120 of Bharatpur-Mahwa section of NH-11;
- The widening of existing 2-lane to 4-lane was being done in the already acquired 45 m ROW by the Rajasthan State PWD in the year 1974;
- There was already an existing 2-lane bypass to the Mahwa town, which was being widened to 4- lane and no new bypass was proposed in this project;
- Only 15 m wide land strip was being acquired along the existing 45 m ROW in rural area and no land acquisition was involved in urban area. Hence, only marginal land acquisition in rural area was involved which was less than 20 m wide land strip; and
- In a similar project from Km 17.750 to km 63 of NH-11, no such Environmental Clearance was required vide NHAI’s letter dated 22.05.2006.

It must be stated that the project construction year was before 2006 when the new MoEF EIA Notification, 2006 was not formulated. Thus, as per the EIA 1994 notification that was applicable, “Highway Projects except projects relating to improvement work including widening and strengthening of roads with marginal land acquisition along the existing alignments provided it does not pass through ecologically sensitive areas such as National Parks, Sanctuaries, Tiger Reserves and Reserve Forests.”

Thus, ERM recommends that a letter of confirmation from the MoEF should be sought to ensure there are no risks on this aspect in future.

The project was accorded Environmental Clearance (EC) on 1st August 2006 and NOC was obtained on 06.05.2006 from Rajasthan State Pollution Control Board (RSPCB). Based on review of the Environmental Clearance, Forest Clearance and NOC obtained for the project stretch, the following gaps have been identified:

**Table 2.2** *Compliance to conditions under Forest Clearance*

SN.	Condition as stipulated in the Forest Clearance	Compliance Status/Gaps Observed
1.	Forest Land Use and category should not be modified	Avenue Plantation has been done as suggested by Forest Department and Diversion of forest land has been done as suggested.
2.	Tree Plantation should be done in the ratio of 2:1	Compliant

SN.	Condition as stipulated in the Forest Clearance	Compliance Status/Gaps Observed
3.	Tree Plantation should be done on both the sides of the road as provided in the Forest Division Proposal	Compliant, but Avenue plantation is yet to be completed in some stretches.
4.	Environmental Clearance should be obtained based on 1994 Notification	As per the later dated 06.07.2006, ref no: MPL/NH-11/B4OT/NH/2006/847 to NHAI by MAJEL, the project does not require any Environmental Clearance and hence has requested NHAI to accord approval as no Environmental Clearance is involved in the present project.
5.	During the project construction and developmental stage, no damage and disturbance should be created to the nearby natural environment.	Compliant
6.	Compensatory Afforestation should be done as suggested by the Compensatory Afforestation, Management and Planning Agency	Compliant

**Table 2.3** *Compliance to conditions under No Objection Certificate obtained from RSPCB*

SN.	Condition as stipulated in the Forest Clearance	Compliance Status/Gaps Observed
1.	That the industry shall comply with the standards as prescribed vide MoEF notification no. GSR 826 (E) dated 16 <sup>th</sup> November, 2009 with respect to national Ambient Air Quality	MAJEL does not undertake Ambient Air Quality Monitoring as well as DG set stack monitoring as mentioned in CTE dated 28.11.05 by RSPCB on conforming to emission standards
2.	That the industry shall ensure compliance of ambient air quality standard in respect to noise as prescribed under Environment (Protection) Act & Rule made therein	MAJEL does not undertake Ambient Air Quality Monitoring as well as DG set stacks monitoring.
3.	That the industry shall provide a minimum of 30 meter stack height with Hot Mix Plant from ground level.	The stack with adequate stack height to the burner is not provided to the plant.
4.	That the industry shall develop the green belt along periphery of plant to avoid air pollution around the plant	Green belt is developed at the hot mix plant, but there is no Green Belt Development Plan to verify if it is 33 %.
5.	That the industry shall provide the adequate stack height along with the acoustic enclosures on One DG sets of 1 X 500 KVA only.	There are in total 6 DG installed at Ludhawai and Amoli Toll Plaza and the Hot Mix Plant, but, there is no acoustic enclosure provided and adequate stack height is also maintained.

SN.	Condition as stipulated in the Forest Clearance	Compliance Status/Gaps Observed
6.	That the industry shall meet out its fresh water requirement through water tanker supply only. That the quantity of water consumption shall not exceed 3 KLD and daily record of the same shall be maintained. That the industry shall not abstract ground water without obtaining NOC from CGWA. As per the original Consent, the management shall comply the Water (prevention & Control of Pollution) Cess Act, 1977 and deposit the Water Cess as per norms.	MAJEL does not submit Water Cess returns and neither has obtained permission for ground water abstraction from CGWA for withdrawing after at the Toll plaza offices as well as the Toilet at the Truck lay Bys.
7.	That the management shall submit environmental statement for the year ending March by September every year.	MAJEL does not submit environmental statement annually as mentioned in CTE dated 28.11.05 by RSPCB.

This section includes a brief description of the Bharatpur –Mahua stretch of NH-11 that is under the scope of the main concessionaire, i.e. MAJEL. The description of the project is intended to provide a sense of scale of the nature and type of environmental and social impacts.

## 3.1

## OVERVIEW

The Bharatpur-Mahwa road stretch of National Highway (NH) 11 connects Bharatpur to Mahwa and popular destinations such as Jaipur and Agra. The length of the project road is 57 km starting from Km 62.295 to Km 119.600 (57.305 kms) falling across the district of Bharatpur in the state of Rajasthan. The location of the project road has been presented in *Figure 3.1*. The road stretch was an undivided 2-lane throughout the corridor.

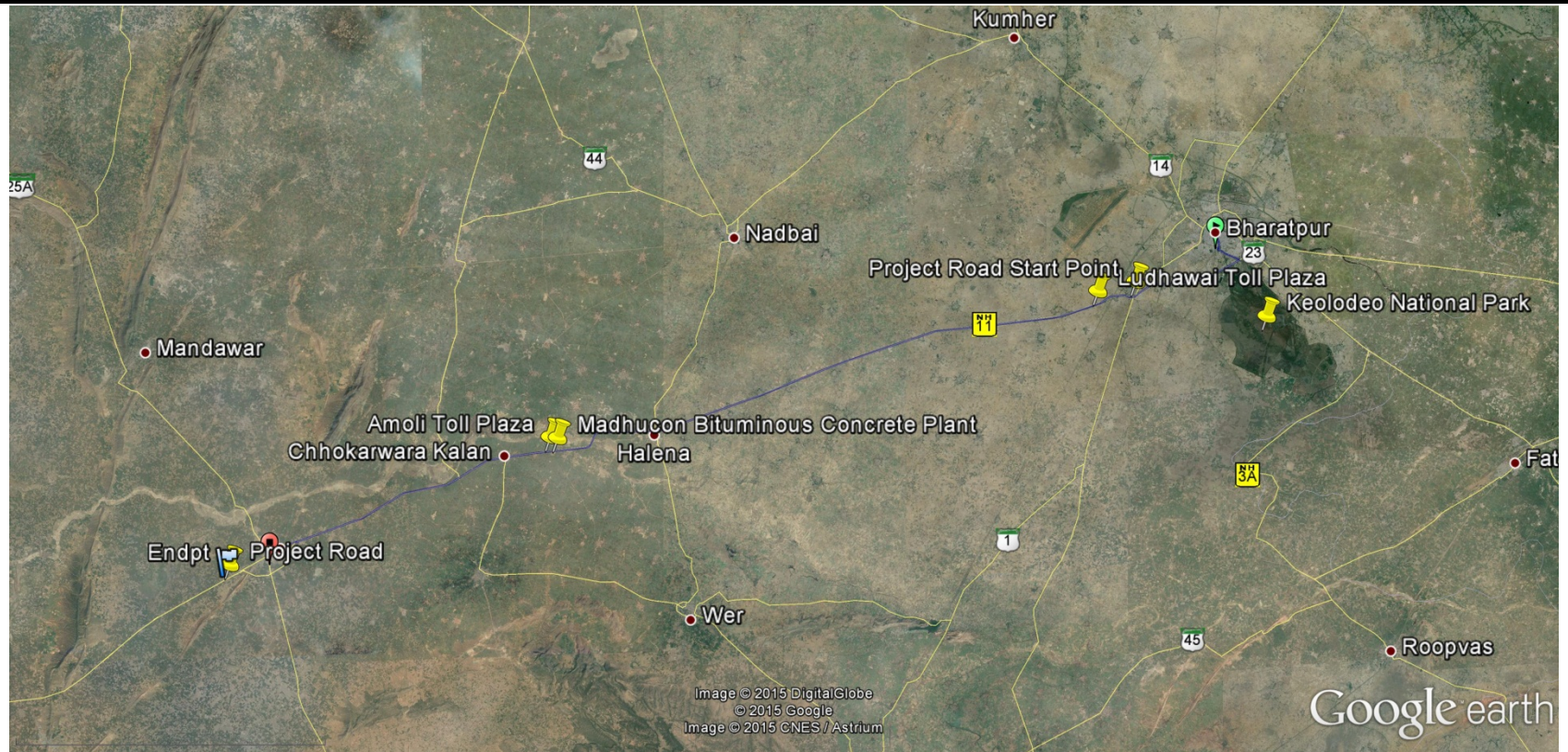
The total land that was required for the expansion of the Right of Way of the project is 88.41 hectares. The land acquired for the project for which compensation was given has been provided in *Table 3.1*.

**Table 3.1** *Total Land acquired for the project*

SN.	District	Tehsil	Total Area (ha)
1.	Bharatpur	Weir	32.32
		Bharatpur	18.44
		Nadbai	17.82
2.	Dausa	Mahwa	19.83

Source: MAJEL

Figure 3.1 Location of Bharatpur-Mahwa Stretch-National Highway-11



Source: Google Earth Satellite Imagery dated 1/3/2014

The characteristic features along the project road are:

- It passes through a plain terrain for most part of the road, connecting a number of historical cities of Bikaner, Jaipur, Fatehpur-Sikri and Agra;
- The present ROW of the project road varies from 45 to 110 meters respectively to accommodate foot paths, barricaded service roads with central median in 4-lane carriageway, tree plantation, truck parking area with allied facilities, Details of right of way of the project road has been provided in *Table3.2*.

**Table3.2** Chainage wise width of the ROW

SN.	Chainage	Tehsil	Existing ROW in Meters
1	62.295- 64.140	Bharatpur	60
2	64.140- 64.720		110
3	64.720- 65.200		60
4	65.200-66.580		45
5	66.580- 82.720		60
6	82.720- 83.480	Nadbai	45
7	83.480- 91.180		60
8	91.180- 91.350	Weir	70
9	91.350-95.210		60
10	95.210- 95.790		90
11	95.790- 98.300		60
12	98.300-98.700		110
13	98.700-99.700		60
14	99.700-100.500		47
15	100.500- 114.280		60
16	114.280-115.760	Mahwa	68
17	115.760-118.140		75
18	118.140-118.720		68
19	118.720- 119.200		60

Source: MAJEL

The project road mainly passes through 4 sub districts (tehsils) i.e. Bharatpur, Nadbai and Weir tehsil of Bharatpur district and Mahwa Tehsil in district Dausa in the state of Rajasthan.

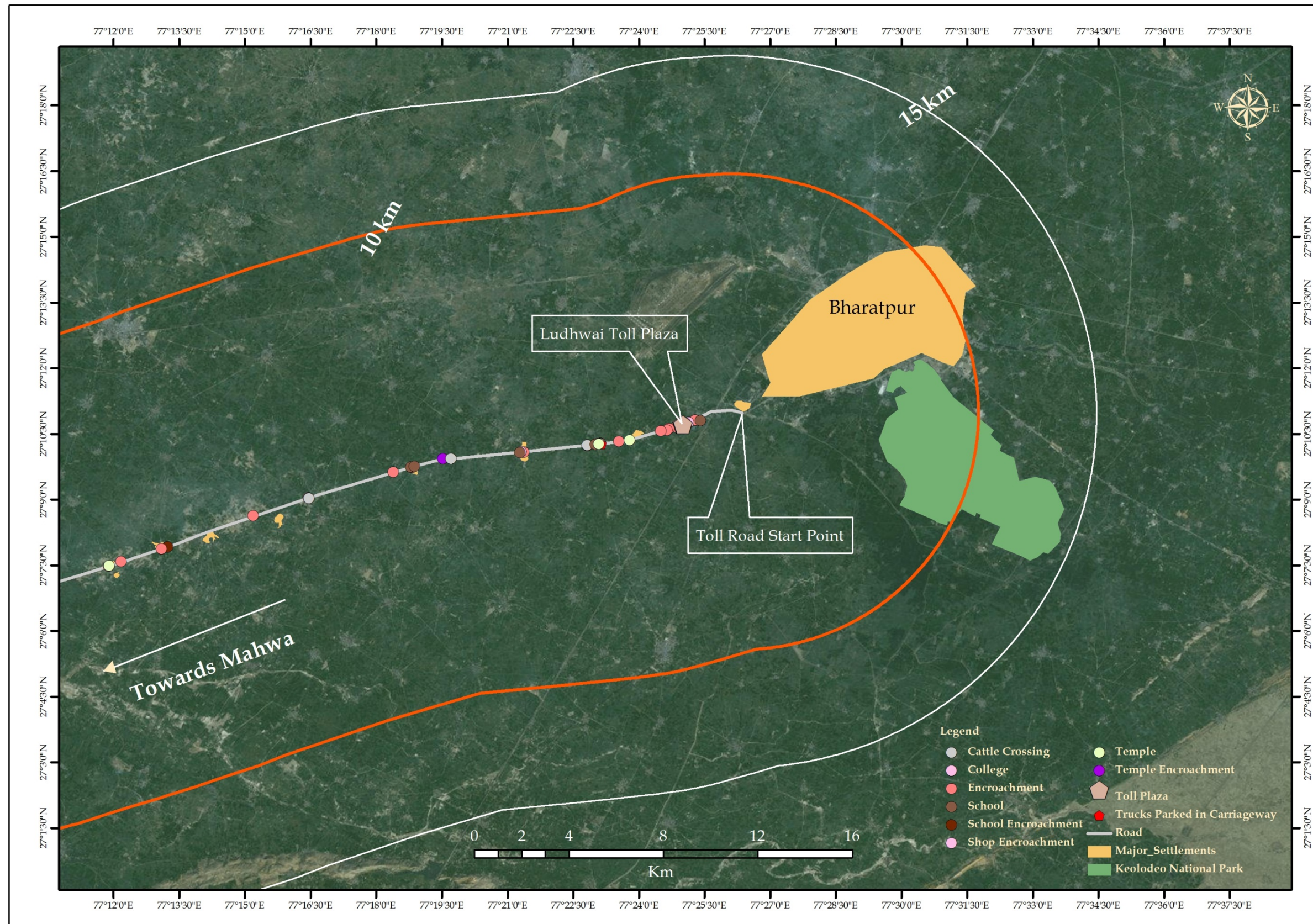
- The project road has a well-maintained median with adequate plantation activities from the stretch between starting point until Amoli Toll Plaza, but inadequate median plantation maintenance beyond the Amoli toll plaza until km 119;
- The project road has a number of govt. middle level schools and hotels on either side of the ROW;
- Maintenance activities in terms of cleaning of the ROW as well as maintenance of the carriageway is inadequate, as regular cleaning of waste, litter is not being carried out;
- The project road has a 4.5 m wide median in the rural areas and a 1.5 m wide median in the urban areas with service roads in the urban areas. The saucer drains have been provided in the urban areas but are yet to be

completed in some stretches where there is pending litigation from NHAI; however documentary evidence is not available for review.

- Combined Forest Diversion proposals for diversion of 421.815 ha (total forest land under NH-11 from Jaipur to Bharatpur of protected forest land were submitted to the Nodal Officer at Forest Department and Additional Chief Conservator of Forest, Jaipur in 2005. Stage I Forest clearance was further obtained for the entire section from Jaipur to Bharatpur on 16.11.2005 and Stage 2 Forest Clearance was obtained on 1.09.2006; and
- Keolodeo Ghana National park falls within the 10 km study area of the project road.

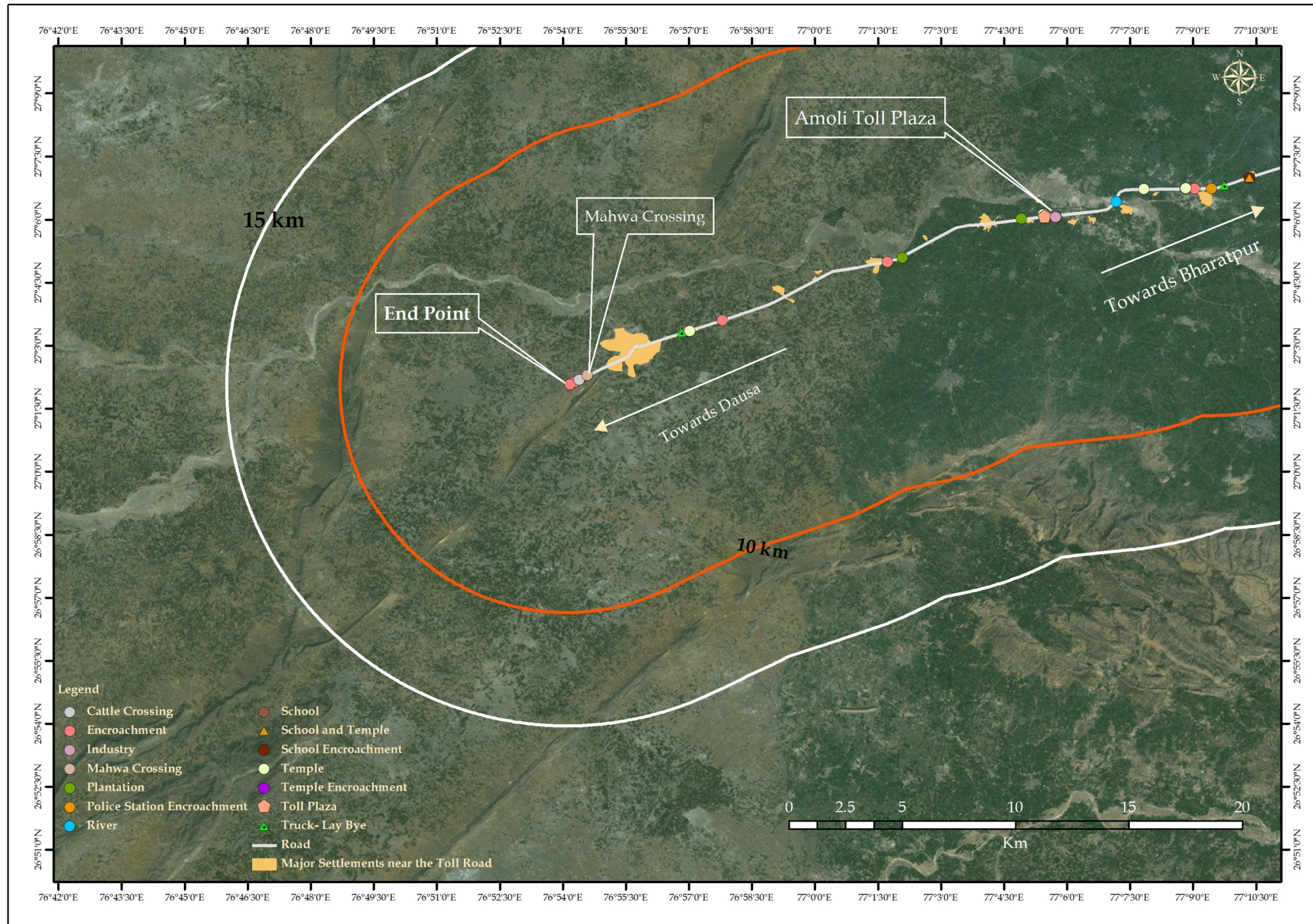
*Figure 3.2* and *Figure 3.3* illustrate the project footprint based on strip mapping that was developed using geographical coordinates. A summary of selective key environmental and social sensitivities along the project corridor has been provided subsequently in *Table 3.3*.

Figure 3.2 Overview of the Bharatpur-Mahwa Project Corridor- BM-1



\*Source: Adapted from Google Imagery using onsite GIS Mapping

Figure 3.3 Overview of the Bharatpur-Mahwa Project Corridor- BM-2



Source: Adapted from Google Imagery using onsite GIS Mapping

**Table 3.3** *Selective Environmental and Social features plotting along the project corridor-Bharatpur –Mahua*

S N.	Chainage	Description	Key Features		Structure Type	Within /Outside RoW
			LHS	RHS		
1	KM 62.295	The Project Road Starts at Bharatpur				
2	KM 62 +660	Accident site				
3	KM 63+920	Private Senior Secondary School - Delhi Public School	School		Permanent	Outside RoW
4	Km 64+000	Bus Stop		Bus Stop	Permanent	Within RoW
5	KM 64+020	Bus Stop	Bus Stop		Permanent	Within RoW
6	Km 64+060	Tej Hotel and Family Restaurant		Encroachment	Permanent	Within RoW
7	Km 64+300	Shri Digambar Degree College		Encroachment	Permanent	Within RoW
8	KM 64+350	Ludhawai Toll Plaza			Permanent	Within RoW
9	Km 64+400	Encroachment		Encroachment	Permanent	Within RoW
10	Km 64+ 800-64+820	Thakur Hotel and Family Restaurant	Hotel		Permanent	Within RoW
11	Km 65+500	Hotel Alora and Lajawab Restaurant		Encroachment	Permanent	Within RoW
12	Km 65+880	Bus Stop		Bus Stop	Permanent	Within RoW
13	Km 66	Overbridge	Overbridge		Permanent	Within RoW
14	Km 67+120	Encroachment (Tata Motors Storage Yard)		Encroachment	Permanent	Within RoW
15	KM 67+740	Petrol Pump	Petrol Pump		Permanent	Within RoW
16	Km 67+860	Temple	Temple		Permanent	Within RoW
17	Km 68+000	Senior Secondary School	School		Permanent	Outside RoW
18	Km 68+800	4 Encroachments		Encroachment	Permanent	Within RoW
19	Km 70+600	Bus Stop		Bus Stop	Permanent	Within RoW
20	KM 70+700-70+800	Encroachments	Encroachments	Encroachment	Temporary	Within RoW
21	Km 70+860	Senior Secondary School	School		Permanent	Outside RoW
22	Km 71+140	Bus Stand	Bus Stand		Permanent	Within RoW
23	Km 71+500	Abandoned Structure		Abandoned Structure	Permanent	Within RoW
24	Km 72+060	Petrol Pump	Petrol Pump		Permanent	Within RoW

S N.	Chainage	Description	Key Features		Structure Type	Within /Outside RoW
			LHS	RHS		
25	Km 72+380	Petrol Pump		Petrol Pump	Permanent	Within RoW
26	Km 73+780	Temple		Temple	Permanent	Within RoW
27	Km 74+700	Public School		Public School	Permanent	Outside RoW
28	Km 74+740	Bus Stand	Bus Stand		Permanent	Within RoW
29	Km 74+900	Senior Secondary School and Accident Prone Zone	School		Permanent	Within RoW
30	Km 75+000	6-7 Encroachments	Encroachments		Permanent	Within RoW
31	Km 75+720	Temple		Temple	Permanent	Within RoW
32	Km 76+920	Bus Stop		Bus Stop	Permanent	Within RoW
33	Km 77+020	PWD Abandoned Structure		Encroachment	Permanent	Within Row
34	Km 78+780	Water Works, Abandoned Structure		Encroachment	Permanent	Within RoW
35	Km 79+280	Bus Stop		Bus Stop	Permanent	Within RoW
36	Km 79+350	Temple		Temple	Permanent	Within RoW
37	Km 79+500	Bus Stop	Bus Stop		Permanent	Within RoW
38	Km 79+580	Petrol Pump	Petrol Pump		Permanent	Within RoW
39	Km 81+460	Petrol Pump	Petrol Pump		Permanent	Within RoW
40	Km 83+830	Overbridge and Underpass	Overbridge and underpass			
41	Km 83+620	Bus Stop	Bus Stop		Permanent	Within RoW
42	Km 83+700	Bus Stop		Bus Stop	Permanent	Within RoW
43	Km 84+820	Senior School		School	Permanent	Within RoW
44	Km 84+900	Bus Stop		Bus Stop	Permanent	Within RoW
45	Km 85+080	Encroachment		Encroachment	Permanent	Within RoW
46	Km 85+120	Bust Stop	Bus Stop		Permanent	Within RoW
47	Km 86+600	Petrol Pump	Petrol Pump		Permanent	Within RoW
48	Km 68+680	Encroachment		Encroachment	Permanent	Within RoW
49	Km 87+180	Temple	Temple		Permanent	Within RoW

S N.	Chainage	Description	Key Features		Structure Type	Within /Outside RoW
			LHS	RHS		
50	Km 88+060	Brick Kiln Storage Area	Storage Area		Temporary	Within RoW
51	Km 89+740	Cow Shed	Encroachment		Temporary	Within RoW
52	Km 89+800	Encroachment		Encroachment	Permanent	Within RoW
53	Km 89+880	Temple	Temple		Permanent	Within RoW
54	Km 89+900	Senior Secondary School	School		Permanent	Within RoW
55	Km 90+200	Petrol Pump		Petrol Pump	Permanent	Within RoW
56	Km 90+400	Encroachment	Encroachment		Temporary	Within RoW
57	Km 90+600	Petrol Pump	Petrol Pump		Permanent	Within RoW
58	Km 91+400	Police Station	Police Station		Permanent	Within RoW
59	Km 91+600	Encroachments	Encroachments	Encroachments	Temporary	Within RoW
60	Km 91+860	Bus Stop	Bus Stop		Permanent	Within RoW
61	Km 92+120	Encroachments	Encroachments		Permanent	Within RoW
62	Km 92+480	Temple		Temple	Permanent	Within RoW
63	Km 92+900	Petrol Pump		Petrol Pump	Permanent	Within RoW
64	Km 93+520	Bus Stop		Bus Stop	Permanent	Within ROW
65	Km 93+820	Bus Stop	Bus Stop		Permanent	Within RoW
66	Km 94+120	Temple		Temple	Permanent	Within RoW
67	Km 94+580	Bus Stop	Bus Stop		Permanent	Within RoW
68	Km 94+600	Temple		Temple	Permanent	Within RoW
69	Km 95+240	Major Bridge	Major Bridge		Permanent	
70	Km 96+760	Bus Stand		Bus Stand	Permanent	Within RoW
71	Km 97+160	Temple		Temple	Permanent	Within RoW
72	Km 97+520	Petrol Pump		Petrol Pump	Permanent	Within RoW
73	Km 97+860	Bus Stop	Bus Stop		Permanent	Within RoW
74	Km 97+910	Madhucon Base Camp	Madhucon Base Camp		Permanent	Outside RoW
75	Km 98+500	Amoli Toll Plaza	Toll Plaza			
76	Km 99+240	Bus Stop	Bus Stop		Permanent	Within RoW

S N.	Chainage	Description	Key Features		Structure Type	Within /Outside RoW
			LHS	RHS		
77	Km 99+840-100+700	Overbridge and underpass	Overbridge and underpass		Permanent	
78	Km 100+600	Encroachments		Encroachment	Permanent	Within RoW
79	Km 100+800	Encroachments	Encroachments		Permanent	Within RoW
80	Km 101+000	Bus Stop	Bus Stop		Permanent	Within RoW
81	Km 101+800	Petrol Pump	Petrol Pump		Permanent	Within RoW
82	Km 103+620	Encroachments	Encroachments		Temporary	Within RoW
83	Km 104+080	Bus Stop	Bus Stop		Permanent	Within RoW
84	Km 104+180	Petrol Pump	Petrol Pump		Permanent	Within RoW
85	Km 105+100	Encroachments	Encroachments		Permanent	Within RoW
86	Km 105+220	Encroachments	Encroachments		Permanent	Within RoW
87	Km 105+400	Overbridge and Underpass	Overbridge and Underpass		Permanent	
88	Km 106+020	Bus Stop	Bus Stop		Permanent	Within RoW
89	Km 108+840	Petrol Pump	Petrol Pump		Permanent	Within RoW
90	Km 109+400	Senior Secondary School	Senior Secondary School		Permanent	Within RoW
91	Km 109+500	Bus Stop	Bus Stop		Permanent	Within RoW
92	Km 111+540	Bus Stop	Bus Stop		Permanent	Within RoW
93	Km 112	35 Encroachments	Encroachments		Permanent	Within RoW
94	Km 112+440	Bus Stop	Bus Stop		Permanent	Within RoW
95	Km 112+500	Petrol Pump		Petrol Pump	Permanent	Within RoW
96	Km 113+460	18 Encroachments	Encroachments		Permanent	Within RoW
97	Km 176+700	Overbridge and Underpass	Overbridge and Underpass		Permanent	
98	Km 118+620	Encroachment	Encroachment		Permanent	Within RoW
99	Km 119+180	Encroachment		Encroachment	Permanent	Within RoW
100	Km 119+600	Project Road Stretch Ends				

Source: Based on GPS Plotting during the Site Assessment as a part of this ESDD.

Based on the above sensitivity mapping and documents review, Section 4.2 describes the observations and gaps identified pertinent to environmental and social aspects.

### 3.2.1 *Human Resources*

The project has 142 permanent employees on payroll for the two Toll Plazas and for the operation and maintenance works. Of these, 53 are employed at the Amoli and 58 in the Ludhwai plaza respectively and 30 for the operation and maintenance activities. *Table 3.4* provides a summary of the workforce for the Project.

**Table 3.4** *Workforce Details of MAJEL*

Division	Designation	Number of Employees
MAJEL, (O& M)	Senior Engineer	1
	Site Supervisor	3
	BT Supervisor	1
	Lab Technician	1
	Lab Assistant	1
	Doctor	1
	Lab Helper	1
	Office Assistant	1
	Cook	2
	Temple Priest	1
	Sweeper	2
	Electrician	1
	Computer Operator	1
	Paver Operator	1
	HPV Helper	4
	Driver	8
Amoli Toll Plaza	Plaza Incharge	1
	Vigilance Officer	1
	HR Executive	1
	HR Assistant	1
	Office boy	1
	Accounts officer	1
	Electrician	2
	TMS Incharge	1
	Cashier	3
	Shift Incharge	3
	Receptionist	1
	Validator	3
	POS Operator	1
Lane Supervisor	8	
Toll Collector	24	
Store Incharge	1	
Ludhwai Toll Plaza	APM	2
	Legal Manager	1
	Store incharge	1
	Office Boy	1
	Receptionist	1
	Sweeper	2
Electrician	2	

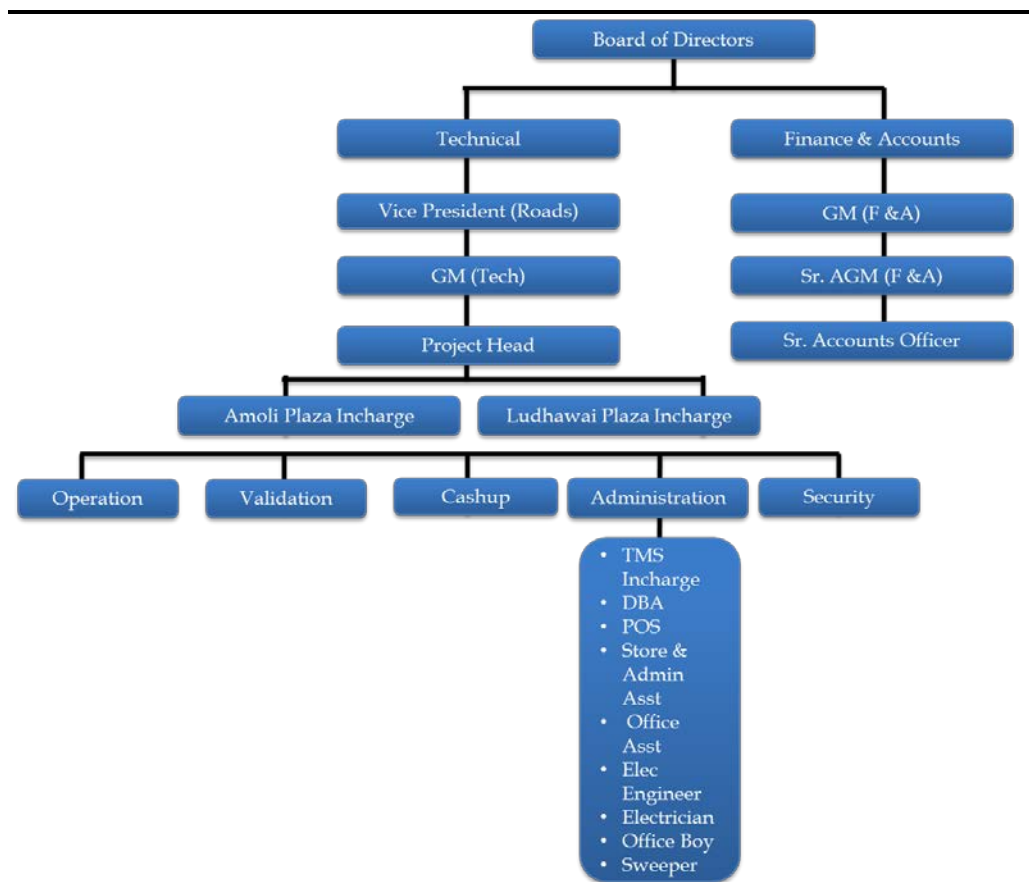
Division	Designation	Number of Employees
	DBA	2
	Validator	3
	Shift Incharge	3
	Cashier	2
	POS	1
	Lane Supervisor	7
	Toll Collector	30

Source: MAJEL

### 3.2.2 Organisation Structure

The following figure provides the organizational structure of the project.

Figure 3.4 MAJEL Organization Structure



Source: MAJEL

The project is led by a Project Head, who is responsible for all operations, administration and maintenance of the road. The site office is located at the Amoli.

MAJEL has a dedicated Human Resources Officer, stationed at the Amoli toll plaza office. The HR officer oversees employee administration and welfare, and reports to the Project Head. The project also has a Highway Safety Engineer, who is responsible for monitoring the project operations and the health and safety performance. The project does not have a dedicated CSR or community development team/staff. It was reported that the project is not

involved in any activity linked with community engagement and development.

### 3.2.3 Contractors

MAJEL has engaged the following subcontractors for all the activities and maintenance of the project corridor and the list has been presented in *Table 3.5*.

*Table 3.5 List of Subcontractors for the Project road maintenance*

SN.	Name of the Contractor	Scope of Work	Number of workers involved
1.	Madhucon Projects	EPC Contractor	90
2.	Chahar Security	Security Service at Ludhwai Toll Plaza	43
3.	Yash Security	Security Service at Amoli Toll Plaza	45
4.	Golden Nursery	Median Maintenance (62.295 km - 83.795 km)	Variable
5.	Taj Nursery	Median Maintenance (83.795 km- 100.106 km)	Variable
6.	Dara Singh Nursery	Median Maintenance (110.106 km- 109.600 km)	Variable

Note: The breakup of permanent and temporary workers was not made available. However, it was reported that most of the contract workers in maintenance and security are temporary staff.

### 3.3 ENVIRONMENT AND SOCIAL MANAGEMENT SYSTEMS

Madhucon Group (MG) was established 30 years back and ventures into like thermal power, real estate, coal & Iron ore mining, irrigation etc. Under the Group, Madhucon Projects Limited (MPL) was formed as a Public Limited Company engaged in execution of Infrastructure Projects, such as construction of National Highways, Fly-Overs, Dams, Tunnels, Aqueducts, Bridges, Coal Handling Plants, Workshops Property Development Projects including High Rise structures, Hospitality and retail industry structures etc.

MG has not obtained certification for ISO 9001:2008, ISO 14001 and OHSAS 18001 at the group level. It has a corporate vision and mission, but does not have any documented corporate Environment, Health & Safety Policy. There is no documented Environment and Social Management system Manual or Environment Management Plan at the Corporate Level.

MAJEL is the joint venture and has been operational for some time. An Environment Management Plan (EMP) is not in place for managing the environmental aspects of the road and complying with the statutory requirements as defined in the Consent to Operate. MAJEL has a Highway Safety Manual for the widening and strengthening of existing NH from 2 lanes to 4 lanes from km 62 +295 to 119+500 of Bharatpur to Mahwa section of NH-11 in Rajasthan state on BOT basis. The manual describes about the Traffic Control Plan, use of traffic control devices, traffic Control zones, traffic control devices, for maintaining the traffic along the main project road.

As per the EIA report, the ROW before the construction of the project road was generally 45 meters throughout the road between Bharatpur to Mahwa. In order to meet the requirement of additional ROW and for the construction of the other associated facilities additional land was acquired under the appropriate sub sections of NH Act in 1956. The land acquisition process was initiated in year 2006 and it was completed to significant extent in year 2009 except for few locations where award and land acquisition is still reported to be pending by the Project Manager at MAJEL and Patwari. Tehsil wise date of publication of Gazette notification for land acquisition and awards is given in *Table. 3.6*.

**Table. 3.6** *Date of publication of Gazette notification under NH Act 1956*

Tehsil	Date of Publication of 3A Gazette Notification	Date of Publication of 3D Gazette Notification	Date of Award/3G
Bharatpur	10.7.2006	04.8.2007	26.07.2008
Nadbai	10.7.2006	30.07.2007	16.04.2008, 12.06.2008 & 23.9.2008
Weir	10.7.2006	10.7.2006	21.01.2008 & 22.01.2008
Mahwa	10.7.2006	12.07.2007	24.05.2008 & 18.11.2009
<b>Additional 3D</b>			
Bharatpur	NA	16.03.2010	NA
Nadbai	NA	23.02.2010	NA
Weir	NA	15.12.08	NA
Mahwa			

Source: MAJEL

The land acquisition process was carried out in phases, and based on the available information; the total land acquired for the project was around 88.41 hectares. The tehsil wise details acquired land for the project is given in *Table 3.7*.

**Table 3.7** *Total Land acquired for the project*

SN.	District	Tehsil	Total Area (ha)
1	Bharatpur	Weir	32.32
		Bharatpur	18.44
		Nadbai	17.82
2	Dausa	Mahwa	19.83

Source: MAJEL

### 3.4.1 *Details of Pending Land Acquisition*

As per the available documents, the land acquisition for district Dausa is 100% completed. And for district Bharatpur 98.5% of land acquisition is completed. Nearly 0.9643 Ha of land in tehsil Weir and 0.054 Ha tehsil Bharatpur is pending. Village wise details of pending land acquisition are given in *Table 3.8*.

**Table 3.8** *Details of Pending Land Acquisition*

Chainage	Tehsil	Village	Plot No	Ownership	Land in sqms
86.180 to 110.500	Weir	Wair	360	Private	150
	Weir	Halaina	820	Private	200
			865/1	Private	600
	Weir	Jhatala	806/516-523	Private	825
			845/806/516-523	Private	403
			844/806/516-523	Private	830
	Weir	Chaukerwada	1862	Private	700
			1865	Private	1025
			1866	Private	700
			984	Private	150
	Weir	Bachraina	1617	Private	100
			1618	Private	1800
		1619	Private	2160	
62.295 to 72.800	Bharatpur	Sewer	1420	Private	540
			Total		10183

Source: MAJEL

### 3.4.2 *Details of Pending Awards*

As informed by the then patwari, the awards for most of the villages falling under district Bharatpur and Dausa has been decided by the competent authority. However nearly 2.2473 ha of land amounting to INR 89.13 Lakhs under district Bharatpur is pending. Details of pending award are given in *Table. 3.9*.

**Table. 3.9** *Details of pending Award*

Village	Govt. Land in sqms	Private Land in sqms	Total Land in sqms	Total compensation in INR
Sewer	0	1853.64	1853.64	637188.75
Vamanpura	200	2800	3000	972812.50
Ludhwai	2750	13408.75	16158.75	6850969.81
Mahwa	525	836.25	1361.25	421136.72
Bansi Khurd	0	100	100	30937.50
	<b>Total</b>		<b>22473.64</b>	<b>8913045.28</b>

Source: MAJEL

### 3.4.3 *Resettlement & Rehabilitation (R & R) and Compensation*

The process of distribution compensation was initiated in year 26.07.2008 and was completed in year 20.12 2009. Nearly INR 52.85 core was sanctioned for compensation of acquired assets, out of which nearly 42. 16 core INR was distributed. In addition, after the distribution of compensation to the affected persons, the physical possession of land was taken by NHAI and accordingly acquired land was given to MAJEL for the construction of the project road. As per the available information and land records out of the total 88.41 Ha of acquired land, NHAI has taken physical possession of 68.58 Ha. Land.. Details regarding the number and category of affected persons as well as

impacted assets were not available for review. Also, SIA report shared with ERM did not have relevant details with respect to the magnitude of impact relating to land and livelihoods on individual land losers.

#### 3.4.4 Stakeholder consultations

During the site visit, stakeholder consultations were carried out as a part of the study. The consulted stakeholders include the site manager, maintenance engineer, safety in charge, highway patrolling team and median workers of MAJEL. During ROW verification, community was consulted to assess the issues relating to compensation and encroachments. Summary of community consultations are given in *Table.3.10*.

**Table.3.10 Summary community consultations**

Chainage	Village	Date	Key points of Discussion
112.080 to 114	Rothadya	12 Aug 2015	There were nearly 50 encroachments within the existing ROW. It was reported that these people had not received compensation as compensation was given to the original land owners. The present land users claim that they had purchased the land from the erstwhile land owners. However the registry of the transaction was not done. The 5 shop owners had filed litigation in Dausa Civil Court against the former land owner. The civil court has awarded a stay to the demolition of these structures.
119.600	Samalathi	13 Aug 2015	Nearly 9 encroachments were found in the existing ROW. One of the consulted project affected families has informed they have filed case with the SDM relating to payment of less compensation.
Km 75+000	Luhara	13 Aug 2015	Nearly 7 encroachments were found in the existing ROW. The community belongs to one of the vulnerable groups (Valmiki) have informed that not have legal titles to the land therefore no compensation for land and assets have been given. However these families have been settled here for the last 2-3 generations. And they have no land where they can live, hence the encroachment.
Km 68+800	Basi	13 Aug 2015	Nearly 4 encroachments were found in the existing ROW. The consulted owner of the shop claim that they received the notification in 2007, however there was a discrepancy in the amount of land to be impacted, as more than 800 sq. m was impacted but only 360 sq. m was identified for compensation. In keeping with this, a revaluation was done. However the compensation announced was for 360 sq. m. the owners have taken up the case with the ADM.
Halena	KM 92+480	13 Aug 2015	Nearly 4 encroachments were found in the existing ROW. They have filed litigation against for less compensation.

#### 3.4.5 Row Verification

During the site visit, ROW verification is carried out along with the patrolling team of MAJEL to understand the issues related to existing encroachments. As per MAJEL's list of encroachments, presently there are more than 200 encroachments all along the project road (both sides). Most of these encroachments are opportunistic in nature and majority of the encroachments

were in the form of temporary structures, extensions of sheds and boundary walls and water tanks. Some of these encroachments were also reported to be resultant from internal disputes between local communities on land ownership. As per the list 6 recorded cases of encroachment in the tehsil Nadbai (which includes large settlements with multiple encroachments), 19 in Bharatpur, 27 in Weir, 7 in Bhusawar and 104 in Mahwa. Details of ROW verification carried out by ERM are given in *Annexure B*.

### 3.4.6 *Land Related Litigations*

According to the list available with MAJEL, 6 Khasra numbers in Bharatpur, 2 in Nadbai, 10 in Weir and 15 in Mahwa have ongoing cases. However, due to the fact that the name of complainants were not available with MAJEL, a complete verification of this list could not be undertaken at site, as the local community was not able to link the Khasra numbers with the name of the complainants and of the pending cases.

At the time of the site assessment, the community informed that the interested persons of village Basi Km 68.800 (4 shops), Halena Km 92.480 (4 shops) Baccharei Km 105.100 and Rathadiya Km 105.100 (50 shops) and Samlaithi KM 118.620 (9 houses) had filed cases in lower and higher courts. Most of these cases were related to fairness of the compensation amount, ownership disputes and mismatching compensation amount with respect to the acquired assets.

### 3.5 *PRESENCE OF INDIGENOUS COMMUNITY*

The community consultations during the site visit indicate that the villages falling under the project influence zone were mainly dominated by Jaths and Meena community. Meena's are constitutionally recognized as Schedule tribes. However, the directly affected villages are not enlisted as Scheduled V area, which means area does not have significant population of group's population. Specific data with respect to impacts on vulnerable groups including Meena was not available for review and further SIA report prepared as part of DPR for the project does include relevant information regarding the same.

Based on secondary data review, anecdotal evidences and community consultations, enlists villages with a high concentration of Meenas and details of acquired land from these villages. However in absence of the proper data regarding land acquisition, it could not be established whether the acquired land from the villages given below belonged primarily to Meena community.

As the project road is operational since past 5 years, currently no ST land is available within the ROW of the project area. However, in case the project undergoes widening and modernization in future, it may trigger PS 7 in case significant ST land is involved.

**Table 3.11** *ST majority Villages with their acquired land*

Chainage	Tehsil	Village	Acquired Land in Ha	% age of Acquired Land	Total Acquired Land in Ha
89	Weir	Naswara	0.98	1.11	
108.2	Weir	Ulupara	1.7	1.92	
111.3	Mahwa	Tikri Jafran	1.75	1.98	
118.5	Mahwa	Dhanturi	2.11	2.39	
119.6	Mahwa	Samleti	1.39	1.57	
		<b>Total</b>	<b>7.93</b>	<b>8.97</b>	

**3.6**

**ACCIDENT/INCIDENT ANALYSIS**

ERM undertook a detailed analysis of the accident data of the project road from May 2009 till August 2015. The observations have been described subsequently. The review of the accident data since the start of the road operations is provided below.

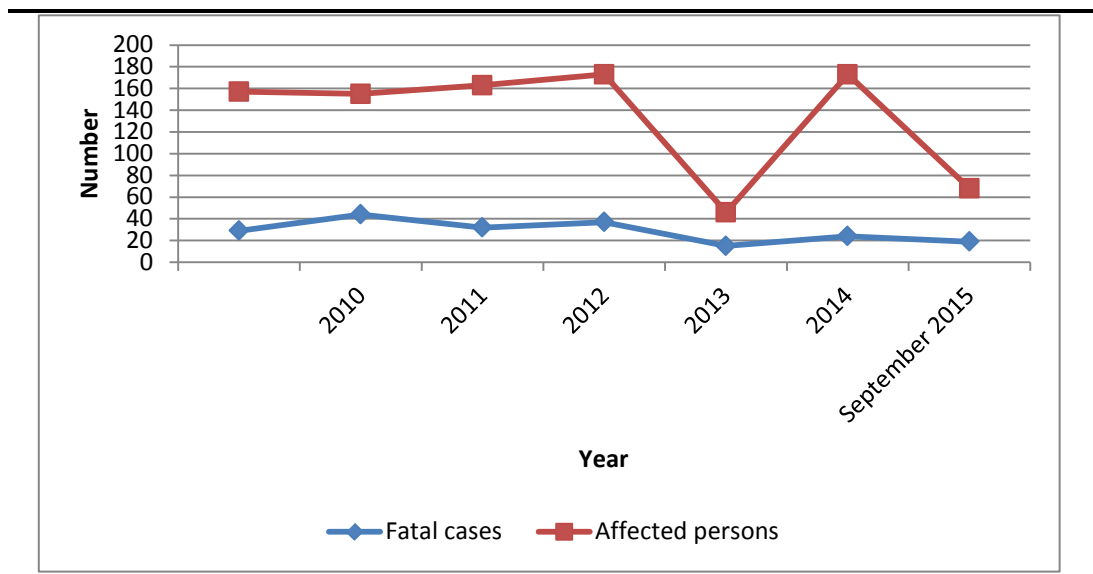
**Table 3.12** *Review of Cumulative Accident Report from January 2009 to August 2015*

SN.	Months	No of affected persons				
		Fatal	Grievous	Minor	Non-Injured	No of Animal killed
1.	May 2009 to December 2009 (8 months)	29	157		0	0
2.	2010	44	155		0	0
3.	2011	32	163		0	0
4.	2012	37	173		0	0
5.	2013	15	46		0	0
6.	January 2014	1	10	8	0	0
7.	February 2014	2	2	2	0	0
8.	March 2014	4	3	0	2	0
9.	April 2014	1	14	17	0	0
10.	May 2014	4	6	0	0	0
11.	June 2014	2	3	2	0	0
12.	July 2014	3	4	2	0	0
13.	August 2014	0	7	14	3	1 Cow & 2 Sheep
14.	September 2014	0	8	10	12	0
15.	October 2014	1	8	11	0	0
16.	November 2014	5	8	10	2	0
17.	December 2014	1	3	2	0	0
	<b>Total for year 2014</b>	<b>24</b>	<b>76</b>	<b>78</b>	<b>19</b>	<b>3</b>
18.	January 2015	3	3	3	0	0
19.	February 2015	0	3	10	0	0
20.	March 2015	3	9	4	0	0
21.	April 2015	1	2	3	0	0
22.	May 2015	3	7	9	0	0
23.	June 2015	6	1	1	0	0
24.	July 2015	2	4	2	0	0

SN.	Months	No of affected persons				
		Fatal	Grievous	Minor	Non-Injured	No of Animal killed
25.	August 2015	1	2	1	2	0
<b>Total for year 2015 till date</b>		<b>19</b>	<b>33</b>	<b>33</b>	<b>2</b>	<b>0</b>

Source: SPV-MAJEL

Figure 3.5 Trend Analysis for accidents from May 2009 to September 2015



Based on the above graph, it is understood that on an average over the past 20 months, the number of accidents on the project road section between Bharatpur to Mahwa has decreased eventually. The analysis of the above data shows that;

- Review of the above data states that the number of road accidents were in the range of 155-157 in the year 2009 and 2010, further, gradually increased in the year 2011 and 2012 to a range varying between 163- 173 number of accidents grievous and minor accidents;
- The number of fatal accidents were highest in the year 2010 at 44 cases, eventually, reducing to 15 in 2013, 24 in 2014 and 19 in 2015 till date;
- In 2014, out of 24 cases, 3 cases were fatal due to drunken driving, 5 fatal cases were due to over speeding, 6 fatal cases were due to vehicle out of control, 9 fatal cases were due to fault of driver of motor vehicle/ driver of the other vehicle/ cyclist/ pedestrian/ passenger and 1 fatal case was due to defect in mechanical condition of motor vehicle/ road condition;
- In 2015 , out of 19 fatal cases, 11 fatal cases were due to over speeding, 5 fatal cases were due to vehicle out of control and 3 fatal cases were due to fault of driver of motor vehicle/ driver of the other vehicle/ cyclist/ pedestrian/ passenger;
- Significant number of multi-axle vehicles parked in the corridor on both sides outside the Truck-lay bye space, thereby reducing the road width for traffic movement;

- Significant number of vehicles driving in the opposite direction on the main expressway, for e.g., motorcycles, buses, etc.;
- School children crossing the road at a number of road segments, but no signboards for such crossings have been provided; and
- Highway patrolling is not adequate as the response time during any emergency is more than 15 minutes.

ERM did an assessment of the public literature available on the website of Transport Department of Rajasthan. Based on the review of the Road Accident data of the National Highways in the state of Rajasthan from the year 2010 to 2014, the following analysis can be drawn.

**Table 3.13 Trends of Annual Road Accidents-National Highways in Rajasthan**

SN.	NH no	Length (km)	Year 2010			Year 2011			Year 2012			Year 2013			Year 2014		
			No. of Accidents	Deaths	Injuries	No. of Accidents	Deaths	Injuries	No. of Accidents	Deaths	Injuries	No. of Accidents	Deaths	Injuries	No. of Accidents	Deaths	Injuries
1	N.H. No. 3	3	9	35	127	75	31	112	95	64	111	83	40	124	84	34	82
2	N.H. No. 8	688	1978	900	2460	1867	859	2162	1758	922	2057	1724	868	1950	1794	905	1758
<b>3</b>	<b>N.H. No. 11</b>	<b>531</b>	<b>1288</b>	<b>622</b>	<b>1585</b>	<b>1260</b>	<b>623</b>	<b>1490</b>	<b>1169</b>	<b>556</b>	<b>1562</b>	<b>1075</b>	<b>485</b>	<b>1367</b>	<b>1140</b>	<b>535</b>	<b>1133</b>
4	N.H. No. 11 (A)	14	10	30	127	90	32	131	91	30	120	112	40	111	166	73	173
5	N.H. No. 11	-	0	0	0	3	2	4	2	1	2	6	4	9	4	2	7
6	N.H. No. 11 (B)	1	5	27	63	105	45	201	109	35	138	91	36	88	103	39	131
7	N.H. No. 12	400	1080	375	1421	962	292	1271	839	290	1090	876	331	962	919	385	1115
8	N.H. No. 14	31	52	249	872	550	262	847	426	231	699	382	193	484	331	202	467
9	N.H. No. 15	90	38	263	513	392	239	522	328	243	525	386	268	469	390	270	430
10	N.H. No. 65	40	35	223	553	347	210	401	377	234	427	288	189	366	311	195	405
11	N.H. No. 76	48	59	291	774	484	238	621	540	249	704	506	273	671	612	330	826
12	N.H. No. 79	22	48	265	601	421	237	564	409	217	633	418	239	552	361	188	485
13	N.H. No. 79 (A)	3	3	16	34	54	28	55	50	22	45	36	12	28	35	14	33
14	N.H. No. 89	30	15	98	283	184	164	234	200	158	230	177	115	219	160	96	187
15	N.H. No. 90	1	5	18	74	59	17	101	56	13	72	56	13	80	47	22	68
16	N.H. No.112	34	14	105	138	191	100	169	214	154	217	230	162	258	254	140	305
17	N.H. No.113	20	10	40	211	135	55	222	162	59	260	139	52	159	129	52	186
18	N.H. No.114	1	6	42	73	61	51	114	65	52	83	82	71	126	86	85	103
19	N.H. No.116	8	2	16	89	33	8	76	26	7	47	17	4	38	21	14	16
	<b>Total</b>		<b>7520</b>	<b>3615</b>	<b>9998</b>	<b>7273</b>	<b>3493</b>	<b>9297</b>	<b>6916</b>	<b>3537</b>	<b>9022</b>	<b>6704</b>	<b>3403</b>	<b>8073</b>	<b>6991</b>	<b>3598</b>	<b>7980</b>

Source: Transport Department, Road Statistics Data, Rajasthan

Out of all the National Highways traversing in the state of Rajasthan, NH-8, NH-11 and NH-12 show significant occurrence of accidents over the years 2010, 2011, 2012, 2013 and 2014. However, the present project road is NH-11 which originates from Jaipur and ends at Bikaner reported number of accidents as 1288 in 2010, 1260 in 2011, 1169 in 2012, with a reduction to 1075 in 2013 and 1367 in 2014. Moreover, review of the data provided by MAJEL, as presented in *Table 3.12*, shows that in NH-11(Bharatpur-Mahua stretch), the number of accidents in 2009, which increased to 133 in 2009 and thereafter decreasing to 26 in 2013 and 14 till August this year.

### 3.7

#### *AVENUE PLANTATION*

Forest clearance (Stage-I & Stage-II) was obtained for the entire section from Jaipur to Bharatpur on 16.11.2005 and September 2006. The EIA report prepared by CEG does not include details on the biological environment and information on flora and fauna is not presented. Forest Diversion proposal submitted to the Forest Department for obtaining Forest Clearance could not be reviewed as it was not made available to ERM and therefore further details on affected flora and fauna could not be reviewed.

As per the Forest Clearance Letter, tree species like Gulmohar (*Delonix regia*), *Cassia Samea* and Karanj (*Millettia pinnata*) were proposed to be planted along the outer row while shady tree species of Neem (*Azadirachta indica*), Sheesham (*Dalbergia sissoo*) and Amaltas (*Cassia fistula*) were proposed to be planted along the middle row. In addition, shrubs were also proposed to be planted in the median along the entire project highway. However, the site assessment and review of the Operation & Maintenance Inspection report dated June 2015 revealed that the avenue plantation is yet to be complete with the suggested tree species as given in Forest Clearance letter.

As per Chapter - III, Obligations and Undertakings, Clause IX, 9.1, sub clause xxx of the Main Concession Agreement regarding obtaining all necessary environmental clearance, cutting of trees and compensatory afforestation states that, " The Concessionaire will obtain all the necessary clearances/permits, cut the trees and carry out compensatory afforestation.

However, the detail chainage wise break up of avenue plantation suggested by Forest department was not provided by MAJEL for review.

### 3.8

#### *NATURAL HABITATS*

ERM carried out a rapid ecological survey along the 57 km highway stretch between Mawha and Bharatpur. The objective was to assess whether any habitats along this stretch had the potential to trigger critical habitats as per as per the International Finance Corporations (IFC) Performance Standard (PS6) (IFC 2012a, 2012b). This assessment was necessary as the Keoladeo Ghana

National Park (KGNP) is close by. The KGNP was declared a National Park as per the Indian Wildlife (Protection) Act, 1972 in 1982, a RAMSAR site in 1981 as per the RAMSAR Convention for Conservation of Wetlands (1975) and a World Heritage Site in 1985, as per the UNESCO World Heritage Convention (1972).

The following ecological receptors, specific to the objectives of this assessment against PS6, were considered for the assessment

- Aquatic bodies that may hold congregations of aquatic bird species;
- Trees that could offer nesting or roosting sites to both terrestrial and aquatic bird species;
- Terrestrial large mammals crossing the widened highway; and
- Terrestrial birds using the 1 km width on either side of the highway for feeding.

The findings of the assessment state that habitats along the 57 km highway stretch do not offer good potential for threatened species and therefore the proposed widening and strengthening of the highway are unlikely to impact threatened species. Due to this assessment carried out in the non-migratory season and its short duration, we still consider threatened species that, despite having prime habitats in the KGNP and surrounding wetlands, could use the water bodies assessed. This is to establish unequivocally whether these species are present and could potentially experience any impacts from the operation of the highway.

Due to the high level of human activity within a km buffer of the 57 km highway stretch, ERM classifies *all habitats as modified*. There are **no natural habitats** along this stretch.

ERM used IFC PS6 Criteria1 alone for the assessing critical habitats. As there is virtually no possibility of finding endemic or restricted range species we do not use Criteria 2. Furthermore the habitats do not hold significant populations of migratory or congregatory species and therefore we do not use Criteria 3. Refer *Annexure C* for detailed report on critical habitat assessment.

#### *Keolodeo National Park*

Having originated from a natural depression, Keolodeo National Park has subsequently undergone modifications due to human intervention. A number of wetlands, both perennial and seasonal, are present in the Bharatpur region.

Owing to its fully protected area status, the National Park serves as a large staging, moulting and roosting ground for bird species, besides being foraging sites, for many of the water bird species. But due to the size restriction it was suggested that once the surrounding wetlands dry up or are heavily disturbed, only then do the birds take refuge in the park.

A study initiated by Wildlife Institute of India in 2005, recorded a total of 76 water bird species from the Keolodeo National Park whereas 94 species were observed in the satellite wetlands. Common Shelduck *Tadorna tadorna*, Sociable Plover *Vanellus gregarious* and White-eyed Pochard *Aythya nyroca* could only be recorded in the park while Pied Avocet *Recurvirostra avosetta*, Lesser Flamingo *Phoenicopterus minor*, Masinfoot *Heliopais personata*, Great Thick-knee *Esacus recurvirostris*, River Lapwing *Vanellus duvaucelli* and Indian Skimmer *Rynchops albicollis* were observed in the wetlands only.

Nonera in Bharatpur, Sanki and Yamuna River barrage in Mathura within 75km radius of the park provided wintering ground for both Lesser and Greater Flamingo (maximum 150 birds) and communal roosting grounds for globally threatened Sarus Crenes with maximum population of 45 birds. Nonera was found to be supporting the maximum number of globally threatened species (8 with the Masked Finfoot *Heliopais personata* being recorded for the first time in North India here), followed by Yamuna barrage (6), Sursarover, Mansorover (6), Baretha, Kot, Nari, Ramsagar (5), Hulwana, Parvati and Santhal (4)

This section provides a detailed analysis of the gaps identified pertaining to environmental, social and health and safety of the project based on the Screening Criteria of IFC.

*Table 4.1* details the key EHS and Social observations by applying the IFC ESDD Screening Criteria for Operational Toll Roads. As illustrated through the table, the project road falls under “Category 1: Operating roads (2 or more years)”. The present project has been assessed with respect to the following applicable IFC Performance standards:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labor and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

Reference to the above standard has been mentioned in the table at respective places, but wherever, reference could not be provided, a separate table has been provided on Labour and Working conditions. Subsequently, a table on gaps related to labour aspects against IFC Performance Standards has been provided in *Table 4.2* .

**Table 4.1 Summary of Key EHS and Social Issues as per the IFC Screening Criteria**

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
Litigation	<ul style="list-style-type: none"> <li>As on September 2015, there are 6 recorded cases of encroachment in the subdivision Nadbai which includes large settlements with multiple encroachments), 19 in Bharatpur, 27 in Weir, 7 in Bhusawar and 104 in Mahwa.</li> <li>Majority of the encroachments were in the form of temporary structures, abandoned structures, extensions of sheds and boundary walls and water tanks.</li> <li>Most of the encroachments are comprised of structures that existed prior to the road expansion, and were accessed and compensated for by the Project. According to the consultations undertaken with the owners of the structures, were aware of their encroachment and were satisfied with the compensation provided, but had not removed the structures as the road presently is not using the land.</li> <li>Reportedly, there are 13-15 ongoing cases in the Dausa High Court and with the SDM, regarding ownership dispute and fairness of compensation ;</li> <li>In a number of cases of encroachment on the ROW, the issue pertains to the users of the land not having received compensation. According to the local representative, in a number of cases, some people had purchased land from other land owners. However, this was documented on stamp papers, and the change in land ownership was not duly registered. As a result of this, during the land acquisition process, the erstwhile land owners were reported to have received the compensation, while the present land users did not receive any compensation. In keeping with this, the Dausa High Court has issued a stay order for the demolition of 18 shops in Rathadiya.</li> </ul>	<ul style="list-style-type: none"> <li>IFC Performance Standard 1-Assessment for Social and Environment Management Systems for litigations on environment and social and <i>IFC PS- 5</i> on land Acquisition.</li> </ul>	<ul style="list-style-type: none"> <li>While these encroachments presently do not impact the road operations, the pending cases and encroachments may create obstacles for road operations and expansion in the future.</li> </ul>	<ul style="list-style-type: none"> <li>The encroachments are not impacting the present functioning of the road though these encroachments do create safety risks that need to be managed through proper measures.</li> <li>MAJEL shall make an effort to remove the abandoned structures and those whose owners have received the compensation to their satisfaction</li> <li>Litigations related to compensation or land disputes are sub-judice and do not directly affect MAJEL</li> <li>MAJEL should actively monitor encroachments and prevent new encroachments from coming up.</li> <li>Also refer recommendations in Community, Health &amp; Safety.</li> </ul>
Legal Permits/ Consents	<p>MAJEL has a bituminous concrete manufacturing plant near to the Amoli Toll Plaza. Based on the review of the Consent to Establish, it states that the CTE is valid for a period from 24.07.2014 to 30.06.2017 During the site assessment; it was observed that certain sections of the road had undergone patch works. In addition, a site-walk through of the plant, identified raw material dumping activities being carried out at the plant, however, the hot mix plant was shut down. Thus, Consent to Operate for the hot mix plant has not been obtained by MAJEL, prior to start of bitumen patch works in some sections.</p>	<p>IFC Performance Standard 1-Assessment for Social and Environment Management Systems for litigations on environment and social</p>	<p>This is non-compliance to CTE condition for not obtaining the pertinent license from RSPCB.</p>	<p>MAJEL should obtain Consent to Operate from RSPCB for the hot-mix plant. Also, all the specific conditions laid down in the CTE should be complied, such as:</p> <ul style="list-style-type: none"> <li>All DG sets should be provided with acoustic</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
				enclosures; <ul style="list-style-type: none"> <li>• All DG sets should be provided with adequate stack height as below: height of the tack ( in meters)= Height of Building - 0.2 √ ( KVA of DG set);</li> <li>• 33% green belt development should be done;</li> <li>• Water Cess returns should be filled ;</li> <li>• NOC for ground water should be obtained from CGWA</li> </ul>
Assessment and Management of Environment and Social Risks and Impacts	MAJEL is a subsidiary of MPL. MPL does not have any documented Environment, Health and Safety Policy and neither does MAJEL. There is no designated EHS officer in MAJEL, except a Site Safety Engineer who is responsible for managing health and safety and issues related to encroachments at the project site. Environment Impact Assessment report was prepared by Consulting Engineers Group, however a well-documented Environment management plan was not prepared for the project and the risks and impacts associated with the Hot mix plant are also not defined in any document. There is no such plan to define the management of waste along the project road, storm water drainage, management of median plantation.	<ul style="list-style-type: none"> <li>• IFC Performance Standard 1-Assessment for Social and Environment Management Systems</li> </ul>	<ul style="list-style-type: none"> <li>• Majority of the environment and social issues for the project corridor are due to the inadequate oversight and maintenance of the ROW and road operations and absence of the monitoring of the maintenance contractor as well as maintenance of the records and documents. As there is no functional Environment Management Plan</li> </ul>	MAJEL should develop an Environment and Social Management System (ESMS) for covering road operations, maintenance and management. The ESMS system should cover the following aspects: <ul style="list-style-type: none"> <li>• Key environment , social and health and safety issues associated with the road operations ;</li> <li>• Site Specific Risk Assessment;</li> <li>• Risk Assessment for sections involving widening/expansion;</li> <li>• Environment and Social Risk Assessment and Management Plan for the entire project, with site specific and issue specific plans focussing on the main issue like safety,</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
			<p>in place, there is no framework in place to manage environmental performance and compliance, and also enable monitoring of the same.</p>	<p>community H &amp; S, drainage management, traffic management and patrolling, safe passage to community, cattle and wildlife, stakeholder engagement and management, grievance redressal, etc. ;</p> <ul style="list-style-type: none"> <li>• ESMS Organization Structure; and</li> <li>• Monitoring and Reporting plan</li> </ul>
Land and Resettlement issues	<ul style="list-style-type: none"> <li>• Land acquisition for the project was initiated in 2006, and the final compensation was distributed in December 2009. The road has been operational for more than 5 years. A total of 88.41 Ha was impacted due to the project. The details of the tehsil wise land impacted are as follows: <ul style="list-style-type: none"> <li>○ Weir, Bharatpur: 32.32 Ha</li> <li>○ Bharatpur; Bharatpur: 18.44 Ha</li> <li>○ Nadbai, Bharatpur: 17.82 Ha</li> <li>○ Mahwa, Dausa: 19.83 Ha</li> </ul> </li> <li>• The land acquisition for the project was done as per the requirement of the National Highways Authority of India Act, 1988, which does not require, or have provisions for, resettlement and rehabilitation. It limits the process to the compensation of lost assets. Furthermore, the Act does not acknowledge any rights or entitlements for informal dwellers such as squatters and encroachers. Therefore the people affected by the land acquisition, and how may have been physically or economically displaced, did not have access to a resettlement and rehabilitation process.</li> </ul>	<ul style="list-style-type: none"> <li>• IFC Performance Standard 5 on Land Acquisition.</li> </ul>	<ul style="list-style-type: none"> <li>• Issues related to land acquisition, displacement and resettlement are mostly closed out as the toll road has been operational for more 5 years;</li> <li>• There are safety risks involved as some of the structures (88 structures) are in close proximity of the existing road (within 15 metres from the road edge),</li> <li>• These encroachments may also create obstacles for road operations and</li> </ul>	<ul style="list-style-type: none"> <li>• Regarding ongoing litigations related to land acquisition, the investee company is should wait for the final judgement of respective. The legal process will define required actions needs to be undertaken.</li> <li>• In case of informal dwellers if removed in future the company needs to work with NHAI/other govt departments to ensure that the provisions of PS 5 are met. These will entail undertaking a SIA and developing a supplemental RAP</li> <li>• For encroachments being removed, the company needs to monitor and document the process (to the extent possible), and ensure that in case there are reasons for grievances, the</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
			<ul style="list-style-type: none"> <li>expansion in the future;</li> <li>• There is a reputational risk for MAJEL associated with non-completion of scope of work and delays getting final COD.</li> </ul>	<ul style="list-style-type: none"> <li>affected person is provided access to the GR mechanism.</li> </ul>
Stakeholder/Community Engagement	<ul style="list-style-type: none"> <li>• MAJEL does not have a Stakeholder Engagement Plan in place; however, it does not affect the operations of the road. It was reported that MAJEL does not engage with the local stakeholders directly. Their main engagement is restricted to NHAI, the district administration, the contractors. The engagement with the local community is restricted to the interaction with the encroachers and squatters for the purpose of clearing the RoW of the project;</li> <li>• Moreover, they interact with the local police, hospitals, panchayat and other administrative authorities, for addressing issues related to the community and removal of encroachments, accidents etc. However, direct engagement with the community is not involved.</li> <li>• No community development work or CSR activity is undertaken by MAJEL or any of the contracted companies in the area.</li> </ul>	<ul style="list-style-type: none"> <li>• IFC Performance Standard 1-Assessment for Social and Environment Management Systems</li> </ul>	<ul style="list-style-type: none"> <li>• The absence of direct community engagement and social support may have implications on the project in situations of social unrest. On the other hand, an ongoing engagement with both people occupying the ROW as well as with the neighboring communities on either side of the road can enable resolution of pending issues as well as in-hindered road</li> </ul>	<ul style="list-style-type: none"> <li>• MAJEL should formulate a stakeholder engagement plan, which map the stakeholders identified along with their profiles, the objectives and aims of engagement as well as an overall plan for engagement through the life of the project in keeping with the requirement of the IFC PSs 1, 4, 5, 7 and 8. On the basis of this overall plan, a detailed engagement plan should be formulated on an annual basis. As part of the engagement activities, MAJEL should also identify areas for community development/ CSR in consultation with the local community and develop a community development plan for the same. A need assessment should be done prior to developing a social</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
Grievance Mechanism	<ul style="list-style-type: none"> <li>There is no formal grievance redressal mechanism for external stakeholders in place for this road project. The grievances from the external stakeholders are reported to be primarily complaints about the toll plaza functioning. Such complaints are registered in a complaints register available at each plaza, and an attempt is made by the plaza managers to resolve the conflict immediately. Monthly reports of the complaints thus received are shared with the NHAI. There is no formal grievance redressal mechanism in place for the employees of the project. Employee grievances are communicated to the respective departments by the concerned employee through emails. According to the consultation with the employees, it was understood that the employees were aware of this procedure and felt satisfied with the same. Most of the grievances were reported to pertain to the payment of wages. The departments are then expected to resolve the grievances at the earliest, and communicate the result of the same to the employee concerned. However, there is no fixed time frame in which the project has to close the grievances received, nor are any records maintained of the grievances received. Furthermore, there is no provision for anonymous complaints.</li> </ul>	<ul style="list-style-type: none"> <li>IFC Performance Standard 1-Assessment for Social and Environment Management Systems</li> </ul>	<ul style="list-style-type: none"> <li>Presently in case of any grievances or concerns the community expressed a preference to communicate directly with NHAI, instead of MAJEL. This is because most grievances of the community are currently related to compensation and claims, which is NHAI's responsibility. However a transparent and functional GR mechanism will ensure that issues that may emerge in the future are addressed appropriately in a timely manner, and do not escalate into bigger issues that could disrupt road operations. GR is</li> </ul>	<ul style="list-style-type: none"> <li>operations.</li> <li>investment or a community development plan.</li> <li>The project should put in place a formal grievance redressal mechanism for internal (permanent employees and contracted staff) and external stakeholders including community. This mechanism should put in place a process for receiving, recording and redressal of grievances in a timely manner.</li> <li>This mechanism should allow for a possible integration with the existing grievance redressal process with NHAI. It is expected that the NHAI grievance process will close after the cases get closure. Thereafter the project GR mechanisms will need to become an effective process. These mechanisms should be disclosed to the employees and external stakeholders.</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
			<p>an integral part of the stakeholder engagement process.</p> <ul style="list-style-type: none"> <li>• Toll operations are high pressure jobs and the employees should be assured that MAJEL has policy and procedures in place to respond to their grievances.</li> </ul>	
Health & Safety	<p>MAJEL does not have a Highway Traffic Management System. However, it has a Highway Safety Manual for the project road, which provides guidance for traffic control, driver information need in work zones, Traffic Control Plan, Installation, Maintenance and Inspection of Traffic control, List of construction and Maintenance Signs. The corridor is free of any at-grade crossings with other roads, railways, or pedestrian paths, which are instead carried by underpasses across the highway. On the controlled-access highway, opposing directions of travel are generally separated by a median strip or central reservation containing a traffic barrier or grass. There are signboards for speed limits, pedestrian crossings. The corridor was observed to be a non-controlled-access highway as it provides hindered flow of traffic, with no traffic signals, intersections or property access. However, in some stretches, the entrance and exit to the highway are not provided at interchanges by slip roads (ramps), which allow for speed changes between the highway and arterial roads. In addition, there has been no control Elimination of the sources of potential conflicts with travelers coming in the opposite direction. The corridor has unauthorized road access/crossings caused by many educational institutions as well as hotels.</p> <ul style="list-style-type: none"> <li>• Significant number of multi-axle vehicles parked in the corridor on both sides outside the Truck-lay bye space;</li> </ul>	IFC Performance standard 2: Labour & Working Conditions on occupational Health & Safety	It is understood that if the monitoring of the operational road is not carried out on a regular basis as a part of a system, the accident situation will not decrease. HTMS systems are needed to ensure the instant response and control of the road accidents, because this will also allow understanding the root cause analysis and providing corrective measures	<ul style="list-style-type: none"> <li>• MAJEL should nominate EHS officer assisted by maintenance team and supervised by Cube E&amp;S expert</li> <li>• Include provisions of health and safety as indicated within the IFC Performance Standards, Factories Act and subsequent rules</li> <li>• All workers should be provided with adequate PPEs and periodic training should be provided to them for usage of PPEs;</li> <li>• Prepare emergency plans and train staff for emergency situations.</li> <li>• In addition, there should be improvement in</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
	<ul style="list-style-type: none"> <li>Vehicles driving in the opposite direction on the main expressway, for e.g., tractors motorcycles, school buses, especially at the junction connecting Mahwa town;</li> <li>There is a school at Ch. 74+900 which is also an encroachment and is right within the RoW with no access control, no structural barrier, and no vegetative barrier. This school is a primary school and reportedly there have been accidents in the past where school children were involved. Also, as it becomes difficult to cross the road, another school has been built on the other side of the road to avoid such unsafe conditions;</li> <li>Highway patrolling is not adequate as the time lapse is more than 20 mins for any emergency activity. There is no community health and safety plan/engagement regarding road safety with people residing in the settlements along the right of way.</li> <li>It was observed that subcontractor workers were engaged in median maintenance, but with inadequate protective barriers to shield workers from the moving traffic and installation of channeling devices such as traffic cones and barrels was not observed.</li> <li>Also, presently MAJEL has a manual accident control system with ambulance and highway patrolling system. The emergency contact numbers are also displayed at intermittent sections; however, there is a need for an automated and more efficient Highway Traffic Management system (HTMS).</li> </ul>		for accidents and safety incidents.	<p>analysis of first aid cases and near misses/minor injuries in order to take preventive actions.</p> <ul style="list-style-type: none"> <li>A segment on Occupational Health &amp; Safety should be added in the Highway Safety Manual.</li> <li>The current reporting system should be strengthened to include reporting of near misses, accidents, injuries and investigations into the same.</li> </ul>
HR/ Contractor Management	<ul style="list-style-type: none"> <li>The total employee strength of the project, as on July 2015, is 142, of which 53 are employed at the Amoli Toll Plaza, 58 in the Ludhwai Toll Plaza, 31 Operation and Maintenance staff at Majel.</li> <li>Apart from these the project also employs contractual workers for median maintenance and security services at the toll plaza and project base camp. The contractors engaged for routine maintenance activities are Golden Nursery, Taj Nursery and Dara Singh Contractors. The agencies used for security services are Chahar Security for security at the Ludhwai toll plaza and the base camp and Yash Security for the Amoli Toll Plaza.</li> <li>While the number of contractual workers engaged for the median maintenance varies according to work requirement, the security services employ 88</li> </ul>	IFC Performance standard 2: Labour & Working Conditions on occupational Health & Safety	The absence of contractor management plan/procedure and the lack of regular monitoring of the contractors in terms of the compliance to applicable rules and regulations	<ul style="list-style-type: none"> <li>The project shall put in place a comprehensive HR policy, which will provide an understanding of the project's policy on the following: <ul style="list-style-type: none"> <li>Child labour</li> <li>Forced labour</li> <li>Sexual discrimination</li> <li>Maternity/paterni</li> </ul> </li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
	<p>individuals. These workers are comprised of unskilled and semi-skilled workers, and are mostly comprised of local workers from the surrounding villages.</p> <ul style="list-style-type: none"> <li>The contractual agreements with the agencies involved in the routine maintenance were not available for review at the time of the site visit. According to the discussions undertaken with the project team it is understood that the contractors are required to pay at least minimum wages to the workers engaged. However, during the consultations with the workers engaged in median maintenance, it was reported that the wages start from Rs 150 per day, which is lower than the state's minimum wage rate of Rs 189 per day for unskilled workers employed in the Construction and Maintenance of Roads. MAJEL reportedly does not monitor the wage payment of the contractual workers, which is also non-compliance under the Payment of Wages Act 1936.</li> <li>The contract agreements with the security agencies include provisions such as abidance to rules and regulations, including EPF, ES, forced labour, child labour, payment of minimum wages and training of security guards in safety and firefighting.</li> </ul>		<p>and the contract agreement, may have implications on toll operations in terms of legal non-compliance and risk of accidents/incidents .</p>	<ul style="list-style-type: none"> <li>ty leave <ul style="list-style-type: none"> <li>Trade union/employee association</li> <li>Retrenchment policy</li> <li>Employee grievance mechanism, and its applicability to contractors and contractual workers</li> </ul> </li> <li>The project shall regularly monitor the implementation of the HR policy to ensure its compliance to applicable rules and regulations (including but not limited to): <ul style="list-style-type: none"> <li>Factories Act, 1948;</li> <li>Building and Other Construction Workers Act, 1996;</li> <li>Payment of Wages Act, 1936</li> <li>Employees' State Insurance Act, 1948;</li> <li>Employees' Provident Fund and Miscellaneous Provisions Act, 1952;</li> <li>Inter-State Migrant Workmen (Regulation</li> </ul> </li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
				<ul style="list-style-type: none"> <li>of Employment and Conditions of Service) Act, 1979;</li> <li>o Minimum Wages Act, 1948;</li> <li>o Equal Remuneration Act, 1976</li> <li>o IFC PS 2</li> <li>o IFC Guidelines on workers accommodations</li> <li>o IFC's Good Practice Note on Managing Retrenchment.</li> <li>• MAJEL shall formulate a Contractor Management Plan and undertake regular monitoring (on a monthly basis) of the implementation of the contractor agreements and ensure that the compliance to the applicable rules and regulations as mentioned above.</li> </ul>
Pollution Prevention	<p>Permit conditions provide a framework of requirements on pollution control and environmental management. The review of the limited project documents and site assessment of the project road for environmental aspects revealed the following observations :</p> <ul style="list-style-type: none"> <li>• Consent to Operate for the Bitumen Concrete plant has not been obtained; however, bitumen overlaying/ patchworks have been initiated for the project road. As per Section IV Conditions Precedent, Clause 4.1, Sub section © the concessionaire shall have obtained all clearances and permits under</li> </ul>	IFC Performance Standard 3: Resource Efficiency and Pollution Prevention	•Poor drainage systems are likely to pose as a water logging issue during heavy rains, with highways getting blocked and increasing	<p>MAJEL needs to develop an EMP incorporating all the environment, social, health and safety risks and impacts, their associated mitigation plan and monitoring plan for the operation phase.</p> <ul style="list-style-type: none"> <li>• Ambient Air and Noise Monitoring Should be</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
	<p>applicable laws relating to environmental protection and conservation from MoEF;</p> <ul style="list-style-type: none"> <li>• MAJEL does not undertake Ambient Air Quality monitoring as per the condition laid in CTE;</li> <li>• No legal register has been prepared by the SPV-MAJEL covering permits, approvals, and other regulatory requirement details. The register should cover health, safety and social related national, state and local government regulations to make it comprehensive. Only document available is the Concessionaire Agreement which mentions that all the necessary approvals and permits are required to be obtained by the MAJEL as listed in Schedule E of the Agreement and also all such conditions shall have been satisfied in full and all such applicable permits shall be kept in full force and effect for the relevant period during the subsistence of the agreement;</li> <li>• It was observed during the site visit that the storm water drains are poorly maintained leading to water clogging;</li> <li>• Poor maintenance of the carriageway with respect to solid domestic waste, debris and litter, that was observed to be scattered on the ROW edge as well as the median in some chainages;</li> <li>• Multi-axle vehicles ply on this road and a majority of them were cited to be parked inside the carriageway, including the urban sections. The project does not calculate, estimate and account for the GHG emissions due to the mobile sources of transportation, based on the average number of motorized vehicles plying on the road on monthly and annual basis.</li> </ul>		<p>accident risks. Also, it reduces the bearings strength ratio of the road causing extensive wear and tear;</p> <ul style="list-style-type: none"> <li>• Poor maintenance of the carriageway for solid waste, resulting into the clogging of the ROW drains</li> <li>• Due to the non-availability of EMP, there is non-compliance to management of environment issues.</li> </ul>	<p>carried out along the project corridor at locations near to sensitive receptors as mentioned in CTE dated 28.11.05 by RSPCB on conforming to emission standards</p> <ul style="list-style-type: none"> <li>• Periodic maintenance of carriageway for appropriate solid waste removal and drain management should be carried out by the subcontractor. MAJEL should regularly monitor the activities of the maintenance contractor;</li> <li>• MAJEL should monitor the noise impacts at the sensitive receptor location such as the school at Ch.79 on LHS and provide control measures like vegetative barriers/structural barriers at such location to avoid impacts on the community.</li> <li>• Collecting and returning swept material to aggregate base or disposing as solid waste.</li> <li>• CTO has to be obtained for the Hot Mix Plant;</li> <li>• Waste from the median and the ROW should be regularly removed and maintained by the sub-contractors conditions</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
				<p>stipulated by RSPCB.</p> <ul style="list-style-type: none"> <li>• Adequate measures of safety for workers working in Hot Mix plant shall be taken. Personal Protective Devices such as Goggles, mask, helmet and safety shoes shall be provided to workers.</li> <li>• The burners at the Hot mix plant should be provided with stack height of 30 M as mentioned in the Consent.</li> </ul>
Natural Habitats	<p>Compensatory Afforestation is being done as per the Forest Letter for Reserve Forest and Tree Felling permission for the other sections in the ratio of 2:1. Avenue Plantation is being done at some sections and is also in progress for the remaining sections.</p> <p>Due to the high level of human activity within a km buffer of the 57 km highway stretch, we classify <i>all habitats as modified</i>. There are <b>no natural habitats</b> along this stretch. Habitats along the 57 km highway stretch do not offer good potential for threatened species and therefore the proposed widening and strengthening of the highway are unlikely to impact threatened species. Refer Annexure C for details.</p>	IFC PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	IFC PS 6 Criteria 1: (Critically Endangered (CR)/Endangered (En) Species has been used alone for assessing critical habitats... As there is virtually no possibility of finding endemic or restricted range species in the project influence area Criteria 2 (Endemic and Restricted-range Species) was not used. Furthermore the habitats do not hold significant populations of	<ul style="list-style-type: none"> <li>• Strict control on garbage or carcass dumping along this highway stretch enforced by highway patrols and police with local panchayat participation.</li> <li>• A survey (in collaboration with local communities, panchayats, schools) needs to be carried out, of breeding pairs using the habitat and sites close to the road. If there is any specificity for these locations over extended durations, signage needs to be erected, cautioning traffic of their possible presence/crossing and enforcing a lower speed limit.</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
			migratory or congregatory species and therefore Criteria 3- (Migratory and Congregatory Species) were not used.	
Indigenous peoples, tribes and communities	<ul style="list-style-type: none"> <li>• It is understood that a small proportion of the land for the project was acquired from Schedule Tribe families of the Meena community, mostly in the Mahwa tehsil.</li> <li>• No section of the project road passes through a designated Schedule V area. The Meena community, though classified as a Schedule Tribe, is well integrated and mainstreamed in the project area and as such is not considered to be especially marginalized or vulnerable due to their tribal status. Individual members of the community may fall into the vulnerable category, due to their individual economic or social status. Furthermore, the impacts from the project on the community were understood to be similar in intensity to the impacts on other social groups.</li> </ul>	IFC Performance Standard 7: Indigenous Peoples	<p>The Meena community was observed to be integrated with the larger community and is one of the dominant communities in the Mahwa tehsil. Thus, the road operations are not expected to have any specific impacts on Indigenous People.</p> <p>However, the group has a strong presence politically. Thus, there is a potential of negative implications on the toll road operations, in case of any</p>	<ul style="list-style-type: none"> <li>• As part of the stakeholder engagement plan and activities for the project, MAJEL shall engage with the Mina community, to allow for an understanding of the community's specific concerns and expectations and to enable early identification of any issues pertaining to the community to be able to implement mitigated appropriately.</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
			conflict/incident involving the Meena community and in absence of a good grievance management system.	
Cultural Heritage	<p>The cultural properties along the RoW, comprise of 11 temples and one 'chatri'<sup>1</sup>. The main temples on the RoW include, the Bada Hanuman temple (chainage 70.700-70.800 L.H.S), and the Balaji Temple (Chainage 92.400- 92. 480 R. H.S). These structures though recorded as encroachments, have not been removed yet, due to their sensitive nature and the fact that presently they are not impacting the road functioning. According to the discussions with the Project team it was understood that MAJEL will not remove these structures until any road expansion.</p>	IFC Performance Standard 8: Cultural Heritage	Though none of these structures are sites of archaeological importance (as per the state's heritage list of Archaeological Monuments), the Balaji temple and the Hanuman temple are reported to be a sensitive issue for the community due to their cultural importance, with the temples attracting a significant number of devotees from across the state. Thus, any future attempts of the project to relocate	In case of any future attempts to widen the road, a decision on the relocation of these structures, shall be undertaken in consultation with the local community and other relevant stakeholders

<sup>1</sup> A chatri is a dome like structure raised by four pillars, built on the cremation sites or the wealthy or distinguished individuals

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
			<p>these structures may result in opposition from the local community. (In General NHAI relocates the affected religious structures in consultation with the community, on the land either provided by the community or where land is not available with the community and if community agrees it is relocated at edge of the ROW. And bears the additional cost of construction for such affected structures).</p>	
Community Health & Safety	<p>The corridor of NH-11 for the Jaipur Mahua stretch was observed to be a non-controlled-access highway as it provides hindered flow of traffic, with no traffic signals, intersections or property access. However, in some stretches, the entrance and exit to the highway are not provided at interchanges by slip roads (ramps), which allow for speed changes between the highway and arterial roads. In addition, there has been no control Elimination of the sources of potential conflicts with travelers coming in the opposite direction. There is no community health and safety plan/engagement regarding road safety. Pedestrian crossings are not provided at various locations and school children were observed to be crossing the highway at various locations.</p> <ul style="list-style-type: none"> <li>• Highway, as it provides hindered flow of traffic, with no traffic signals, intersections or property access.</li> <li>• Pedestrian or cattle crossings are not provided at adequate locations and individuals were observed to be crossing the highway at various locations</li> <li>• There are inadequate number of signboards, especially near to the schools as</li> </ul>	IFC Performance Standard 4: Community Health, Safety, and Security	<p>The number of accidents might become an issue to the project where community sentiments can get flared up due to recurring accidents. Lack of access control, non-enforcement of basic traffic rules, low road maintenance cannot be</p>	<ul style="list-style-type: none"> <li>• MAJEL should install measures to reduce collisions between animals and vehicles through construction of adequate animal crossing structures in the second section, installation of fencing along the roadway to direct animals toward crossing structures and use of reflectors along the roadside to deter animal crossings at night when vehicles are approaching.</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
	<p>this road habitats significant number of educational institutions;</p> <ul style="list-style-type: none"> <li>A number of educational institutes were observed to be located along the road, with portions of 3 schools falling within the RoW (less than 15 meters from road). According to the consultations undertaken with the local community, there are a number of accidents reported from the proximity of the schools with children and teachers frequently crossing the highway at various locations.</li> </ul>		completely ignored in light of these figures.	<ul style="list-style-type: none"> <li>MAJEL should also ensure installation of barriers like fencing and plantings to deter pedestrian access to the roadway except at designated crossing points.</li> <li>MAJEL should install adequate number of signboards especially near to the sensitive receptors, especially near to the schools falling within the ROW.</li> </ul>

**Table 4.2** Gap Assessment of Labour aspects to the IFC Performance Standards (2012) of the MAJEL

SN.	Requirements	Observation/Gap	Recommendation
<b>1</b>	<b>IFC PS 2 Labour and Working Conditions</b>		
	<p>The total employee strength of the project, as on July 2015, is 142, of which 53 are employed at the Amoli Toll Plaza, 58 in the Ludhwai Toll Plaza, 31 Operation and Maintenance staff at Majel. Apart from these the project also employs contractual workers for median maintenance and security services at the toll plaza and project base camp. The contractors engaged for routine maintenance activities are Golden Nursery, Taj Nursery and Dara Singh Contractors. The agencies used for security services are Chahar Security for security at the Ludhwai toll plaza and the base camp and Yash Security for the Amoli Toll Plaza. The number of contractual workers engaged for the median maintenance varies according to work requirement; the security services employ 88 individuals. These workers are comprised of unskilled and semi-skilled workers, and are mostly comprised of local workers from the surrounding villages.</p>		
2.1	<p><u>Human Resources Policies and Procedures:</u> A Human Resources policy which sets out its approach to manage employees consistent with the requirement of this PS.</p>	<ul style="list-style-type: none"> <li>The employees of MAJEL are governed by the Madhucon HR Philosophy and the Service Rules, implemented in 2008. The Philosophy states the group's position on discrimination and providing equal opportunities to all its employees. The service rules provide the grades of the employees, the scales of pay for the various categories</li> <li>The service rules do not provide the following: <ul style="list-style-type: none"> <li>Child labour policy</li> <li>Forced labour policy</li> </ul> </li> </ul>	Refer Table 4.1 for recommendations on HR/Contractor management

SN.	Requirements	Observation/Gap	Recommendation
		<ul style="list-style-type: none"> <li>○ Maternity leave details</li> <li>○ Retrenchment policy</li> <li>○ Employee grievance mechanism</li> <li>○ Policy on trade unions or associations</li> </ul>	
2.2	<p>The client will document and communicate to all employees and workers directly contracted, their working conditions and terms of employment, including entitlement to wages and benefits, hours of work, overtime arrangements and compensation etc.) where such agreements are respected. At the minimum comply with the national law.</p>	<ul style="list-style-type: none"> <li>• The employees of MAJEL are provided with letters of appointment at the time joining. These letters provide an understanding of the pay scale and terms of employment.</li> <li>• All employees are provided with a copy of the HR Philosophy and Service Rules at the time of induction, which provides an understanding of the scales of pay and benefits for each employee grade, recruitment, promotion and service conditions, rules for conduct and discipline, rules governing leaves and travel allowance</li> <li>• According to the discussion with the employees, the pay scales and other allowances of the employees have not been revised since the formulation of the service rules.</li> <li>• The contractual workers are governed by the contract agreements applicable. The contract agreements with the security agencies include provisions such as abidance to rules and regulations, including EPF, ES, forced labour, child labour, payment of minimum wages and training of security guards in safety and firefighting.</li> </ul>	<ul style="list-style-type: none"> <li>• MAJEL should ensure to revise the salaries/pay scales annually</li> </ul>
2.3	<p><u>Working Conditions and Terms of Employment</u> Wages, benefits, hours of work, overtime arrangements and compensation, etc. at the minimum comply with the national law.</p> <ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• According to the contract agreements and letters of appointments available for review, it is understood that MAJEL pays at least applicable minimum wages</li> <li>• However, during the consultations with the workers engaged in median maintenance, it was reported that the wages start from Rs 150 per day, which is lower than the state's minimum wage rate of Rs 189 per day for unskilled workers employed in the construction and maintenance of roads.</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• MAJEL should ensure compliance of Indian regulatory labour laws including minimum wages;</li> <li>• The project shall regularly monitor the implementation of the HR policy to ensure its compliance to applicable rules and regulations</li> <li>• MAJEL shall undertake regular monitoring of their contractors to ensure compliance to the applicable rules and regulations</li> <li>•</li> </ul>
2.4	<p>The client will <b>identify migrant workers</b> and ensure that they are engaged on substantially equivalent terms and conditions to non-migrant workers carrying out similar work.</p>	<ul style="list-style-type: none"> <li>• Most of the permanent workers for MAJEL are migrant workers, on the permanent payrolls of the Madhucon Group. The contractual workers involved in median maintenance and security are reported to be comprised primarily local workers.</li> <li>• It is reported that Madhucon Projects Limited has a license from the local employment office under the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Services) Act 1979, however the same was not available for review at the time of the assessment</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• MAJEL shall ensure that all the contractors have valid registration under Interstate Migrant Workers Act 1979, if migrant labours are involved.</li> </ul>

SN.	Requirements	Observation/Gap	Recommendation
2.5	<p>Where accommodation services are provided to workers covered by the scope of this Performance Standard, the client will put in place and implement policies on the quality and management of the accommodation and provision of basic services.</p> <p>This also includes the applicable requirements of the IFC Guidelines on Worker Accommodation.</p>	<ul style="list-style-type: none"> <li>The project provides accommodation facility for all its permanent and contractual workers at the Base camp of the project.</li> <li>The accommodation facilities are in the form of permanent structures. While the executive staffs are allotted family accommodations, the contractual workers are provided accommodation on a dual sharing basis.</li> <li>The accommodation facilities were observed to be adequate in terms of waste management, ventilation, room size, mess facilities, bedding, and sanitation facilities and lighting.</li> <li>The lighting and ventilation of the worker mess was observed to be inadequate. the lighting was observed to poor, which was reported to be resultant from the occupants choosing to use low voltage bulbs to avoid mosquitos</li> <li>It was also reported that in case in the future, additional accommodation facilities are required during maintenance activities, temporary accommodation will be set up in the base camp</li> </ul>	<ul style="list-style-type: none"> <li>MAJEL shall regularly monitor the accommodation and mess facilities to ensure that the minimum requirements of the IFC Guideline's on workers accommodation are met.</li> <li>In case of any temporary accommodation facilities set up for the project, MAJEL shall ensure that the requirements of the IFC PS 2 are met.</li> </ul>
2.6	<p><u>Workers' Organizations</u></p> <p>Where law recognizes worker's rights to form and join worker organizations of their choice without interference, and collectively bargain, the client will comply with the national law.</p>	<ul style="list-style-type: none"> <li>MAJEL does not have a policy or position on collective bargaining or formation of trade unions/ associations. None of the workforce is affiliated to any worker organization or trade union</li> </ul>	<ul style="list-style-type: none"> <li>MAJEL shall incorporate a policy statement on trade unions/ associations as part of their HR philosophy.</li> <li>MAJEL shall also put in place an employee grievance mechanism to allow for the receiving, recording and redressal of grievances</li> </ul>
2.7	<p><u>Non-Discrimination and Equal Opportunity</u></p> <p>Non-discrimination and equal opportunity: Employment decisions will not be made on the basis of personal characteristics unrelated to job requirements. Job opportunities will be provided on the principles of equal opportunity and fair treatment. The principles of non-discrimination apply to migrant workers.</p>	<ul style="list-style-type: none"> <li>The Madhucon HR philosophy states that the group is an equal opportunity company.</li> <li>It is understood that the pay scales of the employees are governed by the pay bands for each professional level identified in the HR philosophy,</li> <li>However, it is understood that Madhucon does not employ any women employees</li> <li>the group does not have policy of sexual discrimination policy or maternity leave policy</li> </ul>	<ul style="list-style-type: none"> <li>MAJEL shall incorporate the clauses of non-discrimination and equal opportunity and wage payment as part of their contract agreements</li> <li>Madhucon shall incorporate the policy of sexual discrimination and maternity leave as part of their HR philosophy</li> <li>As part of their monitoring process, MAJEL should insure that the policies of non-discrimination and equal opportunity are upheld, within the permanent employees and contractual workers,</li> </ul>
2.8	<p><u>Retrenchment</u></p> <p>A plan to mitigate the adverse impacts of retrenchment on employees to be in place if required. The client should ensure that all workers receive notice of dismissal and severance payments mandated by law and collective agreements in a timely manner.</p>	<ul style="list-style-type: none"> <li>The HR philosophy does not have a retrenchment policy in place, but identifies the circumstances in which an employee's tenure may be terminated</li> </ul>	<ul style="list-style-type: none"> <li>Madhucon shall update the HR philosophy to incorporate a formal retrenchment policy in accordance to IFC's Good Practice Note on Managing Retrenchment.</li> </ul>

SN.	Requirements	Observation/Gap	Recommendation
	Where payments are made for the benefit of workers, workers will be provided with evidence of such payments.		
2.9	<u>Grievance Mechanism</u> Grievance mechanism for workers where they can raise reasonable workplace concerns.	<ul style="list-style-type: none"> <li>Refer Table 4.1 on Grievance Mechanism</li> </ul>	<ul style="list-style-type: none"> <li>Refer Table 4.1 on Grievance Mechanism</li> </ul>
2.1 0	<b><u>Protecting the Work Force:</u></b> <u>Child Labour</u> The client will not employ children in a manner that is economically exploitative or is likely to be hazardous or to interfere with the child's education, or be harmful to the child's development. All work of persons under the age of 18 will be subject to an appropriate risk assessment and regular monitoring of health, working conditions, and hours of work. .	<ul style="list-style-type: none"> <li>The HR philosophy or sample contract agreements do not explicitly state the non-tolerance to employment of child labour.</li> <li>However, it was reported that MAJEL ensures that no child labour is employed in the project by verifying the identification cards of all workers (permanent and contractual) at the time of employment</li> </ul>	<ul style="list-style-type: none"> <li>MAJEL shall incorporate a policy on non-tolerance of child labour as part of their HR philosophy and shall incorporate the non-deployment of child labour clause in its contract agreements</li> </ul>
2.1 1	<u>Forced Labour</u> The client will not employ forced labour, which consists of any work or service not voluntarily performed and that is extracted for an individual under threat of force or penalty. The client will not employ trafficked persons.	<ul style="list-style-type: none"> <li>The HR philosophy or sample contract do not explicitly state the non-tolerance for forced labour</li> <li>However, the check on forced labour for the employees of MAJEL is in the form of letters of appointment provided to each employee at the time of joining</li> </ul>	<ul style="list-style-type: none"> <li>MAJEL shall incorporate a policy on non-tolerance of forced labour as part of their HR philosophy and shall incorporate the non-deployment of forced labour clause in its contract agreements</li> </ul>
2.1 2	<b><u>Workers Engaged by Third Parties:</u></b> The client will establish policies and procedures for managing and monitoring the performance of such third party employers in relation to the requirements of PS2. In addition, the client will use commercially reasonable efforts to incorporate these requirements in contractual agreements with such third party employers.	<ul style="list-style-type: none"> <li>The contractual agreements with the agencies involved in the routine maintenance were not available for review at the time of the site visit.</li> <li>According to the discussions undertaken with the project team it is understood that the contractors are required to pay at least minimum wages to the workers engaged.</li> <li>However, during the consultations with the workers engaged in median maintenance, it was reported that the wages start from Rs 150 per day, which is lower than the state's minimum wage rate of Rs 189 per day for unskilled workers employed in the Construction and Maintenance of Roads.</li> <li>MAJEL reportedly does not monitor the wage payment of the contractual workers, which is also non-compliance under the Payment of Wages Act 1936.</li> </ul>	MAJEL shall formulate a Contractor Management Plan and undertake regular monitoring (on a monthly basis) of the implementation of the contractor agreements and ensure that the compliance to the applicable rules and regulations as mentioned above.

SN.	Requirements	Observation/Gap	Recommendation
		<ul style="list-style-type: none"> <li>The contract agreements with the security agencies include provisions such as abidance to rules and regulations, including EPF, ES, forced labour, child labour, payment of minimum wages and training of security guards in safety and firefighting.</li> </ul>	

IFC categorizes road projects into the following three types:

- Category 1: Operating roads (2 or more years);
- Category 2: Operating roads (1 or more years but less than 2 years); and
- Category 3: Just operational (less than 1 year) or where there is any pending Land Acquisition (LA)

Further, after categorizing the project based on the IFC screening criteria, a decision tree matrix has been defined which is presented to the Board /Investment Committee for Go/No Go Decisions. As per the Decision Tree Matrix of IFC, environment and social aspects of roads that have been operations for two or more than 2 years get triggered.

Based on ERM's site assessment, review of documents and discussions with the regulatory authorities, the Project Corridor of Bharatpur- Mahwa stretch of NH-11 has been categorized as "Category 1: Operating roads (2 or more years)" under IFC Screening Criteria on the basis of the following:

- The project road has been operational for more than 2 years as of date;
- **Project Impacts:** As the road is currently in operational stage , it has limited adverse environment and social impacts as adequate measures were taken during the project design such as provisions for vehicular underpasses, service roads in the urban stretches, and speed signboards along the project corridor, though ERM has observed that these measures need to be strengthened;
- The project road has been in operation since 2008 and most of the land has been handed over to MAJEL . However there are still few patches of land where land acquisition could not be completed on account of ongoing litigations and objection from their respective owners. These issues are limited to service road and saucer drains. Furthermore, the toll road has been operational for more than five years and there is no future land acquisition plan in pipeline;
- **Extent of Impacts:** The limited social and environmental impacts are site-specific and are located within the right-of-way of the corridor of impact.
- **Management Systems:** MAJEL has not implemented effective management and monitoring systems at the project level. The implementation of environment management system, monitoring of the sub-contractor activities is inadequate.

**Note:**

- Actions that are outside the scope of MAJEL have not been included in the ESAP.

Environmental and Social Action Plan for the Bharatpur-Mahua Road Project has been provided in *Table 5.1* :

**Table 5.1 Environmental and Social Action Plan for MAJEL**

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion
<b>1</b>	<b>Compliance</b>				
1.1	MAJEL should ensure that Consent to Operate for the Hot Mix Plant from the RSPCB	Table 4.1 , Legal Permits/Consents	MAJEL	CTO License	Immediate
<b>2</b>	<b>Assessment and Management of Environment and Social Risks and Impacts</b>				
2.1	MAJEL should develop an Environment and Social Management System (ESMS) for covering road operations, maintenance and management. The ESMS manual should cover the following aspects: <ul style="list-style-type: none"> <li>• Key environment , social and health and safety issues associated with the road operations ;</li> <li>• Environmental, Social, Health and Safety Policy;</li> <li>• Legal Framework including Legal register;</li> <li>• Site Specific Risk Assessment in the form of EMP;</li> <li>• Risk Assessment for sections involving widening/ expansion;</li> <li>• Environment and Social Risk Assessment and Management Plan for the entire project, with site specific and issue specific plans focussing on the main issue like safety, community H &amp; S, drainage management, traffic management and patrolling, safe passage to community, cattle and wildlife, stakeholder engagement and management, grievance redressal, etc. ;</li> <li>• Training Plan and Systems;</li> <li>• ESMS Organization Structure; and</li> <li>• Internal &amp; External Monitoring and Reporting plan</li> </ul>	Refer Table 4.1- Assessment and Management of Environment and Social Risks and Impacts	MAJEL	<ul style="list-style-type: none"> <li>• ESMS Manual;</li> <li>• Environmental, Social, Health and Safety Policy;</li> <li>• EMP for road operations;</li> <li>• Legal Register;</li> <li>• Training Records;</li> <li>• Internal Monitoring Records and Reports</li> </ul>	Within 2 months of financial closure.
<b>3</b>	<b>Resettlement Action Plan (RAP)/CSR Plan</b>				
3.1	<ul style="list-style-type: none"> <li>• In cases of court cases the company is not expected to take any additional actions. The legal process will define what needs to be done.</li> <li>• In case of informal dwellers if removed in future the company needs to work with NHAI/ other government departments to ensure that the provisions of PS 5 are met. These will entail undertaking a SIA and developing a supplemental RAP</li> <li>• For encroachments being removed, the company needs to monitor and document the process (to the extent possible), and ensure that in case there are reasons for grievances, the affected person is provided access to the GR mechanism.</li> </ul>	Refer Table 4.1- Land Acquisition	MAJEL	SIA/RAP if eviction of encroachers is planned or taken up	Before any future eviction/ displacement/ acquisition
3.2	MAJEL should develop Community Development Plan for the project focussing on	Refer Table	MAJEL/NHAI	Community	Within 2 months of

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion
	areas where the maximum land acquisition has been done. This will provide long term benefit to communities most impacted by the project.	4.1- Land Acquisition		Development Plan	financial closure.
<b>4</b>	<b>Stakeholder Engagement/Grievance Mechanism</b>				
4.1	Develop a Stakeholder Engagement Plan which will provide an understanding of the stakeholders identified and their profile, the objectives and aims of engagement as well as an overall plan for engagement through the life of the project in keeping with the requirement of the IFC PSs 1, 4, 5, 7 and 8. On the basis of this overall plan, a detailed engagement plan should be formulated on an annual basis.	Refer Table 4.1- Stakeholder/ Community Engagement and Grievance Mechanism	MAJEL	Stakeholder Engagement Plan	Within 2months of financial closure.
4.2	<ul style="list-style-type: none"> <li>Establish formal grievance redressal mechanism for internal and external stakeholders. This mechanism should put in place a process for receiving, recording and redressal of grievances in a timely manner. This mechanism should allow for integration with the existing grievance redressal process with NHAI.</li> </ul>	Refer Table 4.1- Stakeholder/ Community Engagement and Grievance Mechanism	MAJEL	Grievance Redressal mechanism	Within 3 months of financial closure.
4.3	<ul style="list-style-type: none"> <li>Disclose the grievance mechanism to the employees and external stakeholders.</li> </ul>	Refer Table 4.1- Stakeholder/ Community Engagement and Grievance Mechanism	MAJEL	Records of Disclosure	Within 4 months and then on an annual basis.
4.4	<ul style="list-style-type: none"> <li>Provide trainings to employees on the purpose and implementation of the mechanism as part of their induction and Refresher trainings on at least an annual basis.</li> </ul>	Refer Table 4.1- Stakeholder/ Community Engagement and Grievance Mechanism	MAJEL	Training records	Annually
<b>6</b>	<b>Health &amp; Safety</b>				
6.1	MAJEL should nominate EHS officer assisted by maintenance team and supervised by Cube E&S expert <ul style="list-style-type: none"> <li>Include provisions of health and safety as indicated within the IFC Performance Standards, Factories Act and subsequent rules</li> </ul>	Refer Table 4.1, Health & Safety	MAJEL	<ul style="list-style-type: none"> <li>Appointment Letter of EHS Officer;</li> <li>Physical Verification</li> </ul>	Within 2 months of financial closure.

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion
	<ul style="list-style-type: none"> <li>All workers should be provided with adequate PPEs and periodic training should be provided to them for usage of PPEs;</li> <li>Prepare emergency plans and train staff for emergency situations.</li> <li>In addition, there should be improvement in analysis of first aid cases and near misses in order to take preventive actions.</li> <li>A segment on Occupational Health &amp; Safety should be added in the Highway Safety Manual.</li> <li>There should be a proper reporting system to report near misses, accidents, injuries and investigations into the same.</li> </ul>				
<b>7</b>	<b>HR/ Contractor Management</b>				
7.1	<ul style="list-style-type: none"> <li>put in place a comprehensive HR policy, which will provide an understanding of the project's policy on the following: <ul style="list-style-type: none"> <li>Child labour</li> <li>Forced labour</li> <li>Sexual discrimination</li> <li>Maternity/paternity leave</li> <li>Trade union/employee association</li> <li>Retrenchment policy</li> <li>Employee grievance mechanism, and its applicability to contractors and contractual workers</li> </ul> </li> </ul>	Refer Table 4.1 HR/ Contractor Management	MAJEL	Update HR Policy	Within 3 months of financial closure.
7.2	<ul style="list-style-type: none"> <li>The project shall regularly monitor the implementation of the HR policy to ensure its compliance to applicable rules and regulations (including but not limited to): <ul style="list-style-type: none"> <li>Factories Act, 1948;</li> <li>Building and Other Construction Workers Act, 1996;</li> <li>Payment of Wages Act, 1936</li> <li>Employees' State Insurance Act, 1948;</li> <li>Employees' Provident Fund and Miscellaneous Provisions Act, 1952;</li> <li>Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979;</li> <li>Minimum Wages Act, 1948;</li> <li>Equal Remuneration Act, 1976</li> <li>IFC PS 2</li> <li>IFC Guidelines on workers accommodations</li> <li>IFC's Good Practice Note on Managing Retrenchment.</li> </ul> </li> </ul>	Refer Table 4.1 HR/ Contractor Management	MAJEL	Monitoring Records	First Monitoring within 3 months of financial closure. On a periodic basis thereafter.

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion
7.3	<ul style="list-style-type: none"> <li>Formulate a Contractor Management Plan and undertake regular monitoring (on a monthly basis) of the implementation of the contractor agreements and ensure that the compliance to the applicable rules and regulations as mentioned above.</li> </ul>	Refer Table 4.1 HR/ Contractor Management		Contractor Management Plan and Monitoring records	Within 3 months of financial closure.
<b>8</b>	<b>Pollution Prevention</b>				
8.1	<p>MAJEL needs to develop an EMP incorporating all the environment, social, health and safety risks and impacts, their associated mitigation plan and monitoring plan for the operation phase.</p> <ul style="list-style-type: none"> <li>Ambient Air and Noise Monitoring Should be carried out along the project corridor at locations near to sensitive receptors once annually;</li> <li>Periodic maintenance of carriageway for appropriate solid waste removal and drain management should be carried out by the subcontractor. MAJEL should regularly monitor the activities of the maintenance contractor;</li> <li>MAJEL should monitor the noise impacts at the sensitive receptor location such as the school at Ch.79 on LHS and provide control measures like vegetative barriers/structural barriers at such location to avoid impacts on the community.</li> <li>Collecting and returning swept material to aggregate base or disposing as solid waste.</li> <li>CTO has to be obtained for the Hot Mix Plant;</li> <li>Water Cess Returns to be filled</li> <li>Waste from the median and the ROW should be regularly removed and maintained by the sub-contractors conditions stipulated by RSPCB.</li> <li>Adequate measures of safety for workers working in Hot Mix plant shall be taken. Personal Protective Devices such as Goggles, mask, helmet and safety shoes shall be provided to workers.</li> <li>The burners at the Hot mix plant should be provided with stack height of 30 M as mentioned in the Consent.</li> </ul>	Refer Table 4.1 Pollution Prevention	MAJEL	<ul style="list-style-type: none"> <li>Environment Management Plan</li> <li>Ambient Air and Noise Monitoring reports</li> <li>Physical Verification; NOC from RSPCB;</li> <li>CTO for Hot Mix Plant form RSPCB</li> <li>NOC for groundwater abstraction from CGWA</li> <li>Water Cess returns to be filled</li> <li>Solid Waste Management Plan</li> </ul>	Within 2 months of financial closure.
8.2	Maintenance activities should be carried out in a comprehensive manner for the entire length of the project road. MAJEL should ensure cleaning of the roadside and median regularly to avoid dumping and maximizing of road side waste. Waste from the median and the ROW should be regularly removed and maintained by the sub-contractors.	Refer Table 4.1 Pollution Prevention	MAJEL	Physical Verification	Immediate
8.3	MAJEL should ensure that the used oil is disposed as per the conditions stipulated by RSPCB. Adequate measures of safety for workers working in Hot Mix plant shall be taken. Personal Protective Devices such as Goggles, mask, Helmet and safety shoes shall be provided to workers.	Refer Table 4.1 Pollution Prevention	MAJEL	Physical Verification; Training records	Immediate

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion
8.4	MAJEL should estimate the total GHG emissions (GHG inventory) in terms of CO2 equivalents that are released from the total number of motorised vehicles that ply on the project road on monthly basis.	Refer Table 4.1 Pollution Prevention	MAJEL	GHG Inventory/ Register	Within 2 months of financial closure.
8.5	Noise barriers along the border of the right-of way (e.g. earthen mounds, walls, and vegetation.	Refer Table 4.1 Pollution Prevention	MAJEL	Noise Monitoring Reports; Physical Verification	Within 2 months of financial closure.
<b>9 Natural Habitats</b>					
9.1	Strict control on garbage or carcass dumping along this highway stretch enforced by highway patrols and police with local panchayat participation	Refer Table 4.1 Natural Habitats	MAJEL	Physical Verification	On Regular Basis
9.2	A survey (in collaboration with local communities, panchayats, schools) needs to be carried out, of breeding pairs using the habitat and sites close to the road. If there is any specificity for these locations over extended durations, signage needs to be erected, cautioning traffic of their possible presence/ crossing and enforcing a lower speed limit.	Refer Table 4.1 Natural Habitats	MAJEL	Survey report & Physical Verification	Within 2 months of financial closure.
<b>10 Indigenous peoples, tribes and communities</b>					
10.1	Adequately engage with the Meena Community as part of the Stakeholder Engagement plan and Activities to allow for an understanding of the community's specific concerns and expectations and to allow for any issues pertaining to the community to be identified in advance and mitigated appropriately	Refer to Table 4.1 Indigenous peoples, tribes and communities	MAJEL	MoMs and records of engagement	On a regular basis as a part of the implementation of the stakeholder engagement plan.
<b>11 Cultural Heritage</b>					
11.1	In case of any future attempts to widen the road, a decision on the relocation of these structures, shall be undertaken in consultation with the local community and other relevant stakeholders	Refer to Table 4.1 Cultural Heritage	MAJEL	Documentation of Consultation and the Agreement reached	As required

Annex A

## List of Documents reviewed

Following are the documents that were reviewed by ERM before and during site visit as part of the present study:

#### *Project details and Agreements*

- NHAH Concession Agreement with MAJEL dated October 2005;
- Final Completion Certificate issued by M/s. Aarvee Associates Architects Engineers and Consultants Private Limited acting as the Independent consultant on 13.09.2009;
- Toll Plaza Notifications, Overloading Notification, Toll Notification 2014 and NHAH HQ approval for rate revision w.e.f 01.07.2012;
- Latest Traffic Data and FY15 MAJEL exempted traffic;
- Claim settlement conciliation committee details;
- Claims settlement -MPL- Board resolution;
- Feasibility Report including Environment Impact Assessment and R& R Report;
- Supplementary Major Maintenance Agreement between MAJEL and Madhucon projects limited;
- Final Report on rehabilitation of Bharatpur-Mahwa section of NH-11 in Rajasthan prepared by L.R. Kadiyali & Associates October 2010;and
- Operation & Maintenance Agreement Final dated 26.09.2014.

#### *Environment, Health and Safety*

- Highway Safety Manual for MAJEL by Madhucon Projects Limited
- Environment Impact Assessment and R& R Report; and
- Letter dated 06.07.2006 to NHAH by MAJEL asking for approval that No Environmental clearance I involved in the Bharatpur- Mahwa stretch; and
- Accident Data from January 2014 to August 2015.

#### *Human Resources and Labour*

- MAJEL Organization Chart, 21/04/2014
- Manpower details of MAJEL and security contractors, 28/07/2015
- Contract Agreement with Chahar Security, 10/09/2013 and Yash Security, 01/10/2010
- Madhucon Projects Limited, HR Philosophy and Manual
- Sample Letter of Appointment

#### *Land*

- List of Encroachments maintained by MAJEL, as of 01/06/2014;
- Details of land acquisition and payment of compensation, as on 03/01/2007;
- Lease deed between Nama Chhnamma, Hyderabad and MAJEL, dated, 30/09/2014;
- Lease deed between Nama Nageswar Rao, Hyderabad and MAJEL, dated 01/04/2007; and
- Register of MAJEL Fixed Assets.

## Legal

- **Consent to Establish** under section 21 (4) of the Air (Prevention & Control of Pollution) Act,1981 via File No F (MUID)/Bharatpur (Weir)/1 (1)/2014-2015/8005-8009 and Dispatch Date 11/03/2015 and valid until 30.06.2017 for manufacturing of bituminous concrete of a quantity of 90000 MT per annum;
- Acknowledgement of Application for **Consent under the Water (Prevention and Control of Pollution) Act,1974 and the Air (Prevention and Control of Pollution) Act,1981** for small scale/tiny industries under green category upto an investment if Rs. 5 crores via letter no RPCB /RO (Bharatpur) /SWM/Green/Gr-BTP-243/2535, dated 26.03.2014 for **Consent to Operate** for 125 kVA DG set, 87.5 kVA DG set and 40 kVA DG set at Amoli Toll Plaza NH-11, Tehsil- Weir, District- Bharatpur, valid until such time the unit modifies/changes its processes;
- Acknowledgement of application for Consent under the Water (Prevention and Control of Pollution) Act,1974 and the Air (Prevention and Control of Pollution) Act,1981 for small scale/tiny industries under green category upto an investment if Rs. 5 crores via letter no RPCB /RO (Bharatpur) /SWM/Green/Gr-BTP-243/2534, dated 26.03.2014 for **Consent to Operate** for 75 kVA DG set, 62.5 kVA DG set and 40 kVA DG set at Ludhawai Toll Plaza NH-11, Tehsil- Sear, District- Bharatpur, valid until such time the unit modifies/changes its processes;
- **Consent to Establish** under Air (Prevention and Control of Pollution ) Act-81 for the manufacturing of bitumen mixed road material and cement ready material at village Amoli, Tehsil-Weir, dated 28.11.05 via letter no 3331, valid until 27.11.08;
- Grant of **permission under rule 63 of Indian Electricity Rules 1956** for energization of 2 X 25 kVA, 11/433 KV outdoor type T/F, Make-United, SR. NO-67/106, 107 via letter no RR NO-107 , dated 07.09.2006;
- **Permission to commence mining operation** at Ghatri Stone Mine Survey NO.528/328 in village Ghatri, tehsil Weir, in Bharatpur in the district of Rajasthan via letter no 1977 by Directorate General of Mines Safety, Ghaziabad, dated 11.07.2005 under Mines Act,1952, Rules and Regulations and Orders made thereunder;
- **Permission under Regulation 106 (2) (b) of the Metalliferous Mines Regulations, 1961**, to work by using heavy earth moving machinery in conjunction with deep hole blasting of Ghatri Stone Mines;
- **No Objection Certificate** for Storage Filling Station at Ghatri Crusher Site, Petroleum Class B Consumer Pump/Service Station at Harsoli to Ghatri Road, km 99,192 by Petroleum and Explosives Safety Organization (PESO) dated 6/6/2006 via letter P/NC/RJ/14/2647 (P160140) and valid until 31/12/2008;
- **License to Store Petroleum in Tanks** in connection with Pump Outfit as per License no PINC/RJ/14/2461( P159109) ( Renewal NO.1 dated 13/12/2007) valid until 31st Day December 2010;
- MAJEL Standard Fire and Special Perils Policy, 07/02/2015
- MAJEL Money Insurance Policy, 1/02/2015

- MAJEL standard Fire Business Interruption Policy, 07/02/2015
- MAJEL Public Liability Non Industrial Policy, 01/02/2015
- The Contract Labour License dated, 30/07/2013, renewed on 17/07/2015
- The Contract Labour License dated, 27/08/2014, renewed on 17/07/2015
- MAJEL Workmen Medicare Policy, 01/02/2014
- MAJEL Workmen's Compensation (General) Policy, 01/02/2014
- MAJEL Fidelity- Floater Policy, 01/02/2015
- MAJEL Plate glass Insurance Policy, 01/02/2015
- MAJEL Standard Fire and Special Perils Policy, 07/02/2015

*Others*

- Indenture of Mortgage, dated 21/07/2006
- Indenture of Mortgage, dated 14/02/2012
- Concession Agreement, October, 2005
- Operations and Maintenance Agreement between MAJEL and MAL, 01/04/2014




The documentation review was an ongoing process of the assignment where the project proponents made information available through a virtual data room.




Annex B




## Details of ROW Verification




# 1 ROW VERIFICATION DATA




**Table 1.1** Details of ROW verification




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Vamanpura	Km 64+040	RHS	Boundary wall, Toilets and Temporary Shed of Tej Hotel and Family Restaurant	The project has repeatedly communicated with the owner of the establishment. The owner claims that he will remove the structures in the RoW in case of any future expansion or the project needing the land	
Vamanpura	Km 64+200	RHS	Shri Digambar Degree College Boundary Wall	The owner of the institution is reported to be a local MLA and the project has not removed the structure from the RoW due to political pressure	
Ludhawai	KM 64+300	RHS	Small Shop	The reason for the structure is reported to be a dispute over the compensation received, as the present users of the land claim to have purchased the land from the erstwhile land owner. However, as the registry of the transaction was not done, the previous land owner was awarded the compensation during the land acquisition	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Ludhawai	KM 64+850	LHS	Boundary Wall and Concrete Flooring of shop	Newly constructed Boundary wall and concrete flooring of Dhaba (2.5 m by 4 m in RoW). Owned by Haryal S/O Udyabhan. The owner reported to being aware of the road RoW and said that they would remove the construction when required by NHAI	
Ludhawai	KM 64+800-64+820	LHS	Thakur Hotel and Family Restaurant Boundary	No Reason Given	
Ludhawai	KM 65+500	RHS	Boundary Wall and garden of Hotel Alora and Lajawab Restaurant	The project has repeatedly communicated with the owner of the establishment. The owner claims that he will remove the structures in the RoW in case of any future expansion or the project needing the land	
Nagla Churaman	Km 67+120	RHS	Tata Motors Storage Yard Boundary Wall and Security Guard Room	The project has repeatedly communicated with the owner of the establishment, however have not received any response from the same	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Mahwa	Km 67+800	RHS	4 shops	<p>The owners of the shop claim that they received the notification in 2007, however there was a discrepancy in the amount of land to be impacted, as more than 800 sq. m was impacted but only 360 sq. m was identified for compensation in the awards notification . In keeping with this, a revaluation was done. However the compensation announced was for 360 sq. m. the owners have taken up the case with the ADM</p> <p><b>Kumar Pal S/o Ruku Pal and Sher Singh</b></p>	 
Mahwa	KM 67+860	LHS	Temple	<p>The project has not removed any temple or religious structure in case it is not impacting the present road operations</p>	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Baansi Kala	KM70.300	LHS	Abandoned Structure	Abandoned Water works structure	
Baansi Kala	KM 70.800	LHS	Concrete Flooring	Concrete flooring of dhabas (15m X 4m in RoW). This is a new construction. The owners reported to not being aware of the RoW for the road and that they had not received any notification for constructing on the RoW. The owner is Mr Gopal Prasad.	
Baansi Kala	KM 70+700-70+800	LHS	Encroachments- Stalls	These stalls are an extension of the local market	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Bansi Khurd	KM 70+700-70+800	RHS	Temporary Stalls	These stalls are an extension of the local market	
Baansi Khurd	KM 70.820	RHS	Concrete Veranda in front of shops	The owner of the land is Mr Ram Kishan (SC) while the owner of the structures is Mr Jal Singh. Mr Singh reported to be aware of the road RoW and said that he would remove the structure when asked by NHAI	
Baansi Kala	Km 70.900	LHS	School Boundary and Toilets	The boundary wall and toilets of the government school (60m X 1m in RoW)	





Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Baansi Kala	Km 71.150	LHS	Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations (12 m X 2m in RoW)	
Baansi Kala	KM 71.400	LHS	Abandoned Structures	Four shops abandoned. (20m X1.5 M in RoW)	
Baansi Khurd	Km 71+500	RHS	Abandoned Structure	No Reason given	
Baansi Khurd	KM 72.400	RHS	Abandoned Structure	The structure is located on the petrol pump land. However, the structure is presently abandoned and is not sued	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Lulhara	KM 73+700	RHS	Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations	
Lulhara	KM 74.600	RHS	Concrete shed and part of shop	The owner (Mr Baadshah) was of the opinion that no part of his shop was within the RoW (4mX3m within RoW) and that he had not received any communication to the contrary. However, he reported to be willing to remove the construction if required by NHAI.	
Lulhara	Km 74+900	LHS	Senior Secondary School	THIS PHOTO IS WITH SUVA	
Lulhara	Km 75+000	LHS	6-7 Encroachments	The encroachers do not have any legal titles to the land. however, according to the discussion the families have been settled here for the last 2-3 generations.  The names were <b>Birju, Pooran sons of kalicharan, Mukesh S/o Babu, Manhori and Raju sons of Jaypal</b>	





Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Lulhara	KM 75+720	RHS	Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations	
Lulhara	KM 77+020	RHS	PWD Abandoned Structure	No Reason given	
Lulhara	KM 78+780	RHS	Water Works, Abandoned Structures	No Reason given	



Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Dahra	KM 79+350	RHS	Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations	
Hantra	Km 80.500	LHS	Toilets and water tank of dhaba	Mr Babulal, the owner reported that the toilets and water tank were a new construction for the Dhaba. He was reportedly not aware of the RoW of the road, and would remove the structures if required (3 m X1.5m and 3.5m X3.5m in RoW).	
Hantra	KM 82.180	RHS	Part of shop	The owner Mr Bijendra Singh reported that the portion of the shop within the RoW had already been removed and none of the existing structure was within the RoW. According to Madhucon, a 9mX0.5 m portion of the shop remains in the RoW.	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Aaroda	KM 84+820	RHS	Senior School	No reason given	
Aaroda	KM 85+080	RHS	Boundary wall of residence	The structure is a recent construction. The project has communicated with the owners to remove the encroachment	
Aaroda	KM 86 +780	RHS	Boundary wall of residence	The structure is a recent construction. The project has communicated with the owners to remove the encroachment	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Aaroda	KM 87+180	LHS	Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations	
Aaroda	Km 88+060	LHS	Brick Kiln Storage Area		
Naswara	Km 89.680	LHS	Boundary wall	The respondent Ms Kesar reported to not being aware of the encroachment (3m in RoW) and said that they would remove the same.	
Naswara	Km 89.850	LHS	Abandoned Wall	The structure was abandoned. According to the respondents available, Mr Kalua was constructing the wall (5m in RoW), however after a warning from Madhucon, he abandoned construction.	
Naswara	Km 89+740	LHS	Cow Shed		
Naswara	KM 89+800	RHS	Boundary wall of residence	The project has communicated with the owners to remove the encroachment	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Naswara	KM 89+880	LHS	Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations	
Naswara	Km 89+900	LHS	Senior Secondary School	No reason given	
Halena	KM91.080	LHS	5 shops	Mr Hoti, reported to have filed a case with the SDM against the project for non payment of complete compensation (12mX9m in RoW). While an amount had been identified, since it was not sufficient, he did not take it.	
Halena	Km 91+400	LHS	Police Station		




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Halena	KM 91+600	LHS	Encroachments - Temporary Stalls	These stalls are an extension of the local market	
Halena	KM 91+600	RHS	Encroachments - Temporary Stalls	These stalls are an extension of the local market	
Halena	Km 92.160	LHS	Boundary Wall and toilets	The owner Bajdev Bania, was not available. But it was reported that prior to the road construction he had constructed some shops, which were broken. He had consequently started building them again (7m in RoW) but had abandoned the same for unknown reasons.	
Halena	Km 92.200	LHS	Corner of House	The owner, Mr Amra was not available for consultation. However it was reported that due to the fact that they did not have the requisite ownership papers for the house, the family had not received the compensation for the structure at the time of the road development. Presently 1mX0.5m is within RoW.	
Halena	KM 92.400	LHS	Concrete Floor	The owner Mr Ram Khiladi reported that the structure was not within the RoW (5m X3m within RoW). However if required he would remove the same.	


Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Halena	KM 92+480	LHS	Encroachment	A total of four shops. They have filed a litigation against Madhucon for less compensation - <b>Naveen Sharma</b>	
Halena	KM 92+480	RHS	Temple	Very Old and culturally important Temple- Balaji Temple. Portions of the rooms for the priests and the boundary wall are within the RoW. The project has not removed the structures as presently they don't impact the road functioning	
Halena	KM 94+120	RHS	Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations	



Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Halena	KM 94.220	LHS	Boundary Wall	The owner MR Sunder, reported to not being aware of the RoW (2-3m in RoW)	
Halena	KM 94+600	RHS	Temporary shed	No reason given	
Jhalatala	KM 97+160	LHS	Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Jhalatala	Km 97.340	LHS	Shop	The owner Mr Mukesh reported that he had not received any compensation for the structure (10mX5m in RoW), so had refused to demolish the structure. However, he has not filed any formal complaint or case for the same.	
Amoli	KM 98.200	LHS	Room	The owner Mr Rajesh reported to be being aware of the RoW and reported that he would break the structure (1.5mX3m in RoW)	
Amoli	KM 98.700	RHS	Shop	No Information available. 15m X7m in RoW.	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Amoli	KM 99.000	RHS	Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations	
Amoli	Km 99.050	RHS	2 shops	The owner Mr Daryab Singh reported to not being aware of the RoW and not having been issued any notice for encroachment (6mX1.5 m in RoW)	NA
Chhokalvada	KM 100+800	LHS	Encroachments	No reason given	
Malaheda	103.610	LHS	Concrete Foundation	Mr Raju and Mr Bablu, the titleholders were unavailable for consultation. No reason was attributed to the encroachment (6X7m in RoW)	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Malaheda	KM 103+620	LHS	Encroachments	No reason given	
Baccharein	Km 104.340	LHS	Boundary Wall	Mr Man Singh reported to have filed a case in the district court against the previous owner, Mr Nathi S/o Pyaare. Since the transaction had been done on a stamp paper and the registry had not been done, the compensation was given to Mr Nathi. 4m encroachment	
Baccharein	Km 105.000	LHS	Rooms	At the time of the land acquisition and compensation, the land owners were unable to go the district and collect their compensation due to old age. However, the authorities then and still refuse to issue the compensation to the sons of the land owners. This is why they have not received any compensation till now. (16mX16m rooms in RoW)	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Baccharein	Km 105 to 105.800	LHS	Multiple Settlements	<p>These encroachments are comprised of boundary walls within the RoW. The respondents reported that they had received compensation at the time of the construction of the 2 lane road, but not during the 4 lane construction. They claimed to not being aware of the encroachments.</p> <ol style="list-style-type: none"> <li>1) Narayan S/o Kundan – 16X16m room</li> <li>2) Ramanlal S/o HariKishan – 1mX2m</li> <li>3) Chetram S/o Mohan – 0.5 m X 9m and 0.5m X4.5 m</li> <li>4) Baccho Singh – 15m X0.5 m</li> <li>5) Raju – 0.5m X0.5m</li> </ol>	



Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Baccharein	Km 105 to 105.800	RHS	Multiple Settlements	<p>These encroachments comprised of boundary walls and sections of shops coming within the RoW. The respondents reported that they had received compensation at the time of the construction of the 2 lane road, but not during the 4 lane construction. They claimed to not being aware of the encroachments.</p> <ol style="list-style-type: none"> <li>1) Phool Singh - 0.5m</li> <li>2) Shyam Lal- 4mX1.5 m</li> <li>3) Ram Swaroop- 0.5 m</li> <li>4) Shyam Lal- 1mX3m</li> <li>5) Bhim Singh- 1m</li> <li>6) Vijendra Singh- 2m</li> <li>7) Roop Singh - 1.5m X3m</li> <li>8) Radhe Lal- 4m</li> <li>9) Pratap Singh - 3mX0.5m</li> <li>10) Mohan Lal- 4mX0.5m</li> <li>11) Brij Lal-0.5mX0.5m</li> <li>12) Ram Pratap- 1mX0.5m</li> <li>13) Jallu-5mX0.5m</li> <li>14) Kishan- 4m</li> <li>15) Latora- 2m</li> </ol>	
Baccharein	KM 105+100	LHS	Encroachments	<p>The reason for the structures is reported to be a dispute over the compensation received, as the present users of the land claim to have purchased the land from the erstwhile land owners. However, as the registry of the transaction was not done, the previous land owner was awarded the compensation during the land acquisition. In keeping with this, the shop owners have filed a complaint against the former land owner</p>	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Baccharein	KM 105+220	LHS	Encroachments	The owner has filed a complaint against NHAI for less compensation	
Baccharein	KM 109+400	LHS	Senior Secondary School	No Reason given	
Hadia	KM 111.500	LHS	Boundary	Mr Radheshyam reported to have newly constructed the boundary wall. He claimed to not be aware of the encroachment (2m)	





Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Hadia	Km 111.520	LHS	Shop	Mr Roop Singh reported that he had not received any compensation due to the fact that the registry was not on his name and the previous land owner had appropriated the compensation amount. He reported to not being aware of the encroachment area (3mX3m)	
Hadia	Km 111.540	LHS	Abandoned structure	NA	
Hadia	Km 111.760	LHS	Abandoned Structure	NA	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Hadia	Km 111.860	LHS	Abandoned Structure	NA	
Hadia	Km 112.000	LHS	Room	The owner of the structure is MR Dinesh. He did not receive any compensation for the impacted land or structure as he does not have the necessary title to the land. the land was allotted to his family by the village Panchayat, when they settled here. 35mX4m encroachment	
Hadia	Km 112.040	LHS	Shops	Mr Kallu and Manphool, the owners, were not available for consultation. However, it was reported that they had received compensation only for the structure and not for the land as they did not have the registry for the land. 2 structures of 6m X4m each.	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Hadia	KM 112.080-113.560	LHS	35 encroachments	<p>The reason for the structures is reported to be a dispute over the compensation received, as the present users of the land claim to have purchased the land from the erstwhile land owners. However, as the registry of the transaction was not done, the previous land owner was awarded the compensation during the land acquisition. In keeping with this, 5 shop owners have filed a litigation in Dausa Civil Court against the former land owner. The civil court has awarded a stay to the demolition of these structures</p> <p><b>Jaydayal Meena, Kalu, Suka S/o Mangal, Mantubhai, Om Prakash, Om Dutt Sharma S/o Mangilal Sharma, Onganti Devi, Jugal Kishore</b></p>	
Hadiya	Km 112.280	RHS	Boundary wall	<p>MR Satish reported that no land had been required by the project from the establishment thus they had not removed any structure. 7mX25m encroachment</p>	
Hadiya	Km 112.600	RHS	4 Shops	<p>Mr Mohan Lal purchased the property from Mr Dalu, 5 months ago and was not aware of any encroachments. 12mX2m encroachment</p>	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Hadiya	Km 112. 620	RHS	7 Shops	NA	
Hadiya	Km 113.880	RHS	1 shop	NA	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Alapur	Km 114.070	RHS	3 Shops	The owners Mr Raju and Mr Kamruddin were unavailable. 4mX1m and 6mX1m encroachments	
Alapur	KM 114.160	RHS	2 shops	The owner Mr Rakesh Sharma was unavailable. 6mX4m encroachment	
Alapur	KM 114.190	RHS	4 shops	Mr Laxmi Sain and Mr Bhawanlal, the owners were unavailable. 6mX2.5m each for four shops.	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Alapur	Km 113.640	LHS	Boundary of the Rajasthan Hotel	One of the owners of the hotel, Mr Vipin Sharma, reported that they had been asked to move the boundary wall by the NHAI previously, which they had done. However, after that they have not received any further notifications from NHAI. 15m X10m encroachment	
Alapur	KM 114.220	RHS	Concrete Flooring	Mr Ram Pilari, the owner reported that he had not received any compensation for the RoW and had thus not removed any structure. 7mX4m encroachment	
Mahwa	Km 114.370	LHS	-	Already Demolished	
Mahwa	Km 114.800 to 114.830	LHS	Concrete Flooring	The owner, Mr Deva Dilsukh Reported that they were not aware of the RoW boundary and had not received any compensation for the concrete porch marked by the NHAI for demolition. 4m X2m	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Mahwa	Km 114.940	LHS	Boundary	NA. 15mX4m Encroachment	
Mahwa	Km 114.980	LHS	Boundary	NA. 60mX4m encroachment	
Mahwa	Km 115.380	LHS	Rooms	NA	



Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Mahwa	Km 115.700	LHS	Boundary wall of Temple	The project has not removed any temple or religious structure in case it is not impacting the present road operations	
Mahwa	Km 115.760	LHS	Boundary Wall	NA. 10m encroachment	
Mahwa	Km 117.080	LHS	Boundary Wall	Abandoned Structures. 6mX4m	




Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Mahwa	Km 117.120	LHS	Boundary Wall	NA. 3mX1m encroachment	
Mahwa	Km 117.980	LHS	Rooms	NA	
Mahwa	Km 118.310	LHS	Boundary	No reason given. 25mX1m	

Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Mahwa	Km 118.370	LHS	Abandoned Structures	NA	 A photograph showing a rural landscape with a line of abandoned, dilapidated structures in the foreground. The background features a green hillside under a clear sky. A timestamp '03/10/2015 12:17' is visible in the bottom right corner.
Dhanturi	Km 118.660	LHS	Abandoned Structure	NA	 A photograph of a single-story abandoned concrete structure with several openings, situated in a field of dry grass. The sky is clear and blue. A timestamp '03/10/2015 12:17' is visible in the bottom right corner.
Dhanturi	Km 118.710	LHS	Boundary wall and part of homestead	Mr Ramphool Meena was unavailable at the time of site visit. 10mX20m encroachment	 A photograph showing a concrete boundary wall and a portion of a homestead with a yellow-painted wall. The ground is dry and dusty. A timestamp '03/10/2015 12:19' is visible in the bottom right corner.

Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Dhanturi	Km 118.780	LHS	Boundary Wall of Midway Hotel	Mr Jagdish Prasad reported that they did not get compensated for the commercial property of the hotel and that's why they had not removed the boundary wall. 12m X80m Encroachment	
Samlethi	Km 118.900	LHS	Abandoned Structure	NA	
Samlethi	Km 119.000	RHS	Temporary Cow Shed and Boundary Wall	Mr Rambharose, reported that they had not received any compensation for the structure, thus they left it partially broken. 5mX4m encroachment	
Chokal Wada	KM 119+180	RHS	Encroachment	No reason given	

Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Samlethi	Km 119.220	LHS	Shop	Mr Ram Swaroop reported that he was aware of the encroachment and would remove the structure when required by NHAI. 0.5mX2m encroachment	
Samlethi	Km 119.220	RHS	2 rooms	NA	
Samlethi	Km 119.260	LHS	Abandoned Structure	NA	

Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Samlethi	Km 119.350	LHS	Boundary Wall	NA. 7m Encroachment	
Samlethi	Km 119.420	RHS	3 Shops and part of homestead	Mr Hari Ram the owner informed that the shops had been compensated but no compensation has been received for the homestead area as the conversion had not been done for the land. thus he had not removed the structures. 10X15m homestead encroachment and 15mX5m shops	

Village	Chainage	LHS/RHS	Nature of Encroachment	Reason	Photograph
Hadia	KM 119.420-119.560	LHS	18 encroachments	<p>The reason for the structures is reported to be a dispute over the compensation received, as the present users of the land claim to have purchased the land from the erstwhile land owners. However, as the registry of the transaction was not done, the previous land owner was awarded the compensation during the land acquisition. In keeping with this, the shop owners have filed a complaint with the SDM and the high court against the former land owner. Some land users have also filed a case against Madhucon</p> <p><b>Hari Ram Birjapati, Ranjilal Munshi, Ram Kishore</b></p>	 
Samlethi	KM 119.900	LHS	Encroachment	<p>The owner has filed litigation with the SDM for less compensation. Khushi Ram Meena</p>	

Annex C

## Critical Habitat Assessment

ERM carried out a rapid ecological survey along the 57 km highway stretch between Mawha and Bharatpur. The objective was to assess whether any habitats along this stretch had the potential to trigger critical habitats as per the International Finance Corporations (IFC) Performance Standard (PS6) (IFC 2012a, 2012b). This assessment was necessary as the Keoladeo Ghana National Park (KGNP) is close by. The KGNP was declared a National Park as per the Indian Wildlife (Protection) Act, 1972 in 1982, a RAMSAR site in 1981 as per the RAMSAR Convention for Conservation of Wetlands (1975) and a World Heritage Site in 1985, as per the UNESCO World Heritage Convention (1972).

As per the Ministry of Environment, Forests and Climate Change, Impact Assessment Guidance Manual for Highways (2010), any project activities related to highway building, widening or strengthening falling within 10 km radius of a protected area or within a designated Ecological Sensitive Area (Environmental Protection Act 2006 and subsequent notifications) will be treated as a Category A project requiring an Environmental Impact Assessment. Recognizing the close proximity of the 10 km stretch of the highway to an important biodiversity centre and that IFC is part of the joint venture and therefore IFC Performance Standards are required for assessing the project, it was agreed that an assessment be carried out as per IFC Performance Standard 6.

## **1.1**            **METHODOLOGY**

The study was carried out on the 28<sup>th</sup> of August, 2015 between 1000 and 1600 hrs.

## **1.2**            **STUDY AREA**

### **1.2.1**         ***Keoladeo Ghana National park Bharatpur (KGNP).***

One of the richest bird areas of the world, KGNP supports more than 350 bird species (Vijayan 1991). The site falls in Biome-12 representing the bird species of Indo-Gangetic Plains (Rodgers and Panwar 1988). Bird species of Biome-11 (Indo-Malayan Tropical Dry Zone, (Rodgers and Panwar 1988) are also found here.

The Park qualifies as an Important Bird Area<sup>1</sup> under A1 (Threatened Species), A4i (1% threshold population), and A4iii (20,000 waterbirds)<sup>2</sup>. During

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(1) <sup>1</sup> <http://www.birdlife.org/datazone/site>

(2) <sup>2</sup> <http://www.birdlife.org/datazone/info/ibacritglob>

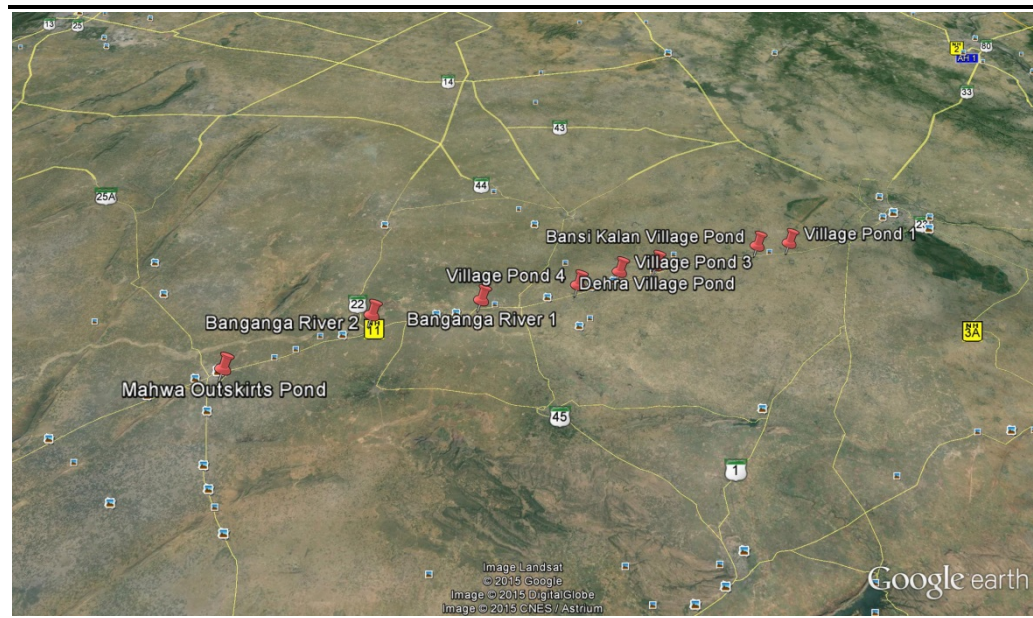
good monsoon years, it is not uncommon to see a hundred thousand birds. It is one of the major breeding centres of the Painted Stork (*Mycteria leucocephala*), Asian Openbill (*Anastomus oscitans*), Darter (*Anhinga melanogaster*) and various egrets, herons, ibises and other storks. Many ducks, coot and rails occur much above their 1% threshold numbers. The most famous disappearance of any species is the Siberian Crane (*Grus leucogeranus*), which has declined from 200 birds in the 1960s to none in 2002.

### 1.2.2 *The Bharatpur Mahwa Highway Stretch*

The Bharatpur-Mahwa road stretch of National Highway (NH) 11 connects Bharatpur to Mahwa to popular destinations such as Jaipur and Agra. The length of the project road is 57 km, from Km 62.295 to Km 119.600 ( 57.305 km) falling across the district of Bharatpur in the state of Rajasthan . The location of the project road has been presented in *Fig 2.1*. The road stretch was an undivided 2-lane throughout the corridor and has been widened and strengthened to a 4 lane highway. The total land that was required for the expansion of the Right of Way of the project was 88.41 hectares.

There is a likelihood that threatened species from the KGNP or any other habitats around the park may be dispersing for ecological needs such as foraging and breeding. Some of these species may use habitats close to the highway and thereby experience impacts from construction and enhanced traffic due to the highway widening. The ecological assessment described below is to assess this likelihood.

*Figure 1.1 Study Area along the 57 km Bharatpur to Mahwa Highway*



### 1.2.3 *Ecological Assessment*

It was assumed that impacts to ecological receptors, from road construction and operation, through particulate emissions, noise and vibration of

machinery and labour, noise and emissions from enhanced traffic and felling of trees for widening the highway would be relevant along a 1 km width on either side of the highway. The following ecological receptors, specific to the objectives of this assessment against PS6, were considered in the impact assessment

- Aquatic bodies that may hold congregations of aquatic bird species;
- Trees that could offer nesting or roosting sites to both terrestrial and aquatic bird species;
- Terrestrial large mammals crossing the widened highway; and
- Terrestrial birds using the 1 km width on either side of the highway for feeding.

The entire 57 km stretch of the highway was assessed as indicated in Figure 2.1. While emphasis was placed on assessing water bodies such as village ponds and water courses, the other receptors given above were also assessed for impacts. For example the occurrence of nesting trees along the highway or risks posed to terrestrial fauna by traffic were assessed.

The assessments were carried out through

- Visual observation and examination of receptors;
- Interviews with the Divisional Forest Officers of KGNP and Bharatpur Territorial Division;
- Interviews with local communities; and
- Review of secondary literature i.e. working/management plans of the national park and the territorial forest division in addition to scientific publications from the region.

### 1.3 SIGNIFICANT ASSESSMENT FINDINGS

The significant findings from the assessment are described in accordance to the receptors described in Section 2.1.3

### 1.4 AQUATIC BODIES

**Table 1.1** *Provides details of all village ponds and water courses examined*

SN.	NAME	LAT	LONG	HABITAT	VEGETATION	DISTURBANCE
1	Village Pond 1	27.16954	77.38249	Fallow fields		Construction along the edge
2	Bansi Kalan Village Pond	27.16627	77.35458	Village edge	Prosopis on bank	Cattle tied on the edge
3	Dehra Village Pond	27.14405	77.26589	Village edge	Prosopis on bank	Sheep and buffaloes being washed
4	Village Pond 3	27.1368	77.23511	Village edge	Pongamia pinnata	Crop residue stacked on bank

SN.	NAME	LAT	LONG	HABITAT	VEGETATION	DISTURBANCE
5	Village Pond 4	27.1224	77.20037	Village edge	Prosopis on bank	Sides of the pond were lined by bricks
6	Banganga River 1	27.10689	77.12279	Agriculture on banks	Tall grasses in riverbed	Sand mining
7	Banganga River 2	27.09191	77.03796	Agriculture on banks	Tall grasses in riverbed	Sand mining
8	Pond on Mahwa outskirts	27.04206	76.93539	Fallow fields	Prosopis on bank	

All water courses such as village ponds and river courses were carefully examined for the presence of fauna species, vegetation types and level and nature of disturbance. Boxes 3.1 to 3.3 indicate the vegetation types and status of each of the ponds. Box 3.4 indicates the status of each of the water courses surveyed.

**Box 1.1:** *Village ponds 1 and 3 (from left to right)*



**Box 1.2** *Village pond 4 and pond on outskirts of Mahwa town*



**Box 1.3** *Dehra and Bansi Kalan ponds.*



**Box 1.4** *Two views of dry course of the Banganga river*



As can be seen from the pictures and Table 3.1, all ponds are small and except for the pond on the outskirts of Mahwa town and village pond 4, were highly disturbed by human activity. Furthermore all ponds experienced high levels of eutrophication probably as a consequence of sewage or other waste effluent into the ponds. Aquatic birds (as per Table 3.2) were only seen in village pond 4 (little grebe) and the pond on the outskirts of Mahwa town (common moorhen, cattle egret and lesser whistling duck). While these ponds may attract some species of birds found in KGNP and surrounding habitats, they are unlikely to offer important habitats for threatened species.

Furthermore as indicated in Box 3.4, the Banganga river was dry during the survey and according to local sources has been dry since 1996. The dry river course is highly disturbed by sand mining and is therefore unlikely to offer habitats for birds also found in the KGNP and surrounding habitats.

**Table 1.2** *Provides bird species observed in the above water bodies*

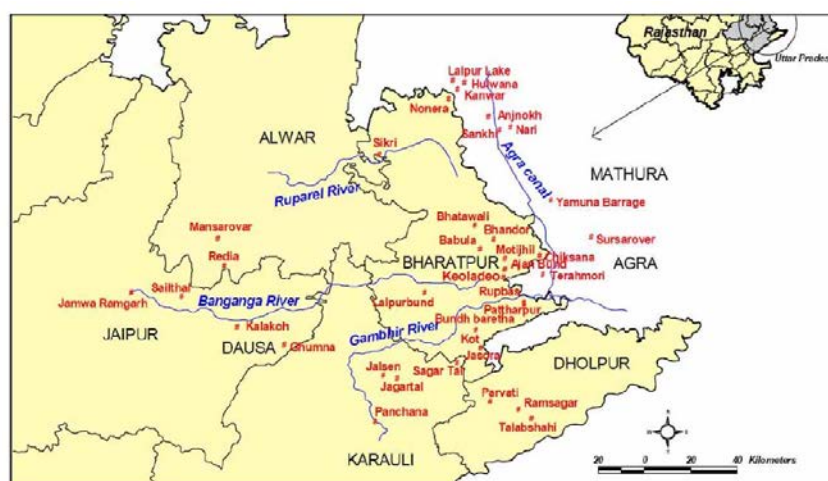
Common Name	Scientific Name	Family	Migratory Status	Habitats	IUCN (2015 v 2.0)	WPA ,1972
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Baya Weaver	Ploceus philippinus	Ploceidae	R	T	LC	IV
Black winged Stilt	Himantopus himantopus	Recurvirostridae	R	A	LC	IV
Cattle Egret	Bubulcus ibis	Ardeidae	R	A	LC	IV
Common Myna	Acridotheres tristis	Sturnidae	R	T	LC	IV
Common Moorhen	Gallinula chloropus	Rallidae	R	A	LC	IV
Eurasian Collared Dove	Streptopelia decaocto	Columbidae	R	T	LC	IV
Indian Pond Heron	Ardeola grayii	Ardeidae	R	A	LC	IV
Indian Roller	Coracias benghalensis	Coraciidae	R	T	LC	IV
Laughing Dove	Spilopelia senegalensis	Columbidae	R	T	LC	IV
Little Egret	Egretta garzetta	Ardeidae	R	A	LC	IV
Little Grebe	Tachybaptus ruficollis	Podicipedidae	R	A	LC	IV
Red wattled Lapwing	Vanellus indicus	Charadriidae	R	A	LC	IV
Rock Pigeon	Columba livia	Columbidae	R	T	LC	IV
House Crow	Corvus splendens	Corvidae	R	T	LC	V
Lesser Whistling Duck	Dendrocygna javanica	Anatidae	R	A	LC	IV
Asian Pied Starling	Sturnus contra	Sturnidae	R	T	LC	IV

T=Terrestrial A=Aquatic LC=Least concern

We also assessed the possibility of other major water bodies close to the highway stretch attracting birds from the KGNP and surrounding areas. Interviews with the Assistant Conservator of Forests, KGNP indicated that a major wetland, the Bundh Bareta Tal, is the only significant wetland attracting several species of aquatic birds. As can be seen from the map in Box 3.5 no major wetlands attracting aquatic birds, are found close to the assessed highway stretch indicating that the ponds assessed are unlikely to offer major habitats for threatened species.

**Box 1.5** *Location of major wetlands around Keoladeo Ghana National Park (Bhadouria et al (2012)).*



### 1.5 *NESTING AND SITES ROOSTING FOR TERRESTRIAL AND AQUATIC BIRD SPECIES*

The highway stretch was examined for the presence of large trees that could offer nesting or roosting sites for terrestrial or aquatic species (e.g. heronries). The bases of such trees were examined for the presence of large amounts of bird dropping and fallen nesting material. No such trees were found along the stretch.

### 1.6 *CROSSING POINTS FOR TERRESTRIAL LARGE MAMMALS*

In addition to the possibility of collision with vehicles along un-barricaded sections of the highway, we identified a cutting in the road, which could pose a higher risk to large mammals crossing, especially when trapped within (**Box 1.6**). Mammals could have access to this cutting due to the absence of barricades.

*Box 1.6*



### 1.7 *FEEDING SITES*

While birds may feed sporadically anywhere along the highway there were no specific locations identified as specific feeding sites e.g. garbage dumps attracting scavengers such as vultures or feeding sites maintained by villagers traditionally feeding migratory birds, such as Demoiselle's crane (*Grus virgo*)

### 1.8 *IMPLICATION OF THE ASSESSMENT FINDINGS*

Section 3 indicates that habitats along the 57 km highway stretch do not offer good potential for threatened species and therefore the proposed widening and strengthening of the highway are unlikely to impact threatened species.

Bhadouria et al (2012) state that the KGNP, a world heritage site, is now facing water shortages. Therefore, many species of migratory birds have been moving to nearby wetlands for foraging. In light of this, a survey was carried out during 2009-10 to understand the status of birds and their use of these wetlands. A total of 27 wetlands have been identified within 100 km radius of the Keoladeo National Park (as mentioned above largely to the north, south and east of KGNP) and within them 75 species of water birds were recorded. Of these species ~ 25 are migratory.

As the present assessment was carried out in August 2015 corresponding to the monsoon, migratory birds may still use the ponds surveyed. It is therefore recommended that the assessment be repeated in November 2015 to rule out the unlikely possibility of threatened migratory species or any large congregations using the water bodies assessed.

Due to this assessment carried out in the non-migratory season and its short duration, we still consider threatened species that, despite having prime habitats in the KGNP and surrounding wetlands, could use the water bodies assessed. This is to establish unequivocally whether these species are present and could potentially experience any impacts from the operation of the highway. Section 4.2 derives a list of bird and mammal threatened species that may use the area in the immediate proximity of the highway and thereby provides the basis for a critical habitat assessment as per IFC PS6.

## 1.9 THREATENED SPECIES POTENTIALLY USING THE 57 KM HIGHWAY STRETCH.

### Birds

Birdlife International in its data-zone for IBAs (<http://www.birdlife.org/datazone/sitefactsheet.php?id=18351>) has listed 14 species that trigger IBA criteria A1 due to their IUCN 2015 v 2.0 threatened status (Table 4.1). Other references provide additional threatened species such as the Greater Adjutant (*Leptoptilos dubius*) which have not been included in this. However we consider the above source as the most credible due to its strict rigour and timeliness in species status assessments and updating bird lists from the IBA. Table 4.1 also provides a column where we assess the possibility of species using the habitats along the highway stretch (highlighted rows indicate possible species along highway stretch).

**Table 1.3** List as per the KGNP IBA database and species likely to use the habitat close to the highway stretch (highlighted).

SN.	Species	Season	Period	Population estimate	Quality of estimate	IBA Criteria	IUCN Category	Likelihood of using stretch and rationale
1.	Baer's Pochard ( <i>Aythya baeri</i> )	winter	2004	present	-	A1	Critically Endangered	Not possible. Individuals seen here

SN.	Species	Season	Period	Population estimate	Quality of estimate	IBA Criteria	IUCN Category	Likelihood of using stretch and rationale
								are likely stragglers as the bird over winters in northeast India
2.	Lesser Adjutant ( <i>Leptoptilos javanicus</i> )	resident	2004	present	-	A1	Vulnerable	Possible. Could use the pond for fishing.
3.	Dalmatian Pelican ( <i>Pelecanus crispus</i> )	winter	2004	present	-	A1	Vulnerable	Possible. Could use the pond for fishing
5.	Pallas's Fish-eagle ( <i>Haliaeetus leucoryphus</i> )	resident	2004	present	-	A1	Vulnerable	Not possible. Bird is rarely seen in KGNP today.
6.	White-rumped Vulture ( <i>Gyps bengalensis</i> )	non-breeding	2004	present	-	A1	Critically Endangered	Possible . Could use highway stretch for scavenging
7.	Greater Spotted Eagle ( <i>Clanga clanga</i> )	winter	2004	present	-	A1	Vulnerable	Not possible. No ecological reason for using the highway stretch.
8.	Eastern Imperial Eagle ( <i>Aquila heliaca</i> )	winter	2004	present	-	A1	Vulnerable	Not possible No ecological reason for using the highway stretch.
9.	Indian Vulture ( <i>Gyps indicus</i> )	non-breeding	2004	present	-	A1	Critically Endangered	Possible. Could use highway stretch for scavenging.
10.	Siberian Crane ( <i>Leucogeranus leucogeranus</i> )	winter	2004	present	-	A1	Critically Endangered	Not possible. Species has not come to KGNP since 2002
11.	Sarus Crane ( <i>Antigone antigone</i> )	resident	2004	present	-	A1	Vulnerable	Possible; Could use the highway stretch for feeding and breeding
12.	Sociable Lapwing ( <i>Vanellus gregarius</i> )	winter	2004	present	-	A1	Critically Endangered	Possible; May use habitats of other lapwing species
13.	Indian Skimmer ( <i>Rynchops albicollis</i> )	breeding	2004	present	-	A1	Vulnerable	Not possible . No habitat on highway stretch as species prefers larger rivers and wetlands.
14.	White-browed Bushchat	resident	2004	present	-	A1	Vulnerable	Not possible. No habitat on highway

SN.	Species	Season	Period	Population estimate	Quality of estimate	IBA Criteria	IUCN Category	Likelihood of using stretch and rationale
	( <i>Saxicola macrorhynchus</i> )							stretch as species prefers desert habitats

### Mammals

Important herbivores of KGNP include the Cheetal (*Axis axis*), Sambar (*Cervus unicolor*), Nilgai (*Boselaphus tragocamelus*) and Wild Boar (*Sus scrofa*), whereas the commonly sighted predators include Golden Jackal (*Canis aureus*), Jungle Cat (*Felis chaus*) and Fishing Cat (*Prionailurus viverrina*). Striped Hyena (*Hyaena hyaena*), and Smooth Indian Otter (*Lutra perspicillata*) are also found in small numbers. Blackbuck (*Antelope cervicapra*) has become extinct in recent years, mainly due to habitat changes.

Among the above mammals, threatened species include sambar (VU: IUCN 2015 v 2.0) smooth Indian otter (VU; IUCN 2015 v 2.0) and fishing cat (EN; IUCN 2015 v 2.0). We consider only the sambar relevant for any impacts caused by the highway construction and operation. The fishing cat has been extirpated from the Bharatpur areas (Shomita Mukherjee, Jamal Khan pers. comms. 2007) and the smooth Indian otter inhabits wetland areas which are not contiguous with those along the highway stretch. There is a small likelihood for an occasional sambar individual attempting to cross the road and risking collision from vehicles

### 1.10 SCREENING OF LIST OF HABITATS AND SPECIES POTENTIALLY TRIGGERING CRITICAL HABITATS.

Due to the high level of human activity within a km buffer of the 57 km highway stretch, we classify *all habitats as modified*. There are **no natural habitats** along this stretch.

We use IFC PS6 Criteria1 alone for the assessing critical habitats. As there is virtually no possibility of finding endemic or restricted range species we do not use Criteria 2. Furthermore the habitats do not hold significant populations of migratory or congregatory species and therefore we do not use Criteria 3. *Table 1.4* provides details of the criteria used for the critical habitat assessment. *Table 1.5* provides the threatened species with the potential of triggering critical habitats based on *Table 1.1*.

**Table 1.4** Criteria used for assessing critical habitats (IFC PS 6 2012a,b)

Criteria	Tier 1 <sup>(1)</sup>	Tier 2 <sup>(1)</sup>
Criteria 1: Critically Endangered(CR)	Habitat required to sustain ≥ 10 percent of the global population of an IUCN Red-listed CR or EN species where there are known, regular	Habitat that supports the regular occurrence of a single individual of an IUCN Red-listed CR species

Criteria	Tier 1 <sup>(1)</sup>	Tier 2 <sup>(1)</sup>
/Endangered (EN) Species	occurrences of the species and where that habitat could be considered a discrete management unit for that species. Habitat with known, regular occurrences of CR or EN species where that habitat is one of 10 or fewer discrete management sites globally for that species.	and/or habitat containing regionally-important concentrations of an IUCN Red-listed EN species where that habitat could be considered a discrete management unit for that species. Habitat of significant importance to CR or EN species that are wide-ranging and/or whose population distribution is not well understood and where the loss of such a habitat could potentially impact the long-term survivability of the species. As appropriate, habitat containing nationally/regionally-important concentrations of an EN, CR or equivalent national/regional listing.
Criterion 2: Endemic and Restricted-range Species	An endemic species is defined as one that has $\geq 95$ percent of its global range inside the country or region of analysis.	Habitat known to sustain $\geq 1$ percent but $< 95$ percent of the global population of an endemic or restricted-range species where that habitat could be considered a discrete management unit for that species, where adequate data are available and/or based on expert judgment.
Criterion 3: Migratory and Congregatory Species	Habitat known to sustain, on a cyclical or otherwise regular basis, $\geq 95$ percent of the global population of a migratory or congregatory species at any point of the species' life-cycle where that habitat could be considered a discrete management unit for that species.	Habitat known to sustain, on a cyclical or otherwise regular basis, $\geq 1$ percent but $< 95$ percent of the global population of a migratory or congregatory species at any point of the species' life-cycle and where that habitat could be considered a discrete management unit for that species, where adequate data are available and/or based on expert judgment. For birds, habitat that meets BirdLife International's Criterion A4 for congregations and/or Ramsar Criteria 5 or 6 for Identifying Wetlands of International Importance. For species with large but clumped distributions, a provisional threshold is set at $\geq 5$ percent of the global population for both terrestrial and marine species. Source sites that contribute $\geq 1$ percent of the global population of recruits.
Criterion 4: Highly Threatened and/or Unique Ecosystems	No Tiered system is prescribed that are at risk of significantly decreasing in area or quality; with a small spatial extent; and/or	

Criteria	Tier 1 <sup>(1)</sup>	Tier 2 <sup>(1)</sup>
	<p>containing unique assemblages of species including assemblages or concentrations of biome-restricted species.</p> <p>Highly threatened or unique ecosystems are defined by a combination of factors which may include long term trend, rarity, ecological condition, and threat</p>	
<p>Criterion 5: Key Evolutionary Processes</p>	<p>The criteria is defined by</p> <p>Isolated areas (e.g., islands, mountaintops, lakes) are associated with populations that are phylogenetically distinct.</p> <p>Areas of high endemism often contain flora and/or fauna with unique evolutionary histories (note overlap with Criterion 2, endemic and restricted-range species).</p> <p>Landscapes with high spatial heterogeneity are a driving force in speciation as species are naturally selected on their ability to adapt and diversify.</p> <p>Environmental gradients, also known as ecotones, produce transitional habitat which has been associated with the process of speciation and high species and genetic diversity.</p> <p>Edaphic interfaces are specific juxtapositions of soil types (e.g., serpentine outcrops, limestone and gypsum deposits), which have led to the formation of unique plant communities characterized by both rarity and endemism.</p> <p>Connectivity between habitats (e.g., biological corridors) ensures species migration and gene flow, which is especially important in fragmented habitats and for the conservation of metapopulations. This also includes biological corridors across altitudinal and climatic gradients and from “crest to coast.”</p> <p>Sites of demonstrated importance to climate change adaptation for either species or ecosystems are also included within this criterion.</p>	

**Table 1.5** *Threatened species with the potential of triggering critical habitats*

Species Name	Common Name	Criteria 1 CR or EN Species	Criteria 2 Endemic / Restricted Range Species	Criteria 3 Migratory / Congregatory Species	Critical Habitat Tier 1	Critical Habitat Tier 2	Rationale	Information <sup>1</sup>
Birds								
Gyps bengalensis Gyps indicus	White-rumped Vulture Indian vulture	*				*	Tier 2e: Highly significant population declines were first noticed in the KGNP and it is likely that the population's recovery is still rudimentary. The mortality of individual(s) through any development could have an impact on breeding rates and hence population recovery. .	Since the mid-1990s, the species has suffered a catastrophic decline (over 99%) across the Indian Subcontinent (the majority of its historic range), first noticed in Keoladeo National Park, India (Prakash <i>et al.</i> 2003), Extensive research has identified the non-steroidal anti-inflammatory drug (NSAID), diclofenac, to be the cause behind this rapid population collapse This drug, used to treat domestic livestock, is ingested by vultures feeding on their carcasses leading to renal failure and causing visceral gout (Oaks <i>et al.</i> 2004a, 2004b; Swan <i>et al.</i> 2005, Gilbert <i>et al.</i> 2006). A similar situation prevails for the Indian vulture.
Vanellus gregarius	Sociable Lapwing	*				*	Tier 2e: KGNP is one of the few sites receiving	The species breeds in northern and central

(3) <sup>1</sup> <http://www.birdlife.org/datazone/species/factsheet/22695194>, <http://www.birdlife.org/datazone/species/factsheet/22694053>

Species Name	Common Name	Criteria 1 CR or EN Species	Criteria 2 Endemic / Restricted Range Species	Criteria 3 Migratory / Congregatory Species	Critical Habitat Tier 1	Critical Habitat Tier 2	Rationale	Information <sup>1</sup>
							migrating flocks and is therefore of substantial national significance.	Kazakhstan and south-central Russia and migrates to key wintering sites in <b>Israel, Eritrea, Sudan</b> and north-west <b>India</b> (e.g. 45 birds in the Little Rann of Kutch in November 2007 and 30 at Great Rann of Kutch in November 2008). The species has suffered a very rapid decline and range contraction

1.10.1

*Impact assessment of critical habitats*

*Table 1.6 and Table 1.7* assess impacts on modified habitats (land of 1 km width on either side of the highway stretch) and species identified in *Table 1.2* with the potential of triggering critical habitats. The assessments are as per the habitat and species impact assessment criteria given in *Table 1.8 and Table 1.9*.

**Table 1.6** *Habitat impact assessment criteria*

Habitat Sensitivity/ Value		Magnitude of Effect on Baseline Habitats			
		Negligible	Small	Medium	Large
		<i>Effect is within the normal range of natural variation</i>	<i>Affects only a small area of habitat, such that there is no loss of viability / function of the habitat</i>	<i>Affects part of the habitat, but does not threaten the long-term viability / function of the habitat.</i>	<i>Affects the entire habitat, or a significant proportion of it, and the long-term viability / function of the habitat is threatened.</i>
Negligible	Habitats with negligible interest for biodiversity.	<b>Not significant</b>	<b>Not significant</b>	<b>Not significant</b>	<b>Not significant</b>
Low	Habitats with no, or only a local designation / recognition, habitats of significance for species listed as of Least Concern (LC) on IUCN Red List of Threatened Species, habitats which are common and widespread within the region, or with low conservation interest based on expert opinion.	<b>Not significant</b>	<b>Not significant</b>	<b>Minor</b>	<b>Moderate</b>
Medium	Habitats within nationally designated or recognised areas, habitats of significant importance to globally Vulnerable (VU) Near Threatened (NT), or Data Deficient (DD) species, habitats of significant importance for nationally restricted range species, habitats supporting nationally significant concentrations of migratory species and / or congregatory species, and low value habitats used by species of medium value.	<b>Not significant</b>	<b>Minor</b>	<b>Moderate</b>	<b>Major</b>

Habitat Sensitivity/ Value		Magnitude of Effect on Baseline Habitats			
		Negligible	Small	Medium	Large
High	Habitats within internationally designated or recognised areas; habitats of significant importance to globally Critically Endangered (CR) or Endangered (EN) species, habitats of significant importance to endemic and/or globally restricted-range species, habitats supporting globally significant concentrations of migratory species and / or congregatory species, highly threatened and/or unique ecosystems, areas associated with key evolutionary species, and low or medium value habitats used by high value species.	<b>Not significant</b>	<b>Moderate</b>	<b>Major</b>	<b>Critical</b>

**Table 1.7 Species impact assessment criteria**

Baseline Species Sensitivity/ Value		Magnitude of Effect on Baseline Habitats			
		Negligible	Small	Medium	Large
		<i>Effect is within the normal range of variation for the population of the species.</i>	<i>Effect does not cause a substantial change in the population of the species, or other species dependent on it.</i>	<i>Effect causes a substantial change in abundance and / or reduction in distribution of a population over one, or more generations, but does not threaten the long term viability / function of that population, or any population dependent on it.</i>	<i>Affects entire population, or a significant part of it causing a substantial decline in abundance and / or change in and recovery of the population (or another dependent on it) is not possible either at all, or within several generations due to natural recruitment (reproduction, immigration from unaffected areas).</i>
Negligible	Species with no specific value or importance attached to them.	<b>Not significant</b>	<b>Not significant</b>	<b>Not significant</b>	<b>Not significant</b>
Low	Species and sub-species of LC on the IUCN Red List, or not meeting criteria for medium or high value.	<b>Not significant</b>	<b>Not significant</b>	<b>Minor</b>	<b>Moderate</b>
Medium	Species on IUCN Red List as VU, NT, or DD, species protected under national legislation, nationally restricted range species, nationally important numbers of migratory, or congregatory species, species not meeting criteria for high value, and species vital to the survival of a medium value species.	<b>Not significant</b>	<b>Minor</b>	<b>Moderate</b>	<b>Major</b>

Baseline Species Sensitivity/ Value		Magnitude of Effect on Baseline Habitats			
		Negligible	Small	Medium	Large
High	Species on IUCN Red List as CR, or EN. Species having a globally restricted range (ie plants endemic to a site, or found globally at fewer than 10 sites, fauna having a distribution range (or globally breeding range for bird species) less than 50,000 km2), internationally important numbers of migratory, or congregatory species, key evolutionary species, and species vital to the survival of a high value species.	<b>Not significant</b>	<b>Moderate</b>	<b>Major</b>	<b>Critical</b>

**Table 1.8**      **Habitat Impact Assessment**

Habitat Description	Associated Species	Impact Description	Sensitivity	Magnitude of Effect	Significance
<p>Modified.</p> <p>Strip of land of 1 km width on either side of highway containing water bodies, agricultural and fallow land, settlements</p>	<p>As listed and highlighted in Table 4.1</p>	<p>Impacts of road construction and operation, such as particulate emissions from dust, run offs and erosion after heavy rains, noise and vibration from labour force, construction machinery and vehicles, illegal hunting by work force</p>	<p>While there may be some passage of endangered species the habitat is not recognized and is common and widespread within the region with low conservation interest.</p> <p>Negligible</p>	<p>Impacts affect only a small area of habitat, (along the highway stretch) such that there is no loss of viability / function of the habitat.</p> <p>Several impacts are also temporary: Small</p>	<p>Not significant</p>

**Table 1.9 Species impact assessment**

Species	Impact Description	Sensitivity	Magnitude of Effect	Significance
<b>Birds</b>				
Sociable Lapwing ( <i>Vanellus gregarious</i> )	The species may associate with other lapwing species (such as the red-wattled and yellow wattled lapwing) and may be found along the highway stretch. There is a small chance of collision risk with vehicles on the highway, especially if the species is startled by vehicle or human noise.	<b>High:</b> As species is CR	<b>Negligible:</b> Due to very low probability that the species is found outside KGNP in the modified habitat and individuals may collide with vehicles we consider the magnitude as negligible. There is therefore unlikely to be an impact on the population within the region.	<b>Not significant</b>
White-rumped Vulture ( <i>Gyps bengalensis</i> ) and Indian vulture ( <i>Gyps indicus</i> )	The species may scavenge along the highway side and thereby may face collision risks from vehicles if flying low across the highway	<b>High:</b> As species is CR	<b>Small:</b> Due to the very low density of the species and noted absence of any specific sites for dumping of garbage, offal etc along the highway, there is a small chance of collision. There is therefore unlikely to be an impact on the population within the region	<b>Moderate</b>
Lesser Adjutant ( <i>Leptoptilos javanicus</i> )	Water bodies along the highway may attract a few individuals of the species for feeding. Water quality of these bodies may be impacted due to construction activities e.g. run-off and erosion. Furthermore the species may fly low over the highway and may face a collision risk.	<b>Medium:</b> Species is VU	<b>Negligible:</b> Due to the size and quality of the water bodies it is very unlikely that the species visits these water bodies. For feeding. Therefore any impacts on these water bodies is likely to be insignificant and the chances of the species flying across the highway highly improbable.	<b>Not significant</b>
Dalmatian Pelican ( <i>Pelecanus crispus</i> )	Water bodies along the highway may attract a few individuals of the species for feeding. Water quality of these bodies may be impacted due to construction activities e.g. run-off and erosion. Furthermore the species may fly low over the highway and may face a collision risk.	<b>Medium:</b> Species is VU	<b>Small:</b> Due to the size and quality of the water bodies it is very unlikely that the species visits these water bodies for feeding. Therefore any impacts on these water bodies is likely to be insignificant and the chances of the species flying across the highway highly improbable.	<b>Not significant</b>
Sarus Crane ( <i>Antigone antigone</i> )	Fields along the highway may attract the species for foraging or courtship/breeding and may face a collision risk when flying low across the highway.	<b>Medium:</b> Species is VU	<b>Small:</b> There is a small chance that the species faces a collision risk when flying low across the highway. However this is unlikely to impact the population.	<b>Minor</b>

Species	Impact Description	Sensitivity	Magnitude of Effect	Significance
<b>Birds</b>				
			Furthermore if the species experiences constant levels of disturbance it is likely to avoid the highway stretch	
<b>Mammals</b>				
Sambar ( <i>Cervus unicolor</i> )	The species may attempt to cross the highway for feeding in the fields at night. The species faces some collision risk from vehicles.	<b>Medium:</b> Species is VU	<b>Negligible:</b> There is no contiguous habitat from the KGNP traversing the highway. The species is also very shy and is unlikely to leave the confines of the KGNP.	<b>Not significant</b>

From the impact assessment above only two species, the White-rumped vulture and the Sarus crane, appear to face some impacts from the highway construction and operation. Both species face risks from collision with vehicles which could be deemed a more generic risk across most highways within their habitats. However the proximity of the highway to the KGNP incrementally elevates this risk, due to the availability of good habitat in the park and the chance of these species dispersing beyond the park for foraging and breeding.

*We are however clear that no critical habitats have been triggered.*

## 1.11

### MITIGATION OF IMPACTS

In Tables 4.8 we discuss mitigation of impacts on the two species listed in Table 4.7. As impacts on the modified habitat along the highway were found negligible we do not discuss mitigation of impacts on this habitat. We also do not discuss impacts on species for which impacts were determined negligible.

**Table 1.10** *Mitigation of assessed impacts*

Species	Significance Ranking	Mitigation (Description)
Birds:		
White-rumped vulture (Gyps bengalensis) and Indian vulture (Gyps indicus)	Moderate	Strict control on garbage or carcass dumping along this highway stretch enforced by highway patrols and police with local panchayat participation
Sarus crane (Grus Antigone)	Minor	A survey (in collaboration with local communities, panchayats, schools) needs to be carried out, of breeding pairs using the habitat and sites close to the road. If there is any specificity for these locations over extended durations, signage needs to be erected, cautioning traffic of their possible presence/crossing and enforcing a lower speed limit.

Subsequent to the mitigations suggested above we carry out an assessment of residual impacts to evaluate whether any additional mitigation is required.

**Table 1.11** *Mitigation of residual impacts*

Species	Pre-mitigation Impact Assessment	Description of value lost	Residual Impact
White-rumped vulture (Gyps bengalensis) and Indian vulture (Gyps indicus)	Moderate	Individual killed through collisions with vehicles could deplete the pool of a CR species and raise undue concerns about the impacts of the highways	Negligible

Species	Pre-mitigation Impact Assessment	Description of value lost	Residual Impact
Sarus crane (Grus Antigone)	Minor	A very charismatic species and very much part of local culture and folklore. Mortality of individuals is likely to create negative sentiment about the highway.	Negligible

We therefore anticipate that the mitigation methods when implemented through participatory action and commitment, will reduce residual impacts to negligible levels, thereby not requiring further mitigation options.

Annex D

## Photo-Documentation

## Photo-documentation



*Photo 1: View of the Diesel generator set at Ludhawai Toll Plaza causing diesel spillage and does not have adequate stack height .*



*Photo 2: View of the Ludhawai Toll Plaza*

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**Client:** GMS# I11185/ 0312805 - I -Squared Asia

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## Photo-documentation



*Photo 3: View of the poor ROW maintenance with no solid waste management*



*Photo 4: View of the poor ROW maintenance with no solid waste management*

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## Photo-documentation



*Photo 5: View of Toll Road board at project starting point*



*Photo 6: View of the truck that spilled over all its material within the carriageway*

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## Photo-documentation



*Photo 7: View of multi-axle vehicles parked within the carriageway*



*Photo 8 View of multi-axle vehicles parked within the carriageway*

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## Photo-documentation



*Photo 9: View of ERM team undertaking consultations with encroachers within ROW*



*Photo 10: View of ERM team undertaking consultations with encroachers within ROW*

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## Photo-documentation



*Photo 11: View of ERM team undertaking consultations with median workers*



*Photo 12: View of ERM team undertaking consultations with encroachers within ROW*

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## Photo-documentation



*Photo 13: View of primary school without an structural barrier, falling within the ROW, is also an encroachment and no ROW maintenance.*



*Photo 14: View of the primary school falling within the ROW as an encroachment and no structural barrier and safety measure implemented.*

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## Photo-documentation



*Photo 15: View of the soil contamination caused by diesel containers and used oil rags.*



*Photo 16: View of the diesel barrels directly exposed to land without any secondary containment*

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## Photo-documentation



*Photo 17: View of the poor disposal of solid waste*



*Photo 18: View of the diesel barrels directly exposed to land without any secondary containment*

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## Photo-documentation



*Photo 19: View of the Hot Mix Plant without burner stacks*



*Photo 20: View of the Madhucon Hot Mix Plant*

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# Photo-documentation



*Photo 21: View of the encroachments falling within the ROW*



*Photo 22: View of the encroachments falling within the ROW*

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## Photo-documentation



*Photo 23: View of the Cattle Crossing point without any crossing.*



*Photo 24: View of the poor maintenance of carriageway.*

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## Photo-documentation



*Photo 25: View of the Cattle Crossing point without any crossing.*



*Photo 26: View of the poor maintenance of carriageway.*

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