Initial Environmental Examination

August 2014

IND: Madhya Pradesh District Connectivity Sector Project

Mahua-Parsona Road

Prepared by Madhya Pradesh Road Development Corporation for the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 24 August , 2014)

Currency unit	=	Indian rupee (INR)
INR1.00	=	$ 0.0164
$1.00	=	INR 60.86

ABBREVIATIONS

AAQ	–	ambient air quality
AAQM	–	ambient air quality monitoring
ADB	–	Asian Development Bank
APHA	–	American Public Health Association
BGL	–	below ground level
BOD	–	biological oxygen demand
BOQ	–	bill of quantity
CO	–	carbon monoxide
COD	–	chemical oxygen demand
CPCB	–	Central Pollution Control Board
CSC	–	construction supervision consultant
MPRDC	–	Madhya Pradesh Road Development Corporation
DG	–	diesel generating set
DO	–	dissolved oxygen
DPR	–	detailed project report
E&S	–	environment and social
EA	–	executing agency
EAC	–	Expert Appraisal Committee
EIA	–	environmental impact assessment
EMP	–	environmental management plan
EMOP	–	environmental monitoring plan
GHG	–	greenhouse gas
GIS	–	geographical information system
GOM	–	Government of Madhya Pradesh
GRC	–	grievance redress committee
GRM	–	grievance redress mechanism
HFL	–	highest flood level
IEE	–	initial environmental examination
IMD	–	Indian Meteorological Department
IRC	–	Indian Road Congress
LHS	–	left hand side
LPG	–	liquefied petroleum gas
Max	–	Maximum
Min	–	Minimum
MJB	–	major bridge
MNB	–	minor bridge
MORT&H	–	Ministry of Road Transport and Highways
MOEF	–	Ministry of Environment and Forests
MPRSD	–	Master Plan Road Sector Development
N, S, E, W, NE, SW, NW	–	Wind Directions (North, South, East, West or combination of two directions like South West, North West)
MPH	–	Mahua-Parsona Highway/Road

NGO	–	nongovernmental organization
NIC	–	National Information Centre
NOC	–	No Objection Certificate
NOx	–	oxides of nitrogen
OBC	–	other backward classes
PCC	–	Portland Cement Concrete
PCU	–	Passenger Car Units
PD	–	Project Director
PFR	–	project feasibility report
PIU	–	project implementation unit
PPE	–	personal protective equipment
PPT	–	parts per trillion
PWD	–	Public Works Department
RCC	–	reinforced cement concrete
REA	–	rapid environmental assessment
RHS	–	right hand side
ROW	–	right of way
RSPM	–	respiratory suspended particulate matter
SH	–	state highway
SOI	–	Survey of India
SO2	–	Sulphur Dioxide
SPCB	–	State Pollution Control Board
SPL	–	sound pressure level
SPM	–	suspended particulate matter
SPS	–	ADB Safeguard Policy Statement, 2009
TA	–	technical assistance
UT	–	Union Territories
WHC	–	Water holding capacity

WEIGHTS AND MEASURES

dB (A)	–	A-weighted decibel
ha	–	Hectare
km	–	Kilometer
km2	–	square kilometer
KWA	–	kilowatt ampere
Leq	–	equivalent continuous noise level
µg	–	Microgram
m	–	Meter
MW	–	Megawatt
PM 2.5 or 10	–	Particulate Matter of 2.5 micron or 10 micron size

NOTE

In this report, "$" refers to US dollars.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

TABLE OF CONTENTS

APPENDICES:

EXECUTIVE SUMMARY

A. Introduction

1. The Madhya Pradesh District Connectivity Sector Project will improve transport connectivity in the state by rehabilitating and upgrading Major District Roads (MDRs). The Project constitutes: (i) rehabilitating and upgrading about 1,600 km of MDRs, (ii) improving road maintenance and asset management, and (iii) developing an efficient accident response system. MPRDC specifically targets MDRs to form key linkage between rural, semi urban and urban areas and complete the state roads connectivity.

2. Madhya Pradesh Road Development Corporation Ltd (MPRDC), the Government of Madhya Pradesh, has started the improvements of State highway and Major District Roads network for meeting the supply-demand gap of the traffic in near future. As a part of this strategy MPRDC has taken up the up-gradation of Mahua-Parsona Road. The main objectives are to improve the regional as well as inter- and intra-state transport flows to improve access to services and making the State attractive to developers and investors. To fulfil the above objectives and due considerations to environmental feasibility of above road section, this initial environmental examination (IEE) was carried out for this section.

3. Since the project is following the sector loan modality four subprojects were selected as sample roads. The present report pertains to UM Road sub-project, which is one of the sample roads. This subproject is categorized as Category “B“ and hence, an initial environmental examination (IEE) has been undertaken. The IEE is carried out in accordance applicable laws and regulations of the Government of India and in ADB’s Safeguard Policy Statement (SPS), 2009. The report is also consistent with the requirements of the Environment Assessment and Review Framework (EARF) which was prepared for the sector loan. Since the project road will iproposed road widening project as per EIA Notification 2006.

B. Description of Project

4. Mahua-Parsona (MP) road starts from Parsauna (Existing Km 211+680 & Design Km 209.800) at 3-arm junction (Linked with Bargawan - Waidhan Road, MDR) and passes through Hardi, Khutar, Banoli, Situl Khurd, Rajmilan, Sakhoha, Chora,Khokhari, Railla, Suhira, Amiliya, Jamgadi, Gajrabahara, Dhummadol, Sarai, Ghoghara, Jhundi Hawa, Dudhiya Dola, Lohra Dol and ends to Barkha (Existing Km 277+280 & Design Km 275.060). The Total Length of road is 65.600 Kms (Existing) and 65.260 Kms (Design). The alignment is single lane having width of 3-3.5 m only with poor stretches in most of the lengths.

5. The existing carriageway is 2-lane with asphalt pavement having varying widths from 6.5 m to 7.0 m along the entire stretch with earthen shoulder of about 1.5 m boths sides. The project involves widening within available ROW to 2-lane carriageway, 7.0 m wide and 2.5m paved shoulders.

C. Description of Environment

6. The proposed project road is located on the Western Plateau and Hill Region agro-climate zone and forms Gird sub-group. The soil type in the area is medium to deep black and land use pattern is agricultural with intermittent semi-urban and rural stretches.

7. The region has a tropical climate characterized by hot summer season, except during the southwest monsoon season. It has four seasons: cold from December to February, hot from March to mid-June, southwest monsoon from mid-June to September, and post monsoon from

October and November. The maximum temperature during summers ranges from 35ºC to 45ºC while minimum temperature from 30ºC to 16ºC. During winter season, temperature ranges between of 27ºC to 10ºC. The monsoon season spreads from June to September with average rainfall of 1,000 mm in the west to 2,000 mm in the east parts of the state. The mean annual rainfall in the state is 1200 mm.

8. Baseline data on ambient air quality including noise levels meet the national air quality standards. Water quality from hand pumps along the project road complies with the drinking water standards.

9. MP Road does not pass through any wildlife sanctuary, national park, or bio-reserve and its buffer zones. However, road is passing through protected forest at several locations. Approximately 2582 trees will be cleared within the right-of-way to accommodate needed road upgrading. No rare or endangered species were found along the subproject road's impact area. There is no archaeological and historical monument along or near the road. No community religious properties will be affected by during road widening.

D. Anticipated Environmental Impacts and Mitigation Measures

1. Design and Construction Phase

a. Impact on Physiography and Topography

10. Since proposed project is only widening of existing road within available ROW without any land acquisition, impact on the physiography of the area is not significant. The design will consider the improvement of roadside drainage conditions through the improvement of cross-drainage structures. Design of the cross drainage structures will follow IRC Guidelines (IRC, 1995).

b. Potential Environmental Impacts on Soil

11. **Loss of Productive Soil.** All activities will occur within the available RoW, no adverse environmental impact is anticipated on the productive soil. Lands taken on lease for access road and for construction camp will be restored its original land use.

12. **Soil Erosion**. Land clearing and grubbing will remove vegetation and soil cover which may cause some soil erosion during monsoon. Excavations in borrow pits may lead to loss of top soil and soil erosion. The risks of stream and river bank erosion near bridges and cross drainage works are significant. To avoid or minimize erosion, land clearing and grubbing will be conducted during dry season, productive top soils from borrow pits will be stored and reused in road embankment slope protection. Erosion control measures like silt screens will be installed along rivers and nallahs.

13. **Contamination of Soil**. There is the risk of contamination of soil from construction material and oil spills. Contractors are required to ensure proper handling materials and able to implement spills containment. Oil contaminated waste will be properly collected, stored disposed through 3rd party service providers. All fuel and lubricant storage and handling areas will be located at least 500 meters from the nearest water body and provided with perimeter interceptor drains. All construction debris will disposed by the Contractor on pre-designated area as identified by the CSC-Environmental Specialist.

c. Impact on Water Resources and Drainage

14. Deterioration of water quality may occur near the construction camp and active construction camps. This will be minimized by timing land clearing and earthmoving during the dry season; proper handling of materials including oil, and lubricants; prohibiting the disposal of untreated sewage; and proper erosion control near rivers and *nallahs*.

d. Impact on Ambient Air Quality

15. Significant amount of dust will be generated during project construction. The following mitigation measures will also be undertaken:

i. Asphalt and hot-mix plants will be located at least 1 km away from any inhabited urban and rural stretches along the road with the clearance from MP Pollution Control Board.
ii. Sprinkling of water on the active construction fronts and construction yard.
iii. Regular maintenance of machinery and equipment.

16. Substantial noise will be generated from the use of heavy equipment and processing of rocks and asphalt. Adequate distance separating the rock crusher and hotmix plants will be required and the sourcing of “ready made” gravel and asphalt will be promoted to avoid the establishment of these plants. Along the road particularly near sensitive sites like schools and hospitals, the use of less noisy equipment, scheduling of noisy activities, and provision of noise barriers will be implemented by the contractor to minimize disturbance.

e. Impact on Flora, Fauna and Ecosystem

17. Clearing and grubbing activities will result to the removal of shrubs, grasses, and an estimated 2582 trees, majority of which are Tedu or *Diospyros melanoxylon and Sarai or Boswellia Serrata*. All cut trees will be compensated at the rate of 1:10 with preference to fast growing local species that are more efficient in absorbing carbon emissions.

f. Construction Workers’ Camp

18. As the Contractor are required to source labour from the local communities along the subproject road, the size of the construction camps will be relatively small. It is the contractual responsibility of the Contractors to maintain a hygienic camp with adequate water and electric supply; toilet facilities located away from the water bodies and wells; proper disposal of domestic refuse; temporary medical facilities; pest control; clean and adequate food; and security.

g. Impacts on Social Environment

19. Construction and operation phases of project road will have some beneficial impact on social environment. Some increase in income of local people is expected as local unskilled, semiskilled and skilled persons may gain direct or indirect employment during construction phase. Since the immigration of work force during construction phase is likely to be very small, the social impacts on literacy, health care, transport facilities and cultural aspects are expected to be insignificant.

2. Operation Phase

20. Increase in vehicular emissions, noise level, road crashes due to higher speed vehicular

speed, and oil contaminated road surface runoff will occur during project operation phase. The impact on air quality is not expected to be significant given the low projected traffic. Community safety is enhanced through the crash barriers, speed brakes, traffic signs, and pavement markers. Oil contamination will occur but expected to be in trace amounts based on the low level vehicular traffic. To control the anticipated increase in noise level the following measures will be implemented; good road surface will reduce the road-tire noise, prohibition of horns along sensitive areas, road widening will increase capacity and decrease congestion of vehicles, and compensatory tree plantation will be located near sensitive areas.

E. Public Consultation and Information Disclosures

21. Public consultations have been carried out in the project area during the feasibility as well as detailed design stage. Key issues raised during the consultations were:

i. Provision of suitable drainage in the settlements areas.
ii. Provisions of safety measures in school and settlement areas.
iii. Suitable mitigation measures to address air and noise pollution.
iv. Provision of safety signage near school.
v. Avoid sourcing water for construction from public water sources.
vi. Minimize the cutting of trees.
vii. Construction labour camps should not be located near settlements area.
viii. Avoid borrow of earth near settlement and schools.
ix. Start tree plantation during construction phase.

F. Environmental Management Plan and Grievance Redress Mechanism

1. Environmental Management Plan

22. The PM Road specific Environment Management Plan has been formulated which consists mitigation and monitoring measures, and clear definition of roles and responsibilities. The project will have one grievance redress mechanism for social and environment issues comprising a village level and district level committee. The nodal officer under the PIU will be the key person to coordinate the receiving of complaints and addressing them.

2. Environmental Monitoring Program (EMoP)

23. A comprehensive monitoring plan has been prepared for all stages of the project. This includes parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits, cost and responsibility for implementation and supervision. . Construction Stage Monitoring to be carried out by contractor under supervision of construction supervision consultant (CSC).

24. Monitoring will focus on air, water, noise, soil erosion, drainage congestion and compensatory tree plantation. For tree plantation, the 75% survival rate of re-plantation shall be monitored for three years of the operation phase.

3. Institutional Arrangement and Capacity Building

25. The implementation arrangements basically follow the ongoing MPSRSP-II with the following improvements: i) expansion of the Environmental and Social cell (ESC) staff from 1 to with the recruitment of two social safeguard and one environmental safeguard officers; ii) MPRDC ten division offices acting as Project Implementation Units (PIUs) will appoint a social

and environment safeguards focal person; and iii) Construction Supervision Consultant's environmental specialist from the CSC will provide technical support to MPRDC and the PIU for implementation of environment safeguards.

26. To enable MPRDC officials to implement for environmental safeguard requirements effectively, a training programme will be conducted for the EA and IA of the sector loan to improve environmental awareness, construction practices, legislative compliance requirements, EMP and EMoP implementation requirements, and roles and responsibilities.

G. Conclusions and Recommendations

27. The findings of the IEE show that overall the project has limited and short term environmental impacts. Effective EMP implementation will ensure elimination and minimisation of identified adverse impacts. MPRDC shall ensure that EMP and EMoP is included in Bill of Quantity (BOQ) and forms part of bid document and civil works contract. If there is any change in the project design the EMP and EMOP will accordingly. MPRDC needs capacity building and practical exposure. Adequate training shall be imparted as proposed under environmental management plan to enhance the capability of concerned EA and IA officials

I. INTRODUCTION

A. Project Background

1. The Madhya Pradesh District Connectivity Sector Project (MPDCSP) will improve transport connectivity in the state by rehabilitating and upgrading Major District Roads (MDRs). The Project constitutes (i) rehabilitating and upgrading about 1600 km of MDRs (ii) improving road maintenance and asset management and (iii) developing an efficient accident response system. MPRDC specifically targets MDRs to form key linkage between rural, semi urban and urban areas and complete the state roads connectivity. A consulting service will be provided to supervise the implementation of civil works and a piggy-backed technical assistance (TA) will support the development of an accident response system and a computerized road asset management system (RAMS). A sector lending modality is preferred considering the large number of distributed MDRs and MPRDC has the requisite institutional capacity to prepare and implement a sector development plan and prepare the individual road packages.

2. Government of Madhya Pradesh (GoMP) has been using a combination of budgetary, PPP, and ADB financing, to improve state highways. Rural roads are specifically addressed through MPRRDA and funds are made available from the Pradhan Mantri Gram Sadak Yojana (PMGSY) which is the national rural roads plan. ADB's funds are made available to the rural roads in the state through past loans to the central line ministry. However, the intermediate tier – the major district roads or MDRs – have not been specifically targeted for improvement. MDRs form the key linkage between rural, semi urban and urban areas and needs to be developed to complete state road connectivity. The GoMP is now proposing to improve the MDRs through the plan indicated in Table 1.

Table 1: Proposed Improvement Plan for MDRs

Total MDRs in Madhya Pradesh	**(Km) 19,574**
Under construction by MPPWD (Under Central Road Fund Scheme)	5,398
(Under Major District Roads Scheme)	1,134
Under Construction by MPRDC (Under build operate transfer (BOT) Toll + Annuity & Annuity Scheme)	1,992
Total Under Construction	8,524
Balance to be constructed	11,050
Proposed under the Project [a]	**1600**

[a] The actual estimates will depend on the assessment from the DPRs.
Source: MPRDC

3. Since the project will follow a sector loan modality, the present road was selected to screen significance of potential impacts and determine the environmental assessment required to address the safeguard issues, and needed disclosure and consultation requirements.

Table 2: Selected Road Project Under the MPDCSP

Roads	District	Surrounding Environment	Length(Km)
Mahua-Parsona(MP)	Singaruli	The existing road passes through in plain terrain predominantly agricultural, protected forest and built-up area.	65.600

Figure 1: Location of Mahua-Parsauna Road.

4. Individual IEE reports were prepared for each of the project under MPDCSP. An environmental assessment and review framework (EARF) has been prepared separately for the entire project to guide the final selection of non-sample subprojects, preparation of IEE or EIA reports and implementation of all environment safeguards requirements in accordance with relevant policies and regulations of the Government of India, SGoMP, and the ADB Safeguard Policy Statement 2009 (SPS). These IEE reports and the EARF are disclosed in the MPRDC and ADB websites.

5. This report focuses on the Mahua-Parsona (MP) road.

B. Nature, Size and Location of the Project

6. The upgrading involves the upgrading of the existing single lane to 2 lane, 65.600 km section of the MP road. The road widening activities primarily will comprise of raising the embankment at certain locations and its stabilization including construction of retaining wall if required especially near water bodies overlay on the existing carriageway, junction improvement, and construction of minor bridges, culvert and RCC drain in built-up section. The location of the MP road is shown in Figure 1.

C. Purpose and Scope of the Study

7. This IEE report documents the environmental assessment of the MP Road subproject and identifies the environmental issues to be considered in the project planning and design stages. In this report, the different activities that are likely to take place to achieve the project objectives have been analyzed and the potential impacts that may accompany them have been identified, assessed for significance, and concomitant avoidance, mitigation, and compensation measures were prepared in consultation with stakeholders to be incorporated

on the engineering design and project implementation. The IEE addresses the environmental management requirements of the Government of India (GOI) and Asian Development Bank. Specifically, this report:

- provides information about the baseline environmental setting of the subproject;
- provides information on potential environmental impacts of the proposed subproject activities with its magnitude, distribution and duration.
- provides information on required mitigation measures with cost to minimize the impacts.
- analyses the alternatives options considering alternative locations, designs, management approaches for selection of most feasible and environmental acceptable options.
- provides details of stakeholder's consultations.
- designs an environmental management and monitoring plan with institutional measures for effective implementation of mitigates measures proposed and addressing grievances.

8. The IEE was based on proposed road alignment and key construction activities such as site clearing, removal of trees, excavation, filling, grading and embankment formation, excavation for utility trenches, subgrade preparation, base course and asphalt overlay, shoulder, and construction of permanent structures like retaining walls, culverts and drains. The IEE also covered ancillary activities like camp site establishment and maintenance, sourcing of materials, and operation of equipment like rock crusher and hot mix plant. The corridor of impact is taken as 10 meters either side of the alignment. However, the study area impact zone is considered up to 5 km on both sides of road alignment to allow for coverage of indirect and induced impacts and a larger analysis of land use and other environmental features. Assessment is carried out on the following environment components: terrestrial and aquatic ecology, soil, water, air, noise, and socio economic aspects.

9. This IEE report is presented in eight chapters as follow:

Chapter 1 - Introduction
Chapter 2- Policy, Legal and Administrative Framework
Chapter 3 - Description of Project
Chapter 4 - Description of Environment
Chapter 5 - Anticipated Impacts and Mitigation Measures
Chapter 6 - Information Disclosure, Consultation, and Participation
Chapter 7 - Environment Management Plan and Grievance Redress Mechanism
Chapter 8 - Conclusion and Recommendation

D. Methodology

10. The methodology for IEE adopted complies with the *ADB Safeguard Policy Statement (SPS) 2009* and environmental guidelines. The study was carried out using reconnaissance survey, field visits, consultation with stakeholders, review of existing data, identification of adverse impacts and preparation of environmental management and monitoring plans. The stepwise activities carried out include:

- Review of legal requirements
- Review of feasibility study

- Reconnaissance survey for identification of key issues data requirement and preliminary consultation
- Primary and secondary data collection
- Consultation with stakeholders
- Identification of impacts and mitigation measures

1. Data Collection

11. Primary and secondary data on the physical, ecological, and socio-economic resources were collected to provide baseline conditions to be used in impact assessment and monitoring plan design. The type and source of information compiled in this IEE are below:

Table 3: Primary and Secondary Information Sources

Information	Sources
Technical information on existing road features and proposed Rehabilitation work. Inventorisation of road features; viz. water bodies community structures, environmental sensitive location areas, congested locations, etc.	MPRDC Design Consultant Ground physical surveys and graphics consultants
Climatic Condition	Indian Meteorological Department, ENVIS Website, NIC, primary data collection
Geology, Seismicity, Soil and Topography	Geological survey of India, SOI Toposheets, Primary data collection
Land Use/ Land Cover	Survey of India (SoI) Topo-sheet, Observation during survey.
Drainage Pattern	Survey of India Toposheet and field observation
Status of forest areas, Compensatory afforestation norms etc	Divisional Forest Office, Singaruli District
Status of Fishing Activity	District Fisheries Offices at Singrauli District
Air quality Noise, Soil and Water	Onsite monitoring and Analysis of Field samples during field visit
Borrow Areas, Quarries and other construction material source	Feasibility report, field observations
River geo-morphology, hydrology, drainage, flood patterns	
Socioeconomic Environment	Primary Census Abstract of Singrauli District 2001. Official websites maintained by state Govt., and Public Consultation during the Field survey

2. Public Consultation

12. Extensive consultations were held during different stages (reconnaissance, detailed design and design review) with key stakeholders that includes local and beneficiary population, government departments/agencies, road users, and project-affected persons. These consultations allowed the interaction between the stakeholders and road designers to identify road features and construction methods that will enhance road upgrading and

minimize potential impacts. Information gathered was integrated in the project design and formulating mitigation measures and environmental management plan. Detailed description of public consultation is presented in Chapter 6.

E. Organizational Setting of Implementing Agency

13. The Madhya Pradesh Road Development Corporation (MPRDC) is mandated for construction and maintenance of roads in behalf of the Government of Madhya Pradesh. MPRDC is the executing agency (EA) for this project and a PIU is created within MPRDC at headquarter which is responsible for the proper implementation of all ADB funded road projects. The EA capability for effective implementation of Environmental Management Plan (EMP) has been assessed and presented in Chapter 7.

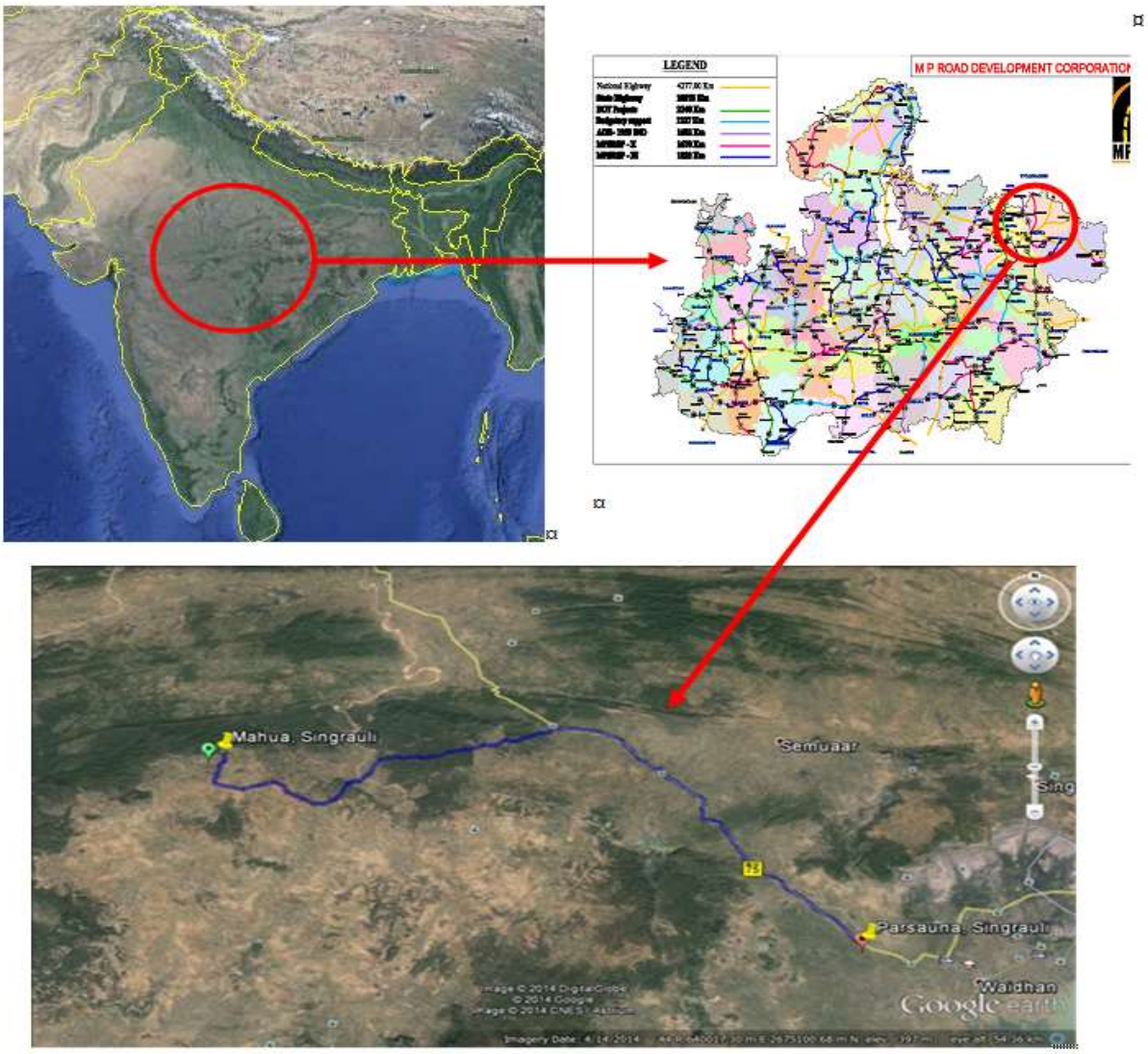


Figure 2: Location Map

II. POLICY AND LEGAL FRAMEWORK

14. India has well defined institutional and legislative framework. The legislation covers all components of environment viz air, water, soil, terrestrial and aquatic flora and fauna, natural resources, and sensitive habitats. The environmental legislations in India are framed to protect the valued environmental components and comply with its commitment to international community under various conventions and protocols as well. Asian Development Bank has also developed interventions to guide social and environment safeguards, in their Safeguard Policy Statement, 2009. This assessment is about the applicability of above laws and regulations, and safeguards. This chapter summarizes the following:

i. Applicability of various National and local laws and regulations at different stages of project implementations
ii. Applicability of ADB safeguards policies and categorization of the project.

A. Country's Legal Framework and Regulatory Requirements for the Project

15. The legal framework of the country consists of several acts, notifications, rules, and regulations to protect environment and wildlife. Key policies, acts and regulations relevant for the project are provided in table 4 below.

Table 4: Summary of Relevant Environmental Legislation

Act	Objective	Responsible Institution
Environment (Protection) Act (1986) and Rules (1986)	To protect and improve the overall environment	MoEF
Environmental Impact Assessment (EIA) Notification under Environmental Protection Rules (2006, 2009, 2011) and relevant Office Memorandums (OM)	To provide guidance on environmental clearance requirements and clarification on related specific technical issues	MoEF
Wildlife Protection Act (1972 and amended in 1993)	To protect wild animals and birds through the creation of National Parks and Sanctuaries	MoEF
The Water (Prevention and Control of Pollution) Act 1972 (Amended 1988) and Rules 1974	To provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water.	CPCB
The Air (Prevention and Control of Pollution) Act, 1981(Amended 1987) and Rules 1982	To provide for the prevention, control and abatement of air pollution, and for the establishment of Boards to carry out these purposes.	CPCB and Road Authorities
Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008 (Amended 2009),	To protection the general public against improper handling, storage and disposal of hazardous wastes	State Pollution Control Board
The Forest (Conservation) Act 1980 (Amended 1988) and Rules 1981 (Amended 2003)	To protect and manage forests	MoEF
Central Motor Vehicle Act (1988) and Rules (1988)	To control vehicular air and noise pollution. To regulate development of the transport sector, check and control vehicular air and noise pollution.	State Transport Department
Ancient Monuments and Archaeological Sites and Remains	Conservation of Cultural and historical remains found in India.	Archaeological Dept. GOI

Act	Objective	Responsible Institution
Act (1958)		
Building and Other construction workers (Regulation and the Employment and conditions of service) Act, 1996	To regulate the employment and conditions of service of building and other construction workers and to provide for their safety, health and welfare measures	Ministry of Labour and Employment
Child labour (Prohibition and Regulation) Act, 1986	To regulate the employment of children including age limits, type of employment, timing of work, information disclosure and health and safety.	Ministry of Labour and Employment

1. Requirement of Environmental Clearance

16. As per provisions of Environmental Impact Assessment Notification 2006 amended 2009), and its amendments, vide notification S.O.3067(E), dated the 1st December 2009 all State Highway expansion projects, except those in hilly terrain (above 1000 m AMSL) and ecologically sensitive areas, have been exempted from Environmental Clearances.

17. Since, the project road is a major district road and not a state, the above EIA Notification, 2006 (amended till date) promulgated under Environment (Protection) Act 1986 is not applicable for the project road and hence no Environmental Clearance is required for the proposed road widening project.

2. Forests Clearance

18. As per Indian Forests Conservation Act (1980), any project requiring diversion of frosts land for non-forestry purposes require forest clearance from MoEF for the same. The forestry clearance is granted through two stages process.

19. Since no diversion of forestland is involved in MP Road, no forest clearance is required for this road.

3. Permission to Withdraw Ground Water

20. As per the power Granted under Environmental Protection Act, 1986, Permission from Central Ground Water Authority is required for extracting ground water for construction purposes, from areas declared as critical or semi critical from ground water potential prospective.

4. Required Clearances/Permissions

21. For up-gradation of the project road, required clearances/ permissions related to environment has been summarized in Table 5.

Table 5: Permissions/Clearances Required for the Subproject

Sl.No.	Permissions/ Clearances	Acts/ Rules/ Notifications/Guidelines	Concerned Agency	Responsibility
A. Pre-construction Stage				
1	Permission for cutting of trees	Forest Conservation Act (1980) Procedural Guidelines developed by the Department of Environment, Government of M. P. under the orders of the Honorable High Court Tree removal will be guided as per state government rules.	District Forest Office/State Forest Department for trees felling in forest areas and District Authorities in non-forests Areas (Compensatory tree plantation to be made 1:10 as per the permission granted)	MPRDC
B.	**Implementation Stage**			
2	Consent to operate hot mix plant, Crushers, Batching plant	Air (Prevention and Control Pollution) Act of 1981	M.P. State Pollution Control Board (To be obtained before installation)	Contractor
3	Authorization for Disposal of hazardous waste	Hazardous Waste (Management and Handling) Rules 1989	M.P. State Pollution Control Board (To be obtained before generation)	Contractor
4	Consent for Disposal of sewage from labor camps	Water (Prevention and Control of Pollution) Act 1974	M.P. State Pollution Control Board (Before setting up the camp)	Contractor
5	Pollution Under Control Certificate	Central Motor and Vehicle Act 1988	Department of Transport, Government of M. P. authorized testing centers	Contractor
6	Employing Labour/Workers	The Building and Other Construction Workers (Regulation and Employment Conditions of Service) Act, 1996	District Labour Commissioner	Contractor

B. International Agreements

22. India has been playing an active role in environmental conservation since the first United Nations (UN) conference on Human Environment in Stockholm in 1972 and recognizes that protection of environment is closely linked to combating poverty. Key international agreements that India is signatory to and relevant for the project are provided below:

(i.) Convention Relative to the conservation of Flora and Fauna in their Natural State (1933)
(ii.) International Plan Protection Convention (1951)
(iii.) Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar,1971)
(iv.) Convention concerning the Protection of the World Cultural and Natural Heritage (Paris, 1972)
(v.) Convention in International Trade in Endangered Species of Wild Fauna and Flora (Washington, 1973)
(vi.) Convention on Migratory Species of Wild Animals (Bonn, 1979)
(vii.) Convention on the Prior Informed Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC or Rotterdam, 1990)
(viii.) United Nations Framework Convention on Climate Change (Rio De Janeiro, 1992)
(ix.) Convention on Biological Diversity (Rio De Janeiro, 1992)
(x.) Protocol to the United Nations Convention on Climate Change (Kyoto, 1997)

23. The above list of international conventions served as requirements for the project to comply. However, due to the limited scale of the road upgrading and the predicted traffic increase during operation, the expected environmental issues that are governed by these international conventions would be insignificant.

C. Asian Development Bank Safeguard Policies

24. The Asian Development Bank has defined its safeguard requirements in the *Safeguard Policy Statement* 2009 *(SPS)*. The prime objectives of these safeguard policies are to: (i) avoid adverse impacts of projects on the environment and affected people, where possible; and (ii) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible.

D. Category of the Project as per SPS

25. Using the prescribed ADB Rapid Environmental Assessment Checklist (see Appendix 1), MP road was classified as environmental category “B.” This categorization was primarily based on the following considerations:

(i.) subproject road is existing and upgrading activities are limited to the RoW
(ii.) anticipated impacts from road upgrading on relatively flat terrain along agricultural land are mostly site specific and easily mitigated through proper design and good construction practices,
(iii.) majority of the activities have short-term duration co-terminus with the construction phase
(iv.) subproject road does not pass through or located within 10 km from any wildlife sanctuary, national park, or any other environmentally sensitive or protected areas.

III. PROJECT DESCRIPTION

A. Rational and Project Settings

26. Mahua-Parsona (MP) road starts from Parsauna (Existing Km 211+680 & Design Km 209.800) at 3-arm junction (Linked with Bargawan - Waidhan Road, MDR) and passes through Hardi, Khutar, Banoli, Situl Khurd, Rajmilan, Sakhoha, Chora,Khokhari, Railla, Suhira, Amiliya, Jamgadi, Gajrabahara, Dhummadol, Sarai, Ghoghara, Jhundi Hawa, Dudhiya Dola, Lohra Dol and ends to Barkha (Existing Km 277+280 & Design Km 275.060).

27. The existing carriageway is single lane having flexible pavement, with widths varying between 3 m to 3.5 m along the entire length of project road. The existing road has earthen shoulder of about 1.5 m on either sides of the project road. The project involves widening of existing roads within available ROW to 2-lane carriageway (7.0 m wide with 3.5 m width of each lane and 2.5m earthen shoulder either side).

28. The salient Features of the MP Road is given at Table 6.

Table 6: Summary Road Components and Design Standard

Road Length	65.600 Km length
Alignment	Follow the exits road alignment. Except some of the Locations where geometric improvements is required.
Flyovers/overpasses/ ROB	There is one railway track crossing the project road at chainage 250.040 km
Major Bridges	Thirteen Major Bridges
Other Structures	13 no. of major and minor bridges exist on project road section which are to be retained due to being in good condition. Total 97 nos of culverts exist on project road, which are proposed for reconstruction, except these 64 nos of additional culverts are proposed along the project road section as balancing culverts.
Embankment Design	Embankment height established for 1m free board on 20 years frequency HFL Embankment height up to 3.0 m with 2H: 1V for embankment height from 3.0 m to 6.0 m with 15H: 1V. Construction of embankment of height more than 3.0 m, using borrow soil is recommended. However high embankment have been restricted within Row providing returning walls
Design Standard	As per IRC Codes and MORSTH Guidelines. Vertical Clearance 0.60 m above HFL for bridges upto 30 m length, 0.90m above HFL for bridges above 30 m length The discharges for which the bridge has been designed are maximum flood discharge on record for a period of 100 years for major bridges and 50 years for minor bridges.
Speed	Design : 65 Km/h for rolling/50kmph for ghat section
Horizontal Controls	As per IRC: 73 - 1980 Maximum value of 7% for super elevation and 15% for side friction factor, the minimum radius for horizontal curves is 230m
Vertical Controls	Grade break of 0.5%, vertical curves will be provided.

	Length of vertical curve will be restricted to minimum 50m
Carriageway	Carriageway:7m Cross fall will be 2.5% for pavement and 3% for earthen shoulder

Source: Detailed Project Report, 2014

B. Characteristics of the Existing Road

29. The existing road passes through plain terrain predominantly agricultural lands and scattered urban and village settlements, of Hardi, Khutar, Banoli, Situl Khurd, Rajmilan, Sakhoha, Chora,Khokhari, Railla, Suhira, Amiliya, Jamgadi, Gajrabahara, Dhummadol, Sarai, Ghoghara, Jhundi Hawa, Dudhiya Dola, Lohra Dol and ends to Barkha (Table 7). The road is also passing through protective forest along sarai and barkha village.

Table 7: Existing Town/Settlements

Town/Settlements Name	Chainage (km)	
	Start	End
Hardi Village	211+680	214+300
Khutar Villaage	216+300	217+000
Banoli Village	218+300	219+100
Situl Khurd Village	220+850	221+550
Rajmilan / Sakhoha Village	223+300	226+400
Chora Village	226+850	227+300
Khokhari Village	227+750	227+950
Khokhari Village	227+950	228+550
Khokhari Village	228+550	229+050
Raila Village	231+750	232+050
Suhira Village	232+200	233+200
Amiliya Village	233+800	234+600
Amiliya Village	234+850	235+250
Jamgarh Village	245+900	246+150
Khunwa Khas Village	248+300	248+900
Gajra Batera Village	249+250	250+150
Gajra Batera Village	250+400	250+750
Sarai	258+900	259+600
Sarai	259+850	260+750
Ghoghara Village	261+000	261+450
Barkha Village	275+900	276+100

30. The pavement type is flexible throughout the length of project road. The condition of the pavement is generally fair to poor. The condition of shoulders is also poor and now covered with vegetation. There is no formal drainage system along the MP road and the existing shoulders slope does not facilitate proper drainage. At present the movement of commercial vehicle and Buses on project road is very nominal (average CVPD is coming 27 & 50 for both locations), in which laden traffic is on an average the project road traverses through 0.50m to 2.0m embankment. Suitable measures will be carried out by site specific drainage deigns. Stretches of telephone and electric utilities need to shift to allow planned upgrading.

Table 8: Stretches for Improvements

Sr. No.	Existing Chainage		Length (Km)	Carriageway Width (m)	Formation Width (m)	Type of Road	Condition
	From	To					
1	211+680	277+280	65.600	3 to 3.5 m	12	BT	Fair to Poor

C. Current and Projected Daily Traffic

31. The classified volume count survey started by on September 8 and ending on September 14 2013. The details of traffic survey is presented on table 9 and projected traffic at two locations are presented in table 10. AS per the project traffic, the values of PCU are very less due to discontinuity of Project road and single lane with poor pavement, after development of road, the traffic intensity will increase because of diverted traffic from adjacent road.

Table No 9: Traffic Survey

Sl. No.	Sections	Location	CVPD	ADT	PCU	Remarks
1.	Parsauna to Mahua	Km 216.700 at Khutar	27	259	211	At this section, traffic diverts mostly Singrauli, Bargawan, Waidhan, Mada, Nigrie, Sidhi, Majholi, Beohari.
		Km 260.500 at Sarai	50	285	287	

Table No. 10: Projected Traffic on the years at Khutar & Sarai

Years	PCU at Km 216.700 at Khutar	PCU at Km 260.500 at Sarai	Requirement of
2013	210	287	Single Lane
2020	370	516	
2025	484	677	
2030	647	903	
2035	860	1197	Single Lane

D. Proposed Improvement

32. MP Road will received the following upgrades under the project:

a. Curvature improvement and realignment
b. Widening
c. Flexible pavement
d. Rearrangement of junctions
e. Road side drains
f. Bridge and cross drainage structures
g. User facilities
h. Traffic control and safety measures

1. Realignment and Curvature Improvement

33. Based on approved geometric standards the alignment plan of the existing road requires correction of sub-standard geometry at various locations. In plain or rolling terrain, a

minimum curve radius of 230 m has been attempted to achieve design speed, however an absolute minimum radius of 155m is used at location with space constraints like urban areas, structure approach, and forest area.

34. On sections with substandard geometry, improvements will require merging two or more existing curves resulting to a minor geometric realignment to achieve the desired geometric standards. Reverse curves will be modified to accommodate required rate of super elevation and provide smooth riding quality.

2. Proposed Cross Section Details

35. **Carriageway Width**. The carriageway configuration of two lane with hard shoulder is proposed for the project road having a 7.0m carriageway width.

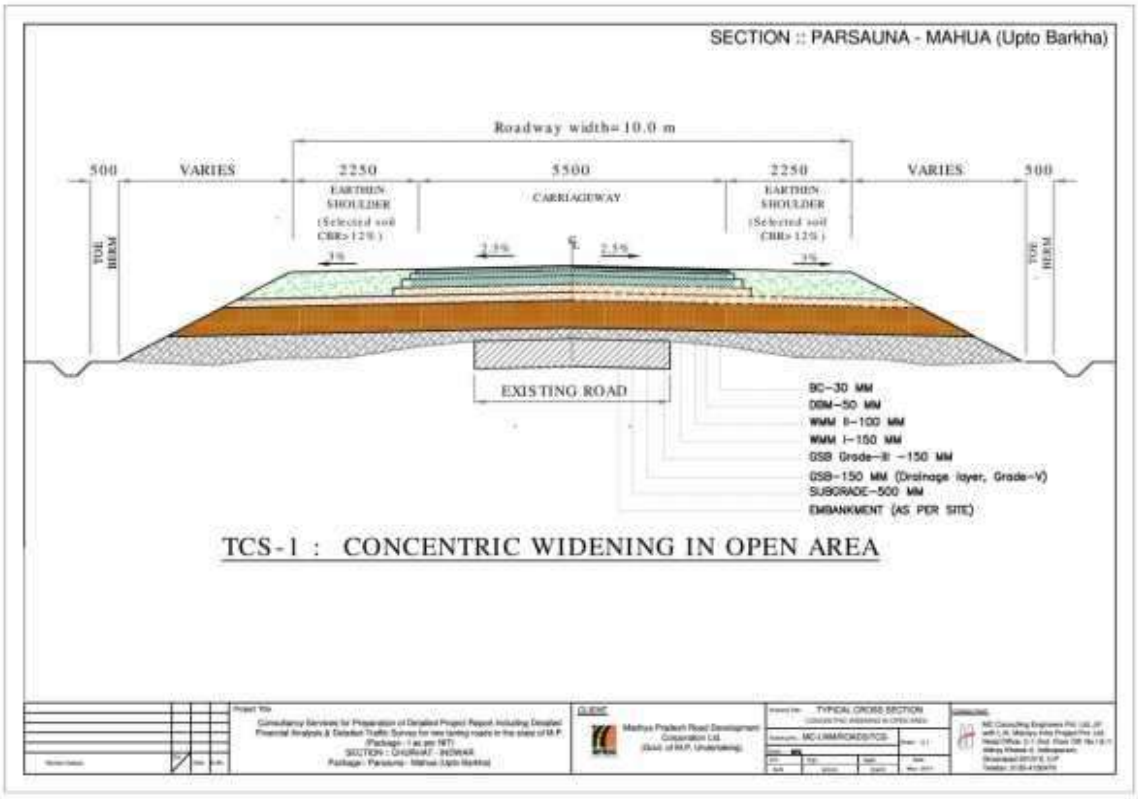
36. **Hard Shoulder**. Hard shoulders are proposed to be 2.5m wide both sides of the proposed main carriageway for rural plain and rolling terrains.

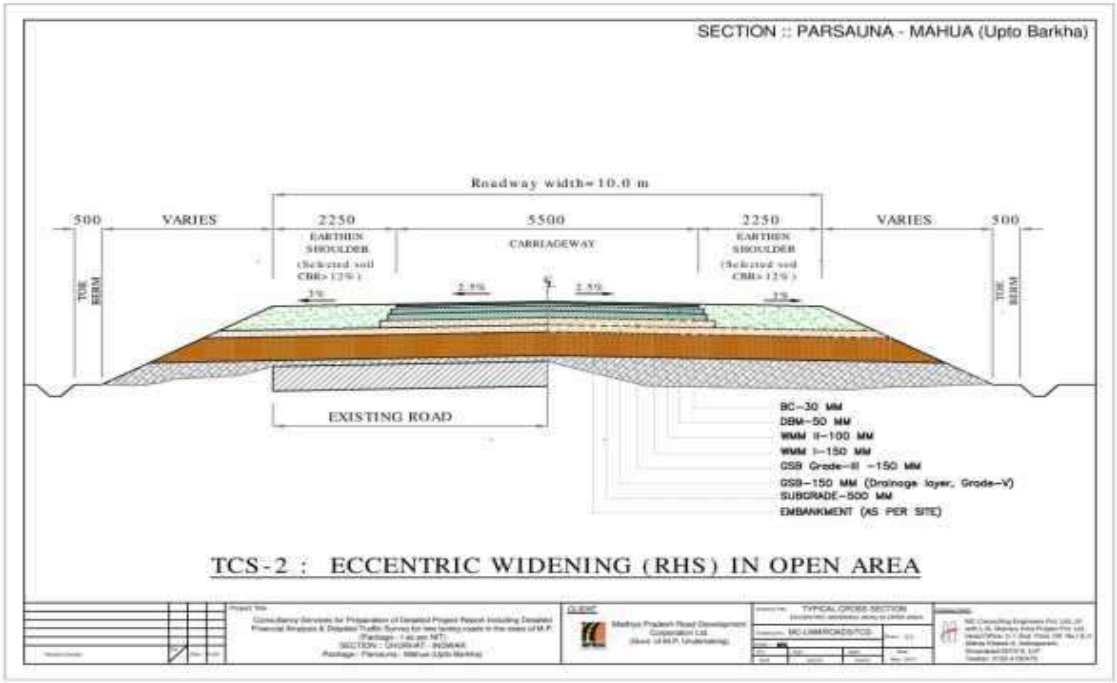
37. **Footpath.** The minimum width of footpath in urban stretches is proposed to be 1.50m. The side drain in such stretches may be accommodated under the footpath.

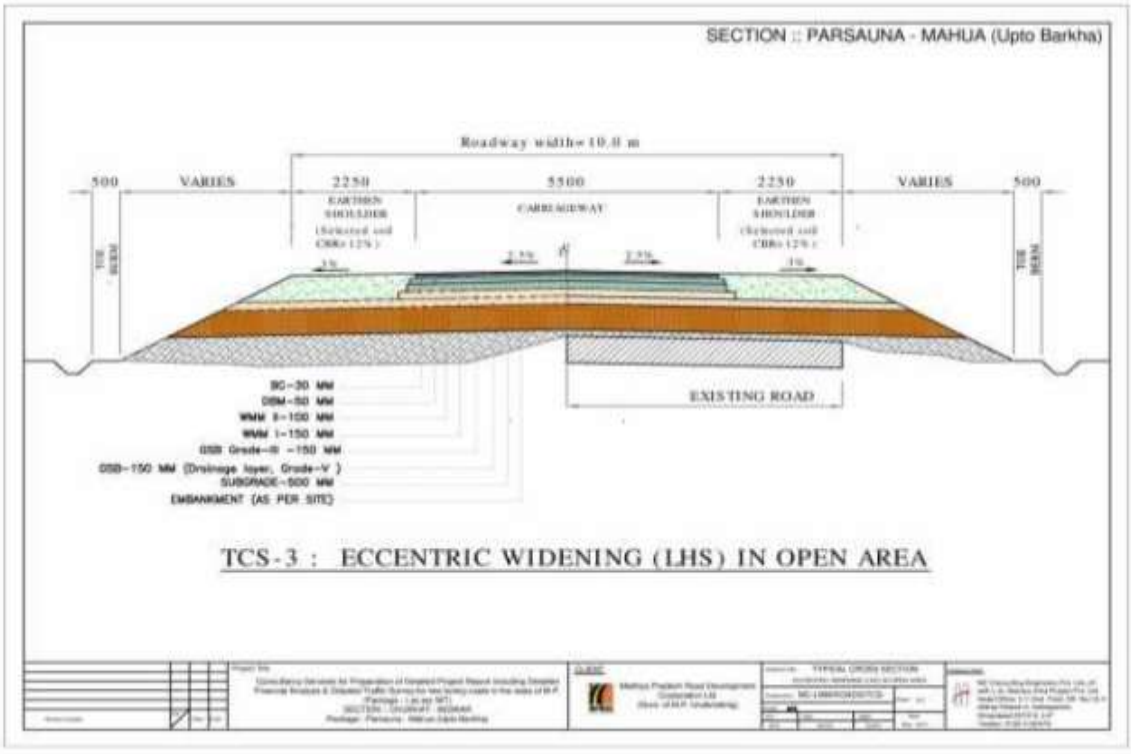
38. **Utility Corridor**. Minimum width of utility corridor for rural sections will be 2.0m and for urban/ built-up sections will be 1.00m.

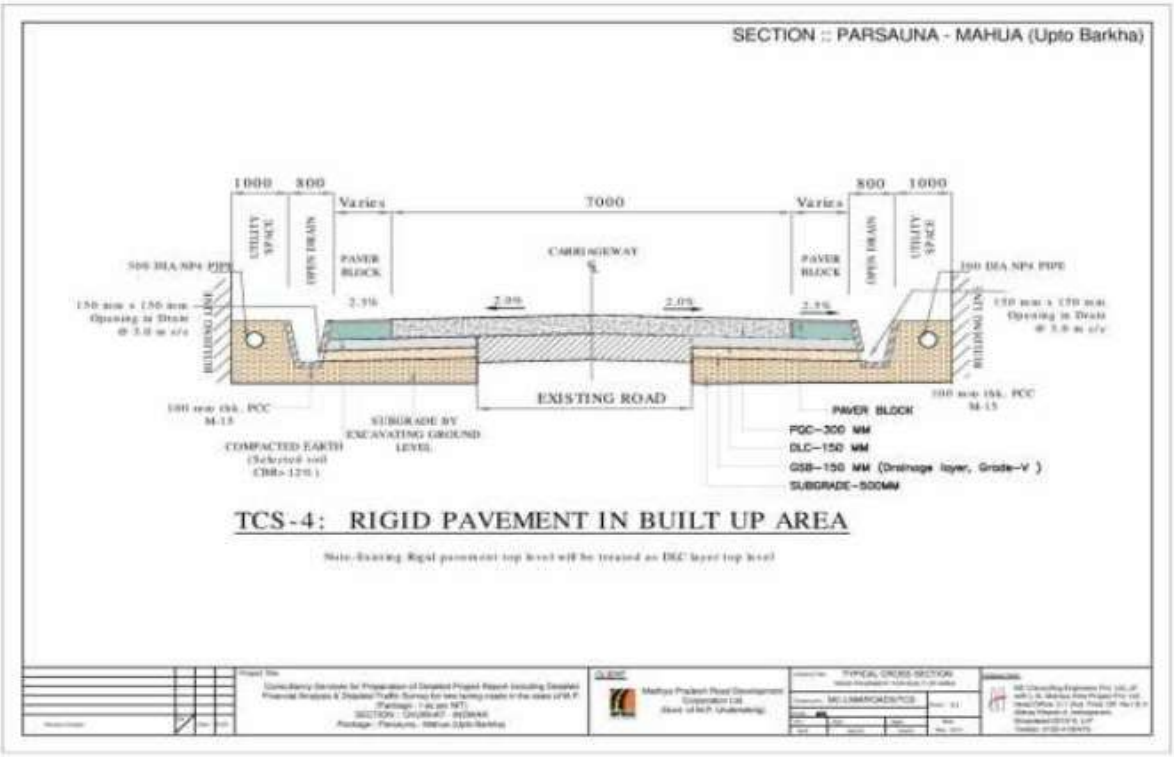
39. **Embankment Slopes**. Side slopes shall not be steeper than 2H: 1V unless soil is retained by suitable soil retaining structures.

40. The Typical Cross Section for the proposed project road is as given in following figures: (TCS 1 to TCS 9)

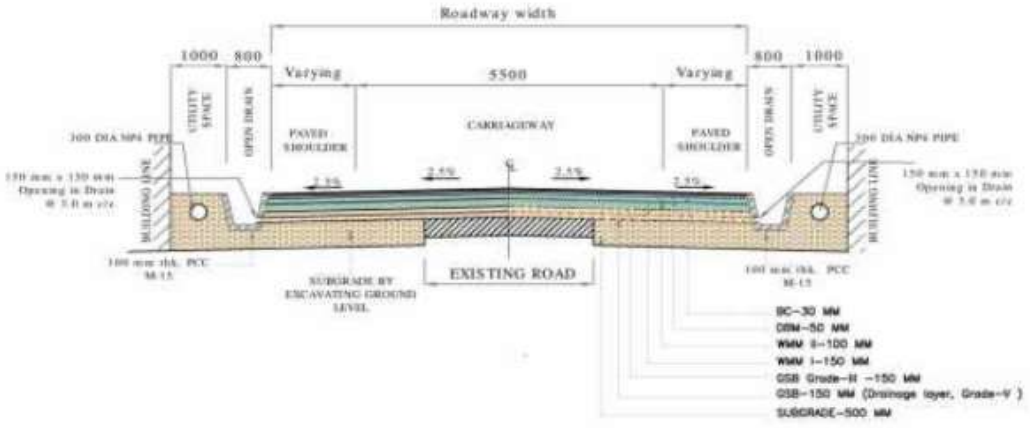

SECTION :: PARSAUNA - MAHUA (Upto Barkha)
Roadway width= 10.0 m
500
VARIES
2250
5500
2250
VARIES
500
EARTHEN SHOULDER (Selected soil CBR> 12%)
CARRIAGEWAY
EARTHEN SHOULDER (Selected soil CBR> 12%)
TOE
BERM
3%
2.5%
2.5%
3%
EXISTING ROAD
BC-30 MM
DBM-50 MM
WMM II-100 MM
WMM I-150 MM
GSB Grade-II -150 MM
GSB-150 MM (Drainage layer, Grade-V)
SUBGRADE-500 MM
EMBANKMENT (AS PER SITE)
TCS-1 : CONCENTRIC WIDENING IN OPEN AREA


SECTION :: PARSAUNA - MAHUA (Upto Barkha)
Roadway width= 10.0 m
500
VARIES
2250
5500
2250
VARIES
500
EARTHEN SHOULDER (Selected soil CBR> 12%)
CARRIAGEWAY
EARTHEN SHOULDER (Selected soil CBR> 12%)
TOE
BERM
3%
2.5%
2.5%
3%
EXISTING ROAD
BC-30 MM
DBM-50 MM
WMM II-100 MM
WMM I-150 MM
GSB Grade-II -150 MM
GSB-150 MM (Drainage layer, Grade-V)
SUBGRADE-500 MM
EMBANKMENT (AS PER SITE)
TCS-2 : ECCENTRIC WIDENING (RHS) IN OPEN AREA


SECTION :: PARSAUNA - MAHUA (Upto Barkha)
Roadway width= 10.0 m
500
VARIES
2250
EARTHEN SHOULDER
5500
CARRIAGEWAY
2250
EARTHEN SHOULDER
VARIES
500
3%
2.5%
2.5%
3%
EXISTING ROAD
BC=30 MM
DBM=50 MM
WMM II=150 MM
WMM I=150 MM
GSB Grade-III =150 MM
GSB=150 MM (Drainage layer, Grade-V)
SUBGRADE=500 MM
EMBANKMENT (AS PER SITE)
TCS-3 : ECCENTRIC WIDENING (LHS) IN OPEN AREA


SECTION :: PARSAUNA - MAHUA (Upto Barkha)
1000
800
Varies
7000
Varies
800
1000
UTILITY SPACE
OPEN DRAIN
PAVER BLOCK
CARRIAGEWAY
PAVER BLOCK
OPEN DRAIN
UTILITY SPACE
500 DIA NP4 PIPE
300 DIA NP4 PIPE
2.5%
2.0%
2.0%
2.5%
BUILDING LINE
BUILDING LINE
EXISTING ROAD
100 mm thk. PCC M-15
SUBGRADE BY EXCAVATING GROUND LEVEL
COMPACTED EARTH (Selected soil CBR>12%)
100 mm thk. PCC M-15
PAVER BLOCK
PQC=300 MM
DLC=150 MM
GSB=150 MM (Drainage layer, Grade-V)
SUBGRADE=500MM
TCS-4: RIGID PAVEMENT IN BUILT UP AREA

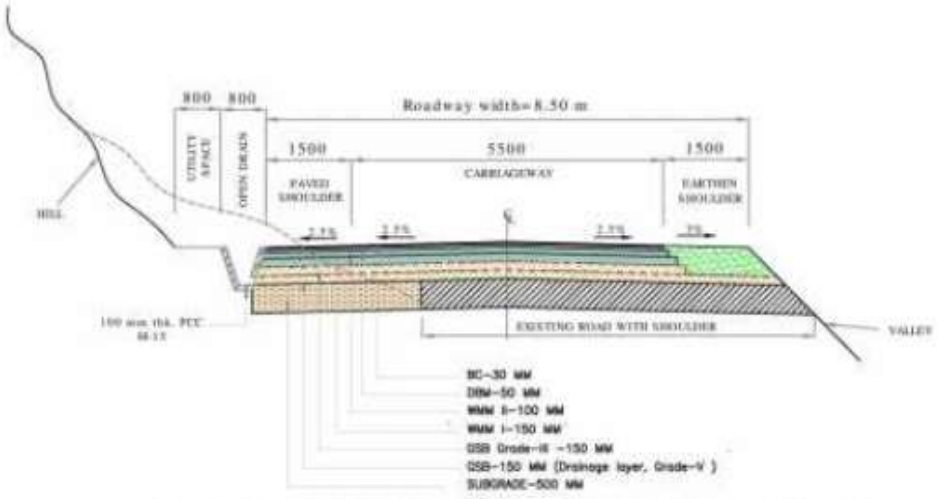
SECTION :: PARSAUNA - MAHUA (Upto Barkha)



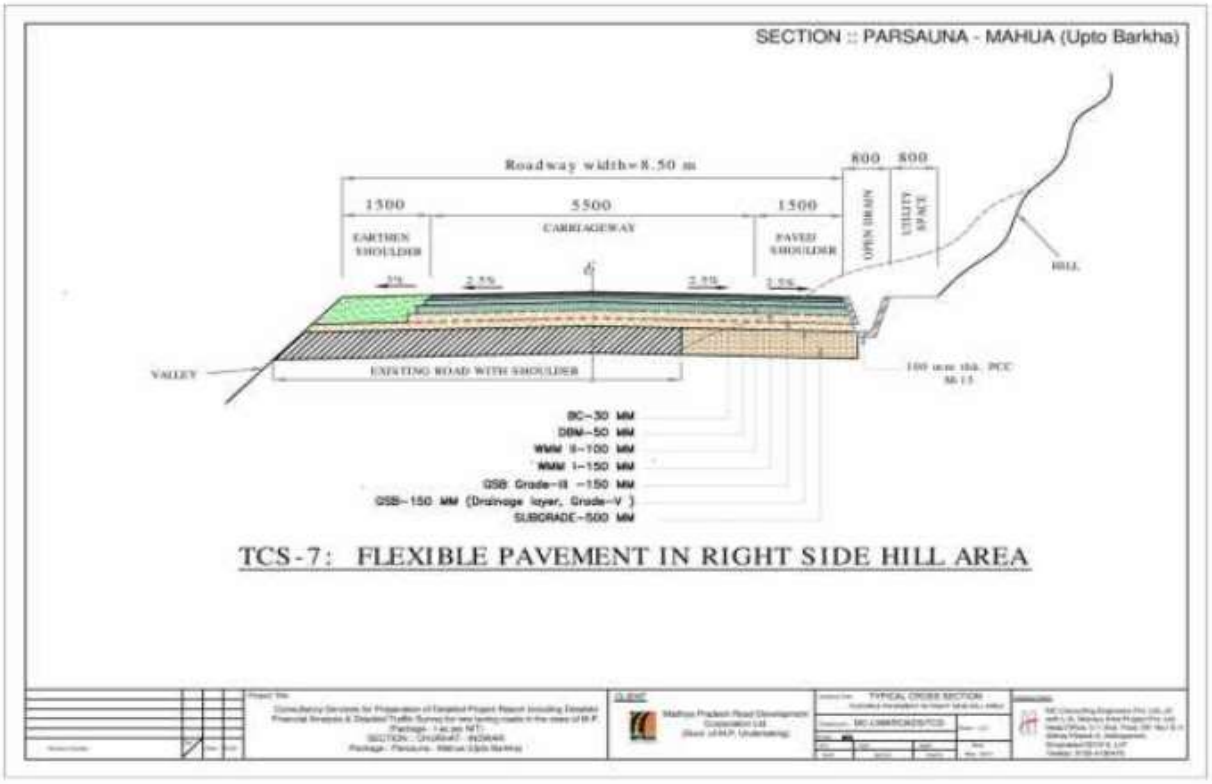
TCS-5: FLEXIBLE PAVEMENT IN BUILT UP AREA

Note-1. Existing pavement top level will be treated as subgrade top level
2. Paved shoulder will be widen upto1.5 m (max. width) according to land availability

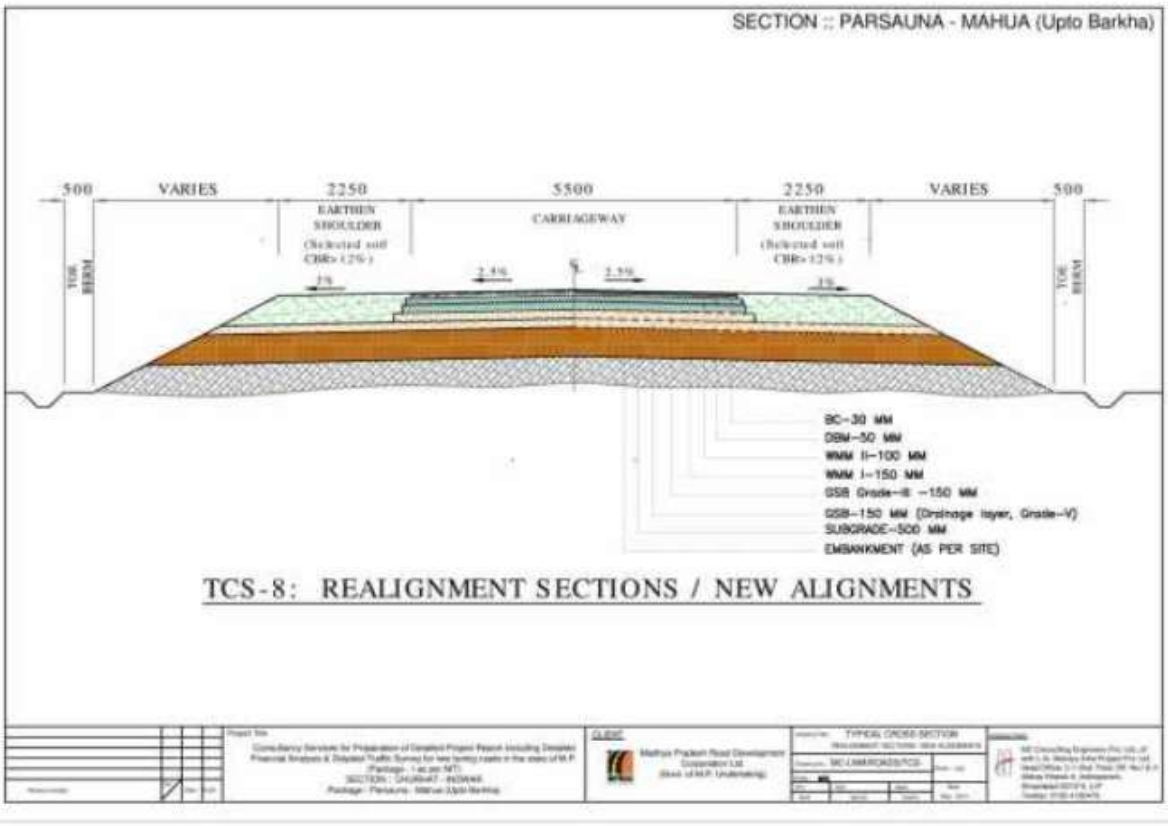
SECTION :: PARSAUNA - MAHUA (Upto Barkha)



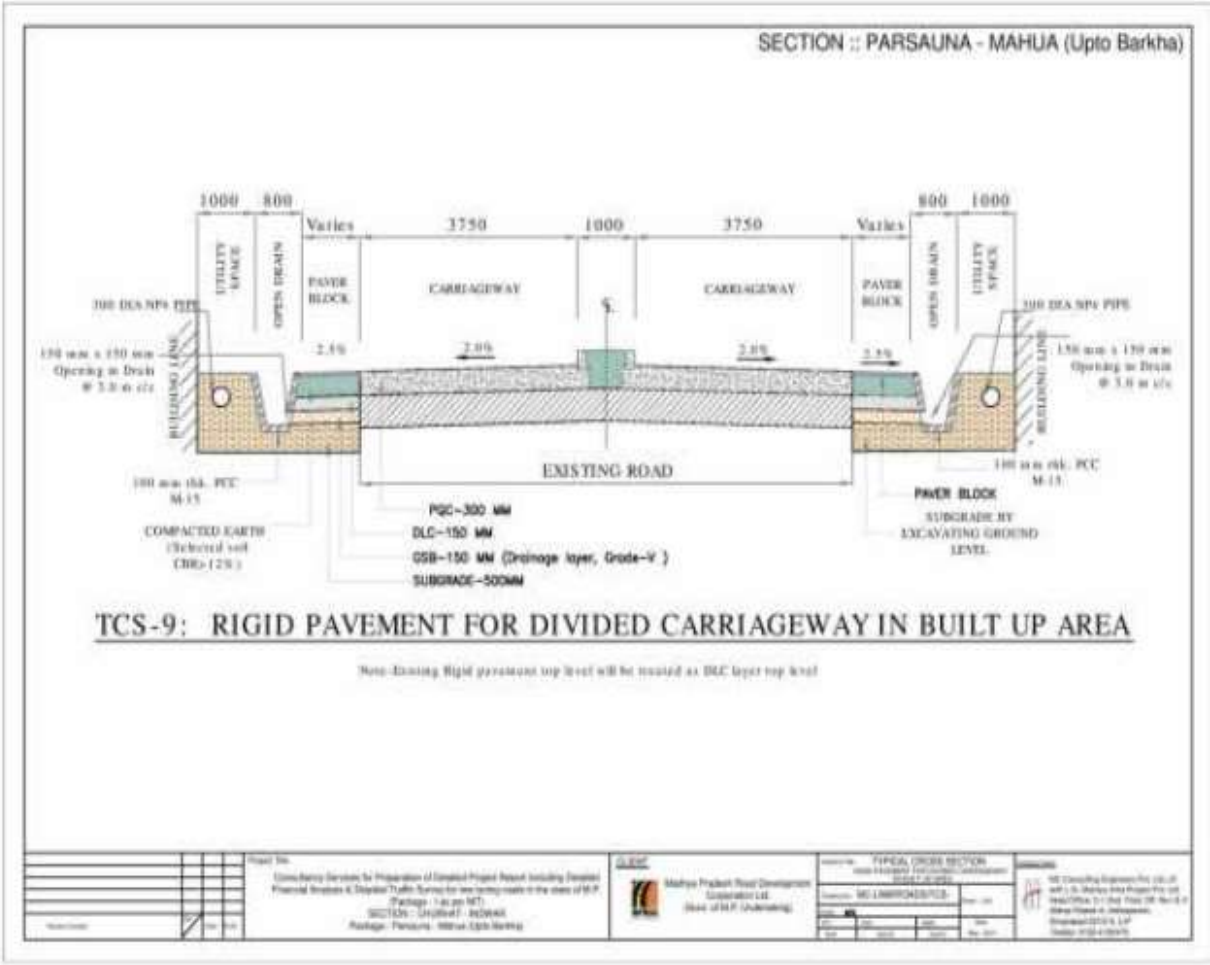
TCS-6: FLEXIBLE PAVEMENT IN LEFT SIDE HILL AREA



TCS-7: FLEXIBLE PAVEMENT IN RIGHT SIDE HILL AREA



TCS-8: REALIGNMENT SECTIONS / NEW ALIGNMENTS



3. Widening Proposal

41. In order to meet future traffic requirements, the existing carriageway is proposed to be upgraded to two-lane with hard shoulder in rural areas and with cover drain and footpath in urban areas. Concentric widening scheme is followed to minimise land acquisition issues and to ensure maximum utilisation of existing configuration.

4. Realignment

42. Realignments have been proposed for locations having large amount of congestion along the road and not having any possibility to improve the deficient road geometrics; especially near the major towns

5. Intersections

43. All intersections have been studied to allow safe connection to the corridor and minimum interference to traffic. Details of intersection improvement are tabulated below. There are 59 junctions (2 major and 57 minor) exist on project road. The details of major Intersections are presented in table no. 11

Table No. 11: Details of Major intersection

S.No.	Existing Chainage (Km)	Type	LHS	RHS	Type of road
1.	211+680	3-arm	To Waidhan	To Bargawan	BT
2.	260+400	3-arm	To Sarai		

6. Design of Road Side Drains

44. The following drainage improvement are have been incorporated in the design:

- Road-side earthen drains of trapezoidal sections (please refer Typical Drawings) on both sides along the entire length,
- Open chute drain in RCC on slopes of high embankment and as rapids on high cut sections. Further dissipation basins are provided at the toe of high embankments to reduce the velocity of water flow, especially where pitching is proposed.
- Road-side RCC covered drains for urban areas.
- Open lined drain in RCC on hill side in mountainous terrain.

7. Pavement Design

45. The project road envisages two lane carriageway with hard shoulders and upgrading of the existing pavement to carry the anticipated traffic over the design period. This would involve the construction of new pavement on the widened side and strengthening and rehabilitation of the existing pavements. Flexible asphalt pavement is proposed for the entire length of project road. The applicable IRC Guidelines would be used for this purpose, but using other internationally accepted design method(s) to ensure that the recommended design is the most appropriate one would further check the design.

8. Traffic Control and Safety Measures

46. In addition to adequate provisions for roadway width, geometric elements and junction improvement, the following provisions will enhance the safety of road users. Due consideration has been made for the provisions contained in IRC: SP 44-1994, “Highway Safety Code”. Also, various measures have been proposed to increase traffic control for the High-speed highway.

a. Road Signs

44. Adequate road signs are proposed for the project road in order to provide advance information to regulate/control traffic flow and ensure safety of operations. All road signs are provided in accordance with IRC 67.

47. Appropriate road markings are provided with stop signs, give-way signs, traffic merging and diverging signs, lane closure signs, compulsory keep left/right signs or any other signs as per IRC-67. Advance cautionary signs will be installed on sharp curves along with chevron signs at the outer edge of the curves. In hilly areas, curve-ahead signs are accompanied with appropriate delineators.

48. The signs will be of retro reflective sheeting of high intensity grade with encapsulated lens and fixing details as per clause 801 of MoRT&H Specifications for Road and Bridge

Works, 2001 (4th Revision, latest reprint).

9. Pavement Markings

49. In project road, pavement will comply with the IRC: 35-1997, “Code of Practice for Road Marking” with centre-line, edge line, continuity line, stop line, give way lines, diagonal/chevron markings and zebra crossings. The pavement marking shall be of hot applied thermoplastic paint with glass beads as per the MORT&H specification for Road and Bridge Works, 2001(4th Revision, latest reprint).

10. User Facilities

a. Bus Stop

50. Existing bus stops are proposed to be retained. Appropriate maintenance measures shall be made to keep it in working conditions.

11. Construction Schedule

51. The upgrading of MP Road is planned to be completed within 24 months from the construction start date.

IV. DESCRIPTION OF THE ENVIRONMENT

A. Introduction

52. The collection of baseline information on biophysical, social and economic aspects of the project area is the most important reference for conducting Initial Environmental Examination (IEE) study. The description of environmental settings includes the characteristic of area in which the activity of the project road would occur and cover area affected by all impacts. The existing baseline line conditions has been analysed based on primary data collection with regard to air quality, water quality, noise, soil, biodiversity and socio- economic aspects and secondary data collection from published source and various government agencies.. Efforts have been made to collect the latest information both at regional as well as local level especially along the project roads alignment. The primary survey for water, air, noise and soil was carried out during July 2014. The sampling has been done along the project alignment. The existing baseline data and analysis around MP Road is presented in the following sections.

B. Physical Environment

1. Topography, Geology & Soil

53. Madhya Pradesh nicknamed the "heart of India" due to its geographical location in India is bordered by Uttar Pradesh to the northeast, Chhattisgarh to the southeast, Maharashtra to the south, Gujarat to the west, and Rajasthan to the northwest. Madhya Pradesh the second largest state of the country has a geographic area of 30.82 million hectare, which constitutes 9.37% of the land area of the country. Geologically the State is divided in two zones; Central Plateau and Hill Region, and the Western Plateau and Hill Region. The Central Plateau and Hill Region is further divided into 7 sub-regions, namely: Bundelkhand, Madhya Pradesh Hills, Keymore Plateau and Satpura Hills, Vindhya Plateau, Satpura Plateau, Central Narmada Valley, and Gird. The Western Plateau and Hill Region has 2 sub-regions: Jhabua Hills, and Malwa and Nimar Plateau.

Table 12: Geological features of the State

Zone	Sub-group (Region)	District covered	Rain fall (mm)	Climate	Type of Soil
Central Plateau and Hill Region	Bundelkhand	Chatterpur, Datia, Tikamgarh	700	Dry sub humid	Mixed red & Black
	Madhya Pradesh Hills	Mandla, Dindori	1570	Moist sub humid	Red & Yellow
	Keymore Plateau & Satpura Hills	Jabalpur, Panna, Satna, Rewa, Sidhi, Seoni, Katni, Balaghat, Shahdol, Anooppur, Umariya	1100	Dry sub humid	Medium Black
	Vindhya Plateau	Bhopal, Damoh, Raisen, Sagar, Sehore, Vidisha	1130	Dry subhumid	Shallow to Medium Black
	Satpura Plateau	Betul, Chhindwara, Narsinghpur	1220	Dry subhumid	Shallow to Medium Black
	Central Narmada Valley	Hosangabad, Harda	1300	Dry subhumid	Deep Black

Zone	Sub-group (Region)	District covered	Rain fall (mm)	Climate	Type of Soil
	Gird	Morena, Bhind, Gwalior, Guna, Shivpuri, Ashoknagar, Sheopur	670	Semi-arid	Medium Black alluvial
Western Plateau and Hill Region	Jhabua Hills	Jhabua	988	Semi-arid	Medium to deep black
	Malwa & Nimar Plateau	Indore, Dhar, Ujjain, Ratlam, Dewas, Mandsaur, Rajgarh, Shajapur, Khandwa, Khargone, Neemuch, Badwani, Burhanpur	874	Semi-arid	Medium to deep black

54. Figure 2 and 3 show the geological and soil map of MP.

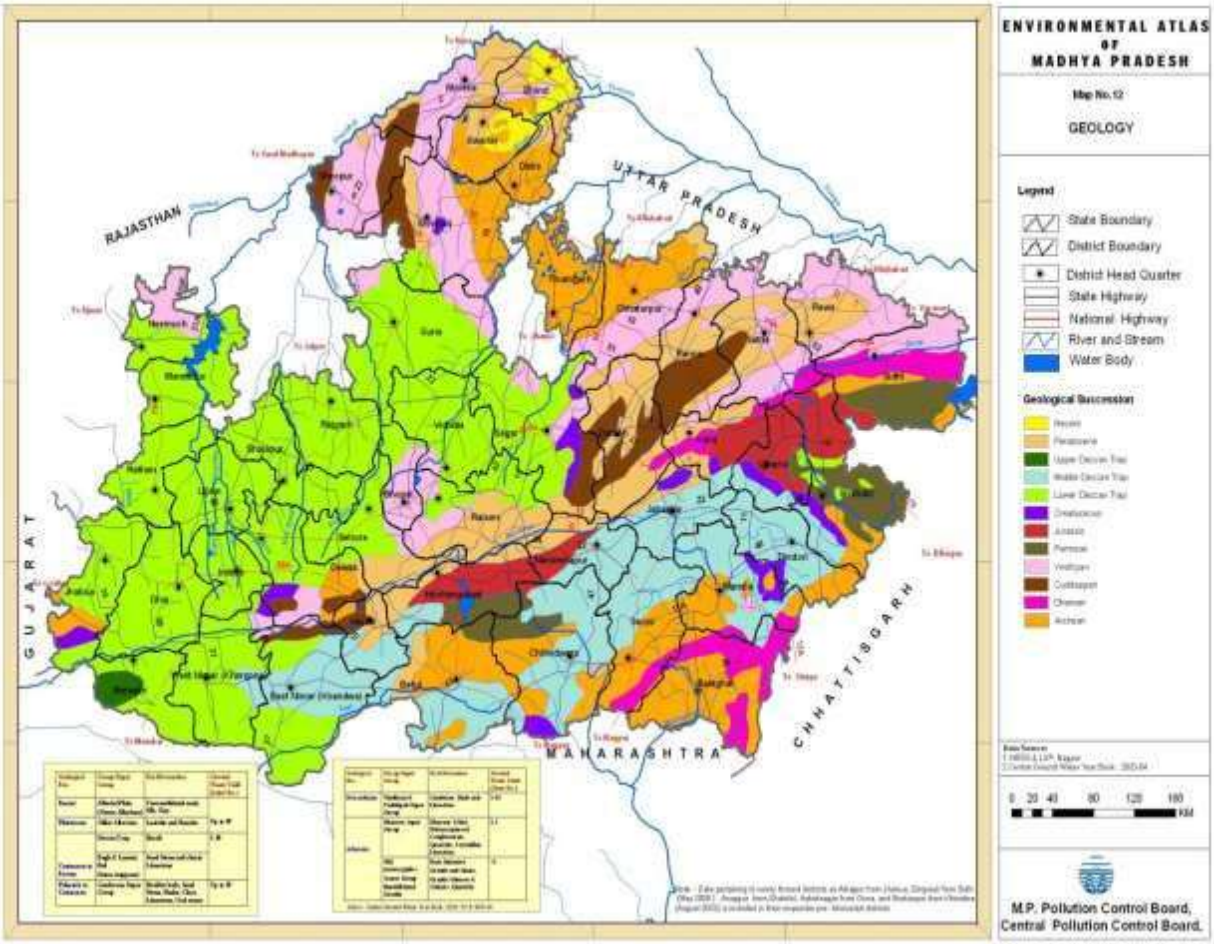


Figure 2: Geological Map of MP

55. The proposed MP project road between is situated on the Western Plateau and Hill Region agro climate zone and forms Gird sub-group. The soil type in the area is medium to deep black. Collected soil samples along the project corridor were analyzed and results are presented in Table 13. The results shows that pH of the soil is alkaline, and available nutrients indicated medium nitrogen, low phosphorus, and high potassium contents.

Table 13: Soil Quality along the Project road

Sr. No.	Parameters	Unit	Parsona	Sarai	Amaliya	Barkha
1.	pH	-	7.12	7.41	7.13	7.19
2.	Electrical Conductivity	µmhos/cm	207	204	204	201
3.	Water Holding Capacity	%	31	30	31	34
4.	Nitrogen as N	Kg/ha	45.79	42.65	48.29	45.16
5.	Potassium as K	Kg/ha	26.88	26.88	24.86	24.86
6.	Phosphorus as P	Kg/ha	22.78	46.60	42.56	42.34

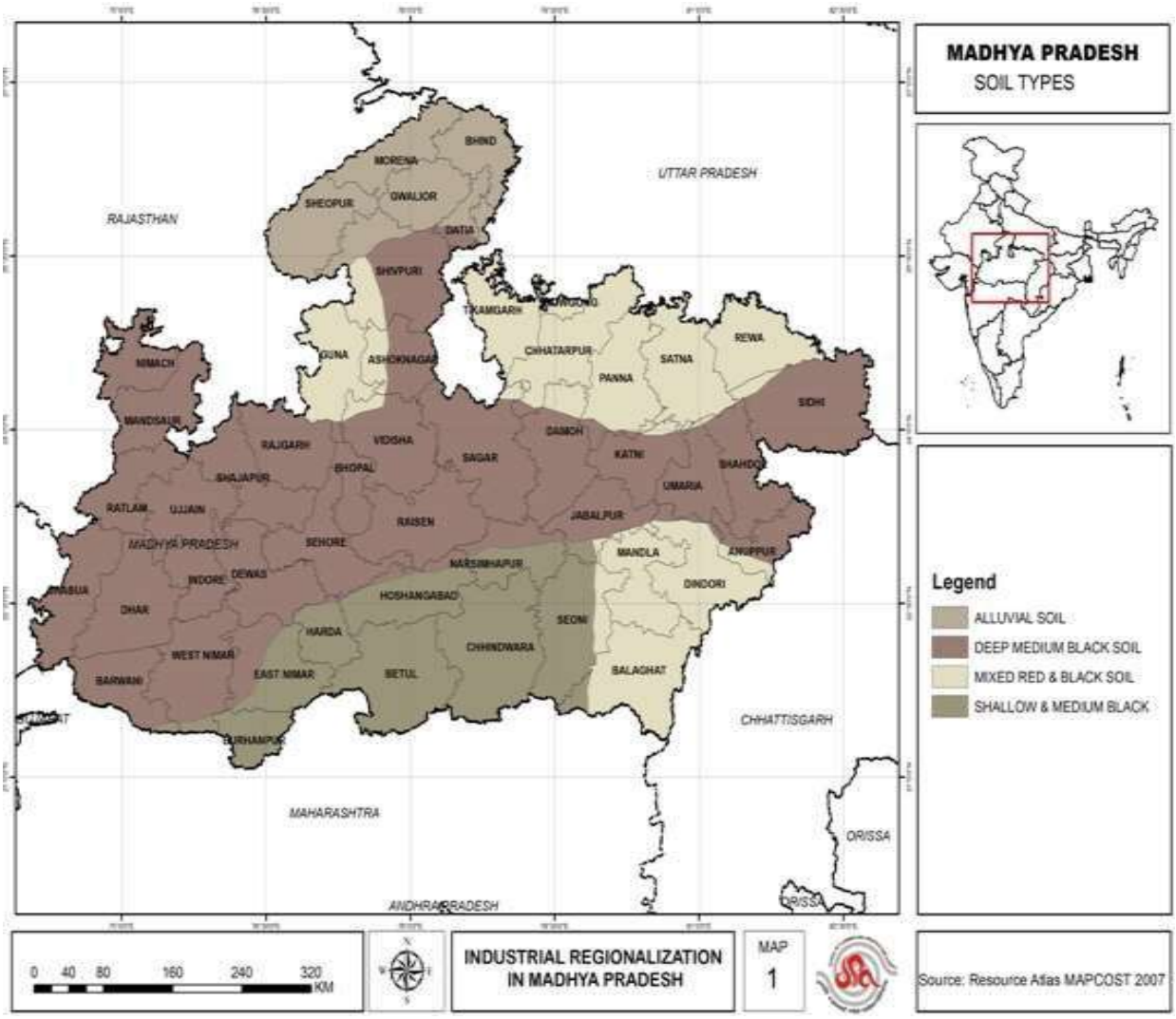
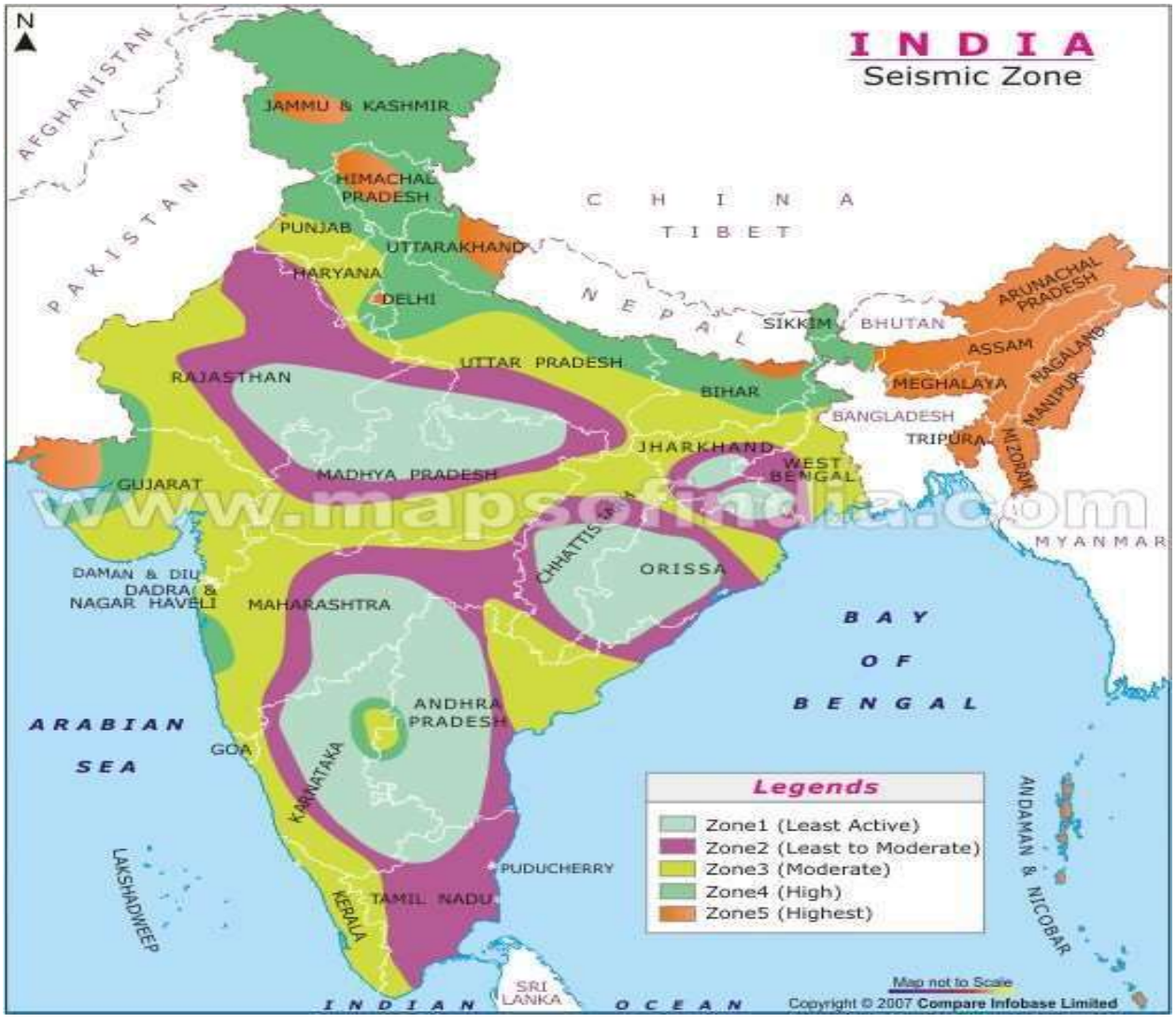


Figure3: Soil Map of MP

2. Seismicity:

56. The entire Madhya Pradesh falls under zone least active to moderate zone as per seismic map of India. In the moderate damage risk zone structures are at risk of a Medvedev–Sponheuer–Karnik (MSK) scale VII with very strong earthquake where most people are frightened and try to run outdoors causing serious damage to older buildings, masonry chimneys collapse and small landslides. In the least active zone an MSK VI or less and is classified as the Low Damage Risk Zone where earthquake can frighten most people dishes and glassware may break and visible damage to masonry structures, cracks in plaster may occur. Figure 4 shows seismic Zone map of India.



Source:IS1893(Part1)2002

Figure 4: Seismic Zone Map of India

3. Climate:

57. The region experiences typical tropical climate. It is characterized by hot summer season and general dryness except in the southwest monsoon season. The year may be

divided into four seasons; cold season from December to February is followed by the hot season from March to about the middle of June. The periods from mid-June to September is the southwest monsoon season, and from October to November constitute the post monsoon or retreating monsoon season. The maximum temperature during summers ranges from 35ºC to 45ºC while minimum temperature from 30ºC to 16ºC. The temperature during the winter season ranges between of 27ºC to 10ºC. The monsoon season spreads from the month of June to September with average rainfall of 1000 mm in the west to 2000 mm in the eastern part of state. The mean annual rainfall in the state is 1200 mm. Table: 14 shows the climate condition of Singhrouli district.

58. The salient climatic features of the district are as follow:

Average Annual Rainfall	-	1014 mm
Concentration of precipitation	-	June to September
Humidity	-	25 to 75 %
Cloudiness	-	Heavily clouded in monsoon
Wind	-	Generally light
Mean Temperature	-	16.30c in Winter
	-	33.40c in Summer

Table 14: Climate condition of project district

	Singhrouli
Climate	warm sub-tropical
Maximum temperature	40.80c in May.
Minimum temperature	9.10c in Jan.
Average Annual Rainfall	1014 mm

4. Surface and Ground Water Hydrology

a. Surface Water Hydrology

59. There are ten major rivers that originate from the State. As Madhya Pradesh is located in the center of India, most of the rivers are interstate rivers. The rivers namely Chambal, Sindh, Betwa, Ken flow northward and meet with Yamuna whereas the river Sone falls directly into Ganga. Narmada, Tapti and Mahi rivers flow westward and meet Arabian Sea whereas Wainganga and Pench rivers meet Godavari in the south. Rivers in Madhya Pradesh are mostly seasonal and rainfed, receiving maximum water flow during the monsoon season. The non - monsoon flow in some perennial rivers is mainly due to flow from groundwater.

b. Ground Water Hydrology

60. Ground water is the major water source in the area for drinking purpose. The source of recharging of ground water is mostly from rainfall and canals. Hand pumps are commonly used to draw the water from ground in the villages. Static water levels vary along the stretch of the sample roads. First or upper ground water aquifer lies in the range of 8 to 10 m below ground level (bgl). The ground water levels in the area show a decline of 0.8 m to 1.2 m from post monsoon to pre monsoon period. There are number of rivers crossing the alignment. The details of hand pumps and other water bodies along the project road are mentioned below in table no. 15.

Table 15: Water Bodies (Mahua to Persona)

Project Road :- Parsona to Mahuwa (UP to Barkha)

Sl. No.	Chainage	Distance	L/R or Crossing	Type - Pond, River, Well, HP, Tubwell etc	Remarks
1	0.100	14	RHS	HP	
2	0.150	13	RHS	HP	
3	0.300	7	LHS	HP	
4	0.600	15	LHS	HP	
5	0.800	3.5	RHS	HP	
6	1.100	18	LHS	HP	
7	3.000	10	RHS	HP	
8	3.500	6	RHS	HP	
9	4.300	8	RHS	Well	
10	4.500		Crossing	Nallah	
11	4.600	4.5	LHS	HP	
12	4.600	5.5	LHS	HP	
13	5.800	11	RHS	Well	
14	6.200	7	LHS	HP	
15	6.600	10	RHS	Well	
16	6.700	6	LHS	HP	
17	6.800	8	RHS	Well	
18	6.900	15	LHS	Tubwell	
19	7.000		Crossing	River	
20	7.300	6.4	RHS	HP	
21	7.400	7	RHS	HP	
22	7.700	6.8	RHS	HP	
23	8.200	6	LHS	HP	
24	8.500	7	RHS	HP	
25	8.600	14	RHS	Well	
26	7.400	10	LHS	HP	
27	15.800		Crossing	Nallah	
28	17.800	5	RHS	HP	
29	19.000	9	LHS	HP	
30	21.500		Crossing	Nallah	
31	23.100	-	Crossing	Nala	Seasonal Manwaghanghi Nala
32	23.300	15	RHS	Well	Barkha
33	23.800	7	LHS	HP	Barkha
34	24.300	17	RHS	HP	Barkha
35	24.600	17	LHS	Well	Barkha
36	24.800	6	LHS	HP	Barkha
37	25.000	8	LHS	HP	Barkha
38	25.800	15	RHS	HP	Barkha
39	26.000	9	RHS	Well	Barkha
40	26.200	15	LHS	Well	Barkha
41	26.500	-	Crossing	River	Seasonal Semariya nala Vill-Lohradol
42	27.700	12	LHS	HP	Lohradol
43	27.700	13	LHS	HP	Lohradol
44	28.100	5	LHS	HP	Lohradol
45	30.500	6	LHS	HP	Lohradol
46	30.900	12	LHS	Well	Lohradol
47	31.000	9	RHS	HP	Lohradol
48	31.000	15	RHS	Well	Lohradol

Sl. No.	Chainage	Distance	L/R or Crossing	Type - Pond, River, Well, HP, Tubwell etc	Remarks
49	31.100	-	Crossing	River	All time water Khakipar river Vill-Lohradol
50	31.800	9	LHS	HP	Dudhiya Tola
51	31.900	11	RHS	Well	Dudhiya Tola
52	33.800	12	RHS	HP	Jhundihawa
53	33.900	6	LHS	HP	Jhundihawa
54	33.900	6	LHS	HP	Jhundihawa
55	33.900	9	RHS	HP	Jhundihawa
56	34.300	14	LHS	Well	Jhundihawa
57	36.100	12	LHS	Well	Dahajurh
58	39.500	13	LHS	Well	Sarai
59	39.600	10	LHS	Well	Sarai
60	39.600	6	LHS	HP	Sarai
61	40.200	12	LHS	HP	Sarai
62	40.300	9	LHS	Well	Sarai
63	40.300	69	RHS	HP	Sarai
64	40.500	5	RHS	HP	Sarai
65	40.600		Crossing	Nala	Bardia Nala Seasonal Vill-Sarai
66	40.700	10	RHS	Well	Sarai
67	40.900	4.5	RHS	HP	Sarai
68	41.100	5	RHS	HP	Sarai
69	41.200	7	LHS	Well	Sarai market near tiraha
70	41.300	8	LHS	HP	Sarai
71	41.600	7	LHS	HP	Sarai
72	42.100	7	LHS	HP	Sarai
73	42.700	4.5	LHS	HP	Sarai
74	43.700	8	RHS	HP	Sarai
75	43.800	8	RHS	HP	Sarai
76	46.300		Crossing	Nala	Dhoria nala Vill-Gummadol Seasonal
77	46.600	6	LHS	HP	Gumma Dol
78	46.700	7	RHS	HP	Gumma Dol
79	46.900	8	LHS	HP	Gumma Dol
80	47.200	8	LHS	HP	Gumma Dol
81	47.600	8	RHS	HP	Gumma Dol
82	271.100		Crossing	River	Ammajhiria River All Time Water ,Vill- Gumma Dol
83	48.300	5	LHS	HP	Gumma Dol
84	48.500		Crossing	Nala	Seasonal nala Vill-Gumma Dol
85	48.700		Crossing	Nala	Sukhad Nala All time Water, fluding Vill-Gumma Dol
86	49.100	15	RHS	HP	Jarthasela
87	49.200	15	RHS	Well	Jarthasela
88	49.700	8	RHS	HP	Jarthasela
89	51.300	8	LHS	HP	Jarthasela
90	52.200	9	LHS	HP	Gazara Bahara
91	52.500	7	RHS	HP	Gazara Bahara
92	52.500	9	LHS	Well	Gazara Bahara
93	52.700	4.5	LHS	HP	Gazara Bahara
94	52.700	5	RHS	HP	Gazara Bahara

Sl. No.	Chainage	Distance	L/R or Crossing	Type - Pond, River, Well, HP, Tubwell etc	Remarks
95	52.900		Crossing	Nala	Satua nala Seasonal Vill- Khanua
96	53.200	8	RHS	HP	Khanua
97	53.400	7	LHS	HP	Khanua
98	53.500	4.5	LHS	HP	Khanua
99	53.700	10	LHS	HP	Khanua
100	54.400	3	LHS	Pond	Khanua
101	54.400		Crossing	River	Khanua River, All Time water, Vill- Khanua
102	53.500		Crossing	Nala	Seasonal Nala, Semgarhi
103	55.000	7	LHS	HP	Semgarhi
104	56.100	11	LHS	HP	Semgarhi
105	56.400	6	RHS	HP	Semgarhi
106	57.300		Crossing	River	Semgarhi River, all time water
107	58.600		Crossing	River	Mahan River, all time water Vill- Semgarhi
108	63.000	7	LHS	HP	in the forest
109	62.800		Crossing	Nala	in the forest
110	67.100	6	LHS	HP	Amilia
111	67.900		Crossing	Nala	Nala Seasonal, Vill- Amilia
112	68.300	5	LHS	HP	Amilia
113	68.800	10	LHS	HP	Amilia
114	69.100	8	LHS	HP	Amilia
115	69.500		Crossing	Nala	Nala all time water, Vill- Sohra
116	69.600	4	LHS	HP	Sohra
117	69.700	8	LHS	HP	Sohra
118	70.000	8	RHS	HP	Sohra
119	70.100	5	LHS	HP	Sohra
120	70.100	10	LHS	HP	Sohra
121	70.200	6	LHS	HP	Sohra
122	70.300	7	RHS	HP	Sohra
123	70.400	6	RHS	HP	Sohra
124	70.900	6	LHS	HP	Sohra
125	72.400	7	LHS	HP	Sohra
126	73.700		Crossing	Nala	All time water, Vill - Ghoghari
127	74.700	15	LHS	HP	Ghoghari
128	74.900	-	Crossing	Nala	Kulia nala Seasonal, Vill- Chaura
129	75.800	12	LHS	HP	Chaura
130	76.700	8	LHS	HP	Chaura
131	76.900	7	RHS	HP	Chaura
132	77.800	6	LHS	HP	Rajmilan
133	78.700	6	LHS	HP	Rajmilan
134	78.900	4	RHS	HP	Rajmilan
135	79.100	8	RHS	HP	Rajmilan
136	79.300	5	LHS	HP	Rajmilan
137	79.700	5	RHS	HP	Rajmilan
138	79.900	11	LHS	HP	Rajmilan
139	80.600	6	LHS	HP	Rajmilan
140	80.700	10	LHS	HP	Rajmilan
141	80.900	11	RHS	HP	Rajmilan

Sl. No.	Chainage	Distance	L/R or Crossing	Type - Pond, River, Well, HP, Tubwell etc	Remarks
142	81.300	-	Crossing	River	Lowa river, all time water, Vill-Rajmilan
143	81.800	9	LHS	HP	Situl Khurd
144	82.500	8	LHS	HP	Situl Khurd
145	82.600	9	LHS	HP	Situl Khurd
146	83.000	8	RHS	HP	Situl Khurd
147	83.200	9	LHS	HP	Situl Khurd
148	83.700	6	LHS	HP	Situl Khurd
149	84.000	4	LHS	HP	Situl Khurd
150	84.400	5	LHS	HP	Situl Khurd
151	84.600	8	LHS	HP	Banauli
152	85.000	7	LHS	HP	Banauli
153	85.400	5	RHS	HP	Banauli
154	86.500	5	LHS	HP	Banauli
155	86.600	6	RHS	HP	Kuthar
156	86.700	5.5	LHS	HP	Kuthar
157	86.800	5	LHS	HP	Kuthar
158	86.900	5	LHS	HP	Kuthar
159	87.000	10	RHS	HP	Kuthar
160	87.100	8	RHS	HP	Kuthar
161	87.200	6	RHS	HP	Kuthar
162	88.200	8	RHS	HP	Kuthar
163	88.200	4	LHS	HP	Kuthar
164	88.500	4	LHS	HP	Kuthar
165	88.600	3	RHS	HP	Kuthar
166	89.100	4	LHS	HP	Kuthar
167	89.400	4	LHS	HP	Kuthar
168	89.600	5	LHS	HP	Kuthar
169	89.800	6	RHS	HP	Kuthar
170	90.000	8	RHS	HP	Kuthar
171	92.000	6	LHS	HP	Kuthar
172	92.100	4	LHS	HP	Kuthar

5. Water Quality

61. Water quality along the sample roads were sampled and analysed for a physico-chemical characteristics based on procedures specified in 'Standard Methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA). Results were compared to the standards for drinking water as per IS:10500 and were all found suitable for drinking water and all parameters are within desirable limit.

Table 16: Ground/ Water Quality along the Project Road (Physical & ChemicalParameters)

Sr No..	Parameter	Test method	Unit	Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	Persona (HP)	Sarai (HP)	Amaliya (HP)	Barkha (HP)
Organoleptic & Physical Parameters									
1.	pH value	IS-3025(P-11)	-	6.5-8.5	-	7.39	7.19	7.89	7.47
2.	Total dissolve solid (TDS)	IS-3025(P-16)	mg/l	500	2000	258	319	528	764
Chemical parameters									
3.	Calcium (as Ca)	IS: 3025 (P-40)	mg/l	75	200	60.92	66.53	77.76	98.60
4.	Chloride (as Cl)	IS: 3025 (P-32)	mg/l	250	1000	8.00	13.00	16.99	19.99
5.	Magnesium (as mg)	IS: 3025 (P-46)	mg/l	30	100	21.38	26.24	23.81	17.98
6.	Nitrate (as NO3)	IS: 3025 (P-34)	mg/l	45	No Relaxation	0.26	0.54	0.50	0.63
7.	Sulphate (as SO4)	IS: 3025 (P-24)	mg/l	200	400	20.78	45.39	45.65	51.18
8.	Alkalinity (as CaCO3)	IS: 3025 (P-23)	mg/l	200	600	118	178	252	236
9.	Total hardness (as CaCO3)	IS: 3025 (P-23)	mg/l	200	600	240	274	292	320
11.	Copper as Cu	IS-3025(P-38)	mg/l	0.05	1.5	<0.1	<0.1	<0.1	<0.1
13.	Conductivity @250C	IS-3025(P-14)	µS/cm	-	-	641.2	619.4	544.2	864.4
14.	Sodium (as Na)	IS-3025(P-45)	mg/l	-	-	67.80	24.58	46.87	57.90
15.	Potassium (as K)	IS-3025(P-45)	mg/l	-	-	10.81	2.33	6.83	11.81
18.	Phosphate (as P)	IS-3025(P-31)	mg/l	-	-	<0.1	0.10	<0.1	<0.1
20	Fluoride(as F)	IS: 3025(P-60)	mg/l	1.0	1.5	<0.1	<0.1	<0.1	<0.1
21.	Amonia as NH3-N	IS-3025(P-47)	mg/l			<0.1	<0.1	<0.1	<0.1
22.	Iron (as Fe)	IS: 3025(P-53)	mg/l	0.3	No Relaxation	1.56	1.31	1.29	1.23
23.	Chromium (as Cr+6)	Annex J of IS-13428	mg/l	0.05	No Relaxation	<0.1	<0.1	<0.1	<0.1

Table 17: Ground/ Water Quality along the Project Road (Microbiological Requirement)

Sr. No.	Parameter	Test Method	Required as per IS-10500:2012	Persona (HP)	Sarai (HP)	Amaliya (HP)	Barkha (HP)
1.	Faecal Coliform	IS-1622	0	Absent/100 ml	Absent/100ml	Absent/100ml	Absent/100ml
2.	Total Coliform	IS-1622	10 Max	Absent/100 ml	Absent/100ml	Absent/100ml	Absent/100ml

6. Ambient Air Quality

62. The baseline status of the ambient air quality has been established through ambient air quality monitoring at selected points along the project roads. The ambient air quality has been monitored at 4 along the project road for particulate matter (PM2.5 and PM10), sulphur dioxide (SO2), oxides of nitrogen (NOX); and carbon monoxides (CO) using standard analysis technique (Table 18).

Table 18: Techniques Used for Ambient Air Quality Monitoring

Sl. No.	Parameter	Technique	Minimum Detectable Limit (ug/m3)
1.	Particulate Matter ($PM_{2.5}$)	Gravimetric Method	1.0
2.	Particulate Matter (PM_{10})	Gravimetric Method	1.0
3.	Sulphur dioxide	Modified West and Gaeke	5.0
4.	Nitrogen Oxide	Modified Jacob & Hochheiser	5.0
5.	Carbon Monoxide	Non Dispersive Infrared Spectroscopy (NDIR)	1

63. Ambient air quality monitoring results for PM2.5, PM10, SO2, NOx and CO concentrations are given in Table 25 and summarized below. The monitored values are compared with National Ambient Air Quality Standards prescribed by Central Pollution Control Board (CPCB) for residential, rural and other areas. The Ambient air quality levels meet the National air quality standards for rural, residential and industrial area all along the project road.

- **PM_{10}**: The mean $PM_{2.5}$ concentration at ambient air quality monitoring locations varies from 64.2 to 84.23µg/m^3.
- **$PM_{2.5}$:** The mean PM_{10}concentration at ambient air quality monitoring locations varies from 32.52 to 36.8µg/m^3. The values are within the permissible limit at all the stations.
- **SO_2:** The mean concentrations of SO_2at all ambient air quality monitoring locations are <4. The values are within the permissible limit at all the stations.
- **NOx:** The mean concentrations of NOx at all AAQM locations are <5. The values are within the permissible limit at all the stations.
- **CO:** The mean concentrations of CO at all AAQM locations are <1. The values are within the permissible limit at all the stations.

Table 19: Ambient Air Quality along the Project Road

Sr. No.	Parameter	Test Method	Units	Limits as per Environment (Protection) Act.	Parsona	Sarai	Amaliya	Barkha
1.	Particulate Matter (PM_{10})	IS:5182 Part- XXIII	$\mu g/m^3$	100.0	70.2	84.23	64.2	80.3
2.	Particulate Matter ($PM_{2.5}$)	CPCB Volume– / Grav	$\mu g/m^3$	60.0	36.8	40.2	32.5	39.8
3.	Sulphur Dioxide	IS:5182 Part-II	$\mu g/m^3$	80.0	<4	<4	<4	<4
4.	Nitrogen Dioxide	IS:5182 Part-VI	$\mu g/m^3$	80	<5	<5	<5	<5
5.	Carbon Monoxide	IS:5182 Part-X	mg/m^3	4.0	<1	<1	<1	<1

7. Noise Measurements

64. Preliminary reconnaissance survey was undertaken to identify the major noise generating sources in the area. The noise at different noise generating sources has been identified based on the industrial, commercial and residential activities, traffic and noise at sensitive areas. Sound Pressure Level (SPL) measurements were undertaken at all locations, with an interval of about 5 seconds over a period of 10 minutes per hour for 24 hr. The day noise level has been monitored during 6 AM to 10 PM and night levels during 10 P.M. to 6 AM at all locations. Day and night-time Leq have been calculated from hourly Leq values and compared with the stipulated standards. Table 26 gives the day and night-time Leq noise levels. Measured Leq noise levels exceed prescribed standards during the day time due to various commercial activities and the location of monitoring points close to the road.

Table 20: Day and Night Time Leq in the Area

Locations	Day Time dB(A)	Night Time dB(A)	Prescribed Standards dB(A)	
			Day Time	Night Time
Parsona	67.6	37.6	55	45
Sarai	76.5	37.9	55	45
Amailiya	64.5	36.8	55	45
Barkha	60.2	36.2	55	45

Source: Field monitoring, July 2014

8. Land Use

65. The most of the geographical area of the state or 307,560 sq. km or about 98% is available for utilisation. Major portion of the land use is under agriculture followed by forest cover (about 48 per cent). About 28% is under forest cover. Agriculture is the major land use in state followed by forests. The area under various land uses in the state is presented in the Table 21.

Table 21: Land Use Pattern in the State

Land Use	Area in '000 ha	Percentage
Total Geographical area	30,825	-
Reporting Area for land utilization	30,756	100.00
Forests *	8699	28.28
Not available for cultivation	3398	10.05
Permanent Pasture & Grazing land	1348	4.38
Land under misc. tree crops & groves	19	0.06
Cultivable waste land	1177	3.83
Fallow land other than current fallows	612	1.99
Current fallows	769	2.50
Net area Sown	14735	47.91

Source: Land Use Statistics Ministry of Agriculture, GOI 2006

66. The existing alignment is a link for Parsauna – Khutar - Rajmilan – Sakhoha – Suhira – Jamgadi – Gajrabahara – Dhummadol – Sarai – Lohra Dol and ends to Barkha. The pattern on both side of road is agricultural, forest and built-up. Somewhere it is in hilly terrain also. The details of land use pattern along the project road are-

- Agricultural land - 73.00%
- Built-up Land - 21.19%
- Forest Land - 3.90%
- Hill/Valley - 1.91%

C. Ecological Resources

1. Forests

67. The forest cover has been classified as dense forest and open forest. The latest estimates of Forest Survey of India (FSI), published in the State of Forest Report (SFR) 2003, suggest that the total forest cover of M.P. is 76,429 sq. km., constituting 24.79% of the State's total land area. Of the total forest cover, dense forest accounts for 13.57% and open forest about 11.22%. Central, eastern, and southern parts of the state are rich in forest cover. Figure 5 show the forest map of the state.

68. The project districts in general have little forest with only 3.9% of the land use along project road falling under protected forest. However, no forest land diversion is required for the proposed widening.

Figure 5: Forest Cover in the District of Madhya Pradesh

2. Wild Life and Protected Areas

69. The project road does not pass through any protected area such as Wildlife Sanctuary, National park or bio –reserve. There is no wildlife sanctuary Wildlife Sanctuary, National park or bio –reserve within 10 km from the project road.

3. Trees

70. Moderate tree density is observed all along the MP road. The main tree species observed are Babool, Neem, Mango, Ashok, and Pipal. An estimated 2582 trees will be cleared to accommodate the require road upgrading of which 80 % is Mahua and Tedu

71. The details of trees along the project corridor are as given in Table 22**.**

Table No. 22: Tree Inventory

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1	0.110	5.25	>120	8	-	R/S	Bargad	*Ficus benghalensis*
2	0.150	4.5	>120	9	L/S	-	Mahua	*Madhuca indica*
3	0.200	5.75	60-90	5	-	R/S	Show babool	*Leucaena leucocephala*
4	0.210	5.5	90-120	6	-	R/S	Neem	*Azadirachta*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								indica
5	0.300	6	30-60	5	-	R/S	Aam	*Mangifera Indica*
6	0.310	5.5	60-90	6	-	R/S	Aam	*Mangifera Indica*
7	0.320	5	60-90	5	-	R/S	Aam	*Mangifera Indica*
8	0.330	5	60-90	6	-	R/S	Aam	*Mangifera Indica*
9	0.340	4.5	60-90	5	L/S	-	Aam	*Mangifera Indica*
10	0.350	4.5	90-120	6	L/S	-	Aam	*Mangifera Indica*
11	0.360	4.5	90-120	7	L/S	-	Kathal	*Pandanus*
12	0.370	4	30-60	6	L/S	-	Aam	*Mangifera Indica*
13	0.900	6	>120	8	-	R/S	Mahua	*Madhuca indica*
14	1.100	5.5	60-90	6	L/S	-	Palash	*Butea monosperma*
15	1.800	6	90-120	5	L/S	-	Palash	*Butea monosperma*
16	3.100	5.5	>120	8	-	R/S	Dudhiya	*Dolichos lablab*
17	3.200	5	60-90	7	L/S		Tedu	*Diospyros melanoxylon*
18	3.400	5	>120	9	-	R/S	Mahua	*Madhuca indica*
19	4.000	5.5	90-120	7	-	R/S	Palash	*Butea monosperma*
20	4.300	5.5	60-90	6	-	R/S	Aam	*Mangifera Indica*
21	4.500	5.5	90-120	7	L/S	-	Jamun	*Syzygium cumini*
22	4.600	5.5	>120	8	L/S	-	Aam	*Mangifera Indica*
23	4.610	5.5	>120	9	L/S	-	Aam	*Mangifera Indica*
24	4.620	5.5	>120	8	L/S	-	Aam	*Mangifera Indica*
25	4.630	5.5	>120	9	L/S	-	Aam	*Mangifera Indica*
26	4.640	5	90-120	8	L/S	-	Aam	*Mangifera Indica*
27	4.650	5.5	90-120	7	L/S	-	Aam	*Mangifera Indica*
28	4.660	5.25	>120	6	-	R/S	Aam	*Mangifera Indica*
29	5.400	5	30-60	5	L/S	-	Jamun	*Syzygium cumini*
30	5.900	5.75	60-90	5	-	R/S	Neem	*Azadirachta indica*
31	6.300	4.75	>120	6	L/S	-	Jamun	*Syzygium cumini*
32	6.600	5.5	90-120	9	-	R/S	Jamun	*Syzygium cumini*
33	6.800	5.5	60-90	5	-	R/S	Aam	*Mangifera Indica*
34	6.820	5.5	60-90	5	-	R/S	Aam	*Mangifera Indica*
35	6.850	5	0-30	4	-	R/S	Sahtut	*Morus macroura*
36	6.900	5	30-60	8	L/S	-	Show babool	*Leucaena leucocephala*
37	6.920	5.25	30-60	7	L/S	-	Show babool	*Leucaena leucocephala*
38	6.930	5	60-90	7	L/S	-	Show babool	*Leucaena leucocephala*
39	6.950	4.5	60-90	6	L/S	-	Aam	*Mangifera Indica*
40	7.300	5.5	90-120	6	-	R/S	Palash	*Butea monosperma*
41	7.500	6	60-90	5	-	R/S	Bel	*Aegle marmelos*
42	7.600	6	60-90	6	-	R/S	Neem	*Azadirachta indica*
43	7.800	5.5	60-90	7	-	R/S	Bair	*Z.ziziba*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
44	8.600	5.5	>120	9	-	R/S	Mahua	*Madhuca indica*
45	9.000	5	60-90	7	L/S	-	Sarai	*Boswellia Serrata*
46	9.010	5.5	>120	7	-	R/S	Palash	*Butea monosperma*
47	9.300	5.5	>120	9	L/S	-	Mahua	*Madhuca indica*
48	9.400	6	60-90	7	-	R/S	Aam	*Mangifera Indica*
49	9.420	5.5	60-90	6	-	R/S	Aam	*Mangifera Indica*
50	9.450	6	>120	10	L/S	-	Mahua	*Madhuca indica*
51	9.500	6	>120	11	-	R/S	Tedu	*Diospyros melanoxylon*
52	9.900	6	90-120	8	-	R/S	Palash	*Butea monosperma*
53	9.920	6	90-120	7	-	R/S	Palash	*Butea monosperma*
54	10.100	5	60-90	6	-	R/S	Palash	*Butea monosperma*
55	10.160	5	30-60	5	-	R/S	Palash	*Butea monosperma*
56	10.200	4.5	30-60	6	L/S	-	Palash	*Butea monosperma*
57	10.210	4.5	60-90	6	L/S	-	Palash	*Butea monosperma*
58	10.240	5	60-90	7	-	R/S	Palash	*Butea monosperma*
59	10.260	5	>120	8	-	R/S	Palash	*Butea monosperma*
60	10.300	5	60-90	7	-	R/S	Palash	*Butea monosperma*
61	10.500	5.5	30-60	6	-	R/S	Palash	*Butea monosperma*
62	10.600	5	60-90	7	L/S	-	Palash	*Butea monosperma*
63	10.610	5	60-90	6	L/S	-	Palash	*Butea monosperma*
64	10.620	4.75	60-90	6	L/S	-	Palash	*Butea monosperma*
65	10.640	4.5	60-90	6	L/S	-	Palash	*Butea monosperma*
66	10.800	5	90-120	7	L/S	-	Palash	*Butea monosperma*
67	10.900	5.5	60-90	6	-	R/S	Palash	*Butea monosperma*
68	10.920	5.25	60-90	7	-	R/S	Palash	*Butea monosperma*
69	10.940	5	60-90	6	-	R/S	Palash	*Butea monosperma*
70	10.960	5	60-90	6	-	R/S	Palash	*Butea monosperma*
71	11.100	3	>120	10	L/S	-	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
72	11.140	4.5	>120	8		-	Palash	*Butea monosperma*
73	11.400	4	>120	6	L/S	-	Mahua	*Madhuca indica*
74	11.500	4.5	90-120	7	L/S	-	Sedha	*Eucalyptus globulus*
75	11.520	4.5	60-90	7	L/S	-	Sedha	*Eucalyptus globulus*
76	11.550	4.5	60-90	6	L/S	-	Sedha	*Eucalyptus globulus*
77	11.570	5	90-120	7	L/S	-	Mahua	*Madhuca indica*
78	11.590	4.5	90-120	7	L/S	-	Mahua	*Madhuca indica*
79	11.600	4	90-120	7	L/S	-	Mahua	*Madhuca indica*
80	11.800	5.5	>120	10	L/S	-	Jigna	*Syzygium cumini*
81	11.820	5	60-90	7	-	R/S	Sedha	*Eucalyptus globulus*
82	11.840	5	30-60	6	L/S	-	Sedha	*Eucalyptus globulus*
83	11.870	5.5	60-90	7	L/S	-	Sedha	*Eucalyptus globulus*
84	11.900	5	90-120	7	L/S	-	Mahua	*Madhuca indica*
85	11.920	4	90-120	8	L/S	-	Hardi	*Termanlia balarica*
86	11.960	4	60-90	7	L/S	-	Tedu	*Diospyros melanoxylon*
87	11.980	4.5	30-60	6	L/S	-	Sedha	*Eucalyptus globulus*
88	11.990	5.5	60-90	7	L/S	-	Sedha	*Eucalyptus globulus*
89	11.995	4	>120	7	L/S	-	Mahua	*Madhuca indica*
90	12.000	4.5	60-90	8	-	R/S	Sedha	*Eucalyptus globulus*
91	12.010	4	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
92	12.100	4.5	>120	10	L/S	-	Tedu	*Diospyros melanoxylon*
93	12.120	4	>120	10	L/S	-	Tedu	*Diospyros melanoxylon*
94	12.300	4.5	>120	9	-	R/S	Tedu	*Diospyros melanoxylon*
95	12.320	4	>120	9	L/S	-	Mahua	*Madhuca indica*
96	12.500	4.5	>120	7	-	R/S	Palash	*Butea monosperma*
97	12.540	5	>120	6	L/S	-	Mahua	*Madhuca indica*
98	12.600	5.5	30-60	7	-	R/S	Tedu	*Diospyros melanoxylon*
99	12.650	5.75	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
100	12.700	5.5	>120	10	L/S	-	Tedu	*Diospyros melanoxylon*
101	12.800	5	>120	9	L/S	-	Tedu	*Diospyros*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								melanoxylon
102	12.820	4	>120	9	-	R/S	Tedu	*Diospyros melanoxylon*
103	12.840	4.5	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
104	12.860	5.5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
105	12.870	5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
106	12.9	4	>120	8	L/S	-	Tedu	*Diospyros melanoxylon*
107	12.920	5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
108	12.930	4.5	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
109	12.940	5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
110	12.950	4.5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
111	12.960	4	>120	6	-	R/S	Tedu	*Diospyros melanoxylon*
112	12.970	4.5	>120	7	-	R/S	Tedu	*Diospyros melanoxylon*
113	12.980	4.5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
114	12.990	5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
115	13.000	5	>120	10	L/S	-	Tedu	*Diospyros melanoxylon*
116	13.100	5	90-120	9	L/S	-	Tedu	*Diospyros melanoxylon*
117	13.110	5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
118	13.120	4.5	90-120	9	L/S	-	Tedu	*Diospyros melanoxylon*
119	13.130	4.5	90-120	10	-	R/S	Tedu	*Diospyros melanoxylon*
120	13.140	4.5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
121	13.150	5	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
122	13.160	5	90-120	10	-	R/S	Tedu	*Diospyros melanoxylon*
123	13.170	4.5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
124	13.180	4.5	60-90	9	-	R/S	Tedu	*Diospyros melanoxylon*
125	13.190	5	60-90	8	L/S	-	Tedu	*Diospyros melanoxylon*
126	13.200	4.5	90-120	9	L/S	-	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
127	13.210	4	>120	8	L/S	-	Mahua	*Madhuca indica*
128	13.220	4	>120	9	L/S	-	Mahua	*Madhuca indica*
129	13.230	5	60-90	7	-	L/S	Mahua	*Madhuca indica*
130	13.240	4.5	90-120	8	-	L/S	Mahua	*Madhuca indica*
131	13.250	5	90-120	7	-	L/S	Mahua	*Madhuca indica*
132	13.260	5	90-120	8	-	L/S	Mahua	*Madhuca indica*
133	13.300	4.5	90-120	9	-	L/S	Mahua	*Madhuca indica*
134	13.320	4.5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
135	13.350	5	90-120	9	L/S	-	Tedu	*Diospyros melanoxylon*
136	13.400	4.5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
137	13.420	4	60-90	7	L/S	-	Tedu	*Diospyros melanoxylon*
138	13.430	5	60-90	8	L/S	-	Tedu	*Diospyros melanoxylon*
139	13.440	5.5	60-90	9	L/S	-	Tedu	*Diospyros melanoxylon*
140	13.450	5	60-90	7	-	R/S	Tedu	*Diospyros melanoxylon*
141	13.460	5	90-120	8	-	R/S	Mahua	*Madhuca indica*
142	13.470	5.5	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
143	13.480	4.5	90-120	10	-	R/S	Tedu	*Diospyros melanoxylon*
144	13.490	5	90-120	9	-	R/S	Mahua	*Madhuca indica*
145	13.500	5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
146	13.520	5.5	>120	9	L/S	-	Mahua	*Madhuca indica*
147	13.700	5	>120	9	L/S	-	Mahua	*Madhuca indica*
148	13.720	5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
149	13.740	4	90-120	9	L/S	-	Tedu	*Diospyros melanoxylon*
150	13.760	4	>120	6	L/S	-	Tedu	*Diospyros melanoxylon*
151	13.770	4.5	>120	9	-	R/S	Mahua	*Madhuca indica*
152	13.780	5	>120	7	-	R/S	Tedu	*Diospyros melanoxylon*
153	13.790	5	90-120	8	-	R/S	Mahua	*Madhuca indica*
154	13.800	4.5	>120	9	-	R/S	Tedu	*Diospyros melanoxylon*
155	13.810	5	>120	8	L/S	-	Mahua	*Madhuca indica*
156	13.820	4.5	>120	9	L/S	-	Mahua	*Madhuca indica*
157	13.830	5	90-120	10	L/S	-	Mahua	*Madhuca indica*
158	13.840	5	90-120	11	L/S	-	Mahua	*Madhuca indica*
159	13.845	5.5	>120	10	-	R/S	Tedu	*Diospyros melanoxylon*
160	13.850	4	>120	11	-	R/S	Tedu	*Diospyros*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								melanoxylon
161	13.860	4.5	>120	11	-	R/S	Tedu	*Diospyros melanoxylon*
162	13.865	5	90-120	10	-	R/S	Mahua	*Madhuca indica*
163	13.870	4	60-90	9	L/S	-	Mahua	*Madhuca indica*
164	13.880	4	90-120	8	L/S	-	Mahua	*Madhuca indica*
165	13.885	4.5	90-120	7	L/S	-	Mahua	*Madhuca indica*
166	13.890	5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
167	13.900	5	60-90	9	-	R/S	Tedu	*Diospyros melanoxylon*
168	13.905	4.5	60-90	8	L/S	-	Tedu	*Diospyros melanoxylon*
169	13.910	4.5	90-120	9	L/S	-	Tedu	*Diospyros melanoxylon*
170	13.915	5	60-90	8	L/S	-	Tedu	*Diospyros melanoxylon*
171	13.920	4.5	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
172	13.925	5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
173	13.930	5	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
174	13.935	5	90-120	10	L/S		Tedu	*Diospyros melanoxylon*
175	13.940	5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
176	13.945	4.5	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
177	13.950	4	>120	10	-	R/S	Tedu	*Diospyros melanoxylon*
178	13.955	4.5	>120	9	-	R/S	Tedu	*Diospyros melanoxylon*
179	13.960	4.5	>120	8	L/S	-	Tedu	*Diospyros melanoxylon*
180	13.965	4.5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
181	13.970	5	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
182	13.975	5	>120	8	L/S	-	Tedu	*Diospyros melanoxylon*
183	13.980	5	>120	10	-	R/S	Tedu	*Diospyros melanoxylon*
184	13.985	5	>120	9	-	R/S	Tedu	*Diospyros melanoxylon*
185	13.990	5	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
186	13.995	5	>120	1	L/S	-	Tedu	*Diospyros melanoxylon*
187	14.000	5	>120	10	L/S	-	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
188	14.010	5	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
189	14.015	5	>120	8	L/S	-	Tedu	*Diospyros melanoxylon*
190	14.016	5	>120	9	-	R/S	Tedu	*Diospyros melanoxylon*
191	14.017	5.5	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
192	14.018	5	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
193	14.019	4	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
194	14.020	4	>120	10	-	R/S	Tedu	*Diospyros melanoxylon*
195	14.025	4	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
196	14.026	4	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
197	14.027	4.5	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
198	14.028	4	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
199	14.029	4	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
200	14.030	4	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
201	14.040	4.5	90-120	9	L/S	-	Tedu	*Diospyros melanoxylon*
202	14.050	4.5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
203	14.051	5	90-120	1	L/S		Tedu	*Diospyros melanoxylon*
204	14.052	5	90-120	10	-	R/S	Tedu	*Diospyros melanoxylon*
205	14.053	5	>120	1	L/S		Tedu	*Diospyros melanoxylon*
206	14.054	4.5	>120	10	-	R/S	Tedu	*Diospyros melanoxylon*
207	14.055	4	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
208	14.060	4	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
209	14.065	4.5	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
210	14.070	4	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
211	14.075	4.5	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
212	14.080	5	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
213	14.085	5	90-120	8	L/S		Tedu	*Diospyros melanoxylon*
214	14.090	4.5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
215	14.095	4	60-90	8	L/S	-	Tedu	*Diospyros melanoxylon*
216	14.096	4	60-90	7	L/S	-	Tedu	*Diospyros melanoxylon*
217	14.097	5.5	60-90	8	L/S	-	Tedu	*Diospyros melanoxylon*
218	14.098	4	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
219	14.099	5	30-60	8	-	R/S	Tedu	*Diospyros melanoxylon*
220	14.100	5	30-60	9	-	R/S	Tedu	*Diospyros melanoxylon*
221	14.105	4	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
222	14.110	4	90-120	7	L/S	-	Tedu	*Diospyros melanoxylon*
223	14.130	4.5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
224	14.170	4.5	60-90	10	-	R/S	Tedu	*Diospyros melanoxylon*
225	14.120	4.5	60-90	11	-	R/S	Tedu	*Diospyros melanoxylon*
226	14.122	5	60-90	10	-	R/S	Tedu	*Diospyros melanoxylon*
227	14.123	5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
228	14.124	5	60-90	9	L/S	-	Tedu	*Diospyros melanoxylon*
229	14.125	4.5	>120	7	L/S	-	Tedu	*Diospyros melanoxylon*
230	14.130	4	>120	8	L/S	-	Tedu	*Diospyros melanoxylon*
231	14.135	4	>120	9	L/S	-	Tedu	*Diospyros melanoxylon*
232	14.137	4	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
233	14.138	4	>120	9	-	R/S	Tedu	*Diospyros melanoxylon*
234	14.139	4	>120	10	L/S	-	Tedu	*Diospyros melanoxylon*
235	14.150	5	>120	11	L/S	-	Tedu	*Diospyros melanoxylon*
236	14.160	5	90-120	10	L/S	-	Tedu	*Diospyros melanoxylon*
237	14.170	5	90-120	1	L/S	-	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
238	14.175	4	90-120	10	L/S	-	Tedu	*Diospyros melanoxylon*
239	14.180	4.5	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
240	14.190	4.5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
241	14.200	4.5	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
242	14.205	4.5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
243	14.210	4.5	60-90	9	-	R/S	Tedu	*Diospyros melanoxylon*
244	14.215	4.5	60-90	8	L/S	-	Tedu	*Diospyros melanoxylon*
245	14.220	4.5	60-90	7	L/S	-	Tedu	*Diospyros melanoxylon*
246	14.225	5	90-120	9	L/S	-	Tedu	*Diospyros melanoxylon*
247	14.226	4	30-60	8	L/S	-	Tedu	*Diospyros melanoxylon*
248	14.227	4.5	60-90	10	L/S	-	Tedu	*Diospyros melanoxylon*
249	14.230	5	60-90	9	L/S	-	Tedu	*Diospyros melanoxylon*
250	14.240	4	30-60	10	L/S	-	Tedu	*Diospyros melanoxylon*
251	14.245	5	90-120	9	L/S	-	Tedu	*Diospyros melanoxylon*
252	14.250	4	>120	7	L/S	-	Tedu	*Diospyros melanoxylon*
253	14.255	4.5	>120	8	L/S	-	Tedu	*Diospyros melanoxylon*
254	14.260	4.5	>120	6	-	R/S	Tedu	*Diospyros melanoxylon*
255	14.265	5	>120	7	-	R/S	Tedu	*Diospyros melanoxylon*
256	14.270	4	>120	8	L/S	-	Tedu	*Diospyros melanoxylon*
257	14.275	4.5	>120	8	-	R/S	Tedu	*Diospyros melanoxylon*
258	14.280	4.5	30-60	6	-	R/S	Tedu	*Diospyros melanoxylon*
259	14.285	5	60-90	8	-	R/S	Tedu	*Diospyros melanoxylon*
260	14.290	5	60-90	7	-	R/S	Mahua	*Madhuca indica*
261	14.295	5	60-90	8	-	R/S	Mahua	*Madhuca indica*
262	14.296	4.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
263	14.297	4	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
264	14.300	4.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
265	14.305	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
266	14.310	5	90-120	11	L/S	R/S	Sarai	*Boswellia Serrata*
267	14.315	5	60-90	1	L/S	R/S	Sarai	*Boswellia Serrata*
268	14.316	4	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
269	14.340	4	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
270	14.345	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
271	14.350	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
272	14.352	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
273	14.355	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
274	14.360	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
275	14.370	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
276	14.380	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
277	14.385	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
278	14.386	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
279	14.387	4	>120	9	L/S	R/S	Mahua	*Madhuca indica*
280	14.388	4	>120	8	L/S	R/S	Mahua	*Madhuca indica*
281	14.389	4	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
282	14.390	4.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
283	14.395	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
284	14.400	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
285	14.450	4.5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
286	14.455	4	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
287	14.460	4	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
288	14.465	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
289	14.470	4.5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
290	14.475	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
291	14.480	5	30-60	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
292	14.485	4.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
293	14.490	4.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
294	14.495	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
295	14.500	4.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
296	14.505	4	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
297	14.510	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
298	14.515	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
299	14.520	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
300	14.525	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
301	14.530	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
302	14.535	4.5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
303	14.540	5	>120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
304	14.545	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
305	14.550	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
306	14.555	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
307	14.560	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
308	14.565	4	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
309	14.570	4	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
310	14.575	4.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
311	14.580	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
312	14.585	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
313	14.590	4.5	>120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
314	14.595	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
315	14.600	4.5	90-120	1	L/S	R/S	Tedu	*Diospyros melanoxylon*
316	14.605	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
317	14.610	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
318	14.615	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
319	14.620	4	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
320	14.625	4.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
321	14.630	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
322	14.635	4	>120	8	L/S	R/S	Mahua	*Madhuca indica*
323	14.640	4	>120	7	L/S	R/S	Mahua	*Madhuca indica*
324	14.645	4.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
325	14.650	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
326	14.655	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
327	14.660	4.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
328	14.665	4.5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
329	14.670	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
330	14.675	4.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
331	14.680	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
332	14.685	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
333	14.690	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
334	14.695	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
335	14.700	4.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
336	14.705	4	>120	6	L/S	R/S	Mahua	*Madhuca indica*
337	14.710	4.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
338	14.715	4.5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
339	14.720	4.5	30-60	8	L/S	R/S	Mahua	*Madhuca indica*
340	14.725	5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
341	14.730	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
342	14.735	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
343	14.740	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
344	14.745	5	90-120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
345	14.750	5	90-120	1	L/S	R/S	Mahua	*Madhuca indica*
346	14.755	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
347	14.760	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
348	14.765	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
349	14.770	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
350	14.775	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
351	14.780	5	>120	8	L/S	R/S	Sarai	*Boswellia*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								Serrata
352	14.785	4	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
353	14.790	4	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
354	14.795	4	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
355	14.800	4	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
356	14.805	4.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
357	14.810	4	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
358	14.815	4	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
359	14.820	4	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
360	14.825	4.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
361	14.830	4.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
362	14.835	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
363	14.840	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
364	14.845	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
365	14.850	4.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
366	14.855	4	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
367	14.860	4	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
368	14.865	4.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
369	14.870	4	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
370	14.875	4.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
371	14.880	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
372	14.885	5	30-60	7	L/S	R/S	Mahua	*Madhuca indica*
373	14.890	4.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
374	14.895	4	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
375	14.900	4	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
376	14.905	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
377	14.910	4	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
378	14.915	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
379	14.920	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
380	14.925	4	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
381	14.930	4	60-90	11	L/S	R/S	Sarai	*Boswellia*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								Serrata
382	14.935	4.5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
383	14.940	4.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
384	14.945	4.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
385	14.950	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
386	14.955	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
387	14.960	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
388	14.965	4.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
389	14.970	4	>120	9	L/S	R/S	Mahua	*Madhuca indica*
390	14.975	4	>120	10	L/S	R/S	Mahua	*Madhuca indica*
391	14.980	4	60-90	11	L/S	R/S	Sarai	*Boswellia Serrata*
392	14.985	4	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
393	14.990	4	>120	1	L/S	R/S	Tedu	*Diospyros melanoxylon*
394	14.995	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
395	15.000	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
396	15.005	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
397	15.010	4	>120	9	L/S	R/S	Mahua	*Madhuca indica*
398	15.015	4.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
399	15.020	4.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
400	15.025	4.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
401	15.030	4.5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
402	15.035	4.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
403	15.040	4.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
404	15.045	4.5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
405	15.050	5	30-60	9	L/S	R/S	Sarai	*Boswellia Serrata*
406	15.055	4	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
407	15.060	4.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
408	15.065	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
409	15.070	4	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
410	15.075	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
411	15.080	4	90-120	7	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
412	15.085	4.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
413	15.090	4.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
414	15.095	4.5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
415	15.100	4	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
416	15.105	4	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
417	15.110	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
418	15.115	4.5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
419	15.120	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
420	15.125	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
421	15.130	4.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
422	15.135	4.5	>120	11	L/S	R/S	Mahua	*Madhuca indica*
423	15.140	5	>120	1	L/S	R/S	Mahua	*Madhuca indica*
424	15.145	4.5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
425	15.150	4	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
426	15.155	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
427	15.160	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
428	15.165	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
429	15.170	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
430	15.175	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
431	15.180	4.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
432	15.185	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
433	15.190	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
434	15.195	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
435	15.200	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
436	15.205	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
437	15.210	4	>120	9	L/S	R/S	Mahua	*Madhuca indica*
438	15.215	4	30-60	8	L/S	R/S	Mahua	*Madhuca indica*
439	15.220	4.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
440	15.225	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
441	15.230	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
442	15.235	4.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
443	15.240	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
444	15.245	4.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
445	15.250	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
446	15.255	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
447	15.260	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
448	15.265	4	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
449	15.270	4.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
450	15.275	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
451	15.280	4	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
452	15.285	4	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
453	15.290	4.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
454	15.295	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
455	15.300	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
456	15.305	4.5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
457	15.310	4.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
458	15.315	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
459	15.320	4.5	>120	11	L/S	R/S	Sarai	*Boswellia Serrata*
460	15.325	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
461	15.330	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
462	15.335	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
463	15.340	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
464	15.345	4.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
465	15.350	4	>120	9	L/S	R/S	Mahua	*Madhuca indica*
466	15.355	4.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
467	15.360	4.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
468	15.365	4.5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
469	15.370	5	>120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
470	15.375	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
471	15.380	5	30-60	1	L/S	R/S	Mahua	*Madhuca indica*
472	15.385	5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
473	15.390	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
474	15.395	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
475	15.400	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
476	15.405	5	90-120	8	L/S	R/S	Sarai	*Boswellia*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								Serrata
477	15.410	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
478	15.415	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
479	15.420	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
480	15.425	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
481	15.430	4	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
482	15.435	4	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
483	15.440	4	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
484	15.445	4	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
485	15.450	4.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
486	15.455	4	>120	7	L/S	R/S	Mahua	*Madhuca indica*
487	15.460	4	>120	8	L/S	R/S	Mahua	*Madhuca indica*
488	15.465	4	>120	6	L/S	R/S	Mahua	*Madhuca indica*
489	15.470	4.5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
490	15.475	4.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
491	15.480	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
492	15.485	5	>120	6	L/S	R/S	Sarai	*Boswellia Serrata*
493	15.490	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
494	15.495	4.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
495	15.500	4	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
496	15.505	4	>120	6	L/S	R/S	Mahua	*Madhuca indica*
497	15.510	4.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
498	15.515	4	>120	8	L/S	R/S	Mahua	*Madhuca indica*
499	15.520	4.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
500	15.525	5	>120	11	L/S	R/S	Sarai	*Boswellia Serrata*
501	15.530	5	>120	1	L/S	R/S	Sarai	*Boswellia Serrata*
502	15.535	4.5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
503	15.540	4	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
504	15.545	4	30-60	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
505	15.550	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
506	15.555	4	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
507	15.560	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
508	15.565	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
509	15.570	4	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
510	15.575	4	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
511	15.580	4.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
512	15.585	4.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
513	15.590	4.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
514	15.595	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
515	15.600	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
516	15.605	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
517	15.610	4.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
518	15.615	4	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
519	15.620	4	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
520	15.625	4	>120	8	L/S	R/S	Mahua	*Madhuca indica*
521	15.630	4	>120	9	L/S	R/S	Mahua	*Madhuca indica*
522	15.635	4	>120	8	L/S	R/S	Mahua	*Madhuca indica*
523	15.640	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
524	15.645	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
525	15.650	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
526	15.655	4	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
527	15.660	4.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
528	15.665	4.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
529	15.670	4.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
530	15.675	4.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
531	15.680	4.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
532	15.685	4.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
533	15.690	4.5	>120	8	L/S	R/S	Sarai	*Boswellia*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								Serrata
534	15.695	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
535	15.700	4	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
536	15.705	4.5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
537	15.710	5	30-60	11	L/S	R/S	Mahua	*Madhuca indica*
538	15.715	4	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
539	15.720	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
540	15.725	4	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
541	15.730	4.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
542	15.735	4.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
543	15.740	4.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
544	15.745	4	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
545	15.750	4	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
546	15.755	5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
547	15.760	4.5	60-90	11	L/S	R/S	Mahua	*Madhuca indica*
548	15.765	5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
549	15.770	5	>120	1	L/S	R/S	Mahua	*Madhuca indica*
550	15.775	4.5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
551	15.780	4.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
552	15.785	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
553	15.790	4.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
554	15.795	4	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
555	15.800	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
556	15.805	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
557	15.810	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
558	15.815	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
559	16.400	5	>120	10	-	R/S	Palash	*Butea monosperma*
560	17.300	4.5	>120	9	-	R/S	Palash	*Butea monosperma*
561	17.390	5	>120	8	-	R/S	Palash	*Butea monosperma*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
562	18.800	5	>120	9	-	R/S	Palash	*Butea monosperma*
563	18.820	4.5	>120	8	-	R/S	Palash	*Butea monosperma*
564	18.840	4.5	90-120	9	-	R/S	Peepal	*Ficus religiosa*
565	18.860	5	>120	8	-	R/S	Peepal	*Ficus religiosa*
566	18.880	4.5	90-120	7	-	R/S	Mahua	*Madhuca indica*
567	18.900	4	>120	9	L/S	-	Mahua	*Madhuca indica*
568	19.100	5	90-120	10	L/S	-	Palash	*Butea monosperma*
569	19.150	5.5	>120	9	L/S	-	Mahua	*Madhuca indica*
570	19.190	5	90-120	8	L/S	-	Mahua	*Madhuca indica*
571	19.200	5	>120	9	-	R/S	Palash	*Butea monosperma*
572	19.300	5	>120	8	L/S	-	Palash	*Butea monosperma*
573	19.400	4.5	>120	9	-	R/S	Mahua	*Madhuca indica*
574	19.410	5	>120	9	-	R/S	Palash	*Butea monosperma*
575	19.800	5	>120	8	L/S	-	Aam	*Mangifera Indica*
576	19.810	5.5	>120	9	L/S	-	Sarai	*Boswellia Serrata*
577	20.700	5	>120	7	-	R/S	Peepal	*Ficus religiosa*
578	22.000	5	>120	8	-	R/S	Palash	*Butea monosperma*
579	22.100	5	>120	6	-	R/S	Bargad	*Ficus benghalensis*
580	22.120	5	>120	10	L/S	-	Mahua	*Madhuca indica*
581	24.800	5	>120	11	L/S	-	Mahua	*Madhuca indica*
582	24.900	5	>120	7	-	R/S	Mahua	*Madhuca indica*
583	25.000	4	>120	8	L/S	-	Mahua	*Madhuca indica*
584	25.100	5.5	90-120	9	-	R/S	Mahua	*Madhuca indica*
585	25.400	5	>120	9	-	R/S	Mahua	*Madhuca indica*
586	25.800	5	90-120	8	L/S	-	Mahua	*Madhuca indica*
587	26.200	5.5	>120	7	L/S	-	Sheesham	*Dalbergia sissoo*
588	26.220	5	90-120	6	L/S	-	Bel	*Aegle marmelos*
589	26.300	5	>120	7	L/S	-	Palash	*Butea monosperma*
590	26.400	5	90-120	8	L/S	-	Palash	*Butea monosperma*
591	26.500	5	90-120	9	L/S	-	Palash	*Butea monosperma*
592	26.600	5	>120	5	L/S	-	Palash	*Butea monosperma*
593	26.700	5	90-120	6	L/S	-	Palash	*Butea*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								monosperma
594	26.900	5	>120	8	L/S	-	Aam	*Mangifera Indica*
595	28.500	5	90-120	9	L/S	-	Aam	*Mangifera Indica*
596	28.510	5	>120	6	L/S	-	Aam	*Mangifera Indica*
597	28.540	5	90-120	7	L/S	-	Aam	*Mangifera Indica*
598	28.550	5.5	90-120	8	L/S	-	Aam	*Mangifera Indica*
599	28.800	5	>120	7	L/S	-	Mahua	*Madhuca indica*
600	28.900	5.5	90-120	8	L/S	-	Mahua	*Madhuca indica*
601	29.000	5	>120	8	L/S	-	Neem	*Azadirachta indica*
602	29.400	5.5	90-120	7	L/S	-	Mahua	*Madhuca indica*
603	29.500	5.5	>120	9	-	R/S	Tedu	*Diospyros melanoxylon*
604	29.700	5.5	90-120	8	L/S	-	Mahua	*Madhuca indica*
605	29.900	5.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
606	30.200	5.5	>120	10	-	R/S	Sarai	*Boswellia Serrata*
607	30.900	5.5	>120	8	L/S	-	Palash	*Butea monosperma*
608	31.000	5.5	>120	9	-	R/S	Palash	*Butea monosperma*
609	31.200	5.75	60-90	6	L/S	-	Aam	*Mangifera Indica*
610	31.250	5.5	30-60	5	-	R/S	Bel	*Aegle marmelos*
611	31.500	5	>120	10	L/S	-	Sarai	*Boswellia Serrata*
612	31.700	5.5	>120	10	L/S	-	Mahua	*Madhuca indica*
613	31.800	6	>120	11	L/S	-	Jamun	*Syzygium cumini*
614	32.000	5.5	>120	10	-	R/S	Tedu	*Diospyros melanoxylon*
615	32.100	5	>120	11	L/S		Jamun	*Syzygium cumini*
616	32.500	5.5	>120	6		R/S	Mahua	*Madhuca indica*
617	32.600	5	>120	7	L/S	-	Mahua	*Madhuca indica*
618	32.700	5	>120	7	L/S	-	Mahua	*Madhuca indica*
619	32.720	5	>120	9	-	R/S	Mahua	*Madhuca indica*
620	32.740	5	>120	8	-	R/S	Mahua	*Madhuca indica*
621	32.750	5	>120	9	L/S	-	Mahua	*Madhuca indica*
622	33.500	5	>120	8	L/S	-	Mahua	*Madhuca indica*
623	34.000	5	>120	9	L/S	-	Mahua	*Madhuca indica*
624	35.100	5.5	>120	9	-	R/S	Mahua	*Madhuca indica*
625	35.400	5	>120	9	-	R/S	Mahua	*Madhuca indica*
626	35.800	5.5	>120	9	-	R/S	Mahua	*Madhuca indica*
627	35.820	5.5	>120	8	L/S	-	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
628	36.100	5	>120	7	L/S	-	Mahua	*Madhuca indica*
629	36.110	5	>120	8	L/S	-	Mahua	*Madhuca indica*
630	36.400	5	>120	9	-	R/S	Jamun	*Syzygium cumini*
631	36.500	5	>120	8	L/S	-	Mahua	*Madhuca indica*
632	36.600	5.5	>120	8	L/S	-	Tedu	*Diospyros melanoxylon*
633	36.700	5	90-120	7	-	R/S	Peepal	*Ficus religiosa*
634	36.900	5	60-90	8	L/S	-	Jamun	*Syzygium cumini*
635	37.100	5.5	>120	6	L/S	-	Mahua	*Madhuca indica*
636	37.700	5	>120	8	-	R/S	Bargad	*Ficus benghalensis*
637	38.200	5	>120	10	-	R/S	Sarai	*Boswellia Serrata*
638	38.500	5	>120	10	-	R/S	Sarai	*Boswellia Serrata*
639	38.510	5	>120	8	-	R/S	Sarai	*Boswellia Serrata*
640	38.520	5	>120	9	-	R/S	Sarai	*Boswellia Serrata*
641	38.600	5	>120	8	-	R/S	Mahua	*Madhuca indica*
642	38.700	5	90-120	8	L/S	-	Sarai	*Boswellia Serrata*
643	39.400	5.5	>120	1	L/S	-	Aam	*Mangifera Indica*
644	39.900	5.5	90-120	8	L/S	-	Neem	*Azadirachta indica*
645	39.950	5	30-60	6	L/S	-	Munga	*Mangifera Indica*
646	40.650	5	90-120	8	-	R/S	Neem	*Azadirachta indica*
647	40.660	5	>120	6	L/S	-	Aam	*Mangifera Indica*
648	40.680	5	60-90	7	L/S	-	Imali	*Tamarindus Indica*
649	40.700	5.5	60-90	11	L/S	-	Chorangi	*Buchanania lanzan*
650	40.800	5.5	>120	7	-	R/S	Jamun	*Syzygium cumini*
651	41.000	5.5	>120	6	-	R/S	Neem	*Azadirachta indica*
652	41.200	5	90-120	7	-	R/S	Bel	*Aegle marmelos*
653	41.300	5.5	>120	8	L/S	-	Kadam	*Anthocephalus cadamba*
654	41.350	5	>120	9	L/S	-	Neem	*Azadirachta indica*
655	41.400	3.5	>120	10	L/S	-	Neem	*Azadirachta indica*
656	41.500	5	>120	11	L/S	-	Neem	*Azadirachta indica*
657	41.700	5	90-120	8	-	R/S	Neem	*Azadirachta indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
658	41.720	6	90-120	8	L/S	-	Sheesham	*Dalbergia sissoo*
659	41.800	5.5	>120	9	-	R/S	Sheesham	*Dalbergia sissoo*
660	41.830	5	60-90	8	-	R/S	Neem	*Azadirachta indica*
661	41.900	5	>120	7	-	R/S	Peepal	*Ficus religiosa*
662	42.000	5.5	>120	8	-	R/S	Aam	*Mangifera Indica*
663	42.700	5.5	>120	10	L/S	-	Aam	*Mangifera Indica*
664	42.720	5.5	>120	1	-	R/S	Aam	*Mangifera Indica*
665	42.740	5.5	90-120	7	L/S	-	Neem	*Azadirachta indica*
666	42.760	5.5	>120	10	-	R/S	Neem	*Azadirachta indica*
667	42.780	5	>120	9	-	R/S	Neem	*Azadirachta indica*
668	42.800	5	>120	8	-	R/S	Neem	*Azadirachta indica*
669	42.820	5.5	>120	1	L/S	-	Neem	*Azadirachta indica*
670	42.860	5	>120	10	L/S	-	Neem	*Azadirachta indica*
671	42.900	5.5	>120	7	L/S	-	Neem	*Azadirachta indica*
672	42.950	5.5	>120	6	L/S	-	Neem	*Azadirachta indica*
673	43.000	5.5	60-90	7	L/S	-	Imali	*Tamarindus Indica*
674	43.080	5	30-60	10	L/S	-	Sheesham	*Dalbergia sissoo*
675	43.100	5	60-90	7	L/S	-	Aam	*Mangifera Indica*
676	43.160	5	90-120	7	L/S	-	Aam	*Mangifera Indica*
677	43.200	58	60-90	10	L/S	-	Aam	*Mangifera Indica*
678	43.250	5	60-90	7	L/S	-	Palash	*Butea monosperma*
679	43.300	5.5	>120	8	L/S	-	Sheesham	*Dalbergia sissoo*
680	43.430	5	60-90	5	-	R/S	Kathal	*Pandanus*
681	43.440	5.5	60-90	6	-	R/S	Ashok	*Saraca indica*
682	43.460	5.5	60-90	7	-	R/S	Ashok	*Saraca indica*
683	43.480	5	60-90	6	-	R/S	Neem	*Azadirachta indica*
684	43.500	6	60-90	7	-	R/S	Aam	*Mangifera Indica*
685	43.760	5	60-90	8	L/S	-	Palash	*Butea monosperma*
686	43.780	5	60-90	7	L/S	-	Palash	*Butea monosperma*
687	43.800	5	60-90	7	L/S	-	Aam	*Mangifera Indica*
688	44.080	4.5	>120	10	-	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
689	44.100	3.5	>120	11	L/S	-	Mahua	*Madhuca indica*
690	44.490	5	30-60	7	L/S	-	Awala	*E. officilines*
691	44.500	5	60-90	6	L/S	R/S	Sarai	*Boswellia Serrata*
692	44.520	5.5	60-90	5	L/S	R/S	Sarai	*Boswellia Serrata*
693	44.540	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
694	44.560	5	60-90	5	L/S	R/S	Mahua	*Madhuca indica*
695	44.580	5.5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
696	44.600	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
697	44.620	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
698	44.640	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
699	44.660	5.5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
700	44.680	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
701	44.700	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
702	44.720	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
703	44.740	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
704	44.760	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
705	44.780	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
706	44.800	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
707	44.820	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
708	44.840	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
709	44.860	5	>120	7	L/S	R/S	Palash	*Butea monosperma*
710	44.880	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
711	44.900	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
712	44.920	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
713	44.940	5.5	>120	11	L/S	R/S	Sarai	*Boswellia Serrata*
714	44.960	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
715	44.980	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
716	45.000	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
717	45.020	5.5	>120	6	L/S	R/S	Palash	*Butea monosperma*
718	45.040	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
719	45.060	5.5	60-90	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
720	45.080	5	60-90	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
721	45.100	5	>120	7	L/S	R/S	Arujun	*Terminalia arjuna*
722	45.120	5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
723	45.140	5.5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
724	45.160	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
725	45.180	5.5	60-90	8	L/S	R/S	Char	*Buchanania lanzan*
726	45.200	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
727	45.220	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
728	45.240	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
729	45.260	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
730	45.280	5	90-120	11	L/S	R/S	Sarai	*Boswellia Serrata*
731	45.300	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
732	45.320	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
733	45.340	5	90-120	11	L/S	R/S	Sarai	*Boswellia Serrata*
734	45.360	5	90-120	8	L/S	R/S	Palash	*Butea monosperma*
735	45.380	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
736	45.400	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
737	45.420	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
738	45.440	5	90-120	9	L/S	R/S	Arujun	*Terminalia arjuna*
739	45.460	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
740	45.480	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
741	45.500	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
742	45.520	5	>120	9	L/S	R/S	Char	*Buchanania lanzan*
743	45.540	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
744	45.560	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
745	45.580	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
746	45.600	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
747	45.620	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
748	45.640	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
749	45.660	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
750	45.680	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
751	45.700	5	>120	8	L/S	R/S	Palash	*Butea monosperma*
752	45.720	5.5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
753	45.740	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
754	45.760	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
755	45.780	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
756	45.800	5.5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
757	45.820	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
758	45.840	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
759	45.860	5	90-120	9	L/S	R/S	Char	*Buchanania lanzan*
760	45.880	5	60-90	6	L/S	R/S	Sarai	*Boswellia Serrata*
761	45.900	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
762	45.920	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
763	45.940	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
764	45.960	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
765	45.980	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
766	46.000	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
767	46.020	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
768	46.040	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
769	46.060	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
770	46.080	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
771	46.100	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
772	46.120	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
773	46.140	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
774	46.160	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
775	46.180	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
776	46.200	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
777	46.220	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
778	46.240	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
779	46.260	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
780	46.280	5.5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
781	46.300	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
782	46.320	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
783	46.340	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
784	46.360	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
785	46.380	5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
786	46.400	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
787	46.420	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
788	46.440	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
789	46.460	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
790	46.480	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
791	46.500	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
792	46.520	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
793	46.540	5	60-90	10	L/S	R/S	Palash	*Butea monosperma*
794	46.560	5.5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
795	46.580	5	90-120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
796	46.600	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
797	46.620	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
798	46.640	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
799	46.660	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
800	46.680	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
801	46.700	5	90-120	6	L/S	R/S	Palash	*Butea monosperma*
802	46.720	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
803	46.740	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
804	46.760	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
805	46.780	5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
806	46.800	5.5	>120	4	L/S	R/S	Arujun	*Terminalia arjuna*
807	46.820	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
808	46.840	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
809	46.860	5.5	90-120	9	L/S	R/S	Char	*Buchanania lanzan*
810	46.880	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
811	46.900	5	>120	5	L/S	R/S	Mahua	*Madhuca indica*
812	46.920	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
813	46.940	5.5	90-120	1	L/S	R/S	Tedu	*Diospyros melanoxylon*
814	46.960	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
815	46.980	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
816	47.000	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
817	47.020	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
818	47.040	5	60-90	7	L/S	R/S	Palash	*Butea monosperma*
819	47.060	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
820	47.080	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
821	47.100	5.5	60-90	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
822	47.120	5	60-90	6	L/S	R/S	Arujun	*Terminalia arjuna*
823	47.140	5	60-90	6	L/S	R/S	Arujun	*Terminalia arjuna*
824	47.160	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
825	47.180	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
826	47.200	5	60-90	6	L/S	R/S	Char	*Buchanania lanzan*
827	47.220	5.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
828	47.240	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
829	47.260	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
830	47.280	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
831	47.300	5.5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
832	47.320	5	90-120	5	L/S	R/S	Mahua	*Madhuca indica*
833	47.340	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
834	47.360	5	90-120	5	L/S	R/S	Sarai	*Boswellia Serrata*
835	47.380	5	90-120	7	L/S	R/S	Palash	*Butea monosperma*
836	47.400	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
837	47.420	5.5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
838	47.440	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
839	47.460	5.5	>120	6	L/S	R/S	Arujun	*Terminalia arjuna*
840	47.480	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
841	47.500	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
842	47.520	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
843	47.540	5.5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
844	47.560	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
845	47.580	5.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
846	47.600	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
847	47.620	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
848	47.640	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
849	47.660	5.5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
850	47.680	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
851	47.700	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
852	47.720	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
853	47.740	5	>120	11	L/S	R/S	Mahua	*Madhuca indica*
854	47.760	5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
855	47.780	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
856	47.800	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
857	47.820	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
858	47.840	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
859	47.860	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
860	47.880	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
861	47.900	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
862	47.920	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
863	47.940	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
864	47.960	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
865	47.980	5	90-120	11	L/S	R/S	Mahua	*Madhuca indica*
866	48.000	5.5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
867	48.020	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
868	48.040	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
869	48.060	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
870	48.080	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
871	48.100	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
872	48.120	5.5	>120	5	L/S	R/S	Sarai	*Boswellia Serrata*
873	48.140	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
874	48.160	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
875	48.180	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
876	48.200	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
877	48.220	5	>120	8	L/S	R/S	Palash	*Butea monosperma*
878	48.240	5.5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
879	48.260	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
880	48.280	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
881	48.300	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
882	48.320	5.5	>120	11	L/S	R/S	Mahua	*Madhuca indica*
883	48.340	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
884	48.360	5.5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
885	48.380	5	60-90	11	L/S	R/S	Palash	*Butea monosperma*
886	48.400	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
887	48.420	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
888	48.440	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
889	48.460	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
890	48.480	5.5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
891	48.500	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
892	48.520	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
893	48.540	5	>120	8	L/S	R/S	Char	*Buchanania lanzan*
894	48.560	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
895	48.580	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
896	48.600	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
897	48.620	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
898	48.640	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
899	48.660	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
900	48.680	5.5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
901	48.700	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
902	48.720	5.5	90-120	8	L/S	R/S	Palash	*Butea monosperma*
903	48.740	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
904	48.760	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
905	48.780	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
906	48.800	5.5	60-90	7	L/S	R/S	Arujun	*Terminalia arjuna*
907	48.820	5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
908	48.840	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
909	48.860	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
910	48.880	5	>120	9	L/S	R/S	Char	*Buchanania lanzan*
911	48.900	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
912	48.920	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
913	48.940	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
914	48.960	5.5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
915	48.980	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
916	49.000	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
917	49.020	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
918	49.040	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
919	49.060	5	>120	8	L/S	R/S	Palash	*Butea monosperma*
920	49.080	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
921	49.100	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
922	49.120	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
923	49.140	5.5	60-90	10	L/S	R/S	Arujun	*Terminalia arjuna*
924	49.160	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
925	49.180	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
926	49.200	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
927	49.220	5.5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
928	49.240	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
929	49.260	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
930	49.280	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
931	49.300	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
932	49.320	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
933	49.340	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
934	49.360	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
935	49.380	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
936	49.400	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
937	49.420	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
938	49.440	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
939	49.460	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
940	49.480	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
941	49.500	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
942	49.520	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
943	49.540	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
944	49.560	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
945	49.580	5.5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
946	49.600	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
947	49.620	5.5	60-90	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
948	49.640	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
949	49.660	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
950	49.680	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
951	49.700	5.5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
952	49.720	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
953	49.740	5.5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
954	49.760	5	60-90	5	L/S	R/S	Mahua	*Madhuca indica*
955	49.780	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
956	49.800	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
957	49.820	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
958	49.840	5	60-90	4	L/S	R/S	Tedu	*Diospyros melanoxylon*
959	49.860	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
960	49.880	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
961	49.900	5	90-120	9	L/S	R/S	Palash	*Butea monosperma*
962	49.920	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
963	49.940	5.5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
964	49.960	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
965	49.980	5.5	90-120	1	L/S	R/S	Sarai	*Boswellia Serrata*
966	50.000	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
967	50.020	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
968	50.040	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
969	50.060	5.5	90-120	7	L/S	R/S	Palash	*Butea monosperma*
970	50.080	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
971	50.100	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
972	50.120	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
973	50.140	5	>120	11	L/S	R/S	Arujun	*Terminalia arjuna*
974	50.160	5	90-120	6	L/S	R/S	Arujun	*Terminalia arjuna*
975	50.180	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
976	50.200	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
977	50.220	5.5	>120	7	L/S	R/S	Char	*Buchanania lanzan*
978	50.240	5.5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
979	50.260	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
980	50.280	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
981	50.300	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
982	50.320	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
983	50.340	5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
984	50.360	5.5	60-90	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
985	50.380	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
986	50.400	5.5	60-90	5	L/S	R/S	Palash	*Butea monosperma*
987	50.420	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
988	50.440	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
989	50.460	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
990	50.480	5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
991	50.500	5	60-90	6	L/S	R/S	Arujun	*Terminalia arjuna*
992	50.520	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
993	50.540	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
994	50.560	5	90-120	9	L/S	R/S	Char	*Buchanania lanzan*
995	50.580	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
996	50.600	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
997	50.620	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
998	50.640	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
999	50.660	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1000	50.680	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1001	50.700	5.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1002	50.720	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1003	50.740	5	90-120	9	L/S	R/S	Palash	*Butea monosperma*
1004	50.760	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1005	50.780	5.5	60-90	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
1006	50.800	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1007	50.820	5.5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1008	50.840	5	90-120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1009	50.860	5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
1010	50.880	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1011	50.900	5.5	90-120	5	L/S	R/S	Char	*Buchanania lanzan*
1012	50.920	5	90-120	5	L/S	R/S	Sarai	*Boswellia Serrata*
1013	50.940	5.5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
1014	50.960	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1015	50.980	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1016	51.000	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1017	51.020	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1018	51.040	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1019	51.060	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1020	51.080	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1021	51.100	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1022	51.120	5	60-90	11	L/S	R/S	Mahua	*Madhuca indica*
1023	51.140	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1024	51.160	5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1025	51.180	5.5	>120	11	L/S	R/S	Mahua	*Madhuca indica*
1026	51.200	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1027	51.220	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1028	51.240	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1029	51.260	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1030	51.280	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1031	51.300	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1032	51.320	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1033	51.340	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1034	51.360	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1035	51.380	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1036	51.400	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1037	51.420	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1038	51.440	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1039	51.460	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1040	51.480	5.5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1041	51.500	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1042	51.520	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1043	51.540	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1044	51.560	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1045	51.580	5	90-120	10	L/S	R/S	Palash	*Butea monosperma*
1046	51.600	5.5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1047	51.620	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1048	51.640	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1049	51.660	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1050	51.680	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1051	51.700	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1052	51.720	5.5	60-90	6	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1053	51.740	5	60-90	8	L/S	R/S	Palash	*Butea monosperma*
1054	51.760	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1055	51.780	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1056	51.800	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1057	51.820	5	60-90	7	L/S	R/S	Arujun	*Terminalia arjuna*
1058	51.840	5.5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1059	51.860	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1060	51.880	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1061	51.900	5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
1062	51.920	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1063	51.940	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1064	51.960	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1065	51.980	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1066	52.000	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1067	52.020	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1068	52.040	5.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1069	52.060	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1070	52.080	5.5	>120	9	L/S	R/S	Palash	*Butea monosperma*
1071	52.100	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1072	52.120	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1073	52.140	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1074	52.160	5.5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1075	52.180	5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1076	52.200	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1077	52.220	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1078	52.240	5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
1079	52.260	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1080	52.280	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1081	52.300	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1082	52.320	5.5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1083	52.340	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1084	52.360	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1085	52.380	5.5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1086	52.400	5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
1087	52.420	5	60-90	11	L/S	R/S	Palash	*Butea monosperma*
1088	52.440	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1089	52.460	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1090	52.480	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1091	52.500	5.5	>120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1092	52.510	5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
1093	52.520	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1094	52.530	5	90-120	5	L/S	R/S	Mahua	*Madhuca indica*
1095	52.540	5.5	90-120	6	L/S	R/S	Char	*Buchanania lanzan*
1096	52.550	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1097	52.560	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1098	52.570	5	90-120	4	L/S	R/S	Mahua	*Madhuca indica*
1099	52.580	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1100	52.590	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1101	52.600	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1102	52.610	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1103	52.620	5.5	>120	5	L/S	R/S	Sarai	*Boswellia Serrata*
1104	52.630	5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
1105	52.640	5	>120	1	L/S	R/S	Mahua	*Madhuca indica*
1106	52.650	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1107	52.660	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1108	52.670	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1109	52.680	5.5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1110	52.690	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1111	52.700	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1112	52.710	5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
1113	52.720	5.5	>120	11	L/S	R/S	Mahua	*Madhuca indica*
1114	52.730	5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
1115	52.740	5.5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1116	52.750	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1117	52.760	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1118	52.770	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1119	52.780	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1120	52.790	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1121	52.800	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1122	52.810	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1123	52.820	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1124	52.830	5	>120	5	L/S	R/S	Sarai	*Boswellia Serrata*
1125	52.840	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1126	52.850	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1127	52.860	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1128	52.870	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1129	52.880	5	90-120	6	L/S	R/S	Palash	*Butea monosperma*
1130	52.890	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1131	52.900	5.5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1132	52.910	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1133	52.920	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1134	52.930	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1135	52.940	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1136	52.950	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1137	52.960	5.5	60-90	9	L/S	R/S	Palash	*Butea monosperma*
1138	52.970	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1139	52.980	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1140	52.990	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1141	53.000	5	>120	7	L/S	R/S	Arujun	*Terminalia arjuna*
1142	53.010	5.5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1143	53.020	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1144	53.030	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1145	53.040	5	60-90	11	L/S	R/S	Char	*Buchanania lanzan*
1146	53.050	5.5	>120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1147	53.060	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1148	53.070	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1149	53.080	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1150	53.090	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1151	53.100	5	>120	5	L/S	R/S	Mahua	*Madhuca indica*
1152	53.110	5.5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1153	53.120	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1154	53.130	5.5	60-90	8	L/S	R/S	Palash	*Butea monosperma*
1155	53.140	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1156	53.150	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1157	53.160	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1158	53.170	5.5	60-90	10	L/S	R/S	Arujun	*Terminalia arjuna*
1159	53.180	5	>120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1160	53.190	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1161	53.200	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1162	53.210	5	60-90	11	L/S	R/S	Char	*Buchanania lanzan*
1163	53.220	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1164	53.230	5.5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1165	53.240	5	60-90	11	L/S	R/S	Mahua	*Madhuca indica*
1166	53.250	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1167	53.260	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1168	53.270	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1169	53.280	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1170	53.290	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1171	53.300	5	90-120	8	L/S	R/S	Palash	*Butea monosperma*
1172	53.310	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1173	53.320	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1174	53.330	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1175	53.340	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1176	53.350	5.5	90-120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1177	53.360	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1178	53.370	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1179	53.380	5	60-90	9	L/S	R/S	Char	*Buchanania lanzan*
1180	53.390	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1181	53.400	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1182	53.410	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1183	53.420	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1184	53.430	5.5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1185	53.440	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1186	53.450	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1187	53.460	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1188	53.470	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1189	53.480	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1190	53.490	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1191	53.500	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1192	53.510	5	>120	6	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1193	53.520	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1194	53.530	5.5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1195	53.540	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1196	53.550	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1197	53.560	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1198	53.570	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1199	53.580	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1200	53.590	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1201	53.600	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1202	53.610	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1203	53.620	5.5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1204	53.630	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1205	53.640	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1206	53.650	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1207	53.660	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1208	53.670	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1209	53.680	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1210	53.690	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1211	53.700	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1212	53.710	5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
1213	53.720	5	>120	9	L/S	R/S	Palash	*Butea monosperma*
1214	53.730	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1215	53.740	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1216	53.750	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1217	53.760	5.5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1218	53.770	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1219	53.780	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1220	53.790	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1221	53.800	5.5	>120	7	L/S	R/S	Palash	*Butea monosperma*
1222	53.810	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1223	53.820	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1224	53.830	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1225	53.840	5	>120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1226	53.850	5	60-90	10	L/S	R/S	Arujun	*Terminalia arjuna*
1227	53.860	5.5	60-90	11	L/S	R/S	Mahua	*Madhuca indica*
1228	53.870	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1229	53.880	5.5	60-90	8	L/S	R/S	Char	*Buchanania lanzan*
1230	53.890	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1231	53.900	5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
1232	53.910	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1233	53.920	5.5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1234	53.930	5	90-120	5	L/S	R/S	Sarai	*Boswellia Serrata*
1235	53.940	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1236	53.950	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1237	53.960	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1238	53.970	5	90-120	4	L/S	R/S	Palash	*Butea monosperma*
1239	53.980	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1240	53.990	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1241	54.000	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1242	54.010	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1243	54.020	5	90-120	5	L/S	R/S	Arujun	*Terminalia arjuna*
1244	54.030	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
1245	54.040	5.5	60-90	1	L/S	R/S	Mahua	*Madhuca indica*
1246	54.050	5	>120	10	L/S	R/S	Char	*Buchanania lanzan*
1247	54.060	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1248	54.070	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1249	54.080	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1250	54.090	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1251	54.100	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1252	54.110	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1253	54.120	5.5	60-90	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
1254	54.130	5.5	>120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1255	54.140	5	>120	6	L/S	R/S	Palash	*Butea monosperma*
1256	54.150	5.5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1257	54.160	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1258	54.170	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1259	54.180	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
1260	54.190	5.5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
1261	54.200	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1262	54.210	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1263	54.220	5	90-120	6	L/S	R/S	Char	*Buchanania lanzan*
1264	54.230	5	60-90	5	L/S	R/S	Sarai	*Boswellia Serrata*
1265	54.240	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1266	54.250	5.5	90-120	5	L/S	R/S	Mahua	*Madhuca indica*
1267	54.260	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1268	54.270	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1269	54.280	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1270	54.290	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1271	54.300	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1272	54.310	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1273	54.320	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1274	54.330	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1275	54.340	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1276	54.350	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1277	54.360	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1278	54.370	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1279	54.380	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1280	54.390	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1281	54.400	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1282	54.410	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1283	54.420	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1284	54.430	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1285	54.440	5	90-120	11	L/S	R/S	Mahua	*Madhuca indica*
1286	54.450	5.5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1287	54.460	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1288	54.470	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1289	54.480	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1290	54.490	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1291	54.500	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1292	54.510	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1293	54.520	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
1294	54.530	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1295	54.540	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1296	54.550	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1297	54.560	5	60-90	11	L/S	R/S	Palash	*Butea monosperma*
1298	54.570	5.5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1299	54.580	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1300	54.590	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1301	54.600	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1302	54.610	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1303	54.620	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1304	54.630	5.5	90-120	5	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1305	54.640	5	90-120	7	L/S	R/S	Palash	*Butea monosperma*
1306	54.650	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1307	54.660	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1308	54.670	5.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1309	54.680	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1310	54.690	5.5	>120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1311	54.700	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1312	54.710	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1313	54.720	5.5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
1314	54.730	5	90-120	11	L/S	R/S	Sarai	*Boswellia Serrata*
1315	54.740	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1316	54.750	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
1317	54.760	5.5	90-120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
1318	54.770	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1319	54.780	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1320	54.790	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1321	54.800	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1322	54.810	5	60-90	9	L/S	R/S	Palash	*Butea monosperma*
1323	54.820	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1324	54.830	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1325	54.840	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1326	54.850	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
1327	54.860	5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
1328	54.870	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1329	54.880	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1330	54.890	5	60-90	8	L/S	R/S	Char	*Buchanania lanzan*
1331	54.900	5.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1332	54.910	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1333	54.920	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1334	54.930	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1335	54.940	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1336	54.950	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1337	54.960	5.5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1338	54.970	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1339	54.980	5	90-120	9	L/S	R/S	Palash	*Butea monosperma*
1340	54.990	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1341	55.000	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1342	55.010	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1343	55.020	5.5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1344	55.030	5	60-90	6	L/S	R/S	Arujun	*Terminalia arjuna*
1345	55.040	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1346	55.050	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1347	55.060	5.5	90-120	7	L/S	R/S	Char	*Buchanania lanzan*
1348	55.070	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1349	55.080	5.5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1350	55.090	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1351	55.100	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1352	55.110	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1353	55.120	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1354	55.130	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1355	55.140	5.5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
1356	55.150	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1357	55.160	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1358	55.170	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1359	55.180	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1360	55.190	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1361	55.200	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1362	55.210	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1363	55.220	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1364	55.230	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1365	55.240	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1366	55.250	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1367	55.260	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1368	55.270	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1369	55.280	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1370	55.290	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1371	55.300	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1372	55.310	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1373	55.320	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1374	55.330	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1375	55.340	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1376	55.350	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1377	55.360	5.5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
1378	55.370	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1379	55.380	5.5	90-120	11	L/S	R/S	Sarai	*Boswellia Serrata*
1380	55.390	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1381	55.400	5	>120	8	L/S	R/S	Palash	*Butea monosperma*
1382	55.410	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1383	55.420	5.5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1384	55.430	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1385	55.440	5.5	60-90	6	L/S	R/S	Sarai	*Boswellia Serrata*
1386	55.450	5	>120	5	L/S	R/S	Mahua	*Madhuca indica*
1387	55.460	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1388	55.470	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1389	55.480	5.5	60-90	7	L/S	R/S	Palash	*Butea monosperma*
1390	55.490	5	>120	4	L/S	R/S	Tedu	*Diospyros melanoxylon*
1391	55.500	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1392	55.510	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1393	55.520	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
1394	55.530	5.5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
1395	55.540	5	90-120	5	L/S	R/S	Mahua	*Madhuca indica*
1396	55.550	5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
1397	55.560	5	>120	1	L/S	R/S	Char	*Buchanania lanzan*
1398	55.570	5.5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1399	55.580	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1400	55.590	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1401	55.600	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1402	55.610	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1403	55.620	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1404	55.630	5.5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1405	55.640	5	90-120	11	L/S	R/S	Sarai	*Boswellia Serrata*
1406	55.650	5.5	90-120	6	L/S	R/S	Palash	*Butea monosperma*
1407	55.660	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1408	55.670	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1409	55.680	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1410	55.690	5.5	60-90	6	L/S	R/S	Arujun	*Terminalia arjuna*
1411	55.700	5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1412	55.710	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1413	55.720	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1414	55.730	5	>120	8	L/S	R/S	Char	*Buchanania lanzan*
1415	55.740	5	>120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1416	55.750	5.5	90-120	5	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1417	55.760	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1418	55.770	5.5	60-90	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1419	55.780	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1420	55.790	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1421	55.800	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1422	55.810	5.5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1423	55.820	5	>120	6	L/S	R/S	Palash	*Butea monosperma*
1424	55.830	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1425	55.840	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1426	55.850	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1427	55.860	5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
1428	55.870	5.5	90-120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1429	55.880	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1430	55.890	5.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1431	55.900	5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
1432	55.910	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1433	55.920	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1434	55.930	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1435	55.940	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1436	55.950	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1437	55.960	5	90-120	11	L/S	R/S	Mahua	*Madhuca indica*
1438	55.970	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1439	55.980	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1440	55.990	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1441	56.000	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1442	56.010	5.5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1443	56.020	5	60-90	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1444	56.030	5	>120	5	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1445	56.040	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1446	56.050	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1447	56.060	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1448	56.070	5.5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1449	56.080	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1450	56.090	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1451	56.100	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1452	56.110	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1453	56.120	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1454	56.130	5	60-90	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
1455	56.140	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1456	56.150	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1457	56.160	5.5	60-90	11	L/S	R/S	Mahua	*Madhuca indica*
1458	56.170	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1459	56.180	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1460	56.190	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1461	56.200	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1462	56.210	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1463	56.220	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1464	56.230	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1465	56.240	5	90-120	8	L/S	R/S	Palash	*Butea monosperma*
1466	56.250	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1467	56.260	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1468	56.270	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1469	56.280	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1470	56.290	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1471	56.300	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1472	56.310	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1473	56.320	5.5	90-120	9	L/S	R/S	Palash	*Butea monosperma*
1474	56.330	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1475	56.340	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1476	56.350	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1477	56.360	5	>120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1478	56.370	5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
1479	56.380	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1480	56.390	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1481	56.400	5.5	>120	8	L/S	R/S	Char	*Buchanania lanzan*
1482	56.410	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1483	56.420	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1484	56.430	5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
1485	56.440	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1486	56.450	5	>120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1487	56.460	5.5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
1488	56.470	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1489	56.480	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1490	56.490	5	60-90	9	L/S	R/S	Palash	*Butea monosperma*
1491	56.500	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1492	56.510	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1493	56.520	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1494	56.530	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1495	56.540	5	60-90	10	L/S	R/S	Arujun	*Terminalia arjuna*
1496	56.550	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1497	56.560	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1498	56.570	5	90-120	9	L/S	R/S	Char	*Buchanania lanzan*
1499	56.580	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1500	56.590	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1501	56.600	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1502	56.610	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1503	56.620	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1504	56.630	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1505	56.640	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1506	56.650	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1507	56.660	5	90-120	9	L/S	R/S	Palash	*Butea monosperma*
1508	56.670	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1509	56.680	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1510	56.690	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1511	56.700	5	90-120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1512	56.710	5.5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1513	56.720	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1514	56.730	5.5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
1515	56.740	5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
1516	56.750	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1517	56.760	5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
1518	56.770	5.5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
1519	56.780	5	>120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
1520	56.790	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1521	56.800	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1522	56.810	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1523	56.820	5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
1524	56.830	5.5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1525	56.840	5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
1526	56.850	5.5	60-90	5	L/S	R/S	Mahua	*Madhuca indica*
1527	56.860	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1528	56.870	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1529	56.880	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1530	56.890	5.5	90-120	4	L/S	R/S	Tedu	*Diospyros melanoxylon*
1531	56.900	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1532	56.910	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1533	56.920	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1534	56.930	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1535	56.940	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1536	56.950	5.5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1537	56.960	5	90-120	1	L/S	R/S	Mahua	*Madhuca indica*
1538	56.970	5.5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1539	56.980	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1540	56.990	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1541	57.000	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1542	57.010	5.5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
1543	57.020	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1544	57.030	5.5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1545	57.040	5	90-120	11	L/S	R/S	Mahua	*Madhuca indica*
1546	57.050	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1547	57.060	5	>120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1548	57.070	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1549	57.080	5	90-120	7	L/S	R/S	Palash	*Butea monosperma*
1550	57.090	5.5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1551	57.100	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1552	57.110	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1553	57.120	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1554	57.130	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1555	57.140	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1556	57.150	5.5	60-90	5	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1557	57.160	5	60-90	8	L/S	R/S	Palash	*Butea monosperma*
1558	57.170	5	60-90	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1559	57.180	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1560	57.190	5.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1561	57.200	5	60-90	6	L/S	R/S	Arujun	*Terminalia arjuna*
1562	57.210	5.5	>120	7	L/S	R/S	Arujun	*Terminalia arjuna*
1563	57.220	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1564	57.230	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1565	57.240	5.5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
1566	57.250	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1567	57.260	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1568	57.270	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1569	57.280	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1570	57.290	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1571	57.300	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1572	57.310	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1573	57.320	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1574	57.330	5	>120	9	L/S	R/S	Palash	*Butea monosperma*
1575	57.340	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1576	57.350	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1577	57.360	5.5	90-120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
1578	57.370	5	90-120	6	L/S	R/S	Arujun	*Terminalia arjuna*
1579	57.380	5	>120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1580	57.390	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1581	57.400	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1582	57.410	5	90-120	7	L/S	R/S	Char	*Buchanania lanzan*
1583	57.420	5.5	60-90	5	L/S	R/S	Sarai	*Boswellia Serrata*
1584	57.430	5	>120	5	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1585	57.440	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1586	57.450	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1587	57.460	5.5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1588	57.470	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1589	57.480	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1590	57.490	5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
1591	57.500	5	60-90	8	L/S	R/S	Palash	*Butea monosperma*
1592	57.510	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1593	57.520	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1594	57.530	5	60-90	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
1595	57.540	5.5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1596	57.550	5	90-120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1597	57.560	5	90-120	11	L/S	R/S	Mahua	*Madhuca indica*
1598	57.570	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1599	57.580	5.5	90-120	9	L/S	R/S	Char	*Buchanania lanzan*
1600	57.590	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1601	57.600	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1602	57.610	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1603	57.620	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1604	57.630	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1605	57.640	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1606	57.650	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1607	57.660	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1608	57.670	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1609	57.680	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1610	57.690	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1611	57.700	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1612	57.710	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1613	57.720	5.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1614	57.730	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1615	57.740	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1616	57.750	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1617	57.760	5.5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
1618	57.770	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1619	57.780	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1620	57.790	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1621	57.800	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1622	57.810	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1623	57.820	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1624	57.830	5	60-90	6	L/S	R/S	Sarai	*Boswellia Serrata*
1625	57.840	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1626	57.850	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1627	57.860	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1628	57.870	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1629	57.880	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1630	57.890	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1631	57.900	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1632	57.910	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1633	57.920	5	90-120	8	L/S	R/S	Palash	*Butea monosperma*
1634	57.930	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1635	57.940	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1636	57.950	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1637	57.960	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1638	57.970	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1639	57.980	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1640	57.990	5.5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1641	58.000	5	60-90	8	L/S	R/S	Palash	*Butea monosperma*
1642	58.010	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1643	58.020	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1644	58.030	5.5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1645	58.040	5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1646	58.050	5.5	>120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1647	58.060	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1648	58.070	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1649	58.080	5	60-90	10	L/S	R/S	Char	*Buchanania lanzan*
1650	58.090	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1651	58.100	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1652	58.110	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1653	58.120	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1654	58.130	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1655	58.140	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1656	58.150	5.5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1657	58.160	5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
1658	58.170	5.5	60-90	10	L/S	R/S	Palash	*Butea monosperma*
1659	58.180	5	90-120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
1660	58.190	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1661	58.200	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1662	58.210	5.5	90-120	6	L/S	R/S	Arujun	*Terminalia arjuna*
1663	58.220	5	90-120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1664	58.230	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1665	58.240	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1666	58.250	5	90-120	5	L/S	R/S	Char	*Buchanania lanzan*
1667	58.260	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1668	58.270	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1669	58.280	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1670	58.290	5.5	90-120	4	L/S	R/S	Tedu	*Diospyros melanoxylon*
1671	58.300	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1672	58.310	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1673	58.320	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1674	58.330	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1675	58.340	5	>120	5	L/S	R/S	Palash	*Butea monosperma*
1676	58.350	5.5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1677	58.360	5.5	90-120	1	L/S	R/S	Tedu	*Diospyros melanoxylon*
1678	58.370	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1679	58.380	5.5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1680	58.390	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1681	58.400	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1682	58.410	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
1683	58.420	5.5	>120	8	L/S	R/S	Char	*Buchanania lanzan*
1684	58.430	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1685	58.440	5.5	60-90	11	L/S	R/S	Mahua	*Madhuca indica*
1686	58.450	5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
1687	58.460	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1688	58.470	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1689	58.480	5.5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
1690	58.490	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1691	58.500	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1692	58.510	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1693	58.520	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1694	58.530	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1695	58.540	5.5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1696	58.550	5	90-120	5	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1697	58.560	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1698	58.570	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1699	58.580	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1700	58.590	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1701	58.600	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1702	58.610	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1703	58.620	5.5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1704	58.630	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1705	58.640	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1706	58.650	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1707	58.660	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1708	58.670	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1709	58.680	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1710	58.690	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1711	58.700	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1712	58.710	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1713	58.720	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1714	58.730	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1715	58.740	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1716	58.750	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1717	58.760	5	>120	11	L/S	R/S	Palash	*Butea monosperma*
1718	58.770	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1719	58.780	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1720	58.790	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1721	58.800	5.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1722	58.805	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1723	58.810	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1724	58.815	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1725	58.820	5.5	>120	7	L/S	R/S	Palash	*Butea monosperma*
1726	58.825	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1727	58.830	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1728	58.835	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1729	58.840	5	>120	11	L/S	R/S	Arujun	*Terminalia arjuna*
1730	58.845	5	60-90	6	L/S	R/S	Arujun	*Terminalia arjuna*
1731	58.850	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1732	58.855	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1733	58.860	5.5	60-90	6	L/S	R/S	Char	*Buchanania lanzan*
1734	58.865	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1735	58.870	5	60-90	5	L/S	R/S	Mahua	*Madhuca indica*
1736	58.875	5	>120	5	L/S	R/S	Mahua	*Madhuca indica*
1737	58.880	5.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1738	58.885	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1739	58.890	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1740	58.895	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1741	58.900	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1742	58.905	5	90-120	10	L/S	R/S	Palash	*Butea monosperma*
1743	58.910	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1744	58.915	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1745	58.920	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1746	58.925	5	90-120	11	L/S	R/S	Arujun	*Terminalia arjuna*
1747	58.930	5	90-120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1748	58.935	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
1749	58.940	5.5	60-90	11	L/S	R/S	Mahua	*Madhuca indica*
1750	58.945	5	>120	8	L/S	R/S	Char	*Buchanania lanzan*
1751	58.950	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1752	58.955	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1753	58.960	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1754	58.965	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1755	58.970	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1756	58.975	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1757	58.980	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1758	58.985	5.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1759	58.990	5	>120	8	L/S	R/S	Palash	*Butea monosperma*
1760	58.995	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1761	59.000	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1762	59.005	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1763	59.010	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
1764	59.015	5.5	60-90	10	L/S	R/S	Arujun	*Terminalia arjuna*
1765	59.020	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1766	59.025	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1767	59.030	5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
1768	59.035	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1769	59.040	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
1770	59.045	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1771	59.050	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1772	59.055	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1773	59.060	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1774	59.065	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1775	59.070	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1776	59.075	5.5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1777	59.080	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1778	59.085	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1779	59.090	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1780	59.095	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1781	59.100	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1782	59.105	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1783	59.110	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1784	59.115	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1785	59.120	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1786	59.125	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1787	59.130	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1788	59.135	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1789	59.140	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1790	59.145	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1791	59.150	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1792	59.155	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1793	59.160	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1794	59.165	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1795	59.170	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1796	59.175	5.5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
1797	59.180	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1798	59.185	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1799	59.190	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1800	59.195	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1801	59.200	5	60-90	10	L/S	R/S	Palash	*Butea monosperma*
1802	59.205	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1803	59.210	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1804	59.215	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1805	59.220	5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
1806	59.225	5.5	90-120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1807	59.230	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1808	59.235	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1809	59.240	5	90-120	10	L/S	R/S	Char	*Buchanania lanzan*
1810	59.245	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1811	59.250	5	90-120	11	L/S	R/S	Mahua	*Madhuca indica*
1812	59.255	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1813	59.260	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1814	59.265	5.5	>120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1815	59.270	5.5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
1816	59.275	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1817	59.280	5.5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1818	59.285	5	90-120	5	L/S	R/S	Palash	*Butea monosperma*
1819	59.290	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1820	59.295	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1821	59.300	5.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1822	59.305	5	90-120	4	L/S	R/S	Arujun	*Terminalia arjuna*
1823	59.310	5.5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
1824	59.315	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1825	59.320	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1826	59.325	5	60-90	8	L/S	R/S	Char	*Buchanania lanzan*
1827	59.330	5.5	60-90	5	L/S	R/S	Sarai	*Boswellia Serrata*
1828	59.335	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
1829	59.340	5.5	60-90	1	L/S	R/S	Mahua	*Madhuca indica*
1830	59.345	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1831	59.350	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1832	59.355	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1833	59.360	5.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1834	59.365	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1835	59.370	5.5	>120	8	L/S	R/S	Palash	*Butea monosperma*
1836	59.375	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1837	59.380	5	90-120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
1838	59.385	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1839	59.390	5.5	90-120	6	L/S	R/S	Arujun	*Terminalia arjuna*
1840	59.395	5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
1841	59.400	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1842	59.405	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1843	59.410	5	90-120	9	L/S	R/S	Char	*Buchanania lanzan*
1844	59.415	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1845	59.420	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1846	59.425	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1847	59.430	5.5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1848	59.435	5	60-90	5	L/S	R/S	Sarai	*Boswellia Serrata*
1849	59.440	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1850	59.445	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1851	59.450	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1852	59.455	5	>120	7	L/S	R/S	Palash	*Butea monosperma*
1853	59.460	5.5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1854	59.465	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1855	59.470	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1856	59.475	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
1857	59.480	5.5	>120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1858	59.485	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1859	59.490	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1860	59.495	5	60-90	10	L/S	R/S	Char	*Buchanania lanzan*
1861	59.500	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1862	59.505	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1863	59.510	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1864	59.515	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1865	59.520	5.5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1866	59.525	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1867	59.530	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1868	59.535	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1869	59.540	5.5	90-120	11	L/S	R/S	Sarai	*Boswellia Serrata*
1870	59.545	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
1871	59.550	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1872	59.555	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1873	59.560	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1874	59.565	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1875	59.570	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1876	59.575	5	90-120	5	L/S	R/S	Sarai	*Boswellia Serrata*
1877	59.580	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1878	59.585	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1879	59.590	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1880	59.595	5.5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1881	59.600	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1882	59.605	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
1883	59.610	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1884	59.615	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1885	59.620	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1886	59.625	5.5	>120	11	L/S	R/S	Mahua	*Madhuca indica*
1887	59.630	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1888	59.635	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1889	59.640	5	60-90	11	L/S	R/S	Sarai	*Boswellia Serrata*
1890	59.645	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1891	59.650	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1892	59.655	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1893	59.660	5	60-90	9	L/S	R/S	Sarai	*Boswellia*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								Serrata
1894	59.665	5	>120	9	L/S	R/S	Palash	*Butea monosperma*
1895	59.670	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1896	59.675	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1897	59.680	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1898	59.685	5.5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
1899	59.690	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
1900	59.695	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1901	59.700	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1902	59.705	5.5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
1903	59.710	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1904	59.715	5.5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
1905	59.720	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1906	59.725	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1907	59.730	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1908	59.735	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1909	59.740	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1910	59.745	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1911	59.750	5	90-120	9	L/S	R/S	Palash	*Butea monosperma*
1912	59.755	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1913	59.760	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1914	59.765	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1915	59.770	5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
1916	59.775	5.5	90-120	6	L/S	R/S	Arujun	*Terminalia arjuna*
1917	59.780	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1918	59.785	5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
1919	59.790	5	>120	7	L/S	R/S	Char	*Buchanania lanzan*
1920	59.795	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1921	59.800	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
1922	59.805	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1923	59.810	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1924	59.815	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1925	59.820	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1926	59.825	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1927	59.830	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1928	59.835	5.5	60-90	8	L/S	R/S	Palash	*Butea monosperma*
1929	59.840	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1930	59.845	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1931	59.850	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1932	59.855	5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
1933	59.860	5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
1934	59.865	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
1935	59.870	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1936	59.875	5	90-120	10	L/S	R/S	Char	*Buchanania lanzan*
1937	59.880	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1938	59.885	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1939	59.890	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1940	59.895	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1941	59.900	5.5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1942	59.905	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1943	59.910	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1944	59.915	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1945	59.920	5	90-120	7	L/S	R/S	Palash	*Butea monosperma*
1946	59.925	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1947	59.930	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1948	59.935	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1949	59.940	5.5	90-120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1950	59.945	5	90-120	10	L/S	R/S	Arujun	*Terminalia arjuna*
1951	59.950	5	>120	11	L/S	R/S	Mahua	*Madhuca indica*
1952	59.955	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
1953	59.960	5.5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
1954	59.965	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1955	59.970	5.5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
1956	59.975	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
1957	59.980	5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
1958	59.985	5	60-90	5	L/S	R/S	Sarai	*Boswellia Serrata*
1959	59.990	5.5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
1960	59.995	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1961	60.000	5.5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
1962	60.005	5	60-90	4	L/S	R/S	Sarai	*Boswellia Serrata*
1963	60.010	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1964	60.015	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
1965	60.020	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
1966	60.025	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
1967	60.030	5.5	>120	5	L/S	R/S	Mahua	*Madhuca indica*
1968	60.035	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1969	60.040	5	90-120	1	L/S	R/S	Sarai	*Boswellia Serrata*
1970	60.045	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
1971	60.050	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1972	60.055	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1973	60.060	5.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1974	60.065	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
1975	60.070	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
1976	60.075	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
1977	60.080	5.5	90-120	11	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
1978	60.085	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1979	60.090	5.5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
1980	60.095	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
1981	60.100	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
1982	60.105	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
1983	60.110	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1984	60.115	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1985	60.120	5.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
1986	60.125	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
1987	60.130	5	90-120	6	L/S	R/S	Palash	*Butea monosperma*
1988	60.135	5.5	60-90	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1989	60.140	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
1990	60.145	5	>120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
1991	60.150	5	60-90	7	L/S	R/S	Arujun	*Terminalia arjuna*
1992	60.155	5.5	60-90	7	L/S	R/S	Arujun	*Terminalia arjuna*
1993	60.160	5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
1994	60.165	5.5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
1995	60.170	5	60-90	6	L/S	R/S	Char	*Buchanania lanzan*
1996	60.175	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
1997	60.180	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
1998	60.185	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
1999	60.190	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2000	60.195	5.5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
2001	60.200	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2002	60.205	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2003	60.210	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2004	60.215	5.5	90-120	9	L/S	R/S	Palash	*Butea monosperma*
2005	60.220	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2006	60.225	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2007	60.230	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2008	60.235	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
2009	60.240	5	90-120	11	L/S	R/S	Arujun	*Terminalia arjuna*
2010	60.245	5.5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
2011	60.250	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2012	60.255	5.5	>120	9	L/S	R/S	Char	*Buchanania lanzan*
2013	60.260	5	60-90	6	L/S	R/S	Sarai	*Boswellia Serrata*
2014	60.265	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
2015	60.270	5	90-120	5	L/S	R/S	Mahua	*Madhuca indica*
2016	60.275	5.5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
2017	60.280	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2018	60.285	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
2019	60.290	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2020	60.295	5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2021	60.300	5	60-90	8	L/S	R/S	Palash	*Butea monosperma*
2022	60.305	5.5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2023	60.310	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2024	60.315	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2025	60.320	5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
2026	60.325	5	>120	11	L/S	R/S	Arujun	*Terminalia arjuna*
2027	60.330	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
2028	60.335	5.5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
2029	60.340	5	60-90	11	L/S	R/S	Char	*Buchanania lanzan*
2030	60.345	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
2031	60.350	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2032	60.355	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2033	60.360	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2034	60.365	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2035	60.370	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2036	60.375	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2037	60.380	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2038	60.385	5	90-120	9	L/S	R/S	Palash	*Butea monosperma*
2039	60.390	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2040	60.395	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2041	60.400	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2042	60.405	5.5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
2043	60.410	5.5	90-120	9	L/S	R/S	Arujun	*Terminalia arjuna*
2044	60.415	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2045	60.420	5.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
2046	60.425	5	60-90	8	L/S	R/S	Char	*Buchanania lanzan*
2047	60.430	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2048	60.435	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
2049	60.440	5.5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2050	60.445	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2051	60.450	5.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2052	60.455	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2053	60.460	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2054	60.465	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
2055	60.470	5.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2056	60.475	5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
2057	60.480	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2058	60.485	5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2059	60.490	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2060	60.495	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2061	60.500	5.5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2062	60.505	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
2063	60.510	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
2064	60.515	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2065	60.520	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2066	60.525	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2067	60.530	5.5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
2068	60.535	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2069	60.540	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2070	60.545	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2071	60.550	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2072	60.555	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
2073	60.560	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2074	60.565	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2075	60.570	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2076	60.575	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2077	60.580	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2078	60.585	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2079	60.590	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
2080	60.595	5	>120	8	L/S	R/S	Palash	*Butea monosperma*
2081	60.600	5.5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2082	60.605	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2083	60.610	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2084	60.615	5	>120	8	L/S	R/S	Arujun	*Terminalia arjuna*
2085	60.620	5.5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
2086	60.625	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2087	60.630	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2088	60.635	5	>120	7	L/S	R/S	Char	*Buchanania lanzan*
2089	60.640	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2090	60.645	5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
2091	60.650	5.5	60-90	11	L/S	R/S	Mahua	*Madhuca indica*
2092	60.655	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2093	60.660	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
2094	60.665	5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
2095	60.670	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2096	60.675	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
2097	60.680	5.5	90-120	6	L/S	R/S	Palash	*Butea monosperma*
2098	60.685	5	60-90	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
2099	60.690	5.5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2100	60.695	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2101	60.700	5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
2102	60.705	5.5	90-120	4	L/S	R/S	Arujun	*Terminalia arjuna*
2103	60.710	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2104	60.715	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2105	60.720	5	90-120	9	L/S	R/S	Char	*Buchanania lanzan*
2106	60.725	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2107	60.730	5	90-120	5	L/S	R/S	Mahua	*Madhuca indica*
2108	60.735	5.5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2109	60.740	5	90-120	1	L/S	R/S	Tedu	*Diospyros melanoxylon*
2110	60.745	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
2111	60.750	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
2112	60.755	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2113	60.760	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2114	60.765	5.5	90-120	7	L/S	R/S	Palash	*Butea monosperma*
2115	60.770	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2116	60.775	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2117	60.780	5	>120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2118	60.785	5.5	90-120	6	L/S	R/S	Arujun	*Terminalia arjuna*
2119	60.790	5	90-120	6	L/S	R/S	Arujun	*Terminalia arjuna*
2120	60.795	5.5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
2121	60.800	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
2122	60.805	5	>120	6	L/S	R/S	Char	*Buchanania lanzan*
2123	60.810	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
2124	60.815	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2125	60.820	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
2126	60.825	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2127	60.830	5	60-90	6	L/S	R/S	Sarai	*Boswellia Serrata*
2128	60.835	5	60-90	5	L/S	R/S	Mahua	*Madhuca indica*
2129	60.840	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2130	60.845	5.5	90-120	5	L/S	R/S	Sarai	*Boswellia Serrata*
2131	60.850	5	60-90	7	L/S	R/S	Palash	*Butea monosperma*
2132	60.855	5.5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2133	60.860	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2134	60.865	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2135	60.870	5	90-120	6	L/S	R/S	Arujun	*Terminalia arjuna*
2136	60.875	5.5	90-120	9	L/S	R/S	Arujun	*Terminalia arjuna*
2137	60.880	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2138	60.885	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2139	60.890	5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
2140	60.895	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
2141	60.900	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2142	60.905	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2143	60.910	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2144	60.915	5.5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2145	60.920	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
2146	60.925	5	>120	9	L/S	R/S	Tedu	*Diospyros*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								melanoxylon
2147	60.930	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2148	60.935	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2149	60.940	5	>120	11	L/S	R/S	Mahua	*Madhuca indica*
2150	60.945	5.5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
2151	60.950	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2152	60.955	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2153	60.960	5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
2154	60.965	5.5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2155	60.970	5	>120	5	L/S	R/S	Sarai	*Boswellia Serrata*
2156	60.975	5.5	60-90	5	L/S	R/S	Sarai	*Boswellia Serrata*
2157	60.980	5.5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
2158	60.985	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
2159	60.990	5.5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2160	60.995	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
2161	61.000	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2162	61.005	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2163	61.010	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2164	61.015	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
2165	61.020	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
2166	61.025	5	90-120	11	L/S	R/S	Mahua	*Madhuca indica*
2167	61.030	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2168	61.035	5	90-120	10	L/S	R/S	Sarai	*Boswellia Serrata*
2169	61.040	5.5	90-120	11	L/S	R/S	Mahua	*Madhuca indica*
2170	61.045	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2171	61.050	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2172	61.055	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2173	61.060	5	90-120	9	L/S	R/S	Palash	*Butea monosperma*
2174	61.065	5	90-120	9	L/S	R/S	Tedu	*Diospyros*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								melanoxylon
2175	61.070	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2176	61.075	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2177	61.080	5.5	>120	8	L/S	R/S	Arujun	*Terminalia arjuna*
2178	61.085	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
2179	61.090	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
2180	61.095	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2181	61.100	5.5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
2182	61.105	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2183	61.110	5.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
2184	61.115	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2185	61.120	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2186	61.125	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
2187	61.130	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
2188	61.135	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2189	61.140	5.5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
2190	61.145	5	60-90	7	L/S	R/S	Palash	*Butea monosperma*
2191	61.150	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2192	61.155	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2193	61.160	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2194	61.165	5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
2195	61.170	5.5	60-90	9	L/S	R/S	Arujun	*Terminalia arjuna*
2196	61.175	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
2197	61.180	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2198	61.185	5	>120	6	L/S	R/S	Char	*Buchanania lanzan*
2199	61.190	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2200	61.195	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2201	61.200	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
2202	61.205	5	90-120	9	L/S	R/S	Tedu	*Diospyros*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								melanoxylon
2203	61.210	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2204	61.215	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2205	61.220	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2206	61.225	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2207	61.230	5.5	90-120	10	L/S	R/S	Palash	*Butea monosperma*
2208	61.235	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2209	61.240	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2210	61.245	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2211	61.250	5.5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
2212	61.255	5	>120	7	L/S	R/S	Arujun	*Terminalia arjuna*
2213	61.260	5.5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2214	61.265	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2215	61.270	5	>120	8	L/S	R/S	Char	*Buchanania lanzan*
2216	61.275	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
2217	61.280	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2218	61.285	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2219	61.290	5.5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2220	61.295	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2221	61.300	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
2222	61.305	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2223	61.310	5.5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
2224	61.315	5	>120	8	L/S	R/S	Palash	*Butea monosperma*
2225	61.320	5.5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2226	61.325	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2227	61.330	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2228	61.335	5	60-90	7	L/S	R/S	Arujun	*Terminalia arjuna*
2229	61.340	5.5	90-120	10	L/S	R/S	Arujun	*Terminalia*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								arjuna
2230	61.345	5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
2231	61.350	5.5	>120	11	L/S	R/S	Mahua	*Madhuca indica*
2232	61.355	5	90-120	8	L/S	R/S	Char	*Buchanania lanzan*
2233	61.360	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2234	61.365	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
2235	61.370	5.5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2236	61.375	5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2237	61.380	5.5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
2238	61.385	5	90-120	5	L/S	R/S	Mahua	*Madhuca indica*
2239	61.390	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2240	61.395	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2241	61.400	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2242	61.405	5	90-120	4	L/S	R/S	Mahua	*Madhuca indica*
2243	61.410	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
2244	61.415	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2245	61.420	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2246	61.425	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2247	61.430	5.5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
2248	61.435	5	>120	10	L/S	R/S	Sarai	*Boswellia Serrata*
2249	61.440	5.5	>120	1	L/S	R/S	Sarai	*Boswellia Serrata*
2250	61.445	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2251	61.450	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2252	61.455	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2253	61.460	5.5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2254	61.465	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
2255	61.470	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2256	61.475	5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
2257	61.480	5	>120	11	L/S	R/S	Sarai	*Boswellia Serrata*
2258	61.485	5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2259	61.490	5.5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
2260	61.495	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2261	61.500	5.5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
2262	61.505	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
2263	61.510	5	60-90	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2264	61.515	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2265	61.520	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2266	61.525	5	90-120	8	L/S	R/S	Palash	*Butea monosperma*
2267	61.530	5.5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2268	61.535	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
2269	61.540	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2270	61.545	5	90-120	5	L/S	R/S	Arujun	*Terminalia arjuna*
2271	61.550	5.5	90-120	7	L/S	R/S	Arujun	*Terminalia arjuna*
2272	61.555	5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
2273	61.560	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
2274	61.565	5	90-120	7	L/S	R/S	Char	*Buchanania lanzan*
2275	61.570	5.5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
2276	61.575	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
2277	61.580	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2278	61.585	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2279	61.590	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2280	61.595	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2281	61.600	5.5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2282	61.605	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2283	61.610	5.5	90-120	8	L/S	R/S	Palash	*Butea monosperma*
2284	61.615	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2285	61.620	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2286	61.625	5	>120	9	L/S	R/S	Tedu	*Diospyros*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								melanoxylon
2287	61.630	5.5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
2288	61.635	5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
2289	61.640	5.5	60-90	11	L/S	R/S	Mahua	*Madhuca indica*
2290	61.645	5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
2291	61.650	5.5	60-90	8	L/S	R/S	Char	*Buchanania lanzan*
2292	61.655	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
2293	61.660	5.5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
2294	61.665	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
2295	61.670	5	90-120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
2296	61.675	5	60-90	5	L/S	R/S	Sarai	*Boswellia Serrata*
2297	61.680	5.5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
2298	61.685	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2299	61.690	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2300	61.695	5	90-120	7	L/S	R/S	Palash	*Butea monosperma*
2301	61.700	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2302	61.705	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2303	61.710	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2304	61.715	5	90-120	9	L/S	R/S	Arujun	*Terminalia arjuna*
2305	61.720	5.5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
2306	61.725	5	90-120	11	L/S	R/S	Mahua	*Madhuca indica*
2307	61.730	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2308	61.735	5	90-120	10	L/S	R/S	Char	*Buchanania lanzan*
2309	61.740	5.5	90-120	11	L/S	R/S	Sarai	*Boswellia Serrata*
2310	61.745	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
2311	61.750	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
2312	61.755	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2313	61.760	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2314	61.765	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2315	61.770	5.5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2316	61.775	5	>120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2317	61.780	5	90-120	8	L/S	R/S	Palash	*Butea monosperma*
2318	61.785	5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2319	61.790	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2320	61.795	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2321	61.800	5.5	>120	8	L/S	R/S	Arujun	*Terminalia arjuna*
2322	61.805	5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
2323	61.810	5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
2324	61.815	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
2325	61.820	5.5	60-90	9	L/S	R/S	Char	*Buchanania lanzan*
2326	61.825	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
2327	61.830	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2328	61.835	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
2329	61.840	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2330	61.845	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
2331	61.850	5.5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
2332	61.855	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2333	61.860	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2334	61.865	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2335	61.870	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2336	61.875	5	90-120	6	L/S	R/S	Mahua	*Madhuca indica*
2337	61.880	5.5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2338	61.885	5	>120	6	L/S	R/S	Sarai	*Boswellia Serrata*
2339	61.890	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
2340	61.895	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2341	61.900	5.5	90-120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2342	61.905	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2343	61.910	5.5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
2344	61.915	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
2345	61.920	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2346	61.925	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2347	61.930	5.5	60-90	10	L/S	R/S	Mahua	*Madhuca indica*
2348	61.935	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2349	61.940	5.5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2350	61.945	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
2351	61.950	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2352	61.955	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
2353	61.960	5.5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2354	61.965	5	60-90	9	L/S	R/S	Sarai	*Boswellia Serrata*
2355	61.970	5.5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2356	61.975	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2357	61.980	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2358	61.985	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
2359	61.990	5.5	>120	9	L/S	R/S	Palash	*Butea monosperma*
2360	61.995	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2361	62.000	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2362	62.005	5	90-120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2363	62.010	5.5	90-120	9	L/S	R/S	Arujun	*Terminalia arjuna*
2364	62.015	5	90-120	8	L/S	R/S	Arujun	*Terminalia arjuna*
2365	62.020	5.5	90-120	7	L/S	R/S	Mahua	*Madhuca indica*
2366	62.025	5	>120	10	L/S	R/S	Mahua	*Madhuca indica*
2367	62.030	5	60-90	8	L/S	R/S	Char	*Buchanania lanzan*
2368	62.035	5	>120	7	L/S	R/S	Sarai	*Boswellia Serrata*
2369	62.040	5.5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2370	62.045	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2371	62.050	5.5	>120	11	L/S	R/S	Tedu	*Diospyros*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								melanoxylon
2372	62.055	5	>120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2373	62.060	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2374	62.065	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2375	62.070	5.5	60-90	10	L/S	R/S	Sarai	*Boswellia Serrata*
2376	62.075	5	>120	7	L/S	R/S	Palash	*Butea monosperma*
2377	62.080	5.5	>120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2378	62.100	5	60-90	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
2379	62.120	5.5	60-90	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2380	62.140	5	>120	8	L/S	R/S	Arujun	*Terminalia arjuna*
2381	62.160	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2382	62.160	5.5	60-90	7	L/S	R/S	Arujun	*Terminalia arjuna*
2383	62.180	5.5	>120	5	L/S	R/S	Mahua	*Madhuca indica*
2384	62.180	5	60-90	4	L/S	R/S	Mahua	*Madhuca indica*
2385	62.200	5	90-120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2386	62.200	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2387	62.220	5	90-120	1	L/S	R/S	Sarai	*Boswellia Serrata*
2388	62.220	5	60-90	9	L/S	R/S	Char	*Buchanania lanzan*
2389	62.240	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2390	62.240	5.5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*
2391	62.250	5.5	90-120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2392	62.260	5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2393	62.270	5.5	90-120	7	L/S	R/S	Palash	*Butea monosperma*
2394	62.280	5	>120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2395	62.290	5	60-90	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2396	62.310	5	>120	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2397	62.330	5.5	90-120	11	L/S	R/S	Arujun	*Terminalia arjuna*
2398	62.340	5	90-120	6	L/S	R/S	Arujun	*Terminalia*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								arjuna
2399	62.350	5.5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
2400	62.360	5	>120	7	L/S	R/S	Mahua	*Madhuca indica*
2401	62.370	5.5	90-120	7	L/S	R/S	Char	*Buchanania lanzan*
2402	62.380	5	90-120	6	L/S	R/S	Sarai	*Boswellia Serrata*
2403	62.400	5.5	60-90	9	L/S	R/S	Mahua	*Madhuca indica*
2404	62.410	5	>120	8	L/S	R/S	Mahua	*Madhuca indica*
2405	62.420	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2406	62.430	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
2407	62.440	5.5	60-90	6	L/S	R/S	Mahua	*Madhuca indica*
2408	62.460	5	>120	5	L/S	R/S	Tedu	*Diospyros melanoxylon*
2409	62.470	5.5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
2410	62.472	5	60-90	5	L/S	R/S	Palash	*Butea monosperma*
2411	62.474	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2412	62.476	5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2413	62.478	5.5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2414	62.480	5	60-90	7	L/S	R/S	Arujun	*Terminalia arjuna*
2415	62.482	5.5	>120	6	L/S	R/S	Arujun	*Terminalia arjuna*
2416	62.484	5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2417	62.486	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2418	62.488	5	90-120	9	L/S	R/S	Char	*Buchanania lanzan*
2419	62.490	5.5	90-120	8	L/S	R/S	Sarai	*Boswellia Serrata*
2420	62.492	5	90-120	10	L/S	R/S	Mahua	*Madhuca indica*
2421	62.494	5.5	90-120	9	L/S	R/S	Mahua	*Madhuca indica*
2422	62.496	5	>120	9	L/S	R/S	Tedu	*Diospyros melanoxylon*
2423	62.498	5	60-90	8	L/S	R/S	Sarai	*Boswellia Serrata*
2424	62.518	5	>120	9	L/S	R/S	Mahua	*Madhuca indica*
2425	62.538	5.5	90-120	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2426	62.558	5	90-120	9	L/S	R/S	Sarai	*Boswellia Serrata*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2427	62.560	5.5	>120	9	L/S	R/S	Palash	*Butea monosperma*
2428	62.562	5	>120	8	L/S	R/S	Tedu	*Diospyros melanoxylon*
2429	62.564	5	90-120	11	L/S	R/S	Tedu	*Diospyros melanoxylon*
2430	62.566	5	90-120	6	L/S	R/S	Tedu	*Diospyros melanoxylon*
2431	62.568	5.5	60-90	8	L/S	R/S	Arujun	*Terminalia arjuna*
2432	62.570	5	>120	9	L/S	R/S	Arujun	*Terminalia arjuna*
2433	62.572	5.5	>120	6	L/S	R/S	Mahua	*Madhuca indica*
2434	62.574	5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
2435	62.576	5	60-90	5	L/S	R/S	Char	*Buchanania lanzan*
2436	62.578	5	>120	5	L/S	R/S	Sarai	*Boswellia Serrata*
2437	62.580	5.5	60-90	7	L/S	R/S	Mahua	*Madhuca indica*
2438	62.582	5	60-90	8	L/S	R/S	Mahua	*Madhuca indica*
2439	62.584	5.5	60-90	7	L/S	R/S	Tedu	*Diospyros melanoxylon*
2440	62.586	5	60-90	7	L/S	R/S	Sarai	*Boswellia Serrata*
2441	62.588	5	90-120	8	L/S	R/S	Mahua	*Madhuca indica*
2442	62.59	5	60-90	10	L/S	R/S	Tedu	*Diospyros melanoxylon*
2443	62.600	5.5	>120	8	L/S		Bargad	*Ficus benghalensis*
2444	62.700	5	90-120	9		R/S	Tedu	*Diospyros melanoxylon*
2445	62.900	5.5	90-120	8	L/S		Tedu	*Diospyros melanoxylon*
2446	62.980	5	90-120	9		R/S	Tedu	*Diospyros melanoxylon*
2447	62.980	5	90-120	11		R/S	Tedu	*Diospyros melanoxylon*
2448	63.000	5	90-120	10		R/S	Tedu	*Diospyros melanoxylon*
2449	63.100	5.5	90-120	11	L/S		Sarai	*Boswellia Serrata*
2450	63.140	5	>120	8		R/S	Palash	*Butea monosperma*
2451	63.150	5	60-90	9	L/S		Tedu	*Diospyros melanoxylon*
2452	63.160	5.5	>120	8		R/S	Tedu	*Diospyros melanoxylon*
2453	63.200	5.5	90-120	9	L/S		Tedu	*Diospyros melanoxylon*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2454	63.400	5	90-120	9	L/S		Arujun	*Terminalia arjuna*
2455	63.500	5.5	>120	8		R/S	Arujun	*Terminalia arjuna*
2456	63.640	5	>120	9		R/S	Mahua	*Madhuca indica*
2457	63.650	5	90-120	8		R/S	Mahua	*Madhuca indica*
2458	63.660	5	90-120	9	L/S		Char	*Buchanania lanzan*
2459	63.700	5.5	60-90	8		R/S	Sarai	*Boswellia Serrata*
2460	63.760	5	>120	9		R/S	Mahua	*Madhuca indica*
2461	63.800	5.5	>120	8		R/S	Mahua	*Madhuca indica*
2462	64.050	5	60-90	8	L/S		Tedu	*Diospyros melanoxylon*
2463	64.080	5	60-90	9	L/S		Sarai	*Boswellia Serrata*
2464	64.100	5	>120	10		R/S	Mahua	*Madhuca indica*
2465	64.150	5.5	60-90	9	L/S		Tedu	*Diospyros melanoxylon*
2466	64.200	5.5	60-90	8		R/S	Mahua	*Madhuca indica*
2467	64.300	5.5	60-90	8		R/S	Tedu	*Diospyros melanoxylon*
2468	64.330	5	60-90	7		R/S	Sedha	*Eucalyptus globulus*
2469	64.340	5	90-120	10		R/S	Tedu	*Diospyros melanoxylon*
2470	64.350	5	60-90	7	L/S		Mahua	*Madhuca indica*
2471	64.380	5	60-90	9	L/S		Mahua	*Madhuca indica*
2472	64.400	5.5	60-90	8	L/S		Mahua	*Madhuca indica*
2473	64.480	5.5	90-120	8	L/S		Mahua	*Madhuca indica*
2474	64.500	5	90-120	9	L/S		Mahua	*Madhuca indica*
2475	64.600	5	>120	9		R/S	Mahua	*Madhuca indica*
2476	64.690	5.5	0-30	6		R/S	Sarai	*Boswellia Serrata*
2477	64.700	5	90-120	8	L/S		Char	*Buchanania lanzan*
2478	64.850	5.5	60-90	6	L/S	-	Sarai	*Boswellia Serrata*
2479	64.880	5	>120	7	-	R/S	Mahua	*Madhuca indica*
2480	64.900	5	90-120	8	L/S	-	Sedha	*Eucalyptus globulus*
2481	64.950	5.5	60-90	7	-	R/S	Sedha	*Eucalyptus globulus*
2482	64.970	5	>120	9	-	R/S	Mahua	*Madhuca indica*
2483	65.000	5	>120	8	-	R/S	Mahua	*Madhuca indica*
2484	65.050	5.5	90-120	9	L/S	-	Sedha	*Eucalyptus*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
								globulus
2485	65.100	5	>120	8	L/S	-	Tedu	*Diospyros melanoxylon*
2486	65.200	5.5	90-120	8	L/S	-	Sarai	*Boswellia Serrata*
2487	65.280	5.5	>120	10	L/S	-	Tedu	*Diospyros melanoxylon*
2488	65.300	5	90-120	8	L/S	-	Sarai	*Boswellia Serrata*
2489	65.360	5	90-120	8	-	R/S	Tedu	*Diospyros melanoxylon*
2490	65.380	5.5	>120	9	L/S	-	Mahua	*Madhuca indica*
2491	65.400	5	>120	8	L/S	-	Mahua	*Madhuca indica*
2492	65.500	6	90-120	7	L/S	-	Mahua	*Madhuca indica*
2493	65.550	6	>120	8		R/S	Mahua	*Madhuca indica*
2494	65.570	5	>120	9	L/S	-	Mahua	*Madhuca indica*
2495	65.600	5	90-120	8	L/S	-	Mahua	*Madhuca indica*
2496	65.650	5.5	>120	10	L/S	-	Tedu	*Diospyros melanoxylon*
2497	65.700	5	90-120	9	-	R/S	Tedu	*Diospyros melanoxylon*
2498	65.810	5	90-120	8	-	R/S	Mahua	*Madhuca indica*
2499	65.840	5.5	90-120	9	-	R/S	Mahua	*Madhuca indica*
2500	65.900	5	90-120	8	L/S		Tedu	*Diospyros melanoxylon*
2501	66.000	5	>120	10	-	R/S	Tedu	*Diospyros melanoxylon*
2502	66.200	5.5	60-90	8	-	R/S	Sedha	*Eucalyptus globulus*
2503	66.300	5	>120	9	L/S	-	Mahua	*Madhuca indica*
2504	66.400	5.5	90-120	8	L/S	-	Tedu	*Diospyros melanoxylon*
2505	66.500	5	>120	7	L/S	-	Mahua	*Madhuca indica*
2506	66.800	5	90-120	10	L/S	-	Sarai	*Boswellia Serrata*
2507	66.900	5.5	90-120	8		R/S	Mahua	*Madhuca indica*
2508	67.400	5	90-120	7	L/S		Palash	*Butea monosperma*
2509	67.950	5	>120	10	-	R/S	Mahua	*Madhuca indica*
2510	68.000	5.5	>120	10	-	R/S	Mahua	*Madhuca indica*
2511	68.100	5.5	>120	11	L/S	-	Mahua	*Madhuca indica*
2512	68.200	5	90-120	8	-	R/S	Neem	*Azadirachta indica*
2513	68.300	5.5	>120	8	L/S	-	Aam	*Mangifera Indica*
2514	68.700	5	90-120	6	L/S	-	Aam	*Mangifera Indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2515	68.800	5.5	>120	10	L/S	-	Semra	*Bombax ceiba*
2516	68.870	5	90-120	7	-	R/S	Neem	*Azadirachta indica*
2517	68.900	5	60-90	6	-	R/S	Neem	*Azadirachta indica*
2518	68.930	5.5	60-90	5	L/S	-	Neem	*Azadirachta indica*
2519	68.950	5.5	60-90	6	L/S	-	Neem	*Azadirachta indica*
2520	68.980	5	>120	8	L/S	-	Aam	*Mangifera Indica*
2521	69.000	5	>120	7	L/S	-	Sheesham	*Dalbergia sissoo*
2522	69.100	5.5	0-30	4	-	R/S	Neem	*Azadirachta indica*
2523	69.195	5	>120	8	-	R/S	Neem	*Azadirachta indica*
2524	69.200	5	>120	9	L/S	-	Peepal	*Ficus religiosa*
2525	69.500	5.5	>120	9	L/S	-	Neem	*Azadirachta indica*
2526	69.800	5	90-120	7	L/S	-	Neem	*Azadirachta indica*
2527	70.000	5	>120	8	L/S	-	Bargad	*Ficus benghalensis*
2528	70.100	5	30-60	5	L/S	-	Neem	*Azadirachta indica*
2529	70.300	5	90-120	10	-	R/S	Neem	*Azadirachta indica*
2530	70.330	5	>120	1	-	R/S	Neem	*Azadirachta indica*
2531	70.360	5	90-120	10	-	R/S	Neem	*Azadirachta indica*
2532	70.400	5	>120	9	-	R/S	Tedu	*Diospyros melanoxylon*
2533	70.500	5	>120	8	-	R/S	Bargad	*Ficus benghalensis*
2534	70.700	5.5	>120	7	-	R/S	Sheesham	*Dalbergia sissoo*
2535	71.000	5	>120	8	L/S	-	Mahua	*Madhuca indica*
2536	71.230	5	90-120	10	L/S	-	Mahua	*Madhuca indica*
2537	71.240	5	90-120	11	L/S	-	Mahua	*Madhuca indica*
2538	71.260	5.5	90-120	6	L/S	-	Munga	*Mangifera Indica*
2539	71.280	5	60-90	6	L/S	-	Aam	*Mangifera Indica*
2540	71.300	5	60-90	7	-	R/S	Neem	*Azadirachta indica*
2541	71.370	5.5	90-120	7	L/S		Jamun	*Syzygium cumini*
2542	71.400	5	60-90	6	-	R/S	Mahua	*Madhuca indica*
2543	71.430	5.5	>120	9	L/S	-	Mahua	*Madhuca indica*
2544	71.460	5	>120	8	L/S	-	Mahua	*Madhuca indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2545	71.480	5	>120	9	-	R/S	Mahua	*Madhuca indica*
2546	71.500	5	>120	8	-	R/S	Mahua	*Madhuca indica*
2547	71.560	5.5	30-60	6	-	R/S	Bel	*Buchanania lanzan*
2548	71.600	5.5	30-60	5	-	R/S	Bel	*Buchanania lanzan*
2549	72.000	5	>120	8	-	R/S	Mahua	*Madhuca indica*
2550	72.300	5	>120	5	-	R/S	Mahua	*Madhuca indica*
2551	72.600	5.5	90-120	7	L/S	-	Neem	*Azadirachta indica*
2552	72.930	5	60-90	7	L/S	-	Aam	*Mangifera Indica*
2553	72.960	5.5	60-90	6	L/S	-	Aam	*Mangifera Indica*
2554	72.980	5	90-120	7	L/S	-	Aam	*Mangifera Indica*
2555	73.000	5	60-90	6	L/S	-	Aam	*Mangifera Indica*
2556	73.100	5.75	>120	9	-	R/S	Mahua	*Madhuca indica*
2557	73.350	5.5	>120	8	L/S	-	Mahua	*Madhuca indica*
2558	73.380	5	>120	9	L/S	-	Mahua	*Madhuca indica*
2559	73.400	5	>120	8	L/S	-	Mahua	*Madhuca indica*
2560	73.570	5	>120	10	-	R/S	Mahua	*Madhuca indica*
2561	73.600	5	>120	9	L/S		Mahua	*Madhuca indica*
2562	73.750	5	>120	9	-	R/S	Mahua	*Madhuca indica*
2563	73.800	5	>120	8	L/S		Mahua	*Madhuca indica*
2564	74.800	5.5	>120	9	-	R/S	Aam	*Mangifera Indica*
2565	74.900	5	90-120	7	-	R/S	Bair	*Z.ziziba*
2566	75.100	5	>120	9	-	R/S	Imali	*Tamarindus Indica*
2567	75.600	5	>120	9	-	R/S	Mahua	*Madhuca indica*
2568	75.700	5	>120	8	-	R/S	Neem	*Azadirachta indica*
2569	75.730	5.5	>120	11	L/S	-	Neem	*Azadirachta indica*
2570	75.760	5.5	60-90	6	L/S	-	Aam	*Mangifera Indica*
2571	75.780	5.5	>120	8	L/S	-	Aam	*Mangifera Indica*
2572	75.800	5	>120	9	L/S	-	Mahua	*Madhuca indica*
2573	77.900	5.5	60-90	6	L/S	-	Neem	*Azadirachta indica*
2574	78.000	5	90-120	7	L/S	-	Neem	*Azadirachta indica*
2575	78.900	5.5	60-90	5	L/S	-	Neem	*Azadirachta indica*
2576	79.600	5.5	60-90	5	L/S	-	Neem	*Azadirachta indica*
2577	87.100	5.5	>120	7	-	R/S	Neem	*Azadirachta indica*

Sr. No.	Chainage	Distance from centre of existing Road	Girth (0-30cm,30-60cm, 60-90cm,90-120cm,>120)	Approx Ht. (m)	Left	Right	Local Name	Botanical Name
2578	90.400	5	>120	8	-	R/S	Aam	*Mangifera Indica*
2579	90.450	5	90-120	7	-	R/S	Neem	*Azadirachta indica*
2580	90.500	5	90-120	7	-	R/S	Sheesham	*Dalbergia sissoo*
2581	92.400	5.5	>120	8	-	R/S	Sheesham	*Dalbergia sissoo*
2582	92.490	5.75	>120	10	-	R/S	Show babool	*Leucaena leucocephala*

4. Aquatic Ecology and Fisheries

72. There are four perianal rivers and no. of seasonal streams are crossing the sub project road. Fishing activity are observed in perianal rivers.

5. Rare or Endangered Species

73. No rare or endangered species found in corridor of impact along the project road.

6. Fauna and Wild life

74. The project road traverses mainly through agricultural fields, forest areas and during field survey no wild animals were spotted. However in discussion with the Forestry Department and during the public consultations, it was found that common fauna in the study area are Neelgai /Nilgai (Boselaphus tragocamelus); chital or Indian Spotted Deer (*Axis axis*); monkey (*Rhesus macaque*), and hare (*Lepus nigricolis*) are listed as least concern by the IUCN based on the wide range of occurrence. Also documented to occur in the project area are threatened species of Jackal (*Canis aureus indicus*); jungle cat (*Felix chaus*), fox (*Vulpes bengalensis*),and king cobra (*Binocellate cobra*).

D. Economic Development

75. The economy of Madhya Pradesh depends mainly on the agricultural sector as more than 80% of the people of the state depend on this sector for their livelihood. The agricultural sector contributes around 46% to the state's economy. The various kinds of crops grown in the state of Madhya Pradesh are rice, pulses, wheat, oilseeds, grams, soybeans, and maize. The state contributes 20% to the total production of pulses in the country. In Madhya Pradesh, the total production of food grain was around 14.10 million metric tonne in 2004- 2005. This sector has given a major boost to the economy in Madhya Pradesh.

76. The economy in the state of Madhya Pradesh also gets its revenue from the forest products sector as the state has a forest cover of around 1.7 million hectares. The various kinds of forest products available in the state of Madhya Pradesh are teak wood, Sal wood, and bamboos. These products are sold all over the country thus contributing to the Economy in Madhya Pradesh. The economy of Madhya Pradesh gets its revenue from the industrial sector which contributes 26% to the state's economy. The main industries in the state are of telecommunications, information technology, automobiles, and electronics. Madhya Pradesh is the 2nd biggest cement producer in the country for it contributes 13% to the total cement production in India. This sector has contributed a great deal to the growth of the economy in

Madhya Pradesh.

77. Madhya Pradesh economy also depends for its revenue on the mineral resources sector for the state has a rich storehouse of minerals. The various kinds of minerals found in the state are dolomite, limestone, copper ore, bauxite, coal. Madhya Pradesh produced 52683 thousand metric tonne of coal. The mineral sector has helped to boost the Economy of the state of Madhya Pradesh. The economy of Madhya Pradesh gets its revenue from the cottage industry of the state. The various kinds of cottage industry products found in Madhya Pradesh are clay toys, leather toys, wool products, hand loom cloth, and chanderi sarees. The cottage industry sector has thus helped the economy of Madhya Pradesh to grow.

1. Agriculture

78. Madhya Pradesh is predominantly a kharif crop growing state. Kharif crops occupy about 54-56% whereas rabi crops occupy 44 – 46% area out of the total cropped area in the state. About 38% of the cropped area is generally occupied by cereal crops, while pulses occupy 22% area and oilseed occupy 31% area. Vegetables, fruits, fodder and other horticultural crops occupy the remaining 6% area.

79. Some of the important food and cash crops that are vital to agriculture in Madhya Pradesh are Rice, Wheat, Jowar, Gram, Soyabean, Pulses etc.

Figure 6: Agriculture Map of Madhya Pradesh

2. Social and Cultural Environment

80. Madhya Pradesh is a land-locked state in the central part of country with a population of about 60.3 million with more than 74 percent of the population living in the rural areas. The State has 50 districts consisting of 313 blocks and 55393 villages. The human population density is 196

persons/km^2 compared to 325 persons/km2 for the entire country. Sex ratio is 920 against the 933 in the country. The demographic feature of Madhya Pradesh is unique in that there are many recognized tribes (about 40 percent of country), which inhabit mostly the remote areas and each with distinct culture, ethos, and traditional knowledge systems. The major minority groups in the state namely Gonds, Bhils and Oraons. The majority of the people survive on subsistence economy based mainly on the agriculture, supplemented with forest products, animal husbandry, and crafts/handloom.

81. Total population of Madhya Pradesh as per 2011 census is 72,626,809 of which male and female are 37,612,306 and 35,014,503 respectively The state has a growth rate of about 20 percent which is above the national average of about 17 and thus the population of the state is rising considerably given the progress in the state

82. About 73% of the state's population resides in rural areas. The state also has one of the largest tribal populations with 18 districts being predominantly tribal districts in the country. The share of schedule tribes and the schedule castes is 20.27% and 15.17% respectively. The overall literacy ratio in the state is 69.32 with male literacy being 78.73% and female literacy of 63.74%.

83. The BPL survey of 2002-03 with updated figures to October 2010 highlight that 46.48 lakh (47.4 percent) of households of rural Madhya Pradesh are living below the poverty line. The state accounts for nearly 11 percent of the total rural population in the country. The tribal households are the poorest among the most deprived social groups in India. In rural areas, 58.6 percent of the tribal population was found to be poor as compared to 42.8 percent among the SC in Madhya Pradesh.

84. The total BPL households/families comprise of 23.1 percent of SC, 33.4 percent of ST and 34.4 percent of Other Backward Class (OBC) and the remaining from the general category.

Table 23: Demographic Profile of the State and the Project Districts

	Madhya Pradesh	Ujjain	Dewas	Shajapur
Total Population	72,626,809	1,986,864	1,207,651	1,512,681
Rural Population	52557404	1,207,651	1,111,956	1,219,133
Urban Population	20069405	779,213	451,759	293,548
Males	37,612,306	1,016,289	805,359	780,520
Females	35,014,503	970,575	758,356	732,161
Sex Ratio	931	955	942	938
Density of Population/Sq KM	236	326	223	244
% growth (2001-2011)	20.35	16.12	19.53	17.20
Literacy Rate %	69.32	72.34	69.35	69.09
Literacy Rate (Male) %	78.73	83.46	80.30	81.47
Literacy rate (Female) %	54.49	60.74	57.76	55.93
ST Population	20.27 %	3.11	2.74	16.45
SC Population	15.17 %	24.72	21.98	18.25

3. Archaeological and Historical Monuments

85. No archaeological and historical monument is located along the project road.

4. Sensitive Receptors

86. During the environmental and social screening survey, it was observed that many small

religious structures, school etc are located along the project road. However, no religious structures will be directly affected during widening of the project road. Details of sensitive receptors/community structure along the project road are shown in table no. 24**.**

Table 24: Sensitive receptors along the project road
Project Road :- Parsona to Mahuwa (UP to Barkha)

Sl. No.	Chainage	Length of Structure along the road	Distance from center of existing road	Left or Right	Type - Temple, School, Hospital, Community Building etc.	Remarks
1	0.1	30	8	RHS	School	Mahua
2	0.6	7	15	LHS	Aanganwadi	Mahua
3	1.2	3	10	RHS	Temple	Mahua
4	3	8	15	RHS	Aanganwadi	Mahua
5	4.9	10	8	LHS	Temple	Mahua
6	24.3	5	12	RHS	Aanganwadi	Barkha
7	25.6	8	10	RHS	Primary School	Barkha
8	27.7	18	20	LHS	Primary School	Lohradol
9	27.7	15	15	LHS	Middle School	Lohradol
10	28.2	2.5	8	RHS	Temple	Lohradol
11	30.5	8	8	LHS	Primary School	Khakipar
12	30.9	2	12	LHS	Temple	Khakipar
13	33.9	14	15	RHS	Middle School	Jhundihwa
14	39.1	4	16	RHS	Temple	Khukhara
15	41	12	15	RHS	GPB (Gram Panchyat Bhawan)	Khukhara
16	41.2	2	6	LHS	Temple	Sarai
17	41.8	7	8	LHS	Vitnary Hospital	Sarai
18	41.85	48	6	LHS	Aayurved Medical	Sarai
19	43.6	Railway Crossing.				
20	49.1	25	20	RHS	Middle School	Jaratha Tola
21	53.2	8	15	RHS	GPB (Gram Panchyat Bhawan)	Khanuwa
22	53.2	6	8	RHS	S. T. Hostel	Khanuwa
23	53.2	10	10	RHS	Sub Center	Khanuwa
24	54.2	6	6	LHS	Temple	Khanuwa
25	80.1	5	6	RHS	Temple	Sohra
26	80.2	4	6	LHS	Temple	Sohra
27	75.8	20	8	LHS	GPB (Gram Panchyat Bhawan)	Chaura
28	76	9	6	RHS	Temple	Chaura
29	82.5	20	10	LHS	School	Situl Khurd
30	83.2	2	12	LHS	Temple	Situl Khurd
31	84.6	6	5	LHS	Aanganwadi	Banauli
32	87	2	5	RHS	Temple	Kuthar

V. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

87. Impact identification, screening for significance, and recommended mitigation measures for MP Road was guided by the use of ADB Rapid Environmental Assessment (REA) Checklist for Roads and Highways as provided in Appendix 1. The environmental screening of MP Road revealed the following the entire alignment is located inside or near a cultural heritage site, protected area, wetland, mangrove, estuarine, buffer zone of protected area or special area for protecting biodiversity.

88. The potential impacts of the proposed upgrading includes: removal of avenue trees, increase in ambient dust concentration, increase in noise, generation of construction debris and camp wastes, and loss of community structures.

A. Impact on Physical Environment Design Stage

1. Natural Hazard

89. The entire Madhya Pradesh falls under zone least active to moderate zone as per seismic map of India and therefore the risk of damage to the project road due to earthquake is minimal. Nonetheless, relevant IS codes were adopted in the design the civil structures.

2. Road Widening, Utilities shifting and Safety Planning

90. The entire road section has enough available ROW to accommodate the proposed road improvement works and will be undertaken along the existing alignment. Road widening will result to shifting of utilities and encroaching structures. Poor coordination with local authorities and communities will increase the risk of accidental damage to drainage canals and temporary disruption of water and electric supplies along active construction fronts. The further contraction of the useable carriageway during construction will exacerbate traffic and will hinder direct access across the road by residents along the road. Temporary detention of sewage on depressed areas during the reconstruction of drainage canals may occur.

91. Road formation widening will be made on the basis of minimizing tree cutting, utility shifting, and damage to community properties. Road design has incorporates the drainage system to avoid accumulation of sewage and surface run-off. Temporary pits will constructed side- and cross drains to collect sewage from demolished or damage drainage canals which will either be hauled for off-site treatment through septic tanks prior to disposal or land application.

92. Adequate safety provisions like crash barriers on accident prone areas, rumble strips in community areas to regulate speed, retro-reflective warning sign boards near school, hospital, and religious places are incorporated in the design. All utilities requiring shifting shall be largely made before start of construction. Prior to shifting, the Contractor will coordinate with the concerned agencies regarding the time and extent of shifting and community affected will be informed of potential service disruption at least 1 week in advance.

3. Terrestrial Ecology

93. There is no national park, wildlife sanctuaries or any other similar eco-sensitive areas within 10 km distance of the project area. However, 2582 trees are likely to be affected. The impact and mitigation due to tree cutting has been discussed in following paragraphs.

94. The road has direct bearing on tree resources. Road widening option is made to minimize the cutting of tree. However efforts have been made in designing to reduce the tree cutting to only 2582 Compensatory plantation of 1:10 has been planned under the project to address this impact.

B. Construction Stage

1. Air Quality

95. The potential sources of air emission during the construction phase of the project are: (i) dust re-suspension from earthworks including materials loading and unloading; (ii) quarrying and rock crushing; (iii) operation of construction equipment and machines; (iv) fugitive emissions from unpaved road travel; and (v) combustion of fuels from equipment, machineries, and vehicles. Particulate matter, comprising the majority from road construction, Particle size distribution from road construction is dominantly large, with 85.5% > 10um and 55% > 20 um2 which can settle within close proximity of the source.Hot mix plant will generate carbon monoxide (CO), un-burnt hydrocarbon, sulphur dioxide, particulate matters, and nitrogen oxides (NOx) emissions. This may affect the air quality of nearby areas especially due to emission discharge from low height stack. The deterioration of the air quality within the immediate vicinity of the road construction activities will be significant but temporary.

96. **Mitigation Measures**. Following measures are proposed to minimize the dust and emission generation:

- Vehicles delivering loose and fine materials like sand and aggregates shall be covered.
- Loading and unloading of construction materials in project area or provisions of water fogging around these locations.
- Storage areas should be located downwind of the habitation area.
- Water shall be sprayed on earthworks and unpaved haulage roads regularly.
- Regular maintenance of machinery and equipment. Vehicular pollution check shall be made mandatory.
- Explore the potential for using ready made asphalt and crushed rocks to avoid or minimize the use of hot mix and rock crushing plants
- Mixing plants and asphalt (hot mix) plants shall be located at least 1 km downwind of the human settlements. The asphalt plants, crushers and the batching plants shall be sited at least 500m in the downwind direction from the nearest settlement and after securing a No-Objection Certificate (NOC) from the SPCB. Hot mix plant shall be fitted with stack of adequate height as may be prescribed by SPCB to ensure enough dispersion of exit gases.
- Only crushers licensed by PCB shall be used.
- LPG should be used as fuel source in construction camps instead of wood. Tree cutting shall be restricted.
- Mask and other PPE shall be provided to the construction workers.
- Diesel Generating (DG) sets shall be fitted with adequate height as per regulations (Height of stack = height of the building + 0.2 □ KVA.
- Low sulphur diesel shall be used in DG sets as well as machineries.
- Air quality monitoring should be carried out during construction phase. If monitored parameters are above the prescribed limit, suitable control measures must be taken.

2. Noise

97. The scale of the construction necessary to upgrade the road and the corresponding slight increase in traffic are not expected to generate adverse impacts. Ambient noise level may increase temporarily in the close vicinity of various construction activities, maintenance workshops and vehicles and earthmoving equipment. These construction activities are expected to generate noise levels in the range of 80 – 95 dB(A) at a distance of about 5 m from the source.

98. Although this level of noise is higher than the permissible limit for ambient noise level for residential/commercial levels but will occur only intermittently and temporary. This noise level will attenuate with increase in distance from noise source, decreasing by 10dB at a distance of about 55m and 20 dB at 180 meters. Impact due to noise during construction activities will be minimal to communities as construction camps are located at least 50 meters from community areas.

99. Along the project road, a number of noise sensitive places are located which includes schools and temples. Noise impacts during project construction will be significant and temporary.

100. Mitigation Measures. Since the baseline noise levels already exceed prescribed standards the target for the operational stage monitoring will be to ensure that the noise levels do not exceed baseline levels.

101. All equipment shall be fitted with silencers and will be properly maintained to minimize its operational noise. Noise level will be one of the considerations in equipment selection, which will favor lower sound power levels. Stationary noise making equipment shall be placed along uninhabited stretches.

102. In addition to preferring less noise generating equipment, the timing of operation can be scheduled to avoid disruption of activities like school and prayer times. Finally, provision of temporary noise barriers will be made near identified sensitive locations or near the noise source during construction.

103. To protect workers operating in noisy environment, ear plugs or ear muffs will be provided by the Contractor to the workers and occupational exposure limits will be strictly implemented

3. Impact on Land and Soil

104. Borrow areas may lose its productivity if top soil is not preserved. Similarly, land area used for locating construction camp may lose its productivity, if it is not restored to its original stage after disbanding the construction camp.

105. **Mitigation Measures**. The top soil from the productive land shall be preserved and reused for plantation purposes. It shall also be used as top cover of embankment slope for growing vegetation to protect soil erosion. It shall be ensured that the land taken on lease for access road and construction camp is restored back to its original land use before handing it over back to land owner

4. Soil Erosion

106. Soil erosion may take place at locations of sharp bend near bridge construction locations, along steep and uncompact embankment slope, and wherever vegetation is cleared. Soil erosion may have cumulative effect *viz.* siltation, embankment damage, and drainage problem. Loss of soil due to run off from earth stock-piles may also lead to siltation of nearby water bodies. The intensity of soil erosion at different locations will be influenced by the lithology, topography, soil

type and climatic condition (mainly rainfall) and drainage pattern.

107. **Mitigation measures**. Following mitigation measures are proposed for prevention of soil erosion:

- Bank protection measures shall be taken at erosion prone areas. The protection measures may include use of geo-textiles matting, bio (vegetative) – turfing
- Provision of side drain to guide the water to natural outfalls.
- Stone pitching wherever necessary.
- When soil is spread on slopes for permanent disposal, it shall be buttressed at the toe by retaining walls.
- Side slopes of the embankment shall not be steeper than 2H:1V. Turfing of embankment slopes shall be done along the stretch.
- Shrubs shall be planted in loose soil area.
- In rural stretches, longitudinal side drains shall be intercepted by drains serving as outlet channels to reduce the erosion.
- IRC: 56 -1974 recommended practice for treatment of embankment slopes for erosion control shall be taken into consideration.
- Soil erosion shall be visually checked on slopes and high embankment areas. In case soil erosion is found, suitable measures shall be taken to control the soil erosion further including bio-turfing.
- While planning or executing excavations, the Contractor will take all adequate precautions against soil erosion as per MoRTH 306.
- The earth stockpiles to be located downwind and provided with gentle slopes to prevent soil erosion

5. Borrow Areas and Quarries

108. The project area is plain and rolling terrain. Farmers are willing to provide earth from their field up to certain depth on adequate compensation, it is recommended that borrowing from agricultural land shall be minimized to the extent possible.

109. Borrow areas if left un-rehabilitated may pose risk to people, particularly children and animals of accidentally falling into it as well as become potential breeding ground for mosquitoes and vector born disease

110. Illegal quarrying may lead to unstable soil condition; destroy the landscape of the terrain, air and noise pollution. Opening of new quarries is not envisaged due to the proposed project. Quarry material will be sourced from existing nearby quarries.

111. **Mitigation measures**. Borrow pits shall be selected from barren land/wasteland to the extent possible. Borrow areas should not be located on cultivable lands except in the situations where land owners desires to level the land. The top soil shall be preserved and depth shall be restricted to the desired level.

112. Borrow areas should be excavated as per the intended end use by the owner. The Indian Road Congress (IRC):10-1961 guideline should be used for selection of borrow pits and amount that can be borrowed.

113. The depths in borrow pits to be regulated so that the sides shall not be steeper than 25%. To the extent possible, borrow areas shall be sited away from inhabited areas. Borrow areas shall be leveled with salvaged material or other filling materials which do not pose contamination of soil. In addition, it shall be converted into fishpond in consultation with fishery department and if desired by land owner/community. The borrow shall be

114. Rehabilitated following the broad guidelines given at Appendix 2.

115. Aggregates will be sourced from existing licensed quarries. Copies of consent/ approval / rehabilitation plan for a new quarry or use of existing source will be submitted to EO, PIU. The contractor will develop a Quarry Redevelopment plan, as per the Mining Rules of the state and submit a copy of the approval to EA if new quarries are opened.

6. Compaction and Contamination of Soil

116. Soil in the adjoining productive lands beyond the ROW, haulage roads, and construction camp area may be compacted due to movement of construction vehicles, machineries and equipment, and due to sitting of construction camps and workshops. Approach road either paved or unpaved is available for most the bridge approaches. However, for some bridges approach road has to be constructed.

117. Soil may be contaminated due to inappropriate disposal of liquid waste, (lubricating oil and fuel spills, waste oil and lubricant and vehicle/equipment washing effluent) and solid waste (fuel filters, oily rags) likely to be generated from repair and maintenance of transport vehicles, construction equipment and machinery. Soil may be contaminated due to inappropriate disposal of domestic solid waste and sewage from construction camps.

118. **Mitigation Measures.** Fuel and lubricants shall be stored at the predefined storage location and away from drainage channels. The storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils. Construction vehicles and equipment will be maintained and refueled in such a fashion that oil/diesel spillage does not contaminate the soil.

119. All efforts shall be made to minimize the waste generation. Unavoidable waste shall be stored at the designated place prior to disposal. To avoid soil contamination at the wash-down and re-fuelling areas, oil interceptors shall be provided. Oil and grease spill and oil soaked materials are to be collected and stored in labeled containers (Labeled: WASTE OIL; and hazardous sign be displayed) and sold off to SPCB/ MoEF authorized Waste Oil Recycler.

120. To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route.

- Approach roads shall be designed along the barren and hard soil area to reduce the compaction induced impact on soil.
- The productive land shall be reclaimed after construction activity.
- Septic tank or mobile toilets fitted with anaerobic treatment facility shall be provided at construction camp.
- Domestic solid waste at construction camp shall be segregated into biodegradable and non-biodegradable waste. The non-biodegradable and recyclable waste shall be sold off.
- Efforts shall be made that biodegradable waste shall be composted in the mechanized and movable composter by the contractor. Non bio-degradable and non-saleable waste shall be disposed off to authorized land fill site. Non-bituminous wastes to be dumped in borrow pits with the concurrence of landowner and covered with a layer of topsoil conserved from opening the pit.
- Bituminous wastes will be disposed off in an identified dumping site approved by the State Pollution Control Board

121. Construction waste constitutes debris, which are generated due to dismantling of pavement (though involved only for few kilometer in MP Road), quarry dust and unused iron bars or damaged support structures. Uncontrolled disposal of these wastes may affect soil and even receiving water bodies may cause contamination of soil, and landscape of the area.

122. **Mitigation Measures.** Construction waste shall be disposed of in environmentally acceptable manner. Some of the measures are as follows:

- The existing bitumen surface can be utilized for paving of cross roads, access roads, and paving works in construction sites and camps, temporary traffic diversions, and haulage routes. All excavated materials from roadway, shoulders, drains, cross drainage should be used for backfilling embankments, filling pits, and landscaping. Unusable debris material should be suitably disposed off at pre designated disposal locations, with approval of the concerned authority.
- The bituminous wastes shall be disposed in secure landfill sites only in environmentally accepted manner. For removal of debris, wastes and its disposal MoRTH guidelines should be followed.
- The locations of dumping sites should be selected with following considerations.
- Unproductive/wastelands shall be selected for dumping sites.
- Away from residential areas and located at least 1000 m downwind side of these locations,
- Dumping sites do not contaminate any water sources
- Dumping sites have adequate capacity equal to the amount of debris generated.
- Public perception and consent from the village Panchayats about the location of debris disposal site shall be obtained before finalizing the location.

7. Groundwater

123. Contamination of groundwater is not envisaged since construction camps will have septic tanks or mobile toilets depending on the number of workers in each camp.

124. **Mitigation Measures.** Requisite permission as applicable shall be obtained for abstraction of groundwater. The contractor shall make arrangements for water required for construction in such a way that the water availability and supply to nearby communities remain unaffected. Water intensive activities shall not be undertaken during summer season.

8. Surface Water Bodies

125. Temporary pollution of water bodies may occur due to spillage of chemicals and oil at construction sites and disposal of waste from construction camps. Installation of a haul road or temporary access across the river/nala maybe required while construction work is ongoing in the existing minor bridges and culverts. This may cause sedimentation and other disturbances to the water body.

126. **Mitigation Measures.** To prevent siltation of road side ponds, provision of retaining wall is made along the road for the ponds located next to the road. As enhancement measures, efforts shall be made to increase the water holding capacity of the ponds (other than those affected) in the region by using the bed material as borrow earth. Following measures shall be followed additionally:

- Bridge construction activity including piling is recommended during non-monsoon (October to End of May) period.

- Check dams must be created during construction to catch the silt or debris generated from construction activities across the water channels
- All chemicals and oil shall be stored away from water and concreted platform with catchment pit for spills collection.
- All equipment operators, drivers, and warehouse personnel will be trained in immediate response for spill containment and eventual clean-up.
- Readily available, simple to understand and preferably written in the local language emergency response procedure, including reporting, will be provided by the contractors.
- Silt fencing and/or brush barrier shall be installed along drainage path, erosion prone areas for collecting sediments before letting them into the water body. Silt/sediment should be collected and stockpiled for possible reuse as surfacing of slopes where they have to be re-vegetated.
- All wastes arising from the construction should be disposed in an environmentally accepted manner so as not to block the flow of water in the channels. The wastes should be collected, stored and transported to the approved disposal sites.
- No vehicles or equipment should be parked or refueled near water bodies, so as to avoid contamination from fuel and lubricants
- Substructure construction should be limited to the dry season.
- Construction camps shall be located away from habitation (at least 1 Km Away) and water bodies. Sewage from labour camps will be treated through septic tanks. No untreated/treated sanitary wastewater shall be discharged into surface water bodies as these are used for bathing and washing purpose.
- The borrow areas may also be converted into ponds with the concurrence of the land owners. Fisheries activity can be encouraged in such ponds through institutional support from concerned department

9. Hydrology and Drainage

127. Construction material and waste may contaminate or clog the small drains if stored or disposed close to water body.

128. **Mitigation Measures**. Adequate cross drainage structures shall be provided. Additional balancing culverts shall be provided in flood prone areas. The embankment height shall be designed consistent with the existing topography of the region and shall be higher than the HFL. Elaborate drainage system shall be provided to drain the storm water from the roadway and embankment and to ensure minimum disturbance to natural drainage of surface and subsurface water of the area.

129. The design of drainage system such as surface and sub-surface drainage shall be carried out as per IRC: SP: 42 and IRC: SP: 50. Surface runoff from the main highway, embankment slopes and the service roads shall be discharged through longitudinal drains, designed for adequate cross section, bed slopes, invert levels and the outfalls. If necessary, the walls of the drains shall be designed to retain the adjoining earth.

130. IRC: 34-1970: Recommendations for road construction in waterlogged area and IRC: and MORT&H guidelines for Design of High Embankments shall be referred.

131. No construction material will be stored or disposed near any water body except for reusing it for enhancement measures such as embankment raising.

10. Impact on Biological Environment

a. Terrestrial Ecology

132. There is no national park, wildlife sanctuaries or any other similar eco-sensitive areas within 10 km distance of the project area. However, 2582 trees are likely to be affected. The impact and mitigation due to tree cutting has been discussed in following paragraphs.

133. One month before the construction starts, clearing and grubbing will be performed by the contractor. All trees within the ROW with 300 mm diameter at 1m above the ground will be cut, including the removal of stumps. A total of 2582 trees are likely to be affected due to the proposed project.

134. **Mitigation Measures.** Requisite permission from Forest Department shall be obtained for cutting of roadside trees located in forest land otherwise; permission will be taken from district commissioner.

135. The project envisages plantation of approximately 25820 trees along both sides of road as per IRC SP: 21 specifications. This will include the compensatory plantation as per prevailing guidelines of States forest department on 1:10 basis replacement rate or as per permission granted by district authorities for cutting of tree located on non-forest land, which vary from 1:3 to 1;10. Besides, additional plantation shall be done on banks of water bodies near bridge sites to enhance the aesthetics and check soil erosion. All tree plantations will be carried out through forest department, local community or the civil works contractor. Tree species selected for plantation must be suitable for local climatic conditions and be equal to or better in sequestering carbon than the the trees removed/be good for sequestering carbon (only for roads where there is no tree cutting). Necessary advise maybe sought from the local Forestry office in the selection of tree species.

136. A range of 10-15 m Centre-to-Centre is recommended for spacing of trees (parallel to the road). Setback distance of trees in different situations shall be based on IRC: SP: 21 and IRC: 66. The distance between the kerb, if any, and the nearest edge of tree trunk shall be at least 2 m. The plantation in median shall comprise shrubs whose height would normally not exceed 1 - 1.5 m and shall be as per IRC SP: 21.

137. For safe traffic operation, vertical clearance between the crown of the carriageway and lowest part of overhang of the tree available across the roadway shall conform to the standards laid down in IRC: SP: 21. The pit size, fencing, watering, and manuring requirements shall also conform to the above standard. The use of pesticides shall be avoided or minimized to the extent possible. Planting shall be such that it does not obstruct the visibility of traffic from any side and shall be pleasing in appearance.

b. Aquatic Ecology

138. Temporary sedimentation and water quality deterioration is expected from the project during the construction stage. Accidental spill of materials, chemicals, and fuels may also deteriorate receiving water quality and hence the aquatic ecology.

139. **Mitigation measures**. It is proposed to undertake construction activities near water bodies during summer season when most of water bodies are practically dry. Best construction practices shall be adopted to prevent increase in siltation level of the water. All precautionary efforts shall

be taken as given under surface water section to prevent accidental damage of water quality.

11. Socio-Economic Impact

140. MP Road project will have both positive and negative impact on socioeconomic aspects as narrated below.

a. Positive Impacts

141. Economic activities supporting transport like fuel stations, automotive repair shops, lodging, and restaurants are expected to increase with increase of traffic and induced development of the area. The improved road will provide better connectivity which will result in (i) Reduction in travel time (ii) better mode and frequency of transport (iii) access to quality health care facilities, educational and other infrastructural facilities (iv) enhanced tourism activities in the area and state which in many terms will boost the local economy (v) better investment climate for industries creating more employment opportunities to local people.

b. Anticipated Negative Impacts

142. The other impacts are expected due to sitting and operation of construction camp during construction.

12. Labour and Construction Camp

143. Construction workers expected to be about 150 per day per package are likely to be employed during construction. Most of the workers will be employed locally. However, some may be from nearby areas. This will cause additional burden on local resources. However, this impact will be temporary and will not have the potential for changes in the demographic scenarios of the area. The outside workers will be housed at the construction camp, which is expected to one per package. Poor sitting and improper management of construction camp may lead to several adverse impacts on environment viz. (i) loss of vegetation due to use of wood as fuel source for cooking (ii) deterioration in nearby surface water bodies" quality (iii) compaction and contamination of soil due to uncontrolled disposal of solid waste (iv) Poor sanitation may result to transmission of communicable diseases among the workers and the host communities. This includes the possible spread of sexually transmitted disease, diseases from improper handling and supply of foodstuffs, poor water supply, and insect-borne diseases.

144. **Mitigation Measures**. Construction camp shall be sited at such locations so as to utilize the existing infrastructure. No productive land should be utilized for construction camp. All sites must be graded, ditched and rendered free from depressions to avoid water stagnation. Accommodation and ancillary facilities including recreational facility for workers shall be erected and maintained to standards and scales approved by the resident engineer. All camps should maintain minimum distance of 1000 m from habitation and water bodies.

145. All construction camps shall be provided sanitary latrines and urinals with provision of septic tanks attached with soak pits or mobile toilets fitted with anaerobic digestion system. Storm water drains shall be provided for the flow of used water outside the camp. Drains and ditches shall be treated with bleaching powder on a regular basis. Garbage bins must be provided in the camp and regularly emptied and disposed of in a hygienic manner. LPG cylinders shall be provided as fuel source for cooking to avoid any tree cutting.

146. The Contractor will ensure the following:

- The good health and hygiene of all workers to prevent sickness and epidemics. These include the HIV/AIDS prevention program to reduce the risk and transfer of HIV virus between and among the workers and community, promote early diagnosis and assist affected individuals. Activities under the program include monthly information, education, and consultation communication campaigns to workers, drivers, delivery crew, and communities on the risk, dangers, and impacts of STD and HIV/AIDS. Contractor will also provide first aid facilities at the camp and organize regular health check-up camps as well.
- Availability of safe drinking water and sufficient supply of suitable and hygienically prepared food at reasonable price is available to the workers.
- Adoption of all precautions to protect the workers from insect and pest to reduce the risk to health. This includes the use of insecticides, which should comply with local regulations.
- Prohibition on supply or availability of alcoholic liquor or prohibited drugs at the camp.
- Regular health check-up and immunization camps shall also be organized for the workers and nearby population.

13. Safety

147. The road construction activities may create various unsafe situations. This will require attention to the following safety aspects viz. (i) safety of construction workers, (ii) safety of road users including pedestrians and cyclists (iii) safety to cattle; (iv) safety of local community (iv) unsafe/ hazardous traffic conditions due to construction vehicle movement need to be considered during design and construction stage and (v) conduct of safety audit.

148. **Mitigation measures.** During the construction phase, contractors shall be required to adopt and maintain safe working practices. Internationally accepted and widely used safety procedures should be followed during (i) road works (ii) handling of large construction equipment and machineries, (iii) handling of chemicals and hazardous materials and inflammable substances (iii) welding and (iv) electrical works. Contractor shall also arrange required PPEs for workers, first aid and firefighting equipment at construction sites. Contractor will also prepare an emergency preparedness plan, which shall be duly approved by EA to respond to any emergency and unsafe conditions. To avoid disruption of the existing traffic due to construction activities, comprehensive traffic management plan shall be drawn up by the contractor. Retro-

149. Reflectorized traffic caution signs shall be used during construction. Regular safety audit or periodic review shall be made to assess the effectiveness of safety measures adopted during construction.

150. Adequate caution signage near school, sensitive locations, speed control, caution notes shall be fixed at appropriate locations. These shall be preferably of PCC with Retro-reflective paints. Steel base signage shall be avoided to prevent theft of the same. Crash barrier shall also be installed at appropriate locations particularly near school to provide safety to school children. Provision of sped breakers shall be made near schools and religious places.

C. Impacts during operation stage

151. The subproject road is located in vast open agricultural land, which will provide adequate dispersion of gaseous emission from vehicle. Further, proposed plantation will ameliorate/enhance the micro climate. No adverse climatic changes/impacts are anticipated during operation stage other than GHG (CO_2) emission due to increased traffic, which would be

largely offset with better fuel efficiency and reduced vehicle idling due to improved road conditions.

1. Air Quality

152. Vehicular emissions will be the principle source of pollution during operation stage. The subproject road is mostly located in vast open agricultural land, which will provide adequate dispersion dynamics of gaseous pollutants. Moreover, majority of the traffic on the subproject will be diverted traffic from the existing highways.

153. **Mitigation Measures.** Plantation is one of the preferred solutions to check air pollution. Plants serve as a sink for pollutants, reduce the spread of dust. Tree plantation along roadsides and other places shall include pollution absorbent species. Awareness signboards shall be installed at prominent location to educate drivers for good driving and vehicle maintenance practices.

2. Noise

154. During the operational Stage, movement of traffic will be the prime source of noise. Traffic congestion and pedestrian interferences increase the use of horns. This may result in increased noise levels at nearby schools and religious places.

155. **Mitigation Measures.** Effective traffic management and good riding conditions shall be maintained to reduce the noise level throughout the stretch. Speed limitation and honking restrictions may be enforced near sensitive locations. Increased plantation along the road and boundary wall will also work as noise barrier. Since most of the schools buildings are away from the road, therefore impact of noise is expected to be insignificant. Since improved road conditions and multi-layered plantation will be helpful in attenuation of noise levels, the effectiveness of the these measures shall be monitored. If noise levels are still found higher than the prescribed ambient noise standards at these sensitive receptors, adequate noise barrier shall be fixed.

3. Land and Soil

156. The better access can lead to conversion of agriculture land for residential and commercial purposes close to roads and especially in rural and urban area.

157. **Mitigation Measures.** The EA may explore the feasibility of restricting about 30 m area either side of the road as no development zone on the line restriction are imposed for National Highways authority of India.

4. Soil Erosion

158. No impact on soil is anticipated during operation phase of the project except bridge approaches where unexpected rainfall may erode the embankment formation and deterioration of borrow areas if not rehabilitated properly.

159. **Mitigation measures.** Embankment stabilization shall be check periodically during operation stage and suitable stabilization measures shall be taken wherever any erosion is identified. Borrow areas will also be rehabilitated following the guidelines given at Appendix 2.

5. Groundwater

160. No impact is anticipated on groundwater due to the project during operation phase of the project hence, no specific mitigation measure is proposed.

6. Surface Water Bodies

161. No major or long-term impact is anticipated during the operation phase on the surface water bodies due to the project implementation activities. Oil contaminated runoff from the road during monsoon will have minimal impacts considering their low concentration.

7. Hydrology and Drainage

162. Regular removal/cleaning of deposited silt shall be done from drainage channels and outlet points before the monsoon season. Rejuvenation of the drainage system by removing encroachments/ congestions will be regularly conducted.

8. Impact on Biological Environment

a. Terrestrial ecology

163. Positive impacts on terrestrial ecology are expected during the project operation stage due to the increase in vegetation and landscaping along the road. The project will coordinate with the local communities to maintain and enhance the trees planted along the state road. ”No adverse impact is anticipated during operation stage except accidental damages or absence of proper tree management.

164. **Mitigation Measures.** Arrangement shall be made to ensure survivability of the tree plantation. The tree survivability audit shall also be conducted at least once in a year to assess the effectiveness of the programme.

b. Aquatic Ecology

165. No impact is envisaged during operation phase of the project and hence no mitigation proposed. However, periodic surveillance shall be conducted to check erosion and siltation in major water bodies.

11. Community Health and Safety

166. During operation phase, the projected increase in the number of motorized road users traveling at higher speeds also increases the chances of injuries and fatalities from road crashes.

167. **Mitigation Measures.** Adequate caution signage near school, sensitive locations, speed control, caution notes shall be fixed at appropriate locations. These shall be preferably of PCC with Retro-reflective paints. Steel base signage shall be avoided to prevent theft of the same. Crash barrier shall also be installed at appropriate locations particularly near school to provide safety to school children. Provision of speed breakers shall be made near schools and religious places.

D. Climate Change Impacts and Risks

1. Climate Change Mitigation

168. The Transport Emissions Evaluation Model for Projects (TEEMP)[1] developed by Clean Air Asia[2] was utilized to assess the CO2 gross emissions with and without the project improvements. The main improvement from the project that was considered for the model is better surface roughness which was translated into impacts on traffic speed and hence fuel consumption. The model also allows for the inclusion of impacts related to traffic congestion with and without project through provisions for inserting data on the traffic numbers, lane width, number of lanes and volume/capacity saturation limit.

169. Information that was fed into the model for projecting the CO2 emissions were:

(i) The road will rehabilitate 65.600 km of major district roads;
(ii) The existing road having 2 lane with a 3.5 m carriageway width will be improved and maintained to the same number of lanes and carriageway width with asphalt concrete surface;
(iii) Road roughness will decrease from the general condition of 16 m/km to 2.5 m/km;
(iv) Construction will take place over a period of 12 months in 2015 and road operations will begin in 2016.
(v) The design life of the road is 20 years. Hence the midpoint of the design life is after 10 years or 2025.
(vi) Other improvements include the repair or reconstruction of damaged culverts, introduction of lined longitudinal and cross drains for the road and removal of irregularities on the existing vertical profile and road safety appurtenances.

170. The traffic forecast data was taken from the traffic studies and economic analysis for the road disaggregated into vehicle types and annual average daily traffic. Key vehicle categories considered for the road and the annual average daily traffic in 2014 (baseline scenario) without project and in 2025 with the project is given in the table below.

Table 25: Annual Average Daily Traffic for different vehicle categories

Vehicle category	2016 (without the project)	with project)
2-wheeler	166	348
3-wheeler/autorickshaw	20	46
Car/jeep/taxi/van	112	261
Light Commercial Vehicle	12	29
Minibus and standard bus	6	14
Heavy commercial vehicle	3	8
TOTAL	**319**	**706**

171. The volume/capacity saturation limit was taken at 2.0 or twice the designed road capacity and beyond which traffic congestion will result to less than optimum travel speed and increase in fuel consumption. Emission factors were taken from the CBCP/MOEF (2008) Draft Report on

[1] TEEMP is an excel-based, free-of-charge spreadsheet models to evaluate emissions impacts of transport projects.
[2] A network of 250 organizations in 31 countries established by the Asian Development Bank, World Bank, and USAID to promote better air quality and livable cities by translating knowledge to policies and actions that reduce air pollution and greenhouse gas emissions from transport, energy and other sectors.

Emission Factor Development for Indian Vehicles, the Automotive Research Association of India, and C. Reynolds et.al (2011) Climate and Health Relevant Emissions from in-Use Indian for three-wheelers rickshaw as follows:

Table 26: CO2 Emission Factors

Vehicle Type	Gas/Petrol	Diesel
2-Wheel	2.28 kg/l	
3-Wheel		2.63 kg/l
Cars/bus/bus	2.59 kg/l	2.68 kg/l
LCV		3.21 kg/l
Bus		3.61
HCV		3.50

172. Emissions from road construction were also calculated using estimates of the total quantity of materials that will be used to rehabilitate the road which is 683 tons of steel, 5751 tons of cement and 6939 tons of bitumen.

173. **Estimated carbon emissions**. The proposed road upgrading resulting to surface roughness and road capacity improvements have implications in CO2 emissions. Improved roughness results to higher speed and lesser emissions while increase road users increases emissions. These factors are further affected by traffic congestion once the volume/capacity saturation limit.

174. CO2 emissions will also result from the processing and manufacturing of raw materials needed to upgrade the road and in the case of Mahua-Parsona, a total of 5751 tons of cement, 683 tons of steel, and 7009 tons of bitumen will be needed. These construction materials will produce an estimated 14340 tons of CO2.

175. The Figure below presents the impacts on emissions due to road improvements. Total CO2 emission at business-as-usual scenario was estimated at 1684 tons for the entire project life and without- and with- induced traffic are 20923 and 21049 tons respectively. These values are below the 100,000 tons per year threshold set in the ADB SPS 2009. Therefore it is not necessary to implement options to reduce or offset CO2 emissions under the project.

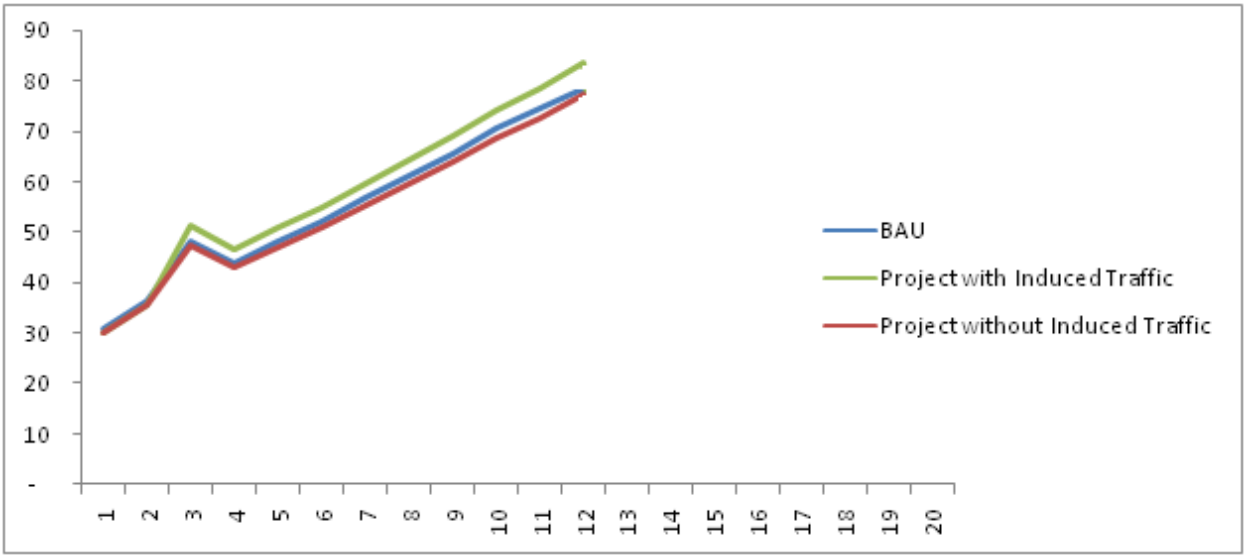


Figure 7: Plot of CO2 Emissions Considering Improvement in Surface Roughness and Road Capacity

176. The design life of the roads is 20 years. The project's CO2 emission intensity indicators are provided in the succeeding Table 27.

Table 27: Project CO2 Emissions Intensity Indicators

Details	CO2		
	Business-As-Usual	Project (without Induced Traffic)	Project (with Induced Traffic)
tons/km	25.71	319.00	320.88
tons/year	55.48	688.51	692.57
tons/km/year	2.14	26.58	26.74
g/pkm	88.79	1,101.83	1,031.51
g/tkm	149.67	1,857.35	1,738.16

2. Climate Risks and Adaptation needs

177. Climate risks were identified following both top down and bottom up approaches. Under the top down approach changes of key climate parameters, mainly temperature and precipitation were projected for 2050 using an ensemble of Global Climate Models (GCMs). Given the projected variations of temperature and precipitation the project roads were screened for 9 types of climate risks:

a. Landslide triggered by increased precipitation
b. Fire
c. Flood
d. Drought
e. Tsunami
f. Cyclone wind
g. Cyclone surge
h. Sea level rise
i. Coastal erosion

178. Climate risk maps based on information from the GCMs were created for the project area using Geographic Information System (GIS) maps. After overlaying the road locations on the climate risk maps low to medium risks identified for the project roads were flooding, landslides triggered by precipitation, coastal erosion and tsunami.

179. The overall climate change risk level identified from the above exercise is low. The key risk identified is flooding (increased storminess). Bridges and road embankments are the main project components that will be prone to flooding. Increase in temperature may also affect road safety.

180. Under the bottom up approach the flood prone areas in the project road were identified based on field surveys for the engineering design.

181. Key engineering measures taken to address the risk of flooding in the design are: increase in road embankment height in flood prone areas/sections, improvement and provision of lined longitudinal and cross drains and new culverts, improvement and new construction of minor and major bridges. Bridge heights have been designed to have a height of 0.6m above HFL for minor bridges and 0.9m above HFL for major bridges. Flood return period of 50 years for minor bridges and 100 years for major bridges have been considered.

E. Cumulative and Induced Impacts

182. According to the ADB Environment Safeguards Sourcebook[3] cumulative impact is described as: “The combination of multiple impacts from existing projects, the proposed project, and anticipated future projects that may result in significant adverse and/or beneficial impacts that cannot be expected in the case of a stand-alone project.” The sourcebook also describes induced impacts as: “Adverse and/or beneficial impacts on areas and communities from unintended but predictable developments caused by a project, which may occur at later or at a different location.

183. Economic activities supporting transport like fuel stations, automotive repair shops, lodging, and restaurants are expected to increase with increase of traffic and induce development in the project area. The improved road will provide better connectivity and result in (i) Reduction in travel time (ii) better mode and frequency of transport (iii) access to quality health care facilities, educational and other infrastructural facilities (iv) enhanced tourism activities in the area and state which in many terms will boost the local economy (v) better investment climate for industries creating more employment opportunities to local people.

184. In terms of environment safeguard issues the improved road surface is expected to result in less dust and noise due to traffic plying on the damaged roads. However, the increased traffic due to the improved road will generate more air pollution due to vehicle exhaust and noise. The smoother road conditions will also result in increase of traffic speeds, hence creating more risks for accidents amongst traffic users as well as the local communities in the project area.

185. For addressing the impacts of air pollution and noise, regular maintenance of the road surface, maintenance and monitoring of newly planted trees and installation of noise barriers where necessary have been included in the EMP for implementation during operation stage. For addressing safety related impacts, regular maintenance of the road furniture include safety related furniture, enforcing rules against encroachment of structures and sensitive structures (schools, temples etc.) inside the ROW and implementation of the emergency response system has been included in the EMP for implementation during operation stage,

[3] Environment Safeguards, A Good Practice Sourcebook, Draft Working Document, December 2012

186. Information on future development projects along the project road was not available. Hence, it is difficult to assess cumulative impacts from other projects which may get implemented in the project area.

VI. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

187. Meaningful consultations were held early and throughout the project development stage to allow the incorporation of relevant views of the stakeholders in the final project design, mitigation measures, implementation issues, and enhance the distribution of benefits. All the five principles of information dissemination, information solicitation, integration, co-ordination, and engagement into dialogue were incorporated in the consultation process. The analysis of environmental impacts likely from the project was strengthened and modified based on opinions of all those consulted, especially in the micro level by setting up dialogues with the village people from whom information on site facts and prevailing conditions were collected. The requirement of public consultation during the implementation of the project has been proposed as part of the mitigation plan.

A. Objectives of the Public Consultation

188. Stakeholder's consultations were held with intent to understand their concerns, apprehensions, overall opinion and solicit recommendations to improve project design and implementation. Informal meetings, interviews were organized covering the entire project design stage. Consultations provide affected people a platform to ensure incorporation of their concerns in the decision making process and foster co-operation among officers of MPRDC, the community and the stakeholders to achieve a cordial working relationship for smooth implementation of the project. It inculcates the sense of belongingness in the public about the project.

189. The discussions were designed to receive maximum inputs from the participants regarding their acceptability and environmental concerns arising out of the sub-project. They were given the brief outline of the project to which their opinions was required particularly in identifying and mitigating any potential adverse impact.

B. Methodology for Consultations

190. Consultation with the stakeholders, beneficiaries, and community leaders were carried out using standard structured questionnaires as well as unstructured questionnaires. Questionnaire survey/ discussions were designed to obtain background information and details of general environmental issues that concern people in the project area. In addition, environmental issues were discussed with relevant organizations, government officials, beneficiaries, community leaders and experts. In addition, personal discussions with officials, on site discussion with affected stakeholders, and reconnaissance visits have also been made to the project area. Public consultation have been carried out at seven locations during initial surveys as shown in table 28. The total numbers of participants in the consultations are 78 out of which 16 or 20% are women.

Table 28: List of Public consultation and Date

Sr. No.	Village/Town Name	Date of Consultation	Chainage	No of participants		
				M	F	T
1	Rajmilan	17/07/2014	223+300	09	02	11
2	Situl Khurd	17/07/2014	220+850	15	-	15
3	Sakhoha	17/07/2014	226+400	07	05	12
4	Gajrabatera	20/07/2014	250+400	08	-	08
5	Sarai	17/07/2014	258+900	06	05	11
6	Persona	21/07/2014	211+680	09	-	09
7	Barkha	16/072014	275+900	08	04	12
			Total	**62**	**16**	**78**

1. Project Stakeholders

191. All types of stakeholders were identified to ensure as wide coverage as possible.

- Residents, shopkeepers and businesspeople who live and work along the road specially the project affected persons
- All type of road users/commuters
- Executing Agency, Construction Supervision Consultant and Implementing NGOs
- Other government institutions whose remit includes areas or issues affected by the project (state environment and forest department, Pollution Control Board (PCB), Irrigation Department, Public Health Engineering (PHED) Department
- the beneficiary community in general

a. Consultation with Government Departments

192. Various officials consulted during IEE preparation included PWD Officials, State pollution control board for Air, Noise and Water quality information, IMD for the climatic data, statistical officer for Population and demographic profile, Panchyat department for village level information, Survey of India for the toposheet requirement, Revenue department for the land record information, PHQ officers for hand pump relocation and quality assessment, MPSEB offices for electric pole shifting etc.

193. These departments helped to provide various project related data and information which helped preparation of reports and data analysis.

2. Consultation with Local People and Beneficiaries

194. The informal consultation generally started with explaining the project, followed by an explanation to potential impacts. Participant's views were gathered with regard to all aspects of the environment which may have direct or indirect impact on local people. Key Issues discussed are:

- Awareness and extent of the project and development components;
- Benefits of the project for the economic and social upliftment of community;
- Labour availability in the project area or requirement of outside labour involvement;
- Local disturbances due to project construction work;
- Necessity of tree felling etc. at project sites;
- Impact on water bodies, water logging and drainage problem if any;
- Environment and health
- Flora and fauna of the project area
- Socio-economic standing of the local people and

195. The project has immense acceptability among the local people. They perceive that in addition to providing all weather connectivity, the subproject road will bring positive socioeconomic changes in the area. Local people mainly discussed on the issues related to flooding, rehabilitation, resettlement, and road safety issues. The list of participants views, and outcome of the consultations have been summarised in Table 29.

196. The Details of Participants and Public Consultation photographs are attached in Appendix 8. In addition information on the GRM procedures and formats in local language i.e. Hindi was shared with the local people as provided in Appendix-9.

Table 29: Outcome of the Consultations

Sr. No.	Date and Location	Issues Discussed	Measures Taken	Participant
1	Date: 17/07/2014 Village:Rajmilan Chainage- 223+300	□ People are facing acute problem related to poor condition of the road. □ Where the road passing through the settlements there should be provision of Speed breakers Suggestion viz. (i) design shall take into hydrological aspects into consideration (ii) minimal loss of structures (iii) adequate resettlement and rehabilitation measures including provision of jobs to land losers □ Local people informed that present road in some sections of this area submerges during normal rainfall also. Adequate measures shall be taken to avoid water logging during normal rainfall. □ They suggested that existing alignment shall also be improved and maintained properly. □ Suggestion viz., Minimal loss of structures, Adequate rehabilitation and resettlement ,measures	□ Proposed widening and strengthening of the road will provide better level of services in terms of improved riding quality and smooth traffic flow. □ There will be considerable reduction in the number of accident and level of pollution. □ Accessibility to social health and educational infrastructure will increase through all-weather road. □ Generation of employment during construction phase of the road. □ The discussion generate considerable awareness of the project □ As the proposed road shall be an widened one, it shall provide an efficient public transportation system besides ensuring reduction in congestion level □ The non title holders shall also be compensated as per ADB guidelines. □ Drainage system is mention in built-up area and earthen drainage for rural area. □	Total Participants-11
2	Date: 17/07/2014 Village: Situl Khurd Chainage- 220+850			Total Participants-15
3	Date: 17/07/2014 Village: Sakhoha Chainage.226+400			Total Participants-12
4	Date: 20/07/2014 Village: Gajrabatera Chainage- 250+400			Total Participants-08
5	Date: 17/07/2014 Village: Sarai Chainage- 258+900			Total Participants-11
6	Date: 21/07/2014 Village: Persona Chainage- 211+680			Total Participants-09
7	Date: 16/05/2014 Village: Barkha Chainage- 275+900			Total Participants-12

197. Most of the people interviewed were well aware of the environmental conditions in and around their villages. A major percentage was ignorant about any deterioration in the air and noise quality due to expansion of existing highway. However, their major concern was related to the loss of fertile agricultural land. The villagers are quite enthusiastic about the proposed project as it will give fillip to rural economy and present them many employment opportunities during construction of project road. Overall positive approach towards the project is observed.

C. Results of Consultation with Local People

198. Most of the people interviewed strongly support the project. The people living in the entire project area expect the different project elements to facilitate transport, employment, tourism, boost economic development and thereby provide direct, or indirect, benefits to them. In order to access the existing environment and likely impacts on surrounding population, an interview survey was carried out. A sample of the population was interviewed through a designed questionnaire. Precaution has been exercised during the survey to ensure that the sample interviewed is truly representative of the affected groups and the questions are worded so as not to generate a bias response.

199. It is observed from the interview survey that there is increased environmental awareness among the people. It can also be seen from Table 37 that about 70 to 80 percent of the persons are in the opinion that an environmental condition of the area is good. About 76 percent of the people are agreed that the quality of air, in the area is good; whereas, only about 5 to 20 percent responded feel that the environmental quality is being deteriorated. Poor road condition and vehicular emissions are the major sources they feel responsible for this. People are unaware about presence of archaeological, historical and cultural sites. There is no major history of natural disasters in the region and local people have mixed response about natural disasters. Overall, the general environmental conditions in the region are good and people have increased environmental awareness. Table 30 shows the result of public opinion survey carried out in the region.

Table 30: Peoples' Perception about Environmental Scenario

Sr. No.	Question asked about	No. of people interviewed	Positive response (%)	Negative response (%)	No response (%)
1	Water quality of rivers, ponds, wells, and canals	78	80	20	0
2	Noise quality of the area	78	70	15	15
3	Air quality of the area	78	76	10	14
4	Archaeological sites	78	50	5	45
5	Natural disaster	78	80	20	0
6	Rare species of animals and birds found	78	80	15	5
7	Cultural sites i.e. market, melas	78	85	9	6

D. Conclusion and Recommendation

200. Overall, most of the people interviewed strongly support the project. The people living in the entire project area expect the different project elements to facilitate transport, employment, tourism, boost economic development and thereby provide direct, or indirect, benefits to them. Construction camps may, however, put stress on local resources and the infrastructure in nearby communities. In addition, local people raised construction-process related grievances with the workers. This sometimes leads to aggression between residents and migrant workers. To prevent such problems, the contractor should provide the construction camps with facilities such as proper housing, health care clinics, proper drinking water and timely payment. The use of local laborers during the construction will, of course, increase benefits to local peoples and minimise these problems. Wherever possible, such people should be employed.

201. The following are the Consultants' initial findings in regard to likely positive and negative impacts.

Positive Impacts:

- The improved road: will reduce travel times, fuel consumption and emissions from base traffic volumes
- Drainage conditions will be considerably improved: this because of the provision of improved side drains, culverts and causeways;
- Economic development and access will be stimulated
- Health, Agricultural and Education facility will improve.

Negative Impacts

- Few tree loss which reduce the green cover but simultaneously plantation will
- take place to improve the green cover.
- Minor deteriorations in the present minimum levels of air, water and noise quality may be expected during construction- but this should be short-term and localised – in order to minimise the impacts, the mitigation measures recommended
- During construction the traffic will slow and messy.

202. On the basis of available information, field visits over the entire length of the project road, discussions with the project authorities; other discussions amongst the project team, NGOs, local people and various governmental officials, it has been concluded that overall:

- All elements of the projects will be beneficial;
- All negative impacts, during and post construction, including those deemed "significant" can be properly mitigated; and
- No comprehensive, broad, diverse or irreversible adverse impacts have been identified.

VII. ENVIRONMENTAL MANAGEMENT PLAN AND GRIEVANCE REDRESS MECHANISM

203. The environmental impacts associated with any development project are eliminated or minimized to an acceptable level through development of appropriate mitigation measures based on most suitable techno-economic options. The Environmental Management Plan (EMP) is a well-established tool to ensure effective implementation of the recommended mitigations measures throughout the subsequent project development stages. The EMP also ensures that the positive impacts are conserved and enhanced. An EMP provides location and time specific actions to be taken with defined responsibility. It also provides measures for institutional strengthening and effectiveness assessment through defined monitoring plan, reporting and corrective & preventive action planning.

A. Environmental Management Plan

204. The MP Road specific Environment Management Plan has been formulated which consists of a set of mitigation; monitoring and institutional measures applicable to design, construction and operation stages of the project (Appendix 3). The components of this EMP includes (i) mitigation of potentially adverse impacts (ii) monitoring of impacts and mitigation measures during project implementation and operation (iii) institutional capacity building and training (iii) compliance to statutory requirements (iv) integration of EMP with project planning, design, construction and operation.

B. EMP Implementation Schedule

205. The EMP provided in Appendix 3 provides measures. However, specific mention is made for location specific measures. The package specific EMP costs are separately assessed. These EMP will form part of bidding document as well. The construction period for UM Road is considered as 24 months from the date of start of construction.

C. Emergency Response Plan

206. Assessment of nature, type and extent of project activities establishes that this project may have only one environmental emergency i.e. accidents on paved roads and consequent spillage due to damage of oil tank of the vehicle. It is suggested to develop a communication and response system to minimize the response time. The project authorities shall be prepared to counteract against such emergency either by developing in-house capabilities or by associating with any competent agency.

D. Environmental Monitoring Plan (EMoP)

207. The purpose of the environmental monitoring program is to ensure that the envisaged objectives of the project are achieved and result in desired benefits. To ensure the effective implementation of the mitigation measures and Environmental Management Plan (EMP), it is essential that an effective monitoring program be designed and carried out. The board objectives of environmental monitoring plan are:

- To evaluate the performance of mitigation measure proposed in the EMP,
- To evaluate the adequacy of Environmental Assessment
- To suggest improvements in management plan, if required,
- To assess change in environmental quality,

208. A comprehensive monitoring plan has been prepared for all stages of the project and provided as Appendix 4. This includes parameters to be measured, methods to be used,

sampling locations, frequency of measurements, detection limits, cost and responsibility for implementation and supervision. The monitoring programme is designed for monitoring during construction and operation stages with details on budget and responsible agencies:

- Construction Stage: (three years of construction period)
- Monitoring to be carried out by construction supervision consultant (CSC). The costs to form part of CSC budget.
- Six Monthly monitoring by external agency to be arranged by PIU ADB from Project cost budget. This report will be directly submitted by agency to MPRDC.
- Monitoring Programme and schedule for Key Performance Indicators (Physical, biological and environmental management components identified as of particular significance) are given in the following section:

1. Ambient Air Quality (AAQ) Monitoring

209. Ambient air quality parameters recommended for road transportation developments are Fine Particular Matter (PM2.5), Respirable Particular Matter (PM10), Carbon Monoxide (CO), Oxide of Nitrogen (NOx) and Sulphur Dioxide (SO2). These are to be monitored at designated locations starting from the commencement of construction activities. Data should be generated twice in a week at all identified locations in accordance to the National Ambient Air Quantity Standards (Appendix 5). The locations and environmental parameters to be monitored are detailed out in the Environmental Monitoring Plan (Appendix 4).

2. Water Quality Monitoring

210. The physical and chemical parameters recommended for analysis of water quality relevant to road development project are pH, total solids, total dissolved solids, total suspended solids, and oil & grease. The monitoring of the water quality is to be carried out at all identified locations in accordance to the Indian Standard Drinking Water Specification – IS 10500 (Appendix 6). The locations, duration and the pollution parameters to be monitored are detailed in the Environmental Monitoring Plan (Appendix 4).

3. Noise Levels Monitoring

211. The measurements for monitoring noise levels would be carried out at designated locations in accordance to the ambient Noise Standards formulated by Ministry of Environment and Forests (MoEF) as given (Appendix 7). Noise level would be monitored on a twenty-four hours basis. Noise should be recorded at “A” weighted frequency using a slow time response mode of the measuring instrument. The measurement location, duration and the noise pollution parameters to be monitored and the responsible institutional arrangements are detailed in the Environmental Monitoring Plan (Appendix 4).

4. Tree Plantation

212. The 75% survival rate of re-plantation shall be monitored for three years of the operation phase. If the survival rate is found below 75%, additional compensatory plantation shall be carried out by agency responsible for plantation and maintenance. The survival rate monitoring shall be again taken up after 1 year again. This cycle should continue until the 75% survival rate is achieved. Since tree plantation would be made through forest department, monitoring would be carried out through MPRDC.

5. Soil Erosion and Drainage Congestion

213. No significant soil erosion problem is anticipated due to the project either in the construction phase or in the operation phase. However, in the construction phase, some localized soil erosion may be noticed owing to construction activities. However, if soil erosion is noticed during construction and operation phase, the corrective action shall be initiated and frequency of check be increased to assess the tendency of occurrence.

E. Institutional Setting and Proposed Implementation Arrangement

214. The Executing Agency for the project will be GoMP through MPRDC. MPRDC is wholly owned by GoMP and has been equipped with adequate capacity to implement the project. The implementation arrangements basically follow the ongoing MPSRSP-II. A General Manager (GM) at MPRDC headquarter has been designated as person in charge for project implementation. The Environmental and Social cell (ESC) at MPRDC headquarters, reporting to the General Manager, will be responsible for ensuring compliance with environmental and social safeguards of project roads. This cell currently has only one officer to cover both social and environment safeguards. To support this officer, two more social safeguard officers and one environmental safeguard officer will be appointed or recruited. This will allow the ESC to have a total of four officers, 2 for social safeguards and 2 for environment safeguards.

215. MPRDC has ten division offices (Bhopal, Jabalpur, Sagar, Gwalior I, Gwalior 2, Ujjain , Indore I, Indore II, Rewa I, and Rewa II) acting as Project Implementation Units (PIUs). Each PIU is headed by a Divisional Manager (Tech.) who is responsible for project implementation at the field level. Each PIU will be responsible for one to two contracts depending on the location of the sub projects, and one project manager will be assigned for each contract package. The project manager will be delegated adequate technical and administrative authority for expeditious project implementation. In each PIU one of the Assistant Engineers or Managers under the Divisional Manager will be appointed as the social and environment safeguards focal person. MPRDC will engage Construction Supervision Consultants to act as the engineer for the construction contracts. An environmental specialist from the CSC will provide technical support to MPRDC and the PIU for implementation of environment safeguards under the project. The engineer will be responsible for approving plans, engineering drawings, release of payments to contractor etc. while the CSC environmental specialist or environmental officer will be responsible for providing recommendations to “the engineer” for approving activities specific to environment safeguards. Environmental awareness and EMP implementation training will be held for MPRDC staff, contractors and CSC.

216. Six monthly monitoring reports will be prepared by the CSC environmental specialist to report on compliance with construction contracts, effectiveness of mitigation measures, and complaints (also known as project performance monitoring), and the state and health of nearby environmental resources (also known as ambient environmental monitoring).

217. Monitoring during operation shall be conducted for five years (once a year basis) as part of CSC contract and budget as this project will have a five year performance based maintenance works to be implemented by the contractor. Thereafter it will be done on an as-needed basis depending on the design or change in project activity.

218. The detailed responsibilities of MPRDC, PIUs, CSC, Contractor, and ADB are provided:

a. MPRDC's Responsibilities

- Ensure that Project complies with ADB's SPS and GOI's laws and regulation
- Ensure that the project complies with all environment safeguard requirements as given in this EARF
- Prepare IEE reports including EMP as may be required and hire an environmental consultant as required
- Prepare the Rapid Environmental Assessment screening checklist and forward this checklist to ADB for evaluation and confirmation of the project category;
- Based on the confirmation of the environmental categorization of the subprojects, prepare TORs to conduct IEE studies including preparation of EMP and Environmental Monitoring Plan in accordance with the environmental policy principles and safeguard requirements under the ADB SPS;
- Ensure that the preparation of environmental studies will be completed with meaningful consultations with affected people and other concerned stakeholders, including civil society throughout the project preparation stages as required by the ADB SPS
- Undertake initial review of the IEE and EMP reports to ensure its compliance with the Government's and ADB's requirement;
- Review the budgetary needs for complying with the Government's and ADB's requirements on environment safeguards
- Obtain necessary consents or permissions (e.g. environment permission, forest clearance) from relevant Government Agencies to minimize risks to the environment and mitigate environmental impacts associated. Also ensure that all necessary regulatory clearances will be obtained prior to commencing any civil work of the subproject;
- Submit to ADB the final IEE including EMP reports with consent letter for disclosure of the report on the ADB website
- Ensure that the EMP which includes required mitigation measures and monitoring requirements forms part of bidding document after seeking concurrence from ADB. EMP items may be included in the Bill of Quantities (BOQ) as necessary. For example if a subproject is required to construct noise barriers, the costs will need to be included in the BOQ;
- Ensure that contractors have access to the IEE report including EMP of the subprojects;
- Organize training and awareness programs on implementation of environment safeguards for relevant staff of MPRDC, PIU, CSC and contractors
- Ensure that contractors understand their responsibilities to mitigate environmental problems associated with their construction activities
- Ensure and Monitor that the EMP including Environmental Monitoring Plan will be properly implemented;
- In case of unanticipated environmental impacts during project implementation stage arrange to prepare and implement an updated EMP to account for such impacts after seeking concurrence from ADB. The updating shall be carried out after due consultation with the stake holders;
- In case during project implementation a subproject needs to be realigned, review the environmental classification and revise accordingly, and identify whether supplementary IEE study is required. If it is required, prepare the TOR for undertaking supplementary IEE and hire an environment consultant to carry out the study;

- Ensure that construction workers work under safe and healthy working environment in accordance with the World Bank EHS guidelines relating to occupational health and safety;
- Ensure effective implementation of Grievance Redress Mechanism to address affected people's concerns and complaints, promptly, using understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people;
- Submit semi-annual monitoring reports for all sub-projects on the implementation of EMPs to ADB for disclosure on the ADB website.
- Ensure proper implementation of corrective action plan if identified in the monitoring report; and
- Disclose information as defined in this EARF.

b. PIU Responsibilities

- Ensure that Project complies with ADB's SPS and GOI's laws and regulations
- Ensure that the project complies with all environment safeguard requirements as given in this EARF
- Obtain necessary consents or permissions (e.g. forest clearance, no objection certificate) from relevant Government Agencies. Also ensure that all necessary regulatory clearances will be obtained prior to commencing any civil work of the subproject;
- Ensure that contractors have access to the IEE report including EMP of the subprojects;
- Ensure that contractors understand their responsibilities to mitigate environmental problems associated with their construction activities
- Participate in training and awareness programs on implementation of environment safeguards and organize further on the job or subject specific training for the contractor during project implementation as necessary with the support of the CSC environmental specialist
- Conduct regular on site monitoring to ensure proper implementation of the EMP including Environmental Monitoring Plan;
- Verify and approve monitoring checklists and/or reports that will be prepared and submitted by the CSC
- In case of unanticipated environmental impacts during project implementation stage, identify the need to prepare and implement an updated EMP to account for such impacts after seeking concurrence from ADB.
- Ensure that construction workers work under safe and healthy working environment in accordance with the World Bank EHS guidelines relating to occupational health and safety;
- Ensure effective implementation of Grievance Redress Mechanism in accordance with the steps given in figure 1 to address affected people's concerns and complaints, promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people;
- Ensure timely submission of semi-annual monitoring reports for all sub-projects on the implementation of EMPs to MPRDC for further submission to ADB for disclosure on the ADB website; and
- Ensure proper implementation of corrective action plan if identified in the

monitoring report

c. CSC Responsibilities

- Ensure that Project complies with ADB's SPS and GOI's laws and regulations
- Ensure that the project complies with all environment safeguard requirements as given in this EARF
- Provide necessary technical advice and support to the PIU and/or contractor to obtain consents or permissions (e.g. forest clearance, no objection certificate) from relevant Government Agencies. Also ensure that all necessary regulatory clearances will be obtained prior to commencing any civil work of the subproject;
- Ensure that contractors have access to the IEE report including EMP of the subprojects;
- Ensure that contractors understand their responsibilities to mitigate environmental problems associated with their construction activities
- Closely coordinate and communicate with the contractor to facilitate implementation of all mitigation measures identified in EMP
- Conduct training and awareness programs on implementation of environment safeguards for MPRDC, PIU and the contractors during the pre-construction stage and further organize on the job or subject specific training for the contractor during project implementation as necessary
- Conduct regular on site monitoring to ensure proper implementation of the EMP including Environmental Monitoring Plan;
- Prepare monitoring checklists and/or reports based on the site monitoring and submit them to the PIU for approval
- In case of unanticipated environmental impacts during project implementation stage, upon the advice from the PIU and/or MPRDC prepare an updated EMP to account for such impacts after seeking concurrence from ADB.
- Ensure that construction workers work under safe and healthy working environment;
- Facilitate effective implementation of the Grievance Redress Mechanism in accordance with the steps given in figure 1 to address affected people's concerns and complaints, promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people;
- Prepare semi-annual monitoring reports for all sub-projects on the implementation of EMPs for submission to PIU and MPRDC and further submission to ADB for disclosure on the ADB website

d. Contractor's Responsibilities

- Ensure that adequate budget provisions are made for implementing all mitigation measures specified in the EMP
- Participate in training and awareness programs on implementation of environment safeguards
- Identify further needs for conduction of on the job or subject specific training during project implementation by the CSC or MPRDC or PIU
- Obtain necessary environmental permisson etc. from relevant agencies as specified by EARF for project road works, quarries, hot-mix plant etc. prior to

commencement of civil works contracts

- Implement all mitigation measures as given in the EMP in the contract documents
- Ensure that all workers, site agents, including site supervisors and management participate in training sessions organized by the PIU, MPRDC or CSC.
- Ensure compliance with environmental statutory requirements and contractual obligations
- Respond promptly to grievances raised by the local community or any stakeholder and implement environmental corrective actions or additional environmental mitigation measures as necessary.
- Based on the results of EMP monitoring, cooperate with the PIU and CSC to implement environmental corrective actions and corrective action plans, as necessary.

e. ADB's Responsibilities

- Review REA checklist and endorse or modify the project classification proposed by the MPRDC;
- Review IEE reports, including this environmental assessment and review framework, and disclose draft and final reports through ADB's website as required;
- Issue subproject's approval based on the respective IEE reports;
- Monitor implementation of environment safeguard requirements under the project through due diligence missions;
- Provide assistance to MPRDC, if required, in carrying out its responsibilities for implementing environment safeguards and for building capacity for safeguard compliance;
- Review and approve semi-annual environmental monitoring reports submitted by MPRDC and disclose them on the ADB website
- Monitor MPRDC's commitments under EARF

F. Institutional Capacity Building

219. To ensure that all parties clearly understand their role and responsibilities for implementing environment safeguards under the project, the following training and awareness programme is proposed:

- Awareness programme on environmental issues associated with construction and improvement of road projects and legislative compliance requirements.
  Target audience: designated engineers from field units, contractor's
  Faculty: Environmental Expert and Environment Expert of CSC. **No of Programmes:** Minimum one per contract package

- EMP and EMoP implementation requirements, its benefits and roles of different level and functions.
  Target audience: designated engineers from field units, contractor's officials, and key workers, other officials of MPRDC associated for the project.
  Faculty: EE and Environment Expert of CSC.
  No of Programmes: Minimum one per contract package

G. Grievance Redress Mechanism

220. Grievances related to the implementation of the project, particularly regarding the environmental management plan will be acknowledged, evaluated, and responded to the complainant with corrective action proposed. The outcome shall also form part of six monthly compliances report to ADB. Complaints maybe lodged verbally directly to the contractor or CSC or PIU at the site level. To the extent possible efforts will be made by the contractor, CSC or PIU to address these complaints immediately on site. Only those complaints that cannot be addressed immediately at the site level will be submitted to the Grievance Redress Committee (GRC). Necessary assistance for completing the complaint form or lodging a written complaint will be made to illiterate complainants by the respective receiver of the complaint. Grievance Redress Committee (GRCs) should be established at the MPRDC state level and PIU level to assure accessibility for APs .The GRCs are expected to resolve the grievances of the eligible persons within a stipulated time. The decision of the GRCs is binding, unless vacated by the court of law. The GRC will be constituted at MPRDC level and at the PIU level.

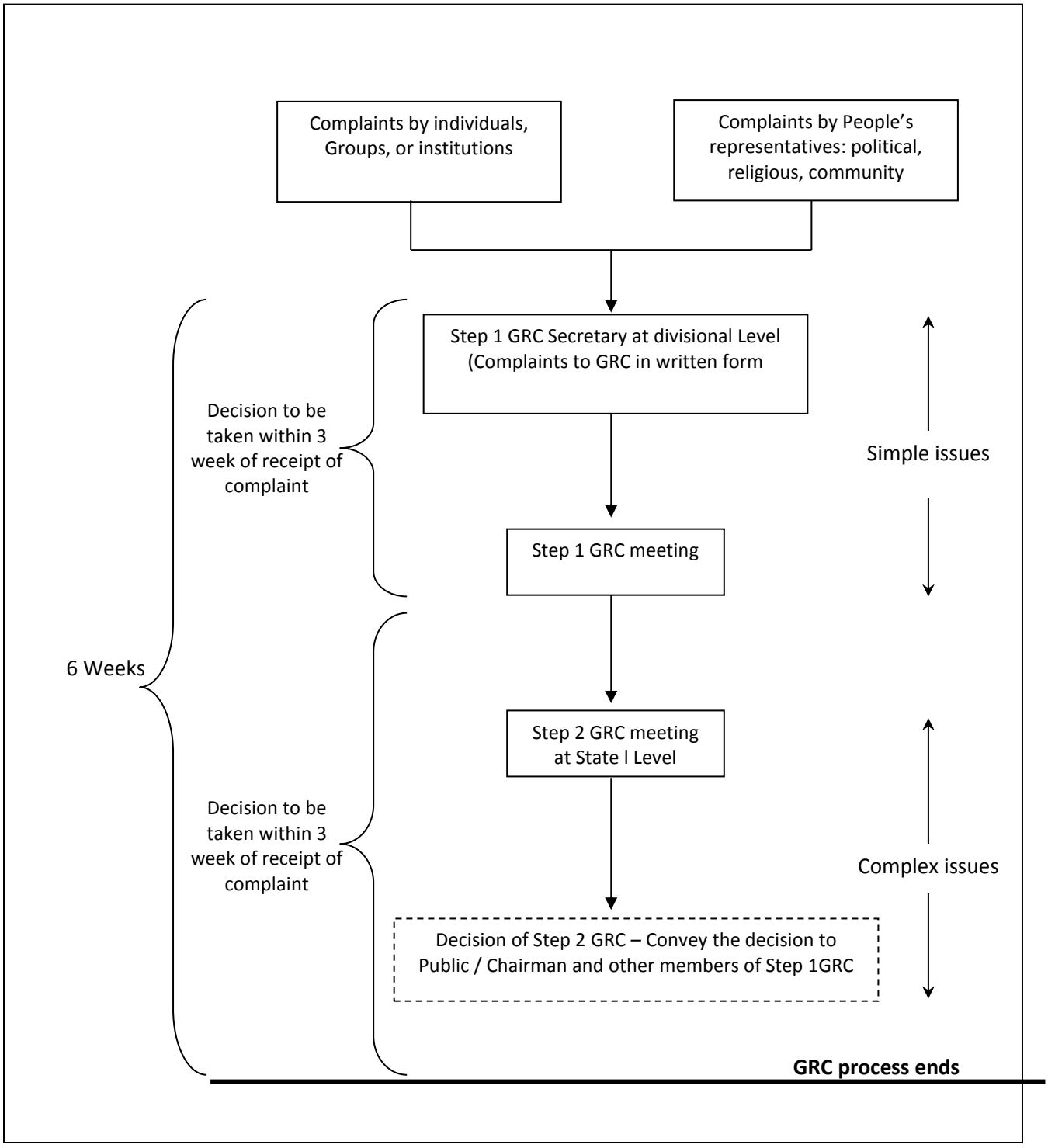
221. The State level GRC will comprise of the :-

a. General Manager, MPRDC, Bhopal
b. Superintended Engineer, PWD, Bhopal
c. DGM, MPRDC, Bhopal
d. Manager (Environment & Social) , MPRDC, Bhopal

222. The PIU level GRC will comprise of the:-

a. Divisional Manager
b. A representative from local NGOs or a local person of repute and standing in the society, elected representative from Zila Parisad /District Council.
c. Two representatives of affected persons including vulnerable groups and women in the committee.

223. The GRC will continue to function, for the benefit of the APs, during the entire life of the project including the five year maintenance period. The following flow chart defines the process of GRM. The details of GRM, procedures and formats in local language i.e. Hindi are provided in Appendix-9.



H. Cost for Environmental Management Plan, Training and Environmental Monitoring

224. The cost of environment management, monitoring & Training programme is given in Table 31.

Table 31: Environment Management, Monitoring and Training Programme Costs

	Parameters / Components	Parameter to be monitored	Guidelines	Unit Cost (Rs)	Total Cos t(Rs)
1	Ambient Air Monitoring: 3 times in a year for 3 years or construction period at 5 sites & Five years during operation/ defect liability period ,once in a year At five sites	PM10, PM2.5, SO2, NOx & CO	High Volume samplers to be used and located 50 m from the construction site	9000	540000
2	Water Monitoring: 3 times in a year for 3 years or construction period At 5 locations	pH, BOD, COD, TDS, TSS, DO, Total coliform, Conductivity, Oil & Grease	Analyse as per the standard methods for examination of water and waste water	5000	225000
3	Noise Monitoring: 3 times in a year for 3 years or construction period , 5 locations & Five years during operation/ defect liability period ,once in a year at five sites	Noise levels on dB (A) scale	Using an integrated noise level meter kept at a distance of 15 m from the construction site	3000	180000
	Total Monitoring Cost				**945000**
4.	Opening, running and restoration of stone quarry/sand extraction pits along the entire project length		IRC Code of Practice and MoSRT&H manual	LS	Engineering cost
5.	Gabion walls (above height 4 m) along elevated embankment		IRC Code of Practice and MoSRT&H manual	LS	Engineering cost
6.	Dust Suppression along the entire project length Three tankers in a days for 240 Days		IRC Code of Practice and MoSRT&H manual	Rs2000/- per day per tanker	1440000/--
7.	Solid Waste management during entire project period		As per MoEF guidelines	3000/ month	108000/-
8.	Erosion Control Measures (Turfing / Pitching / Seeding & Mulching) Provision of Cross drainage & side drainage structures General Borrow area management and maintenance of haul roads related to borrow areas Air/noise pollution control measures in construction equipment Management and disposal of scarified waste bituminous material Provision of Informatory Signs Bus shelters Construction of Speed Humps Management of quarries Redevelopment of Borrow Areas Construction Camp Management Costs Safety measures for workers		As per IRC Guidelines	Shall be included in contractor's quoted rates	Engineering cost
	Total Mitigation Cost (B)				**2493000/-**

	Parameters / Components	Parameter to be monitored	Guidelines	Unit Cost (Rs)	Total Cos t(Rs)
9.	Training: Three training sessions during construction period.		As per modules developed by MPRDC	50000 per session	150000
	Total Training Cost (C)				**150000/-**
	Total Environmental Cost (A+B+C)				**2643000**

VIII. CONCLUSIONS AND RECOMMENDATIONS

225. The assessment of environment impacts for the sub-project shows that there are no significant, long term impacts. Most impacts are short term and limited to the construction stage. Key conclusions on the environmental implications of the project are given in the paras below.

A. Environmental Gains Due to Proposed Work Justifying Implementation

226. The project entails various impacts on the project setting. There are many impacts bearing benefits to the area against the limited number and magnitude of negative impacts. These include the following: (i) the project will substantially improve the transport efficiency on the roads. (iii) the project once implemented will improve the overall environmental conditions with better roads, fuel efficiency and environmental protection measures (iv) will reduce traffic congestion particularly at junctions hence, air pollution due to idling of the vehicles.

B. Potential Impacts and Mitigation

227. The finding of IEE indicates that project is unlikely to cause any significant adverse environmental impacts. While some of the impacts are negative, there are many bearing benefits to the area. Most of the impacts are likely to occur during construction stage and are temporary in nature. Anticipated minor impacts will be mitigated through the implementation of mitigation measures summarized in the Environmental Management Plan.

228. Factors contributing to minimal impacts include, widening of the project road confined within the available RoW, presence of no sensitive environmental issue like wildlife sanctuary, national park, bio reserve, with 10 km from the project road and most of water body crossed by the road are non-perennial in nature except one which is already bridged. However, some of the impacts are unavoidable. These impacts with mitigation measures are indicated below:

a. About 2582 trees will need be cut with prior permission of district or forest authorities. Compensatory Tree plantation on the basis of 1:10 will be made to compensate this loss. Preventive measures shall be taken into consideration during construction phase especially in rainy months, to prevent soil erosion because of tree cutting and alteration of ground flora.
b. Air pollution due to construction activities and operation of hot mix plant will be controlled through adoption of dust suppression measures and provision of high stack for good dispersion of gaseous emission from hot mix plant.
c. Noise levels may increase during the construction phase due to operation of construction machineries. All the construction equipment and DG set will be well maintained and fitted with silencers.
d. Waste materials generated during construction phase may contaminate soil, surface and ground water resources. Waste shall be segregated and reused or disposed off in environmentally acceptable manner.
e. Along the project stretch, few religious structures are located. Appropriate design options are exercised to minimize the loss of such structures.
f. The social issues are addressed through Social Safeguards Due Diligence reports prepared as per SPS of ADB.

C. Irreplaceable Resources

229. The project does not pass through any protected areas, or eco sensitive areas. The construction material will also be sourced from identified and approved sources. As such, there

are no environmental sensitive resources found in the project area, which is likely to be affected due to the project.

D. Post IEE Surveillance and Monitoring

230. While an IEE is meant to provide a comprehensive understanding of the environment status of the area under the study, post IEE surveillance is the means to ensure that the significant impacts identified are adequately mitigated as per the proposed mitigation plan. A detailed monitoring plan has been provided as part of the Environmental Management Plan. Air, water quality, noise, soil erosion, and tree survival rate monitoring and reporting along with the follow up actions in case of deviation from the norms have been detailed out. The frequency has been set in consideration of the likely impacts.

E. Public Consultations

231. The project received support and consent from most of local people. The local people did not perceive any adverse impact due to the proposed project. Environmental awareness and likewise concern were found generally low. People, however expressed the desire of minimising the tree cutting.

F. Recommendations

232. Adequate mitigations shall be taken up both during construction and operation stage of the project to avoid/minimise adverse environmental impacts due to this event and any such event in future as suggested in IEE.

233. Effective EMP implementation is essential for elimination or minimization of the identified impacts. The MPRDC shall ensure that EMP and EMoP is included in Bill of Quantity (BOQ) and forms part of bid document and civil works contract. The same shall be revised if necessary during project implementation or if there is any change in the project design.

234. MPRDC needs capacity building and practical exposure. Adequate training shall be imparted as proposed under environmental management plan to enhance the capability of concerned EA officials.

APPENDIX 1: RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST

ROADS AND HIGHWAYS

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES), for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country / Project Title:	India: Madhya Pradesh District Connectivity Sector Project: Subproject : Mahua-Parsona Road
Sector Division:	South Asia Transport and Communications Division

Screening questions	Yes	No	Remarks
A. Project Siting			
Is the project area adjacent to or within any of the following environmentally sensitive areas?			
Cultural heritage site		X	No archaeologically protected monument or cultural heritage site is located within the road.
Protected Area	X		Protected forest at few locaitons exist along the project road. However no land acqistion in forest area.
Wetland		X	No protected or classified wet land is located close to the
Mangrove		X	Project road is not located in Coastal areas.
Estuarine		X	No Estuarine is located in the Project area.
Buffer zone of protected area		X	No such area is located in the Project vicinity.
Special area for protecting biodiversity		X	No such area is located in the project vicinity.
B. Potential Environmental Impacts			
Encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		X	The topography of project road is flat and rolling. There is no encroachment of historical places. However, some small temples exist along the project road which may get impacted. Since road widening will be confined to available ROW, no change in landscape is expected. Opening of new Quarries is not envisaged. Only operational and licensed quarry will be used for road construction. Earth material will be sourced from pre identified areas (located within 15 to 20 Km from the road) and with the consent of landowner. All borrow areas will be suitably rehabilitated.
Encroachment on precious ecology (e.g Sensitive or protected areas)?		X	There is no National Parks, Wild Life sanctuaries or any other similar eco-sensitive areas in and around the project area. Only cutting of 2582 roadside trees is involved.

Screening questions	Yes	No	Remarks
			Attempts have been made to minimising the cutting of trees while finalising the road widening options.
Alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?		X	The proposed alignment is crossing only small natural drains. All drainage courses will be maintained to avoid alteration in surface water hydrology so that water courses are not affected. The temporary soil stockpiles will be designed so that runoff will not induce sedimentation of waterways. Silt fencing during construction will be provided.
Deterioration of surface water quality due to silt runoff and sanitary wastes from worker- based camps and chemicals used in construction?		X	Adequate sanitary facilities including Soak pits treatment facilities will be provided at construction camps, which will be set-up away from habitat and water bodies. No harmful ingredients are likely to be used in the construction activities. Surface water quality is not impacted due to construction. Measures like embankment slop stabilisation, RCC retaining walls are proposed to prevent siltation of ponds located next to the road due to surface runoff.
Increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing?	X		Localised air pollution level is likely to increase for short duration during construction period due to construction vehicle movement and asphalt processing. The asphalt mixing plant (hot mix plant) will be located away from habitat areas with adequately high stackfor effective dispersion of likely emissions Dust. separation measures like spraying of water on unpaved vehicle movement areas are proposed to minimise the dust generation.
Risks and vulnerabilities related to occupational health and safety due to physical, chemical biological, and radiological hazards during project construction and operation?	X		Workers may get exposed to dust and noise during construction activities. However the exposure levels are likely to be short and insignificant. Workers will be provided requisite PPEs to minimise such exposure and associated harmful occupational health effects. Traffic on the road is expected to be low and as such, no occupational health hazard is anticipated during operation phase.
Noise and vibration due to blasting and other civil works?		X	No blasting is involved. No significant noise generation is expected during construction activities except normal construction equipment operational noise. These noise levels will be impulsive in nature and its impact will be confined within few meters of either side of the road. All stationary noise making sources equipment like DG set, compressors will be installed with acoustic enclosures. There are few noise sensitive locations especially schools close to the alignment where noise level may increase due to increased traffic during operation stage.

Screening questions	Yes	No	Remarks
			Provision of no horn zone will be made wherever noise level is likely to increase beyond the prescribed ambient noise levels.
Dislocation or involuntary resettlement of people		X	The project road will be widened within existing RoW. The project affected persons are also expected to be very less. This aspect will be addressed as per Govt. rules and ADB"s Social Safeguard Policies(SPS09) separately in a Resettlement Plan.
Dislocation and compulsory resettlement of people living in right-of-way?		X	No displacement of people involved.
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	No such impact is anticipated.
Other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?	X		No such social concern is expected. Concern may arise during construction stage due to increase in ambient air pollution level, which isexpected to be localised and temporary in nature. This aspect will be effectively controlled with the proposed dust suppression and other mitigation measures. As such people at large are supportive of project and are least bothered about above air pollution concern as well.
Hazardous driving conditions where construction interferes with existing roads?	X		Hazardous driving condition may arise around bridge construction areas and at locations of road interface with non-project roads. To minimized the impact suitable traffic management plan will be designed and implement by the contractor to prevent any hazardous driving condition in above situations.
Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?	X		Proper provisions for sanitation (sewage treatment), health care (drinking water supply) and periodic health check-ups) and solid waste disposal through composting facilities will be made at each construction camp. Awareness will be created amongst the workers about hygiene and health protection.
Creation of temporary breeding habitats for mosquito vectors of disease?		X	No such condition is anticipated. Each borrow area will be rehabilitated as per pre agreed used and rehabilitation plan
Accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials and loss of life?	X		Adequate safety measures will be adopted to avoid accidents during construction and operation stages. Measures, like signage, speed control, crash barriers will be taken close to sensitive locations such as schools, temples or hospitals.
Increased noise and air pollution resulting from traffic volume?	X		Increase in noise and air pollution is expected during construction phase but is likely to be confined within few meters of either side of the road. Adequate mitigation measures will be adopted to minimise the same.

Screening questions	Yes	No	Remarks
			During operation phase vehicular traffic will be the main, source of air and noise pollution. Improved road conditions, extensive plantation including multi-layered plantation along the road will reduce the noise and air pollution impact. Moreover, most of the road stretch passes through open agricultural land, which will provide adequate dispersion to vehicular emission.
Increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?	X		This possibility is minimal but cannot be ruled out. Controlled construction activities and proper drainage system will reduce this possibility. Provision is made for adequate signage and crash barriers near water bodies, which will minimise the possibilities of accidental water pollution.
Social conflicts if workers from other regions or countries are hired?		X	Most of the workers will be hired locally.
Large population influx during project construction and operation that causes increased burden on social infrastructure and services(such as water supply and Sanitation systems)?		X	Most of the workers will be hired locally. One construction camp is proposed per package with expected workers population of only 60-70. This is unlikely to cause any significant burden on social infrastructure and services.
Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		X	The construction material aggregate from approved quarries, borrow earth, bitumen) will be sourced from nearby and approved sources. No explosive or chemicals are likely to be used. Bitumen waste if any generated during construction will either recycled or disposed off in controlled manner
Community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning		X	No such impacts are anticipated. Adequate awareness will be created amongst people and workers through information disclosure, safety signage and public consultation about safety aspects.
Based on above assessment and the project is **categorized as 'B'**			

APPENDIX 2: GUIDELINES FOR BORROW AREAS MANAGEMENT

A. Selection of Borrow Areas

1. Location of borrow areas shall be finalized as per IRC: 10-1961 guidelines. The finalization of locations in case of borrows areas identified in private land shall depend upon the formal agreement between landowners and contractor. If, agreement is not reached between the contractor and landowners for the identified borrow areas sites, arrangement for locating the source of supply of material for embankment and sub-grade as well as compliance to environment requirements in respect of excavation and borrow areas as stipulated from time to time by the Ministry of Environment and Forests, Government of India, and local bodies, as applicable shall be the sole responsibility of the contractor. The contractor in addition to the established practices, rules and regulation will also consider following criteria before finalizing the locations.

- The borrow area should not be located in agriculture field unless unavoidable i.e. barren land is not available.
- The borrow pits preferably should not be located along the roads.
- The loss of productive and agriculture soil should be minimum.
- The loss of vegetation is almost nil or minimum.
- The Contractor will ensure that suitable earth is available.

B. Contractor's Responsibility

2. The Contractor shall obtain representative samples from each of the identified borrow areas and have these tested at the site laboratory following a testing programme approved by the Engineer. It shall be ensured that the sub-grade material when compacted to the density requirements shall yield the design CBR value of the sub-grade. Contractor shall begin operations keeping in mind following;

a. Haulage of material to embankments or other areas of fill shall proceed only when sufficient spreading and compaction plants is operating at the place of deposition.

b. No excavated acceptable material other than surplus to requirements of the Contract shall be removed from the site. Contractor should be permitted to remove acceptable material from the site to suit his operational procedure, then shall make consequent deficit of material arising there from.

c. Where the excavation reveals a combination of acceptable and unacceptable materials, the Contractor shall, unless otherwise agreed by the Engineer, carry out the excavation in such a manner that the acceptable materials are excavated separately for use in the permanent works without contamination by the un-acceptable materials. The acceptable material shall be stockpiled separately.

d. The Contractor shall ensure that he does not adversely affect the stability of excavation or fills by the methods of stockpiling materials, use of plants are siting of temporary buildings or structures.

C. Borrowing From Different Land-Forms

1. Borrow Areas located in Agricultural Lands

a. The preservation of topsoil will be carried out in stockpile.

b. A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).
c. Borrowing of earth will be carried out up to a depth of 1.5m from the existing ground level.
d. Borrowing of earth will not be done continuously throughout the stretch.
e. Ridges of not less than 8m widths will be left at intervals not exceeding 300m.
f. Small drains will be cut through the ridges, if necessary, to facilitate drainage.
g. The slope of the edges will be maintained not steeper than 1:4 (vertical: Horizontal).
h. The depth of borrow pits will not be more than 30 cm after stripping the 15 cm topsoil aside.

2. Borrow Areas located in Elevated Lands

a. The preservation of topsoil will be carried out in stockpile.
b. A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).
c. At location where private owners desire their fields to be levelled, the borrowing shall be done to a depth of not more than 1.5m or up to the level of surrounding fields

3. Borrow Areas near River Side

a. The preservation of topsoil will be carried out in stockpile.
b. A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).
c. Borrow area near to any surface water body will be at least at a distance of 15m from the toe of the bank or high flood level, whichever is maximum.

4. Borrow Areas near Settlements

a. The preservation of topsoil will be carried out in stockpile.
b. A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).
c. Borrow pit location will be located at least 0.75 km from villages and settlements. If un-avoidable, the pit will not be dug for more than 30 cm and drains will be cut to facilitate drainage.
d. Borrow pits located in such location will be re-developed immediately after borrowing is completed. If spoils are dumped, that will be covered with a layers of stockpiled topsoil in accordance with compliance requirements with respect MOEF/SPCB guidelines.

5. Borrow Pits along the Road

3. Borrow pits along the road shall be discouraged and if deemed necessary and permitted by the Engineer; following precautions are recommended

a. The preservation of topsoil will be carried out in stockpile.
b. A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).

c. Ridges of not less than 8m widths should be left at intervals not exceeding 300m.
d. Small drains shall be cut through the ridges of facilitate drainage.
e. The depth of the pits shall be so regulated that there bottom does not cut an imaginary line having a slope of 1 vertical to 4 horizontal projected from the edge of the final section of bank, the maximum depth of any case being limited to 1.5m.
f. Also, no pit shall be dug within the offset width from the toe of the embankment required as per the consideration of stability with a minimum width of 10m.

6. Rehabilitation of Borrow Areas

a. The objective of the rehabilitation programme is to return the borrow pit sites to a safe and secure area, which the general public should be able to safely enter and enjoy. Securing borrow pits in a stable condition is fundamental requirement of the rehabilitation process. This could be achieved by filling the borrow pit floor to approximately the access road level.
b. Re-development plan shall be prepared by the Contractor before the start of work in line with the owners will require and to the satisfaction of owner. The Borrow Areas shall be rehabilitated as per following;
c. Borrow pits shall be backfilled with rejected construction wastes and will be given a vegetative cover. If this is not possible, then excavation sloped will be smoothed and depression will be filled in such a way that it looks more or less like the original round surface.
d. Borrow areas might be used for aquaculture in case landowner wants such development. In that case, such borrow area will be photographed after their post use restoration and Environment Expert of Supervision Consultant will certify the post use redevelopment.
e. The Contractor will keep record of photographs of various stages i.e., before using materials from the location (pre-project), for the period borrowing activities (construction Phase) and after rehabilitation (post development), to ascertain the pre and post borrowing status of the area.

APPENDIX 3: ENVIRONMENTAL MANAGEMENT PLAN FOR MAHUA - PERSONA ROAD

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
A. Pre-construction and Design Stage								
1. Alignment								
1.1 Pavement damage and inadequate drainage provisions in habitat areas	▪ Construction of concrete pavement in habitat areas considering alignment level and drainage ▪ Raise road level above the nearby areas with provision of adequate side drains to evacuate the rain water and domestic discharges (drained by habitats occasionally) to prevent damage to road and rain water entry to habitats' houses. ▪ Provision of adequate no. of cross drainage structures based on drainage pattern around the alignment	Design requirement	All habitat areas throughout the alignment	Design of both cross & side drains ,no. of slab/box culverts ,no & size of Hume pipes	Review of detail design documents & drawings	Included in construction cost	Design Consultant	MPRDC (SQC)
1.2 Safety along the proposed alignment	▪ Make provisions of crash barriers at accident prone areas as identified in the road safety studies ▪ Provision of rumble strips in habitat areas to regulate speed. ▪ Provision of retro-reflective warning sign boards nears school, hospital, religious places and forests areas ▪ Provision of proper side walks/pedestrian zone along the road near habitat areas, school, hospital, religious places and forests ▪ Compliance with norms specified in IRC codes for state highway for curvature and grading ▪ Provision of safety kerb at all bridges ▪ Thedesign should attempt to equalize cut and fill. ▪ Minimize the cutting in hill areas. Incorporate slope stabilization measures to prevent any land slide situation.	Design requirement	Places where height of embankment is more than 3.0 m.	No. of accident & Vehicle collision	Field observation ,interview of locals	Included in construction cost	Design Consultant	MPRDC (SQC)
2. Natural Hazards								
2.1 Protection for damage from Earthquake	• Design considering relevant IRC guidelines for earthquakes in bridges		Throughout the stretch	Incorporation of IRC guidelines for earthquake in bridge design	Review of bridge design	Project preparation Cost	Design Consultant	MPRDC (SQC)

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
2.2 Protection of road embankment in Flood prone Areas	• Raise embankment height above the HFL levels in the flood prone areas. • Provision of adequate balancing culverts. • Improvement in existing culverts/ Bridges to increase their carrying capacity.	IRC:34 Recommendations for road construction in waterlogged area and IRC: 75 and MORT&H guidelines for Design of High Embankments	All the existing culverts/bridges.	Design of both cross & side drains , no. of slab/box culverts ,no & size of Hume pipes		Included in construction cost	Design Consultant	MPRDC (SQC)
3. Shifting of utility structures								
3.1 Disruption of utility services to local community	▪ All telephone and electrical poles/wires and underground cables should be shifted before start of construction ▪ Necessary permission and payments should be made to relevant utility service agencies to allow quick shifting and restoration of utility services ▪ Local people must be informed through appropriate means about the time of shifting of utility structures and potential disruption of services if any	Project requirement	Throughout the corridor	Utility shifting plan Complaints from local people Status of local utility services	Interaction with concerned utility authorities and local public	Included in construction .	Contractor/SQ C	MPRDC (SQC)/CSC
B. Construction Stage								
1. Air Quality								
1.1 Dust Generation due to construction activities and transport, storage and handling of construction materials	▪ Transport, loading and unloading of loose and fine materials through covered vehicles. ▪ Paved approach roads. ▪ Storage areas to be located downwind of the habitation area. ▪ Water spraying on earthworks, unpaved haulage roads and other dust prone areas. ▪ Provision of PPEs to workers.	MORT&H Specifications for Road and Bridge works Air (P and CP) Act 1974 and Central Motor and Vehicle Act 1988	Throughout project corridor.	PM10 level measurements Dust pollution or complain of locals	Standards CPCB methods Observations Public consultation	Included in project cost	Contractor	MPRDC (SQC)/CSC
1.2 Emission of air pollutants (HC, SO2, NOX, CO etc) from vehicles due to traffic congestion and use of equipment and machinery	• Regular maintenance of machinery and equipment. • Batching, asphalt mixing plants and crushers at downwind (1km) direction from the nearest settlement. • Only crushers licensed by the PCB shall be used • DG sets with stacks of adequate height and use of low sulphur diesel as fuel. • Ambient air quality monitoring • Follow traffic management plan as given in Section 8.	The Air (Prevention and Control of Pollution) Act, 1981(Amended 1987) and Rules 1982	Asphalt mixing plants, crushers, DG sets locations	Monitoring of ambient air quality & checking PUC certificates	Standards CPCB methods	Included in project cost	Contractor	MPRDC (SQC)/CSC
2. Noise								

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
2.1 Noise from construction vehicle, equipment and machinery.	• All equipment to be timely serviced and properly maintained. • Bottlenecks to be removed. • Construction equipment and machinery to be fitted with silencers and maintained properly. • Only IS approved equipment shall be used for construction activities. • Timing of noisy construction activities shall be done during night time and weekends near schools and selected suitable times near temples when there are no visitors, concurrent noisy operations may be separated to reduce the total noise generated, and if possible re-route traffic during construction to avoid the accumulation of noise beyond standards. Else provision of temporary noise barrier at sensitive locations or near sources. • Time regulation near residential, built up and forest areas construction shall be restricted to daylight hours. • Initiation of multi layered plantation, to serve as mitigation option for operation phase • Honking restrictions near sensitive areas • PPEs to workers • Noise monitoring as per EMoP.	Legal requirement Noise Pollution (Regulation and Control) Rules, 2000 and amendments thereof + Clause No 501.8.6. MORT&H Specifications for Road and Bridge works	Throughout project section especially at construction sites, residential and identified sensitive locations.	Noise levels Measurements Complaints from local people	As per Noise rule, 2000 Consultation with local people	Included in Project Cost Plantation cost is separate	Contractor	MPRDC (SQC)/CSC
3. Land and Soil								
3.1 Land use Change and Loss of productive/top soil	• Non-agricultural areas to be used as borrow areas to the extent possible. • If using agricultural land, top soil to be preserved and laid over either on the embankment slope for growing vegetation to protect soil erosion.	Project requirement	Throughout the project section and borrow areas	Borrow pit locations Top soil storage area	Review borrow area plan, site visits	Included in construction cost	Contractor	MPRDC (SQC)/CSC

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
3.2 Slope failure and Soil erosion due to Construction activities, earthwork, and cut and fill, stockpiles etc.	▪ Bio-turfing of embankments to protect slopes. ▪ Slope protection by providing frames, dry stone pitching, masonry retaining walls, planting of grass and trees. ▪ The side slopes of all cut and fill areas will be graded and covered with stone pitching, grass and shrub as per design specifications. Care should be taken that the slope gradient shall not be greater than 2:1. ▪ The earth stockpiles to be provided with gentle slopes to prevent soil erosion.	IRC: 56 -1974 recommended practice for treatment of embankment slopes for erosion control Clause No. 306 and 305.2.2 MORT&H Specifications for Road and Bridge works Guidelines IX for Soil erosion	Throughout the entire project road especially along hilly areas	Occurrence of slope failure or erosion issues	Review of design documents and site observation	Included in Constructio n cost	Design consultant and Contractor,	MPRDC (SQC)/CSC
3.3 Borrow area management	▪ Non-productive, barren lands, upland shall be used for borrowing earth with the necessary permissions/consents. ▪ Depths of borrow pits to be regulated and sides not steeper than 25%. ▪ Topsoil to be stockpiled and protected for use at the rehabilitation stage. ▪ Transportation of earth materials through covered vehicles. ▪ IRC recommended practice for borrow pits (IRC 10: 1961). ▪ Borrow areas not to be dug continuously. ▪ To the extent borrow areas shall be sited away from habitated areas. Borrow areas shall be leveled with salvaged material or other filling materials which do not pose contamination of soil. Else, it shall be converted into fishpond in consultation with fishery department and land owner/community. Rehabilitation of the borrow areas as per Guidelines for redevelopment of Borrow Areas.	IRC Guidelines on borrow areas and for quarries (Environmental Protection Act and Rules, 1986; Water Act, Air Act) + Clause No. 305.2.2 MORT&H Specifications for Road and Bridge works Guidelines V for Borrow Areas management	Borrow sites location	Existence of borrow areas in inappropriate unauthorized locations. Poor borrow area management practices. Incidents of accidents. Complaints from local people.	Review of design documents and site observation	Included in Constructio n cost	Design consultant and Contractor,	MPRDC (SQC)/CSC
3.4 Quarry Operations	▪ Aggregates will be sourced from existing licensed quarries. ▪ Copies of consent/ approval / rehabilitation plan for a new quarry or use of existing source will be submitted to EO, MPRDC. ▪ The contractor will develop a Quarry Redevelopment plan, as per the Mining Rules of the state and submit a copy of the approval to EA.	Clause No. 111.3 MORT&H Specifications for Road and Bridge works Guidelines VI for Quarry Areas Management	Quarry area locations	Existence of licenses for all quarry areas from which materials are being sourced Existence of a quarry redevelopment plan	Review of design documents, contractor documents and site observation	Included in Constructio n cost	Contractor	MPRDC (SQC)/CSC

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
	▪			Complaints from local people.				
3.5 Compaction of soil and impact on quarry haul roads due to movement of vehicles and equipment	▪ Construction vehicles, machinery, and equipment to be stationed in the designated ROW to avoid compaction. ▪ Approach roads/haulage roads shall be designed along the barren and hard soil area to reduce the compaction. ▪ Transportation of quarry material to the dumping site through heavy vehicles shall be done through existing major roads to the extent possible to restrict wear and tear to the village/minor roads. ▪ Land taken for construction camp and other temporary facility shall be restored to its original conditions.	Design requirement	Parking areas, Haulage roads and construction yards.	Location of approach and haulage roads Presence of destroyed/compacted agricultural land or land which has not be restored to its original condition	Site observation	Included in construction cost	Contractor	MPRDC (SQC)/CSC
3.6 Contamination of soil due to leakage/ spillage of oil, bituminous and non bituminous debris generated from demolition and road construction	▪ Construction vehicles and equipment will be maintained and refueled in such a fashion that oil/diesel spillage does not contaminate the soil. ▪ Fuel storage and refueling sites to be kept away from drainage channels. ▪ Unusable debris shall be dumped in ditches and low lying areas. ▪ To avoid soil contamination Oil-Interceptors shall be provided at wash down and refueling areas. ▪ Waste oil and oil soaked cotton/ cloth shall be stored in containers labeled 'Waste Oil' and 'Hazardous' sold off to MoEF/SPCB authorized vendors ▪ Non-bituminous wastes to be dumped in borrow pits with the concurrence of landowner and covered with a layer of topsoil conserved from opening the pit. ▪ Bituminous wastes will be disposed off in an identified dumping site approved by the State Pollution Control Board	Design requirement	Fuelling station, construction sites, and construction camps and disposal location.	Quality of soil near storage area Presence of spilled oil or bitumen in project area	Site observation	Included in construction cost.	Contractor	MPRDC (SQC)/CSC
4. Water Resources								
4.1 Sourcing of water during Construction	▪ Requisite permission shall be obtained for abstraction of groundwater from Central Groundwater Authority ▪ Arrangements shall be made by contractor that the water availability and supply to nearby communities remain unaffected.	-	Throughout the Project section	Approval from competent authority Complaints from local people on water availability	Checking of documentation Talk to local people	Included in construction cost	Contractor	MPRDC (SQC)/CSC

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
4.2 Disposal of water during construction	Provisions shall be made to connect road side drains with exiting nearby ponds otherwise make provision of water harvesting pits intermittently.	Clause No. 1010 EP Act 1986 MORT&H Specifications for Road and Bridge works	Throughout the Project section	Design of road side drains Existence of proper drainage system for disposal of waste water	Standards methods Site observation and review of documents	Included in construction cost	Contractor	MPRDC (SQC)/CSC
4.3 Alteration in surface water hydrology due to embankment	▪ Existing drainage system to be maintained and further enhanced. ▪ Provision shall be made for adequate size and number of cross drainage structures esp. in the areas where land is sloping towards road alignment. ▪ Road level shall be raised above HFL level wherever road level is lesser than HFL.	Design requirement, Clause No 501.8.6. MORT&H Specifications	Near all drainage channels, river crossings etc.	Design of road side drains	Review of design documents Site observation	Included in construction cost	Contractor	MPRDC (SQC)/CSC
4.4 Siltation in water bodies due to construction activities/ earthwork	▪ Embankment slopes to be modified suitably to restrict the soil debris entering water bodies. ▪ Provision of Silt fencing shall be made at water bodies. ▪ Silt/sediment should be collected and stockpiled for possible reuse as surfacing of slopes where they have to be re-vegetated. ▪ Earthworks and stone works to be prevented from impeding natural flow of rivers, streams and water canals or existing drainage system.	Design requirement , Clause No 501.8.6. MORT&H Specifications for Road and Bridge works (CP and CP) and worldwide best practices	Near all water bodies, river embankment slopes.	Siltation of rivers, streams, ponds and other water bodies in project area	Field observation	Included in construction cost	Contractor	MPRDC (SQC)/CSC
4.5 Deterioration in Surface water quality due to leakage from vehicles and equipments and waste from construction camps.	▪ No vehicles or equipment should be parked or refuelled near water-bodies, so as to avoid contamination from fuel and lubricants. ▪ Oil and grease traps and fuelling platforms to be provided at re-fuelling locations. ▪ All chemicals and oil shall be stored away from water and concreted platform with catchment pit for spills collection. ▪ All equipment operators, drivers, and warehouse personnel will be trained in immediate response for spill containment and eventual clean-up. Readily available, simple to understand and preferably written in the local language emergency response procedure, including reporting, will be provided by the contractors	The Water (Prevention and Control of Pollution) Act, 1974 and amendments thereof.	Water bodies, refuelling stations, construction camps.	Water quality of ponds, streams, rivers and other water bodies in project Presence of oil floating in water bodies in project area	Conduction of water quality tests as per the monitoring plan Field observation	Included in construction cost	Contractor	MPRDC (SQC)/CSC

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
	▪ Construction camp to be sited away from water bodies. ▪ Wastes must be collected, stored and taken to approve disposal site only. ▪ Water quality shall be monitored periodically							
5. Flora and Fauna								
5.1 Vegetation loss due to site preparation and construction activities and	▪ Minimize tree cutting to the extent possible. ▪ Roadside trees to be removed with prior approval of competent authority. ▪ Compensatory plantation at 1:10 basis and additional plantation as per the IRC guidelines in consultation with Forest Department. ▪ Regular maintenance of all trees planted. ▪ Provision of LPG in construction camp as fuel source to avoid tree cutting, wherever possible. ▪ Plantation of trees on both sides of the road. Integrate vegetation management (IVM) with the carriage way completely clear of vegetation. From the edge of the road to the boundary of ROW, vegetation structured with smaller plants near the line and larger trees further away to avoid costly and provide habitats for a wide variety of plants and animals. Additional plantation near river banks to check erosion as part of compensatory plantation. ▪ In the event of design changes during the construction stages additional assessments including the possibility to save trees shall be made by the EA. ▪ Road side Plantation Strategy as per IRC specifications including manuring. ▪ Control use of pesticides/ fertilizers	Forest Conservation Act 1980 + IRC SP: 21 and IRC SP:66	Throughout project corridor	ROW width Number of trees for felling Compensatory plantation plan Number of trees replanted	Review of relevant documents – tree cutting permit, compensatory plantation plan Field observations	Road side plantation cost is included in project costs.	Relevant agency specialized in afforestation	MPRDC (SQC)/CSC
6. Construction Camps								
6.1 Impact associated with location	▪ Allcamps should maintain minimum distance from following: # 500 m from habitation # 500 m from forest areas where possible # 500 m from water bodies where possible # 500 m from through traffic route where possible ▪ The average distance between two camps should be 50 km	Design Requirement	All construction camps	Location of campsites and distance from habitation, forest areas, water bodies, through traffic route and other construction camps	On site observation Interaction with workers and local community	Included in construction cost	Contractor and EO	MPRDC (SQC)/CSC

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
6.2 Worker's Health in construction camp	▪ The location, layout and basic facility provision of each labor camp will be submitted to SQC prior to their construction. The construction shall commence only after approval of SQC. ▪ The contractor will maintain necessary living accommodation and ancillary facilities in functional and hygienic manner as approved by the EA. ▪ Adequate water and sanitary latrines with septic tanks attached to soak pits shall be provided. ▪ Preventive medical care to be provided to workers including a First-Aid kit that must be available in the camp. ▪ Waste disposal facilities such as dust bins must be provided in the camps and regular disposal of waste must be carried out . ▪ The Contractor will take all precautions to protect the workers from insect and pest to reduce the risk to health. This includes the use of insecticides which should comply with local regulations. ▪ No alcoholic liquor or prohibited drugs will be imported to, sell, give, barter to the workers of host community. ▪ Awareness raising to immigrant workers/local community on communicable and sexually transmitted diseases.	The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and The Water (Prevention and Control of Pollution) Act, 1974 and amendments thereof	All construction camps	Camp health records Existence of proper first aid kit in camp site Complaints from local people	Camp records Site observation Consultation with local people living nearby	Part of the Contractors costs	Contractor	MPRDC (SQC)/CSC
7. Management of Construction Waste/Debris								
7.1 Selection of Dumping Sites	▪ Unproductive/wastelandsshall be selected for dumping sites. ▪ Away from residential areas and water bodies ▪ Dumping sites have adequate capacity equal to the amount of debris generated. ▪ Public perception and consent from the village Panchayats has to be obtained before finalizing the location.	Design Requirement and MORT&H guidelines	At all Dumping Sites	Location of dumping sites Public complaints	Field survey and interaction with local people	Included in constructio n cost.	Contractor.	MPRDC (SQC)/CSC

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
7.2 Reuse and disposal of construction and dismantled waste	▪ The existing bitumen surface shall be utilized for paving of cross roads, access roads, and paving works in construction sites and camps, temporary traffic diversions, and haulage routes. ▪ All excavated materials from roadway, shoulders, verges, drains, cross drainage will be used for backfilling embankments, filling pits, and landscaping. ▪ Unusable and non-bituminous debris materials should be suitably disposed off at pre-designated disposal locations, with approval of the concerned authority. The bituminous wastes shall be disposed in secure landfill sites only in environmentally accepted manner. For removal of debris, wastes and its disposal MOSRTH guidelines should be followed. ▪ Unusable and surplus materials, as determined by the Project Engineer, will be removed and disposed off-site.	MORT&H guidelines	Throughout the project corridor	Percentage of reuse of existing surface material Method and location of disposal site of construction debris	Contractor records Field observation Interaction with local people	Included in construction cost.	Contractor.	MPRDC (SQC)/CSC
8. Traffic Management and Safety								
8.1 Management of existing traffic and safety	▪ Temporary traffic diversion shall be planned by the contractor and approved by the 'Engineer'. ▪ The traffic control plans shall contain details of diversions; traffic safety arrangements during construction; safety measures for night time traffic and precautions for transportation of hazardous materials. Traffic control plans shall be prepared in line with requirements of IRC's SP 55 document'. ▪ The Contractor will ensure that the diversion/detour is always maintained in running condition, particularly during the monsoon to avoid disruption to traffic flow. ▪ On stretches where it is not possible to pass the traffic on the part width of existing carriageway, temporary paved diversions will be constructed. ▪ Restriction of construction activity to only one side of the existing road. ▪ The contractor shall inform local community of changes to traffic routes, and pedestrian access arrangements with assistance from "Engineer".	Design requirement and IRC SP:55	Throughout the project corridor especially at intersections.	Traffic management plan Safety signs on site Number of traffic accidents	Review traffic management plan Field observation of traffic management and safety system Interaction with people in vehicles using the road	Included in construction cost.	Contractor	MPRDC (SQC)/CSC

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
	▪ Use of adequate signages to ensure traffic management and safety. Conduct of regular safety audit on safety measures.							
8.2 Pedestrians, animal movement	▪ Temporary access and diversion, with proper drainage facilities. ▪ Access to the schools, temples and other public places must be maintained when construction takes place near them. ▪ Fencing wherever cattle movement is expected. ▪ To avoid the need for cattle underpasses, some of the proposed culverts `near habitations may be widened to facilitate cattle movement.	Design requirement and IRC: SP: 27 -1984 IRC:SP: 32 -1988 Road Safety for Children (5-12 Years Old) IRC:SP: 44 -1994 Highway Safety Code IRC: SP: 55 -2001 Guidelines for The Building and other Construction workers Act 1996 and Cess Act of 1996 Factories Act 1948	Near habitation on both sides of schools, temples, hospitals, graveyards, construction sites, haulage roads, diversion sites.	Road signage & drainage as per IRC guideline Complaints from local people	Field observation Interaction with local people	Included in construction cost.	Contractor	MPRDC (SQC)/CSC
8.3 Safety of Workers and accident risk from construction activities	• Contractors to adopt and maintain safe working practices. • Usage of fluorescent and retroflectory signage, in local language at the construction sites • Training to workers on safety procedures and precautions. • Mandatory appointment of safety officer. • All regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches and safe means of entry and egress shall be complied with. • Provision of PPEs to workers. • Provision of a readily available first aid unit including an adequate supply of dressing materials. • The contractor will not employ any person below the age of 18 years for any work • Use of hazardous material should be minimized and/or restricted. • Emergency plan (to be approved by engineer) shall be prepared to respond to any accidents or emergencies.		Construction sites	Availability of Safety gears to workers Safety signage Training records on safety Number of safety related accidents	Site observation Review records on safety training and accidents Interact with construction workers	Included in construction cost	Obligation of Contractor	MPRDC (SQC)/CSC

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
	• Accident Prevention Officer must be appointed by the contractor.							
8.4 Accident risk to local community	• Restrict access to construction sites to authorized personnel. • Physical separation must be provided for movement of vehicular and human traffic. • Adequate signage must be provided for safe traffic movement		Construction sites	Safety signs and their location Incidents of accidents Complaints from local people	Site inspection Consultation with local people	Included in construction cost	Contractor	MPRDC (SQC)/CSC
9. Site restoration and rehabilitation								
9.1 Clean-up Operations, Restoration and Rehabilitation	▪ Contractor will prepare site restoration plans, which will be approved by the 'Engineer'. ▪ The clean-up and restoration operations are to be implemented by the contractor prior to demobilization. ▪ All construction zones including river-beds, culverts, road-side areas, camps, hot mix plant sites, crushers, batching plant sites and any other area used/affected by the project will be left clean and tidy, at the contractor's expense, to the satisfaction of the Environmental officer. ▪ All the opened borrow areas will be rehabilitated and 'Engineer' will certify in this regard.	Project requirement	Throughout the project corridor, construction camp sites and borrow areas	Clean and restored camp sites Presence/absence of construction material/debris after completion of construction works on construction site	Site observation Interaction with locals Issue completion certificate after restoration of all sites are found satisfactory	Included in construction cost.	Contractor	MPRDC (SQC)/CSC
C. Operation stage								
1. Air quality								
1.1 Air pollution due to due to vehicular movement	• Roadside tree plantations shall be maintained. • Regular maintenance of the road will be done to ensure good surface condition • Vehicular air pollution will be managed and monitored. • Ambient air quality monitoring. If monitored parameters are above the prescribed limit, suitable control measures must be taken. • Technological and behavioural changes • Road signs shall be provided reminding the motorist to • properly maintain their vehicles to economize on fuel consumption and protect the environment.	Environmental Protection Act, 1986; The Air (Prevention and Control of Pollution) Act, 1981	Throughout the Corridor	Ambient air quality (PM10, CO, NOx) Survival rate of trees planated	As per CPCB requirements Site inspection	Included in Operation/ Maintenance cost	MPRDC (SQC)	
2. Noise								

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
2.1 Noise due to movement of traffic	• Effective traffic management and good riding conditions shall be maintained to reduce the noise level throughout the stretch and speed limitation and honking restrictions may be enforced near sensitive locations. • The effectiveness of the multilayered plantation should be monitored and if need be, solid noise barrier shall be placed. • Create awareness amongst the residents about likely noise levels from road operation at different distances, the safe ambient noise limits and easy to implement noise reduction measures while constructing a building close to the road.	Noise Pollution (Regulation and Control) Rules, 2000 and amendments thereof	Sensitive receptors	Noise levels	Noise monitoring as per noise rules ,2000 Discussion with people in sensitive receptor sites	Included in Operation/ Maintenance cost	MPRDC (SQC)	
3. Land and Soil								
3.1 Soil erosion at embankment during heavy rain fall.	• Periodic checking to be carried to assess the effectiveness of the stabilization measures viz. turfing, stone pitching, river training structures etc. • Necessary measures to be followed wherever there are failures	Project requirement	At bridge locations and embankment slopes and other probable soil erosion areas.	Existence of soil erosion sites Number of soil erosion sites	On site observation	Included in Operation/ Maintenance cost	MPRDC (SQC)	
4. Water resources/Flooding and Inundation								
4.1 Siltation	• Regular checks shall be made for soil erosion and turfing conditions of river training structures for its effective maintenance.	Project requirement	Near surface Water bodies	Water quality	Site observation	Included in Operation/ Maintenance cost	MPRDC (SQC)	
4.2 Water logging due to blockage of drains, culverts or streams	• Regular visual checks and cleaning of drains shall be done along the alignment to ensure that flow of water is maintained through cross drains and other channels/streams. • Monitoring of water borne diseases due to stagnant water bodies	Project requirement	Near surface Water bodies	Presence of flooded areas or areas with water stagnation	Site observation	Included in Operation/ Maintenance cost	MPRDC (SQC)	
4.3 Road inundation due to choking of drainage channels	• MPRDC will ensure that all drains (side drains and all cross drainages) are periodically cleared especially before monsoon season to facilitate the quick passage of rainwater and avoid flooding.	Project requirement	Flood prone sections	Incidents of flooding and road inundation with details on chainage	Field observation Interaction with local community	Included in Operation/ Maintenance cost	MPRDC (SQC)	
5. Flora								

Environmental Issue/ Component	Remedial Measure	Reference to laws /guidelines	Location	Monitoring indicators	Monitoring Methods	Mitigation Costs	Institutional Responsibility	
							Implementation	Supervision
5.1 Vegetation	• Planted trees, shrubs, and grasses to be properly maintained. • The tree survivalist audit to be conducted at least once in a year to assess the effectiveness	Forest Conservation Act 1980	Project tree plantation sites	Minimum of 70% of tree survival	Records and fields observations	Operation and Maintenance Cost	MPRDC (SQC)	
6. Maintenance of Right of Way and Safety								
6.1 Accident Risk due to uncontrolled growth of vegetation	• Efforts shall be made to make shoulder completely clear of vegetation. • Regular maintenance of plantation along the roadside • Invasive plant not to be planted near the road.	Project requirement	Throughout the Project route	Presence of and extent of vegetation growth on either side of road Accident data	Visual inspection Accident records	Included in operation/ Maintenance cost	MPRDC (SQC)	
6.2 Accident risks associated with traffic movement.	• Traffic control measures, including speed limits, will be enforced strictly. • Further encroachment of squatters within the ROW will be prevented. • No school or hospital will be allowed to be established beyond the stipulated planning line as per relevant local law • Monitor/ensure that all safety provisions included in design and construction phase are properly maintained • Highway patrol unit(s) for round the clock patrolling. Phone booths for accidental reporting and ambulance services with minimum response time for rescue of any accident victims, if possible. • Tow-away facility for the break down vehicles if possible.	IRC:SP:55	Throughout the Project route	Police records on accident Condition and existence of safety signs, rumble strips etc. on the road Presence/absence of sensitive receptor structures inside the stipulated planning line as per relevant local law	Review accident records Site observations	Included in operation/ Maintenance cost	MPRDC (SQC)	
6.3 Transport of Dangerous Goods	• Existence of spill prevention and control and emergency responsive system • Emergency plan for vehicles carrying hazardous material		Throughout the project stretch	Status of emergency system – whether operational or not	Review of spill prevention and emergency response system	Included in operation/ Maintenance cost.	MPRDC (SQC)	

Notes: EA: Executing Agency, MPRDC: Madhya Pradesh Road Development Corporation, SQC: Supervision Quality Controller, EO: Environmental Officer, IRC: Indian Road Congress

a. The “Project engineer” or “the engineer” is the team of Construction Supervision Consultants (CSC) responsible for approving the plans, engineering drawing, release of payments to contractor etc. on behalf of the employer (MPRDC). It is usually the team leader of the CSC that takes the responsibility of signing approval documents on behalf of the CSC team.

b. The “environmental officer” is the environmental specialist under the CSC who is responsible for providing recommendations to the CSC team leader for approving activities specific to environment safeguards on behalf of “the engineer”.

APPENDIX 4: ENVIRONMENTAL MONITORING PROGRAMME

Environmental Components	Monitoring			Location	Frequency	Institutional Responsibility	
	Parameters	Special Guidance	Standards			Implementation	Supervision
Air	$PM_{2.5}$, PM_{10}, SO_2, NO_X, CO	As per CPCB guidelines	The Air (Prevention and Control of Pollution) Rules, CPCB, 1982	At sites where hot mix plant / batching plant is located	3 times in a year for 3 years or construction period at 5 sites & once in year for five years at 5 sites during operation/defect liability period	Contractor through approved monitoring agency	PIU, MPRDC, SC
Water	pH, BOD, COD, TDS, TSS, DO, Total coliform, Conductivity, Oil & Grease	Grab sample collected from source and analyze as per standard methods for examination of water and wastewater	Water quality standards by CPCB	river tributaries, roadside ponds and ground water at construction camp sites	Once during pre-construction stage 3 times in a year for 3 years or construction period At 5 locations	Contractor through approved monitoring agency	PIU, MPRDC, SC
Noise Levels	Noise level for day and night on dB(A) scale	In free field at 1m distance from the equipment to be monitored	Noise standard by CPCB	At equipment yards, camp and villages along the alignment.	3 times in a year for 3 years or construction period , 3 locations & once in a year for 5 years at 5 sites during operation/defect liability period.	Contractor through approved monitoring agency	PIU, MPRDC, SC
Soil quality	Monitoring of NPK &heavy metals and grease		As per IRC code of practice	Ad hock if accident / spill locations involving bulk transport of carrying	-	PIU through an approved agency	PIU, MPRDC

Environmental Components	Monitoring			Location	Frequency	Institutional Responsibility	
	Parameters	Special Guidance	Standards			Implementation	Supervision
				hazardous materials			
Road side plantation	Monitoring of felling of trees	It should be ensured that the marked trees are felled only	As given in the IEE report	All along the corridor	During the felling of trees	Forest department	PIU, MPRDC
	Survival rate of trees, success of re-vegetation	The number of trees surviving during each visit should be compared with the number of saplings planted	The survival rate should be at-least 75% below which re-plantation should be done	At locations of compensatory afforestation	Every year for 3 years	PIU	PIU, MPRDC

APPENDIX 5: NATIONAL AMBIENT AIR QUALITY STANDARDS

			Concentration in Ambient Air	
Sl. No.	**Pollutant**	**Time Weighted Average**	**Industrial Residential, Rural & Other Areas**	**Ecologically Sensitive Area (Notified by Central Government)**
1.	Sulphur dioxide (SO_2)($\mu g/m^3$)	Annual Average*	50	20
		24 Hours**	80	80
2.	Oxides of Nitrogen (NOx) ($\mu g/m^3$)	Annual Average*	40	30
		24 Hours**	80	80
3.	Particulate Matter (Size Less Then 10 μm) or PM_{10} ($\mu g/m^3$)	Annual Average*	60	60
		24 Hours**	100	100
4.	Particulate Matter (Size Less Then 2.5 μm) or $PM_{2.5}$ ($\mu g/m^3$)	Annual Average*	40	40
		24 Hours**	60	60
5.	Ozone O_3 ($\mu g/m^3$)	8 Hours*	100	100
		1 Hours**	180	180
6.	Lead (Pb) ($\mu g/m^3$)	Annual Average*	0.5	0.5
		24 Hours**	1.0	1.0
7.	Carbon Monoxide (CO) (mg/m^3)	8 Hours*	2	2
		1 Hours**	4	4
8.	Ammonia (NH_3) ($\mu g/m^3$)	Annual Average*	100	100
		24 Hours**	400	400
9.	Benzene (C_6H_6) ($\mu g/m^3$)	Annual*	5	5
10.	Benzo (a) Pyrane (BaP) particulate phase only($\mu g/m^3$)	Annual*	1	1
11.	Arsenic (As) ($\mu g/m^3$)	Annual*	6	6
12.	Nickel (Ni) ($\mu g/m^3$)	Annual*	20	20

Note:

* *Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.*

** *24 hourly or 8 hourly or 1 hourly monitored values, as applicable shall complied 98% of the time in a year. However 2% of the time, it may exceed but not on two consecutive days.*

APPENDIX 6: INDIAN STANDARD DRINKING WATER SPECIFICATION-IS 10500:1991

S.no	Parameters	Essential Standards	Relaxed Standards
1.0	**Physical Standards**		
1.1	Colour (Hazen units)	10	50
1.2	Taste	Agreeable	Agreeable
1.3	Odour	Unobjectionable	Unobjectionable
1.4	PH	6.5-8.5	6.5-8.5
1.5	Turbidity (NTU)	10	25
1.6	TDS (mg/l)	500(without treatment)	1500(with treatment)
1.7	Total Hardness (mg/l)	300	600
2.0	**Inorganic Parameters**		
2.1	Ca (mg/l)	75	200
2.2	Mg (mg/l)	30	100
2.3	Fe (mg/l)	0.3	1
2.4	Mn (mg/l)	0.1	0.5
2.5	Cl (mg/l)	250	1000
2.6	SO_4 (mg/l)	150	400 if Mg<30mg/l
2.7	NO_3 (mg/l)	45	45
2.8	F (mg/l)	0.6-1.2	1.5
2.9	Free Cl (mg/l)	0.2	0.5
3.0	**Heavy Metals**		
3.1	Hg (mg/l)	0.001	0.001
3.2	Cd (mg/l)	0.01	0.01
3.3	Se (mg/l)	0.01	0.01
3.4	As (mg/l)	0.05	0.05
3.5	Pb (mg/l)	0.1	0.1
3.6	Zn (mg/l)	5	10
3.7	Cr^{+6} (mg/l)	0.05	0.05
3.8	Cu (mg/l)	0.05	1.5
4.0	**Other Parameters**		
4.1	Phenolic Compounds (mg/l) (as C_6H_5HO)	0.001	0.002
4.2	CN (mg/l)	0.05	0.05
4.3	Anionic Detergents (mg/l) (as MBAS)	0.2	1.0
4.4	Mineral Oil (mg/l)	0.01	0.03
4.5	Pesticides	Absent	Absent
5.0	**Microbiological Parameters**		
5.1	Mean Probable Number	50 without treatment	
	Of Total Coliforms	500 outdoor bathing	
	(Number/100 ml)	5000 with treatment	
6.0	**Radiological Parameters**		
6.1	Gross alpha (μc/ml)	10^{-6}	
6.2	Gross beta (μc/ml)	10^{-7}	

Note: A-Desirable or essential

B-Relax able under certain circumstances such as no alternate source being available.

APPENDIX 7: AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE

Area Code	Category of Area	Leq. Limits in dB(A)	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Note:

1. Day time shall mean from 6.00 a.m. to 10.00 p.m.
2. Night time shall mean from 10.00 p.m. to 6.00 a.m.
3. Silence zone is defined as an area comprising not less than 100 meters around hospitals, educational institutions and courts. The silence zones are zones, which are declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above-mentioned categories by the competent authority.

APPENDIX 8: PUBLIC CONSULTATION PHOTOS & RECORDS

	**Meeting with Villagers of Sari village for Environment Survey**
	**Meeting with Villagers of Gagra bhara village for Environment Survey**
	**Meeting with Villagers of Persona village for Environment Survey**

सामूहिक परिचर्चा - मिश्रित

(बैठक विवरण एवं उपस्थिती पत्रक)

दिनांक 17/7/14 समय 12:15 pm

स्थान मंदिर के चबूतरे पर ग्राम ~~[illegible]~~ राजमिलन

विकासखंड .... जिला रीवा

बैठक कार्यवाही विवरण -

ग्राम में म.प्र. सड़क निर्माण परियोजना के विषय में बैठक की गई बैठक में सड़क निर्माण के समय होने वाली कुछ उचित समय के लिए होने वाली पर्यावरण प्रदूषण जनित परेशानियों के बारे में चर्चा की गई। और सड़क निर्माण से होने वाले फायदे जैसे व्यवस्थित विकास सड़क के आसपास कीचड़, अस्पताल आने जाने में आसानी उच्च शिक्षा के लिए शहर जाना आसान सड़क निर्माण के फायदों को समझते हुए ग्रामीणों ने सड़क निर्माण के लिए सहमति दी।

क्र	नाम	हस्ताक्षर	रिमार्क
1	रकेश	Rakesh	
2	बिहारी लाल	बिहारीलाल	
3	पूरन सिंह	पूरन सिंह	
4	विकास वर्मा	Vikash varma	
5	मकरन सिंह	[illegible]	
6	बसंति बाई	basanti	
7	रामकली	रामकली	
8	रमली	रमली	
9	रामप्रसाद	राम प्रसाद	
10	सुषमा	सुशमा	
11	मदन प्रसाद	मदन प्रसाद	
12			
13			
14			
15			

बैठक आयोजनकर्ता एवं समन्वयक का नाम एवं हस्ताक्षर

[illegible] D.k.Jain

सामूहिक परिचर्चा - मिश्रित

(बैठक विवरण एवं उपस्थिती पत्रक)

दिनांक 17/7/15 समय 3:45 pm

स्थान गाँव का चबूतरा ग्राम ~~सिमरिया~~ सरेशा

विकासखंड .... जिला ....

बैठक कार्यवाही विवरण -

ग्राम में म.प्र. सड़क निर्माण परियोजना के विषय में बैठक की गई है। बैठक में सड़क निर्माण के समय होने वाली कुछ सीमित समय होने वाली पर्यावरण प्रदूषण सम्बन्धी परेशानी के बारे में चर्चा की गई और सड़क निर्माण में होने वाले फायदे जैसे टमपलाट सड़क के आसपास की कीचड़, अस्पताल आने जाने में आसानी. अन्य शिक्षा के लिए आना जाना आसान आदि के बारे में बताया गया, ग्रामीणों ग्रामीणों ने सड़क निर्माण के फायदे को समझते हुए सड़क निर्माण के लिए सहमति प्रदान की।

क्र	नाम	हस्ताक्षर	रिमार्क
1	राम नरेश	Ramnaresh	
2	श्री कृष्ण	श्री कृष्ण	
3	मनोहर	Manohar	
4	राजकिशोर	राजकिशोर	
5	बनवारी लाल	[illegible]lal	
6	रमाकांत	रमाकांत	
7	राजेश कुमार	राजेश कुमार	
8	प्रितम	प्रितम	
9	हनुमत सिंह	[illegible]	
10	शंकर लाल	Shankarlal	
11	राजू	राजू	
12	मंसाराम	मंसाराम	
13	कुंजन सिंह	कुंजन सिंह	
14	हर प्रसाद	हर प्रसाद	
15	कैलाश	कैलाश	

बैठक आयोजनकर्ता एवं समन्वयक का नाम एवं हस्ताक्षर

D.K. Jain

सामूहिक परिचर्चा - मिश्रित

(बैठक विवरण एवं उपस्थिती पत्रक)

दिनांक 17/7/19 समय 5:45 pm

स्थान चबूतरा (हनुमान मंदिर) ग्राम सिकोहा

विकासखंड .... जिला रीवा

बैठक कार्यवाही विवरण :-

ग्राम में प्र.मं. सड़क निर्माण परियोजना के विषय में बैठक की गई बैठक में पूर्व में सड़क निर्माण के समय होने वाली कुछ सीमित समय में होने वाली परेशानियों के बारे में चर्चा की गई। और सड़क निर्माण से होने वाले फायदे जैसे यातायात सड़क के माध्यम पास के जिला अस्पताल आने जाने में आसानी उच्च शिक्षा के लिए शहर जाना सामान आदि के बारे में बताया गया ग्रामीणों ने सड़क निर्माण के फायदे को समझते हुए सड़क निर्माण के लिए सहमति प्रदान की।

क्र	नाम	हस्ताक्षर	रिमार्क
1	मदन लाल	मदन लाल	
2	शरबू	Sh[illegible]	
3	मीना	मीना	
4	कामता प्रसाद	कामता प्रसाद	
5	सीमादेवी	सीमा देवी	
6	श्याम लाल	Syamlal	
7	कालूराम अहिरवार	कालूराम	
8	मिश्री लाल	मिश्री	
9	गंगाराम	Ganga[illegible]	
10	प्रेमबाई	प्रेमबाई	
11	हेमलता	हेमलता	
12	कमलेश	Kamlesh	
13			
14			
15			

बैठक आयोजनकर्ता एवं समन्वयक का नाम एवं हस्ताक्षर

DJain (D.K. Jain)

पब्लिक कंसल्टेशन

लोक सहमति

दिनांक 20/7/14

(बैठक कार्यवाही विवरण एवं उपस्थिती पत्रक)

स्थान हनुमानजी के मंदिर के पास

ग्राम गजरा बहरा

विकासखंड/ जिला देवसर / सिंगरौली

बैठक कार्यवाही विवरण ग्राम गजरा बहरा में सड़क निर्माण परियोजना के संबंध में ग्रामीण लोगों के साथ बैठक की गई जिसमें ग्रामीणों को सड़क निर्माण के समय होने वाली कुछ समय के लिये परेशानियों को एवं निर्माण के बाद होने वाले सड़क फायदों के बारे में बताया गया, ग्रामवासियों ने समझते हुए सड़क निर्माण के लिये सहमति प्रदान की।

क्र	नाम	हस्ताक्षर	रिमार्क
1	मनोज गुप्ता	मनोज गुप्ता	
2	भोला गुप्ता	[thumbprint]	
3	लल्लू कुमार	[illegible]	
4	प्रमोद कुमार	प्रमोद	
5	शम्भु सिंह	शम्भु सिंह	
6	शिव गुप्ता	Shiv	
7	रामचन्द्र गुप्ता	रामचन्द्र	
8	हरिशंकर गुप्ता	हरिशंकर	
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

सर्वेक्षण कर्ता / समन्वयक के हस्ताक्षर

(D.k. Jain)

सामूहिक परिचर्चा - मिश्रित

(बैठक विवरण एवं उपस्थिती पत्रक)

दिनांक 17/1/14 समय 10:45 a.m.

स्थान गाँव की चबूतरे पर ग्राम सुरहीया

विकासखंड ..... जिला सीधी

बैठक कार्यवाही विवरण:-

ग्राम मे म.प्र. सड़क निर्माण परियोजना के विषय मे बैठक की गई। बैठक मे सड़क निर्माण के समय होने वाले प्रभाव के विषय मे चर्चा की गई पर्यावरण प्रदूषण संबंधी परेशानी के बारे मे चर्चा कीगई। और सड़क निर्माण से होने वाले फायदे जैसे, व्यवसाय, सड़क के आसपास बीच. अस्पताल आने जाने मे आसानी. उच्च शिक्षा के लियेबाहर जाना सुविधा आदि के बारे मे बताया गया। ग्रामीणो ने सड़क निर्माण के फायदो को समझते हुए, सड़क निर्माण के लिये सहमति प्रदान की।

क्र	नाम	हस्ताक्षर	रिमार्क
1	श्री मान संतोष कुमार शुक्ला	Santosh	
2	श्री मान रामेश्वर शुक्ला	रामेश्वर शुक्ला	
3	श्री मान रविशंकर त्रिवेदी		
4	श्री मान हरिशंकर त्रिवेदी		
5	श्री मान हीरालाल अग्रवाल		
6	श्री मान चन्द्रप्रसाद शुक्ला	चन्द्रप्रसाद शुक्ला	
7	श्री मति आशा शुक्ला		
8	श्री मति सावित्री देवी	सावित्री देवी	
9	श्री मति मोती बाई		
10	श्री मति अहिल्या बाई		
11	श्री मति माधुरी शुक्ला		
12			
13			
14			
15			

बैठक आयोजनकर्ता एवं समन्वयक का नाम एवं हस्ताक्षर

पब्लिक कंसल्टेशन

लोक सहमति

दिनांक 21/7/14

(बैठक कार्यवाही विवरण एवं उपस्थिती पत्रक)

स्थान रमापति साहू के घर के पास

ग्राम परसोना

विकासखंड/ जिला देवसर / सिंगरौली

बैठक कार्यवाही विवरण ग्राम परसोना मे म.प्र. जिला सम्पर्क सड़क परियोजना," के बारे मे बैठक लीगई, जिसमे सड़क निर्माण कार्य से ग्राम मे रहने वाले व्यक्तियो ने सहानुभूति दी ग्रामीणो द्वारा यह निर्णय लिया की सड़क स तथा उसके साथ ग्रामीणो का निर्माण एक सकारात्मक कार्य है जिसमे वहा पर्यावरणीय समस्या जैसे धूल, कीचड़ से मुक्ति के साथ सामाजिक व आर्थिक उन्नती भी होगी ।

क्र	नाम	हस्ताक्षर	रिमार्क
1	श्री प्रवीण कुमार	Praveen	
2	श्री रमापति साहू	रमापति	
3	श्री कृष्ण कुमार	Krishna	
4	श्री उदित कुमार	उदित	
5	श्री शिवेन्द्र कुमार	शिवेन्द्र	
6	श्री रामनारायण गुप्ता	रामनारायण	
7	श्री संतोष गुप्ता	सन्तोष	
8	श्री राकेश गुप्ता	राकेश गुप्ता	
9	श्री अभिषेक पाण्डे	Abhishek	
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

सर्वेक्षण कर्ता / समन्वयक के हस्ताक्षर

D.K. Jain

सामूहिक परिचर्चा - मिश्रित

(बैठक विवरण एवं उपस्थिती पत्रक)

दिनांक 16/7/14 समय 10:10am

स्थान गाँव का चबूतरा ग्राम बरखा

विकासखंड .... जिला रीवा

बैठक कार्यवाही विवरण -

ग्राम में म.प्र. सड़क निर्माण परियोजना के विषय में बैठक की गई। बैठक में सड़क निर्माण के समय होने वाली कुछ सीमित समस्याओं के लिए होने वाली पर्यावरणीय प्रदूषण [illegible] के बारे में चर्चा की गई और सड़क निर्माण से होने वाले फायदे जैसे व्यवसाय विकास, सड़क के माध्यम से [illegible] का होना, अस्पताल आने जाने में आसानी, उच्च शिक्षा के लिए शहर आना जाना आसान, ग्रामीणों ने सड़क निर्माण के कार्य को समर्थन देते हुए सड़क निर्माण के लिए सहमति प्रदान की।

क्र	नाम	हस्ताक्षर	रिमार्क
1	परवत सिंह	Parbat Singh	
2	रामदास	रामदास	
3	जगदीश	जगदीश	
4	भोलाराम	भोला राम	
5	बद्री प्रसाद	बद्री प्रसाद	
6	रघुवीर		
7	रामलाल	राम लाल	
8	शोभाराम	शोभाराम	
9	लक्ष्मी		
10	सरोज	सरोज	
11	लता	लता	
12	हल्की बाई	हल्की बाई	
13			
14			
15			

बैठक आयोजनकर्ता एवं समन्वयक का नाम एवं हस्ताक्षर

DJain (D.K. Jain)

19

APPENDIX 9: GRM PROCEDURES IN HINDI

सहमति पत्र

(व्यक्तिगत रूप से हस्ताक्षर करने हेतु)

यह सहमति पत्र दिनांक .....2014 को श्री/श्रीमति ..... निवासी .....(जिन्हे बाद में प्रथम पक्ष कहा जायेगा) एवं मध्य प्रदेश रोड डेव्हलपमेंट कारर्पोरेशन की तरफ से श्री.....(पद) .....(जिन्हे बाद में द्वितीय पक्ष कहा जायेगा) के मध्य हस्ताक्षरित किया गया।

गवाहों/साक्षी की उपस्थिति में यह दस्तावेज निष्पादित किया गया है।

1- यह कि प्रथम पक्ष दुकान का स्वामी/किरायेदार/अतिक्रमणधारी /फेरी वाला है। तथा वह अपना .....व्यवसाय पिछले .....वर्षो से इस स्थान पर चला रहा है। दुकानदार इस दुकान का पट्टेदार है/नही है। प्रस्तावित सड़क के निर्माण के दौरान व्यवसाय का स्वामी/पट्टेदार का व्यवसाय तथा आमदनी सड़क निर्माण के दौरान बाधित होने की आशंका है। यह कालावधी 30 दिन से अधिक नही होगी।

2- यह कि प्रथम पक्ष ने मध्य प्रदेश जिला कनेक्टीविटी क्षेत्र परियोजना (MPDCSP) की आवश्यकताओं के तहत आयोजित सार्वजनिक लोक सहमति में भाग लिया है, रोड निर्माण से प्राप्त होने वाले लाभ को समझ लिया है एवं रोड निर्माण हेतु सहमति दे दी है।

3- यह कि प्रथम पक्ष द्वारा अपनी मर्जी से ग्राम.....तहसील .....में MPDCSP अंतर्गत रोड़ निर्माण विकास हेतु आपनी आजीविका में संभावित अस्थायी व्यवधान को देखते हुये भी सहमति प्रदान की है।

4- यह कि प्रथम पक्ष रोड निर्माण से होने वाले अस्थायी आजीविका व्यवधान के खिलाफ किसी भी प्रकार के मुआवजे का दावा नही करेगा।

5- यह कि द्वितीय पक्ष को अस्थायी आजीविका व्यवधान संबंधित सहमति स्वीकार है।

6- यह कि द्वितीय पक्ष निर्माण कार्य के दौरान रोड के समीप स्थित सभी व्यवसायिक इकाईयों को नुकसान से बचाने के लिये सभी संभव सावधनियां पूर्वक कार्य करेगा।

7- यह कि प्रथम पक्ष द्वारा द्वितीय पक्ष को यह आश्वासन दिया जाता है कि वह MPDCSP अंतर्गत रोड निर्माण को किसी प्रकार का नुकसान नही पहुँचायेगा, ना ही सार्वजनिक वाहनों के आवागमन में व्यवधान पैदा करेगा एवं ना ही ऐसे कार्यो में शामिल होगा।

8- यह कि दोनों पक्ष MPDCSP अंतर्गत प्रस्तावित इस रोड निर्माण हेतु सहमत है।

9- यह कि हस्ताक्षरित किये जाने की तारीख से यह सहमति पत्र प्रभावी होगा।

साक्षी/गवाहों की उपस्थिति में दोनों पक्षों ने उपर लिखित तारीख को इस पत्रक को हस्ताक्षरित किया है।

हस्ताक्षर प्रथम पक्ष	द्वितीय पक्ष की ओर से अधिकृत (मोहर सहित)
गवाह	गवाह
1- हस्ताक्षर.....	1- हस्ताक्षर.....
नाम –.....	नाम –.....
पूरा पता –.....	पूरा पता –.....
2-हस्ताक्षर.....	2. हस्ताक्षर.....
नाम –.....	नाम –.....
पूरा पता –.....	पूरा पता –.....

(गवाह/साक्षी में गांव के सरपंच, ग्राम पंचायत के सदस्य, डी.पी.आर. कंसलटेंट के प्रतिनिधि, गैर शासकीय संगठनों के प्रतिनिधि तथा ग्राम के बुजुर्ग/वरिष्ठ नागरिकों को शामिल किया जा सकता है)

शिकायत निवारण तंत्र

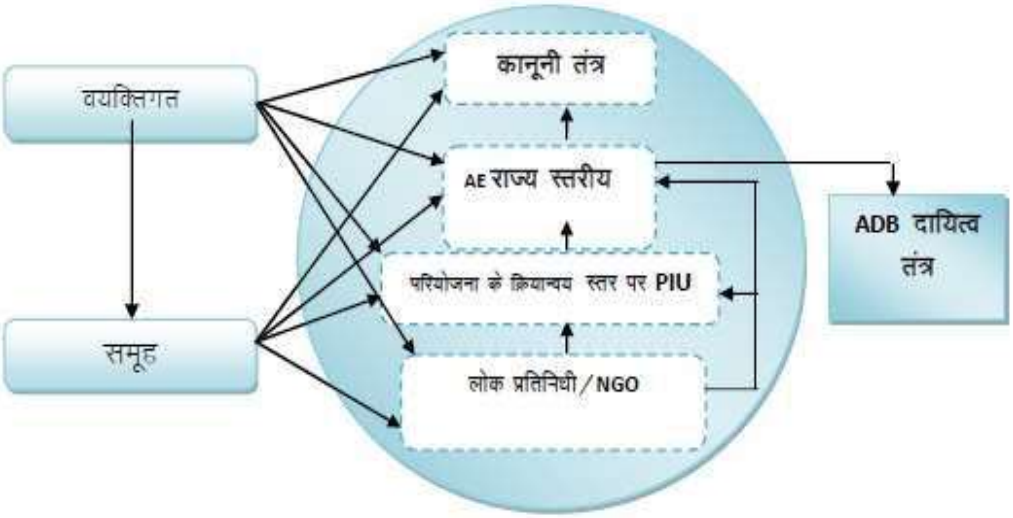
5.1 सड़क निर्माण परियोजना से संबंधित विशेष शिकायत निवारण तंत्र (GRM) स्थापित किया जायेगा जिसके तहत विस्थापित व्यवसायिक इकाईयों, संबंधित शिकायतो, सामाजिक तथा पर्यावरण संबंधित शिकायतों का निराकरण करने की सुविधापरियोजना स्तर पर प्रदान की जायेगी, यह तंत्र सामाजिक तथा पर्यावरण संबंधी समस्या, शिकायत या शकाओं के निवारण में सहायक सिद्ध होगा। यह परियोजना प्रभावित व्यक्तियों की शंकाओं तथा समस्या निराकरण करने के उद्देश्य से निर्मित किया गया है। GRM का उद्देश्य शासन की निवारण प्रक्रिया को नज़र अंदाज करना नही है बल्कि जन साधारण को निर्माण से होने वाले लाभ को बताना तथा पारदर्शिता के साथ समस्या तभा शंकाओं का निवारण करना है।

5.2 निवारण प्रक्रिया (RP) यह तंत्र प्रभावी तरीको से जन साधारण/लोक सामान्य को इस कार्य के लाभ बतलाते हुऐ सार्वजनिक सहमति प्राप्त करेगा शिकायत निवारण सहमति (GRC) एक समय सीमा में समस्या निवारण कार्य करेगी। कमेटी का निर्णय मा. न्यायालय के आदेश पूर्व बाहयकारी होगा इस समिति को MPRDC के प्रबंध संचालक की अध्यक्षता में गठित किया जायेगा। PIU स्तर पर प्रबंधक (PM) पुर्नवास अधिकारी, NGO के प्रतिनिधी, समाज के प्रतिष्ठित व्यक्ति, जन प्रतिनिधी, जिला परिषद प्रतिनिधी, कमजोर तबके के व्यक्ति तथा 2 महिला प्रतिनिधी शमिल होगे जो परियोजना कार्य पूर्ण होने तक पदस्थ रहेंगे।

5.3 शिकायत निवारण समिति द्वारा शिकायत के 3 सप्ताह के दौरान प्रतिक्रिया करेगी। निर्माण कार्य के पूर्व समस्त शिकायतोंव शंकाओं का समाधान कर लिया जायेगा।

शिकायत निवारण समिति की बैठक 3 सप्ताह में कम से कम एक बार अवश्य होगी, माननीय न्यायालय के तहत स्वामित्व अधिकारी से संबंधित विवादो के अलावा यह समिति समस्त पुर्नवास स्थानांरतण, मुआवजे के भुगतान तथा अन्य सहायता हेतु चरण बद्ध कार्य करेगी।

शिकायत निवारण प्रक्रिया तंत्र



अनुलग्न 1

(A) लोक शिकायत प्रपत्र /प्रलेखन (शिकायत निवारण)

क्र	शिकायत का प्रकार	शिकायत प्राप्ति होने की तारीख	प्रभावित स्थान ग्राम/शहर	चैनेज 0.00 से लैण्ड मार्क	शिकायतकर्ता का नाम	पूरा पता एवं मोबाईल न0	रिमार्क की गई कार्यवाही का संक्षिप्त विवरण	स्थिति		
								निवारण हो गई	कार्य प्रगति पर है।	अपूर्ण लंबित
1										
2										
3										
4										
5										
6										
7										
8										

अनुलग्न 1

(B) शिकायत का प्रकार

- घर की दीवार और छत को कंपन/विस्फोट/भारी वाहनों के कारण नुकसान
- उपयोग में आ रही सड़क, पुलिया, नहरो को नुकसान
- सड़क के उपयोग में आ रहे अवरोध
- निजी संपत्ति को नुकसान
- विस्फाट के कारण निजी या सार्वनिक जल स्त्रोतों में जल स्तर की कमी या जल में प्रदुषण
- व्यावसायिक इकाई को/ व्यावसायिक परिसर में नुकसान
- दूषित जल का जमाव या बाद
- घरो के समीप (सॉलिड) कचरे को फेंकना
- मूर्तिया अथवा स्मारको को नुकसान होने का भय
- विस्थापना की स्थिति में वैकलिपक भूमि या अधिग्रहित भूमि के मुआवजे के लिये अनुरोध पत्र
- भूमि स्वामित्व के अधिकार संबंधित किसी प्रकार का विवाद