Initial Environmental Examination

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India: Tripura Urban and Tourism Development Project – Improvement of Roads and Storm Water Drainage System in Cluster IIA Towns of Tripura

Package No: R&D-02

Prepared by Tripura Urban Planning and Development Authority (TUDA), Urban Development Department, Government of Tripura for the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 31 March 2023)

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$1.00	=	₹ 82.15

ABBREVIATIONS

ADB	–	Asian Development Bank
ANP	-	Amarpur Nagar Panchayat
BMC	-	Belonia Municipal Council
CPCB	–	Central Pollution Control Board
CTE	–	Consent to establish
CTO	–	Consent to operate
DBE	–	Design Basis Earthquake
DWS	–	Drinking water & sanitation
EAC	–	Expert appraisal committee
EARF	–	Environmental assessment and review framework
EHS	–	Environment, health and safety
EIA	–	Environmental impact assessment
EMP	–	Environmental management plan
EMS	–	Environmental management specialist
EPC	-	Engineering, Procurement & Construction
GoT	–	Government of Tripura
GRC	–	Grievance redress committee
GRM	–	Grievance redress mechanism
IEE	–	initial environmental examination
IRP	–	iron removal plant
MMC	--	Melaghar Municipal Council
MoEFCC	–	Ministry of Environment, Forest and Climate Change
TSPCB	–	Tripura State Pollution Control Board
NOC	–	No objection certificate
OHS	–	Occupational health and safety
PIU	–	project implementation unit
PMSC	–	Project management supervision consultant
PMU	–	Project management unit
PMSC	-	Project Management & Supervision Consultant
ROW	–	Right of way
SPS	–	Safeguard Policy Statement
TUDA	–	Tripura Urban Planning and Development Authority
TUTDP	–	Tripura Urban and Tourism Development Project
UMC	-	Udaipur Municipal Council
WHO	–	World Health Organization

WEIGHTS AND MEASURES

dBA	-	decibel
°C	-	degree Celsius
km	-	kilometer
lpcd	-	litre per capita per day
m	-	meter
mgbl	-	meter below ground level
mm	-	millimeter
MLD	-	million liters per day
km^2	-	square kilometer

NOTE

In this report, "$" refers to United States dollars.

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EXECUTIVE SUMMARY

Proposed Tripura Urban and Tourism Development Project (TUTDP) will improve the municipal infrastructure and public services and will lay the foundation for tourism development in the State of Tripura. Tripura is in the Northeast Region (NER) of India, covering an area of 10,490 square km, with a population of 4.1 million (estimated 2022), and Agartala as the state's capital. The project targets key urban local bodies (ULBs) along the main national highways in Tripura, major infrastructure components of which include water supply, stormwater drainage, communal or neighbourhood roads, and tourism development support.

The project is aligned with the following impact(s): clean and sustainable environment in ULBs achieved, and Tripura increasingly recognized in the India tourism industry as a new destination. The project will have the following outcome: Adequate, safe, and climate- and disaster-resilient, urban services (water, storm drainage, and municipal roads) provided and sustainable tourism improved in project areas. Project has four outputs: (i) Output 1: Municipal reforms and capacity of ULBs strengthened, (ii) Output 2: Urban infrastructure improved. The project will improve various public infrastructures, such as (i) water supply, (ii) stormwater drainage, and (iii) municipal roads, (iii) Output 3: Tourist destinations improved, and (iv) Output 4: Capacity of tourism corporation's operational services improved. Government of Tripura acting through Urban Development Department (UDD) will be the project executing agency. Tripura Urban Planning and Development Authority (TUDA) and Tripura Tourism Development Corporation Limited (TTDCL) will be the implementing agencies.

Under phase 1 of project, 12 towns have been selected for improvement of water supply, roads and storm water drains, and tourism facilities. Improvement of roads and storm water drains in **Udaipur, Amarpur, Bishramganj, Melaghar and Belonia** towns (Package - R&SD-03) is one of the subprojects proposed under the TUTDP.

Udaipur town - Subproject includes the following, (i) **Road sector**: Rehabilitation on 3 road, from NH-08 to house of Mrinal Kanti Das, Ward No – 13, from house of Sunil Debnath to house of Sultan Miah ward No – 15, new road from Gonida Dey to Housing Board with inter-locking concrete paver blocks (ICB) pavement and one side covered side drain with catchpit at other side 551 m length at 3 locations and construction of footpaths (1.2 m width on both side of road) over drain for a length of 2.97 km at 1. Bridge chowmuhani to R.K Pur P.S corner .2 along the Central Road 3. from Shitlbari to Brahmabari, (ii) **Drainage sector**: Drain improvement works at 5 1.Shitalbari to Brahmabari to Sukhsagar Jola- D1, 2. Bridge Chowmuhani to Gada Chowmuhani Saw Mill Road to Gomati River- D2, 3. Central Road to Gomati River- D3, 4. Central Road to Sukhsagar Jola- D4, and 5. Ramesh Chowmuhani to Gomati River- D5 with length of approx. 7.89 km, 0.6-3.0 m wide, 1.0-2.5 m deep, within the existing ROW of road.

Amarpur town - Subproject includes the following, (i) **Road sector:** Rehabilitation of road with footpath over drain from Rangamati bridge to Takcherra bridge for a length of approx. 1.740 km, (ii) **Drainage sector**: the Drainage development works includes 6 numbers of RCC covered drain have been proposed with total approx. length of 4.91 km, wide 0.6-2.0 m and depth 0.6-1.9 m covering 6 catchment areas of town, within the existing ROW of road.

Bishramganj town - Subproject includes the following, (i) **Road sector:** Construction of 5 nos. of road 1. form Priyalal Debbarma house to Bikash Debbarma house, 2. Lalit Debnath house to Subhash Saha house via Gour Sankar house, 3. Ramani Paul house to Krishna Debnath house via Sujan Debnath house, 4. Prahllad Datta house to Nirmal Sutradhar's house, and 5. Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge) with the inter-

locking concrete paver blocks with one side drains of 2.96 km length. Provision of catch pit on other side of road. (ii) **Drainage sector**: Drainage development works is planned within 15 numbers of catchment located in Bishramganj village panchayat. three nos. of Gram Panchayats, 6 wards in Chesrimai, 5 wards in Barjala and 8 wards in Bishramganj . RCC covered drain is proposed along one side of the road and catch pit at other side in total 16 location. Total length of drain approx. 6.712 km, 0.3-0.6 m wide, 0.3- 1.05 m deep, within the existing ROW of road.

Melaghar town - Subproject includes the following, (i) **Road sector:** Construction of 4 nos. of road with the inter-locking concrete paver blocks at 1.Melaghar Bishramganj main road (PWD road) to Biswajit Chakraborty house -Arabindapally, 2.Bhagirath Chowmuhani to Veeramma temple, 3.Charu kabiraj house Samakaji para, and 4.Melaghar - Bishramganj Road (PWD road) to Nikhil Barman house} with side RCC covered drain of 3.808 km. (ii) **Drainage sector**: Drain improvement works at parts of all 13 wards of town adjoining area of ward no 2, 3, 4, and 5. RCC covered drain is proposed along one side of the road and catchpit at other side in total 11 location's total length of drain approx. 9.80 km, 0.4-3.6 m wide, 0.5-3.64m deep covering 3 sub-catchment.

Belonia Town- Subproject includes the following, (i) **Road sector:** Construction of 1. road with footpath & drain (Road- Bridge no.4 to ITI college via college square & AIR) and 2. (Satmura S.B school to AIR road) with the inter-locking paver blocks. Total length of road is approx.3.179 km. (ii) **Drainage sector**: Drain improvement works at Kalinagar Motor Stand Area Catchment and Akhanda Mandali Ashram area Catchment, the subproject area covers the wards of 1, 8, 9 & 10 and part of Ward 2, 3, 4, 5, 6, 7, 11, 12, 13, 14 & 15 of BMC area. RCC covered drain is proposed along one side of the road and catchpit in other side in total 6 location. Total length of drain approx. 5.322 km, 0.6-2.0 m wide, 0.6-2.0m deep.

Screening and Categorization. assessment of potential impacts. These roads and drains subproject is classified as environmental category B as per ADB's Safeguard Policy Statement (SPS), 2009, and accordingly this initial environmental examination (IEE) assesses the environmental impacts and provides mitigation and monitoring measures to ensure that there are no significant impacts as a result of the subproject. As per the Government of India environmental impact assessment (EIA) Notification, 2006, this subproject does not require EIA study or environmental clearance. In case works require shifting of utilities such as telephone and electricity lines, permission from respective agencies will be obtained.

Description of the Environment. The subproject towns Udaipur, Amarpur, Bishramganj, Melaghar and Belonia are in Tripura state in northeast India. It is third-smallest state, bordered by Assam and Mizoram to the east and by Bangladesh to the north, south and west. Agartala is the capital and the largest city in the state. The whole of northeast India, including Tripura, falls under seismic zone V and is highly vulnerable to earthquakes. Proposed roads and drains components are within urban areas of project towns. There are no forests area nearby the project sites but Rudrasagar, Ramsar site in Melaghar and ASI protected areas Chaturdasa Devta temple & Gunavati group of temples in Udaipur are located in urban area. But no impact on proposed road and drain is envisaged from these areas. Also, project sites do not fall under any buffer or eco sensitive zone.

Udaipur is headquarter of Gomati district in western Tripura. Located at 23.53°N and 91.48°E. Town is mostly covered by undulating hilly land, although there are some plain lands here and there has an average elevation of 22 meters. Area of town is 6.10 sq. km is divided into 23 wards and has a population of 32,758 (2011 census). Annual rainfall in Gomati district was 1686.8 to 2855.8 between 2013 to 2018. The biggest river of the state, Gomati is passing besides the town.

Within town there is two archaeological protected (ASI) sites, Gunavati Group of temples and Chaturdasa Devata temple are situated within heart of the city and main market area. Number of municipal activities, construction going on at heart of the city adjacent to ASI protected areas. No proposed components, road and drain will locate or pass through ASI protected area. Nearby road and drain from Chaturdasa temple is located at 70 m and Gunavati temple is located at 430 m respectively. Proposed roads and side drains are from NH-08 to house of Mrinal Kanti Das, Ward No – 13, from house of Sunil Debnath to house of Sultan Miah Ward No – 15, from New CC Road from Gonida Dey to Housing Board. Also, construction of footpath with drain, from Bridge chowmuhani to R.K Pur P.S corner, footpath along the Central Road, and from Shitlbari to Brahmabari. All works are proposed within the existing ROW of roads. Drain improvement works are planned from Shitalbari to Brahmabari to Sukhsagar Jola, Bridge Chowmuhani to Gada Chowmuhani Saw Mill Road to Gomati River, Central Road to Gomati River, Central Road to Sukhsagar Jola, and Ramesh Chowmuhani to Gomati River. There is no forest or protected areas within the subproject area, and it does not fall under any buffer or eco sensitive zone. Nearest forest to Udaipur is Radhakishorepur Reserve Forest located 5 km from town.

Amarpur: Amarpur nagar panchayat in Gomati District in the central part of Tripura. Located at 23.53°N and 91.64°E and Amarpur have an average elevation of 24 m above MSL. Amarpur lies within low-laying alluvial plane of Gomati River & surrounded by high hilly terrane from all sides. Area of the town is 3.4 sq. km divided into 13 wards and population is 10,838 (2011 census). Situated at bank of Gomati River. Annual rainfall in Gomati district is 1686.8 to 2855.8 between 2013 to 2018. Proposed road with footpath and drain is planned from Rangamati bridge to Takcherra bridge. The work is proposed with the ROW of the road. Drain improvement works are planned from English Medium School to Gomati River via Tri-Junction, from Chandimata Temple to the House of Akhil Das via Amarpur-Teliamura Rd, from Amarsagar Lake to Chhara Via Shankar Saha House, from Amarsagar Lake to Gomati River Via Ampinagar-Amarpur Road, from Amarpur Hospital Chowmuhani to Gomati River, and from Amarpur Sub-Divisional Hospital to Nalla Via Radha Krishna Mandir. Nearest forest to Amarpur is Paschim Kalajhari Reserve Forest located 10 km, nearest protected area Gumti Wildlife Sanctuary, located within 19 km from the town in southeastern extreme of Tripura.

Bishramganj is a newly constituted Village Panchayat comprising of 3 Gram Panchayats namely Bishramganj, Barjala and Chesrimai. The Bishramganj Gram Panchayat is situated in Charilam block of the district. The Bishramganj Village Panchayat is situated in Sepahijala district, which was earlier a part of West Tripura district. The Bishramganj Village Panchayat (BVP) town is divided into 3 Gram Panchayats namely Bishramganj, Barjala and Chesrimai. The Bishramganj is located at 23.6128° N Latitude and 91. 4003° E Longitude. The town has an average elevation of 8.25 m (with highest elevation being 15.00 m and lowest being 1.50 m). Area of the town is 8.0 sq.km, divided into 19 wards (Bishramganj has 8 nos. ward; Barjala has 5 nos. of ward, and Chesrimai has 6 nos. of ward)., and has a population of 11727 (2011 census). Average annual rainfall of Amarpur is 2000 mm. Proposed Road with side drain is planned, from Priyalal Debbarma house to Bikash Debbarma house, from Lalit Debnath house to Subhash Saha house via Gour Sankar house, from Ramani Paul house to Krishna Debnath house via Sujan Debnath house, from Prahllad Datta house to Nirmal Sutradhar's house, and from Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge. The work is proposed with the ROW of the road. Drain improvement works are planned from Birendra Sarkar to Madhablal Chakraborty, from House of Milan Debnath to Railway Drain, from Shiv Mandir to Railway drain vis house of Nirmal Sarkar, from House of Dilip Debnath to House of Radha Ballav Debnath, from Loknath Sangha (Silatimura) to Rangapania River, from House of Bishnupada Das to Agriculture Land, from House of Sachindra Das to House of Swapan Debnath, Both side Nabatala Club (Samatalamtali Madhyapara), from House of Priya Ranjan Dasmunshi to House of Suraj Deb

Barman, House of Ratan Debnath to Tapas Chakrabarty, from House of Maran Karmakar to Karimura Cheera via House of Nirmal Sutradhar, from Bijoy Dutta House to Bijoy River, from Suraj Dutta House to Itbhata (Karimura Cheera), from House of Samir Sarkar to Ranagapania River, from House of Ramani Pal to House of Hare Krishna Debnath, and from 3 No Purbapara J B School to Raghunath Thakur Para Chera. Nearest protected area to Bishramganj is Sepahijala wildlife sanctuary, located within 5.9 km from the town in Bishalgarh Development Block.

Melaghar is located in Sipahijala district at 23.49°N and 91.33°E in western Tripura. Area of town is 17.99 sq. km divided into 13 wards and has population of 12379 (2011 census). Situated near river Gomati, Annual rainfall in Sepahijala district is 1510.3 to 2935.3 mm between 2013 to 2018. Melaghar is mostly covered by undulating hilly land, although there are some plain lands here and there. Rudrasagar Ramsar protected wetland is within the municipal boundary of Melaghar town. No construction activity considered within Ramsar area of Rudrasagar lake. Nearby road Bhagirath Chowmohuni to Birama Temple is located about 446 m from Rudrasagar lake. Nearby proposed drain Thakurpara Red Lotus Club to Ramthakur Ashram is located about 527 m from Rudrasafar lake. Hence no direct impact is envisaged due to proposed construction activity. Proposed road with side drain is planned, from Melaghar Bishramganj main road (PWD road) to Biswajit Chakraborty house (Arabindapally), from Melaghar hospital to Subal ch. SB school[1], Melaghar - Bishramganj Road (PWD road) to Nikhil Barman house. from Bhagirath Chowmuhani to Veeramma temple, from Charu kabiraj house Samakaji para, and from Melaghar - Bishramganj Road (PWD road) to Nikhil Barman house. The work is proposed with the ROW of the road. Drain improvement works are planned from Melaghar Sonamura Road from AOC to Motor Stand (Northern Side from AOC to Junction of Municipality Road), from Melaghar Sonamura Road from AOC to Motor Stand (Southern Side from AOC to junction of Chandigarh Lane), from AOC to English Medium School (From junction of Melaghar-Sonomura Road near MBC Furniture and Appliance to Junction of Jagannath Bari Road), from AOC to English Medium School (From Jagannath Bari Road to Municipality Road along the side of connecting road), from AOC to English Medium School (From Jagannath Bari Road to Municipality Road along the alignment of existing drain), from Municipality Road to English Medium School (Eastern side- From junction of Municipality Road to English Medium School), from Municipality Road to English Medium School(Western side- From junction of Municipality Road to English Medium School), from Melaghar Sonamura Road from AOC to Motor Stand (Northern Side from Junction of Municipality Road to Hospital Chowmuhani), from Melaghar Sonamura Road from AOC to Motor Stand (Southern Side from junction of Chandigarh Lane to nearby Hospital Chowmuhani), from Netaji Chowmuhani to near House of Upendra Das, from Vivekananda Club to Netaji Chowmuhani via Sukanta Pally, from Hospital Chowmuhani to near House of Priyalal Saha, from Thakurapara Red Lotus Club to Ramthakur Ashram (Eastern Side), from Thakurapara Red Lotus Club to Ramthakur Ashram (Western Side), from Melaghar Sonamura Road from AOC to Motor Stand (Northern Side from Hospital Chowmuhani to Motor Stand), from Melaghar Sonamura Road from AOC to Motor Stand (Southern Side from nearby Hospital Chowmuhani to Motor Stand), from Thakurapara Red Lotus Club to Melaghar Sonamura Road (Eastern Side), from Thakurapara Red Lotus Club to Melaghar Sonamura Road (Western Side), from Vivekananda Pally to Hospital Chowmuhani (Eastern side), from Melaghar Sonamura Road to Post Office via Sanghati Market, and from Padam Dhepa Fishery Samity to Gomati River. Nearest Protected area to Melaghar is Rudrasagar Ramsar Site, located within the town.

Belonia town is in South Tripura District located at 23.25°N and 91.45°E in southern Tripua. Town is on Bank of Muhuri river Average elevation of Belonia is 23 m. The district is divided into two parts, Anticlinal Hill Ranges and Synclinal flat-bottomed valleys. The major hill ranges are

[1] Road already constructed

Baramura and Atharamura. Town area is 5.76 sq. km divided into 17 wards. Population is 10060 (2011 census). Annual rainfall in South Tripua district is 1841.2 to 3228.2 between 2011 to 2018. Proposed road, footpath above side drain is planned (ref DPR for the town), from Bridge no.4 to ITI college via college square & AIR and construction of Interlocking Concrete paver blocks road with drain from Satmura S.B school to AIR. The work is proposed with the ROW of the road. Drain improvement works are planned from Jaganath Bari to Kalinagar Motor Stand via Asit Saha house, South Belonia Corner to SBI Bank, from SBI Bank to Jaganath Bari, from Ram Thakur Ashram to Shelter House, from Vidyasagar Market to Sachin Dev Barman Auditorium, and from the backside of SD Barman Auditorium to Akhandmandali Ashram.

Potential Environmental Impacts and Mitigation measures. Environmental impacts due to the project design or location are not significant as various measures are already included in site planning and preliminary design. All roads' works are planned within the right of way (ROW) of existing roads. Drain will be improved with the existing width and new drains will be within the ROW of existing roads. Necessary drains and cross drainage works are proposed to facilitate surface runoff and mitigate any negative impacts of road improvement. Potential impacts during construction are considered significant but temporary and are common impacts of construction in urban areas, and there are well developed methods to mitigate the same. The roads and roadside drainage will involve straightforward construction and is unlikely to cause significant adverse impact. Construction impacts arise mainly from dust and noise, silt generation, soil and water contamination from chemicals spills and leaks hauling of construction material, waste, and equipment on local roads (traffic, dust, safety etc.), mining of construction material, occupational health, and safety (OHS) aspects. Road and drains work in roads congested with people, activities, and traffic may have impacts arising mainly from the disturbance of residents, businesses, and traffic due to construction work; safety risk to workers, public and nearby buildings due to deep trench excavations in the road; access impediment to houses and business, disposal of large quantities of construction waste etc. There are two protected monuments in Udaipur (Chaturdasha Devata Temple and Gunavati group of temples), and Rudrasagar lake, a Ramsar notified wetland, in Melaghar. In Udaipur no proposed components, road and drain will locate or pass through ASI protected area. Nearby road and drain from Chaturdasa temple is located 70 m and from Gunavati temples is located at 430. No construction activity considered within Ramsar area of Rudrasagar lake at Melaghar town. Nearby road Bhagirath Chowmohuni to Birama Temple is located about 446 m from Rudrasagar lake. Nearby proposed drain Thakurpara Red Lotus Club to Ramthakur Ashram is located about 527 m from Rudrasafar lake. Hence no direct impact is envisaged due to proposed construction activity.

In operation phase there may be requirement of repairs in road and drainage system, maintenance of drain- disposal of drainage sludge etc. Various provisions are already made in the design. It is unlikely that there will be any significant negative impacts.

Environmental Management Plan. An environmental management plan (EMP) has been developed to provide mitigation measures to reduce all negative impacts to acceptable levels, along with the delegation of responsibility to appropriate agency. Various design related measures are already included in the project design. During construction, the EMP includes mitigation measures such as (i) proper planning and scheduling of road and drains works to minimize public inconvenience; (ii) measures to avoid impacts on heritage building and chance find procedures (iii) barricading, dust suppression and noise control measures; (iv) traffic management measures for works along the roads and for hauling activities; (v) occupational and community health and safety, labour welfare, (vi) provision of walkways and planks over trenches to ensure access will not be impeded; (vii) reuse of excavated materials to extent possible, (viii) spill and sediment control measures to avoid water and soil pollution, etc. EMP will guide the environmentally-sound

construction of the subproject. Specific mitigation measures will be applied for project activity near ASI site at Udaipur and Ramsar protected site at Rudrasagar lake, Melaghar. EMP includes a monitoring program to measure the effectiveness of EMP implementation and include observations on- and off-site, document checks, and interviews with workers and beneficiaries. A copy of the updated EMP/ site environmental management plan (SEMP) shall be always kept on-site during the construction period. The EMP will be included in bids and contracts, and implementation shall be binding on contractors.

Implementation Arrangements. Urban Development Department (UDD) of Government of Tripura (GOT) is the executing agency, and the implementing agencies are Tripura Urban Planning and Development Authority (TUDA, for urban component) and Tripura Tourism Development Corporation Limited (TTDCL, for tourism component). A project management unit (PMU) in Agartala and six project implementation units (PIUs, 3 urban and 3 tourism) will be established in Agartala, Udaipur and Kumarghat. Project management and supervision consultant (PMSC) will be engaged to assist PMU and the PIUs. At PMU, the project coordinator will be the nodal officer for environmental, social safeguards and gender and will be responsible for ensuring compliance with ADB's Safeguards Policy Statement (SPS), 2009. An environmental safeguards officer (ESO) will be engaged to support the project coordinator. Project Manager or Assistant Project Manager of PIU will be designated as safeguards focal in each PIU. PMSC team will include an Environmental Safeguards Specialist (ESS), and three support safeguards staff located in PIUs. Contractor will appoint an Environment, Health, and Safety (EHS) cum social supervisor.

Consultation, Disclosure. The stakeholders were involved in developing the IEE through FGD and public consultation at project area level, after which views expressed were incorporated into the IEE and in the planning and development of the project. Focus Group Discussions (FGDs) and stakeholder consultations have been conducted in five towns: **Udaipur** –January, September & November in 2021; March 2022; March, April & May in 2023 with 196 participants (93 male and 103 female). In addition, consultation has been done with Chaturdash Devta temple staff and ASI local area office at Udaipur. **Amarpur:** November & December 2021; and February & March in 2022 with 94 participants (52 male and 42 female). **Bishramganj:** April, September & October in 2022 and April 2023 with 111 participants (55 male and 56 female). **Melaghar**: March 22 and March & April 2023 with 94 participants (52 male and 42 female) and **Belonia**: March 2021; January, February & March 2022; April 2023 with 130 participants (105 male and 25 female). All participants are expressed need for the project and willingness to take it up and stakeholders were very supportive for the project and promises to extend full cooperation during the construction phase as the activities are proposed to improve the road and drainage conditions and living standard.

Monitoring and Reporting. The PMU, PIU and consultants will be responsible for monitoring and reporting. During construction, results from internal monitoring by the contractor will be reflected in their monthly EMP implementation reports to the PIU. PIU, with the assistance of PMSC, will monitor the compliance of contractors, prepare a quarterly monitoring report and submit to PMU. The PMU will oversee the implementation and compliance and will submit semi-annual environmental monitoring reports to ADB. SEMRs will be disclosed on ADB and project websites.

Conclusions. The proposed project is unlikely to cause significant adverse impacts, and potential impacts are mainly due to construction and can be mitigated or minimized to acceptable levels through measures included in the EMP. The citizens of **Udaipur, Amarpur, Bishramganj, Melaghar and Belonia** be the major beneficiaries. The subproject is primarily designed to

improve environmental quality and living conditions of these towns through provision of good road and drain. The benefits arising from this subproject include:(i) increased connectivity; (ii) reduced time of water stagnation time during monsoon time; (iii) better public health particularly reduction in waterborne and infectious diseases.

Based on the findings of the IEE, the classification of the project as Category “B” is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS (2009) or GoI EIA Notification (2006). This IEE needs to be updated during the project implementation in case of change in scope, location; will be reviewed, and approved by ADB, and disclosed accordingly in ADB and project website.

I. INTRODUCTION

A. Tripura Urban and Tourism Development Project (TUTDP)

1. Proposed Tripura Urban and Tourism Development Project (TUTDP) will improve the municipal infrastructure and public services and will lay the foundation for tourism development in the State of Tripura. Tripura is in the Northeast Region (NER) of India, covering an area of 10,490 square km, with a population of 4.1 million (estimated 2022), and Agartala as the state's capital. The project targets key urban local bodies (ULBs) along the Northeast Economic Corridor (NEEC), major infrastructure components of which include water supply, stormwater drainage, communal or neighbourhood roads, and tourism development support. Government of Tripura acting through Urban Development Department (UDD) will be the project executing agency. Tripura Urban Planning and Development Authority (TUDA) and Tripura Tourism Development Corporation Limited (TTDCL) will be the implementing agencies.

2. The project is aligned with the following impact(s): clean and sustainable environment in ULBs achieved, and Tripura increasingly recognized in the India tourism industry as a new destination.[2] The project will have the following outcome: Adequate, safe, and climate- and disaster-resilient, urban services (water, storm drainage, and municipal roads) provided and sustainable tourism improved in project areas.[3]

3. **Output 1: Municipal reforms and capacity of ULBs strengthened.** The project will strengthen (i) the capacity of technical staff in project management and operation and maintenance (O&M) of urban infrastructure; (ii) ULB own-source revenue generation, financial management and accounting reforms; (iii) advisory support for city-wide inclusive sanitation for ULBs that complements government financing scheme;[4] (iv) integration of climate change- and disaster resilience in urban planning with universal design consideration, and gender equality and social inclusion (GESI) analysis and (v) support to developing building regulations and building byelaws for the state.

4. **Output 2: Urban infrastructure improved.** The project will improve various public infrastructures, such as (i) water supply, (ii) stormwater drainage, and (iii) municipal roads.

5. **Output 3: Tourist destinations improved.** The project will strengthen public infrastructure that is vital for ecotourism such as (i) tourism destination development with climate resiliency and green infrastructure retrofitting; (ii) museum development at the Neermahal Palace (iii) Improved tourist accommodation and family oriented-Adventure Park; and (iv) Tourism-related goods and equipment for selected tourism destinations.

6. **Output 4: Capacity of tourism development corporation's operational services improved**. Tripura tourism through TTDCL will (i) develop a 10-year business plan including marketing and coordination with the private sector (including exploring outsourcing and O&M of tourism facilities and assets for local business, small and medium enterprise opportunities for women), (ii) demonstrating community-based tourism development (iii) stakeholder tourism capacity and skill development program, (iv) marketing and tourism promotion activities.

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[2] Government of India, Ministry of Housing and Urban Affairs. 2015. *Smart Cities Mission Guidelines*. Delhi; Government of Tripura, Department of Tourism. 2020. *Tourism Policy 2020–2025*. Agartala.

[3] The design and monitoring framework is in Appendix 1 of PAM.

[4] ADB is working with Global Water and Sanitation Center under Bill and Melinda Gates Foundation to provide CWIS support preliminary study for 2 towns that would be potentially financed in the planned Phase 2

7. Under phase 1 of project, 12 towns have been selected for improvement of water supply, roads, and storm water drains. Improvement of **roads and storm water drains** in **Udaipur, Amarpur, Bishramganj, Melaghar and Belonia** towns (Package R&D/02) is one of the subprojects proposed under the TUTDP.

B. Purpose of Initial Environmental Examination Report

8. As per ADB's Safeguards Policy Statement, 2009, ADB requires the consideration of environmental issues in all aspects of the Bank's operations. Using rapid environmental assessment (REA) checklist (Error! Reference source not found.*)*, subproject is unlikely to cause significant adverse impacts, and classified as **Category B** and per ADB SPS requirements this IEE is conducted.

C. Scope of IEE

9. The subproject will be implemented under the Item Rate Contract modality. Thus, this IEE is based on the project design report. The IEE is prepared mainly based on field reconnaissance surveys and secondary sources of information. Stakeholder consultation was an integral part of the IEE. IEE will be updated during implementation if there are any changes in project scope, design or sites updates will supersede the earlier version.

D. Report Structure

10. This Report contains the following sections:

(i) Executive summary;
(ii) Introduction;
(iii) Description of the project;
(iv) Analysis of alternatives;
(v) Policy, legal and administrative framework;
(vi) Description of the environment;
(vii) Anticipated environmental impacts and mitigation measures;
(viii) Public consultation and information disclosure;
(ix) Grievance redress mechanism;
(x) Environmental management plan; and
(xi) Conclusions and recommendations.

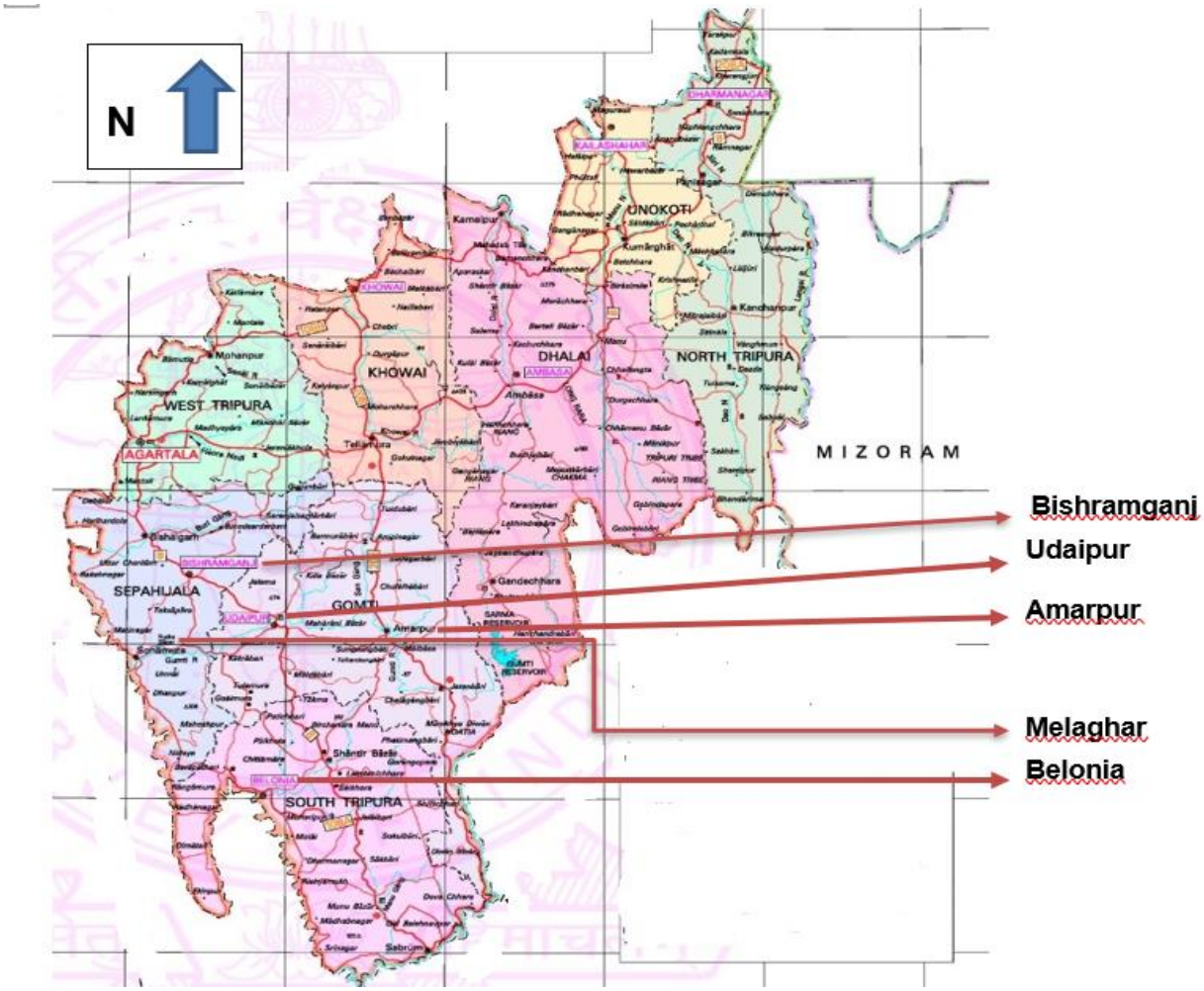
II. DESCRIPTION OF THE PROJECT

A. Project Location

11. Project towns **Udaipur, Aparpur, Bishramganj, Melaghar and Belonia** are located in Tripura state in northeast India. It is bordered by Assam and Mizoram to the east and by Bangladesh to the north, south and west. Agartala is the capital and the largest city in the state. **Udaipur** is a town located at 23.53°N and 91.48°E and is about 53 km from Agartala. Town area is 6.10 sq. km divided into 23 wards. Population is 32,758 (2011 census). **Amarpur** is a town located at 23.53°N and 91.64°E and is about 77 km from Agartala. Town area is 3.4 sq. km divided into 13 wards. Population is 10,838 (2011 census). **Bishramganj** is a newly constituted Village Panchayat comprising of 3 Gram Panchayats namely Bishramganj, Barjala and Chesrimai. is located at 23.6128° N and 91. 4003° E and is about 28 km from Agartala. Town area is 8 sq. km divided into 19 wards. Population is 11,727 (2011 census). **Melaghar** is a town located at 23.49°N

and 91.33°E and is about 50 km from Agartala. Town area is 17.99 sq. km divided into 13 wards. Population is 12,379 (2011 census). **Belonia** is a town located at 23.2505° N and 91.4676° E. and is about 90 km from Agartala. Town area is 5.76 sq. km divided into 17 wards. Population is 10,060 (2011 census). **Figure 1** presents the location of subproject towns.

Figure 1: Geographical Location of Subproject towns on State map of Tripura



Source - https://surveyofindia.gov.in

B. Existing Urban Road and Drain Situation

1. Overview of Existing Road

12. In all the five towns existing condition of roads within the town area is in good condition with the pavement of bituminous macadam pavement, CC road paver block and brick soled. However, few roads are found to be damaged. ROW is varying from 5.0 to 12.0 m whereas carriageway width is varying from 3.75 to 6 m in **Udaipur,** ROW is varying from 4.5 to 12.0 m whereas carriageway width is varying from 3.2 to 5.0 m in **Amarpur**, ROW is varying from 4.0 to 8.0 m whereas carriageway width is varying from 3.0 to 5.0 m in **Bishramganj**, ROW is varying from 5.5 to 14.5 m whereas carriageway width is varying from 3.0 to 11.0 m in **Melaghar** and

ROW is varying from 3.0 to 24.0 m whereas carriageway width is varying from 2.5 to 10 m in **Belonia**. The summary of existing roads in five towns are presented in Table 1.

Table 1: Summary of existing urban/ semi urban and village panchayat roads infrastructure in cluster IIA towns

Parameter	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
Total length of major roads	52.00 Km	5.4 Km	17 Km	2.5 Km	40.49 KM
Total length of other roads	72.45 Km	24.25 Km	21 Km	28.5 Km	39.02 Km
Details of right of way of roads	Varying from 5 to 12 m	Varying from 4.5 to 12 m	Varying from 4 to 8 m	Varying from 5.5 to 14.50 m	Varying from 3m to 24 m
Average width of carriage way (including municipal road, NH/SH/MDR/ODR)	Varying from 3.75 to 6 m	Varying from 3.2 to 5 m	Varying from 3 to 5 m	Varying from 3 to 11 m	Varying from 2.5 to 10 m
Details of road Pavement (Type and condition):	Bituminous macadam pavement, CC, Soling & All roads are in good condition	Bituminous macadam pavement: Not in good condition, Cc Road: Good condition	Bituminous, Cement concrete and soling	Brick soling, Bituminous macadam pavement, all roads are in good condition.	Brick soling, Bituminous macadam pavement, all roads are in good condition
Total length of *Kucha* Road	5.3 km	-	-	25 km.	8 km.
Total numbers of signalized intersections	2 Nos.	1 no.	No Traffic Signalling System	1 no.	1 no
Mode of public transportation available	Public transport like auto Rickshaw, E-Rickshaws, Rickshaw and Maruti car/Van.	Govt./private intercity bus service, private Auto & others private 4-Wheeler vehicle	Govt./private intercity bus service, private auto & Others private 4-Wheeler Vehicle	Govt./private intercity bus service, private Auto & Others private 4-Wheeler Vehicle	Govt./private intercity bus service, private Auto & Others private 4-Wheeler Vehicle

Source- DPR of Cluster IIA towns

2. Overview of the Existing Drainage System

13. The existing storm water drainage system in these town is piecemeal construction of open drains as per lo cal and temporary requirements without proper whole to part designs. Currently, rainwater during monsoon season flows toward the sides of the road which have lower elevation and then flows to nearby low-lying lands or ponds. These low laying land and ponds serve as rainwater conveyance, passageway, waterlogging areas during monsoon seasons and practically dry grassy ditches or fields during summer seasons. The town has mainly open drains. Summary of the existing drains are given below:

Table 2: Summary of Existing Drains Infrastructure in Cluster IIA towns

Parameter	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
Total length of drains in the town:	104.5 km (mixed i.e., both side and one side of the road)	15.8 km (mixed i.e., both side and one side of the road)	34 km (Part Portion both sides of the road)	6.5 km	157.0 km
Coverage of existing drains with respect to road network:	59.22 %	45%	33.3%	19.40 %	100%
Area coverage of storm water drainage network in the town	4.27 sq. km (stormwater catchment area as per UMC record)	60%	-	70%	-
Length of existing natural and manmade major drains	Manmade: 98.20 km Natural: 5.3 km	Total 15.8 km	Natural = 27 km, and Manmade = 15 km	Manmade: 3.5 km Natural: 3.0 km	Manmade: 82.15 km Natural: 74.85 km
Types of drains	• Brick masonry drain, • R.C.C. drains and • Earthen drain (Covered and Open).	• Brick masonry drain, • R.C.C. drains and • Earthen drain (Covered and Open).	• Brick masonry drain, • R.C.C. drains and • Earthen drain (Covered and Open).	• Brick masonry drain, • R.C.C. drains and • Earthen drain (Covered and Open).	• Brick masonry drain, • R.C.C. drains and • Earthen drain (Covered and Open).
Maximum and minimum sizes of drains:	Minimum Size: 0.30 m X 0.30 m and Maximum Size: 1.2 m X 1.5 m	Minimum: 0.60mx0.45 m and Maximum-2.00mx3.00 m	Minimum = 0.30 m and Maximum = 1.50 m	Minimum Size: 0.30 m X 0.30 m and Maximum Size: 1.2 m X 1.5 m	Minimum Size: 0.60m X 0.70m and Maximum Size: 1.50m X 1.50m
Location of disposal points of drains	To Dead River (Mora Gang) and Sukhsagar Jala	Gomati River	Paddy field / *Cherra* / Longa	Rudrasagar Lake, Fishery Lake, Gomati River.	Muhuri River
Details of locations for chocking of drains due to solid waste:	Ward 14 – Vivekananda Pally Ward- 01, 09, 13, 18, 19 & 20.	Ward-10,5,3.	Baitang Bari, Uttar Para Bhatta, Samatal Para, Jor Pukur Baloachari, Thalabanga	Ward- 05, 08, 09 & 11.	West zone and North Zone – ward no. 1 to 5
How many times a year flooding occurs	1-2 times	4- 5 times	2 -3 times	1 -2 times	4- 5 times

Parameter	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
Final discharge	Gomati River, Suksagar Jala	Gomati River through various *Cherra*	Ranagapania River	Gomati River	Muhuri River

14. At present there is no existing sewerage system and mostly five towns depend on septic tank arrangement. There are few drainage lines which are laid by ULB or by PWD.

C. Proposed Project

1. Road infrastructure

15. Most of the length of subproject road runs through plain terrain cutting across towns. Keeping in view that the lack of adequate road infrastructure and availability of adequate right of way (ROW) of roads as mentioned in the subproject component list, project sites have been identified for its detailed improvement with construction of roads with inter-locking concrete paver blocks. These proposed road sections shall be included the roadside drain on one side and catchpits on the other sides of the section as per design.

Table 3: Proposed Road list – Udaipur, Amarpur, Bishramganj, Melaghar and Belonia

Sl. No.	Road From-To	Proposed works	Existing ROW (M)	Proposed ROW (M)	Proposed carriage way width (M)	Side drain width (M)	Road Length (M)
Udaipur Road -							
1	From NH-08 to house of Mrinal Kanti Das, Ward No - 01	Works: Interlocking concrete paver blocks (ICB) pavement (replacement of kuccha, brick road), strengthening of road as per requirement within existing ROW.	3.0	3.0	3.0	0.4	134.0
2	From house of Sunil Debnath to house of Sultan Miah Ward No - 16		3.0	3.0	3.0	0.4	194.0
3	New Road from Gonida Dey to Housing Board. Ward no- 02		2.5	2.5	2.5	0.4	223.0
Total Road Length - Udaipur							**551.0**
Udaipur Footpath -							
1	Footpath from Bridge chowmuhani to R.K Pur P.S corner	Works: Footpath with paver block titles over Drain	10	10	1.2 (Footpath width)	1.2	1210.0
2	Footpath along the Central Road		10	10			530.0
3	Footpath from Shitlbari to Brahmabari		10	10			1230.0
Total Footpath length - Udaipur							**2970.0**
Amarpur Road							

Sl. No.	Road From-To	Proposed works	Existing ROW (M)	Proposed ROW (M)	Proposed carriage way width (M)	Side drain width (M)	Road Length (M)
1	Rangamati bridge to Takcherra bridge	Works: Bituminous pavement after geometric correction – Rehabilitation. With both side footpath and covered drain below footpath.	12	12	7.5	1.2	1740.0
Total Road length- Amarpur							**1740.0**
Bishramganj Road							
1	Priyalal Debbarma house to Bikash Debbarma house	Works: Interlocking concrete paver blocks (ICB) pavement (replacement of kuccha/ semi pucca road- brick road including construction of part of new road), strengthening of road as per requirement within existing ROW	4	4	3	0.4	359.49
2	Lalit Debnath house to Subhash Saha house via Gour Sankar house		4	4	3	0.4	621.50
3	Ramani Paul house to Krishna Debnath house via Sujan Debnath house		4	4	3	0.4	443.77
4	Prahllad Datta house to Nirmal Sutradhar's house		4	4	3	0.4	217.36
5	Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge		4	4	3	0.4	1320.10

Sl. No.	Road From-To	Proposed works	Existing ROW (M)	Proposed ROW (M)	Proposed carriage way width (M)	Side drain width (M)	Road Length (M)
Total Road Length - Bishramganj							**2962.22**
Melaghar Roads							
1	Melaghar Bishramganj main road (PWD road) to Biswajit Chakraborty house (Arabindapally)	Works: Interlocking concrete paver blocks (ICB) pavement (replacement of kuccha/ semi pucca road- brick road including construction of part of new road), strengthening of road as per requirement within existing ROW	4	4	3	0.4	527.36
2	Melaghar hospital to Subal ch. SB school*		4	4	3	0.4	912.73
3	Bhagirath Chowmuhani to Veeramma temple		4	4	3	0.4	1042.52
4	Charu kabiraj house Samakaji para		4	4	3	0.4	1002.10
5	Melaghar - Bishramganj Road (PWD road) to Nikhil Barman house.		4	4	3	0.4	323.62
Total Road Length - Melaghar							**3808.33**
Belonia roads							
1	Bridge no.4 to ITI college via college square & AIR – R1	Works: Bituminous pavement after geometric correction – Rehabilitation. Construction of both side footpath.	12	12	8 Footpath – 1.2 m wide	1.2	2421.0
2	Satmura S.B school to AIR road- R2	Works: Interlocking concrete paver blocks (ICB) pavement (replacement of kuccha/ semi pucca road- brick road), strengthening of road as per	4	4	3	0.4	758.0

Sl. No.	Road From-To	Proposed works	Existing ROW (M)	Proposed ROW (M)	Proposed carriage way width (M)	Side drain width (M)	Road Length (M)
		requirement within existing ROW					
Total Road and footpath Length - Belonia							**3179.0**

Note - Road is already constructed*

2. Proposed Cross Section Details for Road

16. Cross section of Bituminous Road for geometric correction is shown in **Figure 5.** Cross section of ICB pavement with drain is shown in **Figure 4**. Cement concrete paver blocks is proposed for the major part of the project road. The guidelines contained in IRC: SP: 63-2018 are applicable for Interlocking concrete paver block pavements.

17. For Interlocking paver block the thickness required is 80 mm as per IRC 63. To suit the site condition in individual town, it is proposed to have 5 types of road improvement work having 5 different types of thickness.

18. The proposed project roads of all five Cluster IIA towns having a 2.5 m to 4.0 m carriageway width. Cement concrete paver blocks is proposed for the major part of the project road. The guidelines contained in IRC: SP: 63-2018 are applicable for Interlocking concrete block pavements with average of 10 Msa. Pavement composition of ICB pavement is given below:

(i) Block thickness- 80mm
(ii) Sand Bed- 40mm
(iii) WBM/WMM-250mm
(iv) GSB-200 mm
(v) Sub-Grade-300mm

19. *Design Details of Footpath*- A footpath will consist of a dead or frontage zone, pedestrian zone and a multi-functional zone. Paving of footpath should have an even surface to prevent tripping (as referred in IRC-SP-50) and be laid to even fails to allow proper drainage and prevent the formation of puddles. The gap between paving slabs or any vertical deviation between slabs should not be exceed 5 mm. The recommended material for footpath shall be Interlocking concrete paver blocks (ICB) as per IRC-SP-63-2018. These ICB shall be placed with sand bed over the RCC cover of the drain along the project stretch. The capacity and width of footpath, mentioned in IRC- 103, 2012.

3. Proposed Drainage System

20. Type of drainage cross sections proposed in towns are as follows, drawings of these typical cross sections are given in Figure 10.

(i) Type A - Typical Arrangement of Storm Water Drain Along Both Side of Road with Catch Pit (Drain Width Bellow 1.00 m)
(ii) Type B - Typical Arrangement of Storm Water Drain Along Both Side of Road with Catch Pit (Drain Width Above 1.00 m)

(iii) Type C - Typical Arrangement of Storm Water Drain Along Both Side of Road without Catch Pit and Drain Top Level Flashing. Finished Road Level (Drain Width Bellow 1.00 m)

(iv) Type D - Typical Arrangement of Storm Water Drain Along Both Side of Road without Catch Pit and Drain Top Level Flashing. Finished Road Level (Drain Width Above 1.00 m)

(v) Type E - Typical Arrangement of Storm Water Drain Along One Side of Road with Catch Pit connected from other side of road and Drain Top Level Flashing. Finished Road Level (Drain Width Bellow 1.00 m)

(vi) Type F - Typical Arrangement of Storm Water Drain Along One Side of Road with Catch Pit connected from other side of road and Drain Top Level Flashing Finished Road Level (Drain Width Above 1.00 m)

(vii) Type-G - Typical Arrangement of Storm Water Drain Along Both Side of Road with Out Catch Pit and Drain Top Slab Flashing with Finished Road Level With 1 M Height Earth Retaining Wall (Drain Width Below 1.00 M)

(viii) Type-H **-** Typical Arrangement of Storm Water Drain Along Both Side of Road with Out Catch Pit and Drain Top Slab Flashing with Finished Road Level With 2 M Height Earth Retaining Wall (Drain Width Below 1.00 M).

4. Udaipur

21. The subproject area covers the part of Ward 1, 2, 3, 4, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 22 and 23 of UMC area. Total area coverage under this catchment is about 219 ha with a design population (2053 AD) of about 20,078.

22. The entire sub-project area has been divided into five numbers of drainage catchment depending on the drainage outlet as mentioned below:

(i) Outfall 1 area Catchment (OF1) - The catchment, located to the eastern side of UMC area, covers the part of Ward 9 & 22. Final outfall at Sukhsagar Jala.

(ii) Outfall 2 area Catchment (OF2) - The catchment, located to the Northern & Slightly Western side of UMC area, covers the part of Ward 2, 3 & 4. Final outfall at Gomati River.

(iii) Outfall 3 area Catchment (OF3), - The catchment, located to the Northern side of UMC area, covers the part of Ward 3, 4, 5 & 6. Final outfall at Gomati River.

(iv) Outfall 4 area Catchment (OF4) - The catchment, located to the Northern & Eastern side of UMC area, covers the part of Ward 6 & 8. Final outfall at Sukhsagar Jala.

(v) Outfall 5 area Catchment (OF5) - The catchment, located to the Western & Southern side of UMC area, covers the part of Ward 15, 16, 17 & 19 and some portion of outside of ULB. Final outfall at Gomati River.

23. Length of storm water drain to be implemented under the package at **Udaipur** is given below (Table 4). The main proposed storm water drains to be implemented within the project area are as follows (Table 5).

Table 4: Length of storm water drain to be implemented under the package (m)

Description	Catchments					TOTAL
	O-1	O-2	O-3	O-4	O-5	
RCC Box Drain (1000 mm & above) (m)	0	456	53	1400	500	2411
RCC Box Drain (below 1000 mm) (m)	2018	1462	1302	699	0	5481
Total Length (M)	**2018**	**1918**	**1355**	**2099**	**500**	**7892**

Table 5: Section of proposed stormwater drain to be implemented within project area- Udaipur

Catchment	Implemented Drains	Outfall Point		Length In M	Existing Drain Condition	ROW		Section (MM*MM) [Varying] WIDTHX DEPTH- RCC covered Drain	Drain Type of RCC Covered drain *
		Proposed Drain- existing outfall	Final Outfall			Existing width	Proposed width		
O-1 Catchment Area	Shitalbari to Brahmabari to Sukhsagar Jola- D1	Near to Sagar hotel 23°31'48.06"N 91°29'50.28"E	Gomati river	2018	Open cemented, partly covered, Earthen drain some part	1.8m	0.8m - 1.4m	(800*600) to (1400*1600)	Type-A
O-2 Catchment Area	Bridge Chowmuhani to Gada Chowmuhani Saw Mill Road to Gomati River- D2	Gomati river crossing Loknath Ashram 23°32'47.35"N, 91°29'1.86"E	Gomati River	1918	Covered cemented drain, open cemented drain mostly	0.5m	0.6m-1.4m	(600*600) to (1400*1200)	Type-A and Type-B
O-3 Catchment Area	Central Road to Gomati River- D3	Near to hanging bridge in Gomati river 23°32'29.39"N 91°29'37.17"E	Gomati River	1357	Covered cemented drain	1m	0.6m-1.4 m	(600*600) to (1400*1200)	Type-A and Type-B
O-4 Catchment Area	Central Road to Sukhsagar Jola- D4	Opposite side of rajarshi hall 23°31'41.92"N 91°29'40.92"E	Gomati River	2099	Covered and Open cemented drain	1.5m	0.6 m-1.4m	(600*600) to (1400*1000)	Type-B
O-5 Catchment Area	Ramesh Chowmuhani to Gomati River- D5	Gomati river 23°31'45.58"N 91°28'17.05"E	Gomati River	500	Kutcha earthen drain mostly	3m	3m	(3000*2500)	Type-B

Catchment	Implemented Drains	Outfall Point		Length In M	Existing Drain Condition	ROW		Section (MM*MM) [Varying] WIDTHX DEPTH-RCC covered Drain	Drain Type of RCC Covered drain *
		Proposed Drain-existing outfall	Final Outfall			Existing width	Proposed width		
Total				**7892**					

(* cross section type shown in **Figure 10**
Provision of catchpit as per design and drainage location)

5. Amarpur

24. The subproject area covers the wards nos. 1,2, and 5 to 13. Total area coverage under the catchment is about 146.6 ha with a design population (2053 AD) of about 16317.

25. The entire sub-project area has been divided into five numbers of drainage catchment depending on the drainage outlet as mentioned below:

(i) **English Medium School to Gomati River via Tri-Junction Catchment (OF-1)** – The catchment, located to the eastern side of Amarpur NP area, covers the ward no 10 and parts of Ward 5,8,9,11,12 and 13. Final outfall at Gomati River

(ii) **Amarsagar Lake to Chhara via Shankar Saha House Catchment (OF-2)-** The catchment, located to the northern side of Fatiksagar lake in Amarpur NP, covers the parts of ward nos. 1, 6, & 8. Outfall at unkown *Chhara*.

(iii) **Amarsagar Lake to Gomati River via Ampinagar-Amarpur Road Catchment. (OF-3)** - The catchment, located to the North-eastern part of the Amarpur NP, covers the ward nos. 1 and 2. Final outfall at Gomati River

(iv) **Amarpur Hospital Chowmuhani to Gomati River Catchment. (OF-4)-** The catchment, located to the northwestern area of Fatiksagar Lake in Amarpur NP, covers the ward 11 partly. Final outfall at Gomati River

(v) **Amarpur Sub-Divisional Hospital to Nalla via Radha Krishna Mandir Catchment. (OF-5) -** The catchment, located to the western area of Fatiksagar Lake in Amarpur NP, covers the ward 7 partly. No designated outfall.

26. Length of storm water drain to be implemented under the package at Amarpur is given below (Table 6). The main proposed storm water drains to be implemented within the project area are as follows (Table 7).

Table 6: Length of storm water drain to be implemented under this project area- Amarpur

Description	Catchments					TOTAL
	English Medium School to Gomati River Via Tri-Junction Catchment	Amarsagar Lake to Chhara Via Shankar Saha House Catchment	Amarsagar Lake to Gomati River Via Ampinagar-Amarpur Road Catchment.	Amarpur Hospital Chowmuhani to Gomati River Catchment.	Amarpur Sub-Divisional Hospital to Nalla Via Radha Krishna Mandir Catchment	
RCC Box Drain (1000 mm & above) (m)	990	0	210	0	30	1230
RCC Box Drain (below 1000 mm) (m)	1850	850	370	340	270	3680
Total Length (M)	**2840**	**850**	**580**	**340**	**300**	**4910**

Table 7: Section of proposed stormwater drain to be implemented within Amarpur

Catchment	Implemented Drains	Outfall Point		Length In M	Existing Drain Condition	ROW		Section (MM*MM) [Varying] WIDTHXDEPTH-RCC covered Drain	Drain Type of RCC Covered Drain*
		Proposed Drain-Existing outfall	Final outfall			Existing width	Proposed width		
English Medium School to Gomati River Via Tri-Junction Catchment	English Medium School to Gomati River via Tri-Junction- D1	Near Gomati River 23°31'5.50"N 91°39'38.92"E	Gomati River via various *Cherra*	2840	Kutcha earthen drain and partly open cemented drain	3m	0.3m-2m	(300x300 mm) to (2000x1900 mm)	Type-A and Type-B
	Combined Chandimata Temple to the House of Akhil Das via Amarpur-Teliamura Rd- D1	Near Chandimata temple crossing Baishakhi 23°31'20.48"N 91°39'25.32"E	Gomati River via various *Cherra*		Covered cemented brick drain	3m	0.6m-0.9m	(600x600 mm) to (900x600 mm)	Type-A
Amarsagar Lake To Chhara Via Shankar Saha House Catchment	Amarsagar Lake to Chhara Via Shankar Saha House- D2	Near Chhara (about 75m from Gomati river) 23°31'17.67"N 91°39'7.88"E	Gomati River via various *Cherra*	850	Covered cemented brick drain, earthen drain partly	4.5m	0.9m	(900x600 mm) to (900x1200 mm)	Type-A
Amarsagar Lake To Gomati River Via Ampi-Nagar-Amarpur Road Catchment.	Amarsagar Lake to Gomati River Via Ampinagar-Amarpur Road- D3	Near Gomati river 23°31'42.56"N 91°39'9.77"E	Gomati River via various *Cherra*	580	Open cemented brick drain, earthen drain partly	2.5m	0.9m - 1m	(700x600 mm) to (1000x1200 mm)	Type-A
Amarpur Hospital Chowmu-Hani To Gomati River Catchment.	Amarpur Hospital Chowmuhani to Gomati River- D4	Cherra connecting Gomati river 23°30'54.21"N	Gomati River via various *Cherra*	340	Open cemented brick drain, earthen drain partly	1.5m	0.6m	(600x600 mm)	Type-A

Catchment	Implemented Drains	Outfall Point		Length In M	Existing Drain Condition	ROW		Section (MM*MM) [Varying] WIDTHXDEPTH-RCC covered Drain	Drain Type of RCC Covered Drain*
		Proposed Drain-Existing outfall	Final outfall			Existing width	Proposed width		
		91°38'59.08" E							
Amarpur Sub-Divisional Hospital To Nalla Via Radha Krishna Mandir Catchment	Amarpur Sub-Divisional Hospital to Nalla Via Radha Krishna Mandir- D5	Near Chherra 23°30'57.78" N 91°38'55.74" E	Gomati River via various *Cherra*	300	Open cemented brick drain, earthen drain mostly	1.5m	0.9m -1m	(900x600 mm) to (1000x1000 mm)	Type-A
Total				**4,910**					

(* cross section type shown in Figure 10
Provision of catchpit as per design and drainage location)

6. Bishramganj

27. This sub project primarily focuses on the Drainage development works within 15 numbers of catchment in Bishramganj village panchayat. The area of Bishramganj village panchayat comprises under three nos. of GP Chesrimai (CM) (6 nos. ward), Barjala (BJ) (5 nos. ward) and Bishramganj (BG) (8 nos. ward).

(i) **Catchment 1-** Catchment 1 covers the area of Ward CM-3 which belongs to Chesrimai gram panchayat. Drain 1 belongs to this catchment
(ii) **Catchment 2-** Catchment 2 covers the area of Ward CM-6 which belongs to Chesrimai gram panchayat. Drain 2 and 3 belongs to this catchment
(iii) **Catchment 3 -** Catchment 3 covers the area of Ward CM-1 which belongs to Chesrimai gram panchayat. Drain 4 belongs to this catchment.
(iv) **Catchment 4-** Catchment 4 covers the area of Ward BG-1 which belongs to Bishramganj village panchayat. Drain 4C and Drain 11 belongs to this catchment
(v) **Catchment 5-** Catchment 5 covers the area of Ward CM-1 which belongs to Chesrimai gram panchayat. Drain 5 belongs to this catchment.
(vi) **Catchment 6-** Catchment 6 covers the area of Ward CM-3 which belongs to Chesrimai gram panchayat. Drain 6 belongs to this catchment.
(vii) **Catchment 7 -** Catchment 7 covers the area of Ward CM-2 which belongs to Chesrimai gram panchayat. Drain 7 belongs to this catchment.
(viii) **Catchment 8-** Catchment 8 covers the area of Ward CM-1 which belongs to Chesrimai gram panchayat. Drain 8 belongs to this catchment.
(ix) **Catchment 9-** Catchment 9 covers the area of Ward BG-2 which belongs to Bishramganj village panchayat. Drain 9 belongs to this catchment.
(x) **Catchment 10-** Catchment 10 covers the area of Ward BG-8 which belongs to Bishramganj village panchayat. Drain 10 belongs to this catchment.
(xi) **Catchment 11-** Catchment 11 covers the area of Ward BG-3 which belongs to Bishramganj village panchayat. Drain 12 belongs to this catchment.
(xii) **Catchment 12-** Catchment 12 covers the area of Ward BG-3 which belongs to Bishramganj village panchayat. Drain 13 belongs to this catchment.
(xiii) **Catchment 13-** Catchment 13 covers the area of Ward BG-1 which belongs to Bishramganj village panchayat. Drain 14 belongs to this catchment.
(xiv) **Catchment 14-** Catchment 14 covers the area of Ward BJ-3 which belongs to Barjala gram panchayat. Drain 15 belongs to this catchment.
(xv) **Catchment 15-** Catchment 15 covers the area of Ward BJ-1 which belongs to Barjala gram panchayat. Drain 16 belongs to this catchment.

28. The main proposed storm water drains to be implemented within the project area are as follows (Table 8).

Table 8: Length of Storm water Drain to be implemented under the Package- Bishramganj village panchayat

Catchment	Implemented Drains	Outfall Point		Length In M	Existing Drain Condition	ROW		Section (MM*MM) [Varying] Width x depth- RCC Covered Drain	Drain Type of RCC Covered Drain*
		Proposed Drain- Existing outfall	Final Outfall			Existing width	Proposed width		
Chesrimai									
Catchment 1	Drain 1: Birendra Sarkar to Madhablal Chakraborty	Near pond side area 23°37'38.29"N 91°19'42.90"E	Ranagapania River via various *cherra*	143.1	Kachha earthen drain	0.4m	0.3m	(300x300 mm) to (300x450 mm)	Type-E
Catchment 2	Drain 2 & 3 combined: From House of Milan Debnath to Railway Drain	Near Railway drain 23°37'47.55"N 91°18'21.01"E	Ranagapania River via various cherra	118.6	Kachha earthen drain Some part no drain	0.4m	0.3m	(300x300 mm) to (300x450 mm)	Type-E
Catchment 3	Drain 4: From Shiv Mandir to Railway drain vis house of Nirmal Sarkar	Nearby railway drain 23°37'48.02"N, 91°18'21.19"E	Ranagapania River via various cherra	437.4	Partly Kacha and partly cemented Some part no drain	0.65m	0.3m	(300x300 mm) to (300x450 mm)	Type-E
Catchment 5	Drain 5: House of Dilip Debnath to House of Radha Ballav Debnath	Nearby field 23°37'53.11"N, 91°18'39.66"E	Ranagapania River via various cherra	300.3	No existing drain	-	0.3m	(300x300 mm) to (300x450 mm)	Type-E
Catchment 6	Drain 6: From Loknath Sangha (Silatimura) to Rangapania River	Near Agartala-sabroom high road side drain connecting Rangapania river 23°38'0.17"N 91°19'13.83"E	Ranagapania River via various cherra	735.1	Kachha earthen drain	0.5m	0.3m - 0.4m	(300x430 mm) to (400 x 605mm)	Type-E
Catchment 7	Drain 7: From House of Bishnupada Das to Agriculture	Nearby Agricultural land 23°37'54.99"N, 91°18'52.88"E	Ranagapania River via various cherra	284.8	No existing drain	-	0.3m	(300x520 mm) to (300x450 mm)	Type-E

Catchment	Implemented Drains	Outfall Point		Length In M	Existing Drain Condition	ROW		Section (MM*MM) [Varying] Width x depth- RCC Covered Drain	Drain Type of RCC Covered Drain*
		Proposed Drain- Existing outfall	Final Outfall			Existing width	Proposed width		
	Land								
Catchment 8	Drain 8: House of Sachindra Das to House of Swapan Debnath	Near pond 23°37'56.65"N, 91°18'43.71"E	Ranagapania River via various cherra	487.4	Kachha earthen drain	0.8m	0.3m - 0.4m	(300x410 mm) to (400 x 605mm)	Type-E
Barjala									
Catchment 14	Drain 15: House of Ramani Pal to House of Hare Krishna Debnath	Near to pond 23°37'27.61"N 91°20'14.33"E Near to pond 23°37'30.25"N 91°20'18.58"E	Ranagapania River via various cherra	389.4	Kachha earthen drain Some part no drain	0.8m	0.3m - 0.6m	(300x300 mm) to (500 x 750mm)	Type-C and Type-E
Catchment 15	Drain 16: From 3 No Purbapara J B School to Raghunath Thakur Para Chera	Near to chandi thakur para Cherra 23°37'56.02"N 91°20'8.40"E	Ranagapania River via various cherra	594.3	Kachha earthen drain Some part no drain	0.6m	0.3m - 0.6m	(300x520 mm) to (600 x 1050mm)	Type-E
Bishramganj									
Catchment 9	Drain 9: Both side Nabatala Club (Samatalamtali Madhyapara)	Near to pond 23°36'39.00"N, 91°21'6.84"E	Ranagapania River via various cherra	563.5	Kachha earthen drain	0.55m	0.3m	(300x370 mm) to (300x500 mm)	Type-C
Catchment 10	Drain 10: House of Priya Ranjan Dasmunshi to House of Suraj Deb Barman	Near to pond 23°36'40.93"N, 91°20'50.54"E	Ranagapania River via various cherra	288.8	Kachha earthen drain Some part no drain	0.8m	0.3m	(300x300 mm) to (300x450 mm)	Type-E
Catchment 4	Drain 4C: House of Ratan Debnath to Tapas Chakrabarty	Near to swamp area adjascent to pond 23°36'41.83"N, 91°20'55.78"E	Ranagapania River via various cherra	559.0	Cemented Pucca drain, open drain	0.35m	0.3m- 0.5m	(300x300 mm) to (500 x 750mm)	Type-E

Catchment	Implemented Drains	Outfall Point		Length In M	Existing Drain Condition	ROW		Section (MM*MM) [Varying] Width x depth- RCC Covered Drain	Drain Type of RCC Covered Drain*
		Proposed Drain- Existing outfall	Final Outfall			Existing width	Proposed width		
	Drain 11: House of Maran Karmakar to Karimura Cheera via House of Nirmal Sutradhar								
Catchment 11	Drain 12: Bijoy Dutta House to Bijoy River	Two outfalls at Bijoy river 23°36'40.48"N, 91°21'44.65"E and 23°36'44.60"N, 91°21'39.93"E	Ranagapania River via various cherra	662.6	Kachha earthen drain No drain at some part	0.5m	0.3m-0.5m	(300x300 mm) to (500 x 750mm)	Type-E
Catchment 12	Drain 13: Suraj Dutta House to Itbhata (Karimura Cheera)	Existing cherra 23°36'30.03"N, 91°21'30.00"E	Ranagapania River via various cherra	731.6	Kachha earthen drain No drain at some part	1.5m	0.3m - 0.4m	(300x410 mm) to (400 x 605mm)	Type-A
Catchment 13	Drain 14: House of Samir Sarkar to Ranagapania River	Near to Ranagapania river 23°37'0.81"N, 91°20'47.71"E	Ranagapania River via various cherra	417.0	No existing drain	-	0.3m-0.5m	(300x300 mm) to (500 x 750mm)	Type-E
Total Drain Length- 6.713 km									

(* cross section type shown in **Figure 10**
Provision of catchpit as per design and drainage location)

7. Melaghar

29. Proposed drainage project primarily focuses on the Drainage development works within CAT_1 and sub-catchment, CAT_2 and sub-catchment, CAT_3 and sub-catchments. The total designed catchment area covers parts of ward 1 (1.20%), 2 (94.10%), 3 (100%), 4 (100%), 5 (100%), 6 (100%), 7 (46.30%), 8 (39.50%), 9 (2.10%), 10 (5.10%), 11 (9.50%), 12 (66.10%), 13 (59.10%),; Adjoining area of ward no 2, 3, 4, and 5. Total area coverage under the designed catchment is about 517 ha with a design population (2053 AD) of about 25,551.

(i) **CAT_1 Sub-Catchment-** The catchment, located to the western and northern side of Melaghar-Sonamura Road, covers portion of ward 2 (16.70%), and 3 (61.80%); eastern and southern side of Melaghar-Sonamura Road covers portion of ward 4 (3.9%). Storm water drain 1,2 and 3 are within this catchment.

(ii) **CAT_2 Sub-Catchment-** The catchment, located to the northern side of Melaghar-Sonamura Road, covers portion of ward 2 (3.30 %), 3 (14.10%), 6 (19.90%) and 12 (48.20%); southern side of Melaghar-Sonamura Road covers portion of ward 4 (3.90%), and 6 (9%). Part of Storm water drain 1, 4, 5,6, 8 are within this catchment.

(iii) **CAT_3 Sub-Catchment-** The catchment, located to the northern side of Melaghar-Sonamura Road, covers portion of ward 6 (5.70%), 10 (5.10%), 11 (7.40%) and 12 (2.30%); southern side of Melaghar-Sonamura Road covers portion of ward 4 (58.20%), 5 (100%), 6 (65.40%) and 7 (45.80%) and adjoining area of ward no 4 & 5. Part of storm water drain 1, 7,9,10, 11 are within this catchment.

30. Length of storm water drain to be implemented under the package at Melaghar is given below (Table 9). The main proposed storm water drains to be implemented within the project area are as follows (Table 10).

Table 9: Length of Storm water Drain to be implemented under the Package - Melaghar

Description	Catchments			Total
	cat_1 sub-catchment	cat_2 sub-catchment	cat_3 sub-catchment	
RCC Box Drain (1000 mm & above) (m)	457.60	96.00	1019.70	1573.30
RCC Box Drain (below 1000 mm) (m)	3198.20	2252.50	2777.1	8227.80
Total Length (M)	**3655.80**	**2348.50**	**3796.8**	**9801.10**

Table 10: Section of proposed Stormwater drain to be implemented within the Melaghar

Catchment	Part Of Proposed Drain	Outfall Point		Length (M)	Existing Drain Condition	ROW		Section (Mm X Mm) [Varying] Width x Depth- RCC Covered Drain	Drain Type of RCC Covered Drain *
		Proposed Drain- Existing outfall	Final Outfall			Existing Depth	Proposed Depth		
Cat_1 sub-catchment	SD-1: Melaghar Sonamura Road from AOC to Motor Stand (Northern Side from AOC to Junction of Municipality Road)	Near Melaghar English medium school 23°30'1.16"N, 91°19'51.35"E	Gomati river	820.30	Open and partly covered cemented drain	0.5m	0.7m	700 x 600 to 700 x 900	Type-A
	SD-1: Melaghar Sonamura Road from AOC to Motor Stand (Southern Side from AOC to junction of Chandigarh Lane)	Near Melaghar English medium school 23°30'1.16"N, 91°19'51.35"E	Gomati river	520.00	Open and partly covered cemented drain	1m	0.7m	700 x 600 to 700 x 830	Type-A
	SD -2: AOC to English Medium School (From junction of Melaghar-Sonomura Road near MBC Furniture and Appliance to Junction of Jagannath Bari Road)	Near Melaghar English medium school 23°30'1.16"N, 91°19'51.35"E	Gomati river	177.20	Kutcha earthen drain	1.2m	0.6m	600 x 705 to 600 x 1135	Type-C
				5.60		1.2m	0.7m	700 x 900	Type-C
				139.60		1.2m	0.8m	800 x 900 to 800 x 1100	Type-C
				70.30		1.2m	0.85m	850 x 1100	Type-C
				127.00		1.2m	1.1m	1100 x 1100 to 1100 x 1300	Type-C and Type-D
				256.10		1.2m	1.25m	1250 x 1300 to 1250 x 2870	Type-D
	SD-2: AOC to English Medium School (From Jagannath Bari Road to Municipality Road	Near Melaghar English medium school 23°30'1.16"N, 91°19'51.35"E	Gomati river	225.80	Kutcha earthen drain	1.2m	0.8m	800 x 2900 to 800 x 1400	Type-C

Catchment	Part Of Proposed Drain	Outfall Point		Length (M)	Existing Drain Condition	ROW		Section (Mm X Mm) [Varying] Width x Depth- RCC Covered Drain	Drain Type of RCC Covered Drain *
		Proposed Drain- Existing outfall	Final Outfall			Existing Depth	Proposed Depth		
	along the side of connecting road)								
	SD-2: AOC to English Medium School (From Jagannath Bari Road to Municipality Road along the alignment of existing drain)	Near Melaghar English medium school 23°30'1.16"N, 91°19'51.35"E	Gomati river	278.20	Kutcha earthen drain	1.2m	0.8m	800 x 2550 to 800 x 1350	Type-C
	SD-3: Municipality Road to English Medium School (Eastern side- From junction of Municipality Road to English Medium School)	Near Melaghar English medium school 23°30'1.16"N, 91°19'51.35"E	Gomati river	195.80	Open cemented drain	0.5m	0.4m	400 x 515 to 400 x 605	Type-C
				50.30		0.5m	0.5m	500 x 1400 to 500 x 2500	Type-C
				193.10		0.5m	0.7m	700 x 2500 to 700 x 930	Type-C
				4.70		0.5m	1.1m	1100 x 2050	Type-D
				69.80		0.5m	1.5m	1500 x 2050 to 1500 x 2175	Type-D
	SD-3: Municipality Road to English Medium School (Western side- From junction of Municipality Road to English Medium School)	Near Melaghar English medium school 23°30'1.16"N, 91°19'51.35"E	Gomati river	302.20	Open cemented drain	0.4m	0.4m	400 x 500 to 400 x 1805	Type-C
				41.70		0.4m	0.5m	500 x 1615 to 500 x 775	Type-C
				178.10		0.4m	0.6m	600 x 775 to 600 x 1510	Type-C
Cat_2 sub-catchment	SD-1: Melaghar Sonamura Road from AOC to Motor Stand (Northern	Near house of Upendra Das 23°29'49.28"N, 91°19'46.37"E	Gomati river	341.90	Open cemented drain	0.5m	0.7m	700 x 600 to 700 x 1090	Type-A
				24.90		0.5m	0.8m	800 x 1090	Type-A

Catchment	Part Of Proposed Drain	Outfall Point		Length (M)	Existing Drain Condition	ROW		Section (Mm X Mm) [Varying] Width x Depth- RCC Covered Drain	Drain Type of RCC Covered Drain *
		Proposed Drain- Existing outfall	Final Outfall			Existing Depth	Proposed Depth		
	Side from Junction of Municipality Road to Hospital Chowmuhani)								
	SD-1: Melaghar Sonamura Road from AOC to Motor Stand (Southern Side from junction of Chandigarh Lane to nearby Hospital Chowmuhani)	Near house of Upendra Das 23°29'49.28"N, 91°19'46.37"E	Gomati river	629.50	Open cemented drain	1m	0.7m	700 x 600 to 700 x 1230	Type-A
				17.20		1m	1m	1000 x 1030	Type-A
	SD-4: Netaji Chowmuhani to near House of Upendra Das	Near house of Upendra Das 23°29'49.28"N, 91°19'46.37"E	Gomati river	163.70	Open cemented drain and partly earthen drain	1m	0.8m	800 x 1000 to 800 x 1215	Type-C
				15.20		1m	0.9m	900 x 1225	Type-C
				78.80		1m	1m	1000 x 1225 to 1000 x 1420	Type-D
	SD-5: Vivekananda Club to Netaji Chowmuhani via Sukanta Pally	Near Polo Tower 23°29'43.09"N, 91°19'46.37"E	Gomati river	221.50	Open cemented drain and partly earthen drain	0.5m	0.4m	400 x 510 to 400 x 680	Type-C
				5.90		0.5m	0.5m	500 x 750	Type-C
	SD-6: Hospital Chowmuhani to near House of Priyalal Saha	Near house of Priyalal Saha 23°29'45.46"N, 91°19'49.09"E	Gomati river	166.20	Open and covered cemented drain	0.4m	0.4m	400 x 500 to 400 x 530	Type-C
	SD-8: Thakurapara Red Lotus Club to Ramthakur	About 80m from Ram thakur ashram	Gomati river	342.10	Open cemented drain, earthen	0.4m	0.4m	400 x 500 to 400 x 650	Type-C

Catchment	Part Of Proposed Drain	Outfall Point		Length (M)	Existing Drain Condition	ROW		Section (Mm X Mm) [Varying] Width x Depth- RCC Covered Drain	Drain Type of RCC Covered Drain *
		Proposed Drain- Existing outfall	Final Outfall			Existing Depth	Proposed Depth		
	Ashram (Eastern Side)	23°30'0.48"N, 91°19'34.24"E			drain at some part				
	SD-8: Thakurapara Red Lotus Club to Ramthakur Ashram (Western Side)	About 80m from Ram thakur ashram 23°30'0.62"N, 91°19'34.42"E	Gomati river	341.60	Open cemented drain, earthen drain at some part	0.4m	0.4m	400 x 600 to 400 x 740	Type-C
Cat_3 sub-catchment	SD-1: Melaghar Sonamura Road from AOC to Motor Stand (Northern Side from Hospital Chowmuhani to Motor Stand)	Near Melaghar English medium school 23°30'1.16"N, 91°19'51.35"E	Gomati river	676.40	Open cemented drain	0.5m	0.7m	700 x 600 to 700 x 1230	Type-A
				10.80		0.5m	1m	1000 x 1230	Type-A
	SD-1: Melaghar Sonamura Road from AOC to Motor Stand (Southern Side from nearby Hospital Chowmuhani to Motor Stand)	Near Melaghar English medium school 23°30'1.16"N, 91°19'51.35"E	Gomati river	667.00	Open cemented drain	1m	0.7m	700 x 600 to 700 x 1280	Type-A
				33.60		1m	0.8m	800 x 1110 to 800 x 1225	Type-A
	SD-7: Thakurapara Red Lotus Club to Melaghar Sonamura Road (Eastern Side)	About 80m from Ram thakur ashram 23°30'0.48"N, 91°19'34.24"E	Gomati river	501.00	Open cemented drain, earthen drain at some part	0.3m	0.4m	400 x 500 to 400 x 1715	Type-C
	SD-7: Thakurapara Red Lotus Club to Melaghar Sonamura Road (Western Side)	About 80m from Ram thakur ashram 23°30'0.62"N, 91°19'34.42"E	Gomati river	457.90	Open cemented drain, earthen drain at some part	0.35m	0.4m	400 x 500 to 400 x 1950	Type-C
				48.70		0.35m	0.5m	500 x 620	Type-C

Catchment	Part Of Proposed Drain	Outfall Point		Length (M)	Existing Drain Condition	ROW		Section (Mm X Mm) [Varying] Width x Depth- RCC Covered Drain	Drain Type of RCC Covered Drain *
		Proposed Drain- Existing outfall	Final Outfall			Existing Depth	Proposed Depth		
	SD-9: Vivekananda Pally to Hospital Chowmuhani (Eastern side)	Near Hospital Chowmuhani 23°29'39.93"N, 91°19'49.60"E	Gomati river	195.00	Covered cemented drain	0.9m	0.8m	800 x 600 to 800 x 2600	Type-C
	SD-10: Melaghar Sonamura Road to Post Office via Sanghati Market	Near to Telkajla Ln about 170 m from Gomati river 23°29'15.37"N, 91°19'41.87"E	Gomati river	103.30	Covered and Open cemented drain	0.9m	0.85m	850 x 1110 to 850 x 1320	Type-C
				94.20		0.9m	0.9m	900 x 1120 to 900 x 1425	Type-C
	SD-11: Padam Dhepa Fishery Samity to Gomati River	Near to Telkajla Ln about 170 m from Gomati river 23°29'15.37"N, 91°19'41.87"E	Gomati river	556.00	Kutcha cemented drain	2.5m	3.2m	3200 x 2680 to 3200 x 3275	Type-D
				386.10		2.5m	3.5m	3500 x 3280 to 3500 x 3525	Type-D
				66.80		2m	3.6m	3600 x 3600 to 3600 x 3640	Type-D
total drain length -9.801 km									

(* cross section type shown in **Figure 10**
Provision of catchpit as per design and drainage location)

31. The government's plan to improve stormwater drainage from Melaghar town to the Gomati River is a significant step towards improving water quality and reducing pollution levels in Rudrasagr lake. It will improve the water quality in Rudrasagar lake, making it safer for aquatic life and recreational activities. Secondly, it will reduce the risk of flooding in the surrounding areas during heavy rainfall events.

8. Belonia

32. The subproject area covers the wards of 1, 8, 9 & 10 and part of Ward 2, 3, 4, 5, 6, 7, 11, 12, 13, 14 & 15 of BMC area. Total area coverage under this catchment is about 303.49 ha with a design population (2053 AD) of about 22,615.

33. The entire subproject area has been divided into four numbers of drainage catchment depending on the drainage outlet as mentioned below:

(i) **Kalinagar motor stand area catchment (OF1)-** The catchment, located to the western side of BMC area, covers the ward 1 and part of Ward 2, 3, 10, 11 & 12. Drain 1,2, 6 and 8 in this catchment.

(ii) **Akhanda Mandali Ashram area catchment (OF2**) - The catchment, located to the **Northern** & Southern side of BMC area, covers the ward 1 and part of Ward 2, 3, 4, 8, 9 & 12. Drain 3 and 5 in this catchment

(iii) **Arya Colony to border Fencing area catchment (OF3**)- The catchment, located to the Northern & Southern side of BMC area, covers the ward 1 and part of Ward 4, 7, 8, 9, 13 & 12. Drain 7 in this catchment

(iv) **Satmura Kalibari to ICB college area catchment (OF4)** - The catchment, located to the Northern & Southern side of BMC area, covers the ward 1 and part of Ward 6, 7, 13 & 14. Drain 4 and 6 in catchment.

34. Length of storm water drain to be implemented under the package at Belonia is given below (Table 11). The main proposed storm water drains to be implemented within the project area are as follows (Table 12).

Table 11: Length of Storm water drain to be implemented under the package - Belonia

Description	Catchments		TOTAL
	Kalinagar Motor Stand Area Catchment	Akhanda Mandali Ashram Area Catchment	
RCC Box Drain (1000 mm & above) (m)	2092.4	1751.9	3851.3
RCC Box Drain (below 1000 mm) (m)	1039.8	430.8	1470.6
Total Length (M)	**3136.2**	**2191.7**	**5,321.9**

Table 12: Section of Proposed Stormwater Drain to be implemented within Belonia

Catchment	Implemented Drains	Outfall point		Length in m	Existing Drain Condition	ROW		Section (mm*mm) [Varying] Width x depth- RCC covered Drain	Drain Type of RCC Covered Drain *
		Proposed Drain- Existing outfall	Final Outfall			Existing width	Proposed width		
Kalinagar Motor Stand Area Catchment	Jaganath Bari to Kalinagar Motor Stand via Asit Saha house- D1	Existing drain in Road 108A 23°14'48.41"N, 91°27'28.04"E	Muhuri River	1369.20	Open cemented drain	1m	0.8m-2m	(800*800) to (2000*2000)	Type-C and Type-D
	South Belonia Corner to SBI Bank- D2	Near SBI Belonia 23°15'3.02"N, 91°27'18.73"E	Muhuri River	517.49	Covered, open cemented drain, also earthen drain at some part	1m	1.3m	(700*700) to (1000*1000)	Type-D
	SBI Bank to Jaganath Bari- D5	Near Azad Bedding house oppm to Jagannathbari 23°15'3.29"N, 91°27'9.84"E	Muhuri River	253.78	Covered cemented drain	0.7m	0.6m-1m	(900*900) to (1300*1300)	Type-C and Type-D
	Ram Thakur Ashram to Shelter House- D6	Near Public night shelter 23°14'56.64"N, 91°27'16.26"E	Muhuri River	989.87	Earthen drain, Open cemented drain	1.5m	0.6m-1.3m	(600*600) to (1300*1300)	Type-C and Type-D
Akhanda Mandali Ashram area Catchment	Vidyasagar Market to Sachin Dev Barman Auditorium – D3	Near to S D Bur man Auditorium 23°14'58.02"N, 91°27'38.11"E	Muhuri River	1423.65	Kacha – earthen drain, cemented open drain	2m	0.6m-1.4m	(600*600) to (1400*1400)	Type-C and Type-D
	The backside of SD Barman Auditorium to Akhandmandali Ashram- D4	Near existing drain crossing Rd no 4 23°14'39.34"N, 91°27'34.77"E	Muhuri River	768.02	Kacha earthen drain, open cemented	1m-2m	1.4m-1.5m	(1400*1400) to (1500*1500)	Type-D
Total				**5,322.01**					

(* cross section type shown in Figure 10
Provision of catchpit as per design and drainage location)

35. Figure 2 to 5 shows proposed roads and footpaths in google map, plan & profile of footpath and road and typical cross section of the road for Udaipur, and Figure 6 to 10 shows the proposed and existing drain, proposed alignment of drain with catchment area, coverage area of the town and typical cross section of the drain of Udaipur town. Figure 11 and 12 shows proposed road & footpaths in google map, and plan and profile of the Road and Footpath in Amarpur and Figure 13 to 16 presents the proposed and existing drain, proposed drainage coverage area, and catchment area for Amarpur NP. Figure 17 and 18 shows proposed roads in google map, and plan and profile of the Road in Bisharamganj. Figure 19 to Figure 21 shows the proposed and drainage coverage area for Bishramganj. Figure 22 and 23 presents proposed roads in google map, and plan and Profile of the Road in Melaghar and Figure 24 to 26 shows the proposed and existing drain and proposed catchment area for Melaghar MC. Figure 27 and 28 presents proposed roads in google map, and proposed plan and profile of the Road in Belonia MC. Figure 29 to 31 shows the proposed and existing drain, proposed coverage area for Belonia MC.

D. Implementation schedule

36. Implementation of Package of cluster IIA road and stormwater drain as item rate contract. Project will be implemented in 36 months. Bids to be invited for the package likely on September 2023, and construction work is expected to commenced in February 2024 and will be completed by February 2027.

Existing and Proposed Road and drainage components Map of Udaipur Town

Figure 2: Proposed Road and footpath components in Udaipur google earth

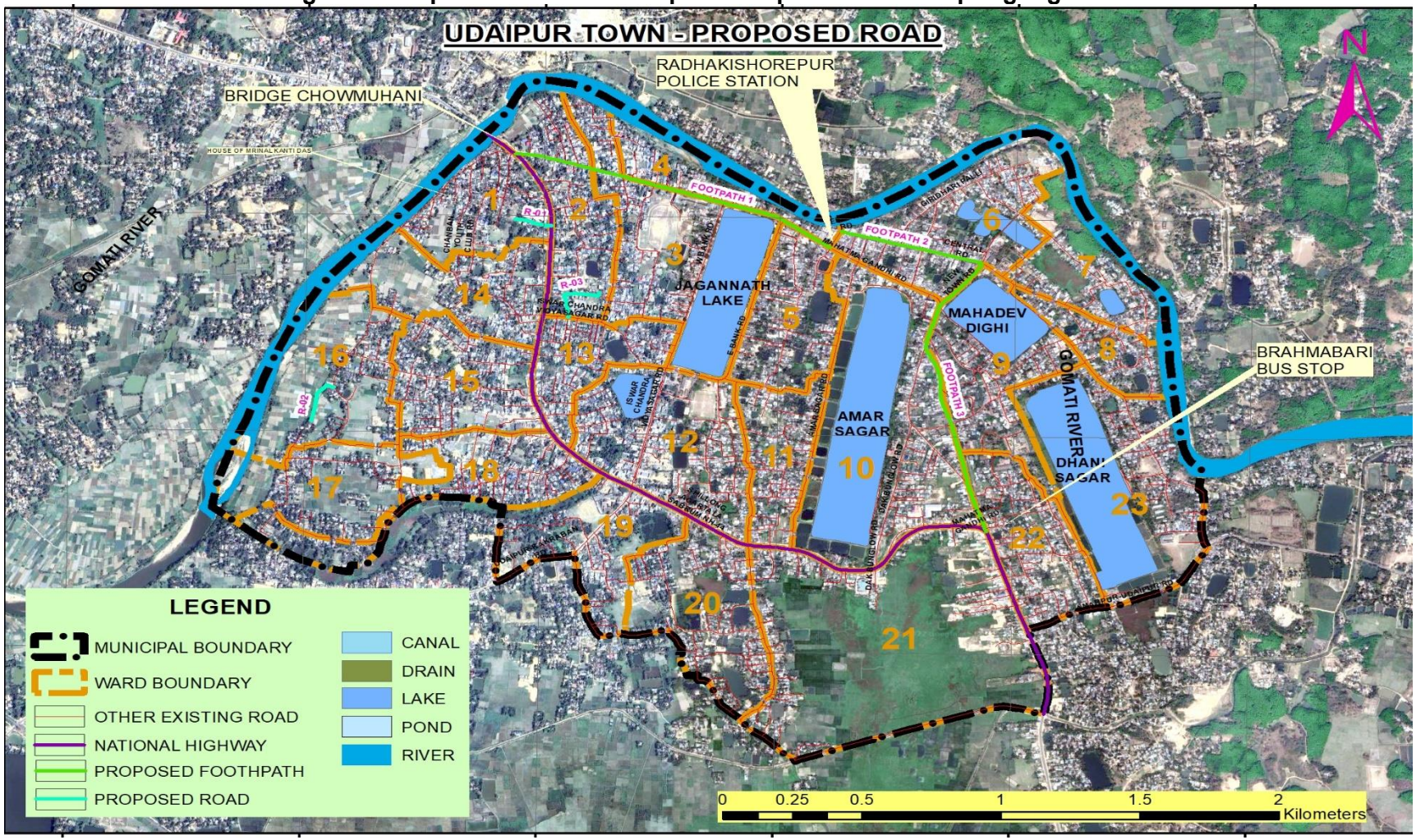
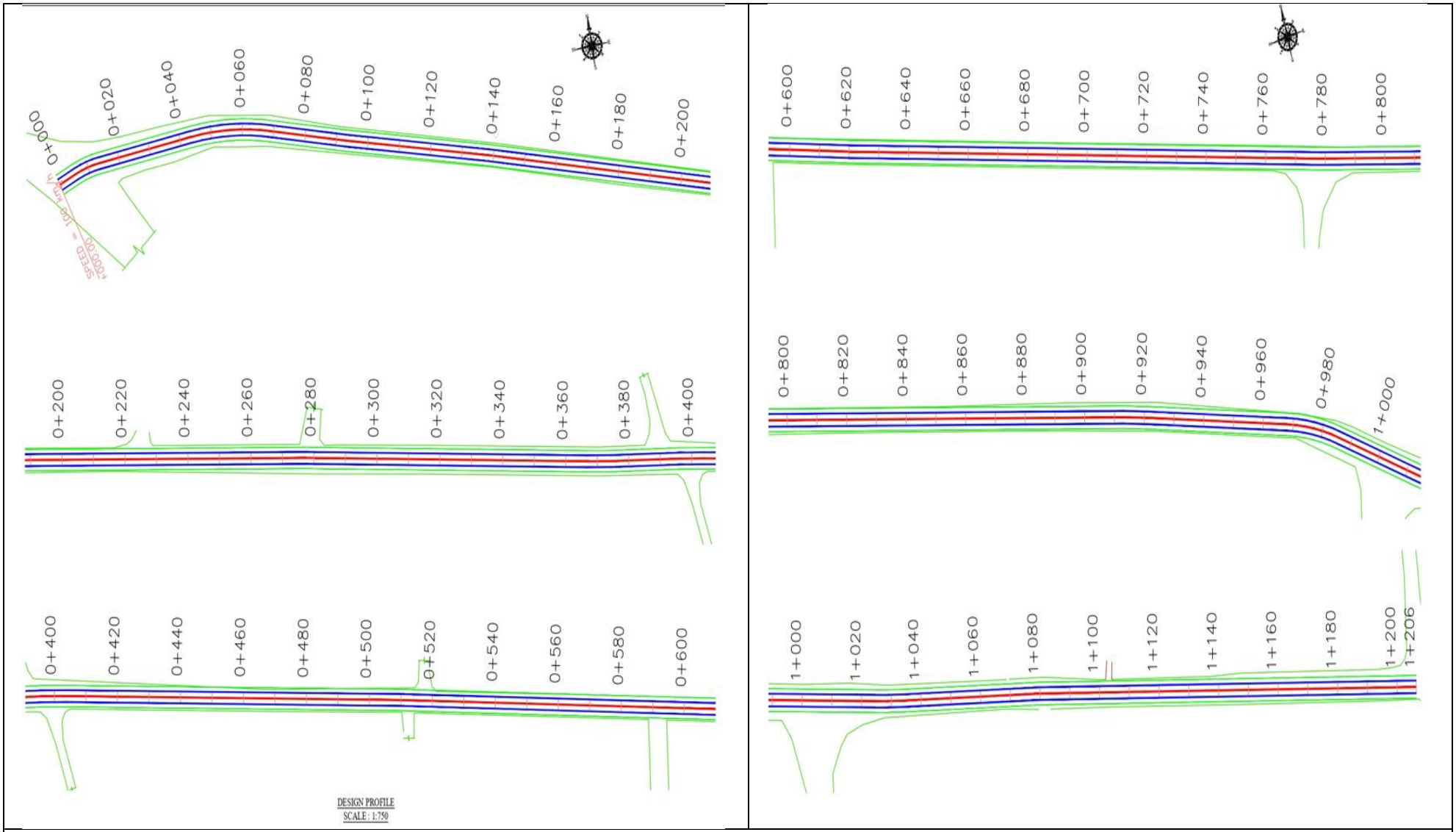
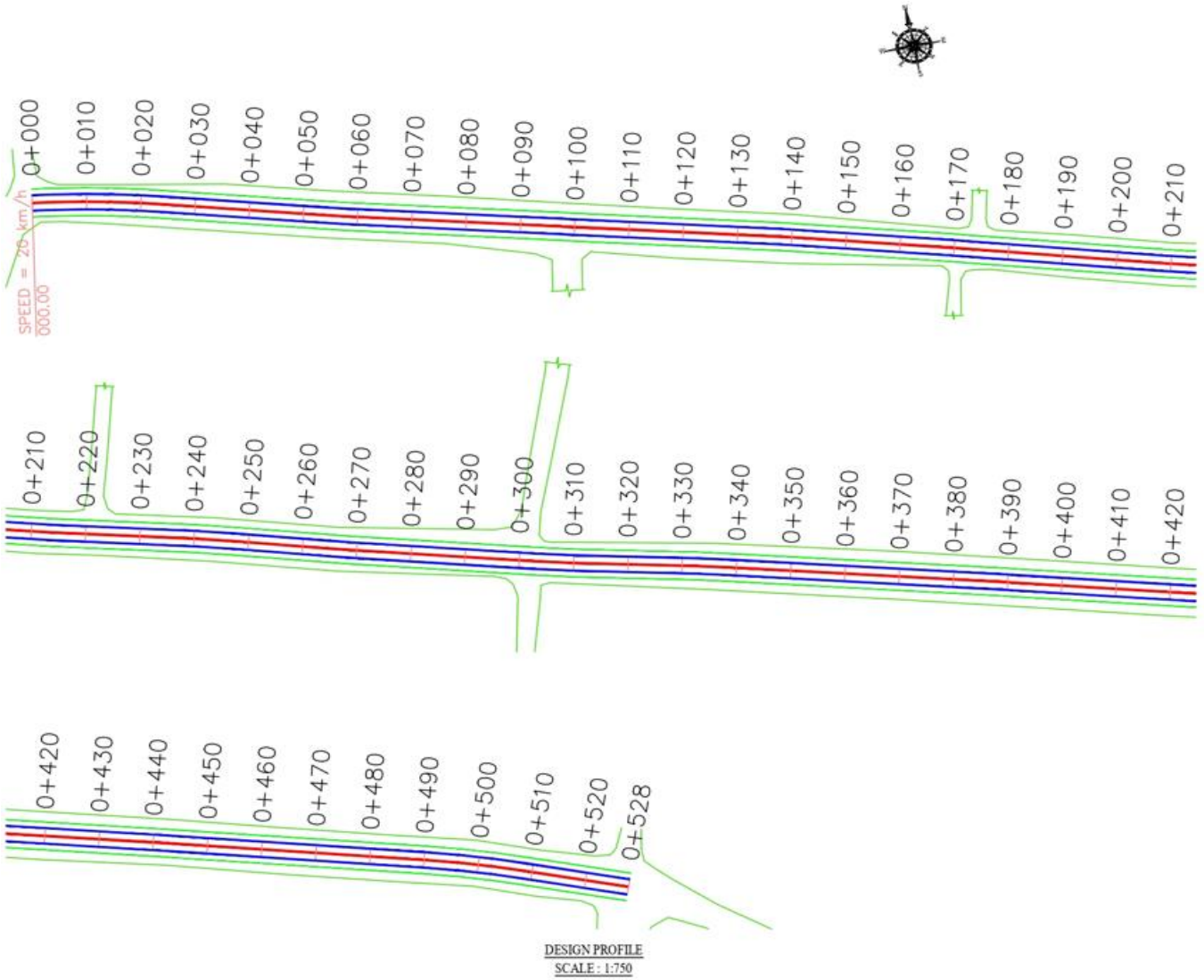


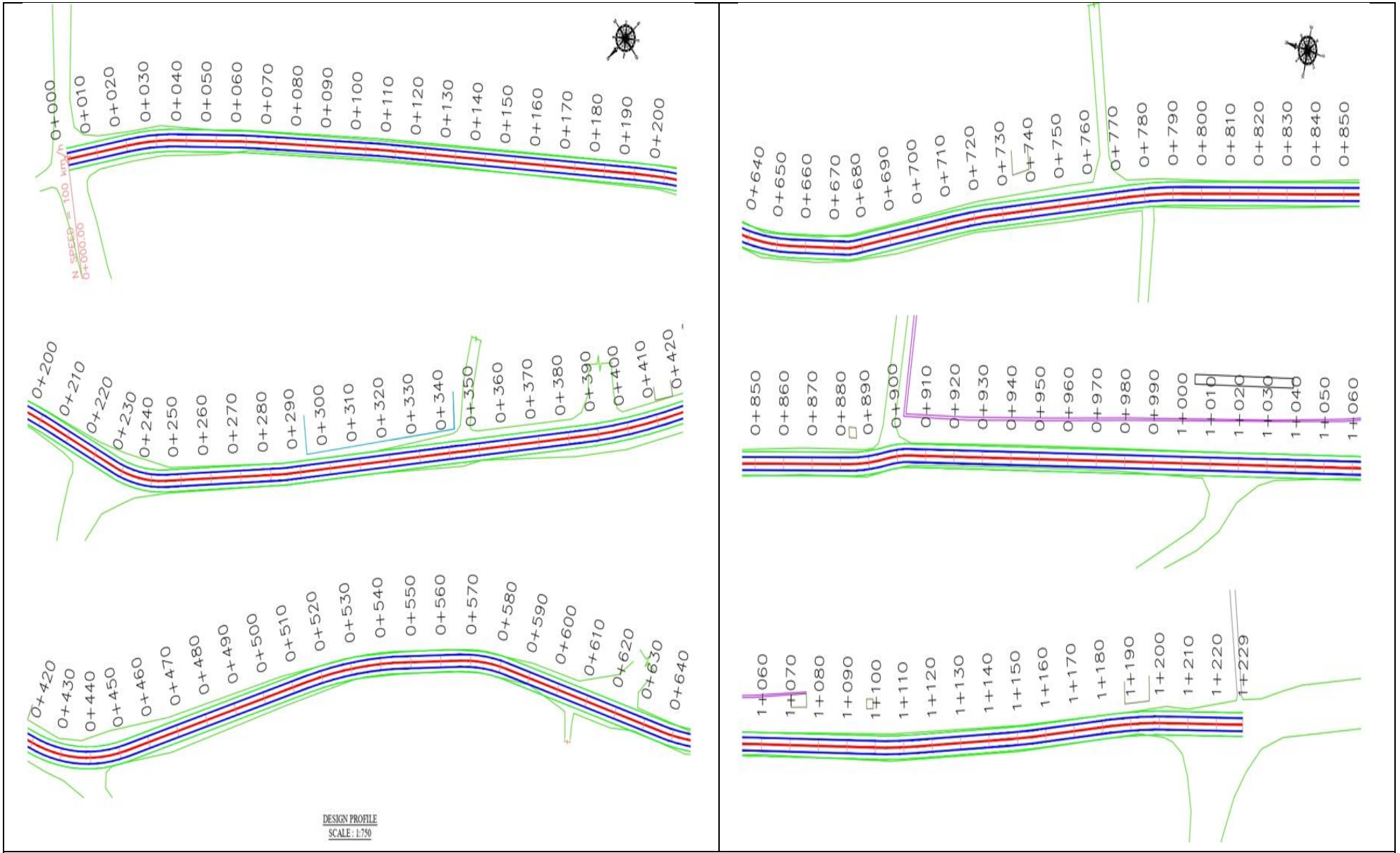
Figure 3: Proposed plan and Profile of the footpaths and Roads-Udaipur



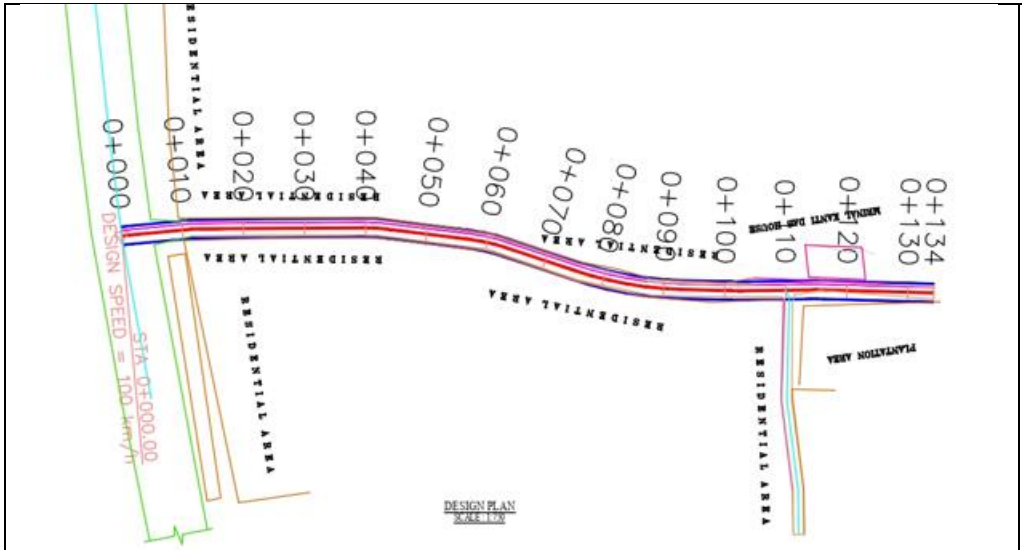
Proposed Footpath from Bridge chowmuhani to R.K Pur P.S corner



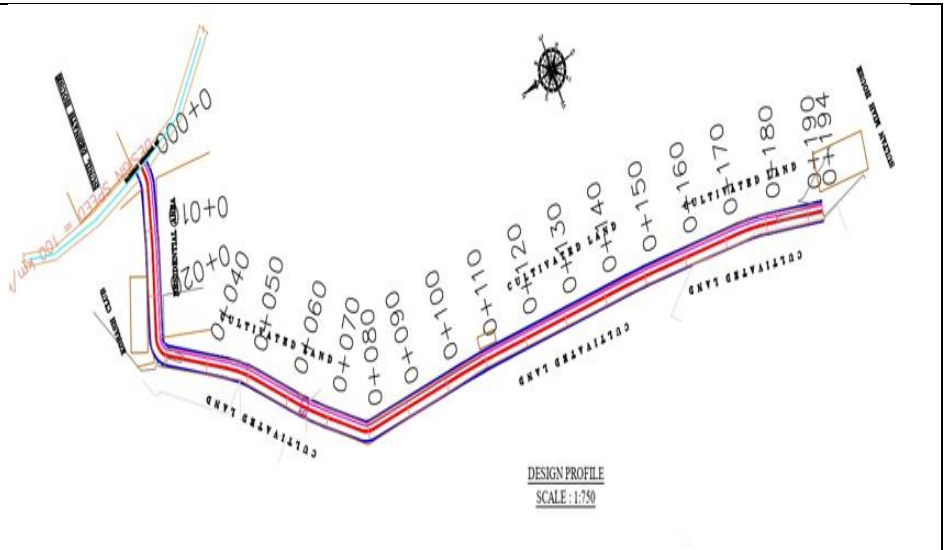
Proposed Footpath along the Central road



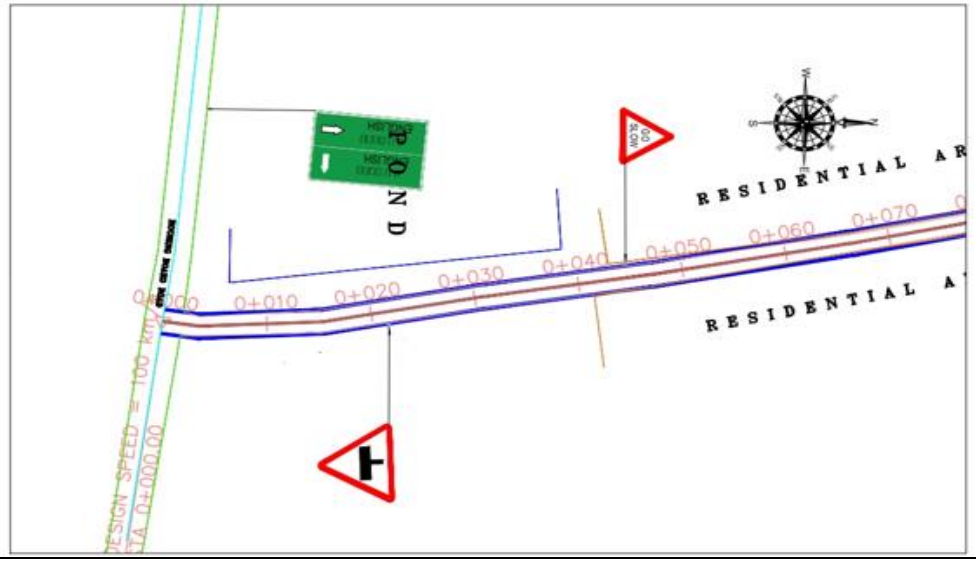
Proposed Footpath from Shitlbari to Brahmabari

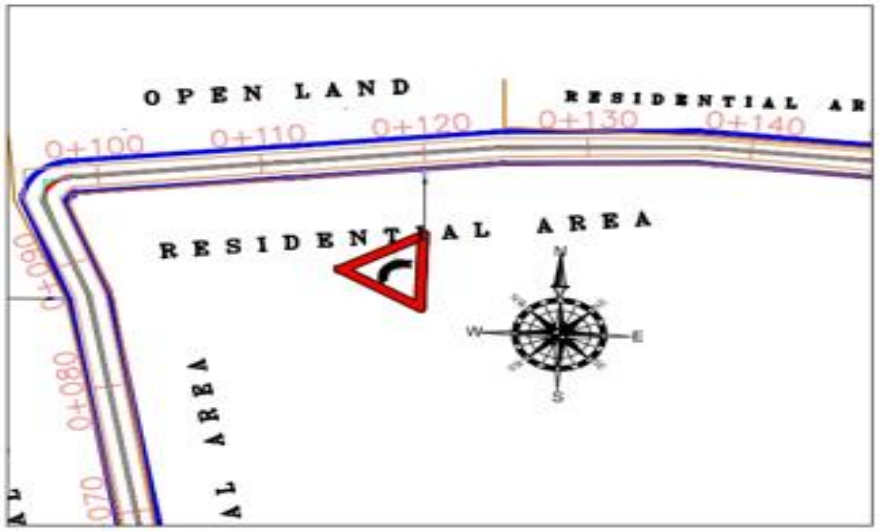


Proposed Road From NH-08 to house of Mrinal Kanti Das, Ward No - 13

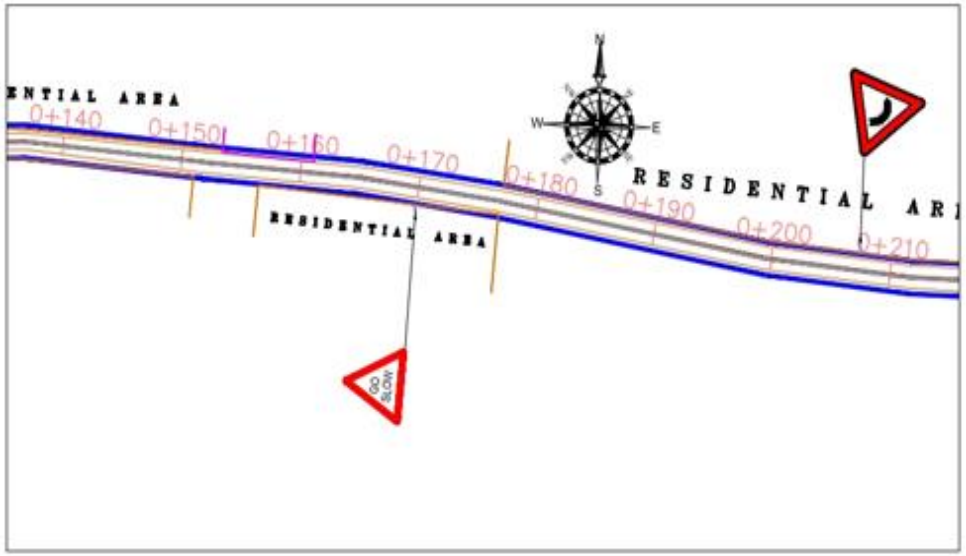


Proposed road From house of Sunil Debnath to house of Sultan Miah Ward No - 15





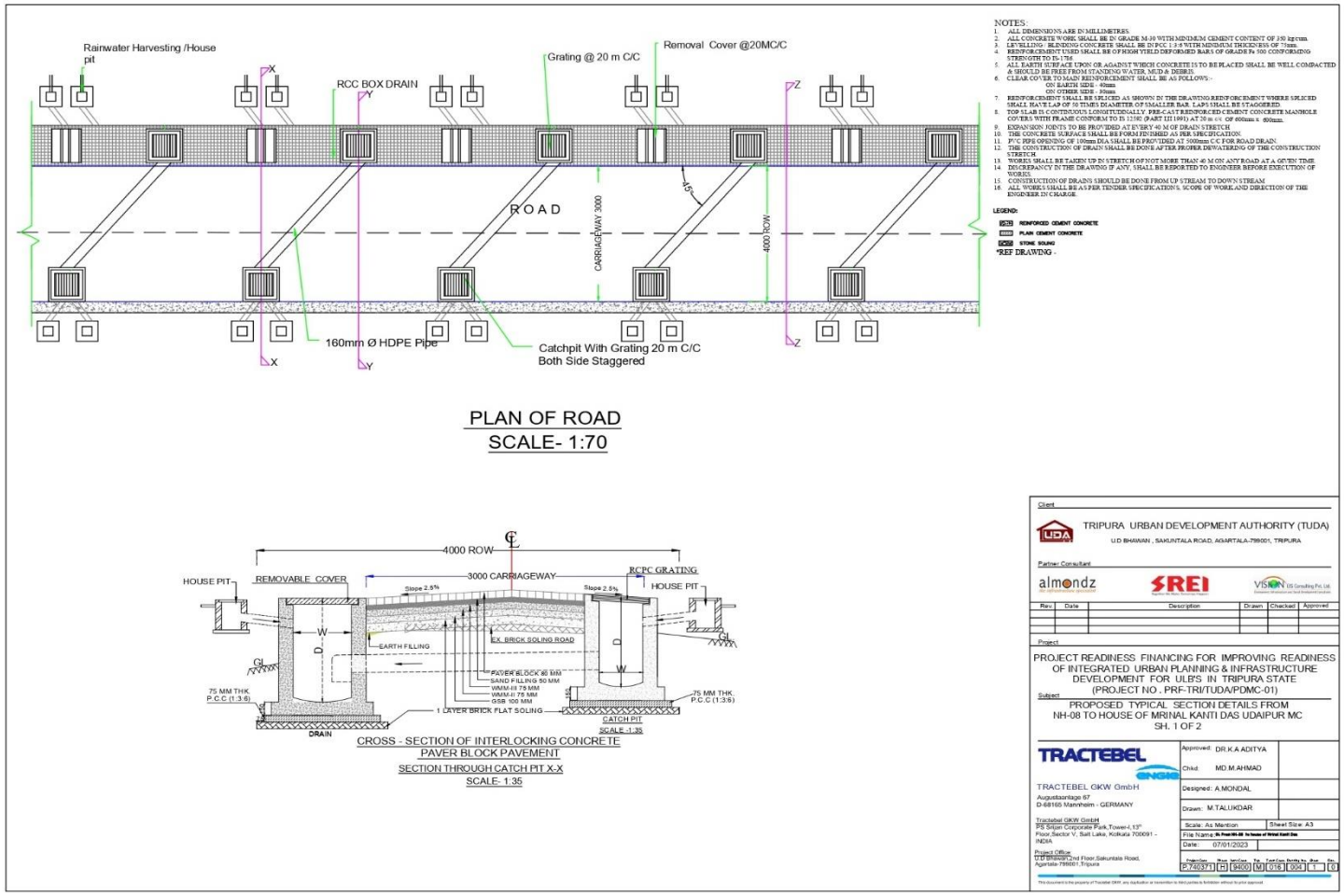
Proposed road from Gonida Dey to Housing Board (Ch. 0+000 to 0+140)





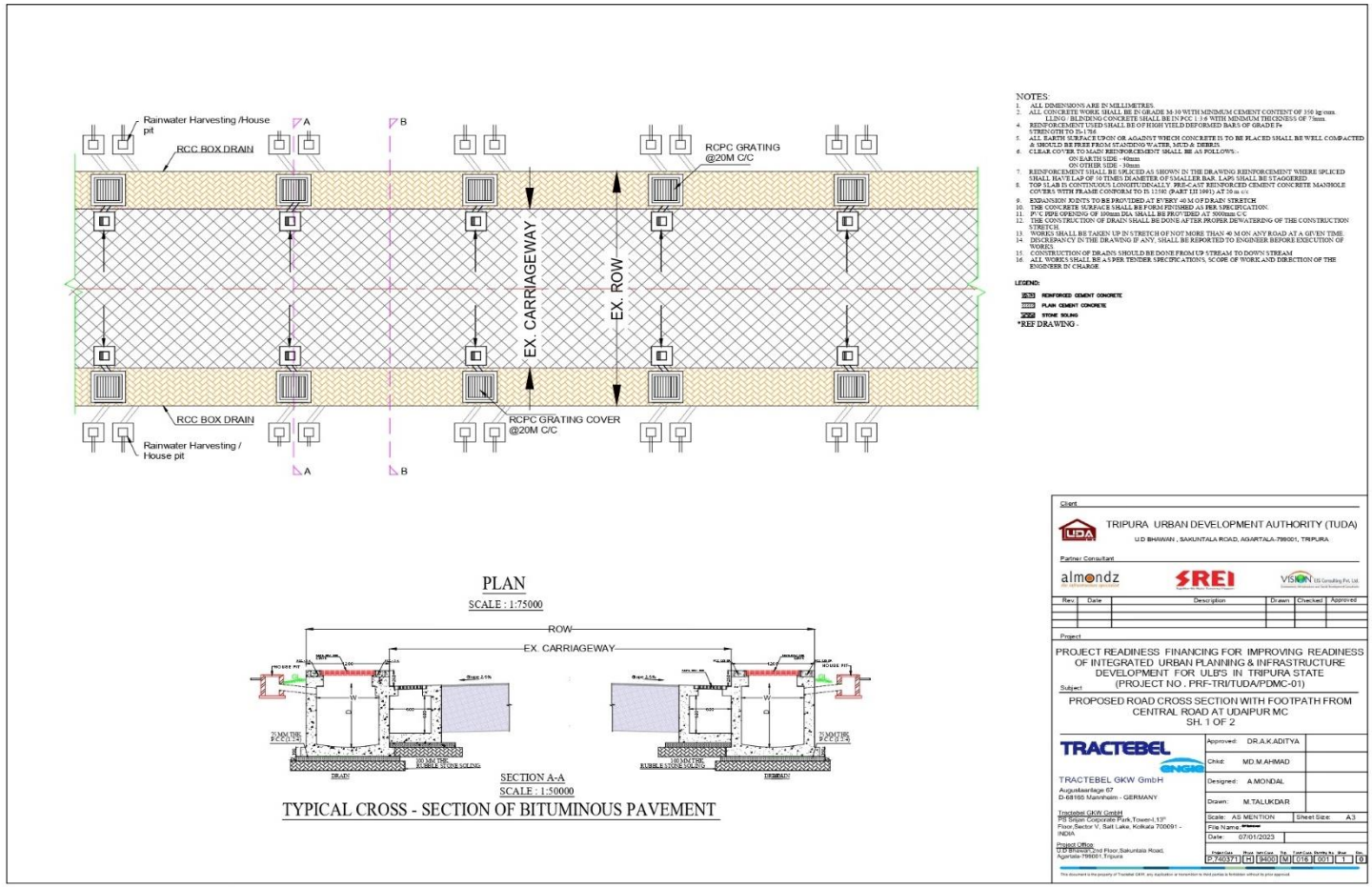
Proposed road from Gonida dey to housing Board (Ch. 0+140 to 0+223)

Figure 4: Typical Cross - Section of Paver block road (With Catchpit)



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Figure 5: Typical Cross - Section of Bituminous Pavement (With Catchpit)



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Figure 6: Existing drain in Udaipur Town

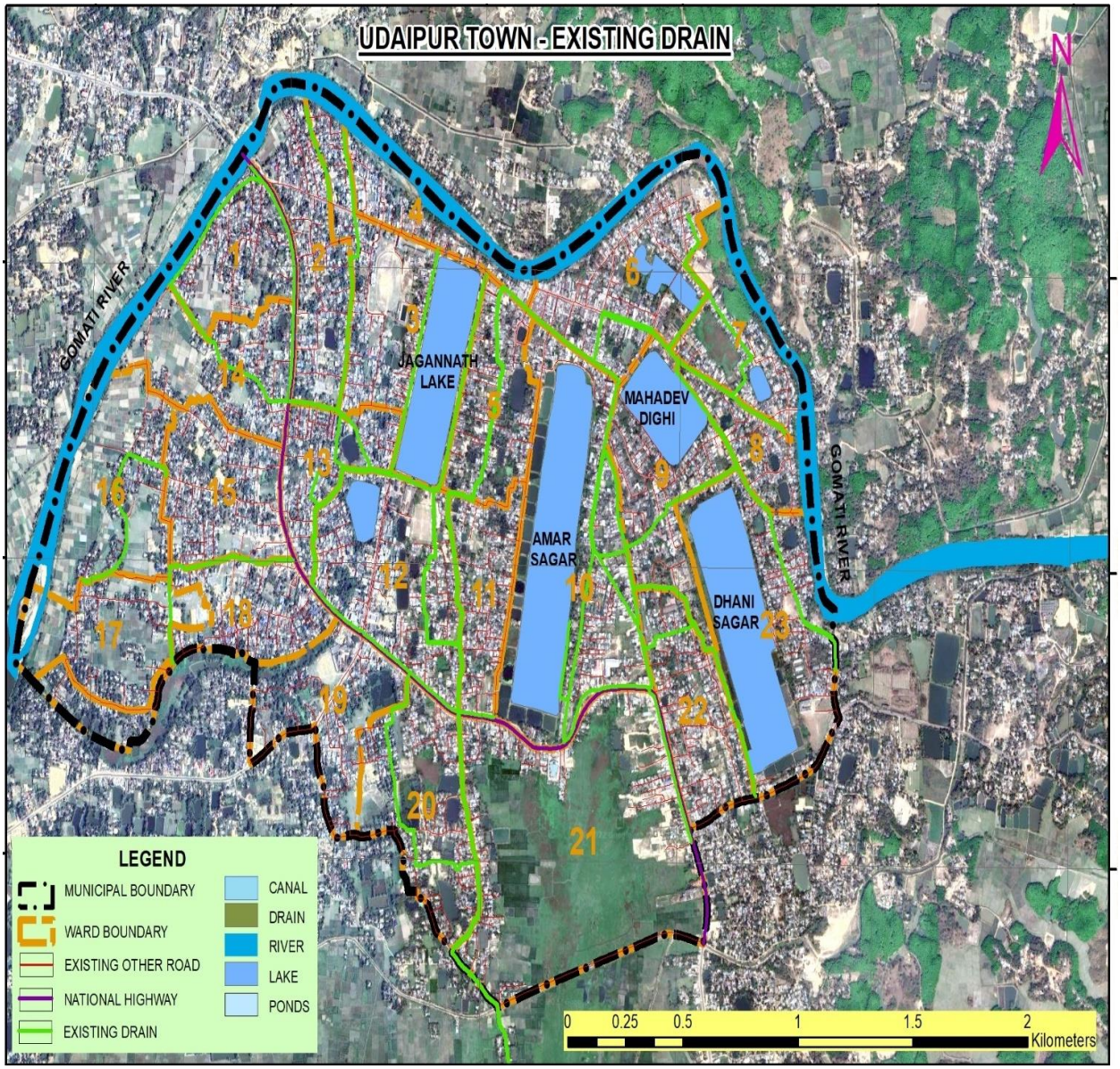


Figure 7: Proposed drain in Udaipur Town

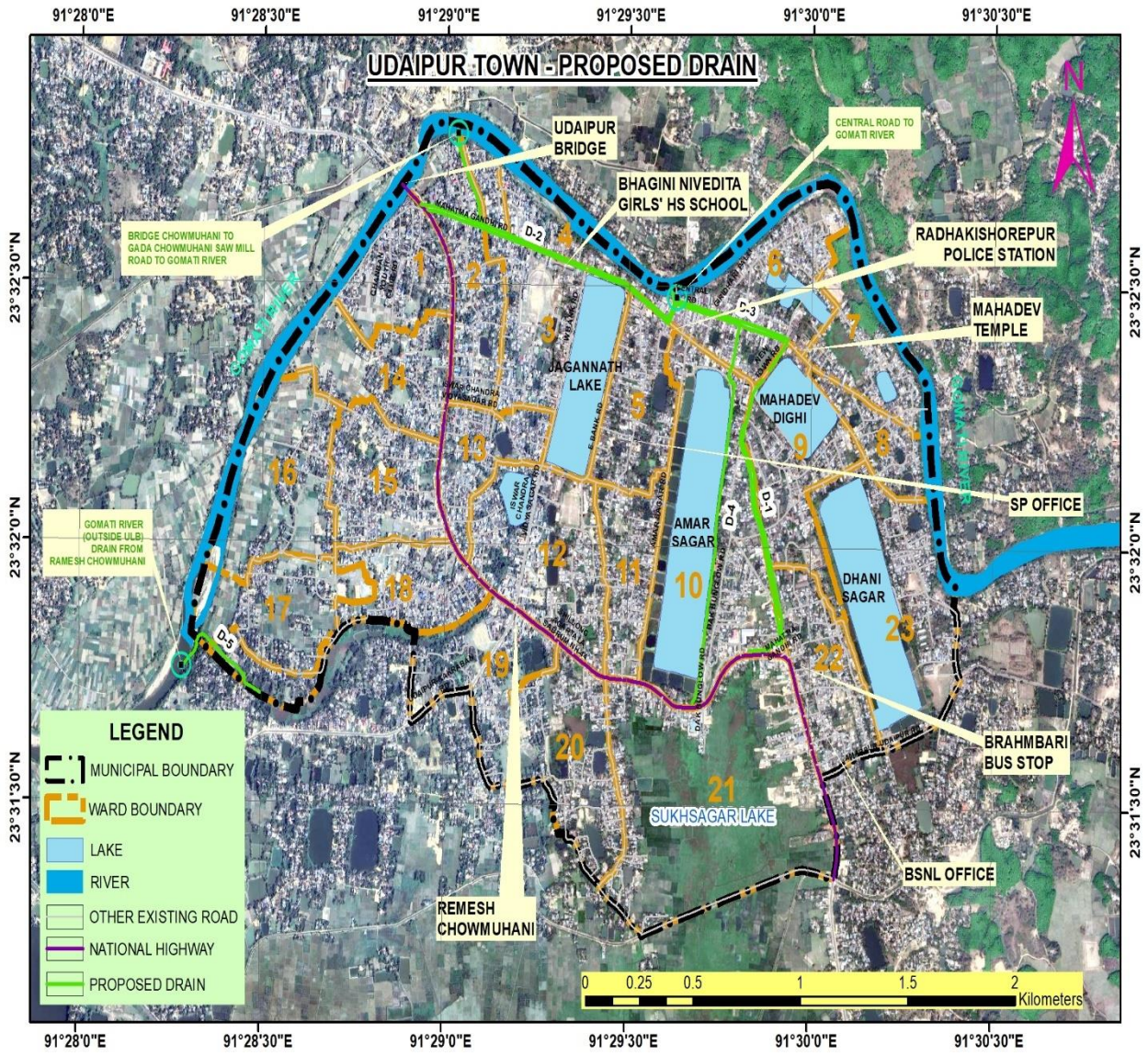


Figure 8: Proposed storm water drainage work area of Udaipur

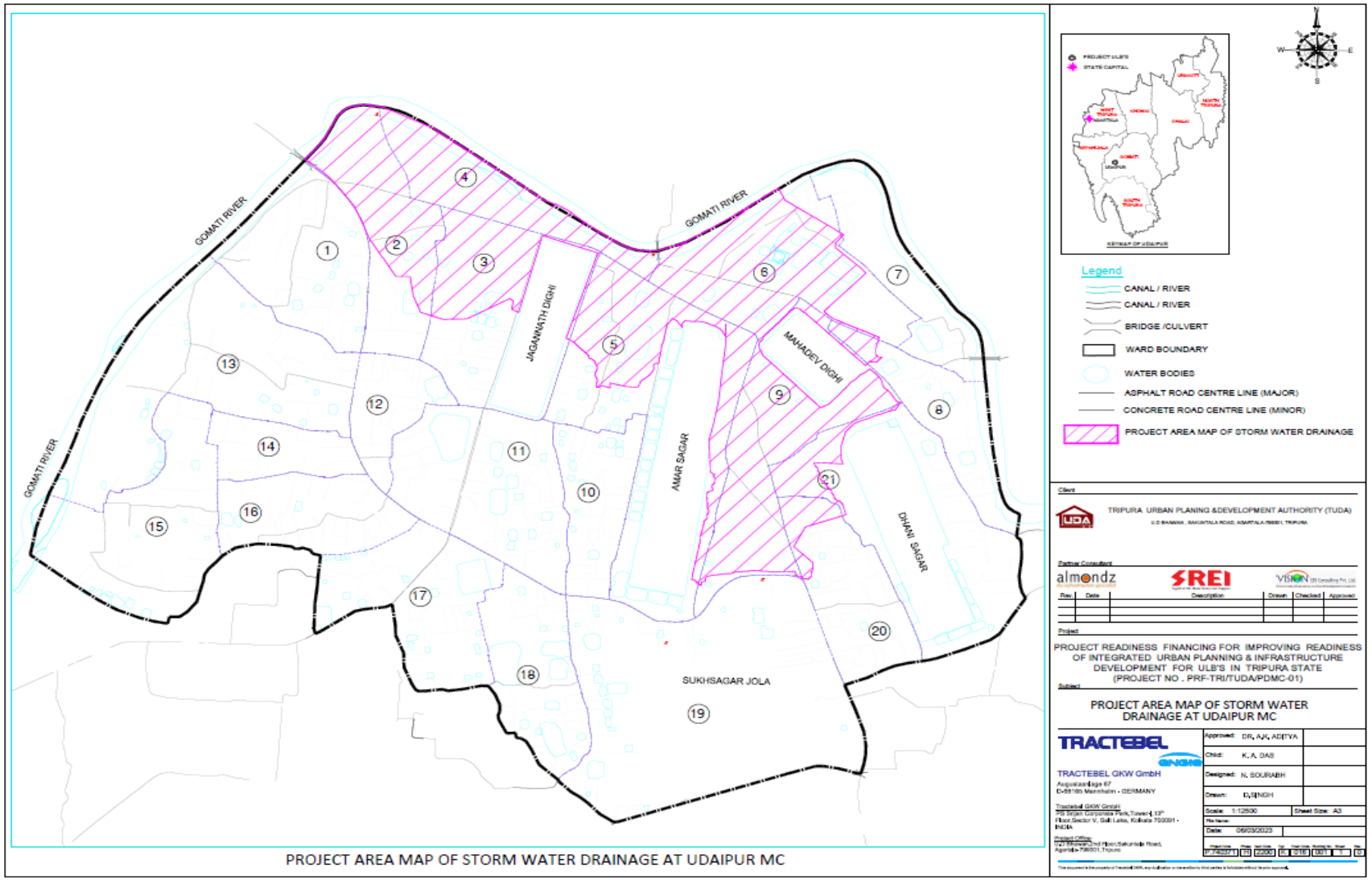


Figure 9: Catchment area Delineation map of storm water Drainage of Udaipur MC

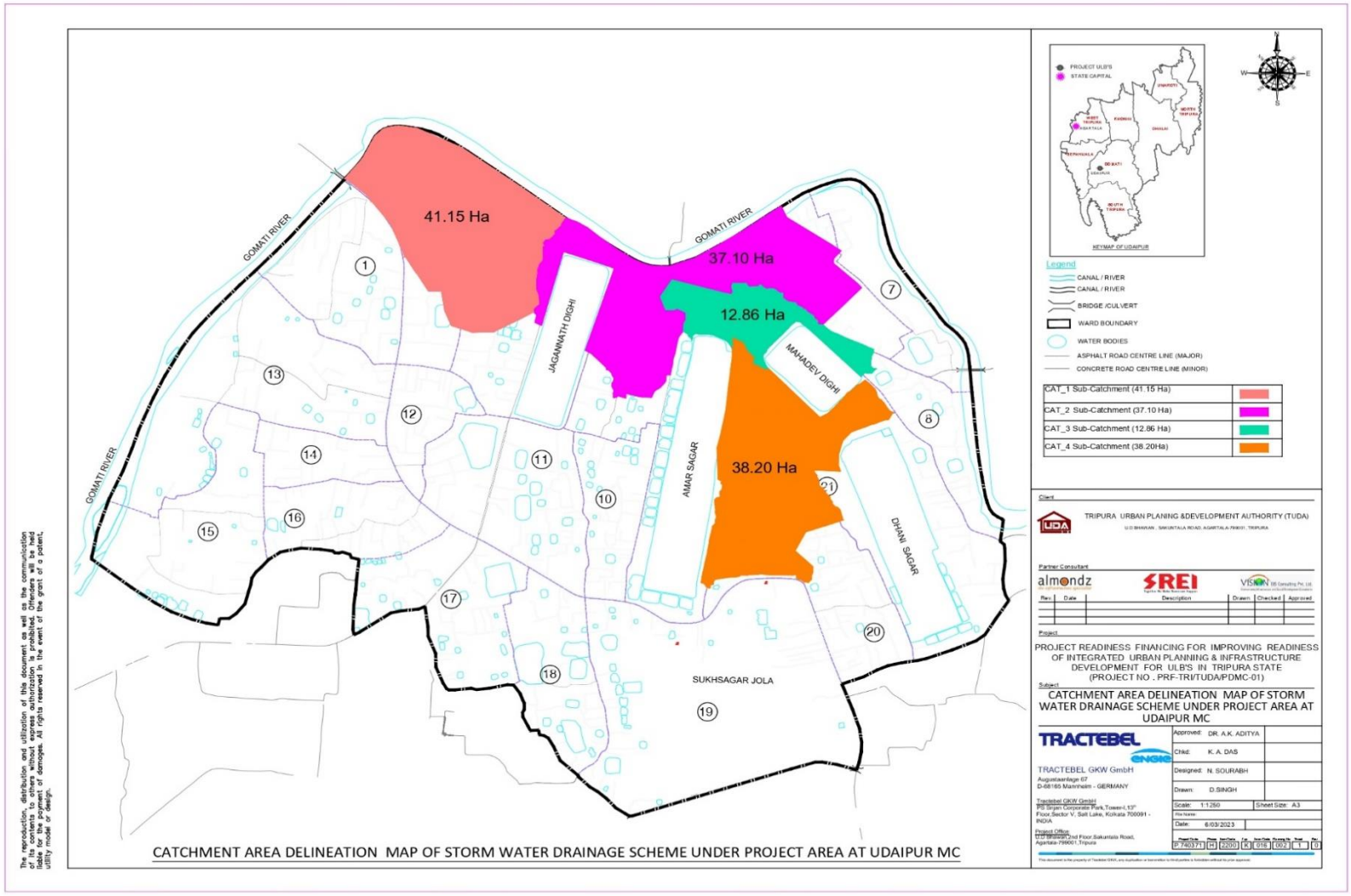
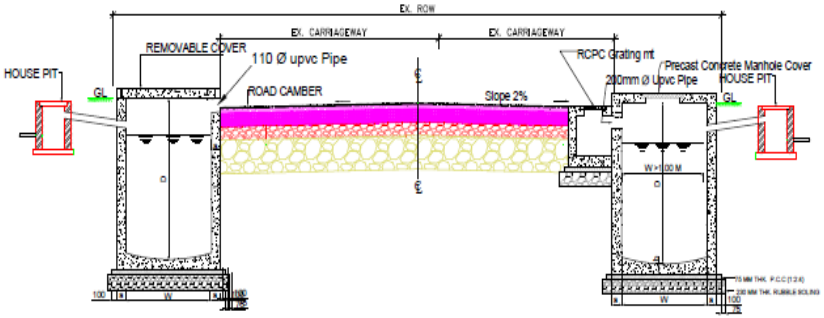
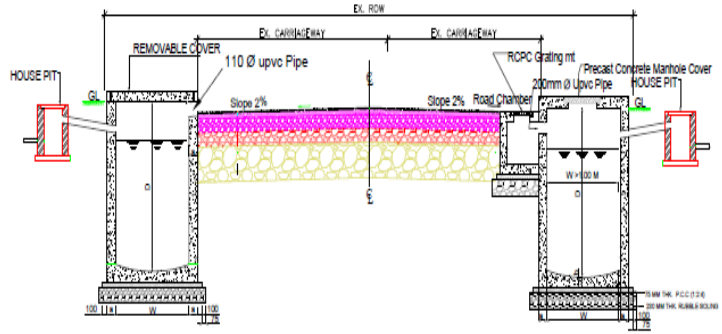


Figure 10: Typical cross section of Storm water drain



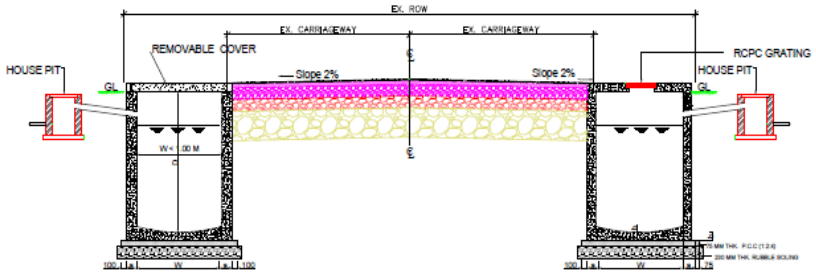
TYPICAL CROSS OF STORM WATER DRAIN (TYPE-A)
SCALE- 1:60

Typical Arrangement of Storm Water Drain Along Both Side of Road with Catch Pit (Drain Width Bellow 1.00 m) - Type A

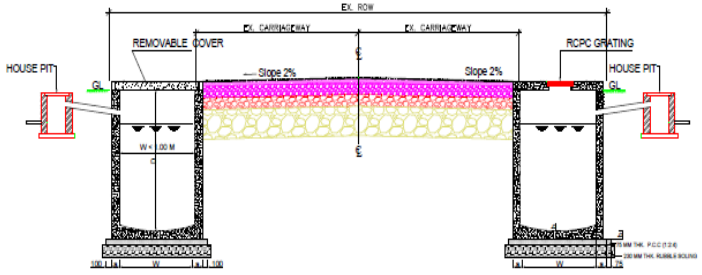


TYPICAL CROSS OF STORM WATER DRAIN (TYPE-B)
SCALE- 1:60

Typical Arrangement of Storm Water Drain Along Both Side of Road with Catch Pit (Drain Width Above 1.00 m) - Type B

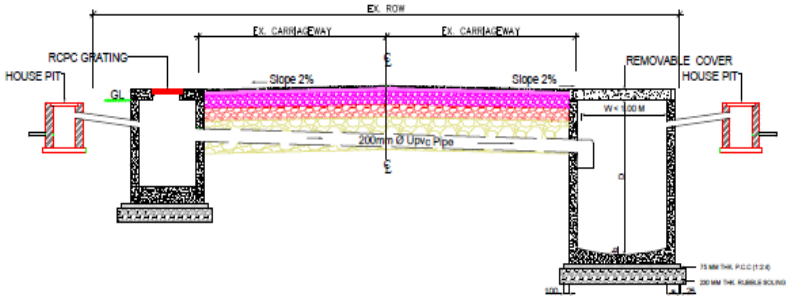
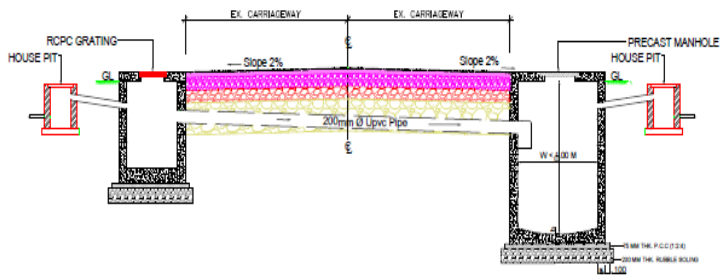
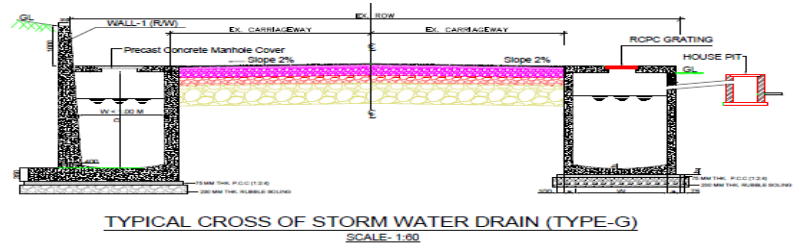
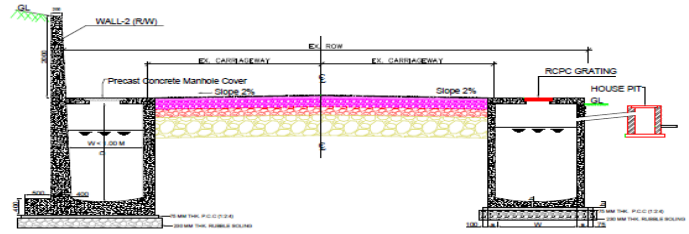


TYPICAL CROSS OF STORM WATER DRAIN (TYPE-C)
SCALE- 1:60



TYPICAL CROSS OF STORM WATER DRAIN (TYPE-D)
SCALE- 1:60

Typical Arrangement of Storm Water Drain Along Both Side of Road without Catch Pit and Drain Top Level

Typical Arrangement of Storm Water Drain Along Both Side of Road without Catch Pit and Drain Top Level Flashing. Finished Road Level (Drain Width Bellow 1.00 m) - Type C	Flashing. Finished Road Level (Drain Width Above 1.00 m) - Type D
 TYPICAL CROSS OF STORM WATER DRAIN (TYPE-E) SCALE- 1:60	 TYPICAL CROSS OF STORM WATER DRAIN (TYPE-F) SCALE- 1:60
Typical Arrangement of Storm Water Drain Along One Side of Road with Catch Pit connected from other side of road and Drain Top Level Flashing. Finished Road Level (Drain Width Bellow 1.00 m) - Type E	Typical Arrangement of Storm Water Drain Along One Side of Road with Catch Pit connected from other side of road and Drain Top Level Flashing Finished Road Level (Drain Width Above 1.00 m) - Type F
 TYPICAL CROSS OF STORM WATER DRAIN (TYPE-G) SCALE- 1:60	 TYPICAL CROSS OF STORM WATER DRAIN (TYPE-H) SCALE- 1:60
Typical Arrangement of Storm Water Drain Along Both Side of Road with Out Catch Pit and Drain Top Slab Flashing with Finished Road Level With 1 M Height Earth Retaining Wall (Drain Width Below 1.00 M) (Type-G)	Typical Arrangement of Storm Water Drain Along Both Side of Road with Out Catch Pit and Drain Top Slab Flashing with Finished Road Level With 2 M Height Earth Retaining Wall (Drain Width Below 1.00 M) (Type-H)

Existing and Proposed Road and Drain components Map of Amarpur town

Figure 11*:* Proposed Road and Footpath in Amarpur on google earth

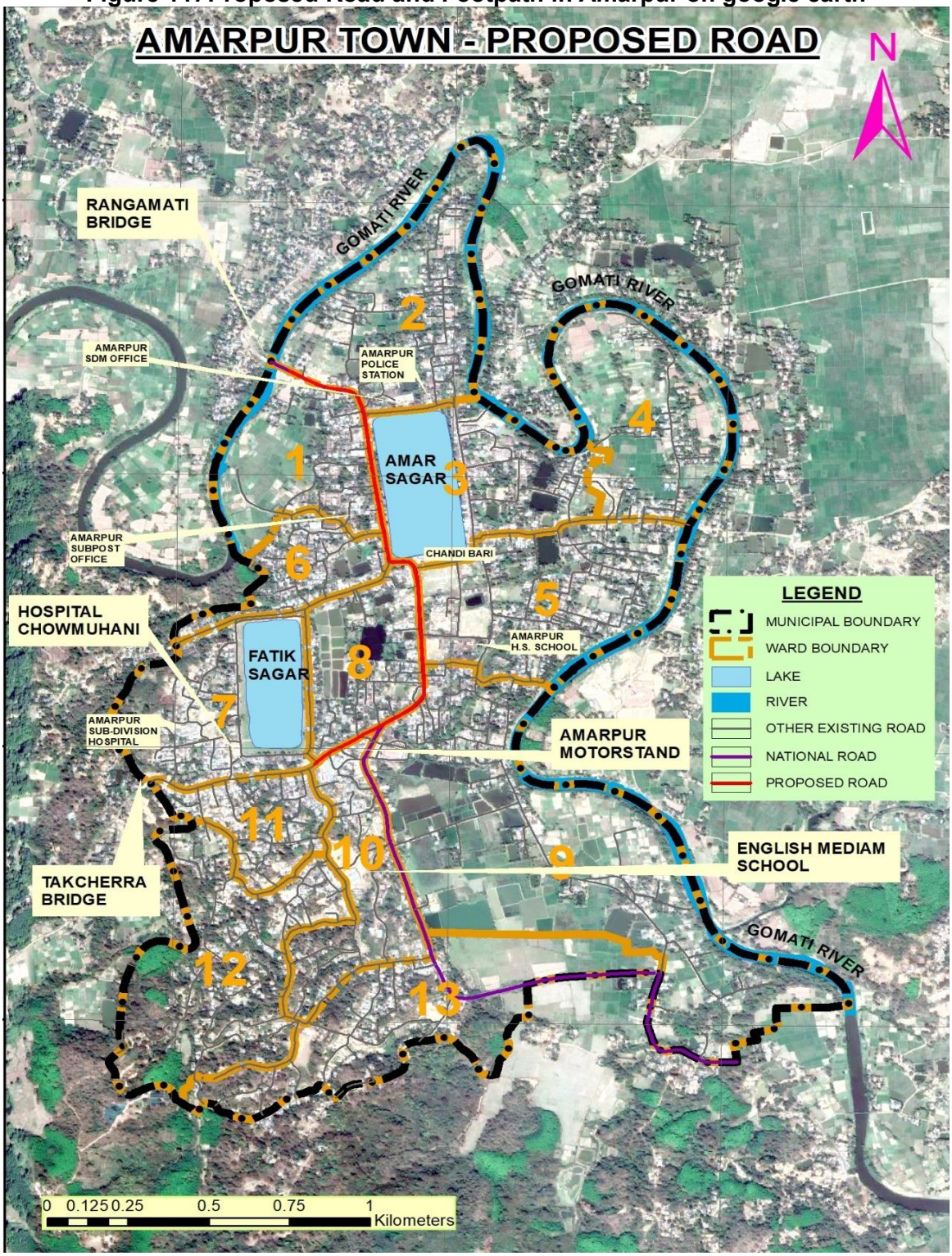
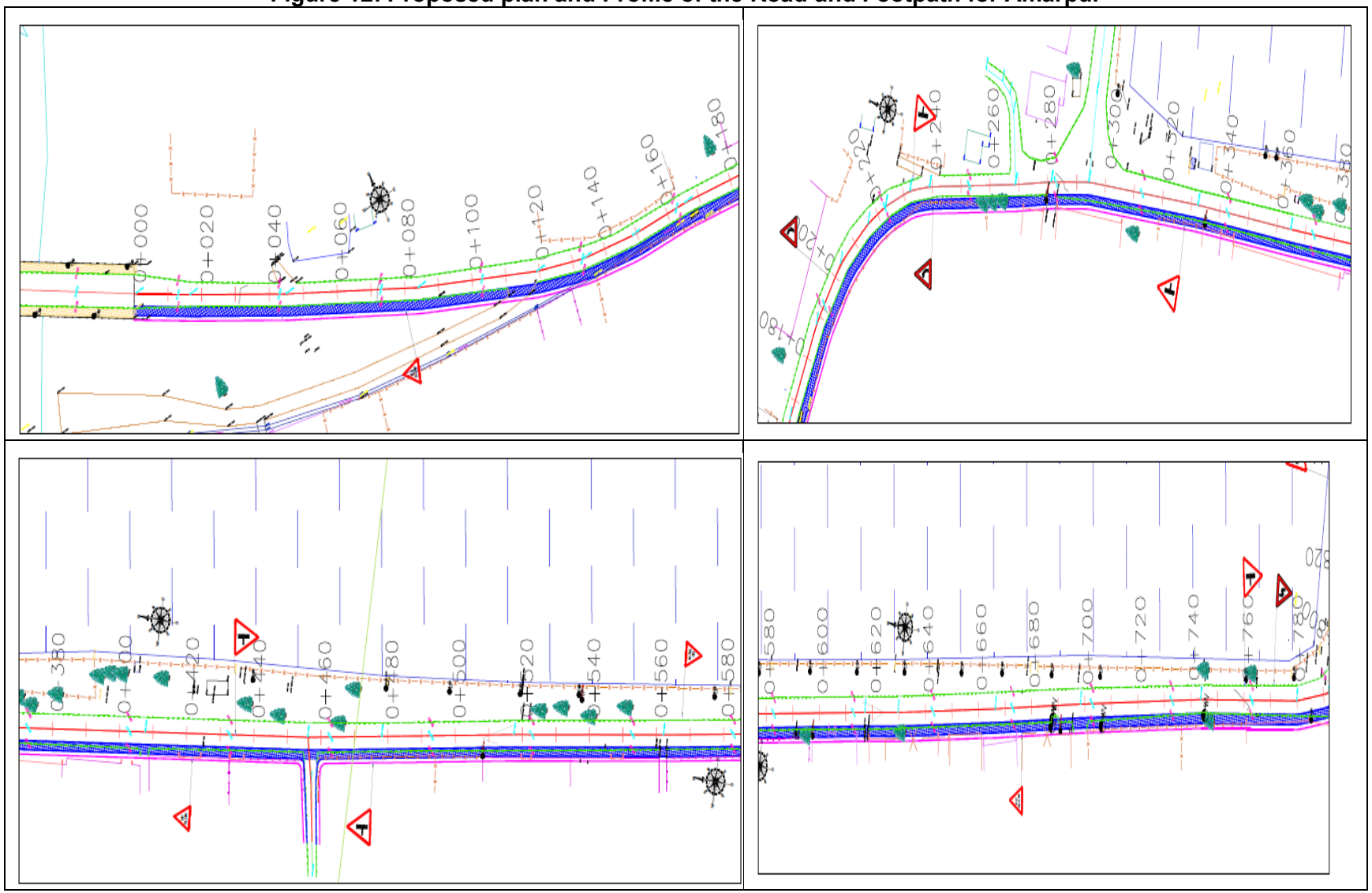
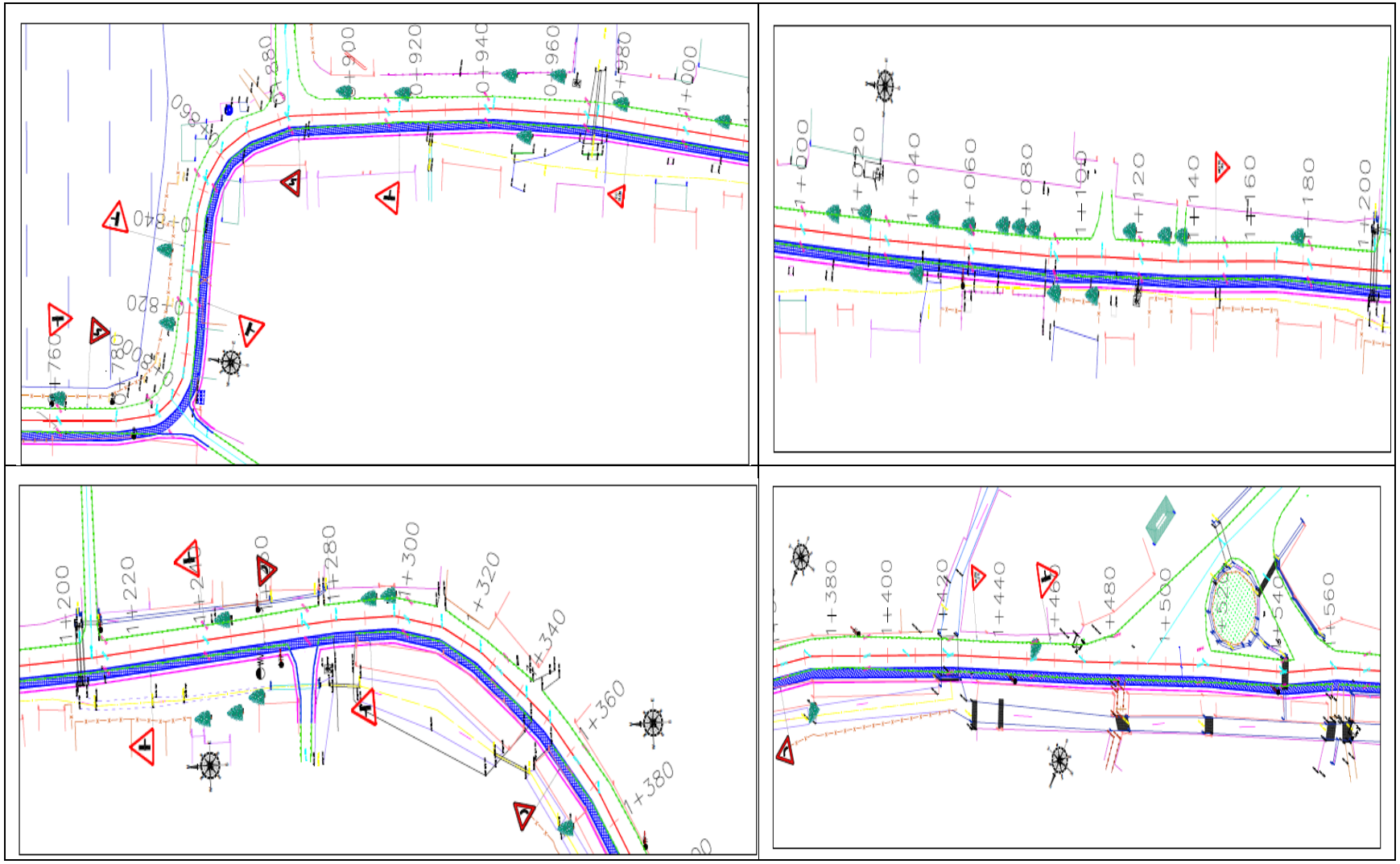


Figure 12: Proposed plan and Profile of the Road and Footpath for Amarpur




0+760
0+780
0+800
0+820
0+840
0+860
0+880
0+900
0+920
0+940
0+960
0+980
1+000
1+000
1+020
1+040
1+060
1+080
1+100
1+120
1+140
1+160
1+180
1+200
1+200
1+220
1+240
1+260
1+280
1+300
1+320
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1+500
1+540
1+560

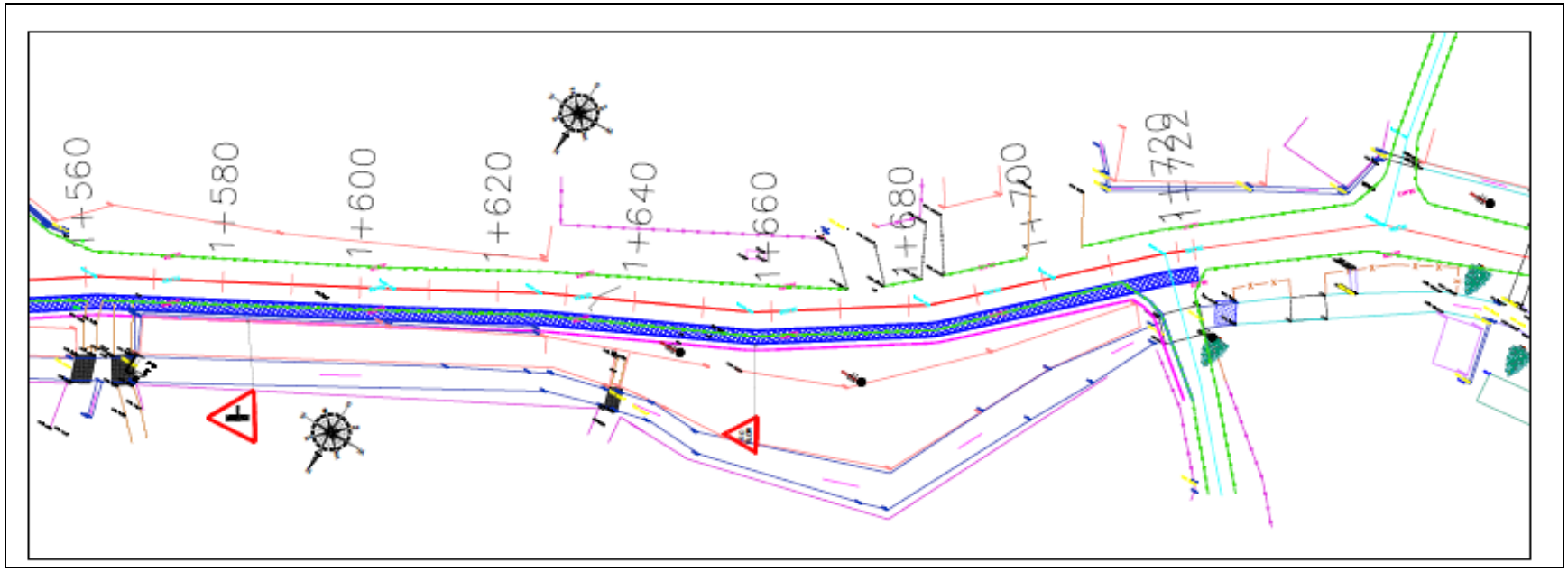

1+560
1+580
1+600
1+620
1+640
1+660
1+680
1+700
1+729

Figure 13: Existing drain in Amarpur

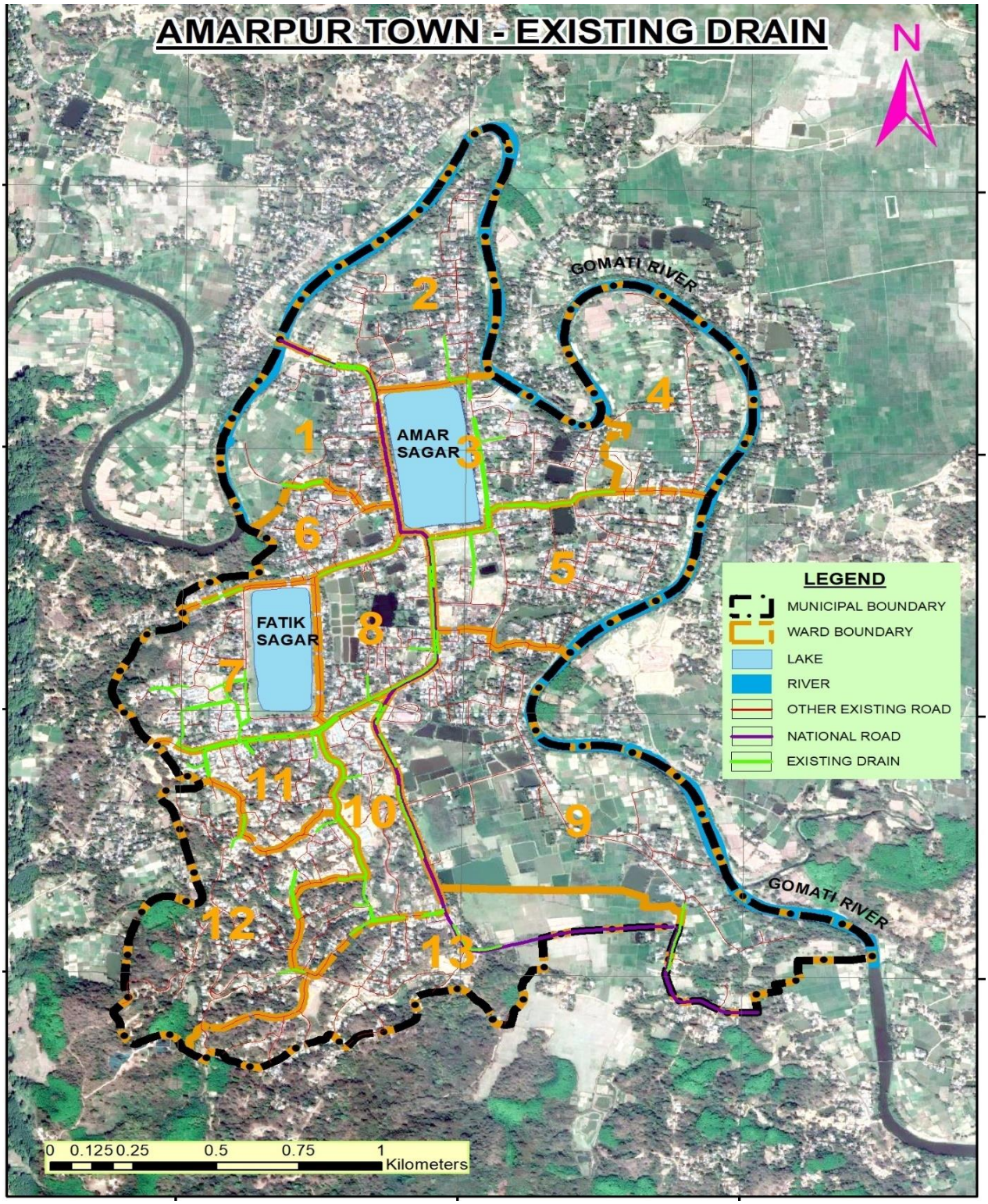


Figure 14: Proposed drain in Amarpur

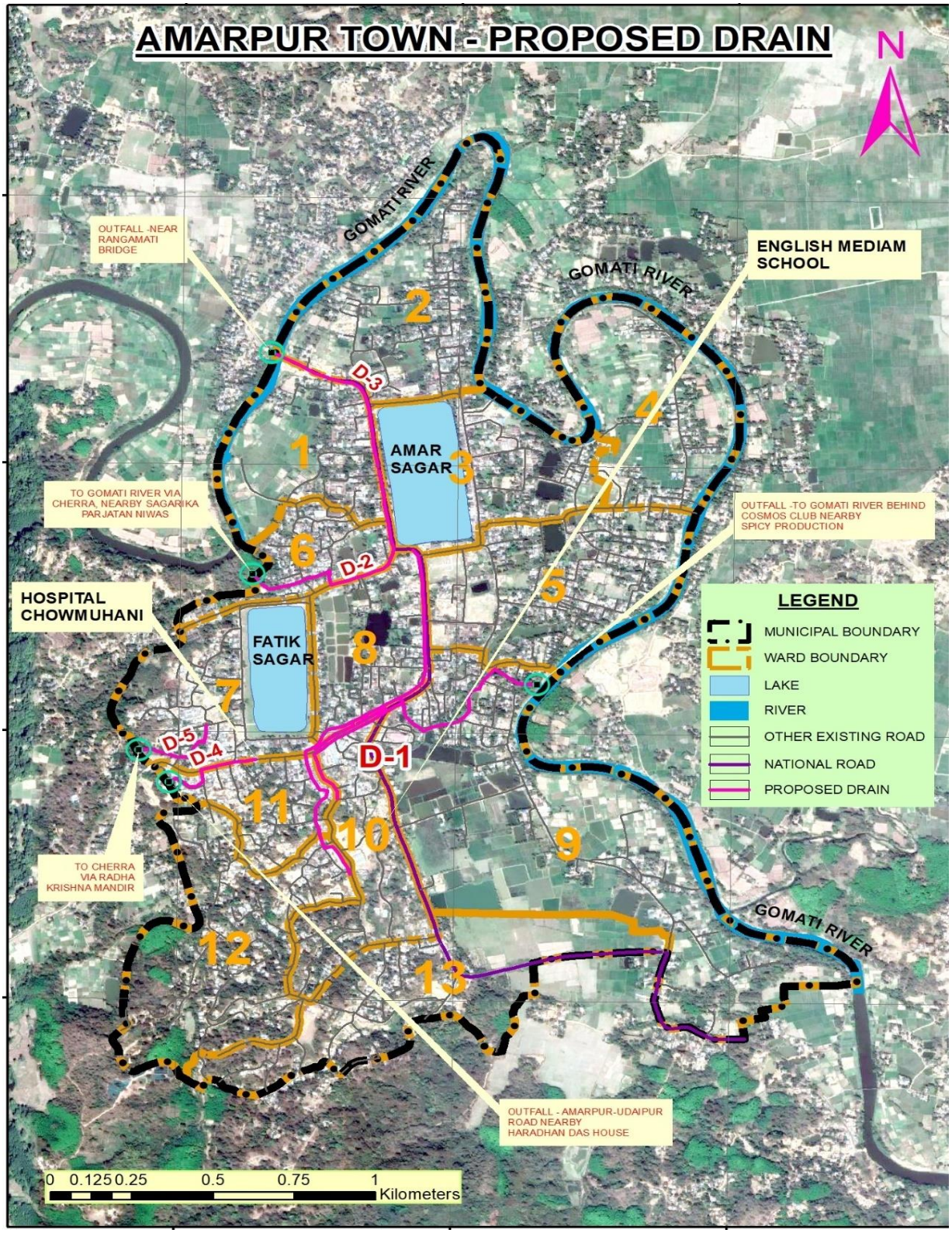


Figure 15: Project Area Map of Storm Water Drainage at Amarpur Nagar Panchayet

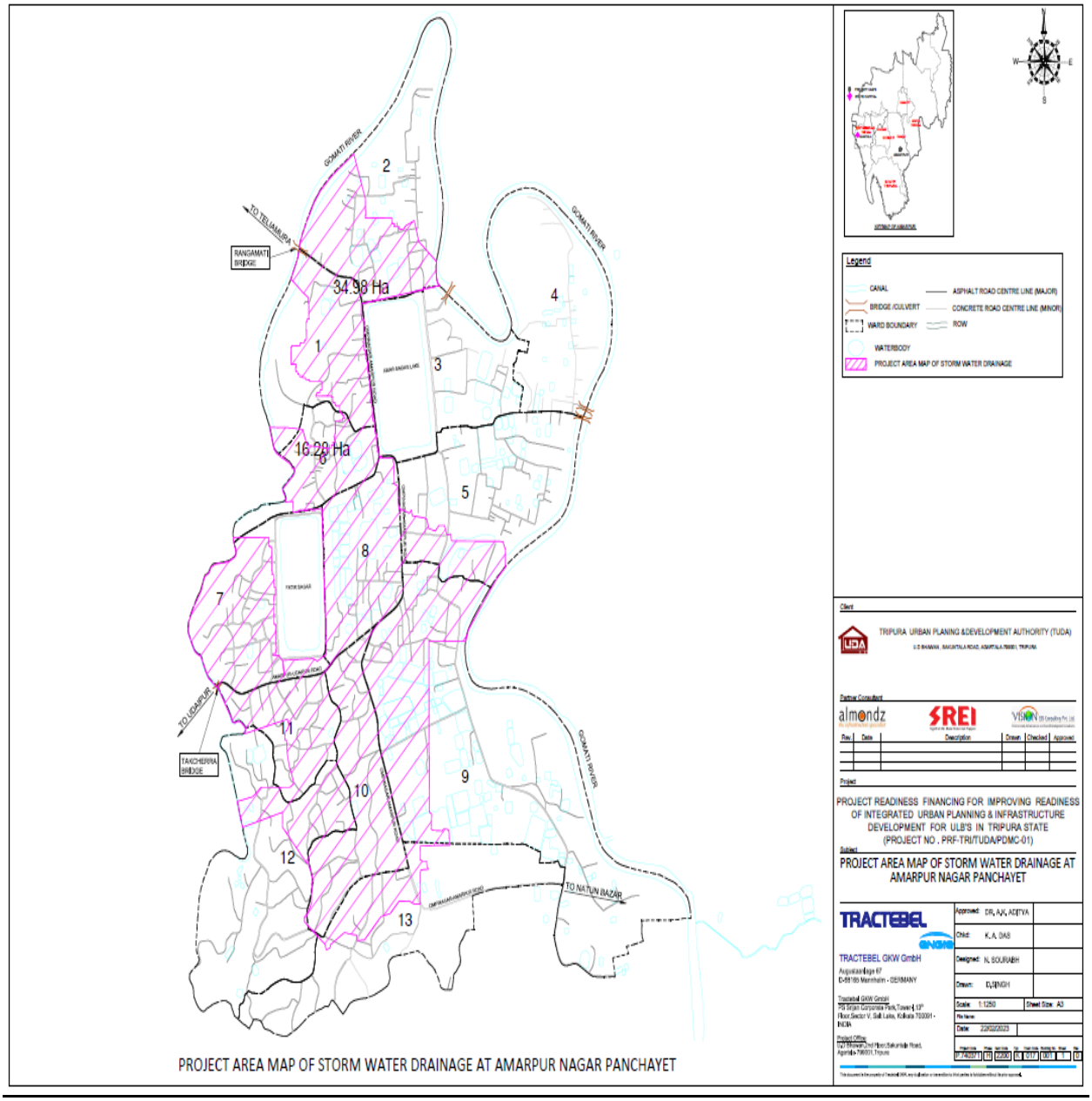
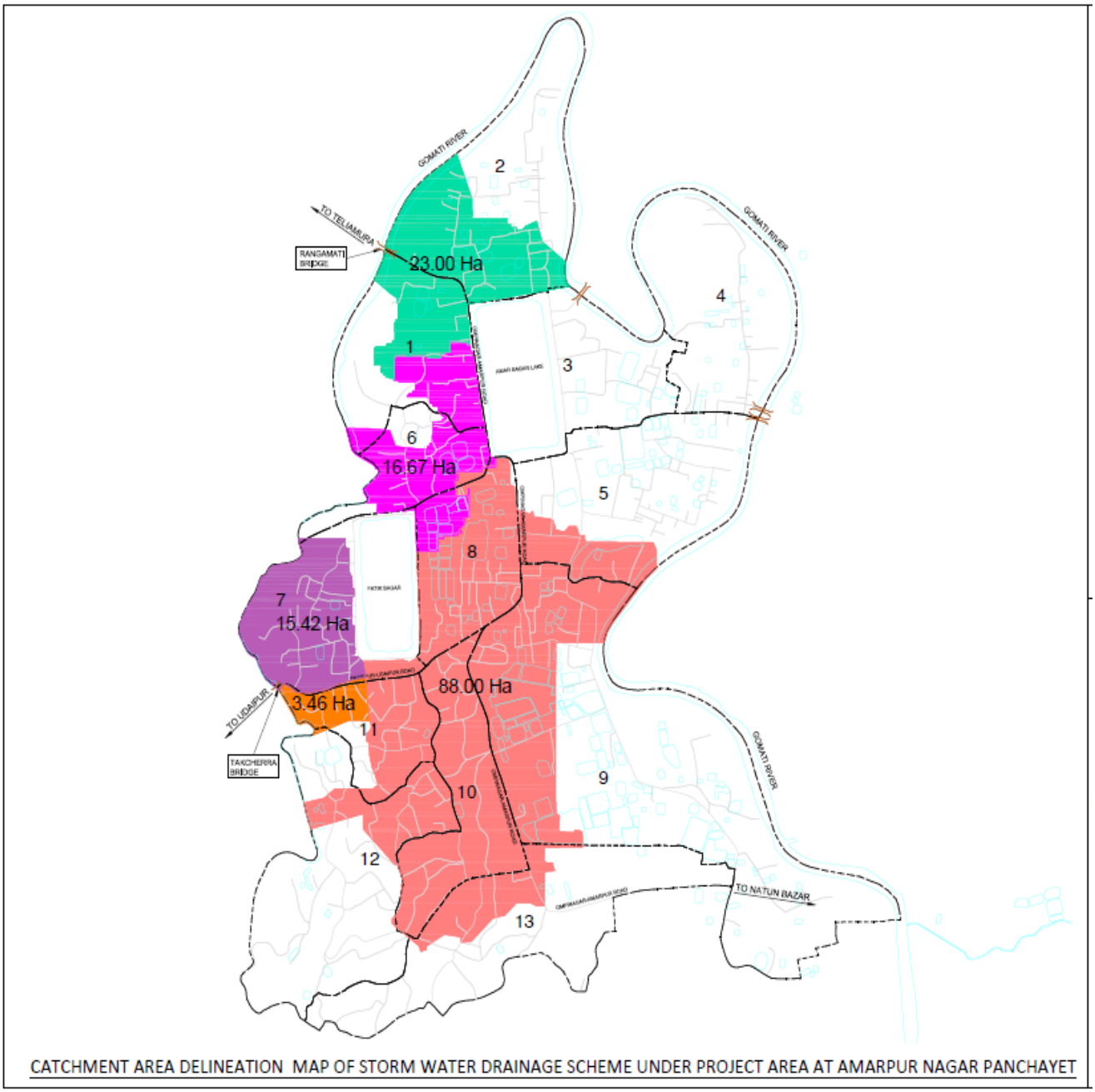


Figure 16: Catchment area delineation map of storm water drainage scheme under project area at Amarpur Nagar Panchayet



Existing and Proposed Road and drainage components Map of Bishramganj town

Figure 17: Proposed Road in Bishramganj on google earth

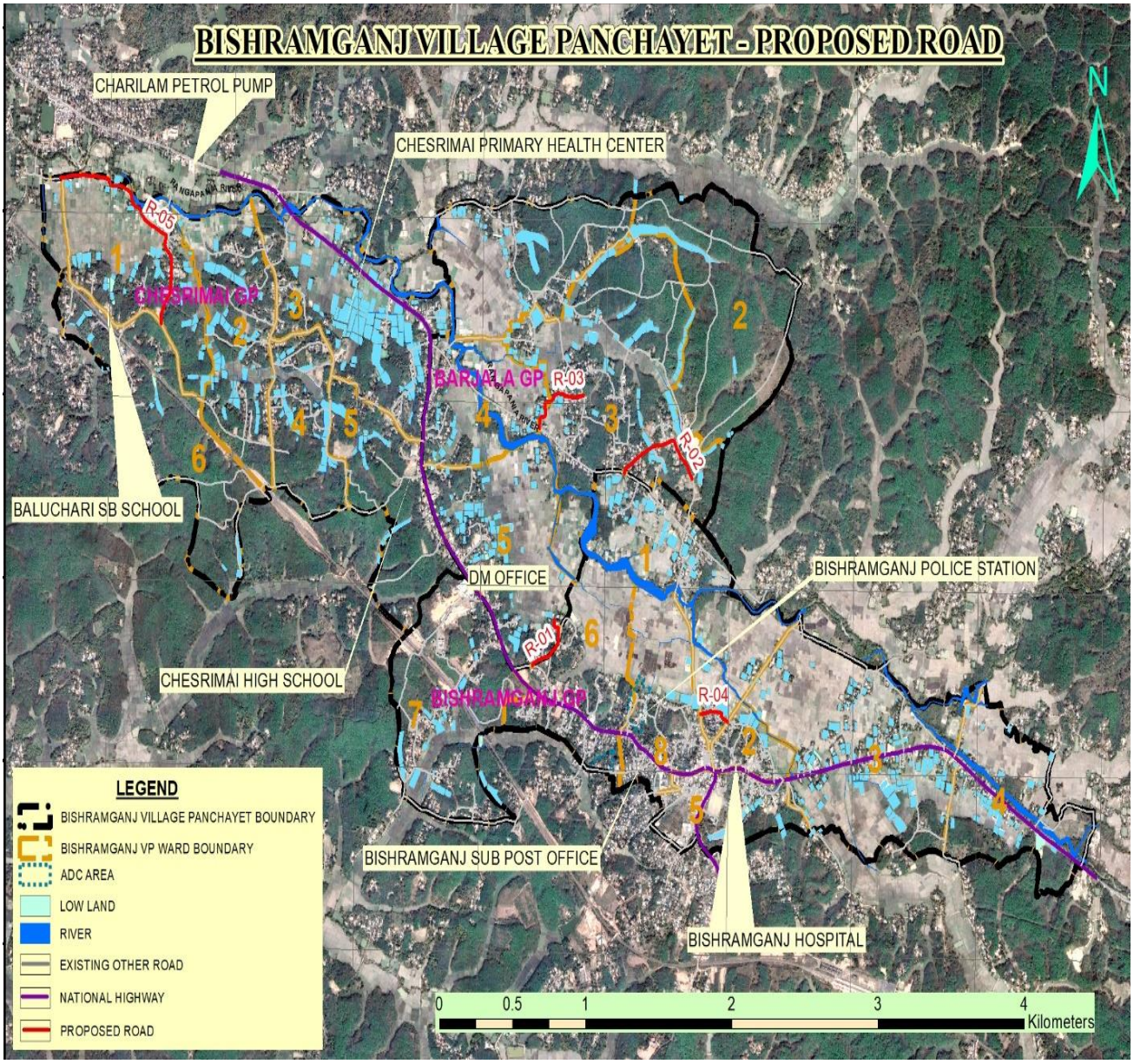
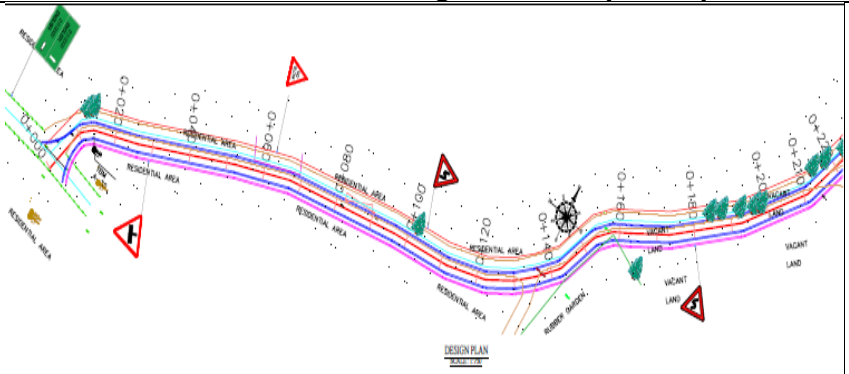
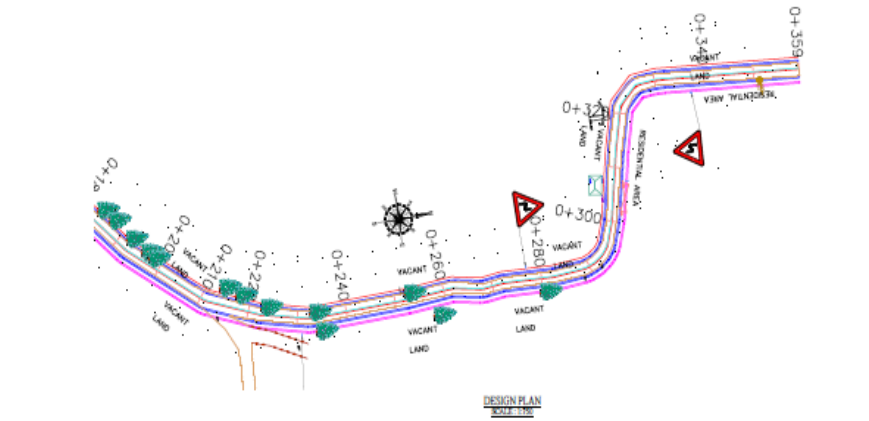
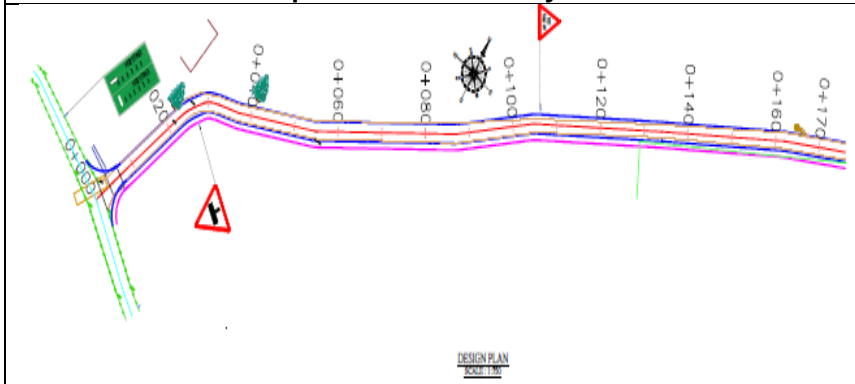


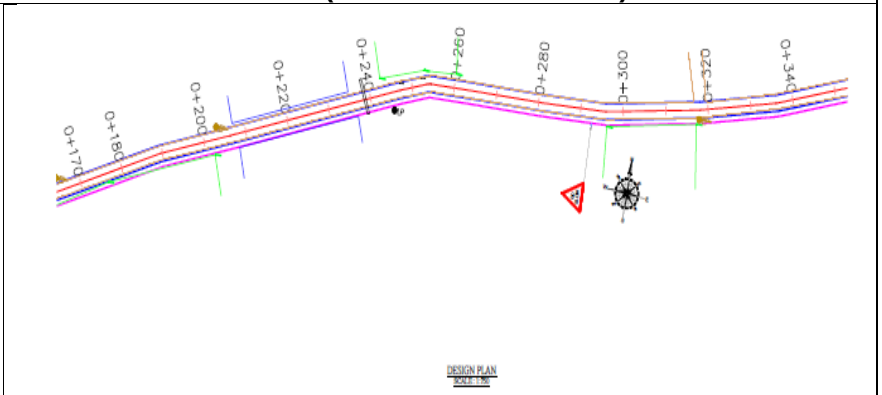
Figure 18: Proposed plan and Profile of the Roads- Bishramganj



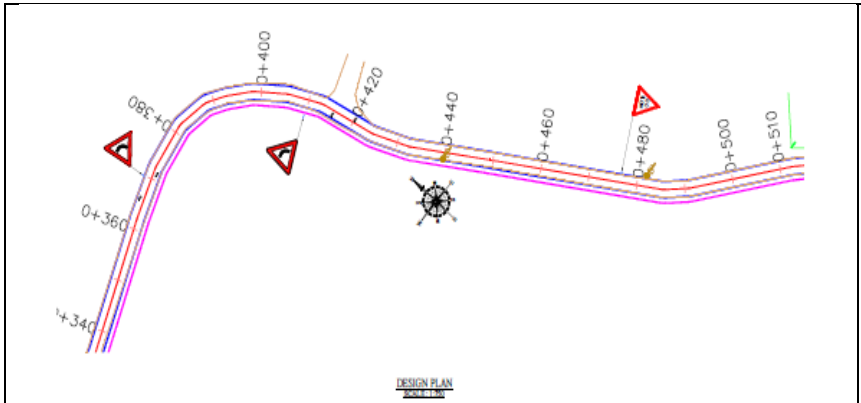


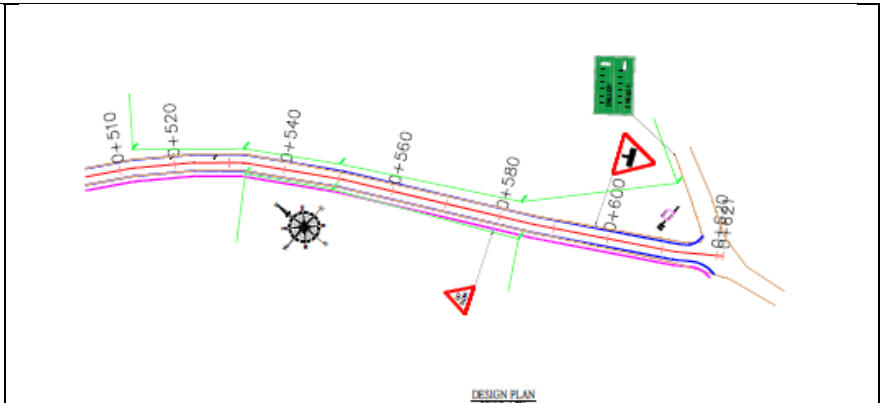
Proposed road from Priyalal Debbarma house to Bikash Debbarma house(Ch. 0+000 to 0+360 km)



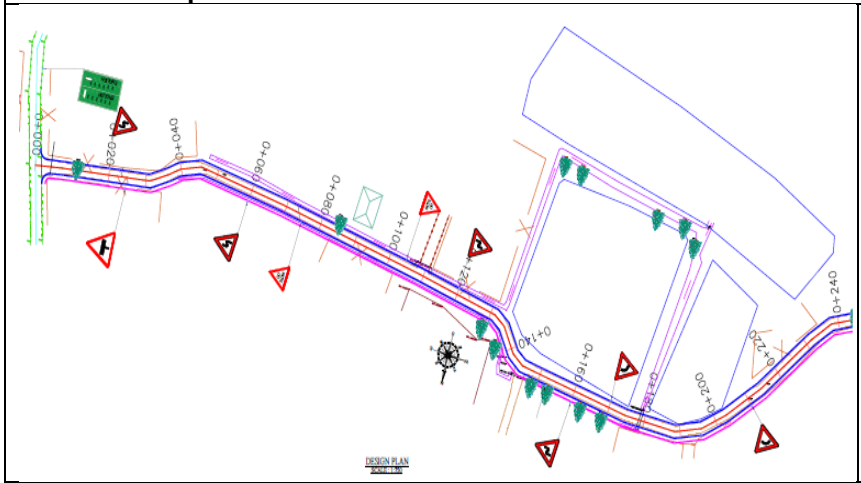


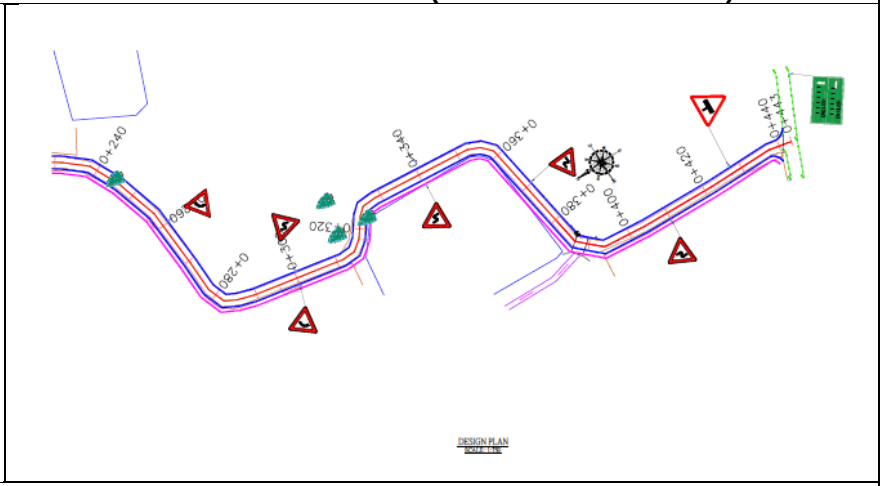
Proposed Road from Lalit Debnath house to Subhash Saha house via Gour Sankar house (Ch. 0+000 to 0+340 km)



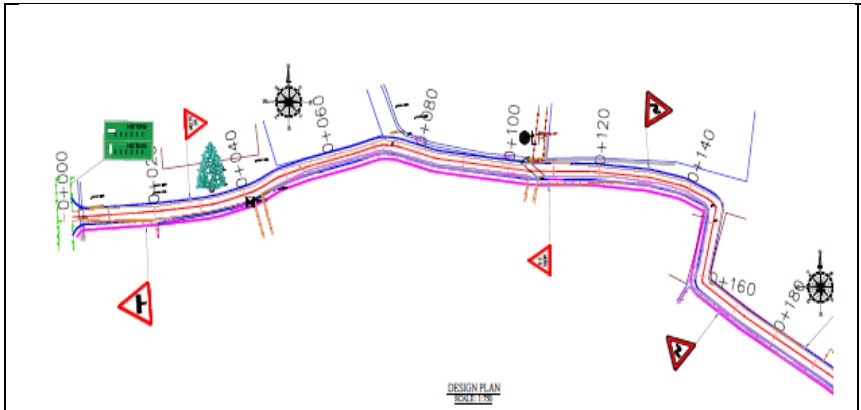


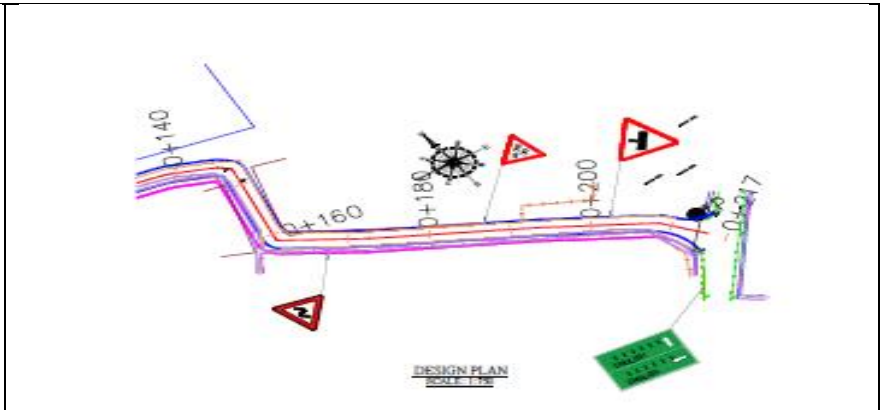
Proposed Road from Lalit Debnath house to Subhash Saha house via Gour Sankar house (Ch. 0+340 to 0+622 km)



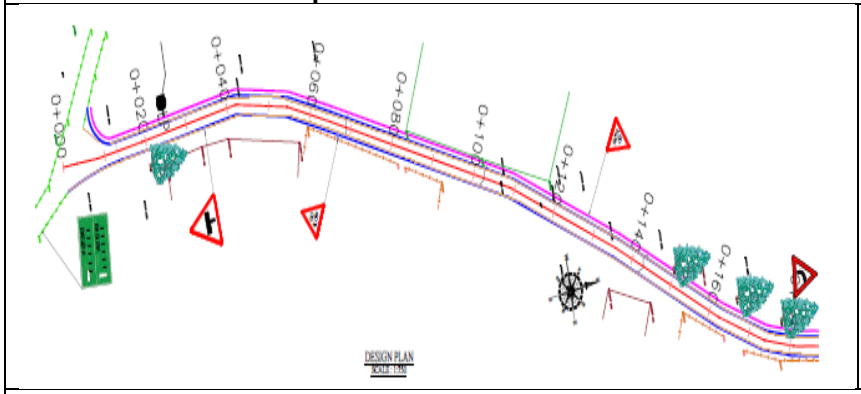


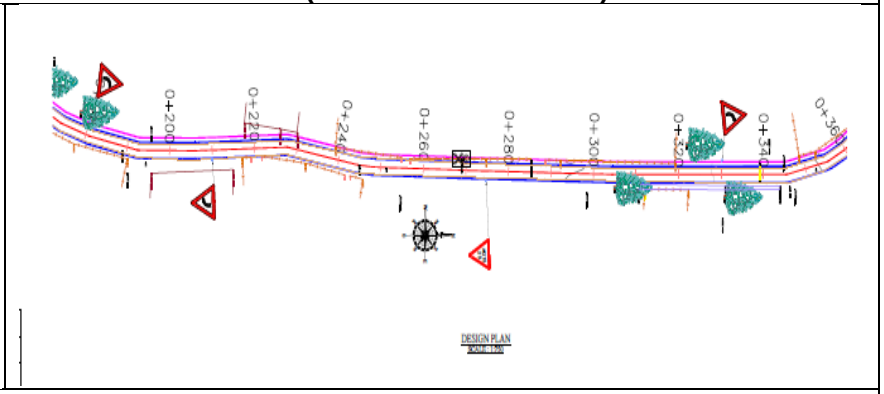
Proposed road from Ramani Paul house to Krishna Debnath house via Sujan Debnath house(Ch. 0+000 to 0+443 km)



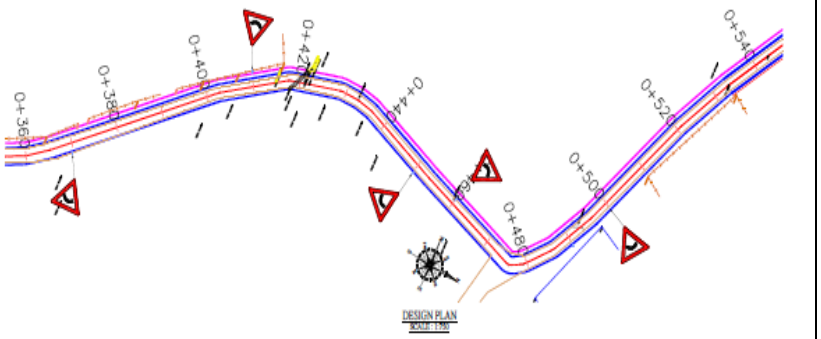


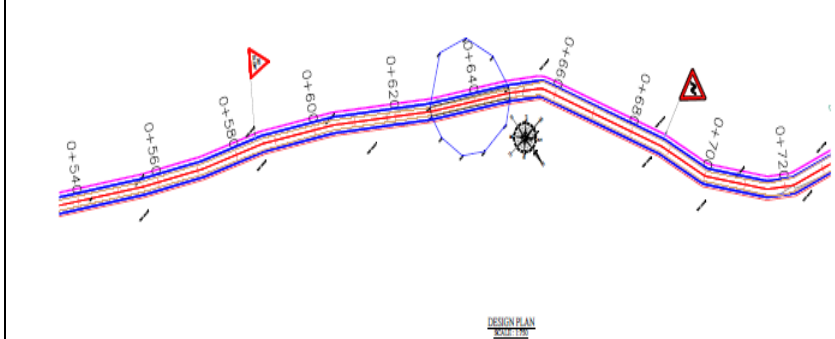
Proposed road from Prahllad Datta house to Nirmal Sutradhar's house(Ch. 0+000 to 0+340 km)



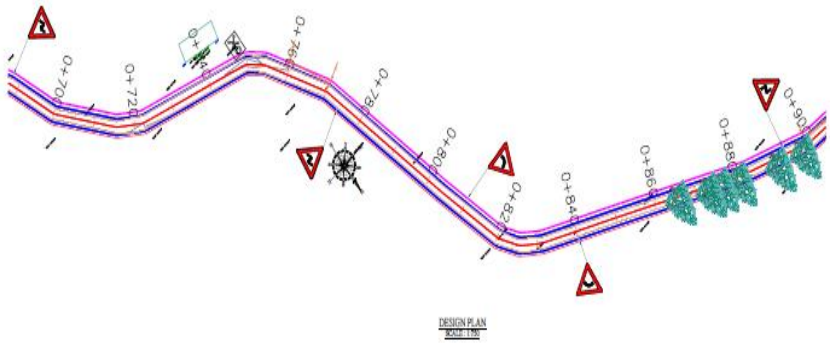


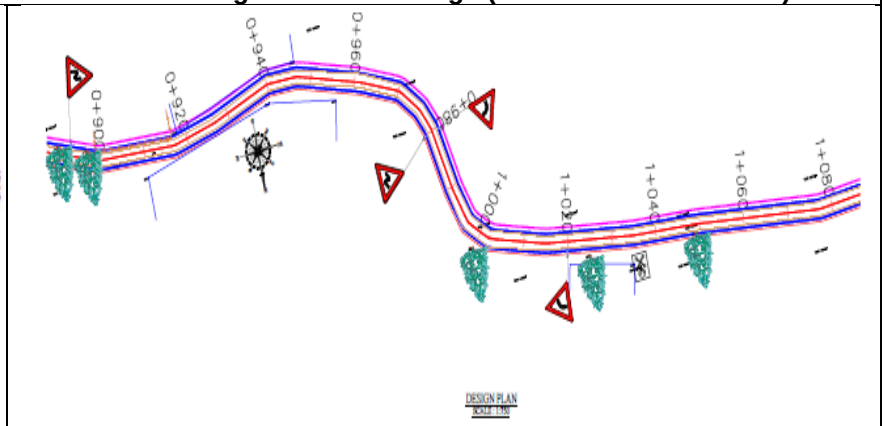
Proposed road from Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge (Ch. 0+000 to 0+360 km)



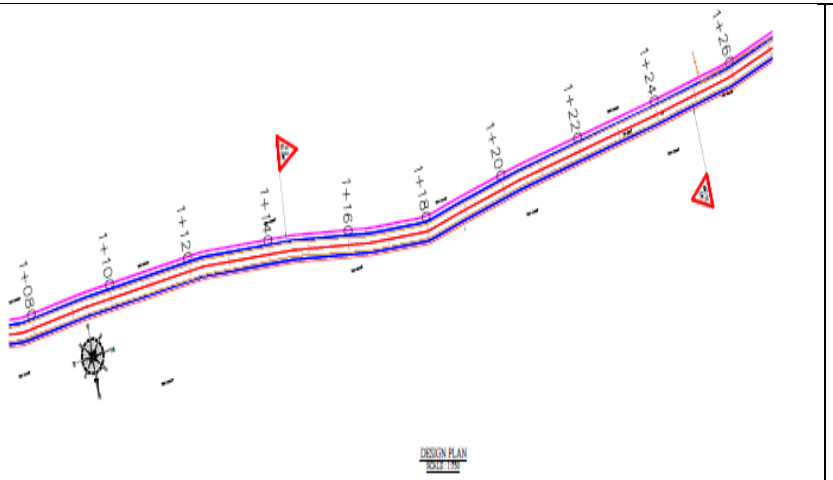


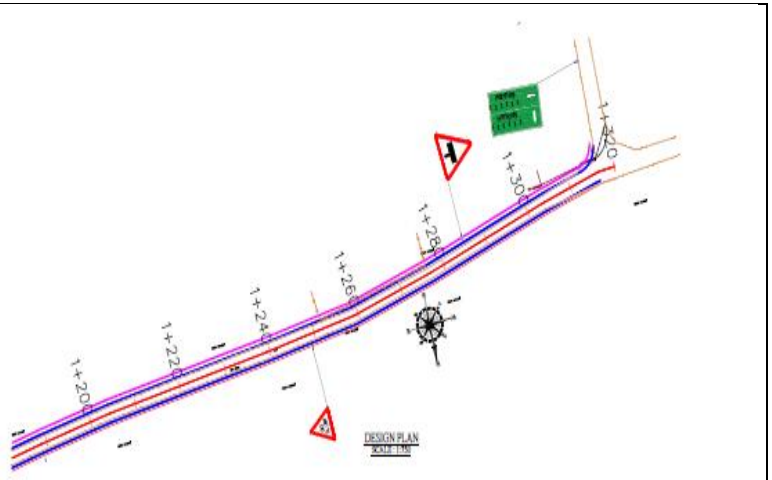
Proposed road from Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge (Ch. 0+360 to 0+720 km)





Proposed road from Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge (Ch. 0+720 to 1+080 km)





Proposed road from Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge (Ch. 1+080 to 1+320 km)

Figure 19: Existing Drain network at Bishramganj

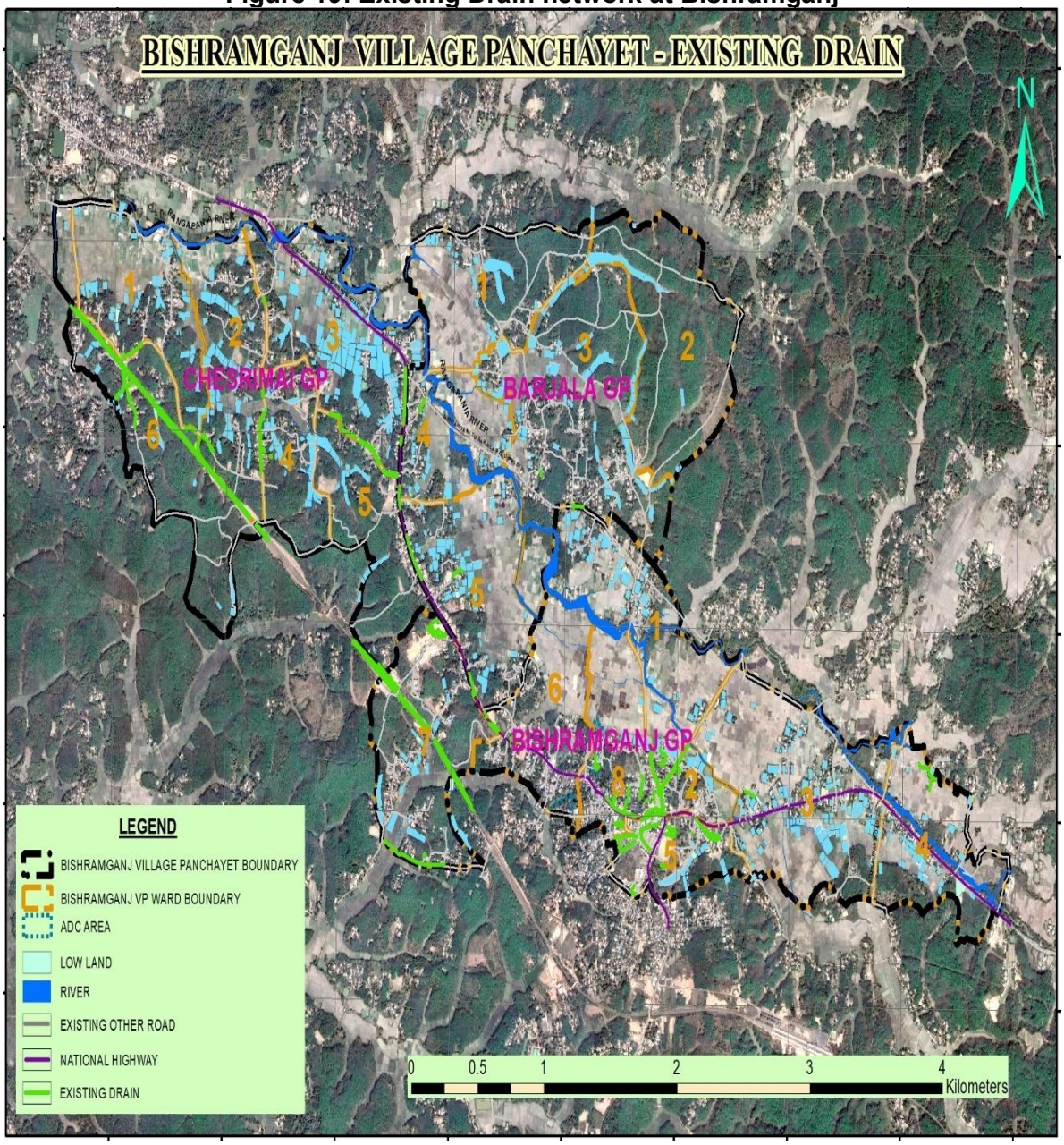


Figure 20: Proposed Drain network at Bishramganj

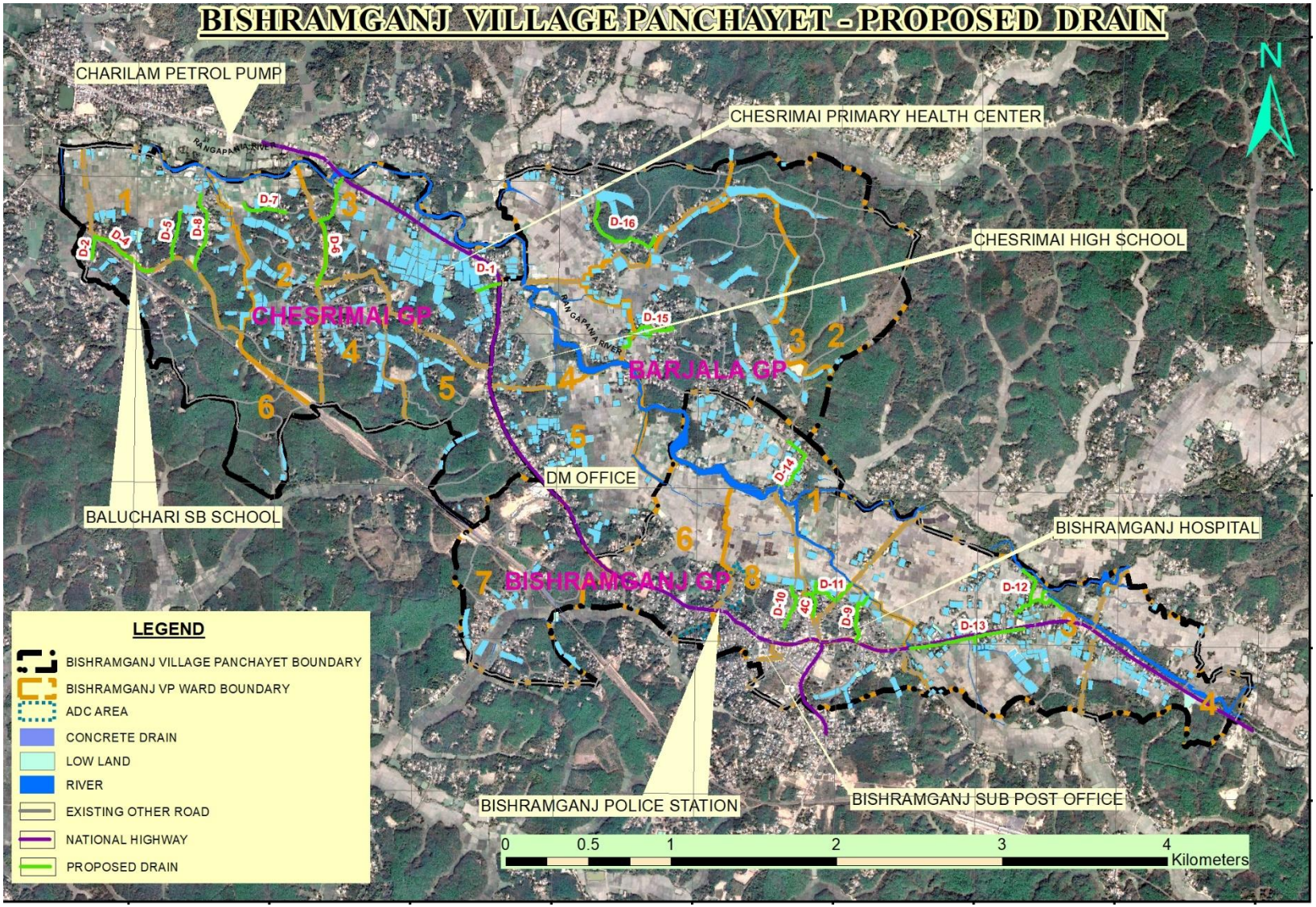
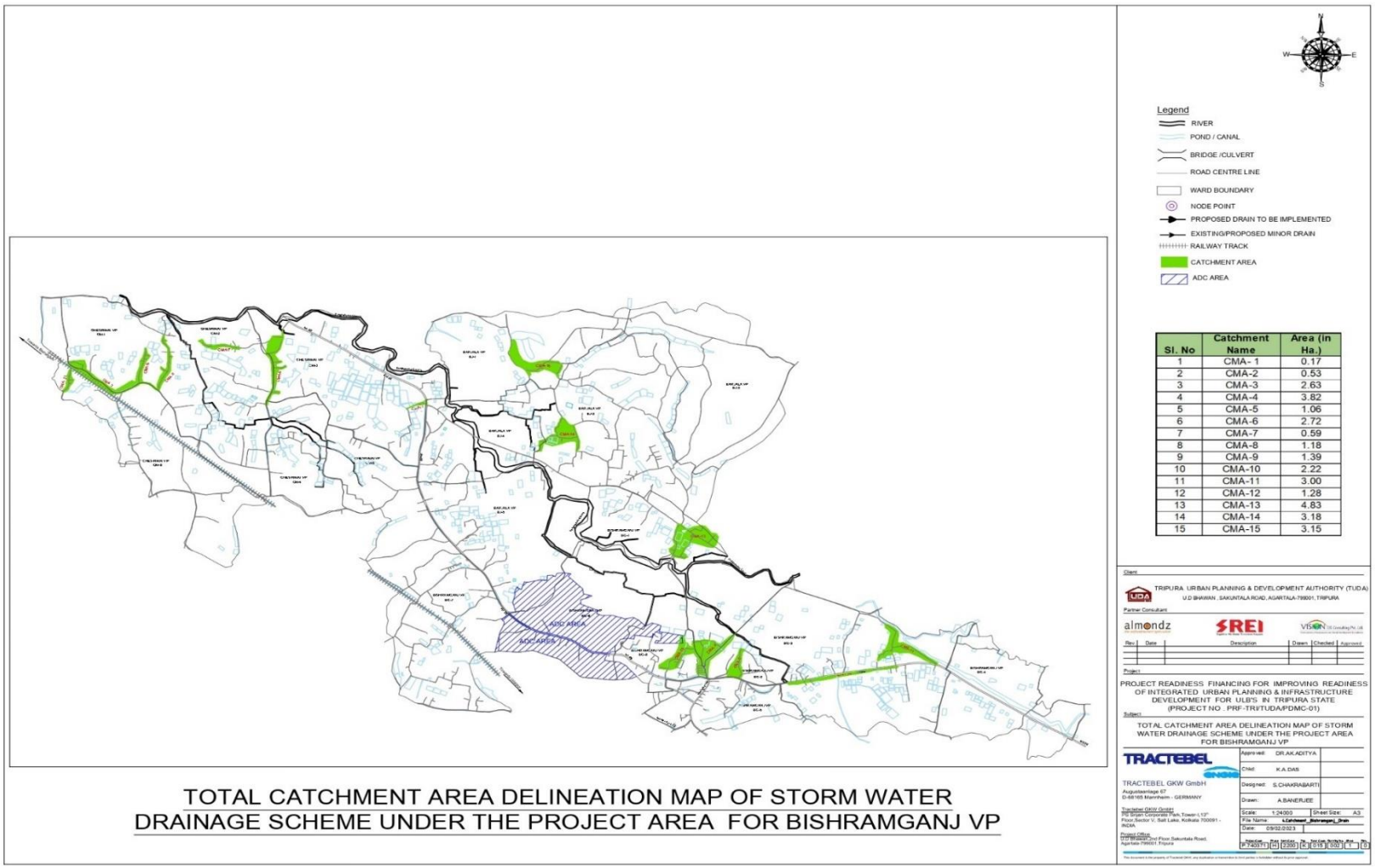


Figure 21: Total Catchment area Delineation map of Storm Water Drainage for Bishramganj



Sl. No	Catchment Name	Area (in Ha.)
1	CMA- 1	0.17
2	CMA-2	0.53
3	CMA-3	2.63
4	CMA-4	3.82
5	CMA-5	1.06
6	CMA-6	2.72
7	CMA-7	0.59
8	CMA-8	1.18
9	CMA-9	1.39
10	CMA-10	2.22
11	CMA-11	3.00
12	CMA-12	1.28
13	CMA-13	4.83
14	CMA-14	3.18
15	CMA-15	3.15

Existing and Proposed Road and Drain components Maps of Melaghar town

Figure 22*:* Proposed Road in Melaghar town on google earth

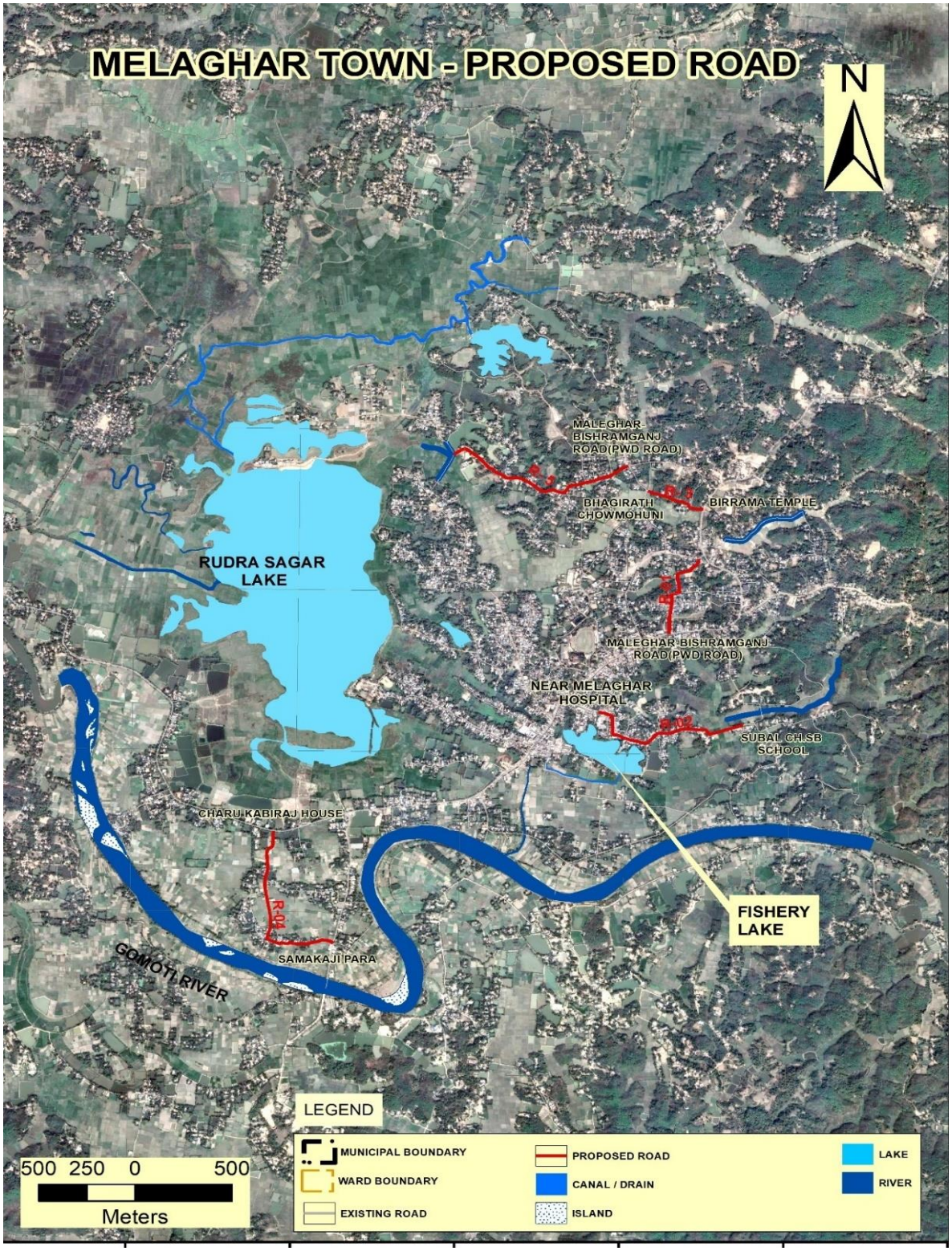
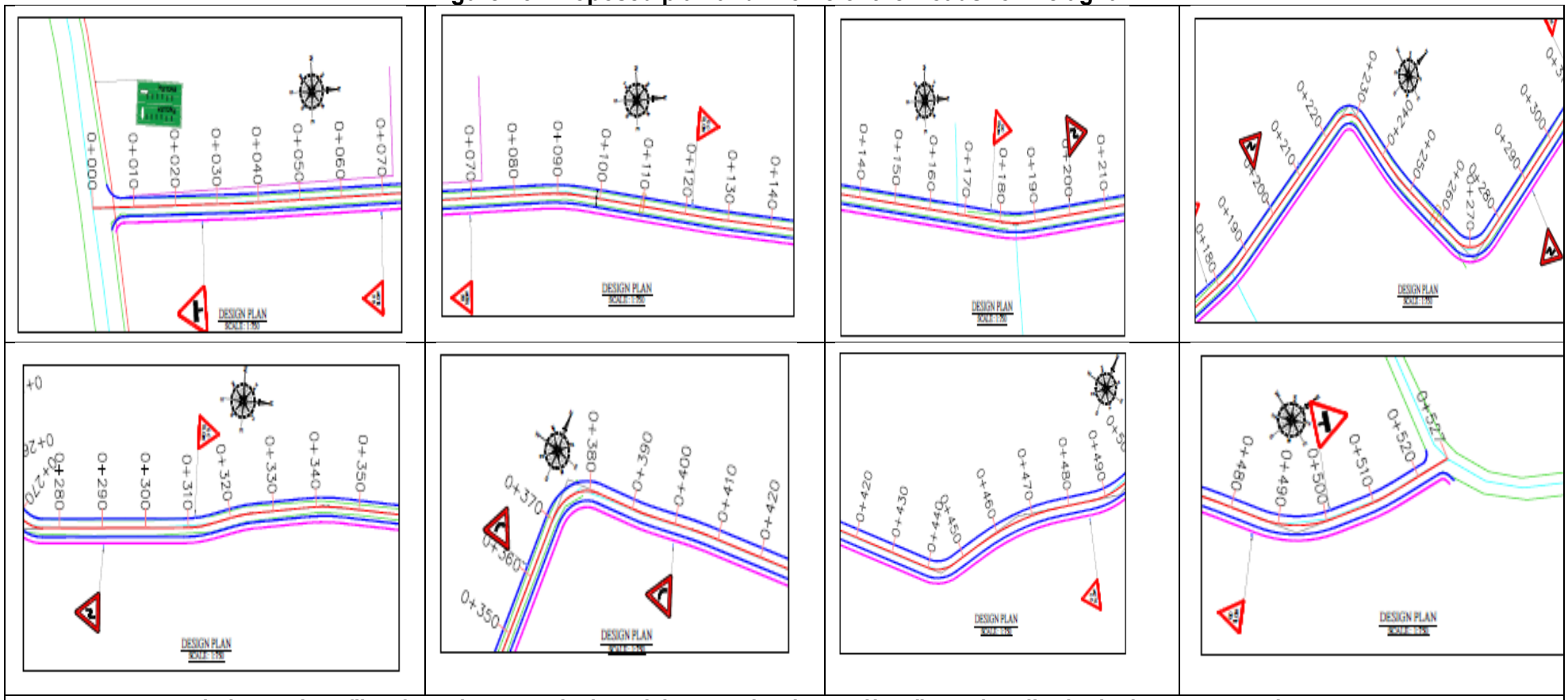
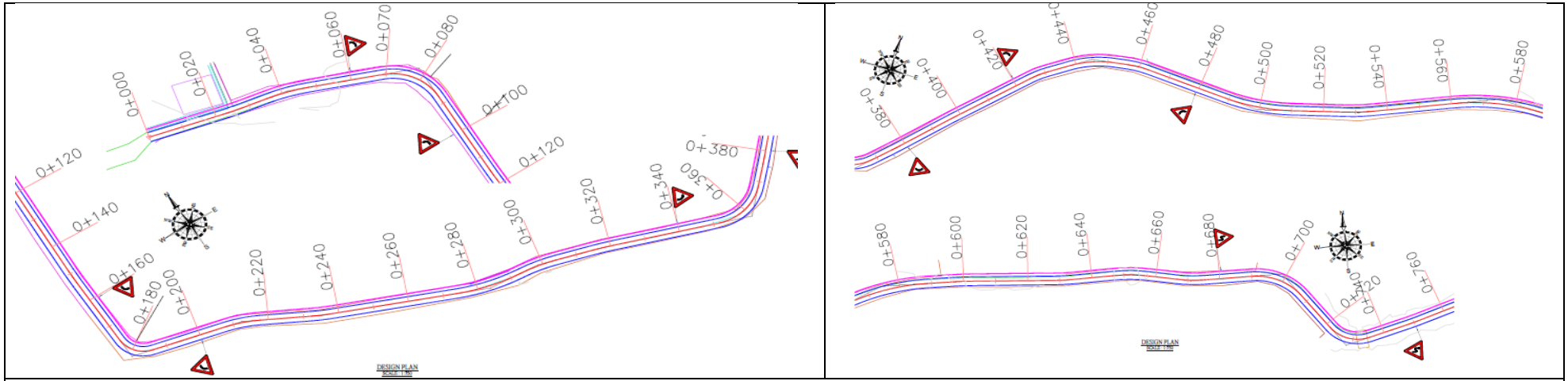


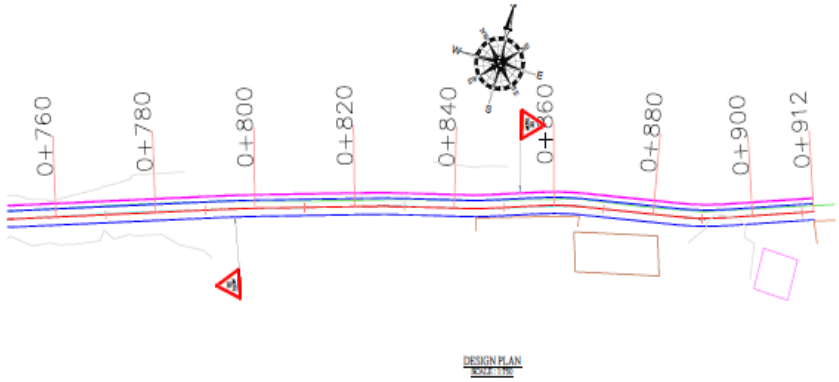
Figure 23: Proposed plan and Profile of the Roads for Melaghar



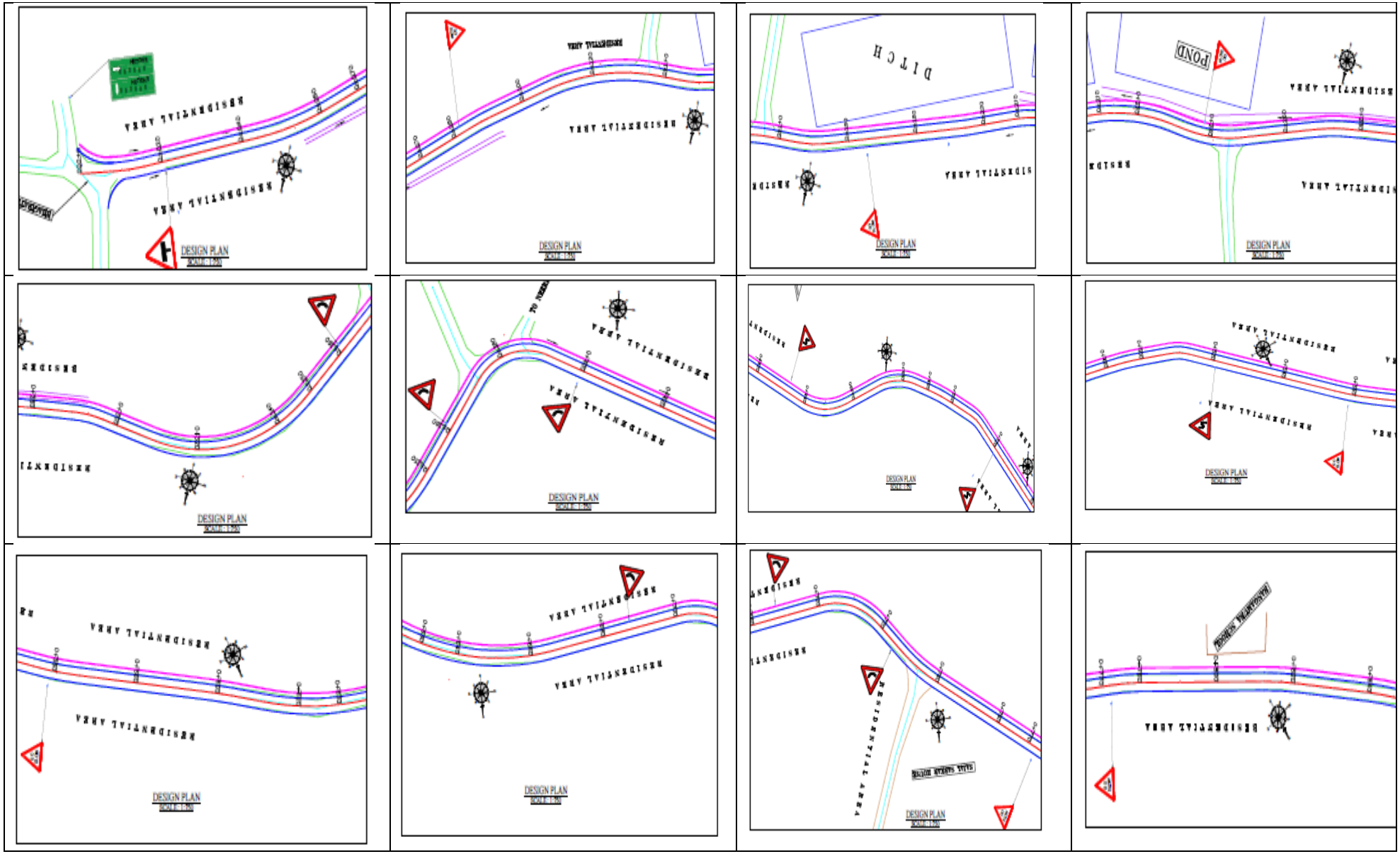
Proposed Plan And Profile Of Road From Melaghar Bishramganj Main Road(Pwd) To Biswajit Charkraborty House Ch. 0+000 To 0+527

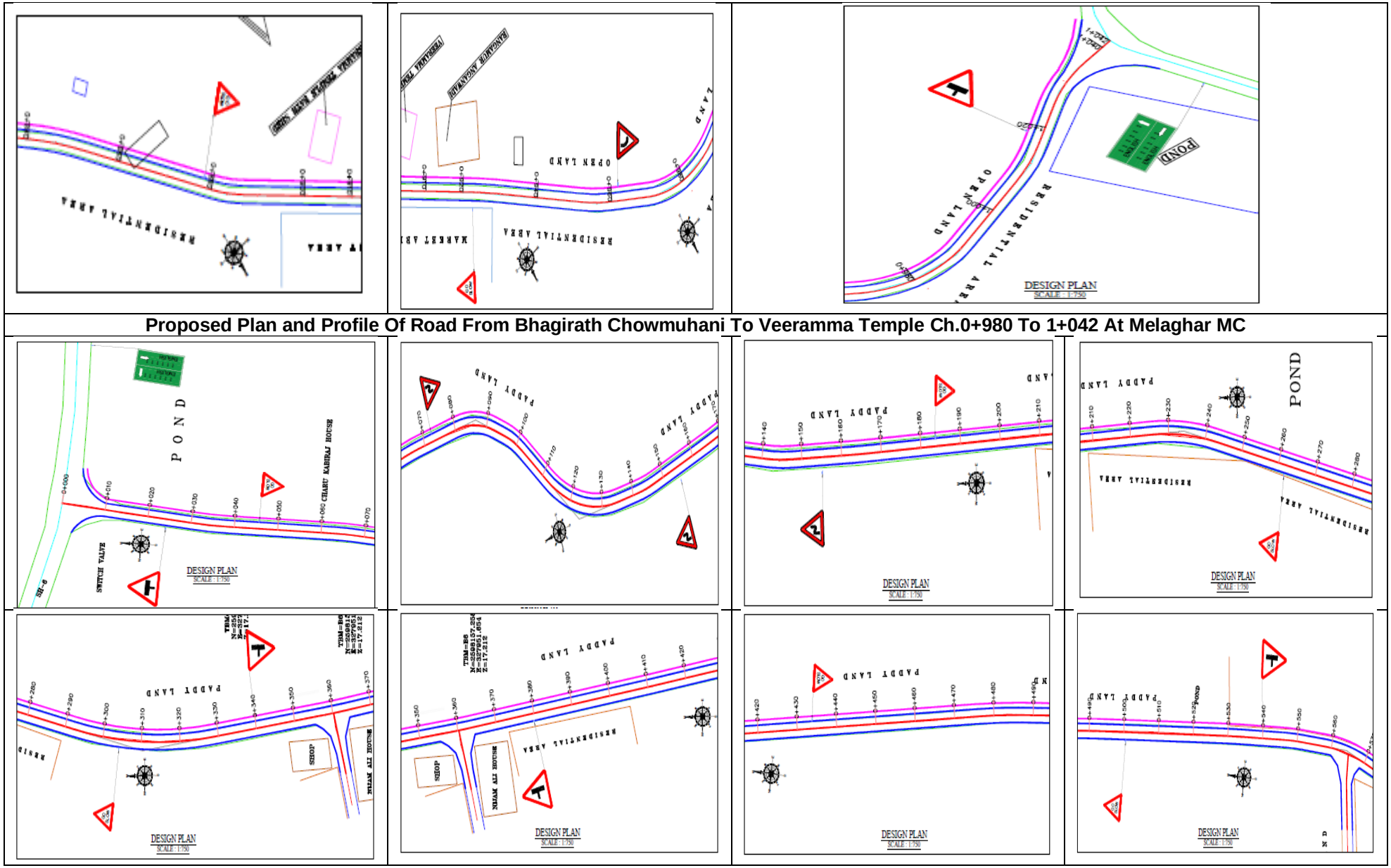


Proposed Plan and Profile Of Road From Melaghar Hospital To Subal Ch. Sb School Ch. 0+000 To 0+760 At Melaghar MC

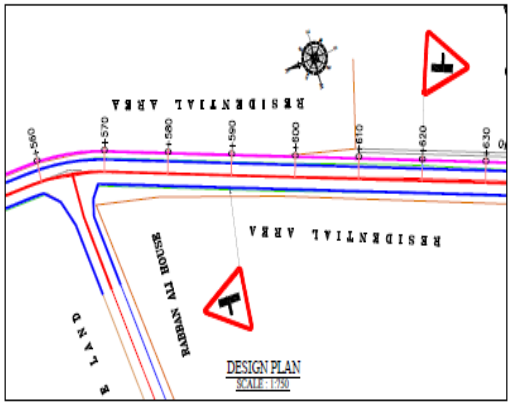


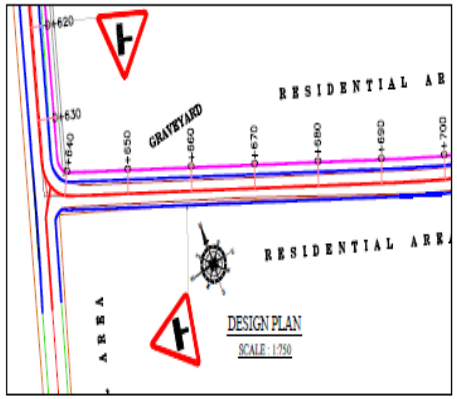
Proposed Plan and Profile Of Road From Melaghar Hospital To Subal Ch. Sb School Ch. 0+760 To 0+912 At Melaghar MC

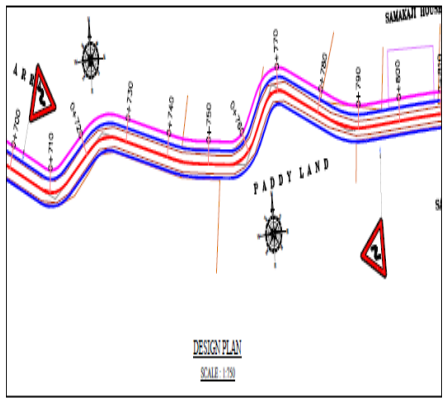

RESIDENTIAL AREA
DESIGN PLAN
DITCH
POND

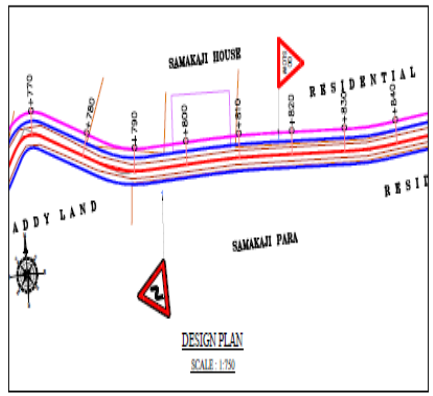


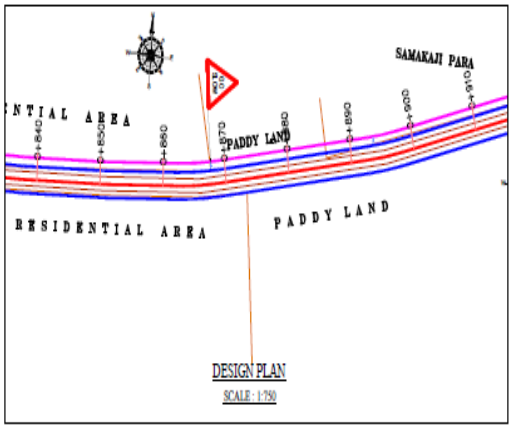
Proposed Plan and Profile Of Road From Bhagirath Chowmuhani To Veeramma Temple Ch.0+980 To 1+042 At Melaghar MC

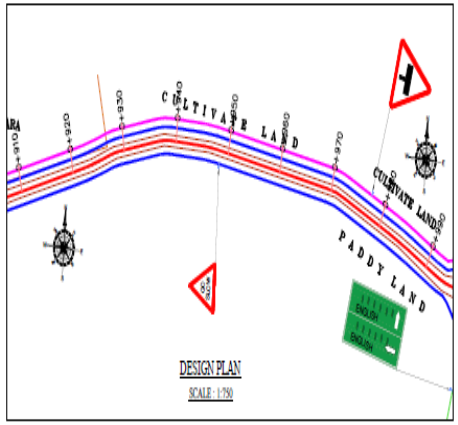


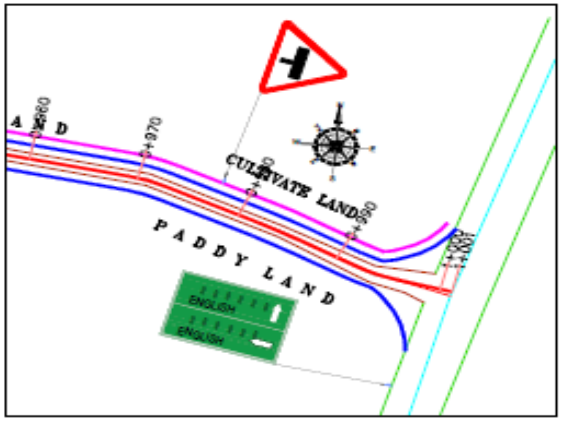




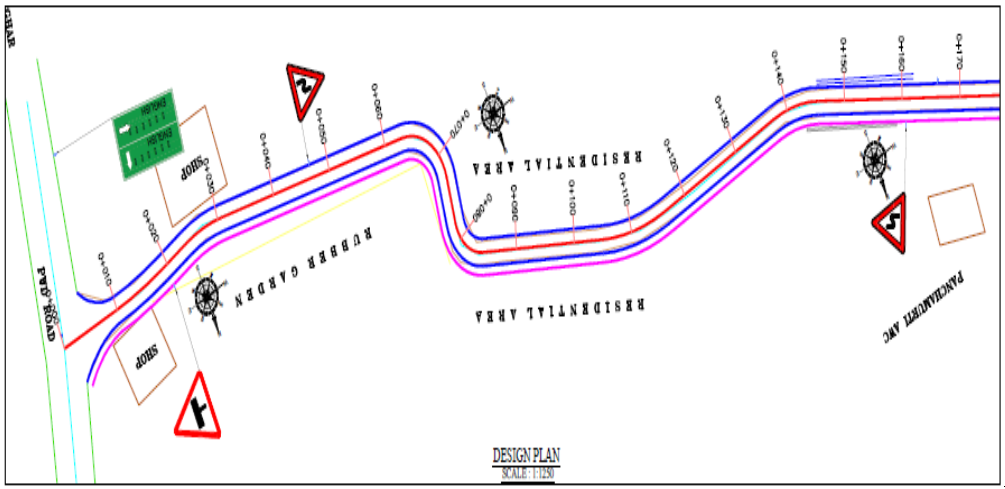


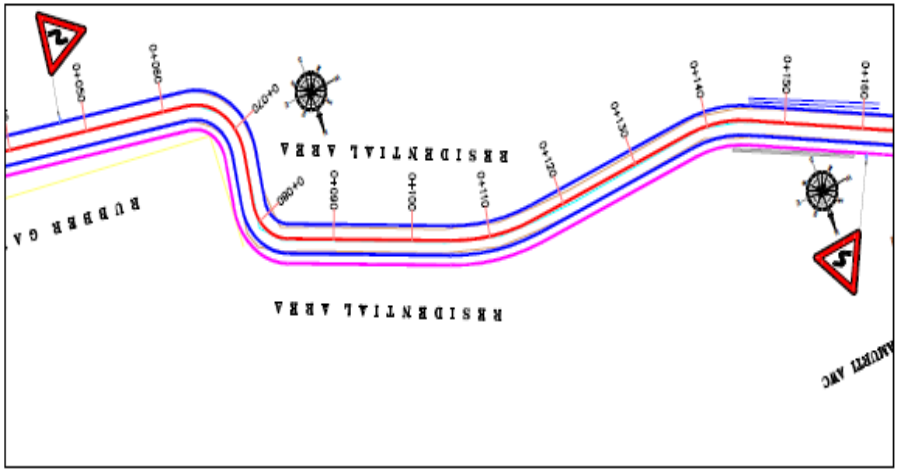


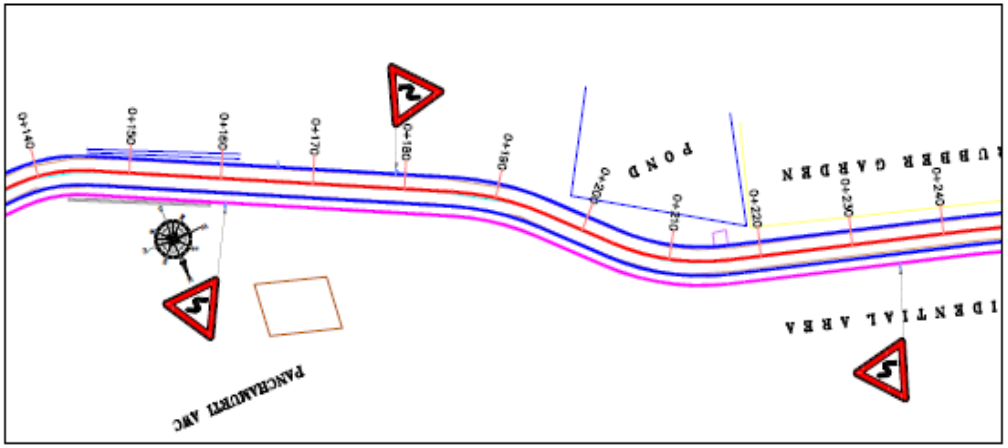


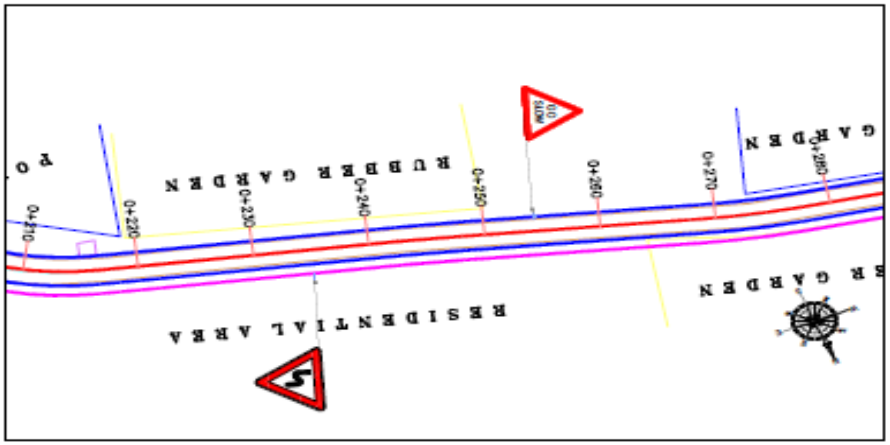


Proposed plan and profile of road from Bhagirath Charu Kabiraj house Samakaji Para at Melaghar MC Ch. 0+000 To 0+1002

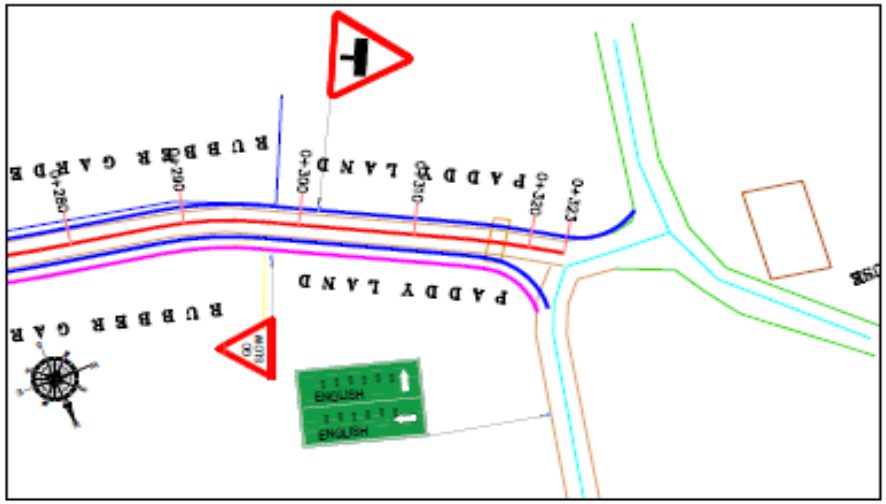








Proposed plan and profile of road from Melaghar-Bishramganj road (PWD) to Nikhil Barman house Ch.0+000 To 0+280 at Melaghar MC



Proposed plan and profile of road from Melaghar-Bishramganj road (PWD) to Nikhil Barman House Ch.0+280 To 0+323 at Melaghar MC

Figure 24: Existing Drainage components in Melaghar on google earth

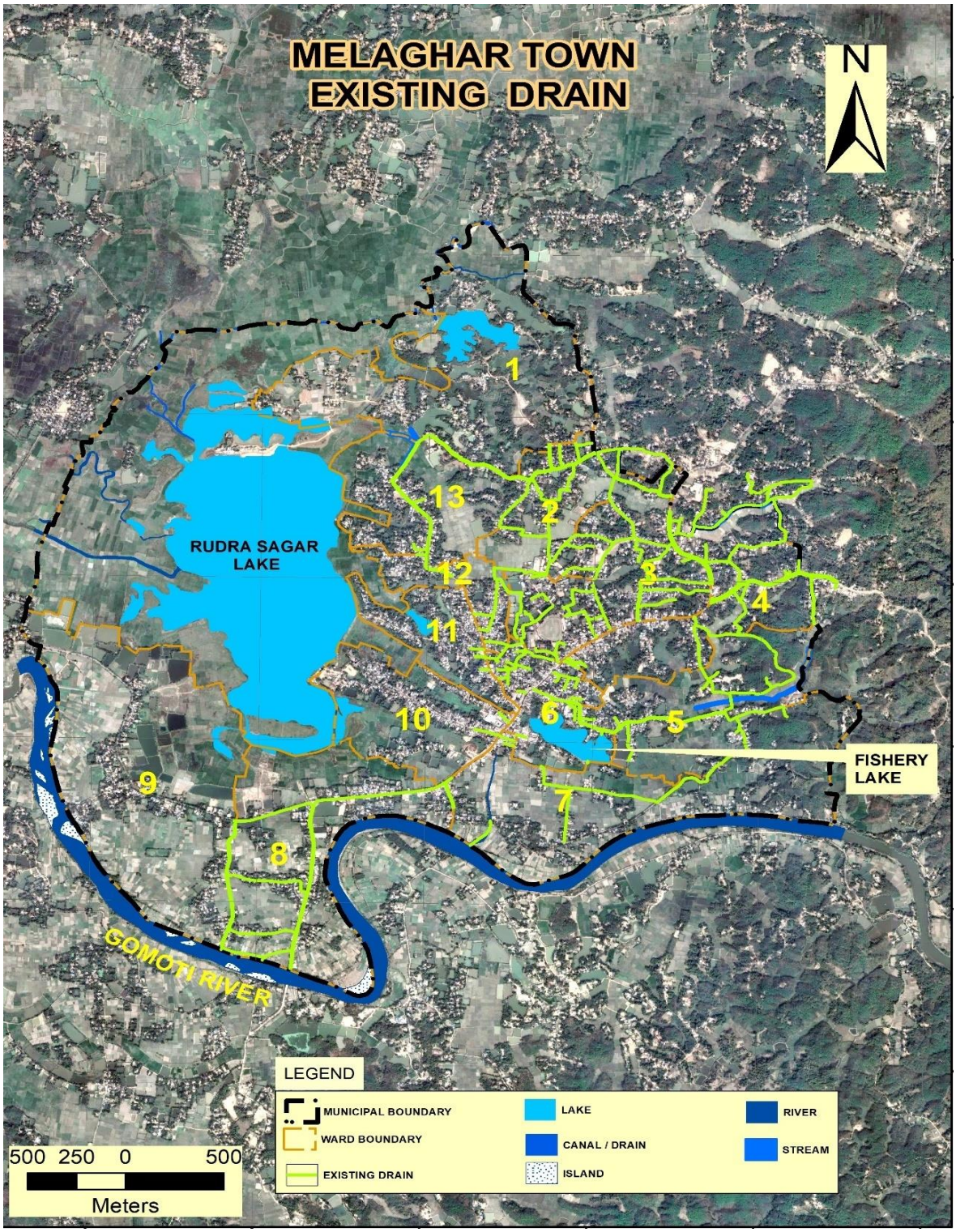


Figure 25: Proposed Drainage components in Melaghar on google earth

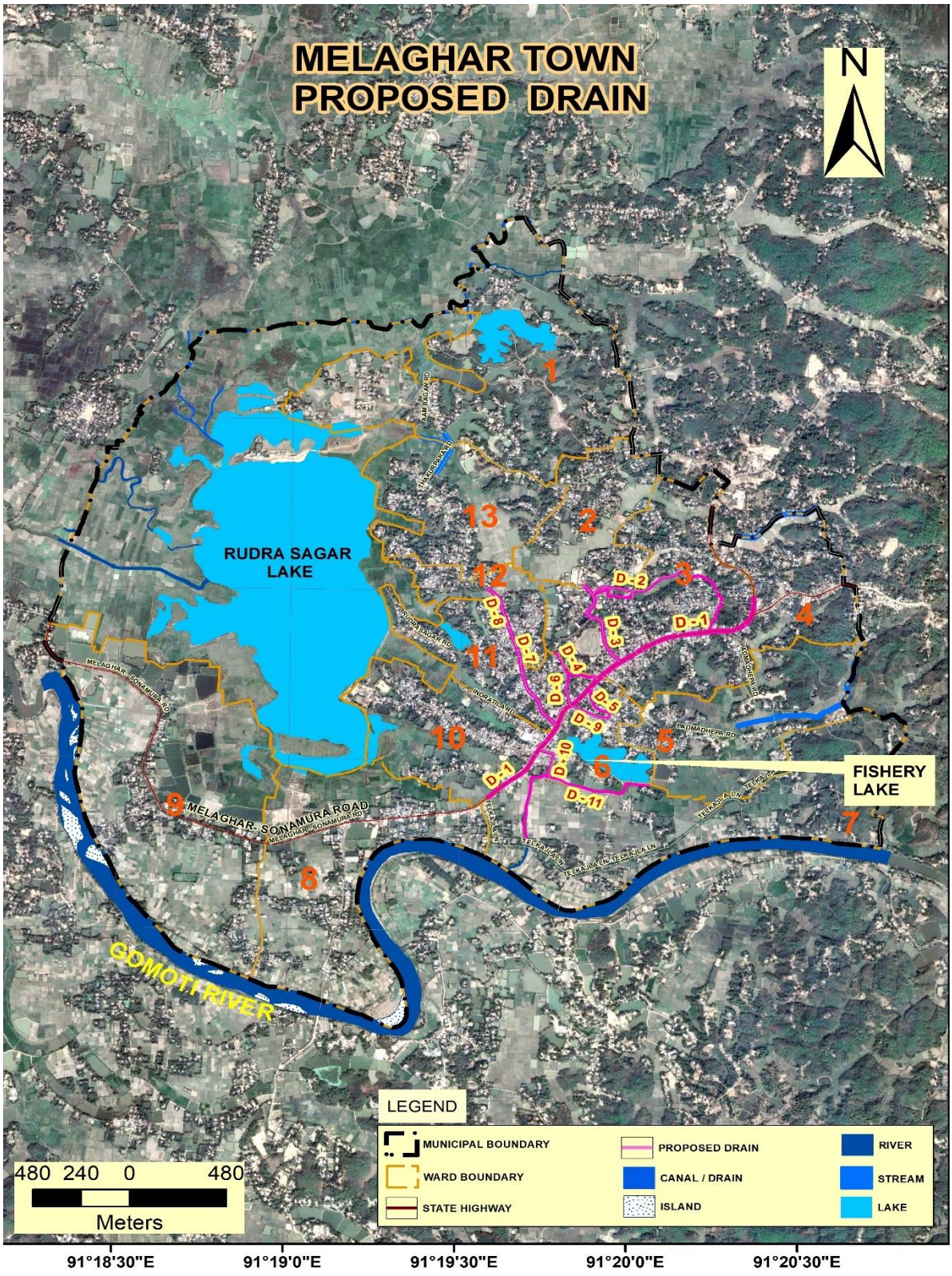
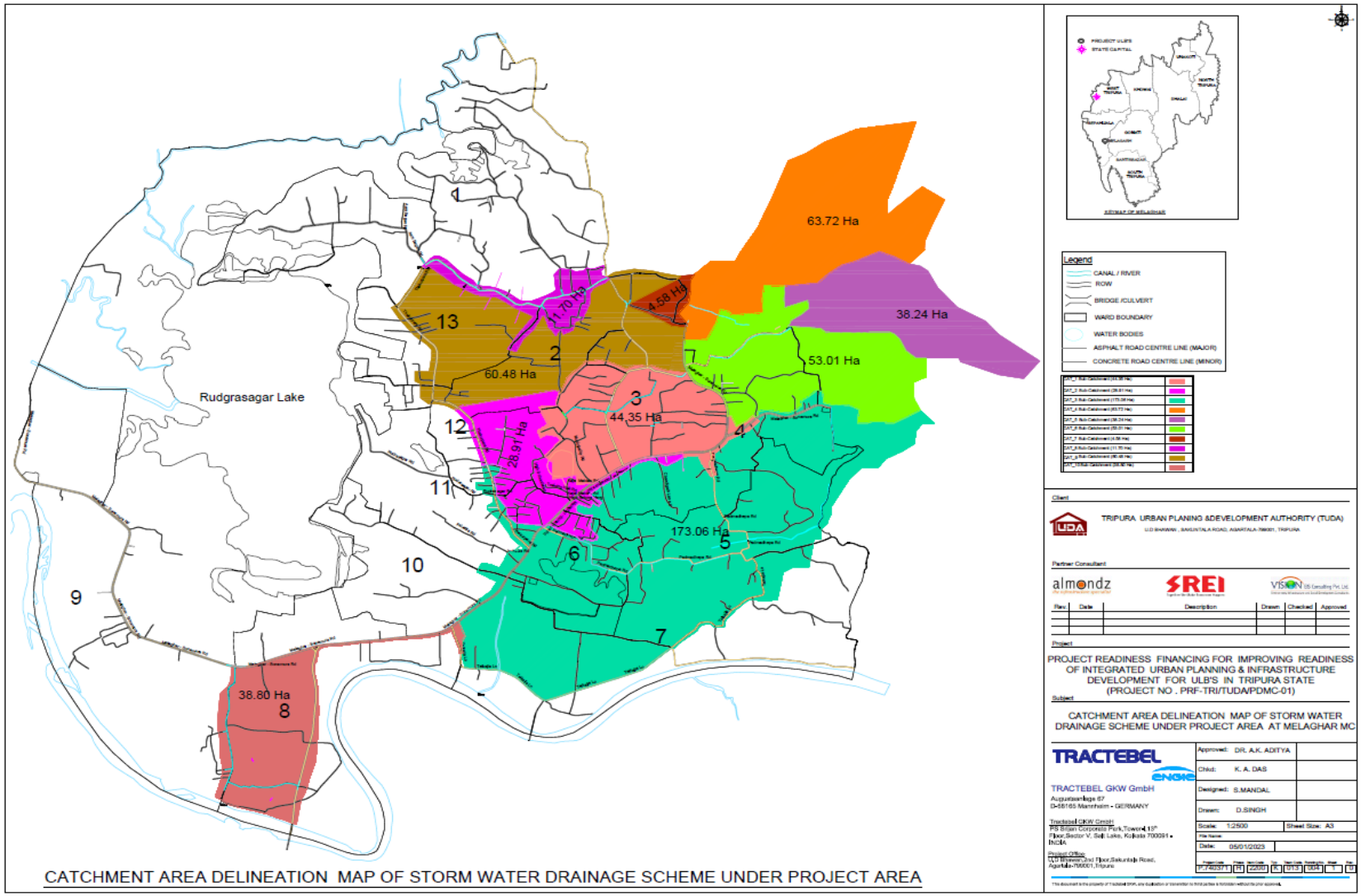


Figure 26: Total Catchment area Delineation map of Storm Water Drainage for Melaghar



Existing and Proposed Road and Drainage components Maps of Belonia town

Figure 27: Proposed Road components in Belonia on google earth

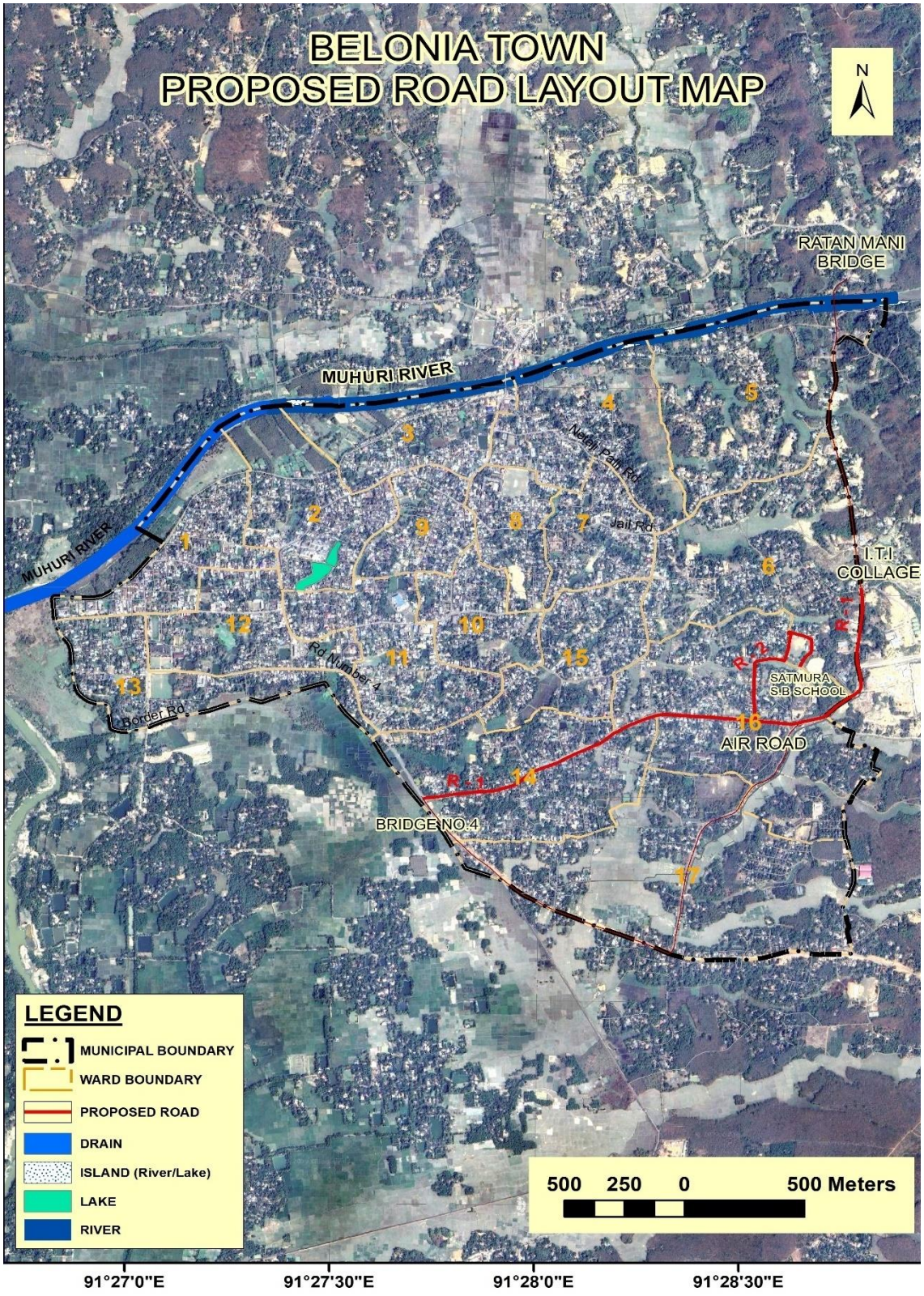
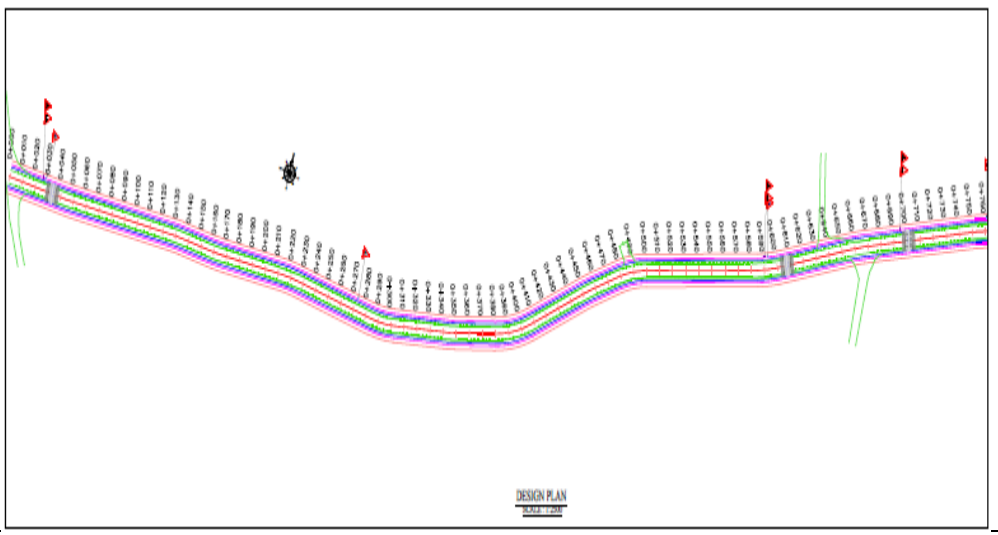
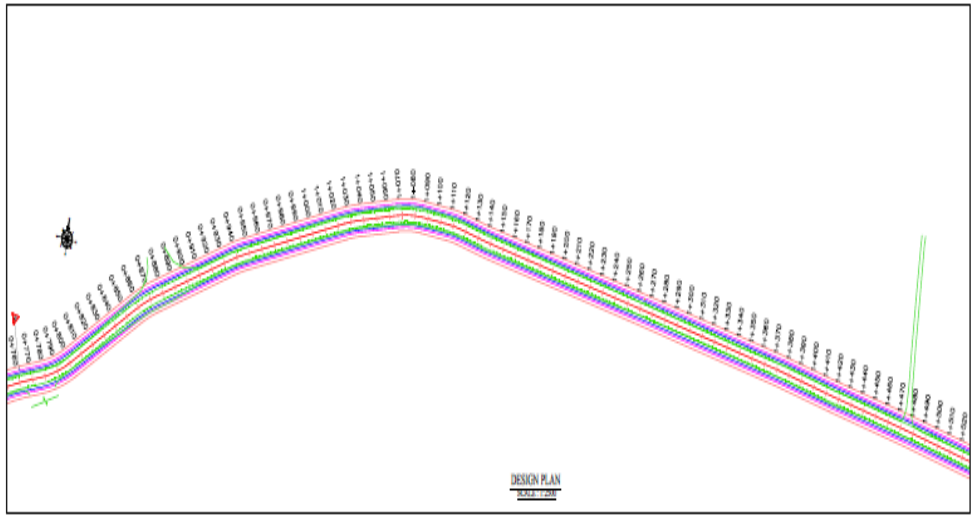
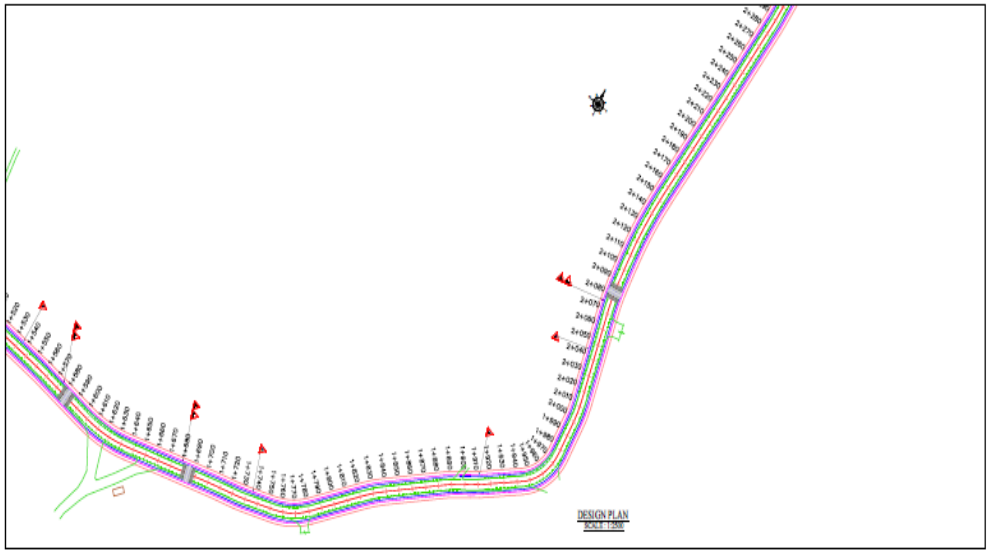
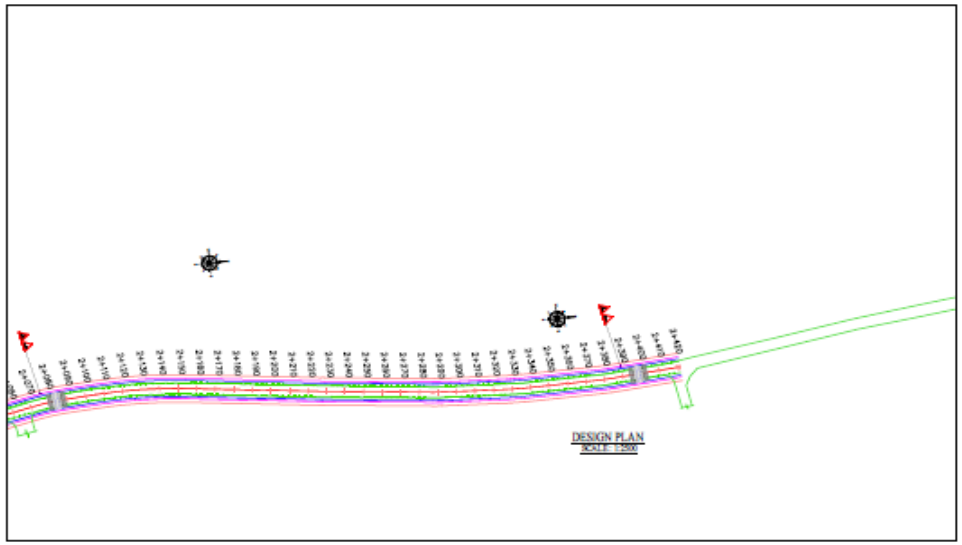


Figure 28: Proposed plan and Profile of the Roads of Belonia









Proposed Plan And Profile Of Road From Bridge No- 4 I.T.I Collage Via Collage Square Ch.0+000 To 2+420 At Belonia MC



Proposed Plan And Profile Of Road From Satmura S.B. School To AIR Road Ch.0+000 To 0+758 At Belonia MC

Figure 29: Existing Drainage components in Belonia on google earth

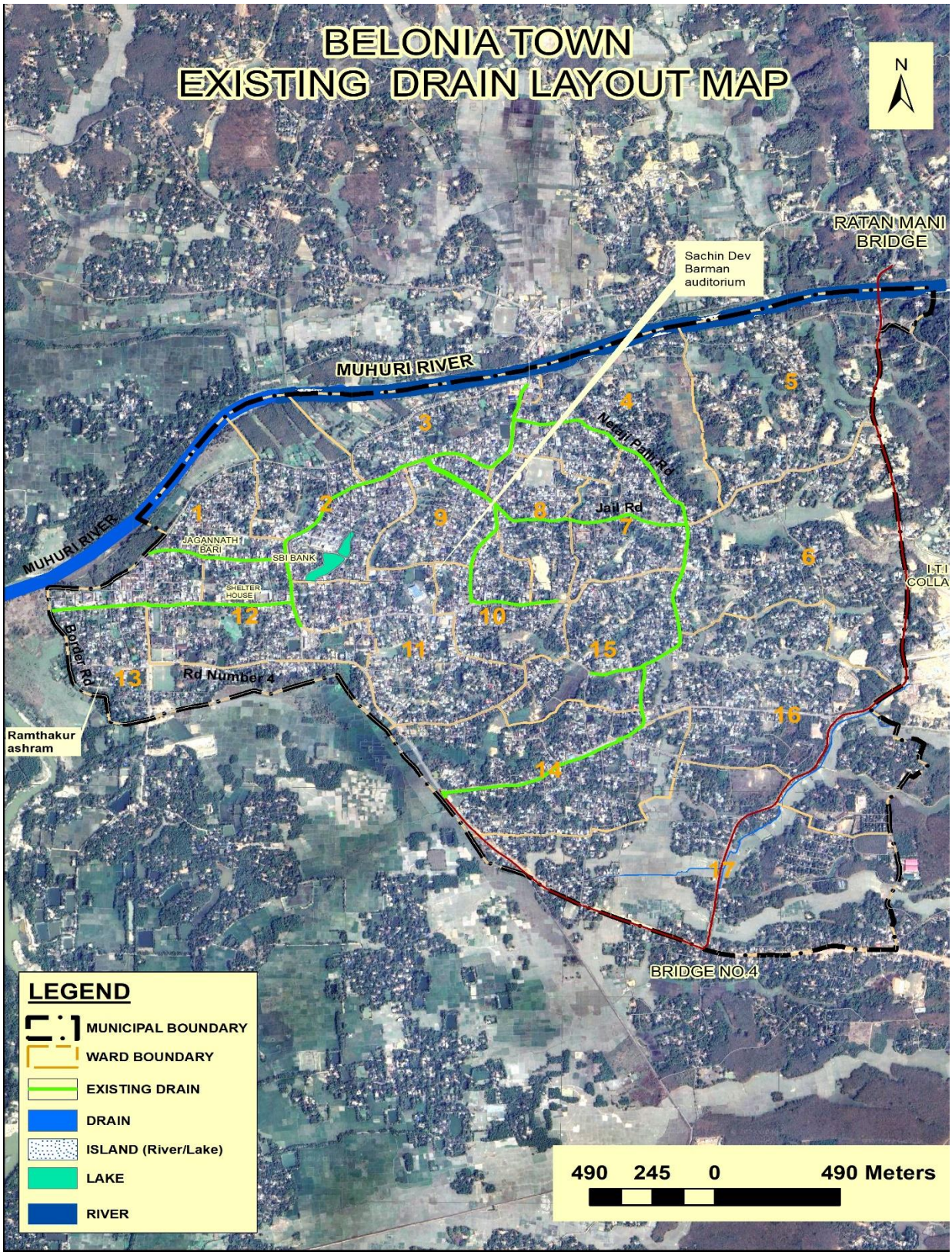


Figure 30: Proposed Drain in Belonia on Google Earth

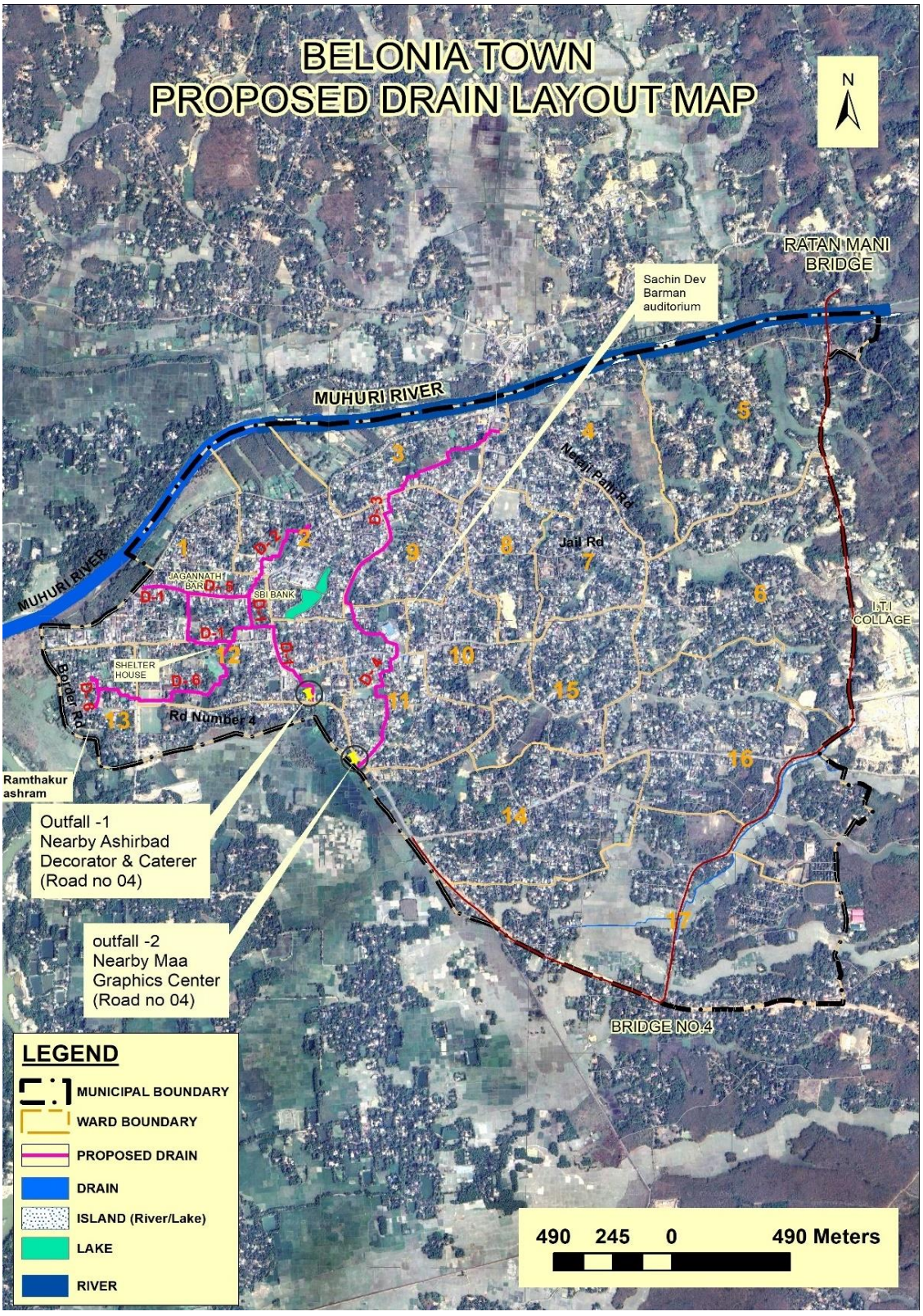
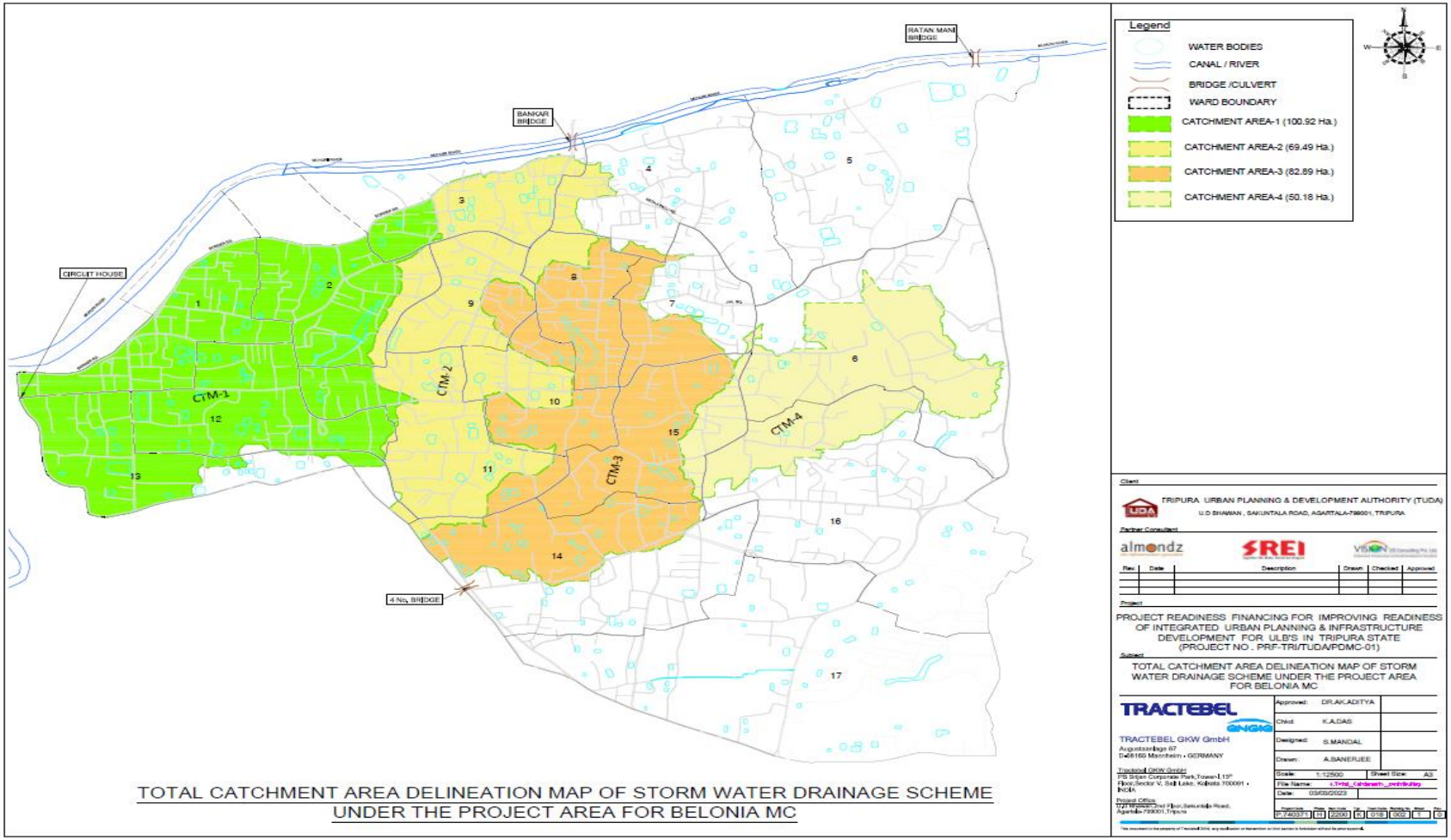


Figure 31: Total Catchment Area Delineation Map of Storm Water Drainage Scheme Under The Project Area For Belonia MC



III. ANALYSIS OF ALTERNATIVES

37. In this project construction proposals are confined to the existing alignment of the unpaved/ paved tracks. Majority of these are foot/pathways traditionally used by the villagers and transformed into the present form of unpaved tracks/roads through minor construction works taken up by the communities, local bodies and State Government over the decades. There is no other option instead of the construction of the selected road. So, only 'With project' and 'without project' consider for the alternative analysis.

38. Practically in all the subproject components of road and drain in government land and only existing ROWs are considered and therefore displacement of any community will not arise. In the screening exercise, areas of concern - congested market place on the sides of the road, existence of sensitive area, extent of physical displacement if any, etc. was studied. The findings have been used as inputs for engineering design within the technical requirements and cost effectiveness. A Comparative analysis of "with project" and "without project" scenario is given in Table below.

Sl. no	Parameter	'With-Project' Scenario	'Without-Project' Scenario
For stormwater Drain			
1.	Water logging/flooding – extent and duration	Substantially reduced the water logging in the Udaipur, Amarpur, Bishramganj, Melaghar and Belonia town area.	No construction of storm water drains. This will result in periodic flooding in urbanized area shall results in property damages. Stagnation of water shall result in health-related problems including spread of vector borne diseases such as Dengue and Malaria.
2.	Maintenance of drainage system	Organised and better maintenance and therefore efficient operation of the created system	Without proper drainage system, maintenance of drainage system is not possible
3	Public health	Clean surroundings eliminating bad odour and mosquito breeding from open drains	Mosquito menace due to presence of open drains with low flow velocity
4	Roads	With the construction of cover stormwater drain roads will become wide	No effect. Roads are remained as it is.
5	Risks	Wide roads mean safe transport and pedestrian movement	No change (narrow roads) will continue to pose transport hazards and risk of accident to pedestrians
	Recommendation	Present level of drain service will improve after implementation of the project. No permanent impact on environmental parameters is envisaged in case of "with project" scenario, only short-term negative impact and long-term positive impact may result. Hence "With Project" scenario is much preferable than "Without Project" scenario.	
	For Road Works		
1.	Road Quality	These semi urban roads improvement will promoting access to health, education facilities and as an avenue to increased economic opportunities, leading to increased agricultural income and productive employment opportunities.	Present roads are the unpaved tracks in many cases which is not motorable, without this project these roads are remains the same.
2.	Drainage	Drainage will be improved due to further development of	These issues remain unaddressed without the project

Sl. no	Parameter	'With-Project' Scenario	'Without-Project' Scenario
		culverts / bridges with adequate hydraulics.	
3.	Environmental Quality	Existing roads are mostly earthen road/ brick road. Improvement of road with ICB pavement will reduce the dust pollution. Providing better level of service in terms of improved riding quality and smooth traffic flow which reduce the vehicular pollution.	Without project scenario, the project roads remain the same. Unpaved road will increase the dust pollution and vehicular pollution also.
4	Road Side Amenities	Appropriate road side amenities to be provided at various locations along the corridor.	Not adequate.
	Recommendation	"With" project scenario with positive/beneficial impacts will vastly improve the environment and enhance economic development of the region compared to the "Without" project scenario, which will further deteriorate the present environmental setup and quality of life.	

IV. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

A. ADB Policy

39. ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for environmental assessment are described in ADB SPS, 2009. This states that ADB requires environmental assessment of all ADB investments.

40. **Screening and categorization**. The nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project; the sensitivity, scale, nature, and magnitude of its potential impacts; and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impacts, and are assigned to one of the following four categories:

(i) **Category A.** Projects could have significant adverse environmental impacts. An EIA is required to address significant impacts.
(ii) **Category B.** Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
(iii) **Category C.** Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.
(iv) **Category FI.** Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all projects will result in insignificant impacts.

41. **Environmental Management Plan.** An environmental management plan (EMP), which addresses the potential impacts and risks identified by the environmental assessment, has been prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions are commensurate with the project's impact and risks.

42. **Environmental Audit of Existing Facilities.** ADB SPS, 2009 requires an environmental audit, if a subproject involves facilities and/or business activities that already exist or are under construction, including an on-site assessment to identify past or present concerns related to impacts on the environment. The objective of this compliance audit is to determine whether actions were in accordance with ADB's safeguard principles and requirements for borrowers/clients, and to identify and plan appropriate measures to address outstanding compliance issues.

43. **Public Disclosure.** ADB posts the safeguard documents on its website as well as disclose relevant information in accessible manner in local communities:

(i) for environmental category A projects, draft EIA report at least 120 days before board consideration;
(ii) final or updated EIA and/or IEE upon receipt; and
(iii) environmental monitoring reports submitted by the implementing agency during project implementation upon receipt.

44. **Consultation and Participation.** ADB SPS require borrower to conduct meaningful consultation[5] with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation. The consultation process and its results are to be documented and reflected in the environmental assessment report.

45. **Grievance Redress Mechanism.** ADB SPS require borrowers to establish a mechanism to receive and facilitate resolution of affected people's concerns, complaints, and grievances about the subproject's performance. The grievance redress mechanism shall be scaled to the risks and adverse impacts of the subproject.

46. **Monitoring and Reporting**. Borrower shall monitor, measure, and document the implementation progress of the EMP. If necessary, the borrower shall identify the necessary corrective actions, and reflect them in a corrective action plan. Borrower shall prepare and submit to ADB semi-annual environmental monitoring reports that describe progress with implementation of the EMP and compliance issues and corrective actions, if any. For subprojects likely to have significant adverse environmental impacts during operation, reporting will continue at the minimum on an annual basis until ADB issues a project completion report.

47. **Unanticipated Environmental Impacts.** Where unanticipated environmental impacts become apparent during subproject implementation, ADB SPS requires the borrower to update the environmental assessment and EMP or prepare a new environmental assessment and EMP to assess the potential impacts, evaluate the alternatives, and outline mitigation measures and resources to address those impacts.

48. **Occupational Health and Safety.** ADB SPS requires the borrower[6] to ensure that workers[7] are provided with a safe and healthy working environment, taking into account risks inherent to the sector and specific classes of hazards in the subproject work areas, including physical, chemical, biological, and radiological hazards. Borrower shall take steps to prevent

[5] As per ADB SPS, 2009, meaningful consultation means a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues

[6] In case where responsibility is delegated to subproject contractors during construction phase, borrower shall ensure that the responsibilities on occupational health and safety are included in the contract documents

[7] Including nonemployee workers engaged by the borrower/client through contractors or other intermediaries to work on project sites or perform work directly related to the project's core functions.

accidents, injury, and disease arising from, associated with, or occurring during the course of work, including: (i) identifying and minimizing, so far as reasonably practicable, the causes of potential hazards to workers; (ii) providing preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; (iii) providing appropriate equipment to minimize risks and requiring and enforcing its use; (iv) training workers and providing them with appropriate incentives to use and comply with health and safety procedures and protective equipment; (v) documenting and reporting occupational accidents, diseases, and incidents; and (vi) having emergency prevention, preparedness, and response arrangements in place.

49. **Community Health and Safety.** ADB SPS requires the borrower to identify and assess risks to, and potential impacts on, the safety of affected communities during the design, construction, operation, and decommissioning of the subproject, and shall establish preventive measures and plans to address them in a manner commensurate with the identified risks and impacts.

50. **Physical Cultural Resources.** Borrower is responsible for siting and designing the subproject to avoid significant damage to physical cultural resources. ADB SPS requires that such resources likely to be affected by the subproject are identified, and qualified and experienced experts assess the subproject's potential impacts on these resources using field-based surveys as an integral part of the environmental assessment process. When the proposed location of a subproject component is in areas where physical cultural resources are expected to be found as determined during the environmental assessment process, chance finds procedures included in the EMP.

51. **ADB SPS International Best Practice Requirements.** ADB SPS, 2009 requires that, during the design, construction, and operation of the project, the executing agency shall apply pollution prevention and control technologies and practices that are consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety (EHS) Guidelines. (IFC's General EHS Guidelines[8] and Sector Specific [Water and Sanitation] Guidelines[9]). These standards contain performance levels and measures that are normally acceptable and applicable to projects. These standards contain performance levels and measures that are normally acceptable and applicable to projects. When Government of India regulations differ from these levels and measures, the PMU and PIUs will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the PMU and PIUs will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS, 2009.

B. National Environmental Laws

52. The implementation of the subprojects will be governed by Government of India and State of Tripura and other applicable environmental acts, rules, regulations, and standards. These regulations impose restrictions on the activities to minimize or mitigate likely impacts on the environment. It is the responsibility of the project executing and implementing agencies to ensure subprojects are consistent with the legal framework, whether applicable international, national, state or municipal or local. Key standards include those related to drinking water quality, air quality, effluent discharge, and protected areas. Compliance is required in all stages of the subprojects including design, construction, and operation and maintenance.

[8]https://www.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final%2B%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES

[9]https://www.ifc.org/wps/wcm/connect/e22c050048855ae0875cd76a6515bb18/Final%2B%2BWater%2Band%2BSanitation.pdf?MOD=AJPERES

53. **Environmental Assessment.** The Government of India EIA Notification of 2006 replacing the EIA Notification of 1994, sets out the requirement for Environmental Assessment in India. This states that Environmental Clearance is required for specified activities / projects, and this must be obtained before any construction work or land preparation (except land acquisition) may commence. Projects are categorized as A or B depending on the scale of the project and the nature of its impacts. None of the components of subproject proposed for this Package falls under the ambit of the EIA Notification 2006, and therefore EIA Study or environmental clearance is not required for the subproject.

54. **Applicable Environmental Regulations.** Besides EIA Notification 2006, there are various other acts, rules, policies, and regulations currently in force in India that deal with environmental issues that could apply to infrastructure development. The specific regulatory compliance requirements of the subproject are shown in Table 13.

Table 13: Relevant Rules and regulations National and International

Sr. No.	Law	Description	Applicability in the project
1.	EIA Notification	The EIA Notification of 2006 set out the requirement for environmental assessment in India. Environmental Clearance is required for certain defined activities/projects, and this must be obtained before any construction work or land preparation (except land acquisition) may commence.	No project Road and drainage components attract provisions of EIA notification 2006 and its amendment till date. Sand mining for construction works (if required), requires environment clearance under EIA Act. (list of already approved sand mines in Tripura is available on TSPCB website[10]) PIU/PMU has to ensure that contractor is procuring mining material from approved mines only or get EC for new mines.
2.	Water (Prevention and Control of Pollution) Act of 1974, Rules of 1975, and amendments (1987)	Act was enacted to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, by Central and State Pollution Control Boards and for conferring on and assigning to CPCB/SPCBs powers and functions relating to water pollution control. Such projects have to obtain Consent to Establish (CTE) under Section 25 of the Act from Tripura State Pollution Control Board (TSPCB) before starting implementation and Consent to Operate (CTO) before commissioning.	No project road and drainage components attract provisions of Water Act and not requiring CTE and CTO from TSPCB.

[10] https://tspcb.tripura.gov.in/sand-mining-ec/

Sr. No.	Law	Description	Applicability in the project
3.	Air (Prevention and Control of Pollution) Act of 1981, Rules of 1982 and amendments.	This Act was enacted to achieve prevention, control and abatement of air pollution activities by assigning regulatory powers to Central and State boards for all such functions. The Act also establishes ambient air quality standards.	Following will require CTE and CTO from TSPCB: Establishment of DG sets more than 1 MVA. Batching Plant, and Hot mix plants, if any If ready mix concrete and hot mix bitumen is procured from third party, contractor has to ensure that the plants, from where material is being purchased is having valid CTE & CTO and copy should be collected from third party and submitted in PIU
4.	Environment (Protection) Act, 1986 and CPCB Environmental Standards. (National Ambient Air Quality Standards 2009 and amendments)	Emissions and discharges from the facilities to be created or refurbished or augmented shall comply with the notified standards.	Ensure applicable standards for ambient air quality. Ensure Emission Limits standards for New DG Sets Ensure stack height standards requirement for DG Sets. **Appendix 2** provides applicable standards for ambient air quality. **Appendix 4** provides vehicular emission norms
5.	Noise Pollution (Regulation and Control) Rules, 2000 amended up to 2010.	Rule 3 of the Act specifies ambient air quality standards in respect of noise for different areas/zones.	Ensure applicable noise standards and noise limits for DG sets. Error! Reference source not found. **3** provides applicable noise standards
6.	Central Motor Vehicle Act Central Motor Vehicle Rules and (Amendment) Rules (1988 and amendment thereafter)	Objective of this Act is to check vehicular air and noise pollution. Vehicles to be used for construction and other purposes need to meet the standards and certificates prescribed as per the Rules, 1989 to control noise, pollution, etc.	Ensure vehicle exhaust emission standards.

Sr. No.	Law	Description	Applicability in the project
7.	Ancient Monuments and Archaeological Sites and Remains Act, 1958 and Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010 Tripura Ancient Monuments and Archaeological Sites and Remains Act 1997	The Act designates areas within 100 meters (m) of the "protected monument/area" as "prohibited area" and beyond that up to 200 m as "regulated area" respectively. No "construction" is permitted in the "prohibited area" and any construction activity in the "regulated area" requires prior permission of the Archaeological Survey of India (ASI). As per Amendment Rules 2010 • The bill amens the provision to permit construction of public works in "prohibited areas" for public purposes. • Bill introduces a definition for "public works", which includes the construction of any infrastructure that is financed and carried out by the central govt.[11] for public purposes. This infrastructure must be necessary for public safety and security and must be based on a specific instance of danger to public safety. Also, there should be no reasonable alternative to carrying out construction in the prohibited area.	In Udaipur town there are 2 ASI protected sites Chatusdash Devta temple and Gunavati Group of Temple are located within the heart of the Udaipur city. The nearest component to ASI monuments are: 1. Proposed drain - Shitalbari to Brahmabari to Sukhsagar, 2. Proposed footpath Sitalbari to Brahmabari temple and 3. proposed footpath on central road is about 70 m from Chaturdash temple all other components are located more than 300 m from both the monuments. Nearest distance of components from Gunavati group of temples 430 m from. As per AMASR act definition of "construction" does not include **the construction and maintenance and cleansing of drains and drainage works or provision of similar facility for public**. However, before start of construction ASI to be consulted for latest requirements and construction recommendations. Follow National Monument Authority Heritage bye-laws Centrally Protected Monument for Gunavati Group of Temples, and if permission is required from ASI, it will be taken efore start of construction near ASI protected monuments
8.	The Sexual Harassment of Women at workplace (Prevention, Prohibition and Redressal) Act, 2013	Whereas sexual harassment results in violation of the fundamental rights of a woman to equality under article 14 and 15 of the Constitution of India and her right to life and to live with dignity under article 21 of the Constitution and right to practice any profession or to carry on any occupation, trade or business which includes a right to safe environment free from sexual harassment	Applicable

[11] The project TUTDP funded by ADB through loan to Central Gov. and then to Tripura State Govt.

Sr. No.	Law	Description	Applicability in the project
9.	Labor Laws upto 2019	The contractor shall not make employment decisions based upon personal characteristics unrelated to job requirements. The contractor shall base the employment relationship upon equal opportunity and fair treatment and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment or retirement, and discipline. The contractor shall provide equal wages and benefits to men and women for work of equal value or type.	Applicable labor laws including amendments issued from time to time applicable to establishments engaged in construction of civil works. **Appendix 5** provides applicable labor laws including amendments issued from time to time applicable to establishments engaged in construction of civil works.
10.	Biodiversity Act of 2002	The Biodiversity Act 2002 primarily addresses access to genetic resources and associated knowledge by foreign individuals, institutions or companies, to ensure equitable sharing of benefits arising out of the use of these resources and knowledge to the country and the people.	Not applicable
11.	Wildlife Protection Act, 1972 amendment 1991	This overarching Act provides protection to wild animals, birds, plants, and matters connected with habitat protection, processes to declare protected areas, regulation of wildlife trade, constitution of state and national board for wildlife, zoo authority, tiger conservation authority, penalty clauses and other important regulations.	None of the components of the subproject are located within the protected Area. Therefore, this act is not applicable.
12.	The Indian Forest Act, 1927; Forest (Conservation) Act, 1980, amended 1988; Forest (Conservation) Rules, 1981 amended 1992 and 2003; and Guidelines for Diversion of Forest Lands for Non-Forest Purpose under the Forest (Conservation) Act, 1980	The Forest (Conservation) Act prevents the use of forest land for non-forest uses without the clearance from Ministry of Environment, Forests and Climate change (MoEFCC), Govt. of India For tree felling NOC will be required	Not applicable; none of the components of the subproject are located within the forest.

Sr. No.	Law	Description	Applicability in the project
13.	Wetlands (Conservation and Management) Rules, 2010 & 2017	The Rules specify activities which are harmful and prohibited in the wetlands such as industrialization, construction, dumping of untreated waste and effluents, and reclamation. The Central Government may permit any of the prohibited activities on the recommendation of Central Wetlands Regulatory Authority.	No sub project components will be planned adjacent to designated wetland site. No construction activity is considered within Ramsar area of Rudrasagar lake (designated protected wetland) at Melaghar town. Nearby proposed road and drain is located at a distance of 446 meters and 527 meters respectively. Both road and drain will be constructed with the existing road ROW. No impact on Ramsar protected site is expected during construction. No direct drainage discharge planned on Rudrasagar lake.
14.	Solid Waste Management Rules 2016	Rules to manage municipal solid waste generated; provides rules for segregation, storage, collection, processing, and disposal. Responsibility of Solid Waste Generator: Segregate and store the waste generated in three separate streams namely bio- degradable, non-biodegradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorized waste pickers or waste collectors as per the direction or notification by the local authorities from time to time.	Solid waste to be generated at proposed facilities shall be managed and disposed in accordance with the MSWM Rules Contractor to follow all the rules during construction works.
15.	Construction and Demolition Waste Management Rules, 2016	Rules to manage construction and to waste resulting from construction, re-modelling, repair and demolition of any civil structure. Rules define “construction waste” as waste comprising of building materials, debris resulting from construction, re-modelling, repair and demolition of any civil structure.	Construction and demolition waste generated from the project construction shall be managed and disposed as per the rules
16.	Hazardous Waste Rules 2016	The occupier of Hazardous waste shall be responsible for safe and environmentally sound management of hazardous and other wastes. As described in rules, including (a) prevention; (b) minimization; (c) reuse, (d) recycling; (e) recovery including co-processing; (f) safe and legal disposal.	Contractor to comply all the requirements of this Act during construction works.

Sr. No.	Law	Description	Applicability in the project
17.	The Child Labour (Prohibition and Regulation) Amendment Act, 2016	No child below 14 years of age will be employed or permitted to work in any of the occupations set forth in the Act's Part A of the Schedule or in any workshop wherein any of the processes set forth in Part B of the Schedule. Child can help his family or family enterprise, which is other than any hazardous occupations or processes set forth in the Schedule, after his school hours or during vacations	No children between the age of 14 to 18 years will be engaged in hazardous working conditions.
18.	Notification from Ministry of Jal Shakti (Department of Water Resources, River Development and Ganga Rejuvenation), central ground water authority on 20th September 2020. Guidelines to regulate and control groundwater extraction in the country	No Objection Certificates for ground water extraction to industries or infrastructure projects or Mining Projects etc.- All new/existing industries, industries seeking expansion, infrastructure projects and mining projects abstracting ground water, unless specifically exempted, will be required to seek No Objection Certificate from Central Ground Water Authority or, the concerned State/ UT Ground Water Authority as the case may be.	In case of use of ground water for construction activity and for domestic use (labour camp) NOC will be taken from Central Ground Water Authority .
International treaties			
19.	Ramsar Convention, 1971	The Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources. India is one of the signatories to the treaty. The Ramsar convention made it mandatory for the signatory countries to include wetland conservation in their national land use plans.	No road and drain construction activity considered at Melaghar within Ramsar area of Rudrasagar lake (designated protected wetland). Nearby proposed road and drain is located at a distance of 446 meters and 527 meters respectively. Both road and drain will be constructed with the road ROW. No impact on Ramsar protected site is expected during construction. No as such protected wetland located at other towns.
20.	Wetlands (Conservation and Management) Rules, 2017	The Rules specify activities which are harmful and prohibited in the wetlands such as industrialization, construction, dumping of untreated waste and effluents, and reclamation. The Central Government may permit any of the prohibited activities on the recommendation of Central Wetlands Regulatory Authority.	Not applicable as subprojects components are not located within any designated wetland area.

Sr. No.	Law	Description	Applicability in the project
21.	Montreal Protocol 1992	India is a signatory of this convention which aims for reduction in the consumption and production of ozone-depleting substances (ODS), while recognizing differences in a nation's responsibilities. Ozone depleting substances are divided in two groups Chlorofluorocarbons (CFCs) and Hydro chlorofluorocarbons (HCFCs).	Not applicable in this project as no ODS are involved in construction works.
22.	Basel Convention on Trans-boundary Movement of Hazardous Wastes, 1989	India is a signatory of this convention which aims to reduce trans-boundary movement and creation of hazardous wastes.	Contractor to follow the provisions of Hazardous Waste Rules 2016 for storage, handling, transport and disposal of hazardous waste emerged during construction works.
23.	Convention on Migratory Species of Wild Animals (CMS), 1979 (Bonn convention)	CMS, also known as Bonn convention was adopted in 1979 and entered into force on 1 November 1983, which recognizes that states must be the protectors of migratory species that live within or pass through their national jurisdictions, and aims to conserve terrestrial, marine and avian migratory species throughout their ranges. CMS Parties strive towards strictly protecting these species, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them.	Not applicable to this project as no migratory species of wild animals are reported in the project areas.

Table 14: List of NOC Required for Safeguarding the Project

S. No	Construction Activity	Statute under which Clearance is Required	Implementation
1.	Land for project activity	Allotment and approval for specific land use	ULB
2.	Road cutting for drain construction	Permission from ULB and PWD (where applicable)	PIU
3.	Establishment of construction camps	Allotment and approval for specific land use from ULB	Contractor
4.	NOC for disposal of excess Earth	Construction & Demolition Waste Management Rules, 2016	Contractor
5.	Tree Cutting	State forest department/Revenue as per requirement	PIU
6.	Hot mix plants, Crushers, Batching plants and DG Set	Consent to establish and consent to operate under Air Act, 1981 from TSPCB	Contractor
7.	Storage, handling and transport of hazardous materials	Hazardous Wastes (Management and Handling) Rules. 2016 Manufacturing, Storage, and Import of Hazardous Chemicals Rules, 1989 from TSPCB	Contractor
8.	New Sand mining, quarries and borrow areas	Environmental clearance under EIA Notification 2006	Contractor/ Third Party
9.	Use of vehicles and equipment	Pollution under control certificate (PUC) form RTO/ Pollution Control Board	Contractor

S. No	Construction Activity	Statute under which Clearance is Required	Implementation
10.	Temporary traffic diversion measures	Temporary traffic diversion measure including use of alternate road from District traffic police	Contractor
11.	Use of highway ROW for construction area/ crossing	National Highway Authority of India	PIU
12.	Construction work near ASI protected area	Obtaining NOC from ASI	Contractor, PIU

55. PMU will be overall responsible for supervision in getting all clearances and provide details to ADB through semi-annual report. PMU will ensure availability of all necessary regulatory clearances and approvals are obtained prior to commencement of works. Respective PIUs, with support of project consultants and contractors, are responsible for obtaining the clearances/permits and ensuring conditions/specifications/provisions are incorporated in the subproject design, costs, and implementation. The PIUs shall report to PMU the status of compliance to clearances/permits as part of the regular progress reporting.

V. DESCRIPTION OF THE ENVIRONMENT

A. Methodology Used for Baseline Study

56. Data **Collection and Stakeholder Consultations.** Data for this report has been primarily collected through comprehensive literature survey, discussion with stakeholder agencies, and field visits to the proposed subproject sites.

57. The literature survey broadly covered the following:

(i) Project details, reports, maps, and other documents prepared by the Govt. of Tripura
(ii) Discussions with Technical experts of the PDMC team, municipal and Nagar Panchayat authorities, relevant government agencies like Tripura State Pollution Control Board (TSPCB) etc.
(iii) Secondary data from previous project reports and published articles, and
(iv) Literature on land use, soil, geology, hydrology, climate, socioeconomic profiles, and other planning documents collected from Government agencies and websites.

B. Physical Resources

58. Tripura is in the north-eastern part of the subcontinent. It is bordered to the north, west, and south by Bangladesh, to the east by the state of Mizoram, and to the northeast by the state of Assam. It is among the smallest of India’s states and is in an isolated hilly region of the country, with various indigenous peoples or tribes accounting for a significant portion of the population. The capital is Agartala. Baseline status of the 5 project towns is given below.

Figure 32: Baseline Characteristic of project towns

Baseline Characteristic	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
Location	Udaipur town is located at 23.53°N and 91.48°E.in Gomati district on the bank of Gomati river. Udaipur is bounded by Sephaijala district on West, Khowai district on North, Dhalai district on East and South Tripura district on South.	Amarpur is located at 23.53°N and 91.64°E in Gomati district on the bank of Gomati river. Amarpur town is surrounded by Udaipur to the west, Karbook to the north, Belonia to the south, and Sabroom to the east	Bishramganj is located at 23.6128° N, 91. 4003° E in the Sepahijala district. Town is surrounded by Choumohani in south, Charilam in north, Bagma in east and Rangmala in west	Melaghar is located at 23.49°N and 91.33°E in Sipahijala district. Town is surrounded by Sonamura in north, Rudrasagar lake and Ghrantali in west, Telkajla in south and Chandigarh in east	Belonia is located at 23.25°N and 91.45°E in South Tripura District on Bank of Muhuri river. Town is surrounded by Dakshin Bharatchandranagar in north, Rudrasagar lake and Bangaladesh in west, Bashpadua in south and Uttar Sonaichhari in east
Area	Udaipur town covers an area of 6.10 sq. km and is divided into 23 wards	Amarpur town covers an area of 3.4 sq. km and is divided into 13 wards	Bishramgan ULB covers an area of 8 sq. km and is divided into 19 wards.	Melaghar town covers an area of 17.99 sq. km and is divided into 13 wards	Belonia town covers an area of 5.76 sq. km and is divided into 17 wards
Connectivity	Udaipur is about 53 Km, from the Agartala. The National Highway 8 passes through Udaipur, connecting to Agartala and Sabroom. Udaipur railway station is situated near Matabari. The nearest airport to Udaipur is Maharaja Bir Bikram Airport in Agartala, which is about 60 km away.	Amarpur is 77 km from Agartala. Amarpur is connected through National Highway 208A which Connects to Ambassa, towns are also connected to Udaipur and Teliamura. The nearest airport is the Agartala Airport, and the nearest railway station is Udaipur.	Bishramganj is about 35 km from Agartala. The ULB is connected to Mizoram by NH108, by Assam by NH27 and Manipur by NH37. NH-8 connects with Agartala, Silchar, Guwahati, The nearest airport is Agartala, which is around 41 km. The nearest railway station is at Badharghat.	Melaghar is about 50 km from Agartala. State Highway 6 connects this town to Bishalgarh, Sonamura and other towns. Nearest Railway station and Airport are in Agartala.	Belonia is linked with Agartala by NH 108A from and NH8 to Jolaibari to Agartala. The nearest airport is the Agartala Airport, and the nearest railway station is Belonia.
Topography	The town is situated on the bank Gomati River, Average elevation of Udaipur is 22 meters. The city has Highest alleviation of 60 meter & lowest elevation as 18 meters approx. Town is mostly covered by undulating hilly land, although	The town is situated on the bank of Gomati River. Amarpur town have an average elevation of 24 m above msl. Amarpur lies within low-laying alluvial plane of Gomati River & surrounded by high hilly terrane from all sides.	The Bishramganj is predominantly plain area with undulating landscape towards the outskirts of the town. The town has an average elevation of 8 m above msl (with highest elevation being 15 m above MSL). The surrounding	The town is situated near Gomati River. Melaghar is mostly covered by undulating hilly land, although there are some plain lands here and there.	Average elevation of Belonia is 23 m. The land is divided into two parts, Anticlinal Hill Ranges and Synclinal flat-bottomed valleys. The major hill ranges are Baramura and Atharamura. The Trend of the hill ranges is almost N – S. The height of the hill

Baseline Characteristic	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
	there are some plain lands here and there.		villages are hilly with dense forest.		ranges increases from west to east
Soil	Soils of Udaipur are acidic in nature. Characterized by a top soil underlain by a soft to medium/stiff, silty clay/clayey silt layer, which follows a moderately dense to very dense silty sand layer	Soils of the Amarpur area are acidic in nature., lateritic soil is found in high area, younger soils or river valley soils are found along all major river courses, clayey soils are found in paddy fields. Apart from these, sandy loam, clayey loam and loamy soils are also available	Soils of Bishramganj are Ultisols. They are sandy clay loam/ clay loam in texture. pH of the soil is neutral.	Soils of the area are taxonomically classified into four orders i.e. Alfisols, Entisols Inceptisols and Ultisols. Texture of soil is sandy loam, clayey loam, and loamy soils. Soil of Melaghar is slightly basic.	The soil in Belonia is predominantly alluvial and there are also areas with sandy soil
Seismicity	Entire north-eastern region of India extending to the Himalayan arc in the north and Burmese arc to the east is among the most seismically active regions of the world. The whole of Tripura State falls under seismic zone V and is highly vulnerable to earthquakes. Hilly areas are highly vulnerable to earthquake. Areas along the rivers are flood prone. River causes floods during the monsoon. Hilly areas are landslide prone.				
Climatic conditions	The climate in Tripura displays characteristics that are typical of the hilly and mountainous region. Tripura records a low average temperature of 10 degree Celsius in the winter season which rises to a maximum average of 35 degree Celsius in the summer. The altitude of the state also influences the climatic conditions. January is the coldest while July is the hottest. Humidity is generally high throughout the year. In the summer season the relative humidity is varied from 50 percent to 74 percent whereas in the rainy season it is over 85 percent. Rainfall varies not only from place to places. Average annual rainfall of Tripura is 2200 mm, and generally increases from southwest part of the state to northeast. The north-eastern part of the state gets maximum rainfall. Rainy season generally starts by about the end of May, but thundershowers usually occur from about April to the break of the monsoon. The rainy season continues up to September. The maximum rainfall is usually recorded during the month of June – July. The months of October and November constitute the post monsoon season. Highest rainfall is recorded in between month of May & July. Project towns has almost similar climatic conditions and rainfall. The Graphs below showing rainfall in project town. There is no weather station in Bishramganj and Melaghar. Bishramganj is adjacent town to Bisalgarh and Melaghar is adjacent to Sonamura all three towns have almost same weather conditions. The **Figure 32** below shows month wise rainfall for rain gauge stations near project town. **Figure 33** shows month wise rainy days.				
Surface water	The State of Tripura is well endowed with surface water resources. As many as ten major rivers are reported to generate an annual flow of 793 million m^3 of water. All rivers are rain-fed and ephemeral in nature. All major rivers originate from hill ranges and show a typical drainage pattern called trelis, except a few instances of dendrite pattern. Rivers in the project towns are described below.				

Baseline Characteristic	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
	Gomati River. Gumti/ Gomti/Gumati or Gomati is a river flowing through the district of Comilla in Bangladesh. The river Gomati originates from the range connecting the Longtharai and Atharamura. At its source, two rivulets, namely, Kalyansing and Malyansing meet, thereafter it takes the name of Raimacherra till it meets the Sharmacherra. Later it assumes the name Gomati. The river Gomati which is about 135 km long runs across the sub-divisions Gandacherra, now under Dhalai District, Amarpur and Udaipur under Gomati District and Sonamura Sub-Division of West Tripura District. Tributaries of River Gomati are Sukheta, Choha and Andhra Choha. **Muhuri River.** Muhuri river is a transnational river between India and Bangladesh. Rising in Tripura, it flows into Bangladesh where it merges with the Feni near the latter's mouth to the Bay of Bengal. The Muhuri rises in the Lushai Hills of Tripura and flows west into Bangladesh which it enters through the Parshuram upazila of Feni district. In Bangladesh, the river separates the Feni and Chittagong districts before flowing out into the Bay of Bengal. **Figure 34** below shows the watershed map of Tripura. **Figure 35 to 39** shows waterbody maps of Udaipur, Amarpur, Bishramganj, Melaghar and Belonia. There are large water bodies in Udaipur (Amar Sagar, Mahadev dighi, Jagannath dighi, and Dhani sagar), Amarpur (Amar sagar and Fatik Sagar) and Rudrasagar in Melaghar. Besides, there are small water bodies /ponds (fins ponds / temple pond etc.) dot all over the towns. Rudrasagar is a large wetland to the northwest of Melaghar town, and is a Ramsar wetland of international importance. **Water quality.** The Water quality data – raw and treated water from WTP shows Gomati and Mujuri River water quality parameters of TDS, DO, BOD, Total Hardness, and Lead are within permissible limits. Treated water from WTP shows higher Residual chlorine which eventually reduces while reaching consumer end. Test results presented in **Table 16** below**.**				
Groundwater	The State of Tripura is occupied by the rocks ranging in age from Upper Tertiary to Quaternary. Mobile trough geosynclinal deposition of Barail group followed by flysch type of Surma &Tipam sediments, overlain by Dupitila formation, is noticed in the State. Most of the longitudinal synclinal valleys of the state are the basins of deposition of recent formation. Recent alluvium occurs along the streams and the flood plains of major rivers. Ground water occurs under unconfined condition in Dupitila, Recent & Tipam formations. Besides, it also occurs under confined to semi-confined conditions in Tipam formation at considerable depth. Recharge areas for the deeper aquifer lies in the adjacent anticlinal hills. Wherever a good thickness of impermeable clay beds underlie & overlie the saturated granular zones, auto flow artesian conditions have been found in the valleys, which are the discharge area. The artesian flowing conditions occur in patches both at shallow depth and at deeper depth. The auto discharge of the flowing wells in the State ranges from 100 to 6000 lph, In Rajapur – Teliamura – Udaipur area four aquifers can be identified. The first granular zone is encountered in the depth range of 25 to 56 m bgl. The thickness of the zone varies from 14 to 25 m. The second granular zone occurs between 60 – 140 m bgl. In Subroom – Manubazar area 60 – 90 m thick granular zone occur between 35 – 135 m bgl and second granular zone encountered at a depth of 150 – 195 m bgl. In the southern part of Belonia and eastern part of Manu Bhanga hill range (around Srinagar area) the sediment is more argillaceous. Ground water resources have been assessed block-wise for recharge worthy area. Total Annual Ground Water Recharge of the State has been assessed as 1.31bcm and Annual Extractable Ground Water Resource as 1.06bcm. The Annual Ground Water Extraction is 0.103 bcm and Stage of Ground Water Extraction is 9.7 %. All the 59 assessment units have been categorized as ‘Safe’. As compared to 2020 assessment, there is no significant change in ground water recharge and ground water extraction in the State.				

Baseline Characteristic	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
	Groundwater quality. As per Ground Water Information Booklet of South Tripura District, Tripura Ground water contains high iron concentration. In shallow aquifer conc. of iron varies from 0.08 to 0.65 ppm and in deeper aquifer it varies from 0.5 to 3.66 ppm. Secondary Ground water monitoring data from the authentic source is not available for current year. Construction contractor will conduct the ground water monitoring prior to start of the construction work.				
Air quality	There are no data on ambient air quality of Project towns, which is not subject of monitoring by the Tripura State Pollution Control Board (TSPCB) because there are no major industries located in and around. Baseline air quality will be established at specific project locations before start of the construction, this is included in the SEMP.				
Noise levels	Tripura PCB conducted noise level monitoring in the month of December 2020 is presented in **Table17.** In Udaipur at all the zones during both day and night noise level is within the standards. In Amarpur during daytime noise always above the National standard in residential and silent zones. In daytime noise level exceed WHO standard at residential. During nighttime noise level at silent zone exceeds National standards but not WHO standards. In Belonia during daytime noise always above the National standard in all zones. In daytime noise level exceed WHO standard at silent and residential zones. During night-time noise level at silent and residential zone exceeds National standards and also WHO standards.				
Ecological Resources	Tripura a small state of North-east of India having rich content of floral and faunal diversity. Total area of the state is 10,491.69 sq km in which forest area is 6294.29 sq km. Among the forest area percentage of Protected Areas (Pas) in Tripura is about 9.59%. There are 6(six) PAs throughout state which includes 4(four) Wildlife Sanctuary and 2(two) National Parks. There are no protected areas, mangroves, or estuaries in or within the subproject towns. **Figure 40 - 42** shows Forest maps of Gomati, Sepahijala district, South Tripura districts. There is no forest area nearby Udaipur, Amarpur, Bishramganj, Melaghar and Belonia town. Tree cover in all of these towns is considerable, and large tracts of land within the municipalities and surrounding areas are covered with rubber (*Havea brasiliensis*) plantations, and there are also a number of small ponds, most of which are also used by households for fishing (own consumption). Nearest forest to Udaipur is Radhakishorepur Reserve Forest located 5 km from town. Nearest forest to Amarpur is Paschim Kalajhari Reserve Forest located 10 km, nearest protected area Gumti Wildlife Sanctuary, located within 19 km from the town in south eastern extreme of Tripura. Nearest protected area to Bishramganj is Sepahijala wildlife sanctuary, located within 5.9 km from the town in Bishalgarh Development Block. Nearest Protected area to Melaghar is Rudrasagar Ramsar Site, located within the town. Nearest protected area to Belonia are Rajbari National Park and Trishna Wildlife Sanctuary, located about 7.3 km and 9.5 km respectively from the town in South Tripura & Sepahijala District **Rudrasagar Ramsar wetland-Melaghar** The Rudrasagar Lake is located at 23°29' N and 90°01' E in the Melaghar block of Sonamura sub-division of Sipahijala district. The lake forms a geographical area of 2.4 km^2. Rudrasagar was identified as Ramsar site on 08.11.2005 and the status as wetland of international importance was received on 29.2.2007. Part of the town drains into this lake, and rest to Gomti river directly. The endangered Baer's Pochard and Near- Threatened Ferruginous Duck are found in this lake There are several bird species that can be found in the Rudrasagar Lake area. Some of the most common birds found in this Ramsar site include the Asian Openbill (*Anastomus oscitans*), Little Cormorant (*Microcarbo niger*), Indian Cormorant (*Phalacrocorax fuscicollis*), Grey Heron (*Ardea*				

Baseline Characteristic	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
	cinerea), Purple Heron (Ardea purpurea), Indian Pond Heron (*Ardeola grayii*), Cattle Egret (B*ubulcus ibis*), Common Moorhen (*Gallinula chloropus*), and Pheasant-tailed Jacana (*Hydrophasianus chirurgus*). IUCN red listed local birds are White-winged Duck (EN) Swamp Grass-babbler (EN) Swamp Francolin (VU) Great Hornbill (VU) River Tern (VU) Indian Spotted Eagle (VU). About 197 Migratory birds visit Rudrasagar lake every year, IUCN Red listed migratory birds are Baer's Pochard (CR), Bengal Florican (CR),Great Knot (EN),Pallas's Fish-eagle (EN), Steppe Eagle (EN), Greater Adjutant (EN), Common Pochard (VU), Black-capped Kingfisher (VU), Greater Spotted Eagle, (VU). Migration time starts after rains and ends with winters in March. The wetland supports IUCN Red listed endangered Three-striped Roof Turtle (*Kachuga dhongka*). Aquatic plant species include rare *Lemna sps, Azolla sps, Salvania sps, Pistia sps, Otellia sps, Najas sps, Typha spp*. and. Lake supports 52 species of fishes including *Mystus cavasius (LC), Ompok bimaculatus (NT), Wallago attu (VU), Heteropneustes fossilis (LC), Puntius sophore(LC), Esomus danrica (LC), Chanda ranga(LC), Nandus nandus(LC), Anabus testudeneus (NA), Colisa fasciatus (NA), Notopterus notopterus (LC), Cirrhinus reba(LC), Labeo bata(LC), Mastacembelus pancalus (NA), Channa punctata(LC), Macrognathus siamensis(LC), Gudusia chapra(LC), Botia rostrata (VU), Cylonia spp, Mystus aor, Mystus gulio(LC), Ompak paba (NA), Notopterus chitala (NA), Channa marulius.* No proposed road and drain will locate or pass through Rudrasagar wetland area at Melaghar town. The proposed construction of road and storm water drain will not affect the Rudrasagar lake biodiversity. At few areas of the town roads and storm water drains are located within 400-600 m radius of Rudrasagar lake. The details distance of the major components from Rudrasagar lake are given in **Table 18** (roads) and **Table 19** (drains). **Figure 53-54** shows Rudrasagar wetland location along with proposed roads and drain, **Figure 54** shows no storm water discharge in Rudrasagar lake and existing earthen drains discharging into Gomati river. ***No drain under the project will release storm water to Rudrasagar Ramsar wetland lake.*** **Flora.** Common floral species noted in and around forest are mentioned below. These are also common in the different parts of Gomati district, Sepahijala and South Tripura district. Nearby the project sites trees are mainly Rubber Tree *(Hevea brasiliensis*), Teak (*Tectona grandis*) and bamboo. Common species noted in and around Udaipur and Amarpur city, Teak (*Tectona grandis*), Sal (*Shorea robusta*), Gamar (*Gmelina arborea*), Chamal (*Artocarpus chaplasa*), Garjan (*Dipterocarpus turbinatus*), Koroi (*Albizia procera*), Sundi (*Michelia Montana***)** and Rubber Tree (*Hevea brasiliensis*) Common species noted in and around Bishramganj and Melaghar town, include Kanak (*Schima wallichii*), Arjun (*Terminalia arjuna*), Bahera (*Terminalia bellirica*) Various types of plant species are found in Belonia town i.e., *Artocarpus chaplasa, Albizzia procera, Caryea arborea, Gmelina arborea, Lagerstroemia sp, Mangifera indica, Schema wallichii, Dipterocarpus Turbinatus, Termenelia belarica, Termenelia chebula, Embelica Officinalis* & *Bombax Ceiba* etc. Common Bamboo species recorded across all the subproject towns are Ba rak (*Bambusa balcooa*), Bari (*Bambusa polymorpha*), Mritinga (*Bambusa tulda*), Muli (*Melocanna baccifera*), Kai (*Bambusa nutans*), Paora (*Bambusa teres*), Rupai (*Dendrocalamus longispathus*), Dolu (*Neohuzeaua dullooa*), Makal (*Bambusa pallida*), Pecha (*Dendrocalamus hamiltonii*), Kailyai (*Oxytenanthera nigrociliata*), Kanak kaich (*Bambusa offinis*), Lanthi bans (*Dendrocalamus strictus*), Tetua (*Bambusa spp*.), Ish (*Bambusa spp*.), Jai (*Bambusa spp*.), Bombash (*Bambusa spp*.), Sairil/Wadu bamboo (*Melocalamus compactiflorus*), Bosai (*bambusa spp*.). The species recorded in and around drains and roads of five towns are, *Ficus benghalensis, Areca catechu, Artocarpus heterophyllus, Holoptelea integrifolia, Cerbera odollam, Sterculia urens, Tectona grandis, Gmelina arborea, Syzygium cumini, Opuntia ficus-indica, Morinda tinctoria,*				

Baseline Characteristic	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
	Ziziphus mauritiana, Magnifera Indica, Syzygium branderhorstii, Elaeocarpus serratus, Syzygium cumini, Shorea robusta, Bombax ceiba, Albizia lebbeck, Azadirachta indica, Shorea robusta, Holoptelea integrifolia, Caryota urens, Emblica officinalis, Tamarindus indica, Phoenix dactylifera, Acacia auriculiformis, Delonix regia, Aegle marmelos, Zizyphus xylopara, Averrhoa carambola, Anogeissus pendula, Neolamarckia cadamba etc. **Fauna.** The subproject locations are in and around urban areas, and lands converted long ago for urban and agricultural purposes. Therefore, existence of wild fauna is not reported. Only domestic animals such as pigs, dogs, cows, buffalos, cats, and goats are present in the subproject areas. Fauna in and around forest area are, Palm civet cat (*Paradoxurus hermaphroditus*), Jungle cat (*Felis chaus*), Barking Deer (*Muntiacus muntjak*), Common langur (*Presbytis entellus*), Rhesus Macaque (*Macaca mulata*), Phayre's leaf Monkey (*Trachypithecus phayer*), Spectacle Langur (*Tachypithecus obscures phayrei*). List of some **Fish Species** found in Gomati River is shown below. These are all LC (Least Concerned). *Amblypharyngodon mola, Macrobrachium choprai, Chanda nama, Puntius sp., Catla catla, Heteropneustes fossilis, Clarias batrachus* Similarly, in Muhuri river all fishes of least concern category is reported, some of which are. *Puntius sophore, Chitala chitala, Puntius ticto, Puntius guganio, Labeo gonius, Labeo calbasu, Labeo bata, Labeo rohita, Labeo angra, Securicula gora, Salmostama phulo, Salmostoma bacalia, Dvario devario, Amblypharyngodon mola, Osteobrama cotio, Esomus danricus, Cirrhinus reba, Cirrhinus cirrhosis, Cyprinus carpio, Catla catla, Mystus vittatus, Hemibagrus menoda, Sperata seenghala, Channa punctatus, Channa marulius, Anabas testudineus, Notopterus chitala, Macrobrachium rosenbergii, Macrobrachium lamarrei, Clarias batrachus, Oreochromis mossambicus, Tetraodon cutcutia etc.*				
IBAT screening	There are no protected areas and no key biodiversity areas within 10 km. There are 71 International Union for the Conservation of Nature (ICUN) Red List threatened species within 50 km area. **(Figure 43)** A total of 71 IUCN red list (VU,CR and EN) species reported within 50km radius. Out of these, 36 species are classified as vulnerable(VU), 9 species are classified as Critically Endangered (CR) and 27	There are no protected areas and no key biodiversity areas within 10 km. Gomati wildlife Sanctuary is located about 11 km from project boundary. There are 69 International Union for the Conservation of Nature (ICUN) Red List threatened species within 50 km area. (**Figure 44)** A total of 69 IUCN Red List Critically Endangered (CR), Endangered (EN) and Vulnerable (VU) species	There are no protected areas, but there is 1 key biodiversity area (KBA) Sipahhijila is within 5 km from the town and subproject components. There are 69 International Union for the Conservation of Nature (IUCN) Red List threatened species within 50 km area. **(Figure 45)** A total of 69 IUCN red list (CR, EN and VU) species reported within 50km radius. Out of these 37 species are classified as	Rudrasagar lake is protected and Key biodiversity area within the project area, Trishna Wildlife Sanctuary is another protect area within 10 km from the town and subproject components. There are 68 International Union for the Conservation of Nature (IUCN) Red List threatened species within 50 km area. **(Figure 46)** A total of 68 IUCN red list (VU, CR and EN) species reported within 50 km	There is one protected areas and key biodiversity area (KBA) Trishna Wildlife Sanctuary is within 6 km from the town and subproject components. There are 141 International Union for the Conservation of Nature (IUCN) Red List threatened species within 50 km area. (**Figure 47)** A total of 141 IUCN red list (CR, EN and VU) species reported within 50km radius. Out of these, 17 species are classified as Critically Endangered (CR) and 53

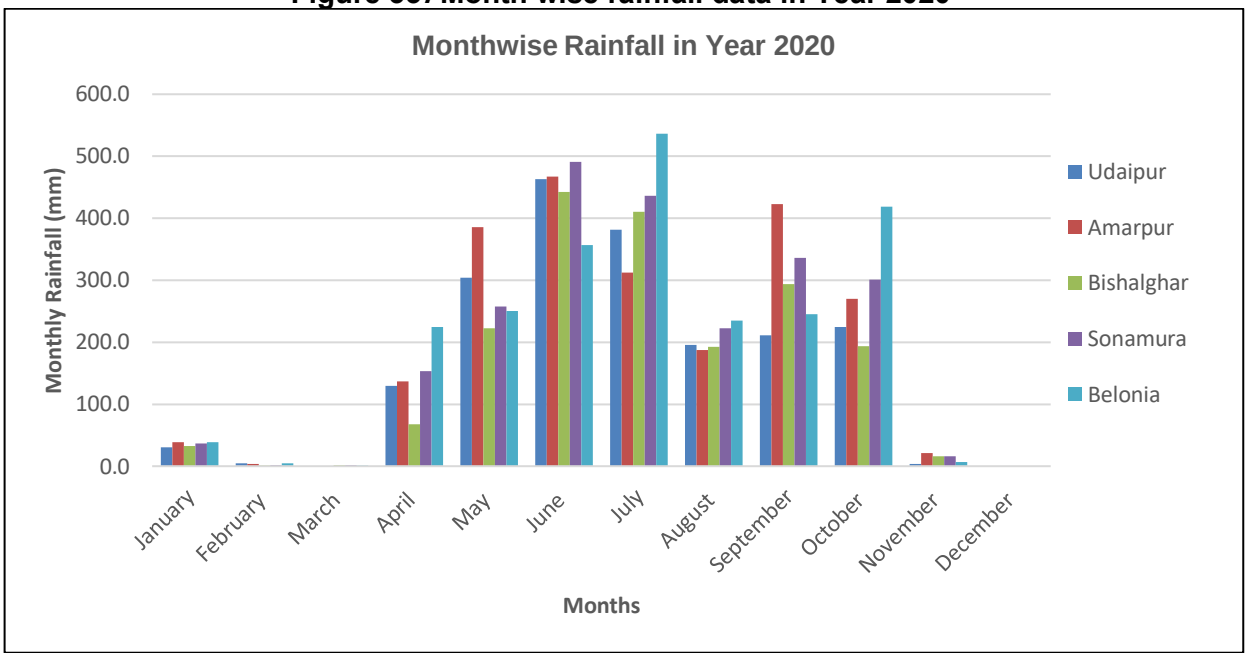
<table>
<tr><th>Baseline Characteristic</th><th>Udaipur</th><th>Amarpur</th><th>Bishramganj</th><th>Melaghar</th><th>Belonia</th></tr>
<tr><td></td><td>species are Endangered (EN). mammals are common which includes 24 species (CR-1, EN-9, VU-14), 19 birds (CR- 4, EN-6, VU-9), 17 reptiles (CR- 3, EN-8, VU-6).</td><td>are reported within 50km radius. Out of these 69 IUCN Red listed species, 8 species are classified as Critically Endangered (CR) and 20 species are Endangered (EN) and 30 are Vulnerable species. Majorly Mammals are common species which include 25 species (CR-1, EN-10, and VU-14), 17 Birds (CR-4, EN-4, and VU-9), 16 Reptiles (CR- 3, EN-6, and VU-7).</td><td>vulnerable,,8 species are classified as Critically Endangered (CR) and 24 species are Endangered (EN). Mammals includes 23 species (EN-9, VU-14), 17 reptiles (CR- 3, EN-7, VU-7), 19 birds (CR- 4, EN-6, VU- 9).</td><td>radius. Out of these 58 IUCN red list species, 8 species are classified as Critically Endangered (CR) and 21 species are Endangered (EN) along with 29 species which are vulnerable (VU). Mammals are a common species which includes 23 species (EN-9, VU-14), 17 reptiles (CR- 5, EN-6, VU-6), 18 birds (CR- 3, EN-6, VU-9).</td><td>species are Endangered (EN) and 71 vulnerable species (VU). Mammals are common species which includes 29 species (CR-1, EN-11, VU- 17), 18 reptiles (CR- 5, EN-6, VU-7), 17 birds (CR- 3, EN-4, VU-9)</td></tr>
<tr><td></td><td colspan="5">IBAT checklists of towns is attached in Appendix 12</td></tr>
<tr><td>Economic development</td><td colspan="5">Land Use
<table>
<tr><th rowspan="2">S. No</th><th rowspan="2">Land Use Category</th><th colspan="5">Percentage</th></tr>
<tr><th>Udaipur</th><th>Amarpur</th><th>Bishramganj</th><th>Melaghar</th><th>Belonia</th></tr>
<tr><td>1.</td><td>Residential</td><td>35</td><td>29.0</td><td>13.22</td><td>15.2</td><td>48</td></tr>
<tr><td>2.</td><td>Commercial</td><td>1</td><td>1</td><td>0.001</td><td>0.3</td><td>1</td></tr>
<tr><td>3.</td><td>Industrial</td><td>0</td><td>0.0</td><td>0.0</td><td>0.4</td><td>0</td></tr>
<tr><td>4.</td><td>Public and Semi-Public</td><td>3</td><td>0.04</td><td>0.001</td><td>0.9</td><td>11</td></tr>
<tr><td>5.</td><td>Mixed Use</td><td>1</td><td>0.38</td><td>4.44</td><td>49.8</td><td>0</td></tr>
<tr><td>6.</td><td>Recreational</td><td>6</td><td>0.31</td><td>0.147</td><td>11.2</td><td>1</td></tr>
<tr><td>7.</td><td>Transportation and Communication</td><td>18</td><td>0.09</td><td>2.51</td><td>2.5</td><td>21</td></tr>
<tr><td>8.</td><td>Primary Activity</td><td>10</td><td>0.27</td><td>2.00</td><td>15.6</td><td>2</td></tr>
<tr><td>9.</td><td>Protective and Undevelopable Use Zone</td><td>21</td><td>5</td><td>4.347</td><td>3.4</td><td>5</td></tr>
<tr><td>10.</td><td>Others (including agricultural, waterbody)</td><td>7</td><td>64</td><td>73.33</td><td>0.8</td><td>11</td></tr>
<tr><td></td><td>Total</td><td>100</td><td>100</td><td>100</td><td>100.</td><td>100</td></tr>
</table>
Source: GIS base Master plans of towns</td></tr>
</table>

<table>
<tr><th>Baseline Characteristic</th><th>Udaipur</th><th>Amarpur</th><th>Bishramganj</th><th>Melaghar</th><th>Belonia</th></tr>
<tr><td></td><td colspan="5">Industries. Industrial development project towns are very limited. Table 20 lists, industries near project towns. Town Map showing land use pattern are presented in Figure 48-52</td></tr>
<tr><td>Demographic parameters</td><td colspan="5">
<table>
<tr><th>Parameter</th><th>Udaipur</th><th>Amarpur</th><th>Bishramganj</th><th>Melaghar</th><th>Belonia</th></tr>
<tr><td>House holds</td><td>8,530</td><td>2880</td><td>2846</td><td>2860</td><td>5363</td></tr>
<tr><td>Population</td><td>32,758</td><td>10,838</td><td>11727</td><td>12379</td><td>19996</td></tr>
<tr><td>Male</td><td>16,593</td><td>5471</td><td>5901</td><td>6398</td><td>10060</td></tr>
<tr><td>Female</td><td>16,165</td><td>5367</td><td>5826</td><td>5981</td><td>9936</td></tr>
<tr><td>Children under the age of 0-6</td><td>2836</td><td>1020</td><td>-</td><td>1346</td><td>1684</td></tr>
<tr><td>No of Wards</td><td>23</td><td>13</td><td>19</td><td>13</td><td>17</td></tr>
<tr><td>Schedule Caste (% of total Population)</td><td>19.30</td><td>27.07</td><td>25.7</td><td>27.6</td><td>27.06</td></tr>
<tr><td>Schedule Tribe (% of total Population)</td><td>1.11</td><td>3.79</td><td>1.15</td><td>1.2</td><td>3.79</td></tr>
<tr><td>Hinduism (% of total Population)</td><td>89.00%</td><td>94.82%</td><td>99%</td><td>99%</td><td>98.83%</td></tr>
<tr><td>Islam (% of total Population)</td><td>10.19%</td><td>4.02%</td><td>0.86%</td><td>0.25%,</td><td>0.27%</td></tr>
<tr><td>Others (Buddhism, Christianity, Sikhism and Jainism) (% of total Population)</td><td>Less than 1%</td><td>1.6 %</td><td>Less than 1%</td><td>Less than 1%</td><td>Less than 1%</td></tr>
<tr><td>Sex ratio (female per 100 males</td><td>974</td><td>981</td><td>988</td><td>984</td><td>988</td></tr>
<tr><td>total literacy rate</td><td>94.84 %</td><td>94%</td><td>83.96 %</td><td>90.85 %</td><td>94.99%</td></tr>
<tr><td>male literacy rate</td><td>96.50 %</td><td>95.81 %</td><td>85.71%</td><td>91.78%</td><td>97.18%</td></tr>
<tr><td>female literacy rate</td><td>93.15 %</td><td>92.54 %.</td><td>82.19 %.</td><td>83.46%.</td><td>92.77%</td></tr>
</table>
</td></tr>
<tr><td>History and tourism</td><td>Two ASI protected sites are located within Udaipur, Gunavati Group of Temples and Chaturdasa Devata Temple located within heart of the city and main market area., The nearest component to ASI monument are
1. Proposed drain - Shitalbari to Brahmabari to Sukhsagar,
2. Proposed footpath Sitalbari to Brahmabari temple and</td><td>Amarpur is a picnic spot, The town stands on the ruins of a palace. On the southern bank lies a temple dedicated to the eight headed goddess, Mangalchandi. A fair is held during the Basant Panchami (February). places of interest in Amarpur are Amarsagar & Fatiksagar lakes, Chobimura, at 8 km from Amarpur</td><td>No tourist spot or area of interest in Bishramganj ULB except some small temples</td><td>Rudra Sagar Ramsar site and Neermahal is the main spot of Melaghar built in the heart of Rudrasagar Lake. It was Maharaja Bir Bikram Kishore Manikya Debbarma's idea to build a palace amidst the splendid Rudra Sagar Lake and in 1921 he accredited the British company Martins and Burn to construct the palace for him. The</td><td>Belonia is situated adjacent to Bangladesh in the south region of Tripura. Trishna Wildlife Sanctuary under Rajnagar Block and Pilak under Jolaibari have been the major tourist attractions</td></tr>
</table>

Baseline Characteristic	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
	3. proposed footpath on central road is about 70 m from Chaturdash temple and 430 m from Gunavati group of temples The details distance of the roads and drains from those ASI protected areas are given in and **Table 21-22** in details. Udaipur is dotted with temples the most famous of which is the Tripura Sundari temple, which is one of the 51 Shakti Peethas. This is outside the municipal boundary, and none of the components are located nearby the temple.			company took nine years to complete the palace. Maharaja Bir Bikram Kishore Manikya Debbarma belonged to the 'Manikya Dynasty' which is supposed to be the second longest remaining dynasty in the world today.	
ASI protected Monument in Udaipur	**Chaturdash Devta temple -** Attesting a legend of Tripuresh Bhairava, the temple called Mahadev Bari was constructed by Maharaja Dhanya Manikya where the phallic emblem of Siva is installed. The deciphered stone inscriptions suggest that the bigger temple inside the premises is Gopinath temple, which faces the south. Maharaja Kalyan Manikya in 1650 C.E. (5 th Ashada, Tuesday, 1572 Saka Era) built the Gopinath temple in the premises of Mahadev Bari, dedicating it to lord Gopinath or Krishna. However, there is hearsay that it had been the temple of Chaturdasha Devata (Gopinath temple). The local people refer to the other temple within the arena as Lakshmi Narayan temple. But historical anecdotes attest that it was actually a Vishnu temple constructed by Ramdev, son of Maharaja Govinda Manikya in 1673 C.E. This part has also been attested by stone inscriptions, which suggest that the temple dates back to 1595 Saka Era (1673C.E.). (**Figure 59)** **Architectural style** - There are four structures in the same premises- to the north lies the Chaturdasha Devata temple, towards the left of which, lies the Lakshmi-Narayan temple and to the west of it has Chaturdasha Devata temple and in front of Chaturdasha Devata temple has natamandapa (dancing hall). The Mahadev Bari lies in the southernmost part of the complex. The Lakshmi-Narayana temple and the Chaturdasha Devata temple are similar on plan and architectural features. The Lakshmi-Narayana temple is smaller than the Chaturdasha Devata temple. They are built in char chala pattern and the core chamber resembles a stupa. There is an amalaka resembling a small pitcher on the top. It also features a tetrad slanting roof and a bow-shaped vault arched above the gateway. The pattern carved above the vault resembles a blooming lotus, bearing a flagstaff at the top. The temple has a pradakshinapatha (circumambulatory path). The bhogamandapa/natamandapa (dancing hall) of brick masonry is topped by chala roof lying in front of the temples to the south. A brick-built wall surrounds the ancient compound on all four sides.				

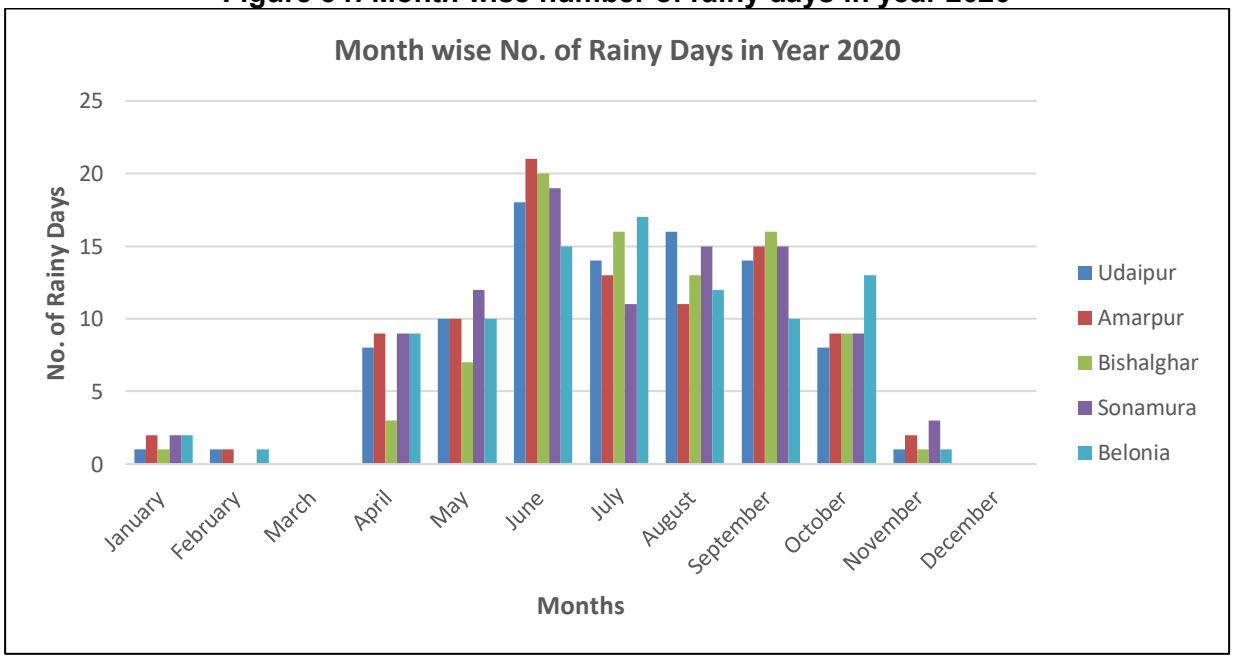
Baseline Characteristic	Udaipur	Amarpur	Bishramganj	Melaghar	Belonia
	There is a pair of rock cut lion at the entrance of the main temple. Bricks and lime mortar have been used for construction of the temple. Amongst all these Mahadev Bari is the only living temple. Source : National Monument Authority Heritage bye-laws 2020 of Centrally Protected Monument Chaturdasha Devata Temple **Gunavati Group of temples**: A group of three brick-built temples lies adjacent to each other at the ancient capital of Tripura at Udaipur. Existence of a group of temples on the same premises is a unique characteristic of the temples of Tripura. The temple was built during the reign of Govinda Manikya (CE 1660- 1676). The northern temple bears an inscription which narrates that the temple was built by queen Gunavati, wife of Govinda Manikya, in 1668 CE. The temple was dedicated to Vishnu. The temple is square on plan and attached to an antarala (vestibule). The other two temples have no any inscription, but the architectural style of these temples indicates that both are contemporary to the temple constructed by Queen Gunavati. **(Figure 60)** **The architectural style** of the ancient Tripura temples bears the pan-Indian traits assimilated in a new style of terracotta chala temples with votive stupa like finials. These temples architecture are almost like other contemporary temples of Tripura except that these have their vestibule devoid of hemispherical and on the roof. The temples are covered by chala roof with finial resembling votive stupa/hemispherical anda. There are tapering buttresses which arc attached to the corners of the temple. The temple's walls on all sides are decorated with linear segments. The western most temple is the smallest in size among them. Source : National Monument Authority Heritage bye-laws 2021 of Centrally Protected Monument Gunavati Group of Temples, Radhakishorepur, Gomati.) Figure 55 to 58 show the distance between proposed components and ASI monuments in Udaipur town.				

Figure 33*:* Month wise rainfall data in Year 2020



(Source: https://www.agri.tripura.gov.in/sites/default/files/Station_wise.pdf)

Figure 34*:* Month wise number of rainy days in year 2020



(Source: https://www.agri.tripura.gov.in/sites/default/files/Station_wise.pdf)

Figure 35: Watershed Map of Tripura watershed showing important rivers and Bangladesh International Boarder

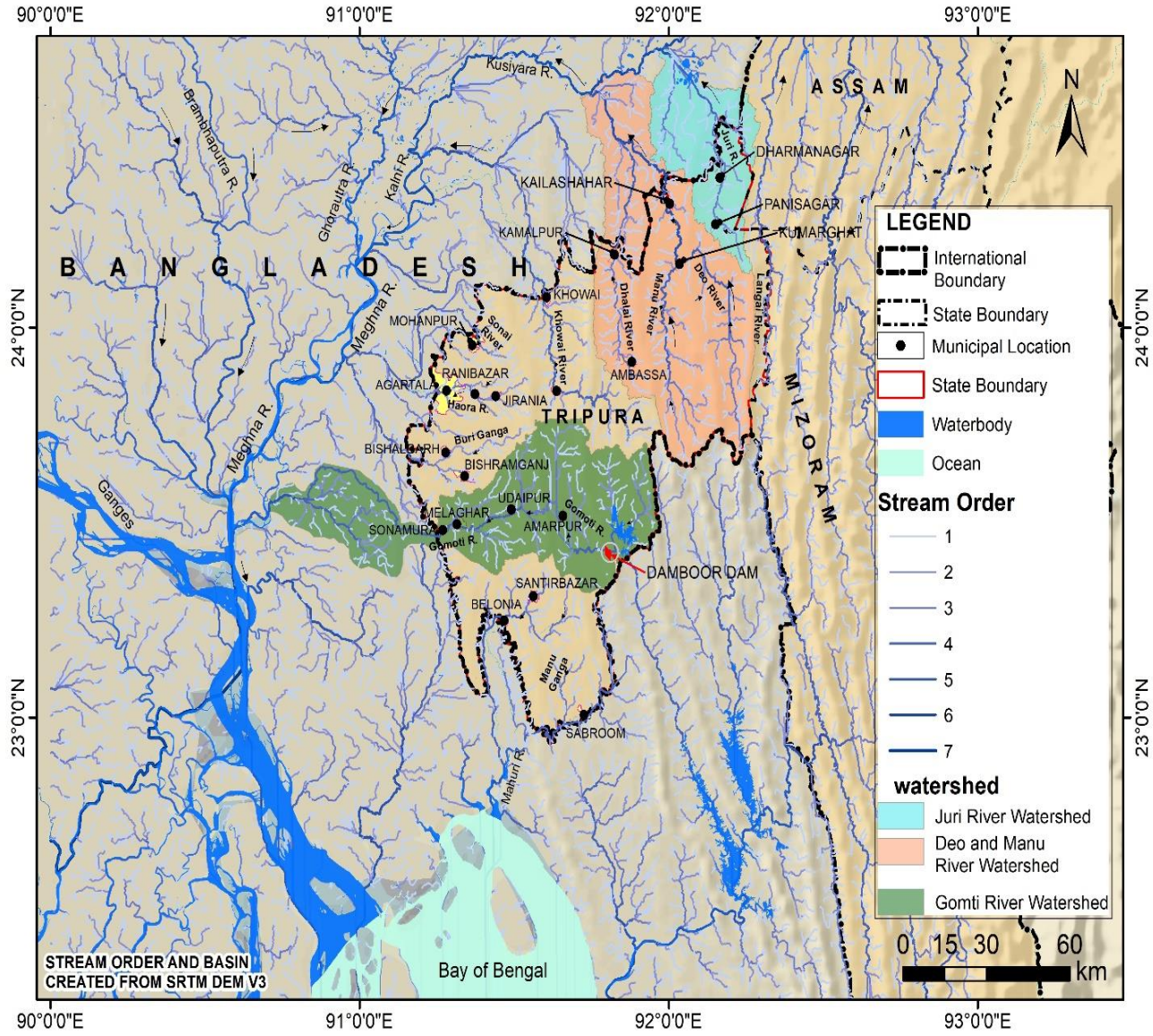


Figure 36: Waterbody Map of Udaipur

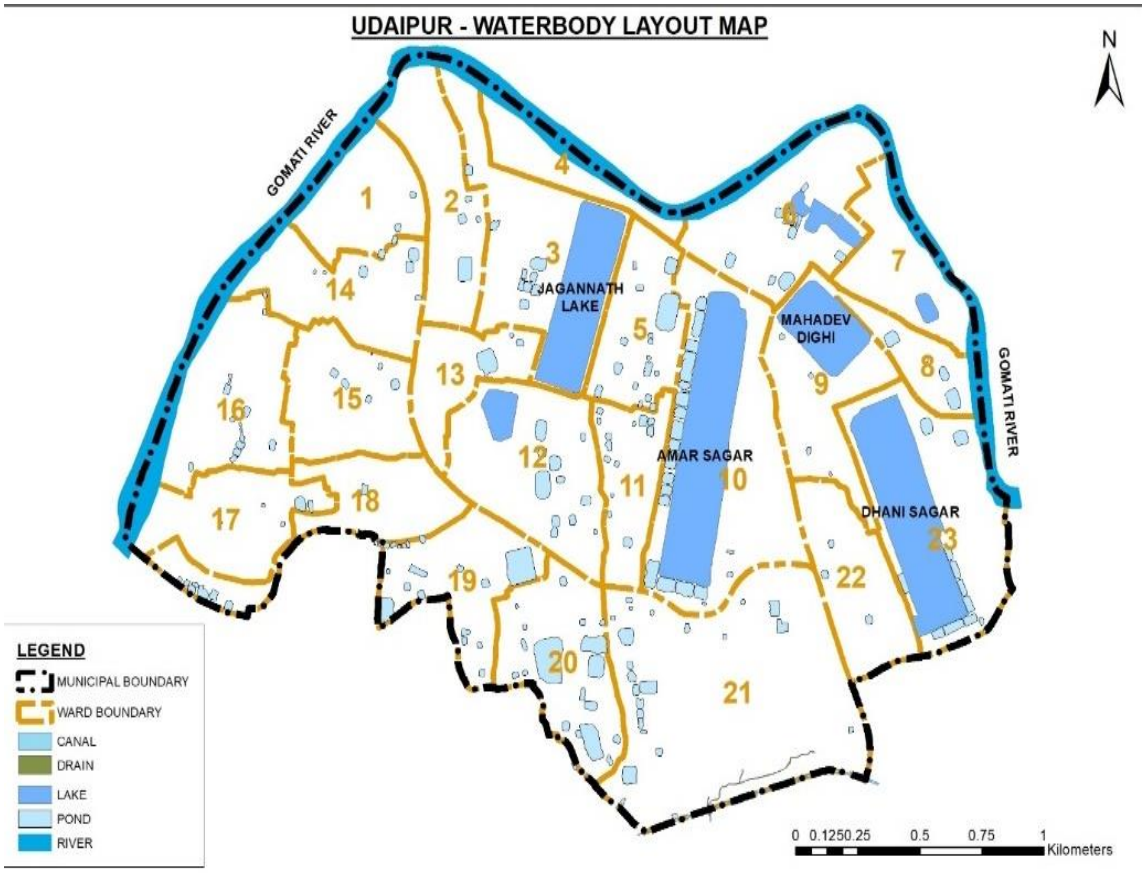


Figure 37: Waterbody Map of Amarpur

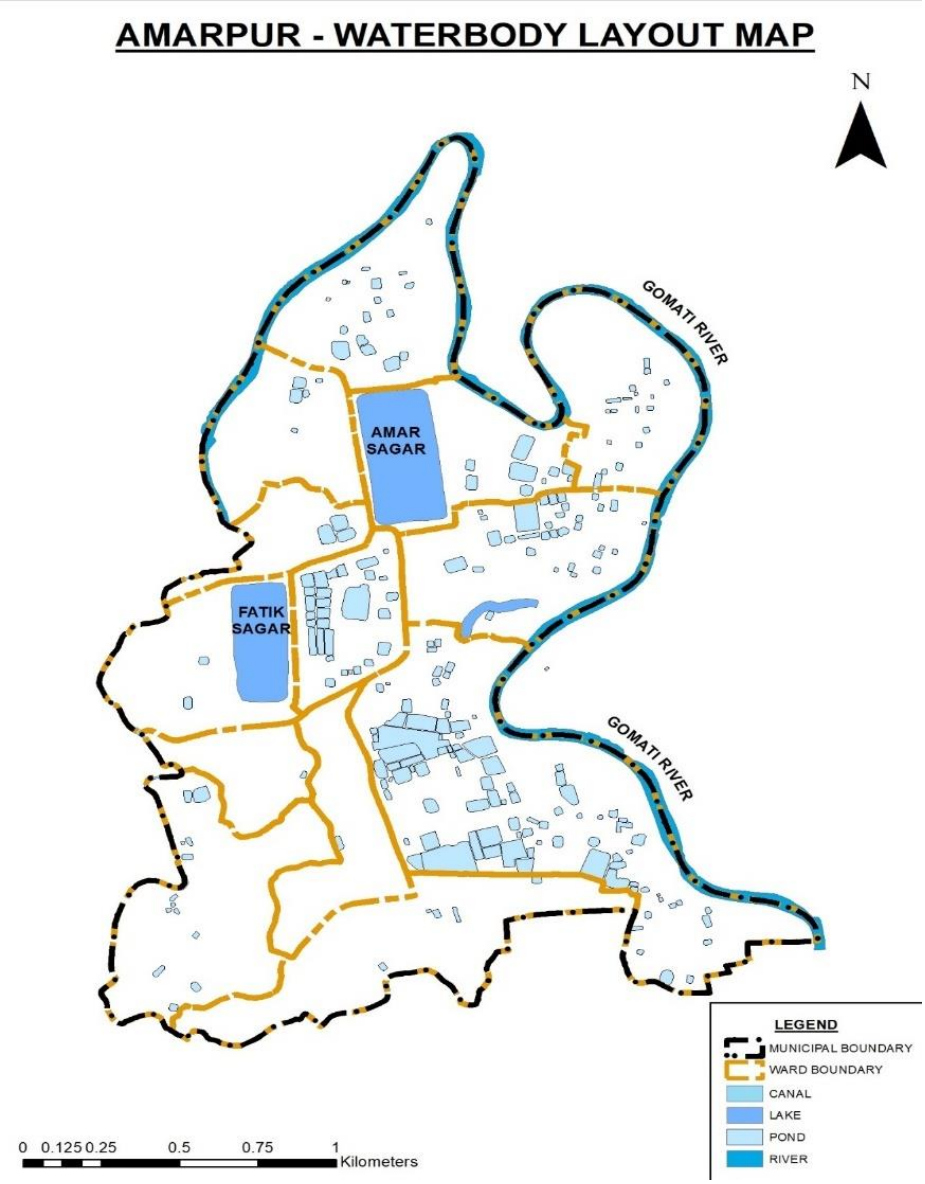


Figure 38: Waterbody Map of Bishramganj

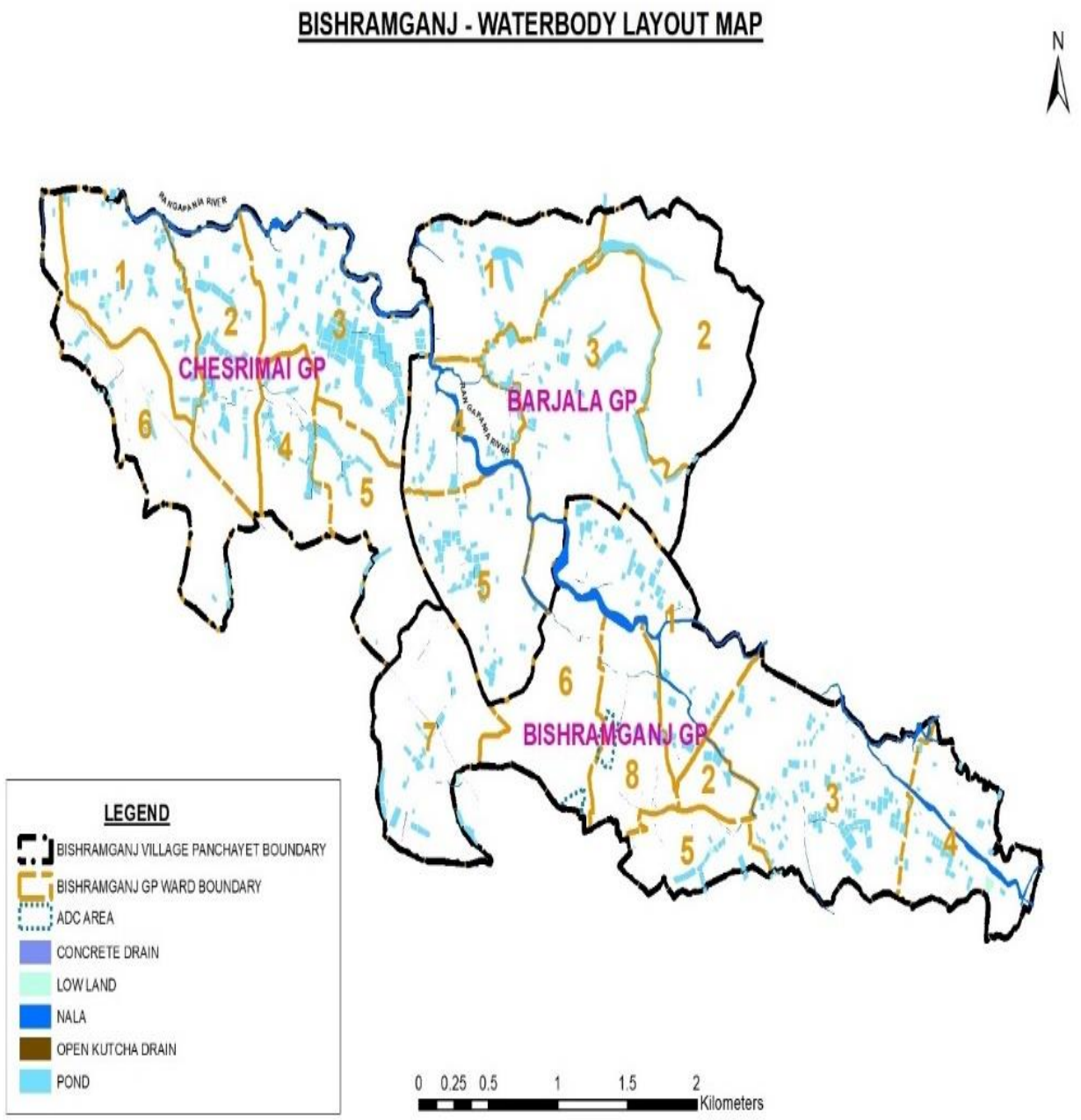


Figure 39: Waterbody Map of Melaghar

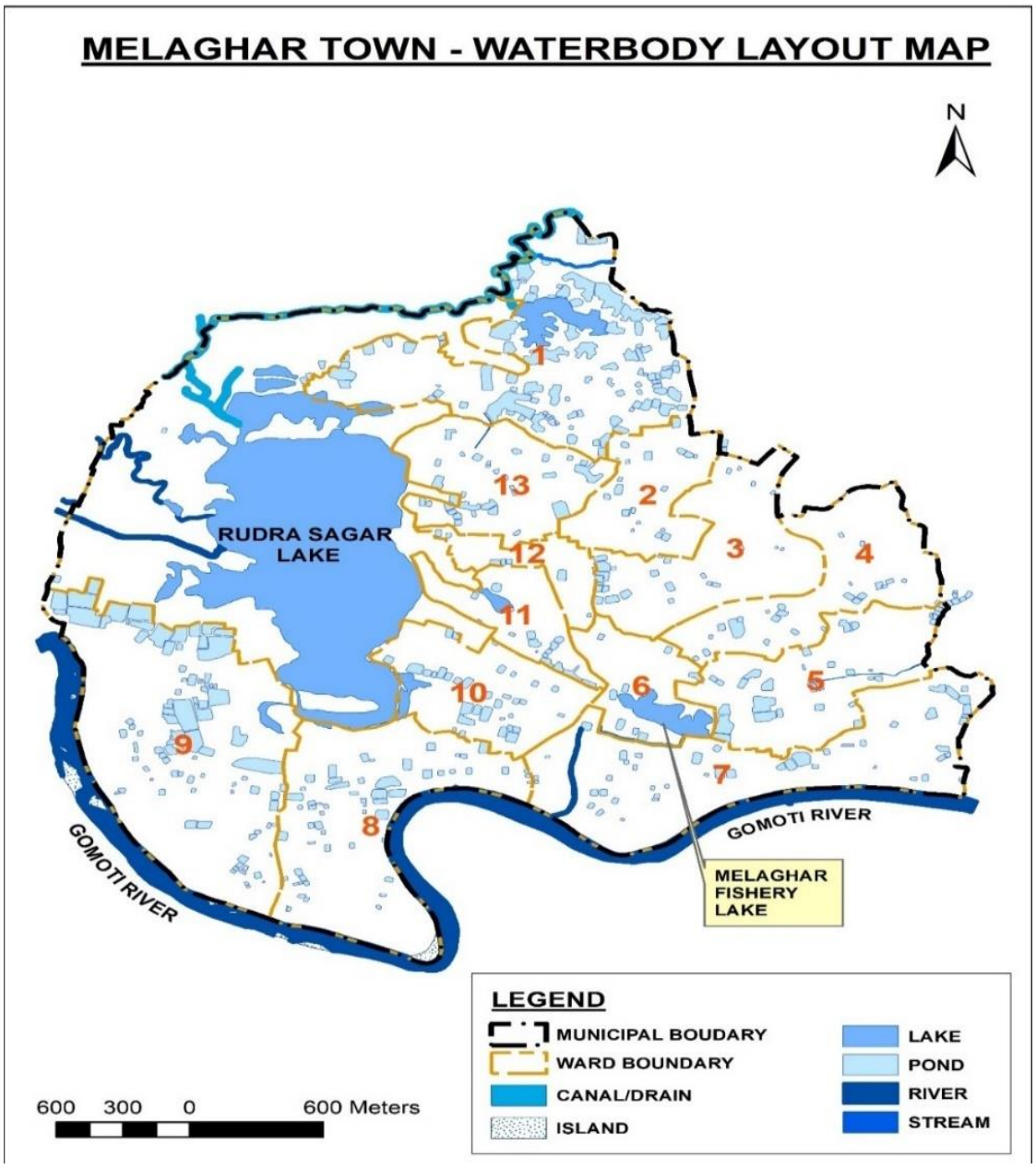


Figure 40: Water body layout map of Belonia

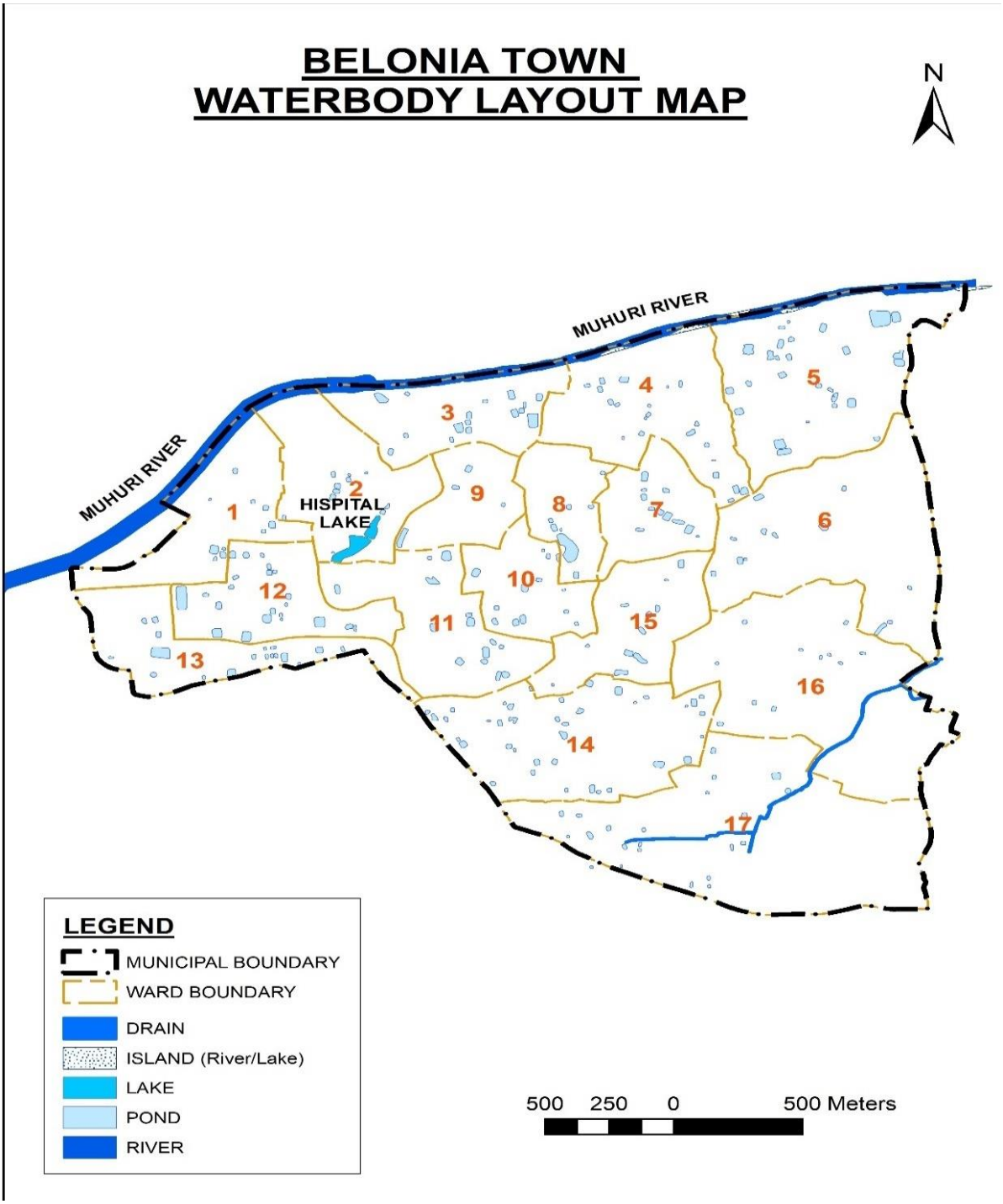


Table 15: Analytical results of raw Water Quality of rivers form project towns

Date	Turbidity (NTU)	pH	Hardness (mg/l)	Total Iron (mg/l)	R. Cl (mg/l)	TDS (mg/l)	Alkalinity (mg/l)
Udaipur raw water sample from Gomati River near WTP							
31/01/2023	83.3	7.1	48.6	1.22	-		
01/02/2023	83	7.05	48	1.23	-		
02/02/2023	84	7.05	49.5	1.24	-		
03/02/2023	84.4	7.1	48.4	1.29	-		
04/02/2023	25	7.1	49	1.22	-		
Average	**71.94**	**7.08**	**48.7**	**1.24**	-		
Amarpur raw water sample from Gomati River near WTP							
20/03/2023	42	7.2	64	0.6	-	52	60
21/03/2023	42	7.4	66	0.6	-	52	64
22/03/2023	40	7.3	68	0.5	-	58	66
23/03/2023	44	7.2	66	0.5	-	56	68
24/03/2023	46	7.4	70	0.5	-	49	64
Average	**42.8**	**7.3**	**66.8**	**0.54**	-	**53.4**	**64.4**
Melaghar - raw water sample from Gomati River near WTP							
13/03/2023	32	7.01	38	-	-		
14/03/2023	31	7.01	38	-	-		
15/03/2023	34	7.00	40	-	-		
16/03/2023	30	7.00	39	-	-		
17/03/2023	25	7.00	40	-	-		
Average	**30.4**	**7.004**	**39**		-		
Belonia - raw water sample from Muhuri river near WTP							
20/03/2023	47	6.89	50	0.676	-		88
21/03/2023	45	6.90	56	0.648	-		90
22/03/2023	43	6.89	58	0.675	-		90
23/03/2023	40	6.90	56	0.671	-		88
24/03/2023	40	6.89	50	0.694	-		86
Average	**43**	**6.89**	**54**	**0.673**	-		**88.4**

Source: DWS of respective towns, DWS, Water Treatment Plant laboratory;

Table 16: Noise level data of Project towns during December, 2020

Type of area	Location	Day time Measured value in dB			Day Time Standards		Nighttime Measured value in dB			Nighttime Standards		Activities around monitoring locations
		Lmin	Lmax	Leq	Indian	WHO Guidelines	Lmin	Lmax	Leq	Indian.	WHO Guidelines	
Udaipur												
Industrial	Dhajanagar Industrial Estate	57.36	64.32	61.44	75	70	43.28	46.64	45.02	55	70	-
Commercial	Bhramhabari	60.98	67.22	64.27	65	70	43.34	46.4	45.01	55	70	-
Residential	West Bank of Amarsagar	52.46	56.8	54.71	55	55	41.56	45.42	43.35	45	45	-
Silent	Udaipur Sub-Divisional Hospital	46.82	52.16	49.92	50	55	39.32	42.12	40.75	40	40	Public noise
Amarpur												
Commercial	Amarpur Bazar	55.46	60.58	58.63	65	70	41.98	45.7	43.96	55	55	
Residential	Birganj	53.4	56.46	**55.01***	55	55	40.08	45.24	43.12	45	45	Public movement.
Silent	Amarpur Sub- Divisional Hospital	51.44	55.64	**53.91***	50	55	39.86	42.86	**41.48***	40	45	Public movement.
Bishalgarh Sub-Division												
Commercial	Bishalgarh (Uttar Bazar)	65.16	68.98	**68.80***	65	70	40.46	53.22	52.18	55	70	Heavy Vehicular movement
	Bishalgarh Boxonagar Road	45.5	51.78	48.77	65	70	40.88	43.34	42.25	55	70	-
Residential	Bishalgarh, Takerjala Road	65.64	68.58	**68.22***	55	55	52.08	54.76	**53.98***	45	45	Human gathering
Silent	Bishalgarh Hospital	58.1	59.88	**60.17***	50	55	46.92	50.68	**49.25***	40	45	Vehicular movement public crowd.
Sonamura Sub-Division												
Commercial	Sonamur a Bazar	52.5	57.2	55.04	65	70	40.5	42.12	41.56	55	55	-
	Sonamura Ramthakur Sevamandr	53.12	57.18	56.60	65	70	39.86	41.5	40.80	55	55	-
	Sanghati Bridge	70.1	72.66	**71.81***	65	70	59.06	63.0	**62.51***	55	55	-
Residential	Sonamura Hospital	44.8	47.96	47.24	55	55	36.4	39.4	38.12	45	45	-
	Sonamur a Bazar	52.5	57.2	**55.04***	55	55	40.5	42.12	41.56	45	45	-
Silent	Sonamura Ramthakur Sevamandr	53.12	57.18	**58.60***	50	55	39.86	41.5	40.80	40	45	-
Belonia												
Commercial	Ek No. Tilla Market	60.72	67.74	64.43	**65**	70	41.12	43.48	42.38	55	55	
Residential	Arjya Colony	52.48	57.56	**55.15***	**55**	55	40.34	42.54	41.47	45	45	Public crowd
Silent	Belonia Sub- Divisional Hospital	54.18	59.32	**57.15***	**50**	55	39.94	41.9	**40.99***	40	45	Vehicular movement, Public crowd.

Source: Annual report TSPCB

Figure 41: Forest map of Gomati district

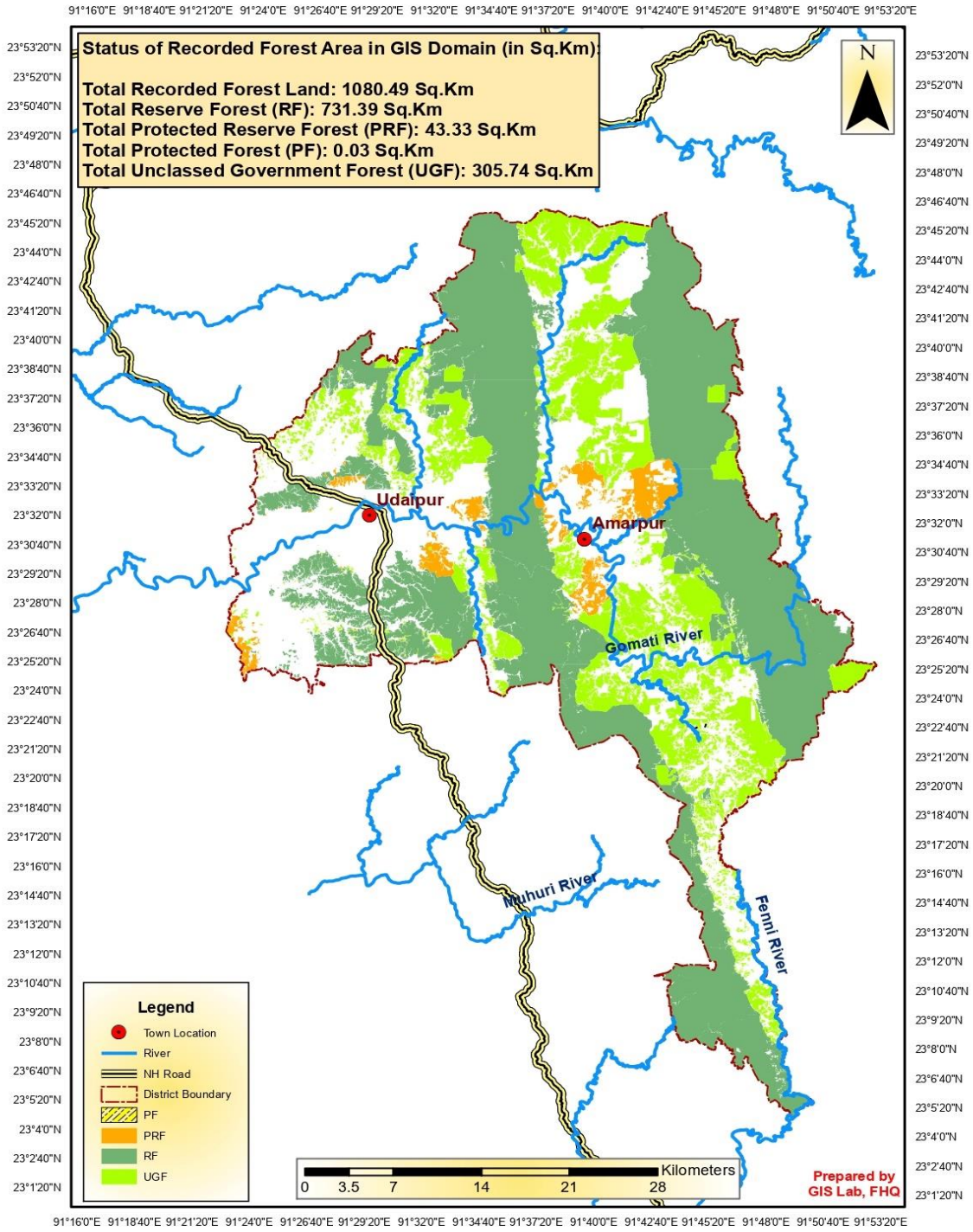


Figure 42: Forest map of Sepahijala district

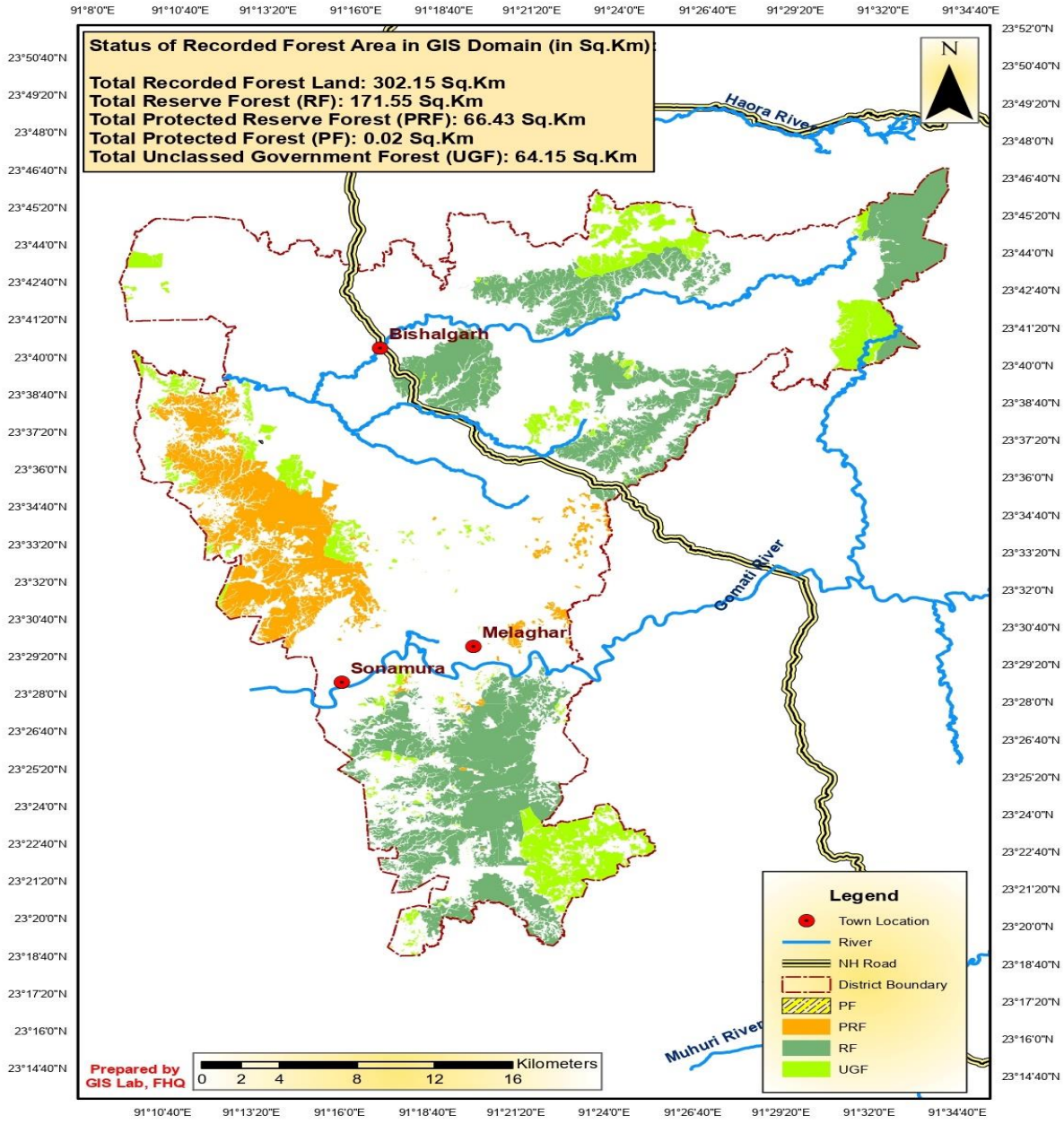


Figure 43: Forest map of South Tripura district

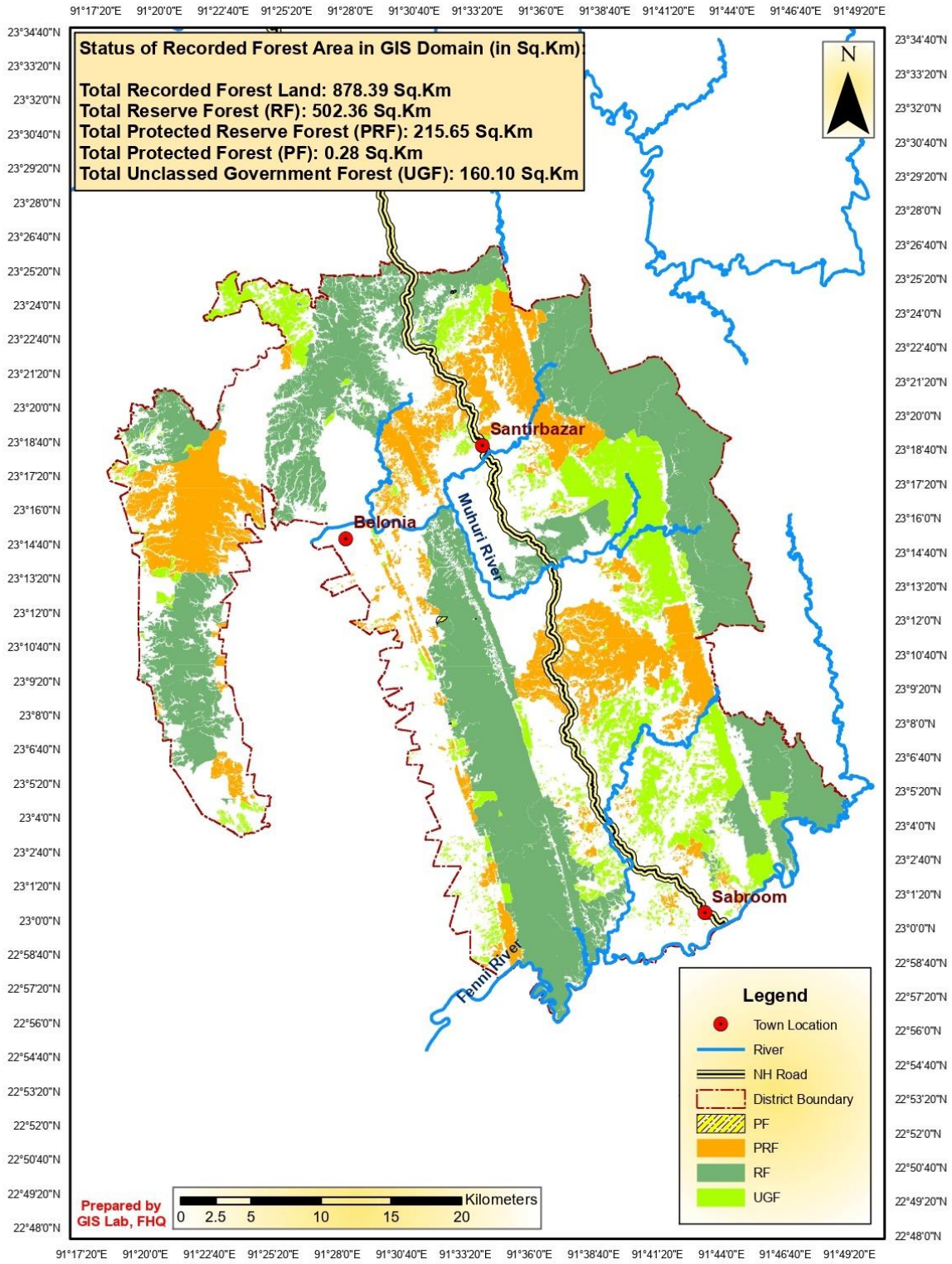


Figure 44: Key biodiversity areas and Protected Areas in proximity to proposed components in Udaipur town

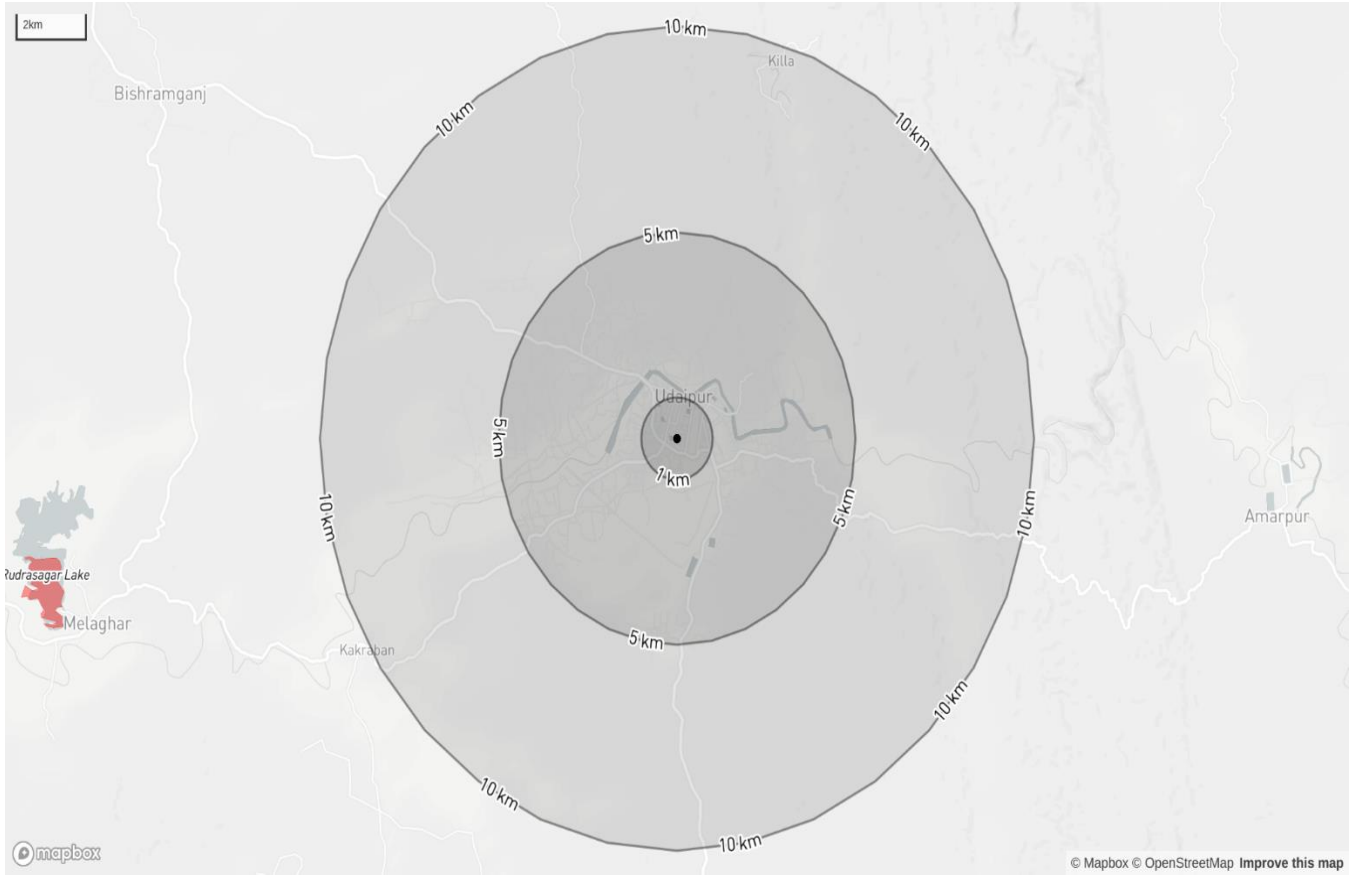


Figure 45: Key biodiversity areas and Protected Areas in proximity to proposed components in Amarpur town

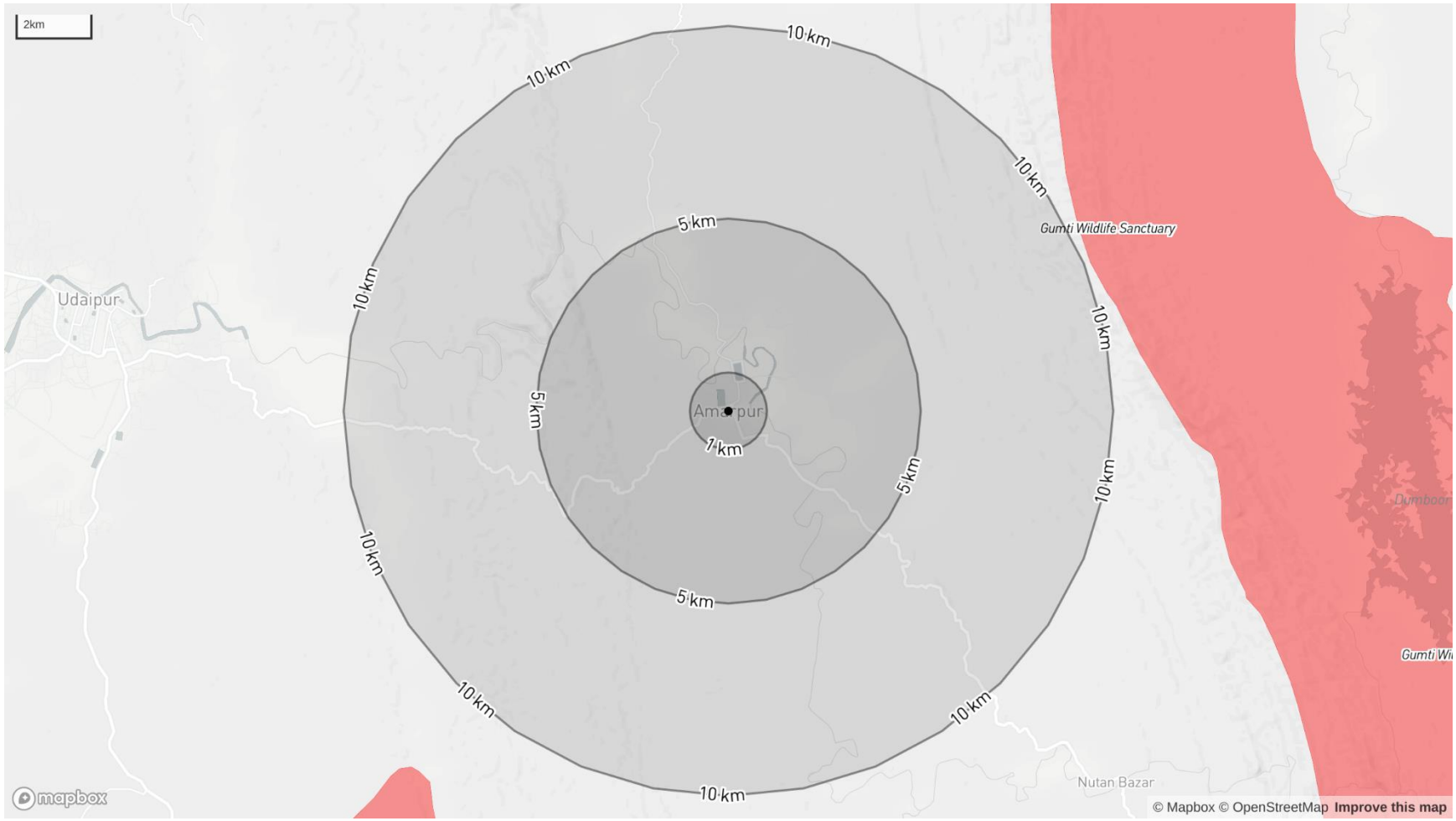


Figure 46: Key biodiversity areas and Protected Areas in proximity to proposed components in Bishramganj town

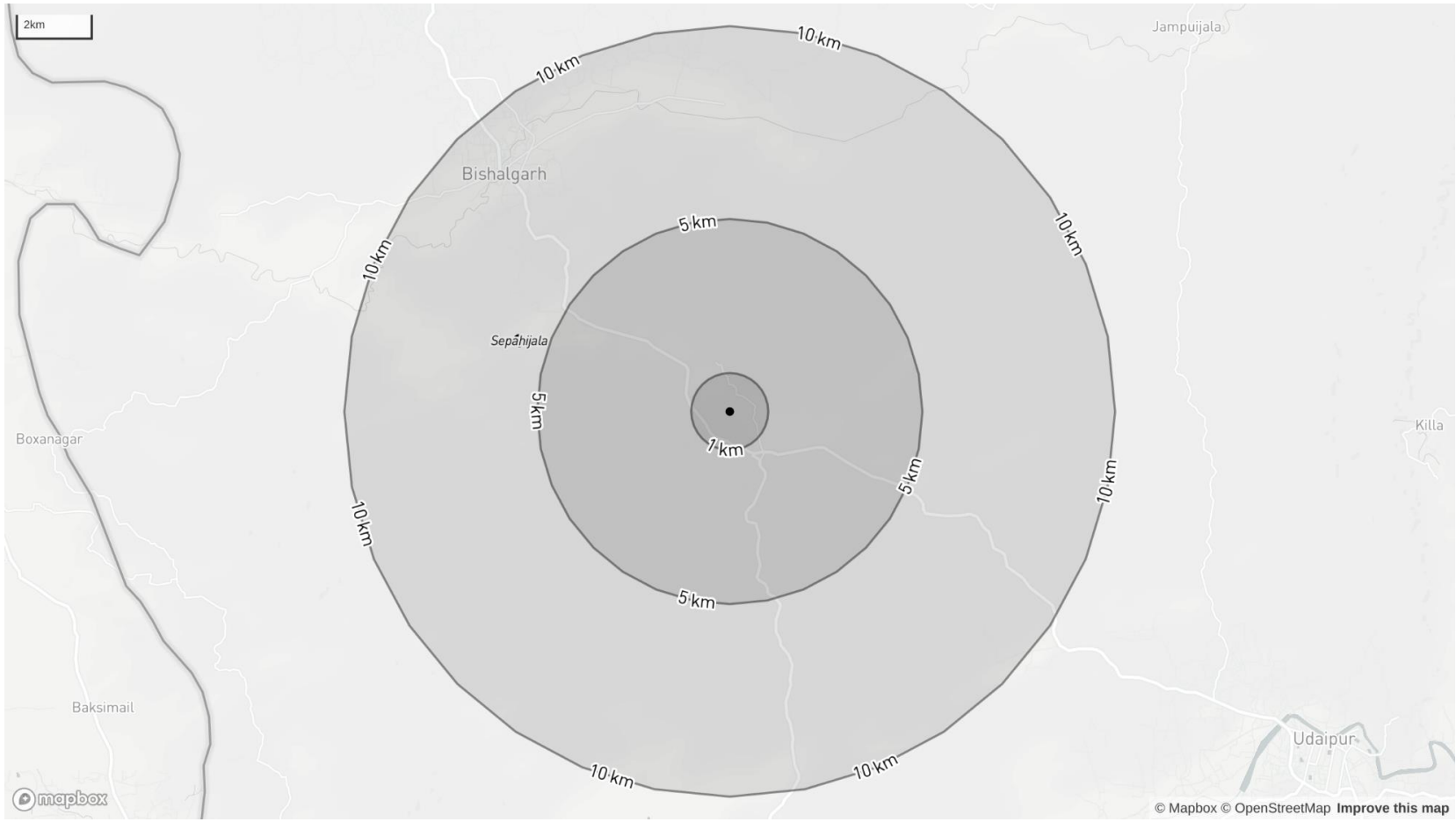


Figure 47: Key biodiversity areas and Protected Areas in proximity to proposed components in Melaghar town

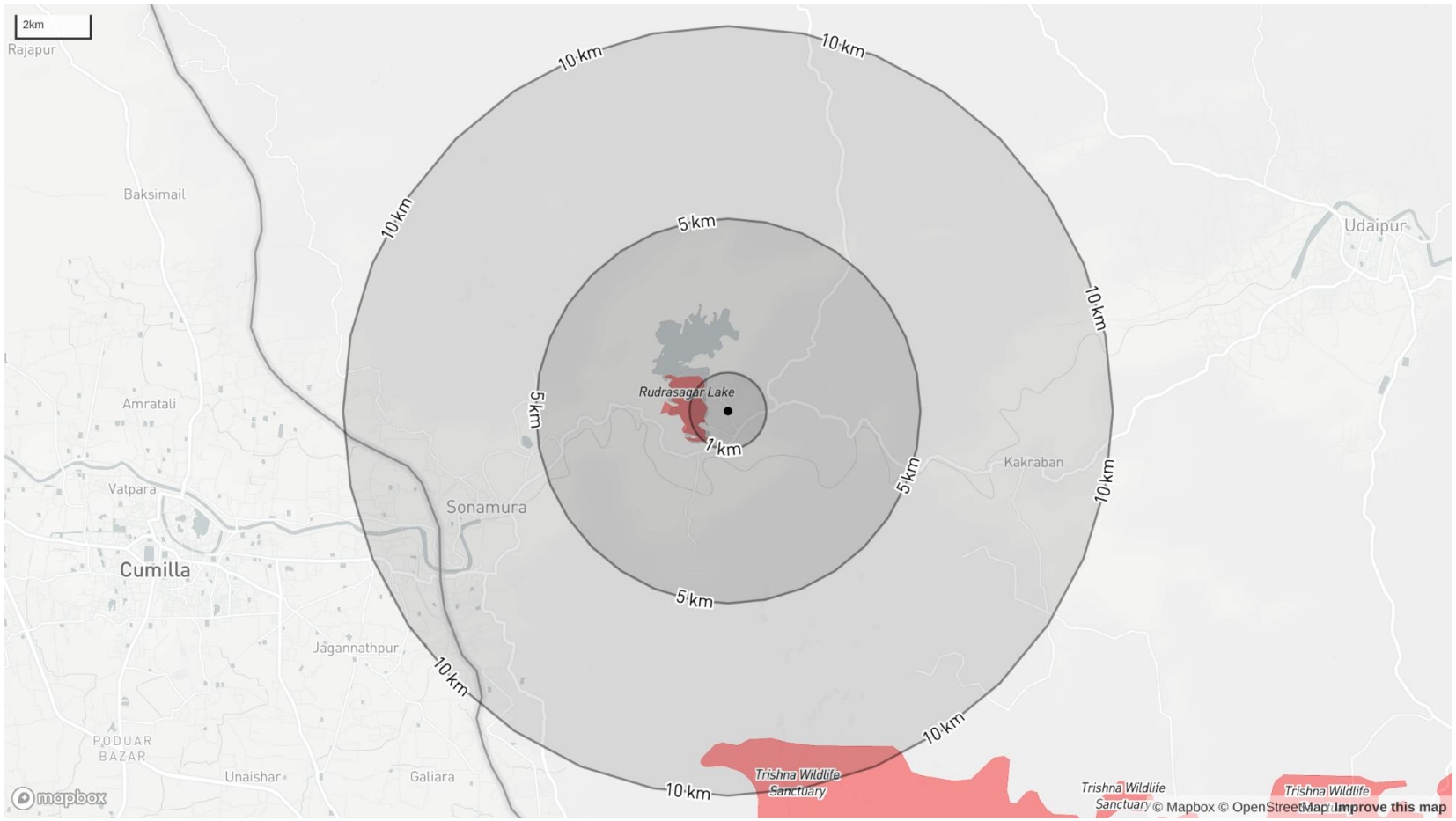


Figure 48: Key biodiversity areas and Protected Areas in proximity to proposed components in Belonia town

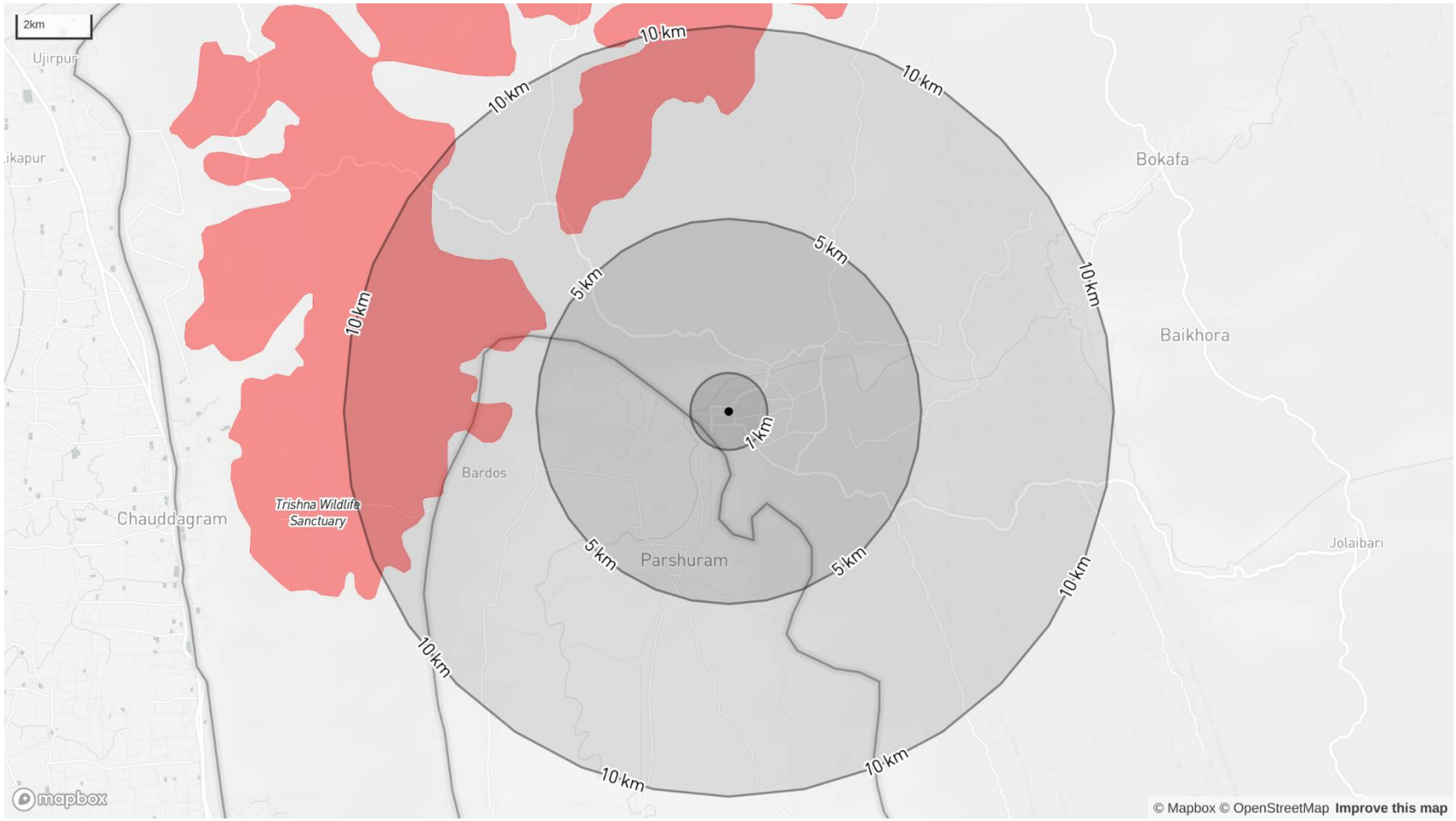


Figure 49: Land use map of Udaipur town

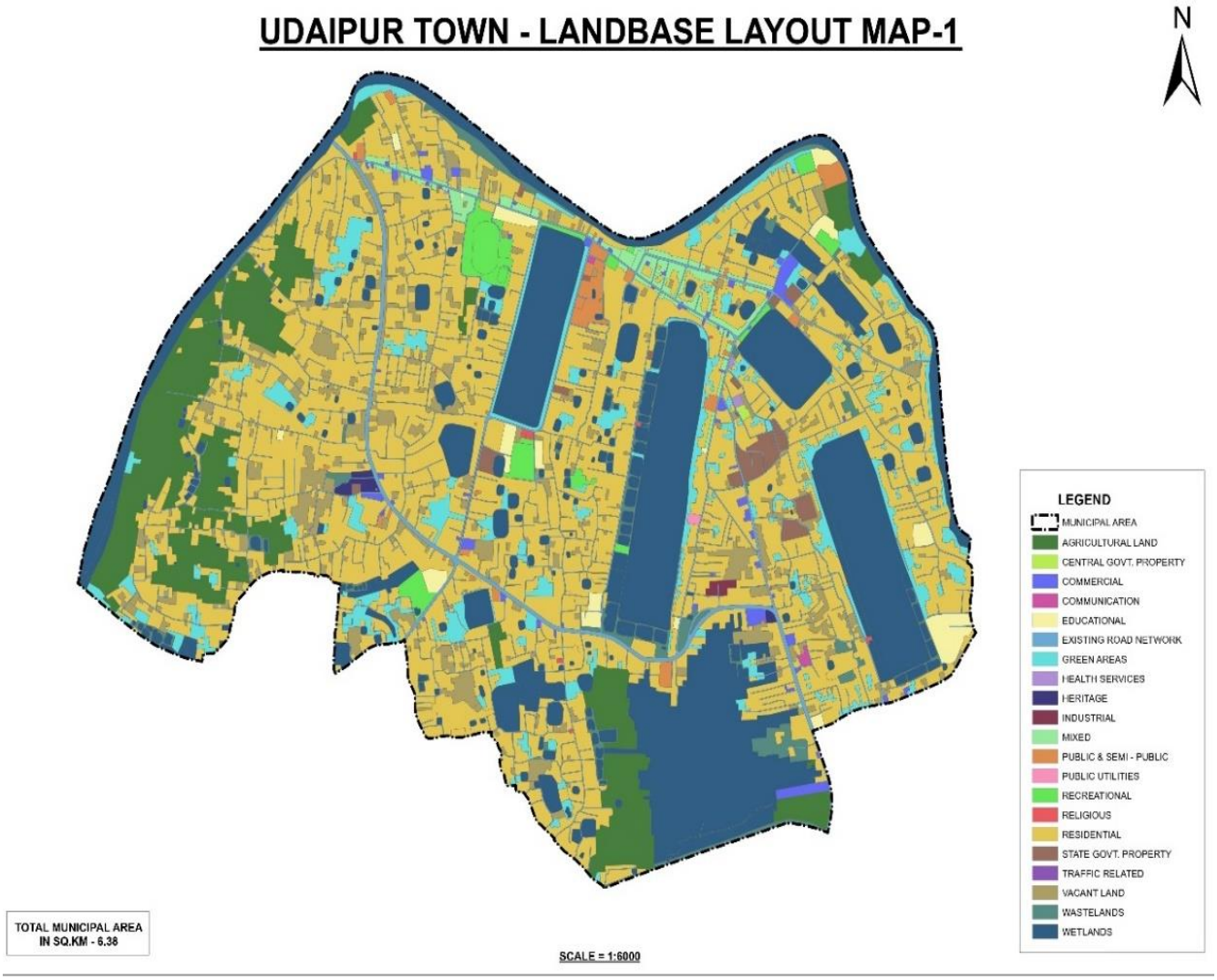


Figure 50: Land use map of Amarpur town

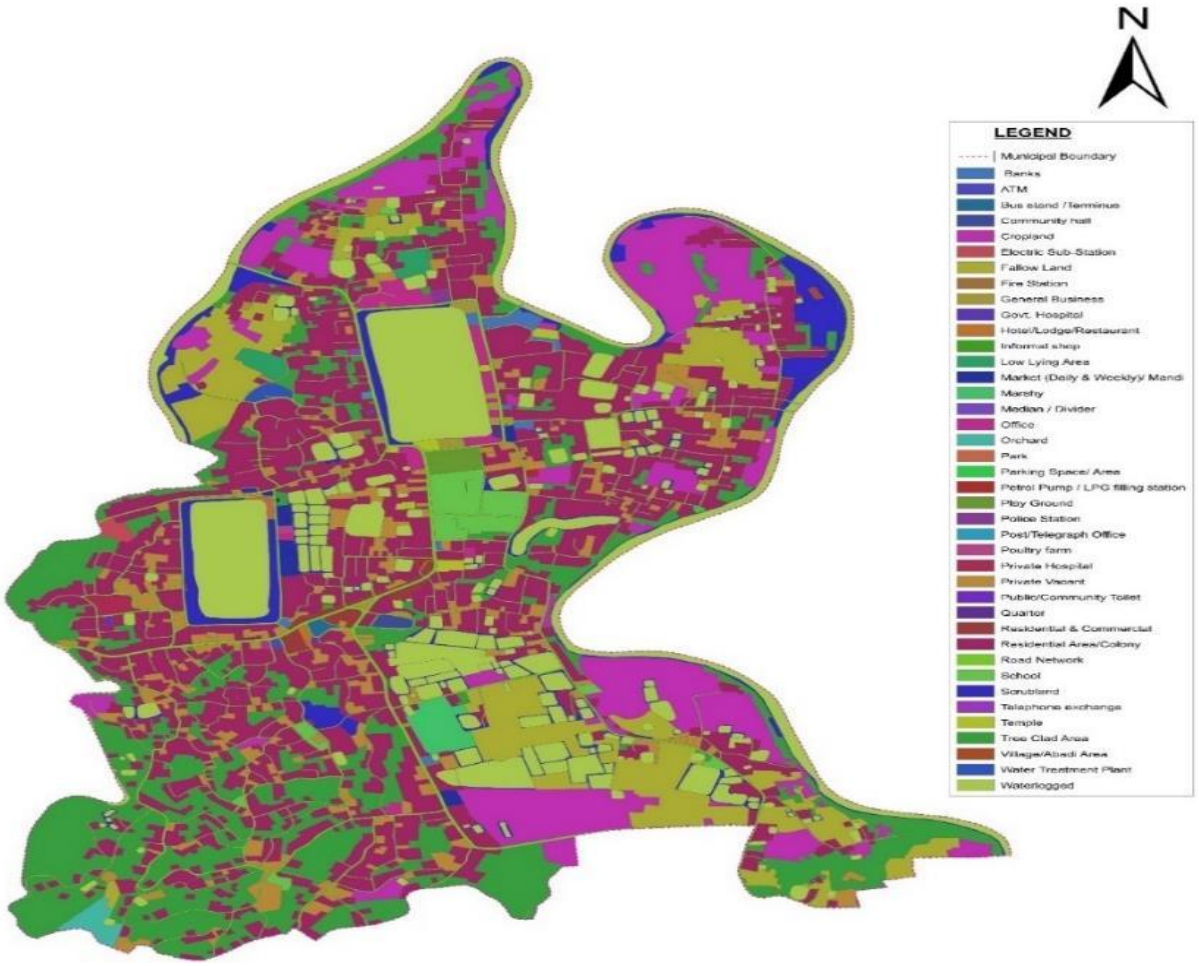


Figure 51: Land use map of Bishramganj

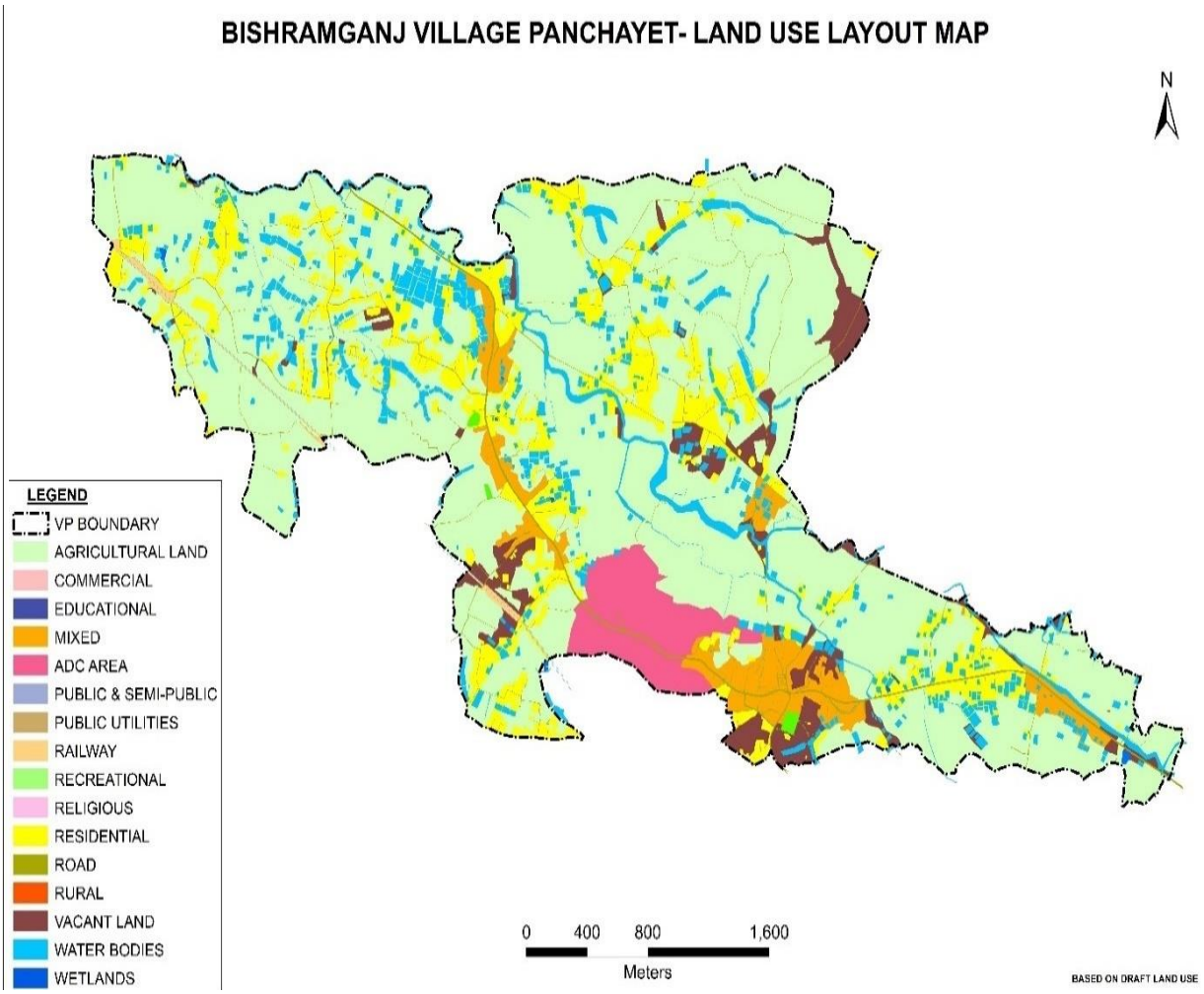


Figure 52: Land use Map of Melaghar

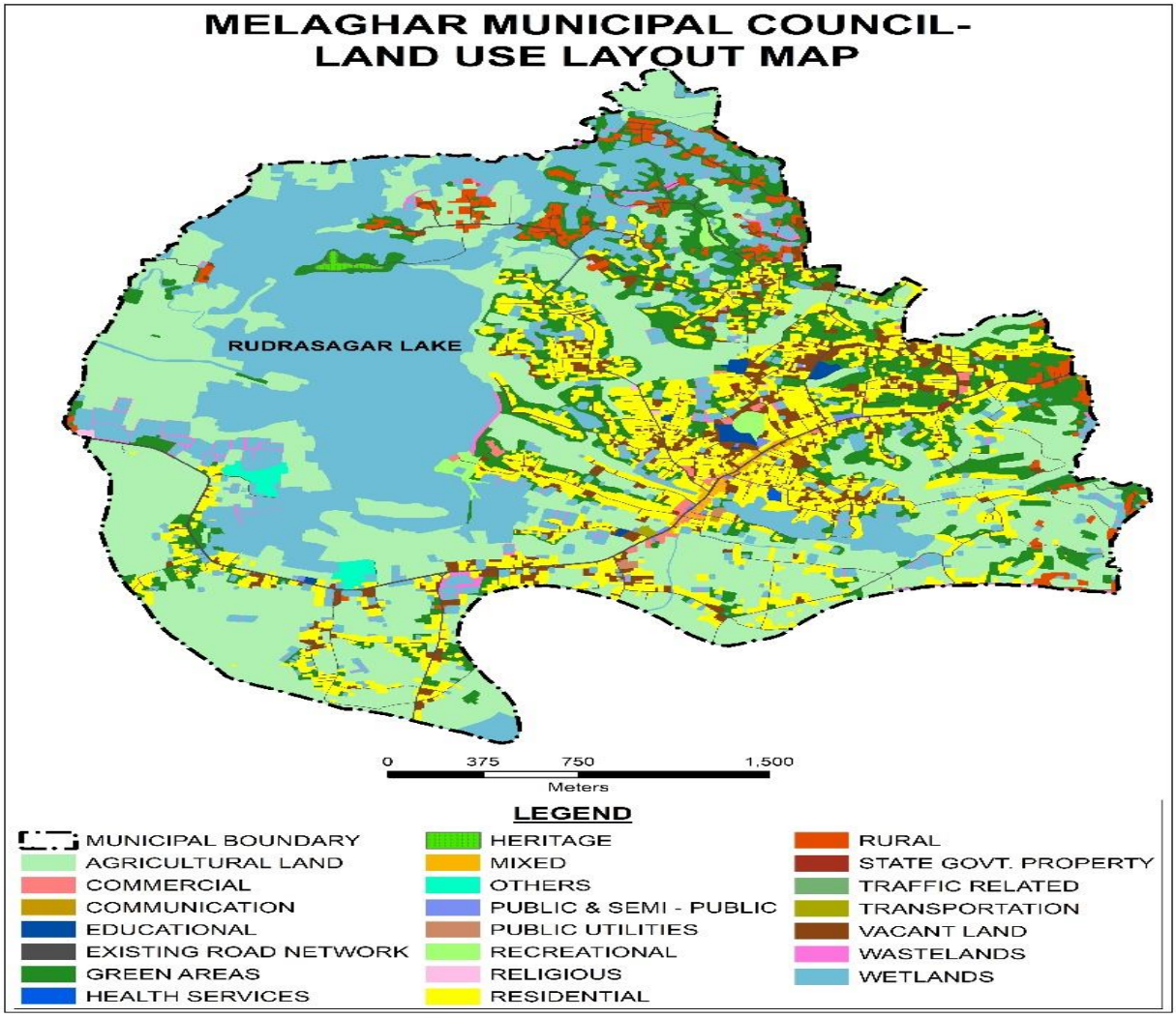


Figure 53: Land use Map of Belonia

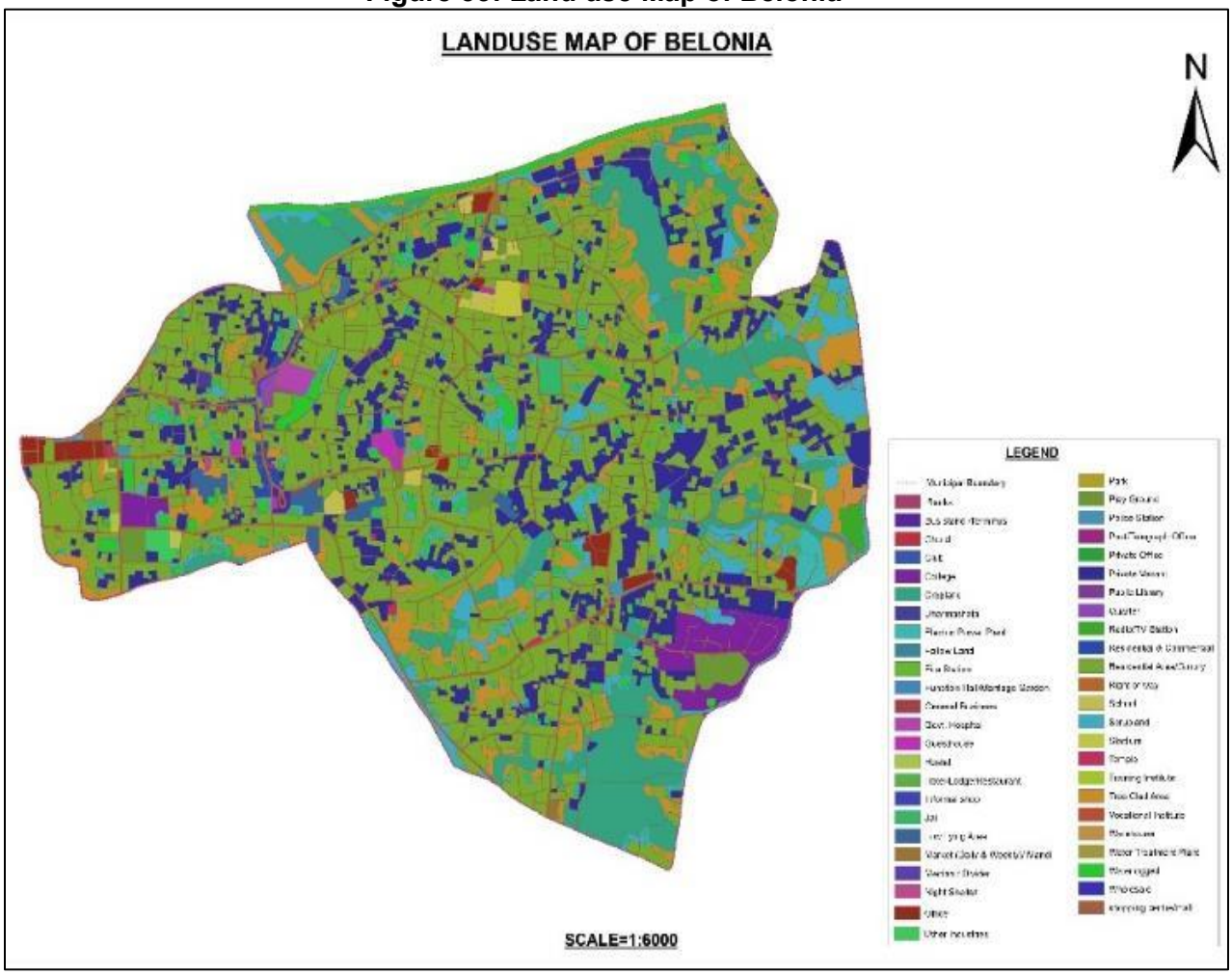


Table 17: Distance of Proposed Road from Rudrasagar Lake

Proposed Road	Ward Number	Distance (aerial distance) from the Rudra Sagar Lake
Bhagirath Chowmohuni To Birrama Temple*	Ward No. 01, 02,13	446 meters
Maleghar-Bishramganj Road (Pwd Road) To Biswajit Chakraborty House	Ward No. 03	1448 meters
Near Melaghar Hospital to Subal Ch.SB School	Ward No. 05, 06	1203 meters
Maleghar-Bishramganj Road (PWD Road) To Nikhil Barman House	Ward No. 03	1391 meters
Charu Kabiraj House to Samakaji Para	Ward No. 08	452 meters

(Note- * nearest location)

Figure 54: Proposed Road (in red)– in Melaghar town and Rudrasagar lake

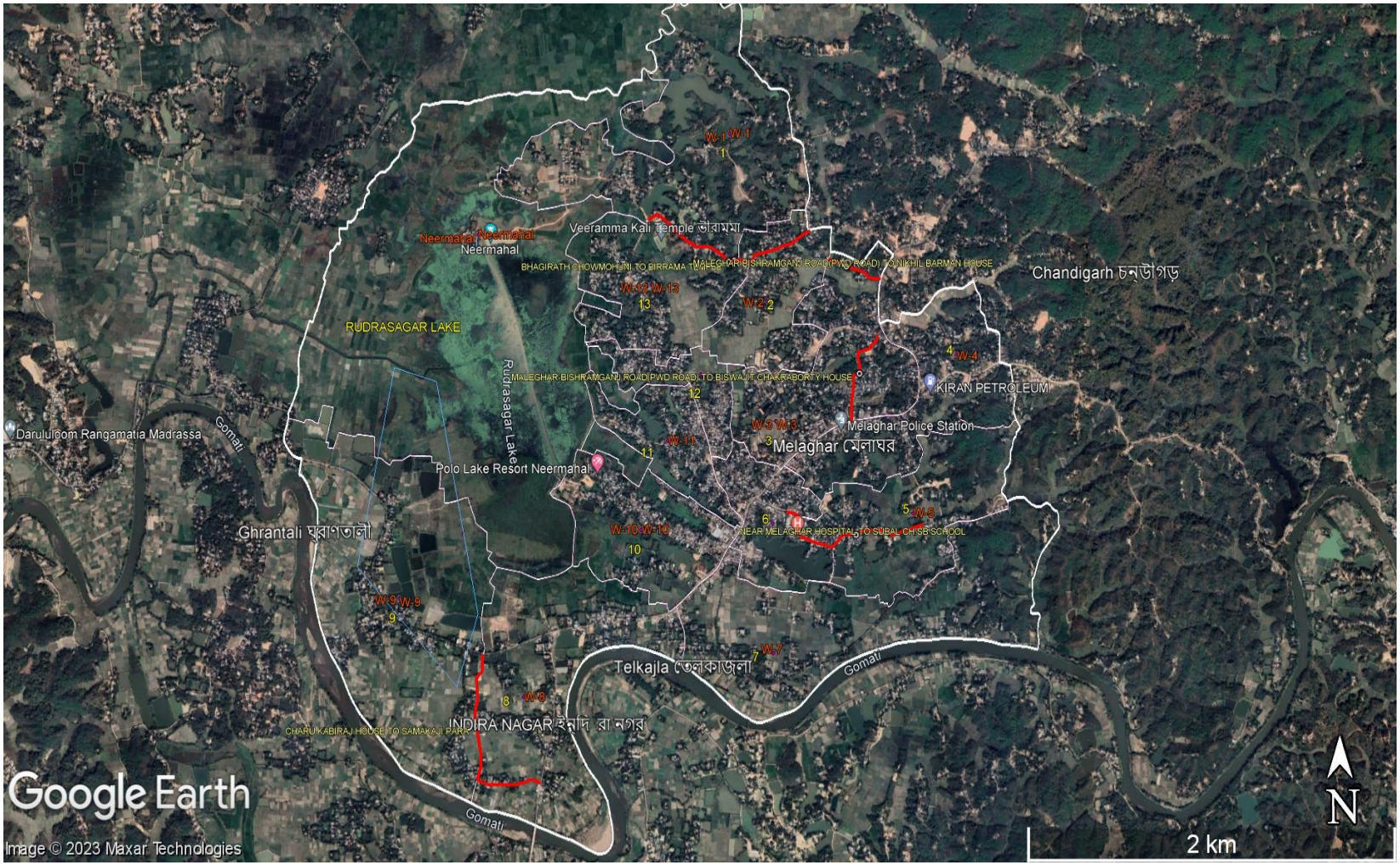
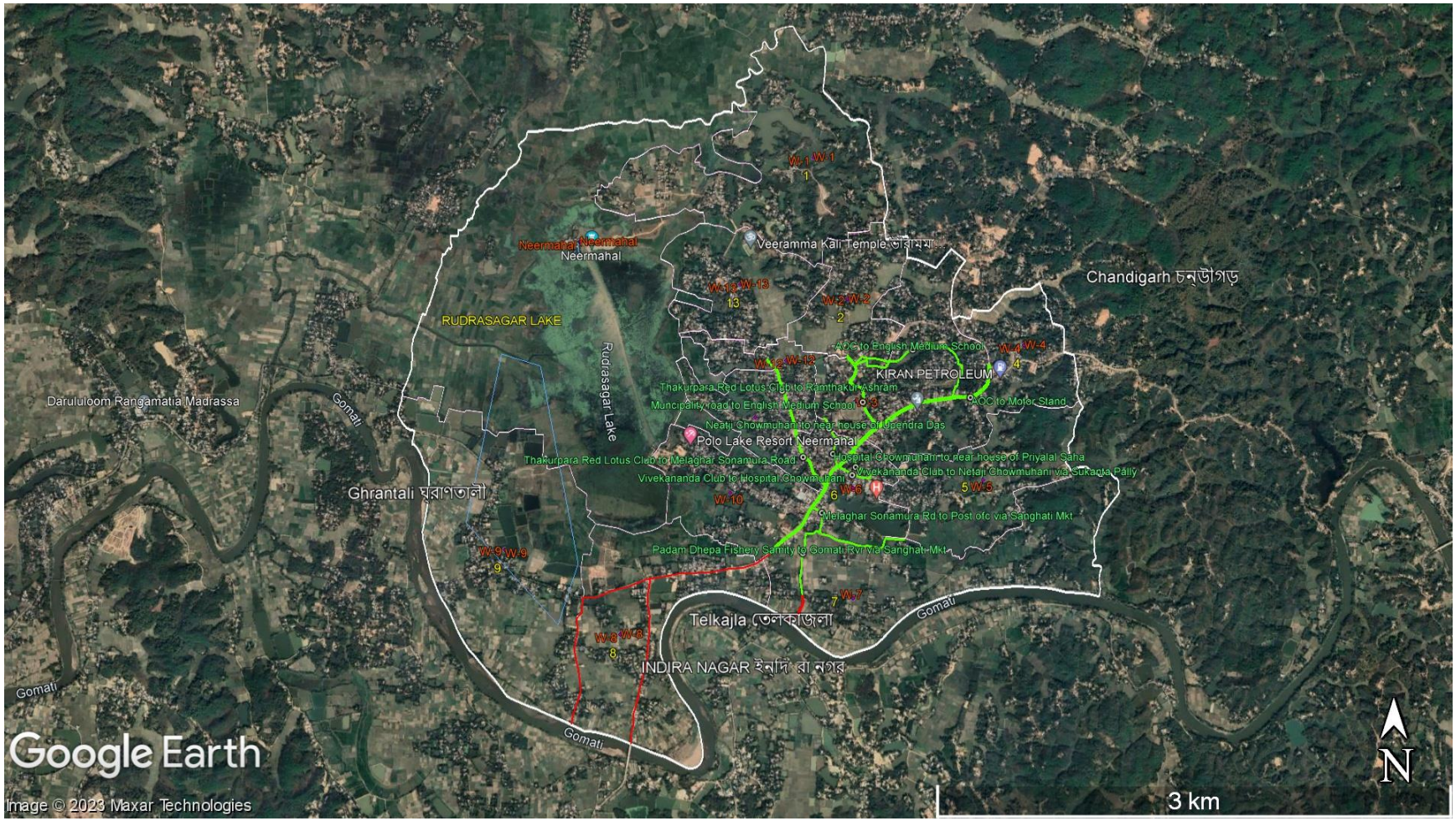


Table 18: Distance of Proposed Drain from Rudrasagar Lake

Sl. no	Proposed Drain	Ward Number	Distance (aerial distance) from the Rudra Sagar Lake
1	AOC to Motor Stand	Ward No. 03, 04, 06, 10	738 meters
2	AOC to English Medium School	Ward No. 02, 03	1028 meters
3	Municipality road to English Medium School	Ward No. 03	1049 meters
4	Vivekananda Club to Netaji Chowmuhani via Sukanta Pally	Ward No. 06	1118 meters
5	Netaji Chowmuhani to near house of Upendra Das	Ward No. 06	835 meters
6	Hospital Chowmuhani to near house of Priyalal Saha	Ward No. 06	951 meters
7	Thakurpara Red Lotus Club to Melaghar Sonamura Road	Ward 06, 11	676 meters
8	Thakurpara Red Lotus Club to Ramthakur Ashram*	Ward 11, 12	527 meters
9	Vivekananda Club to Hospital Chowmuhani	Ward 06	1037 meters
10	Melaghar Sonamura Rd to Post ofc via Sanghati Mkt	Ward 07	859 meters
11	Padam Dhepa Fishery Samity to Gomati Rvr via Sanghati Mkt	Ward 06, 07	834 meters

(Note- * nearest location)

Figure 55: Proposed drains in Melaghar (Green) existing earthen drains (drain no 7&8) flowing to Gomati river (red)



(Note- **Nearby drain to Rudrasagar lake**,- Drain-7: Thakurapara Red Lotus Club to Melaghar Sonamura Road (Eastern Side and Western side) Left hand side of the road and Drain 8- Thakurapara Red Lotus Club to Melaghar Sonamura Road (Eastern Side and Western side) Right hand side of the road)

Table 19: List of Industry in around the project towns

Sl. No.	Industrial Estate	Details
Udaipur		
1.	Dhajanagar Industrial Estate	Functioning - 04 Under implementation - 05 Closed - 01 Types of Industries: Agarbatti Manufacturing unit, Maruti Service Centre, Iron Fabrication & Steel Furniture, Rubber Industry, Flour Ill, Paper Plate & up, Drinking water Manufacturing unit, Food Processing Unit, Mini Dairy Plant, etc.
2.	Bamboo Cluster Incense Stick	Rolled Agarbatti/ Bamboo stick
3.	Bamboo Cluster	Handicraft Items
4.	Bio-fertilizer production centre	Bio-fertilizer
5.	Cold Storage (Potato, Fruits & Vegetable)	2000 MT
6.	Rubber Plantation	Rubber
7.	Gas based thermal power project	726.6-MW Plant at Palatana near Udaipur
Belonia		
1.	IIDC Sarasima	Functioning - 03 Under implementation - 02 Types of Industries: Sawmill, Stone crushing, Rice Mill.
2.	Rubber Industry	NHMP Multi-production Industries Hrishyamukh, South Tripura.
3.	Bamboo Cluster	Rolled Agarbatti.
4.	Cold Storage (Potato, Fruits & Vegetable)	2000 MT capacity
Amarpur, Melaghar and Bishramganj		
1	Bamboo sticks and handicrafts items	Small scale industry throughout the town

Figure 56: Proposed Drains in Udaipur town (Green) and ASI monuments (Red circle showing 100 and 300 m distance)

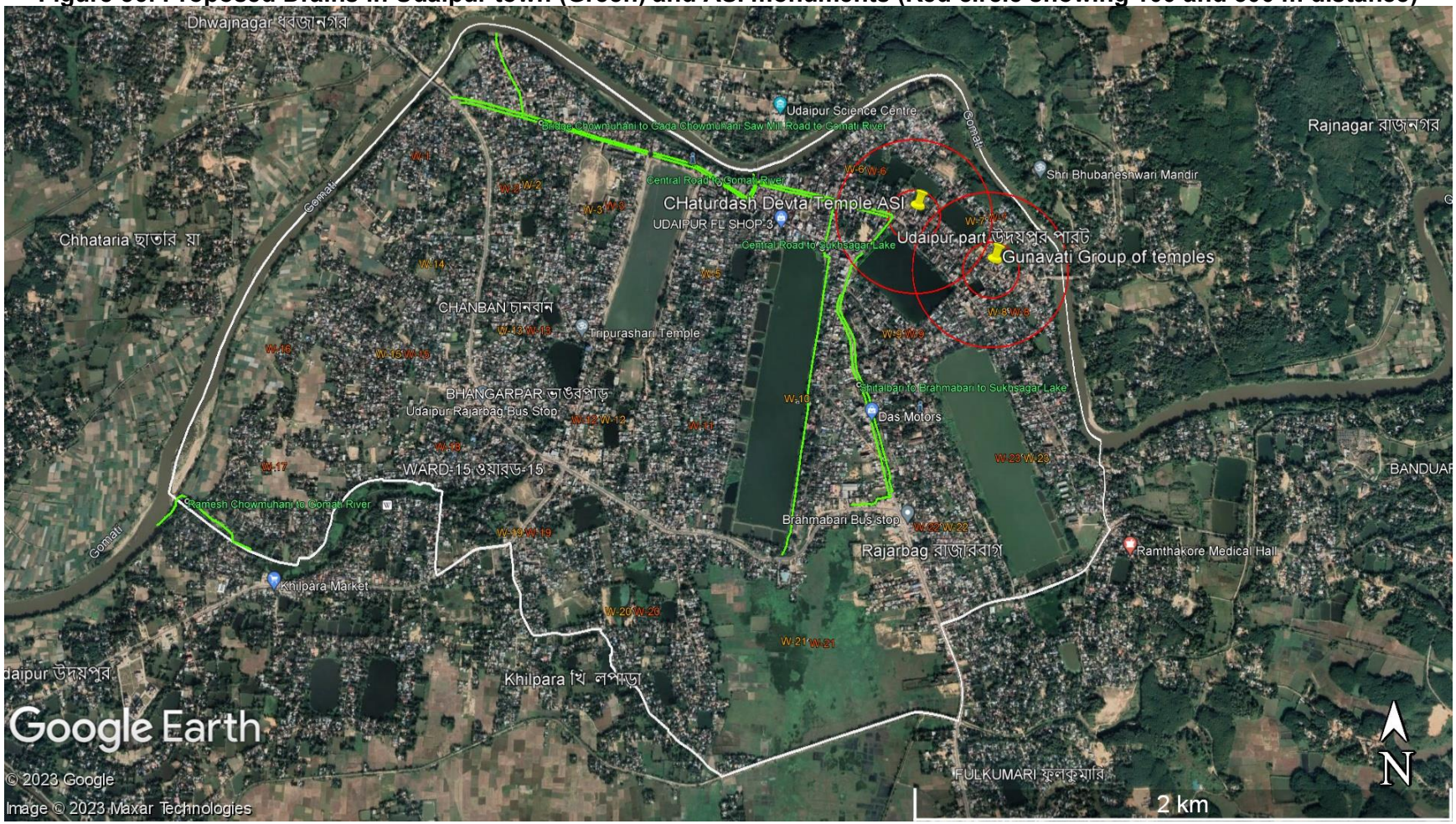


Figure 57: Proposed roads an footpath in Udaipur town (Yellow) and ASI monuments (Red circle showing 100 and 300 m distance)

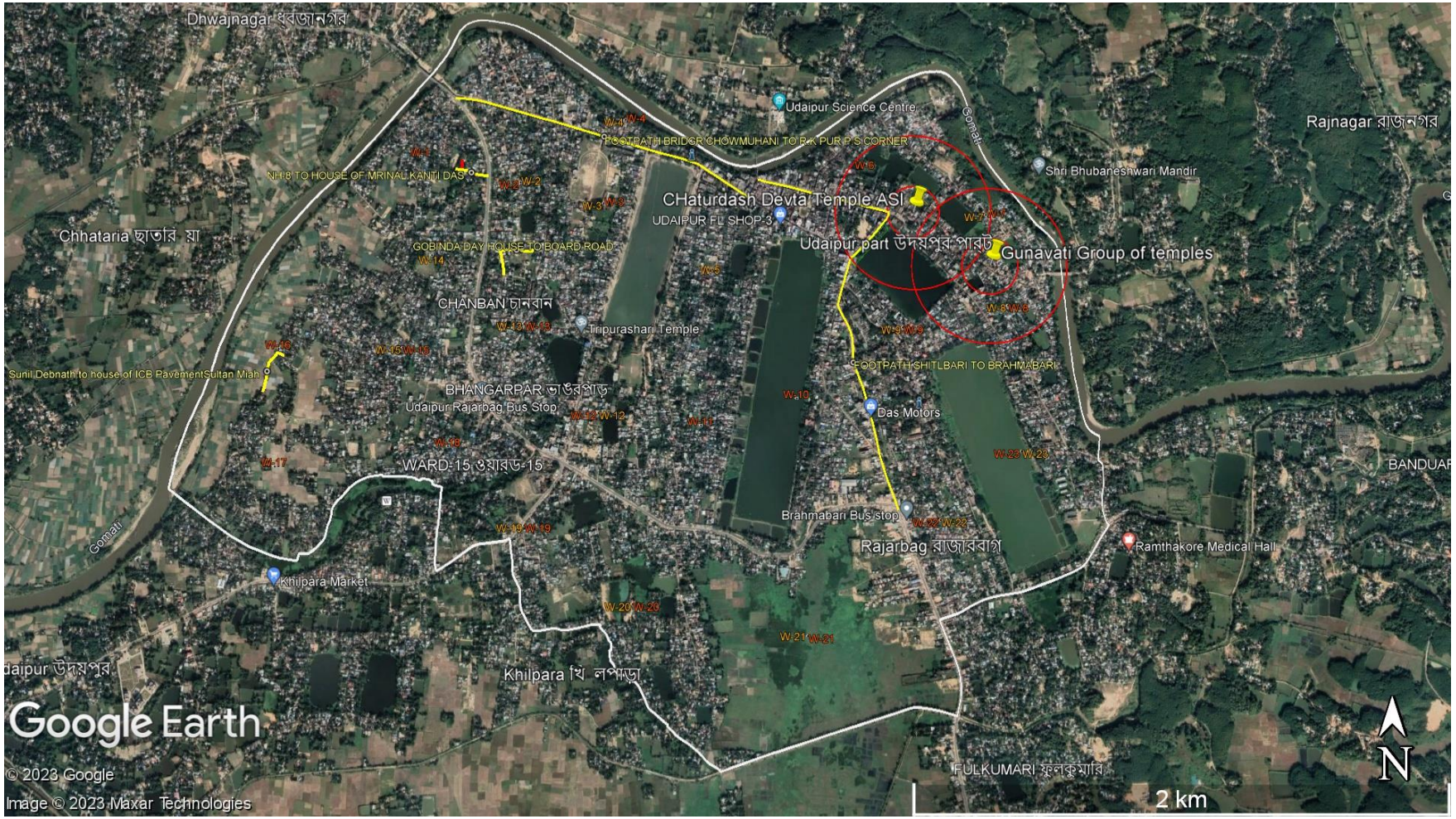


Figure 58: Proposed drain - Shitalbari to Brahmabari to Sukhsagar Lake (green) near ASI monument Chaturdash temple (Red circle showing 100 and 300 m distance)

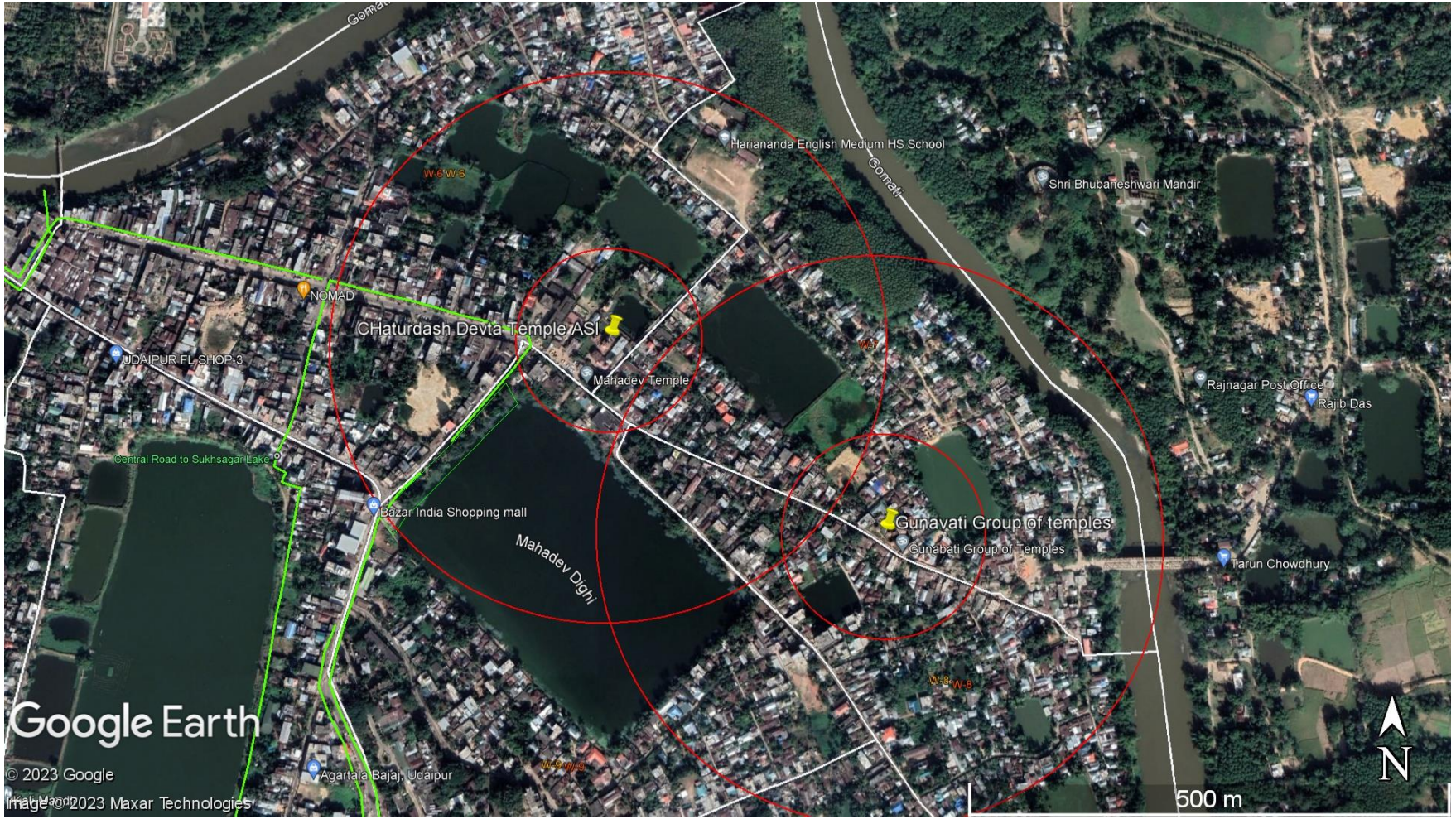


Figure 59: Proposed Footpath at Central Road and Footpath at Sitalbari to Brahmabari road (yellow) near ASI monument Chaturdash temple (Red circle showing 100 and 300 m distance)

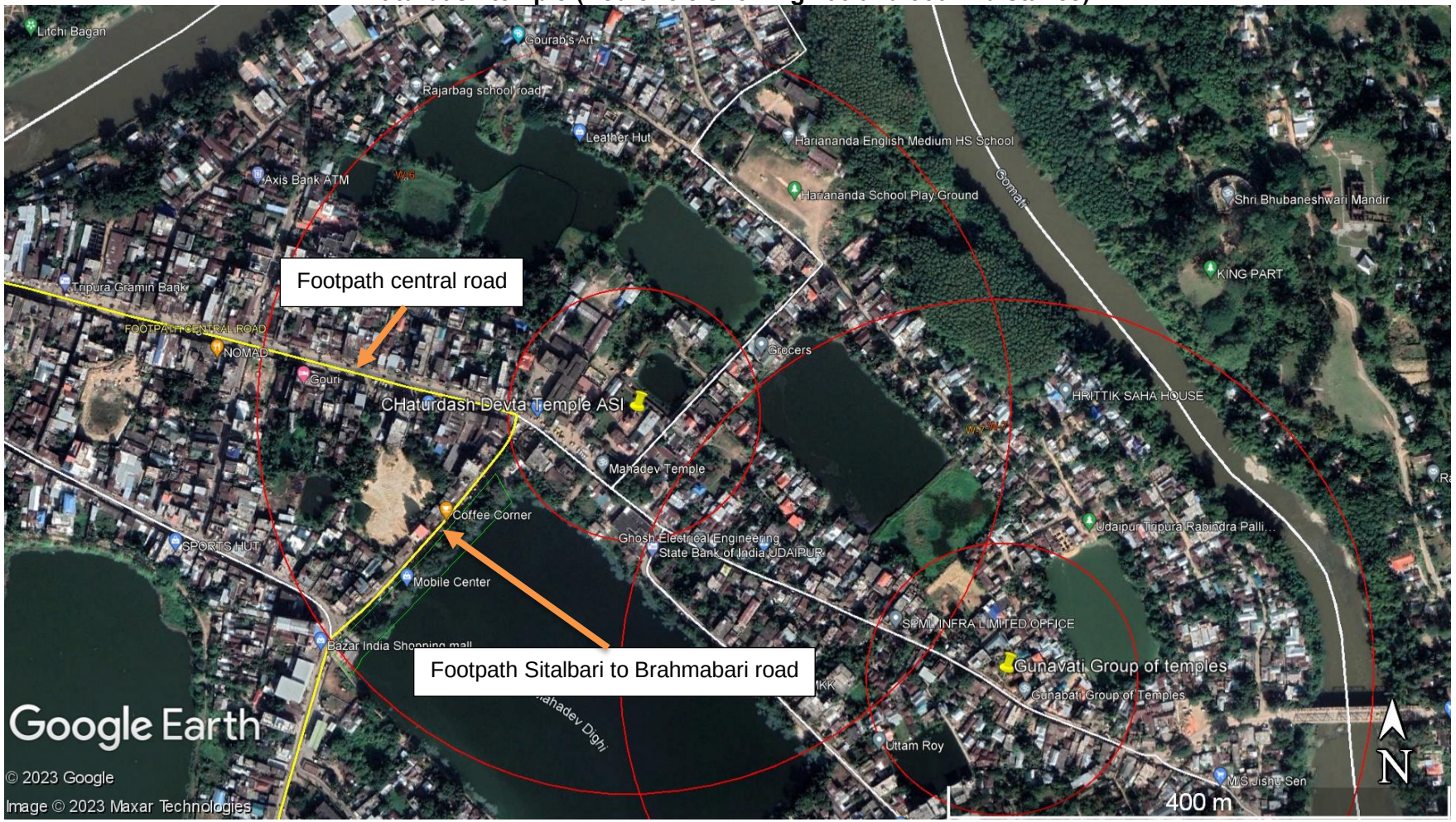


Table 20: Distance of Proposed Road and Footpath from ASI Protected monuments in Udaipur town

Sl. no	Proposed Roads and Footpaths	Distance (aerial distance) from the Chaturdash Devata Temple	Distance (aerial distance) from the Gunavati Group of Temple
1	Proposed Footpath Central Road	70 meters	430 meters
2	Proposed Footpath Sitalbari to Brahmabari	70 meters	430 meters
3	Proposed Foothpath Bridge Chowmuhani to R.K Pur P.S Corner	645 meters	992 meters
4	Proposed Gobinda Dey House to Board Road	1476 meters	1782 meters
5	NH-8 to House of Mrinal Kanti Das	1653 meters	1988 meters
6	Sunil Debnath to house of ICB Pavement Sultan Miah	2487 meters	2756 meters

Table 21: Distance of Proposed Drain from ASI Protected monuments in Udaipur town

Sl. no	Proposed Components	Distance (aerial distance) from the Chaturdash Devta Temple	Distance (aerial distance) from the Gunavati Group of Temple
1	Shitalbari to Brahmabari to Sukhsagar Lake	70 meters	430 meters
2	Central Road to Gomati River	321 meters	687 meters
3	Central Road to Sukhsagar Lake	316 meters	676 meters
4	Ramesh Chowmuhani to Gomati River	2874 meters	3083 meters
5	Bridge Chowmuhani to Gada Chowmuhani Saw Mill Road to Gomati River	1065 meters	1422 meters

Figure 60: ASI Protected Chaturdasha Devata temple



(Drone photograph - Source: National Monument Authority Heritage bye-laws 2020 of Centrally Protected Monument Chaturdash Devata Temple)

Figure 61: ASI protected Gunavati Group of temples



(Drone Photograph of temple: Source: National Monument Authority Heritage bye-laws 2021 of Centrally Protected Monument Gunavati Group of Temples, Radhakishorepur, Gomati.)

C. Subproject Site Environmental Features

59. Features of the selected subproject sites are presented in the following table.

Table 22: Site Environment Feature Udaipur Road

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
1.	Road 1 NH8 to House of Mrinal Kanti Das (Ward No. 01) . Start Lat-23.541291° Long-91.483657° End Lat-23.541864° Long-91.482646° The proposed road length is 134m, with an ROW of 3m and road width of 3m.	The land use of the area is residential. The existing brick soling road is connected to NH8. The Road is low lying and has problems of water logging during the monsoon season specially. No trees in alignment. However, there are Sal (*shorea robasta*) and Gamar (*Gmelina arborea)* tress at the end of the Road, but those will be not impacted. 5 nos. of Electric poles might require shifting. There is no significant protected forest in and around project area. No water body present nearby the proposed road No protected area and environmentally sensitive areas in or near the proposed alignment.	 
2.	Road 2 House of Sunil Debnath to House of ICB pavement Sultan Miah (Ward No.16) Start Lat-23.535022° Long-91.476042° End Lat-23.533749° Long-91.475249° The proposed Road length is 194m, with an average ROW of 3m and carriage width of 3m.	The land use of the area is dominantly agricultural ultimately leading to a residential patch. The existing road is earthen made, which is built across agricultural fields of approx. 150 acres of land, which connects the residents with the main road. The existing road has an ROW of 2.5m to 3.5 m (average 3 m), varying at different locations. The area is mainly used for paddy and all types of fresh vegetables cultivation round the year. Gomati River is the main source of water, which is present at located at a distance of approx. 175m. People of the area are completely depended on agriculture, and faces serious problems of water logging during rainy season, and issues with transportation of vegetables and other yields from the fields to markets, and fertilizers and pesticides carrying	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		costs becomes high as labor charges from main road to fields, increases the cost as a whole. Mostly herbs and climbers are lined beside the Road. Atleast 3 nos. tree (*Magnifera Indica, Mimusops elengi, Syzygium cumini)* felling is expected from survey and shifting of one electric post may be required. One small pond is present, beside the proposed site. There is no significant protected forest in and around project area No protected area and environmentally sensitive areas in or near the proposed alignment.	
3	Road 3 Road from Gonida Dey to Housing Board (Ward no. 2) Start- Lat- 23.537801°, Long- 91.484282°/ End- Lat- 23.538722°, Long- 91.485358° The proposed road length is 233 m, with an ROW of 3m and road width of 3m	The land use of the area is residential. The existing brick soling road is connected to Housing Board. The Road is low lying, and has problems of water logging during the monsoon season specially. Few utility shifting may be required. Trees are outside the impact area. One water body located 3 m outside of proposed ROW No water body present nearby. No as such specific environmental feature observed. There is no significant protected forest in and around project area No protected area and environmentally sensitive areas in or near the proposed alignment	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			 
4	Footpath 1 - Stretch Bridge Chowmuhani to R.K Pur P.S corner (Ward No. 04) Start Lat-23.544017° Long-91.482347° End Lat-23.540538° Long-91.493493° A proposed Footpath Stretch of approx. 1210 m,	The land use of the area is a mixture of both commercial and residential, it passes through the main road. There is no existing footpath, however a portion of the stretch has been newly constructed with covered drain and footpath. Encroachment is observed by few temporary vendors. One significant water body, Jaganath Dighi, which is present nearby. As per preliminary site visit, no utility shifting is required. No tree cutting is required as per site visit. Sensitive receptors include Bhagini Nibedita H.S School, and Ramkrishna Ashram is present in proximity.	

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		No protected area near the proposed alignment	
5	Footpath 2 along the central road (Ward no.06) Lat-23.541155° Long-91.493871° End Lat-23.539999° Long-91.498839° The proposed footpath length is approx. 530m.	The land use of the area is commercial. It's mostly market area, with series of shops lined on both sides of the road. Many street vendors have occupied the space, beside the main road, on the cemented slabs, over drains for their local business, and most of the space beside the road is used as parking of two wheelers. Encroachment is noted at proposed site. Gomati is the main river flowing through the district, which is located nearby. No tree cutting is required as per site visit, nor any utility shifting is required. No sensitive receptors are present in proximity of the proposed site. There is no significant protected forest in and around project area No protected area and environmentally sensitive areas in or near the proposed alignment	  

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
6	Footpath 3 from Shitalbari to Brahmabari (Ward no. 10) Start Lat-23.539999° Long-91.498839° End- Lat-23.529702° Long-91.499105° The approx. length of the proposed Footpath is 1230m.	Throughout the stretch of proposed footpath, the existing place beside the road is earthen at few places and few places has open earthen drains which are open, while some stretches have cemented slabs over drains. Land use of the area is commercial and maximum of the stretch falls in a busy road. Clearing of vegetation mostly herbs and bushes is required in few places. No tree felling is required in the proposed site. According to site visit, no water body is found nearby. As per preliminary site visit, no utility shifting is required. Nearest sensitive receptor includes, 1no. of school, 3no. of mandirs and 1no. of Hospital. No protected area near the proposed alignment	 

Table 23: Site Environment feature Udaipur – Drain

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
1.	Drain 01 Shitalbari to Brahmabari to Sukhsagar lake (Ward No. 10) The approx. length of the proposed drain is 2018 m. Start Lat- 23.538714° Long-91.497794° End Lat-23.530029° Long-91.497302° (Drain partly constructed)	Throughout the stretch of proposed drain, the existing drain at some places has open above ground drain, approx. 1m wide, which is cemented at few places, while earthen at some stretch. It also has a Calvert which connects with cross drains. Land use of the area is commercial, with few residential pockets and maximum of the stretch falls in a busy road. Solid waste disposed on the drain. Clearing of vegetation mostly herbs and bushes in few places and cleaning of solid wastes in existing drains is required for normal functioning of drains. Few trees (*Magnifera Indica, Ziziphus mauritiana, Tamarindus indica, Zizyphus xylopara)* felling is required in the proposed project site. According to site visit, no water body	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		is found nearby the drainage impact zone, except for Sukh Sagar Lake which marks the endpoint of the proposed drain. No as such safety features of drain is observed for prevention of pollution. Utility shifting is required at few locations. Nearest sensitive receptor includes, 1no. of school, 3no. of mandirs and 1no. of Hospital. No protected area near the proposed alignment	
2.	Drain 02 Bridge Chowmuhani to Gada Chowmuhani Saw Mill, Road to Gomati River. (Ward no. 03) A proposed drain of approx. 1918 m Start Lat- 23.544106° Long-91.482326° End- Lat- 23.542199° Long- 91.489665° (Part of the drain -already constructed)	The land use of the area is a mixture of both commercial and residential, it passes through the main road. Existing drain with a width of approx. 0.5 m is present which is open, above ground and present for a small section of the proposed site, with full of mud and solid waste, and underlying herbs, and the other stretch is newly constructed with a covered drain. One significant water body is Jaganath Dighi is present nearby. Measures have been noted for clearing of solid waste from drains, which seems as a step towards prevention of pollution. As per preliminary site visit, few utility shifting is required. About 14 trees (*Acacia auriculiformis, Syzygium cumini, Caryota urens, Zizyphus xylopara, Neolamarckia cadamba Magnifera Indica. Terminalia chebula, Zizyphus xylopara, Azadirachta indica, Emblica officinalis*, *Tamarindus indica, Terminalia arjuna)* cutting is required as per site visit. Judicial design may minimize tree felling Sensitive receptors include Bhagini Nibedita H.S School, and one Ramkrishna Ashram is located in close proximity but outside the impact zone. No protected area near the proposed alignment	  

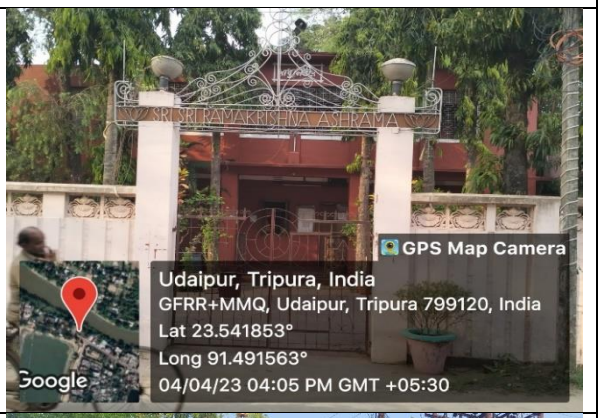
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			  Outfall at Gomati River
3.	Drain 03 Central Road to Gomati River (Ward No.05) Start Lat- 23.542156° Long-91.489879° End Lat-23.541502° Long-91.493662° The proposed drain length is approx. 1357 m	Adjoining the central road of Udaipur, the land use of the area is commercial with few residential. It's mostly market area, with series of shops lined on both sides of the road. Existing cemented drain, is approx. 1m width, which is covered with slabs for a long stretch, and is used as access by shopkeepers. Many street vendors have occupied the space, beside the main road, on the cemented slabs for their local business, and most of the space beside the road is used as parking of two wheelers. Encroachment is noted in this proposed site. Gomati is the main river flowing through the district, and the outfall of the drain is directed to this river. No measures have been observed for prevention of pollution in drains. No tree cutting is required as per site visit, few utility shifting is required. No sensitive receptors are present in proximity of the proposed site. No protected area in or near the proposed drain.	

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			   Outfall at Gomati River
4.	Drain 04 Central Road to Sukhsagar lake) (Ward No. 10) Start Lat-23.541114° Long-91.493903° End Lat-23.528315° Long-91.494707°E A covered drain of 2099 m is to be constructed.	Existing above ground open cemented drain is noted for a small stretch with approx. width of 1m with full of vegetation, followed by covered cemented drain for another stretch which runs through busy market area, lined by shops and the covered drain is used as access point. The Land use of the area is completely commercial. No measures have been observed for prevention of pollution in drains, most of the stretch are clogged with solid and plastic waste, as its near to the market area, a lot of garbage	

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		wastes are also dumped on the drain. Gomati river is the only significant water body present near to the proposed site. No tree cutting is required, few utility shifting is required for the proposed site. No protected area and environmentally sensitive areas in or near the proposed alignment	 
5.	Drain 05 Ramesh Chowmuhani to Gomati River (Ward no-17) approx. length of 500 m. Downstream part Start Lat-23.528493° Long-91.474985° End Lat-23.529342° Long- 91.47139°	The Land use of the area is mainly residential, with few agricultural fields nearby, and some low-lying swampy areas and one pond is present. There is no existing drainage system present at the start point, then the proposed site passes through a low-lying area, which ultimately merges with an existing Nalla and passes on to the outfall, Gomati River. Sensitive receptors include Khilpara H.S School, which is located at nearly 10m. A small pond is the nearest water body present, along with Gomati River, which marks the end point. Outfall area is not approachable, since lot of vegetation noted. No measures have been observed for prevention of pollution in drains, most of the stretch are clogged with solid and plastic waste. One tree (*Ficus benghalensis)* cutting is required for the proposed site. No utility shifting is required. Clearing of bushes, shrubs and herbs is required before construction of drain. No significant forest area nearby.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		No protected area and environmentally sensitive areas near the drainage alignment	 

Table 24: Sensitive Receptors in the Project Influence area- Udaipur

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
1.	Ramkrishna Ashram	Udaipur M.C Block (Ward no.18)	Approx. 5 meters	
2.	Hanuman Mandir	Master para, Jawahar Road, Udaipur	Approx. 10meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
3.	Kali Mandir	Master Para, Jawahar Road, Udaipur	Approx. 10 meters	
4.	Mandir (Mahadevbari)	Beside Jaganath Dighi, Udaipur	Approx. 2 meters	
5.	School	Gakulpur, Khilpara	Approx. 10 meters	
6.	School	Udaipur M.C Block (Ward no.18)	Approx. 1 meter	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
7.	School	Master Para, Jawahar Road, Udaipur	Approx. 10 meters	
8.	Hospital	Brahmabari	Approx. 10 meters	

Table 25: Site Environmental Features- Amarpur Road

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
1.	Road 01 Road/ Footpath is to be constructed from Rangamati bridge to Thakchara Bridge. (Ward No. 03) Start Lat-23.528184° Long-91.653422° End Lat-23.516204° Long-91.654292° The proposed road is approx. 1720 m in length	The land use of the area is mainly commercial, with pockets of residential and a small patch of agricultural land on one side. The commercial stretch has few sensitive receptors, which includes three schools nearby, with a big open playground on one side, Amarpur Court, as well as the famous Mangal Chandi Mandir is present just beside the main-road, and two other, Anukul Chandra Mandir and Ram Thakur Ashram is also present. But no impact is expected for widening of road and footpath construction. The two large water bodies Fatik Sagar and Amarsagar lake is also present nearby, and Rangamati Bridge is built on top of Gomati River. The existing road passes through a busy motor stand lined by numerous shops and a	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		tri-junction. A Calvert is present on the road covering a crossing drain. There are number of big trees along the road. About 9 trees (*Ficus benghalensis, Areca catechu, Artocarpus heterophyllus, Holoptelea integrifolia, Cerbera odollam, Tectona grandis, Gmelina arborea)* may be impacted. Judicial design can save those trees. Utility shifting is also required. No protected area and environmentally sensitive areas near the drainage alignment	   

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			 

Table 26: Site Environmental Features- Amarpur Drain

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
1.	Drain 01 Amarpur English Medium HS School to Gomati River via Tri-Junction (Ward No. 8) (combined) Chandimata Temple to the House of Akhil Das via Amarpur-Teliamura Rd Start Lat-23.512241° Long-91.655224° End Lat-23.518202° Long-91.660831°	The approx. length of the proposed drain is 2.84 km, with an existing width of 1 m approx. Land use of the area is residential and partly commercial as its very near to the motor stand and runs throughout Amarpur main road. Existing open, above ground cemented drain is present for a section of the proposed site and the other stretch has earthen drain carrying mainly storm water. Clearing of vegetation mostly herbs and bushes in few places and cleaning solid wastes in existing drains is required for normal functioning of drains. Few tree (*Magnifera Indica, Syzygium cumini, Holoptelea integrifolia, Artocarpus heterophyllus, Zizyphus xylopara, Syzygium cumini)* cutting is required as per site visit. Few utility shifting may be required.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		Nearest sensitive receptor includes 3no. of schools, 3no. of Ashrams, Mangal Chandi Mandir, and Amarpur Court. The proposed drain is near to two significant water bodies, the Amarsagar Lake and Gomati River. No waterbody and sensitive receptors will be affected from construction of drain. No protected area near the drainage alignment	 Outfall point near under construction Gomati bridge
2.	Drain 02 Amarsagar Lake to Chara via Shankar Saha House (Ward No. 6) Start Lat- 23.524817° Long- 91.655983° End Lat- 23.521569° Long- 91.652219°	A drain of approx. 850m is to be constructed. Land use of the area is mainly residential. Existing drain with a width of approx. 1.5 m is present which is open, above ground and present for a small section of the proposed site, with full of underlying vegetation cover and bushes and the other stretch has earthen drain carrying mainly storm water, while a small section of the drain is covered and used as a pathway for access leading to 2 nos. of houses. 7nos. of betel nut trees are present aligning the drain near Sankar Saha House, which likely to be save. But one *Gmelina arborea and one Magnifera Indica* trees may be affected. Near to the proposed site, two important waterbodies are present namely Fatik Sagar and Amar Sagar, while no as such commercial structure is present. As per preliminary site visit, few utility shifting is required. Sensitive receptors include Mangal Chandi Mandir, Amarpur Court and Ramkrishna Ashram. Clearance of dense bushes, and shrubs is required, and cleaning of drains, to de-silt the silt/ sludge is required.	  

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		No significant forest area is nearby. No protected area near the drainage alignment	
3.	Drain 03 Drain from Amarsagar lake to Gomati River via Ampinagar-Amarpur Road Ward No. 01 Start Lat-23.524958° Long-91.655940° End Lat- 23.528388° Long-91.652784°	A cover drain of approx. 580m, which has an existing width of approx. 0.5 m. Adjoining the main road of Amarpur, presence of Amarpur Court, Nagar Panchayat, etc. near to the bazar, and the famous Mangal Chandi Mandir, the land use of the area is residential. Existing above ground open cemented drain is noted for a small stretch leading to Gomati River while the other stretch is earthen. Nearest waterbodies are namely, Amar Sagar Lake and Gomati River. Few utility shifting is required as per survey data. 3 nos. of tree (*Zizyphus xylopara*, *Neolamarckia cadamba*, *Magnifera Indica*) felling is required as per site visit, but some places require clearance of bushes and shrubs. No significant forest area is nearby. No protected area near the drainage alignment	  

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
4.	Drain 04 Amarpur Hospital Chowmuhani to Thakchara Gomati River (Ward No. 11) Start Lat- 23.515781° Long-91.652349° End Lat-23.515076° Long-91.649762°	A covered drain of 340m is to be constructed Existing above ground open earthen drain is present for a small stretch with approx. width of 0.5-0.7m with full of herbs, followed by open cemented drain for another small stretch with full of vegetation mainly herbs in maximum places, leading to a broad drain which is approx. 2.2 meters wide with loads of solid waste mostly plastic waste, and covered with herbs shrubs and climbers, passing through residential colony and finally merging with Thakchara. The Land use of the area is partly residential and partly commercial. Measures have been taken at a single stretch in the existing drainage system, by creating inclined terrace, to slow down or stop the movement of solid waste into the Chara. The drain clogged with solid waste needs to be cleaned for proper functioning of drains. Clearance of herbs, shrubs and climbers is required in this site, but no tree felling is required. Few utility shifting is required, no tree felling is necessary. No water body is found nearby as per site visit. No protected area and environmentally sensitive areas near the drainage alignment	    Outfall at Gomati River Thakchara

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
5.	Drain 05 Amarpur Sub-divisional Hospital to *Nalla* via Radha Krishna Mandir (Ward No. 07) Start Lat- 23.516820° Long- 91.650859° End Lat- 23.516060° Long-91.648821°	The approx. length of the proposed drain being 300 m with an existing width of approx. 0.5 m for a small stretch leading to a Nalla which is approx. 1.2 m wide. The Land use of the area is mainly residential. The existing drainage system present is a narrow open cemented drain which is a small stretch leading to a Nalla which is earthen and is full of vegetation mainly herbs and shrubs, and adjoining to it is bamboo plantation. A Calvert is noted near the Radha Krishna mandir, and then the nalla ultimately leads to the Thakchara. Sensitive receptors present near to the proposed site includes Radha Krishna Mandir and Amarpur Sub-divisional Hospital. Water body present is a small pond near to the proposed drain, outside the impact zone. No measures have been taken for prevention of pollution. Solid waste disposed on the nalla. Utility shifting will be required. Clearance of vegetation is required at construction site, but no tree cutting is required as per site visit. No forest area is nearby. No protected area and environmentally sensitive areas near the drainage alignment	   *Nalla* discharge

Table 27: Sensitive Receptors in the Project Influence area- Amarpur

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
1.	Mangal Chandi Mandir	Ward No. 03	Approx. 2 meters	
2.	Ram Thakur Ashram	Ward No. 08	Approx. 3 meters	
3.	Anukul Thakur Ashram	Ward no. 08	Approx. 2 meters	
4.	Kali Mandir	Ward no. 08	Approx. 2 meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
5.	Ramkrishna Pathachakra	Ward no. 03	Approx. 2 meters	
6.	Radha Krishna Mandir	Ward no. 07	Approx. 1.5 meters	
7	Amarpur Boys H.S School	Ward no. 05	Approx. 30 meters	
8	D.A.T.H School	Ward No. 05	Approx. 3 meters	

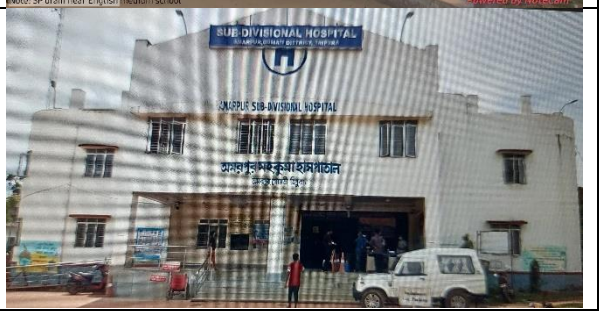
Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
9	Amarpur Girls H.S School	Ward no. 05	Approx. 3 meters	
10	Amarpur English Medium HS School	Ward No.08	Approx. 1 meter	
11.	Amarpur Sub-Divisional Hospital	Ward no. 07	Approx. 5 meters	

Table 28: Site Environmental Features – Bishramganj Road

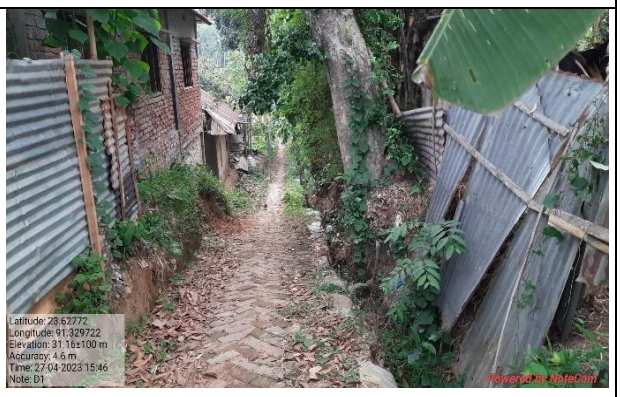
Sl no.	Road Name	Environmental Features of the Site	Photograph
1	Priyalal Debbarma house to Bikash Debbarma house Starting point- Lat- 23.613049°,	Maximum portion of the existing road is brick road. There are no side drains along the sub-arterial roads. There is no proper traffic manoeuvre movement in this proposed road. Land use around the site is residential. There is no significant protected forest in and around project area. One number of telephone post shifting is required as per site visit. 11 numbers of tree (*Syzygium cumini, Shorea robusta, Magnifera Indica, Bombax ceiba, Artocarpus heterophyllus, Gmelina arborea,*	

Sl no.	Road Name	Environmental Features of the Site	Photograph
	Long-91.336925° End point Lat-23.615160°, Long-91.338339° 359.49 m length with 3.5-4 m Row	*Syzygium branderhorstii, Opuntia ficus-indica)* may require to cut for this proposed road. There is no major waterbody near the proposed road. No significant forest area is nearby. No protected area and environmentally sensitive areas near the drainage alignment	
2	Lalit Debnath house to Subhash Saha house via Gour Sankar house Starting point-Lat-23.621901°, Long-91.342966° End point Lat-23.621651°, Long-91.347498° 621.50 m length with 4 m RoW	Existing road is a brick road Some portion of the proposed passing through the residential area. A pond was noted at the chainage 210m which is right hand side to the proposed road, outside the impact zone. Land use around the site is partly residential and partly rubber plantation area. There is no significant protected forest in and around project area. There is 1 number of tree (*Albizia lebbeck)* felling require for this road Utilities like electric poles and telephone post are observed which may require to shift. An Anganwadi was noted at the starting point of the road which is adjacent to the proposed road, but no impact on structure. No Protected area is located nearby the road	 
3.	Ramani Paul house to Krishna Debnath house via Sujan Debnath house Starting point-Lat-23.625370°, Long-91.340170° End point Lat-23.623863°,	Maximum portion of the existing road is a brick road. Existing road passing through the residential land. There is no significant protected forest in and around project area. There is a waterbody near the project road. 7 numbers of electric post shifting are required as per site visit. 7 nos. tree (*Azadirachta indica, Shorea robusta, Tectona grandis, Holoptelea integrifolia, Magnifera Indica, Artocarpus heterophyllus, Bombax ceiba)* felling may be required. No significant forest area is located in and around the road. There are 2 numbers of temple near the proposed project road, but no impact on temples. There are 3 numbers of waterbody observed near the proposed road, but outside the impact zone. No Protected area is located nearby the road	

Sl no.	Road Name	Environmental Features of the Site	Photograph
	Long-91.337244° 443.77 m length with 4 m RoW		
4	Prahllad Datta house to Nirmal Sutradhar's house Starting point- Lat-23.610966°, Long-91.348185° End Point Lat-23.610592°, Long-91.350011° 217.36 m length with 4 m of RoW	The project road passes though the residential area. There is very little space for the construction of road. The existing road is a brick road and condition of the road is non motorable. There are no environmentally critical areas in the project road. Utility shifting may require as per site condition. There is a major waterbody at chainage 90m which may be impacted partly. There is one number of tree (*Magnifera Indica*) may be cut. No sensitive receptors are present in close proximity of the proposed site	 
5	Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge - Start	Few portions of the proposed road passing through the agricultural field. Land use around the site is residential. The designed RoW of the road is 4 m from the centre line of the road. There will be 8 nos. of trees (*Cocos nucifera, Phoenix sylvestris, Tectona grandis, Neolamarckia cadamba, Bombax ceiba, Gmelina arborea, Syzygium cumini, Artocarpus heterophyllus)* cutting required for construction of the road. Judicial engineering design can save the trees. A temple along the	

Sl no.	Road Name	Environmental Features of the Site	Photograph
	23.628328°, Long- 91.311830° End point Lat- 23.634872°, Long- 91.304998° 1320.10m length with 4 m RoW	project road, will be not impacted. Utility shifting is required as per site visit. A pond at chainage 630m. No protected area and environmentally sensitive areas near the road.	 

Table 29: Site Environmental Features- Bishramganj Drain

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
1	*Drain 1 (Chesrimai)- Birendra Sarkar to Madhablal Chakraborty* Start Lat-23.627707° Long-91.329895° End Lat- 23.627290° Long- 91.328581°	The approx. length of the proposed drain is 143m. Proposed drain is passing through the residential area. There is a no proper drainage system in this area. Earthen road side drain observed during the site inspection. There are 2 numbers of trees (*Ficus religiosa, Terminalia chebula)* near the proposed drain which may need to be cut. There are 4 numbers of waterbody near the proposed drain which may not be impacted. No utility shifting is required. No forest area is nearby. No protected area and environmentally sensitive areas near the drain.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			 Drain outfall at nallaha
2.	*Drain 2 & 3 (combined) (Chesrimai)- From House of Milan Debnath to Railway Drain* Start Lat- 23.628826° Long- 91.305728° End Lat- 23.629880° Long- 91.305837°	Proposed drain is passing through the residential area. There is no existing drain is this area. The length of the proposed drain is 119 m. The preliminary site visit concludes on shifting of 2nos. of electric pole. No tree cutting require for this project road. There is no waterbody near the project road. Clearance of herbs is required, for the proposed site. No significant forest area is nearby No protected area and environmentally sensitive areas near the road.	
3.	Drain 4 *(Chesrimai)- From Shiv Mandir to Railway drain vis house of Nirmal Sarkar* Start Lat- 23.628255° Long- 91.309307° End Lat- 24.628825° Long- 91.305725°	Proposed drain will construct from Shiv Mandir to Railway drain vis house of Nirmal Sarkar. Length of the proposed drain is 437m. Proposed drain mainly passing through the open area. There is an existing kutcha road side drain. There is a school at 170m chainage near the proposed drain which is 3 m away from the proposed drain. There is a temple away from the road. Potential temporary impacts of access disruption have been found in this area. There is no water body near the proposed drain. There are 2 electric post which may need to be shift. No tree felling is required. No protected area and environmentally sensitive areas near the drain.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
4	Drain 5 *(Chesrimai)- House of Dilip Debnath to House of Radha Ballav Debnath* Start Lat- 23.628843° Long- 91.310499° End Lat- 23.631417°, Long- 91.311016°	Design length of the proposed drain is 300m. Proposed drain mostly passing through residential and open areas. There is no existing drain in this area. The drain will be developed within the available existing RoW. There is no waterbody near the proposed drain. There is an Anganwadi adjacent to the proposed drain. During the construction precaution should be taken. Three numbers of electric post which may need to shift. No tree felling is required. No protected area and environmentally sensitive areas near the road.	 Anganwadi near the road  Drain oulfall in the nallaha
5	Drain 6 *(Chesrimai)- From Loknath Sangha (Silatimura) to Rangapania River* Start Lat- 23.627510° Long- 91.319092° End Lat- 23.633393°, Long- 91.320498°	Length of the proposed drain is 735m. The existing drain seems as a narrow furrow, which is earthen with only signs of demarcation. Land use of the area is residential and partly open area. Clearance of herbs is required, for the proposed site. One number of tree *(Zizyphus xylopara)* may cut due to the construction of drain. Utility shifting (5 nos. of electric post within the 0.5m) may require to construct the drain. There is no waterbody near the proposed drain. No protected area and environmentally sensitive areas near the road.	

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			  River outfall
6	Drain 7 (Chesrimai)- From House of Bishnupada Das to Agriculture Land Start Lat- 23.631466°, Long- 91.317185° End Lat- 23.631945°, Long- 91.314686°	Outfall of the proposed drain in on the agricultural land. Length of the proposed drain is 285 m. The land use of the area is mostly open with patches of habitations nearby, and the proposed drain is present between main road and open/ residential land. There is an Anganwadi adjacent to the proposed drain. During the construction precaution should be taken. There is no waterbody near the proposed drain which may impacted due to drain construction. There is an electric post which may need to shift. No tree felling is required. No significant forest area is nearby the drain. No protected area and environmentally sensitive areas near the road.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
7	Drain 8 *(Chesrimai)- House of Sachindra Das to House of Swapan Debnath* Start Lat- 23.628335°, Long- 91.311854° End Lat- 23.632416°, Long- 91.312139°	Length of the proposed drain is 487 m. Maximum portion of the proposed drain is passing through the residential area. Utility shifting may require for the construction of the drain. There is no waterbody near the proposed drain which may impacted due to drain construction. No environmentally sensitive receptor is present near the proposed drain. Clearance of dense bushes, herbs and shrubs is required.	 
8	Drain 9 *(Bishramganj)- Both side Nabatala Club (Samatalamtali Madhyapara)* Start Lat- 23.608459°, Long- 91.351211° End Lat- 24.610839°, Long- 91.351898°	The existing drain seems as a narrow furrow, which is earthen with only signs of demarcation. Length of the proposed drain is 564 m (both side drain). The proposed drain is passing through the residential area. The preliminary site visit concludes on shifting of 1no. of electric pole. There is two number of trees (*Magnifera Indica, Artocarpus heterophyllus)* which may need to be cut. There is a waterbody which is 2m away from the proposed drain. No protected area and environmentally sensitive areas near the road.	

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			
9	Drain 10 *(Bishramganj)- House of Priya Ranjan Dasmunshi to House of Suraj Deb Barman* Start Lat- 23.609159°, Long- 91.346969° End Lat- 23.611380°, Long- 91.347361°	Length of the proposed drain is 289 m. The Land use of the area is predominantly residential. There is big pond near the proposed drain. No proper drainage system in this area. Utility shifting require for the proposed drain. No sensitive receptors are present in proximity of the proposed site. No tree felling is required. Vegetation needs to be cleared before construction of drain. No significant forest area is nearby. No protected area and environmentally sensitive areas near the road.	   Outfall on nallaha

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
10	Drain 4C and 11 *(Bishramganj)*- 4C: House of Ratan Debnath to Tapas Chakrabarty House of Maran 11: Karmakar to Karimura Cheera via House of Nirmal Sutradhar Start Lat- 23.609799°, Long- 91.348652° End Lat- 24.611560° Long- 91.350920°	The length of the proposed drain is 559 m. The land use of the area is mostly open with patches of habitations nearby, and the proposed drain is present between main road and open/ residential land. The drain will be developed within the available existing RoW. At present in maximum portion there is no drain available. Shifting of utility will be required. No tree felling is required. No significant forest area is nearby. No protected area and environmentally sensitive areas near the road	  Drain 4C and 11 join  Outfall to open area
11	Drain 12 *(Bishramganj)- Bijoy Dutta House to Bijoy River* Start Lat- 23.609991°, Long- 91.360685° End Lat- 24.611271°	Proposed drain will construct from Bijoy Dutta House to Bijoy River. Length of the proposed drain is 663m. Proposed drain is passing through the residential, agricultural area and open area. There are few trees (*Azadirachta indica, Aegle marmelos)* which may need to be cut before construction.	

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
	Long- 91.362431°	There are few numbers of electric post and telephone post may need to be shift. No significant forest area is nearby. No protected area and environmentally sensitive areas near the road	 Outfall at Bijoy River
12	Drain 13 *(Bishramganj)- Suraj Dutta House to Itbhata (Karimura Cheera)* Start Lat- 23.609238°, Long- 91.361175° End Lat- 23.608059°, Long- 91.354460°	Other RCC covered drain is proposed to be implemented along the one side of the road. Length of the proposed drain is 731m. Proposed drain is passing through the residential area mainly. There are 8 numbers of electric post need to shift. Maximum portion of the drainage area there is no drain. There is no waterbody near the proposed drain. Few trees are located in and around proposed drain, but mostly out of impact zone. No significant forest area is nearby. No protected area and environmentally sensitive areas near the road	   Outfall at low land

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
13	Drain 14 *(Bishramganj)- House of Samir Sarkar to Ranagapania River* Start Lat- 23.619272°, Long- 91.347059° End Lat- 23.616902°, Long- 91.346590°	The length of the proposed drain is 417m. There are 3 numbers of tree *(Albizia lebbeck, Magnifera Indica, Delonix regia)* which may need to be cut. There is no existing drain in this area. There is a waterbody adjacent to the proposed drain, but outside the impact zone 2 numbers of electric post need to be shift. Land use of this area is partly open and partly residential. No significant forest area is nearby. No protected area and environmentally sensitive areas near the road	   River outfall
14	Drain 15 *(Barjala)- House of Ramani Pal to House of Hare Krishna Debnath* Start Lat- 23.625364°, Long- 91.340150° End 01 Lat- 23.625077°, Long- 91.338490°	RCC covered drain is proposed to be implemented by replacing the existing kutcha drain along one side of road. The length of the proposed drain is 389m. There are 2 waterbodies adjacent to the proposed drain. There is no existing proper drainage system in this area. Proposed drain passing through the residential area. No utility shifting is required as per site visit. 5 nos. tree (*Azadirachta indica, Caryota urens, Emblica officinalis*, *Tamarindus indica,*	

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
	End 02 Lat- 23.624339°, Long- 91.337306°	*Anogeissus pendula)* may be felled for construction of drain. No significant forest area is nearby. No protected area and environmentally sensitive areas near the road	 Outfall to Cherra
15	Drain 16 *(Barjala)- From 3 No Purbapara J B School to Raghunath Thakur Para Chera* Start Lat- 23.630353°, Long- 91.339027° End Lat- 23.632242°, Long- 91.335666°	RCC covered drain is proposed to be implemented by replacing the existing kutcha drain. The length of the proposed drain is 594m. Maximum portion of the proposed drain is passing through the rubber plantation. One tree (*Zizyphus xylopara)* may be cut due to the construction of drain. No utility shifting is required as per site inspection. There is no existing drain in this area. No significant forest area is nearby. No protected area and environmentally sensitive areas near the road	    Outfall on land

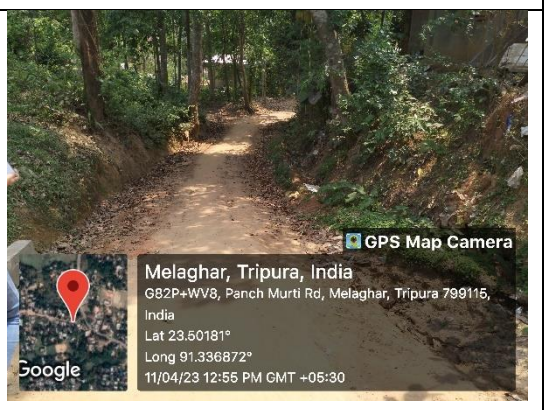
Table 30: Sensitive Receptors in the Project Influence area – Bishramganj

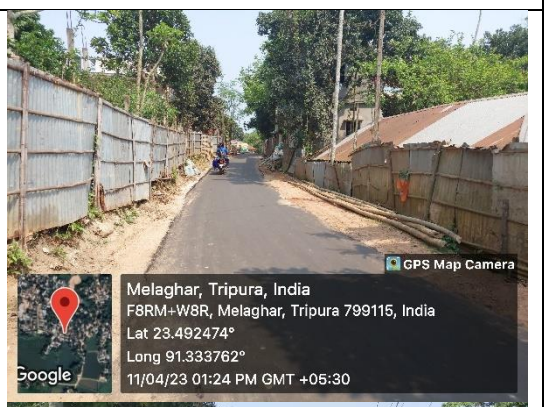
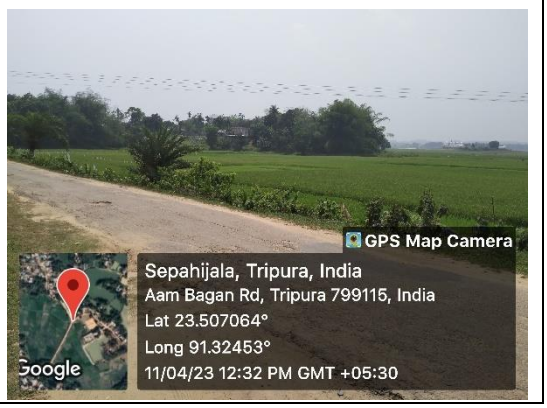
Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
1.	Temple (Drain no 4)	Starting point of Drain 4	Adjacent to the Drain	
2.	School (Drain no 4)	Chesrimai	Within 5 meters	
3.	Anganwadi (Drain No-5)	Chesrimai	Adjacent to the Drain	
4.	Anganwadi (Drain No-7)	Near Bishnupada Das house	Adjacent to the college	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
5	Temple (Drain no-15)	Near Starting Point	Existing drain is adjacent to the temple	
6	Anganwadi (Road No-2)	Near Gour Sankar house	Within 5 meters	
7	Temple (Road no-2)	Near Subhash Saha house	Within 5 meters	
8	Temple (Road no-2)	Near Sujan Debnath house	Existing drain is adjacent to the temple	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
9	Temple (Road no-2)	Near end point	Within 5 meters	

Table 31: Site Environmental Features- Melaghar Road

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
1.	Road 1 Melaghar Bishramganj Main Road to Biswajit Chakraborty House (Ward No. 03) Start Start Lat-23.501081° Long-91.336058° End Lat-23.50181° Long-91.336872° (A part of the road is recently constructed)	The proposed road is approx. 527.36 m in length. The land use of the area is mainly residential, passing through a low-lying area. The existing road is earthen built, and is approx. 2.5 -3m wide. Series of trees, mainly Sal, Jackfruit, Jamun and betel nut are found lining the road, but outside the impact zone. One Shani temple located near the proposed site, but outside the impact zone. Few utility shifting is required. No water body is present nearby; however, one Calvert is noted for cross draining. As per site visit, no tree felling is required. No significant forest area is nearby. No protected area and environmentally sensitive areas near the road	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
2.	Road 2 Melaghar Hospital to Subal ch. SB School (The Road is already constructed; construction work is still going on)	DPR cover this 912.7 m road, but later road has been constructed and accordingly road is removed from the project.	 
3.	Road 3 Bhagirath Chowmuhani to Veeramma temple (Ward No. 04) Start Lat- 23.506553° Long-91.333325° End Lat- 23.507091° Long- 91.324543°	The proposed road is approx. 1042.52 m in length. The land use of the area is mainly residential and agricultural mixed. Towards the Veeramma temple, large fields are seen with paddy cultivation. The existing road is black top road and is approx. 3m wide and passes through residential areas, lined with trees mostly sal, jackfruit, shegun and coconut and few patches have rubber plantations as well. Only one tree (*Averrhoa carambola) will need to be felled.* Sensitive receptors include, 1no. of temple and 1no. of school. One large water body (pond) is present near to the proposed site. But outside the impact zone. As per site visit few utilities required to be shifted.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		No significant forest area is nearby. No protected area and environmentally sensitive areas near the road	
4.	Road 4 Charu Kabiraj House to Samakaji Para (Ward No. 09) Start Lat-23.487474° Long-91.31555° End Lat- 23.481716° Long-91.318701°	The proposed road is approx. 1002.10 m in length. The land use of the area is mainly residential and agricultural mixed. The road is adjacent to large fields of paddy cultivation and residential area. The existing road has two segments with an approx. width of 2.5-4m. A portion of the road is made of bricks while the other portion of the road is mud built. The road is also lined with few native trees, like jackfruit, betelnut, coconut, Sal etc., but outside the impact zone. Large areas of the land are used for vegetable cultivation. Sensitive receptors include, 1no. masjid, graveyard. No impact is expected on sensitive receptors. The road has 2no. of water bodies (Ponds) present in proximity, outside the impact zone. As per site visit, few electric poles required to be shifted. No significant forest area is nearby. No protected area near by the road	  
5.	Road 5 Melaghar-Bishramganj Road (PWD road) to Nikhil Barman House (Ward No. 13) Start Lat-23.50527° Long-91.334354° End Lat- 23.504372° Long- 91.337166°	The proposed road is approx. 323.62 m in length. The land use of the area is mainly residential, agricultural with rubber plantation in few areas. The existing road is brick soling road and is approx. 2.5-3m wide. Sensitive receptors include, 1no. of Shani temple, in proximity. One water body (pond) is present near to the proposed site, but outside the impact zone.	

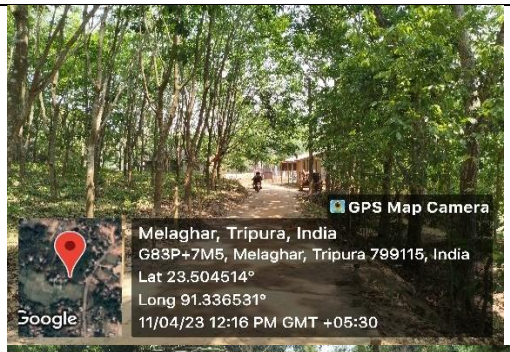
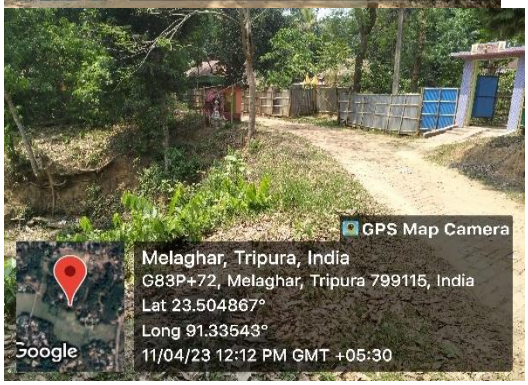
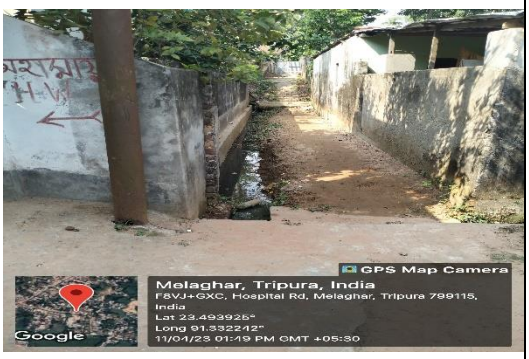
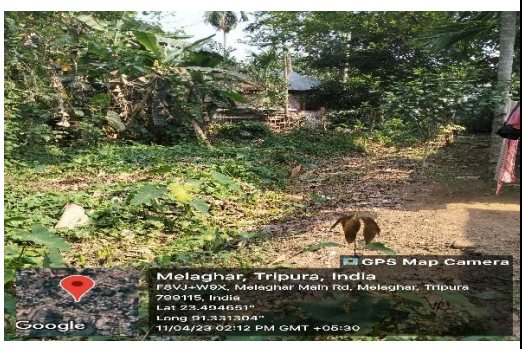
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		As per site visit, no tree cutting is required, however shifting of utility may be required. No significant forest area is nearby. No protected area near the road	 

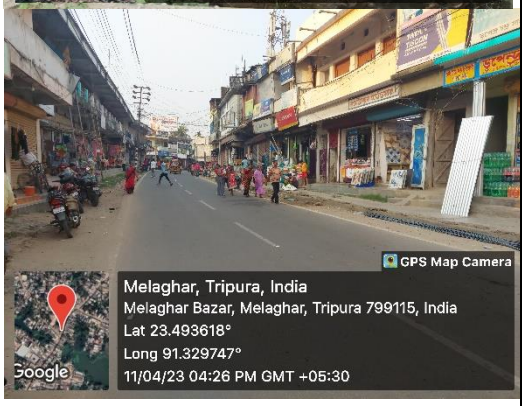
Table 32: Site Environmental Features- Melaghar Drain

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
1.	Drain 1 AOC to Motor Stand (Ward No. 04) Start Start Lat- 23.499880° Long-91.339189° End Lat-23.489802° Long- 91.326272°	The drain is to be constructed on Western and Northern side of Melaghar Sonamura Road approx. 1874.30m, and Eastern and Northern side of Melaghar Sonamura Road, from AOC to Motor Stand which is approx. 1867.30m, total length being 3741.60m. Land use of along the road is mainly commercial with residential patches. Existing drain has a segment which is underground, and is covered with cemented slabs, which is mostly used as access for shopkeepers, or used as footpath for walking. At few places the slabs are broken, and in bad shape. The segment of the drain towards Motor Stand is open above ground drain, which seems as incomplete, and is filled with solid waste. No as such safety features of drain is	 

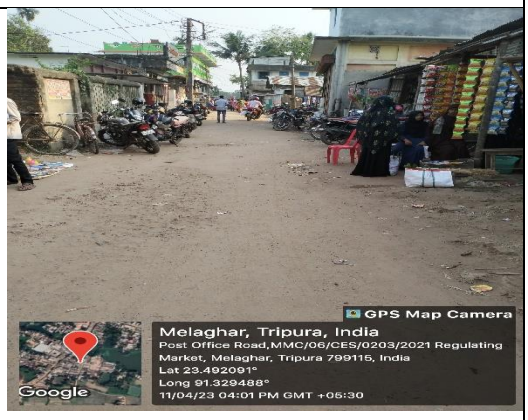
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		observed for prevention of pollution. At few places encroachment by temporary vendors is observed. About 10 nos. tree *Magnifera Indica, Ficus religiosa, Areca catechu, Artocarpus heterophyllus, Phoenix dactylifera, Tamarindus indica, Albizia lebbeck, Gmelina arborea, Zizyphus xylopara, Holoptelea integrifolia)* cutting and few utility shifting is required. Nearest sensitive receptor includes 1no. of Shani Mandir. No waterbody is found in close proximity of the proposed site. No significant forest area is nearby. No protected area and environmentally sensitive areas near the drain	
2.	Drain 2 AOC to English Medium School (Ward No. 03) Start Lat- 23.498192° Long-91.337080° End Lat- 23.499847° Long-91.331409°	Storm water drain is to be constructed from AOC to English Medium School. The approx. length of the drain proposed drain is 1279.80 m. The land use of the area is mostly residential, open, with patches of agricultural land nearby. The existing drain is earthen made, mostly demarcated as drain, but no as such waste is seen, however it is filled with underlying vegetation. A segment of the drain runs beside a residential area, whereas another segment runs between a low-lying area and merges with a cross drain, which has a culvert present. No waterbodies are present within the road impact zone. There are few water bodies about 2 m from the proposed drain. Few utility shifting is required. One tree (*Ziziphus mauritiana)* cutting also may be required. Sensitive receptors include, 1no. of school and 1no. of health centre located nearby the road and outside the impact area. Clearance of vegetation is required.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		No significant forest area is nearby. No protected area near the drain.	
3.	Drain 3 Municipality Road to English Medium School (Ward No. 03) Start Lat- 23.496577° Long-91.332703° End Lat-23.500299° Long- 91.331008°	The proposed drain is approx. 1035.70 m in length with an existing drain having a width of approx. 0.4-0.5 m. It is narrow, cemented drain, is bushy and full of herbs, and climbers. The land use of the area is mainly residential. It has few sensitive receptors, which includes, 1no. of Ashram and 3no. of schools are situated nearby. It is noted no tree cutting is required however, utility shifting is required at few locations along the chainage. No measures have been observed to prevent pollution in drains. Clearance of vegetation is necessary at few places of the proposed site. No waterbodies are found in proximity of the proposed site. No significant forest area is nearby. No protected area and environmentally sensitive areas near the drain	 
4	Drain 4 Netaji Chowmuhani to to near house of Upendra Das. (Ward no. 03) Start Lat-23.495808° Long-91.331536° End Lat-23.496983° Long-91.329540°	The length of the proposed drain is approx. 257.70m. which has an existing open earthen drain, with a width of approx. 1m. Some places open cemented drain is noted. The land use of the area is mainly residential. It's a low-lying area, and the drain is adjoined to an earthen road. There are problems of water logging during monsoon season in this proposed site. No measures have been observed for prevention of pollution, as the drain is full of solid waste. As per site visit no water body is found in proximity neither any utility shifting is required. No tree cutting is required as per site visit, but some places require clearance of bushes herbs and climbers. Few utility shifting is required.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		Sensitive receptors include Mohanbhog High school, which lies within 10 m of the proposed site. No significant forest area is nearby. No protected area and environmentally sensitive areas near the drain.	
5.	Drain 5 Vivekananda Club to Netaji Chowmuhani via Sukanta Pally (Ward No. 6) Start Lat- 23.493778° Long-91.332203° End Lat- 23.495255° Long-91.331336°	A Storm water drain of approx. 227.50m is to be constructed. Land use of the area is mainly residential, and is very near to Hospital Chowmuhani main road. Existing drain with a width of approx. 0.5 m is present which is open, above ground and present for a small section of the proposed site and the other stretch is covered with cemented slabs. Another segment of the drain is open, earthen drain, covered with herbs and shrubs and requires clearance. No water bodies are present close to the proposed site. As per preliminary site visit, few utility shifting is required. Sensitive receptors include, Sonamura Sub-Divisional Hospital. Clearance of dense bushes, herbs and shrubs is required, and cleaning of drains is required. No tree cutting is required as per site visit. No significant forest area is nearby. No protected area near the drain	  

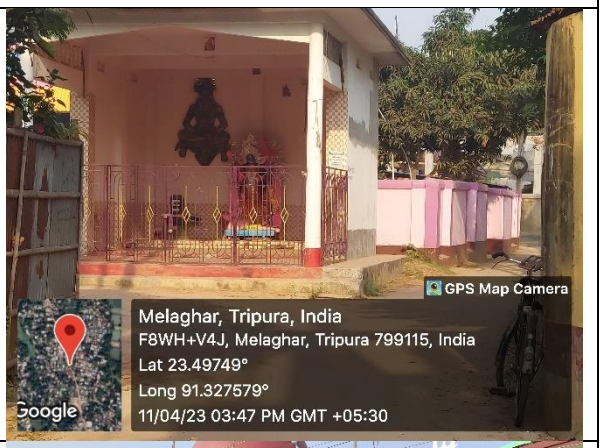
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
6.	Drain 6 Hospital Chowmuhani to near house of Priyalal Saha (Ward No. 06) Start Start Lat- 23.494483° Long- 91.330343° End Lat- 23.495947° Long- 91.330299°	Storm water drain of 166.20 m is to be constructed from Hospital Chowmuhani to near house of Priyalal Saha. Existing above ground open earthen drain is present for a small stretch with approx. width of 1m with full of shrubs followed by another stretch with cemented slabs over it. Most of the part is cemented drain. The Land use of the area is partly residential and partly commercial for a short stretch. The significant stretch of the drain is adjoined to an earthen road, which falls in a low-lying area, and causes serious water logging issues during monsoon season. No preventive measures have been observed, for prevention of pollution. The existing drain is clogged with solid waste which requires proper cleaning. Sensitive receptors include Mohanbhog High School, which is present nearly within 10 m of the proposed site. As per preliminary site visit, no water body is present nearby. One utility shifting may be required. No tree cutting is required as per site visit, however, clearing of herbs, bushes and shrubs is required. No significant forest area is nearby. No protected area near the drain	 
7.	Drain 7 Thakurpara Red Lotus Club to Melaghar Sonamura Road. (Ward No. 11) Start Lat- 23.497524° Long- 91.327581° End Lat- 23.493467° Long- 91.329668°	The approx. length of the proposed drain being 1014 m, with an existing drain having a width of approx. 0.3-0.4 m. The Land use of the project area is mainly residential. The existing drainage system is a narrow open earthen drain which is filled with dry leaves. Other segment of the drain is open cemented, running through residential colonies lined beside the road. No measures have been observed for prevention of pollution.	

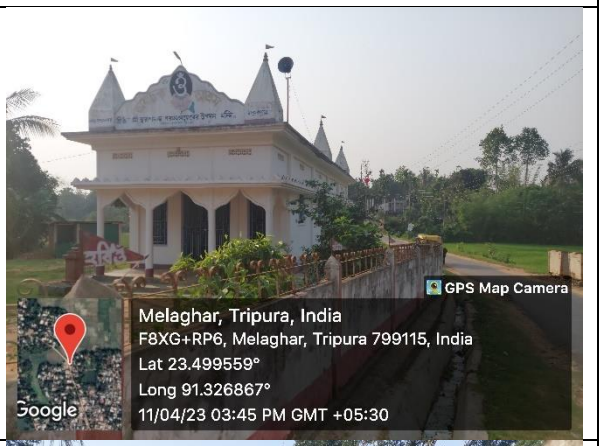
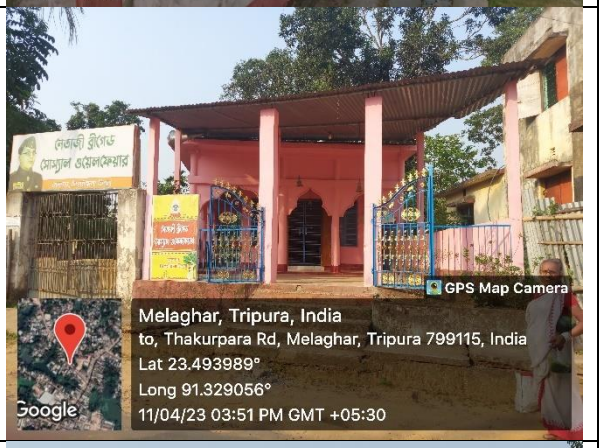
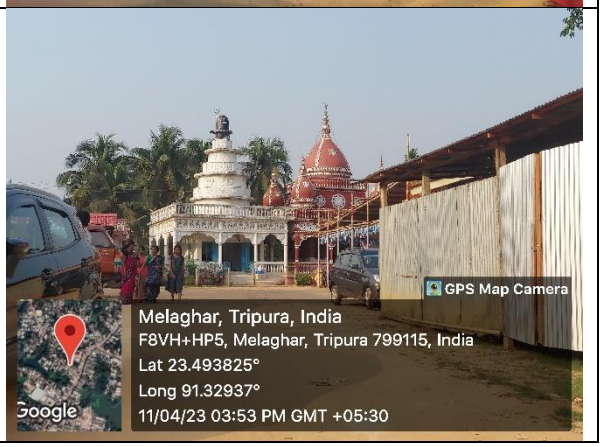
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		Sensitive receptors present near to the proposed site includes 1no. of Ashram, 4no. of Mandirs 1no. of Health Centre. Those are away from impact area. According to preliminary site visit, no water body was found near to the proposed site, few utility shifting is required. No tree felling is required as per site visit, however, at few places, clearance of vegetation is required. No significant forest area is nearby. No protected area near the drain	
8.	Drain 8 Thakurpara Red Lotus Club to Ramthakur Ashram (Ward No. 11) Start Lat- 23.497524° Long- 91.327581° End Lat- 23.500120° Long- 91.326184°	The proposed drain is approx. 683.7 m in length with an existing drain having a width of approx. 0.5 m. A portion of the drain is narrow, cemented drain and another segment (small part) is earthen made, filled with leaves and litter at few places. The land use of the area is mainly residential. There are few sensitive receptors, which includes, 1no. of Ashram, temple, and Melaghar Veterinary Hospital, situated nearby but outside the impact zone. According to preliminary site visit, no tree cutting is required however, shifting of electric pole may be required. Clearance of vegetation is necessary at few places of the proposed site. No water bodies are found in proximity of the proposed site. No significant forest area is nearby. No protected area near the drain	 

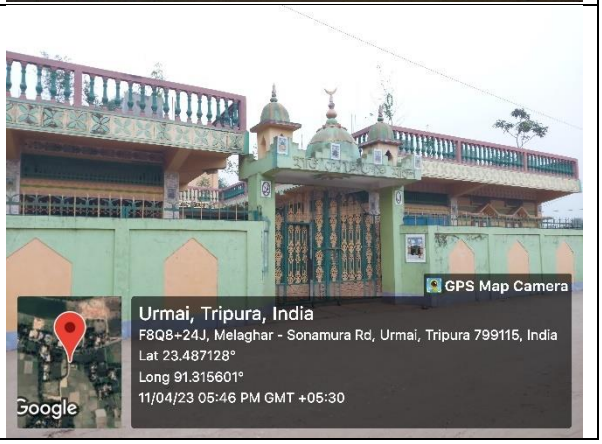
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
9.	Drain 9 Vivekananda Club to Hospital Chowmuhani (Ward no.06) Start Lat- 23.493790° Long- 91.332196° End Lat- 23.494403° Long-91.330439°	Storm water drain of approx. 195 m is to be constructed. Land use of the area is mainly residential with some commercial shops, with series of shops beside the busy road. Existing drain with a width of approx. 0.9 -1m is present, for a small section of the proposed drain covered with cemented slabs. There is a cross drain which passes through underground and connects with another main drain near the hospital Chowmuhani. No water bodies are present close to the proposed site. As per site observation, only one utility shifting may require, nor any tree cutting is required. Sensitive receptors include, Sonamura Sub-Divisional Hospital, away from impact area. No significant forest area is nearby. No protected area near the drain	
10.	Drain 10 Melaghar Sonamura Road to Post Office via Sanghati Market (Ward no.06) Start Lat- 23.492221° Long- 91.328888° End Lat- 23.490540° Long- 91.334195°	Storm water drain of 197.50 m is to be constructed It is a busy market area, with lined shops and street vendors, selling vegetables, fruits, and other regular items. Existing drain present for a small stretch is covered with cemented slabs, and is encroached by vegetable and fruit sellers. The other stretch has a narrow open drain, which is clogged with dry solid waste, no movement of storm water is observed, followed by open drain which runs beside agricultural fields. Paddy and vegetable cultivation is found in proximity. The Land use of the area is partly residential, commercial No preventive measures have been observed, for prevention of pollution in drains already present. No as such sensitive receptors found nearby, however, No utility shifting is required. No water body is present nearby. No tree cutting is required as per site visit, however, clearing of	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		herbs, bushes and shrubs is required. No significant forest area is nearby. No protected area and environmentally sensitive areas near the drain.	
11.	Drain 11 Padma Dhepa Fishery Samity to Gomati River via Sanghati Market (Ward no.07) Start Lat- 23.490895° Long- 91.329296° End Lat- 23.487590° Long-91.328309°	Storm water drain of 1008.90 m is to be constructed Existing drain present for a small stretch is open drain, which is clogged with dry solid waste. A Calvert is present, just near to Sanghati market, which overlooks agricultural fields. A long stretch of the drain runs beside Paddy cultivation as Kancha drain, which is bushy and full of herbs and shrubs. Its approximately 2.0-2.5 m wide, and clogged with solid waste, mostly waste from the market area. The Land use of the area is mostly agricultural. No preventive measures have been observed, for prevention of pollution in drains already present. Encroachment by vendors is observed in this proposed site. No utility shifting is required as per site observation. Nearest water body found near the proposed site is Gomati River. No tree cutting is required as per site visit, but clearance of bushes, shrubs and herbs is required. No significant forest area is nearby. No protected area and environmentally sensitive areas near the drain.	   

Sensitive Receptors in the Project Influence area- Melaghar

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
1.	Kali Mandir	Thakurpara Road	Approx. 5 meters	
2.	Bholananda Ashram	Near Thakurpara Road	Approx. 2 meters	
3.	Shani Mandir	Chandigarh lane, Melaghar	Approx. 0.25 meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
4.	Ram Thakur Ashram	Thakurpara Road, Melaghar	Approx. 1 meter	
5.	Lokenath Temple	Thakurpara Road	Approx. 2 meters	
6.	Mandir	Near Melaghar Bazar	Approx. 5 meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
7.	Shani Mandir	Melaghar Bazar	Approx. 1.5 meters	
8.	Ramkrishna Ashram	Near Municipality Road	Approx. 3 meters	
9.	Masjid	Urmai, Melaghar	Approx. 2 meters	

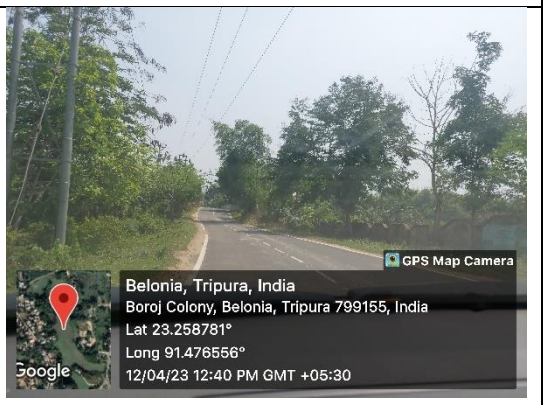
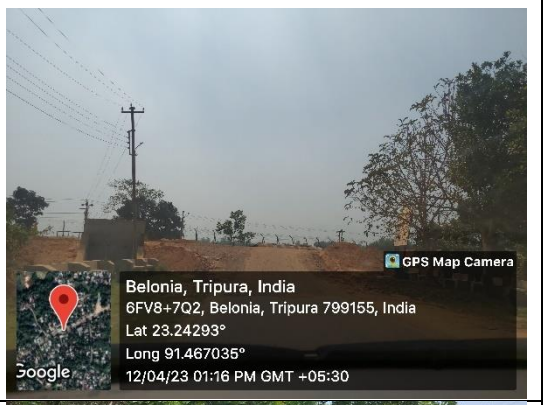
Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
10.	Kali Temple	Aam Bagan Road, Melaghar	Approx.5 meters	
11.	Jaganath Mandir	Near Municipality Road	Approx. 3 meters	
12	School	Near Municipality	Approx. 5 meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
13	School	Near Jaganath Bari Road	Approx. 10 meters	
14	School	Rudijala, Melaghar	Approx. 2 meters	
15	Health Centre	Near Melaghar Bazar	Approx. 2 meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
16	Melaghar Sub-Divisional Hospital	Melaghar Hospital Road	Approx. 5 meters	
17.	Veterinary Hospital	Near Thakurpara Road	Approx. 10 meters	

Table 33: Site Environmental Features- Belonia Road

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
1.	Road1 Bridge no.4 to ITI college via college square & AIR (Ward No. 14) Footpath and correction of road geometry Start Lat-23.262224° Long-91.478516° End Lat- 23.241585° Long- 91.462010°	The proposed road is approx. 2421 m in length, with an ROW of 12m and carriage width of 8 m. The land use of the area is mostly commercial with parcels of residential, open area in few places. It starts from 4no. Bridge, which is built over Muhuri River. The road passes through a long way, with junction in between, few small commercial structures and Motor stand. The existing road is black top with an average width of 8m. According to preliminary site visit, 2no. of temples,1no. of school and	

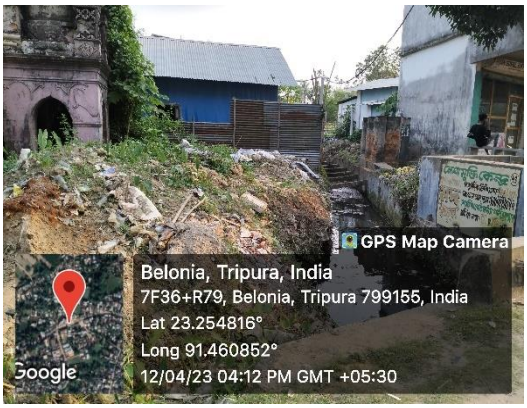
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		one health centre lies near the proposed site. Belonia ITI and All India Radio are located nearby the proposed road, but no impact is expected on those. Few utility shifting is required Muhuri is the only significant water body present near to the proposed site. Two small ponds are also present away from the road. Few trees (about 7 nos. - *Syzygium cumini, Opuntia ficus-indica, Morinda tinctoria, Ziziphus mauritiana, Magnifera Indica, Syzygium branderhorstii, Elaeocarpus serratus)*.) felling is required, clearance of bushes, shrubs and herbs is required for long stretches of the road. No significant forest area is nearby. No protected area and environmentally sensitive areas near the proposed road.	 
2.	Road 2 Satmura SB School to AIR Road 43 758 (Ward No. 06) Start Lat-23.247144° Long-91.47726° End Lat-23.248494° Long-91.476894°	The proposed road is approx. 758 m in length, with an ROW of 4m and carriage width of 3m. The land use in and around the road is mainly residential with some open & agricultural area, passing through low-lying areas nearby, and some bushy vegetation and shrubs are present at a Tilla next to the road. The existing road is brick soling, and is approx. 2.5 - 3m wide. Series of trees, mainly Cashew, and Mango are present nearby. A segment of the proposed road is already constructed. According to preliminary site visit, 1no. of school and 1no. of temple is located in close proximity to the proposed road. Few utility shifting may be required. 2 nos. of trees (*Ziziphus mauritiana, Bombax ceiba)* may be cut.	

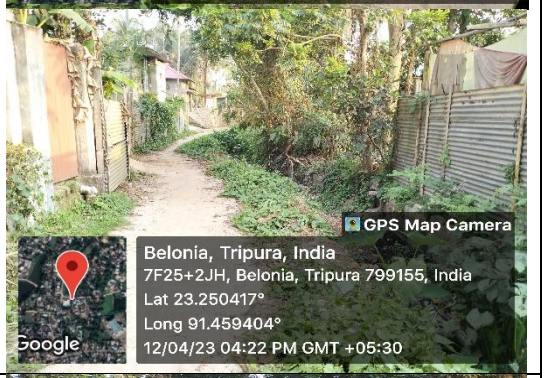
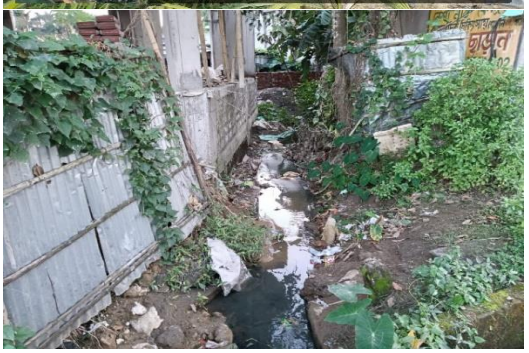
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		A stretch of the road, requires clearance of herbs and bushy shrubs, lined just next to the proposed road. One pond is located near to the proposed road, but outside the impact zone. No significant forest area is nearby. No protected area and environmentally sensitive areas near the proposed road.	

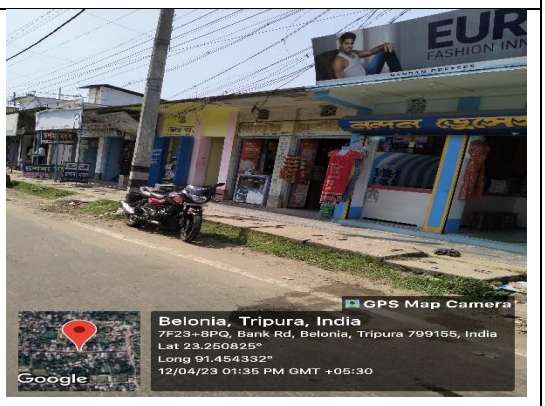
Table 34: Site Environmental Features- Belonia Drain

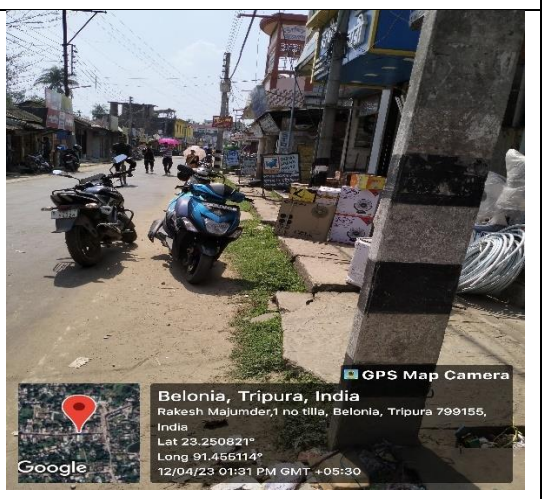
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
1.	Drain 1 Jaganathbari to Kalinagar Motor stand via Asit Saha House. Start Lat-23.251079° Long- 91.450831° End Lat-23.246774° Long-91.457794°	The proposed length of is approx. 1369.2m. Land use of the drain area is mainly residential with some patches of commercial and open area. Existing drain has a segment which is underground, and is covered with cemented slabs, which is mostly used as access point for shop keepers, or used as footpath for walking. The segment of the drain towards Jaganath Bari is open uncovered drain, which mainly carries storm water and is filled with solid wastes. No as such safety features of drain is observed for prevention of pollution. At few places encroachment by temporary vendors is observed near the motor stand. No tree cutting is required as per site condition. Shifting of few utilities are required before construction of closed drain. Nearest sensitive receptor includes, Jaganath Mandir and one Ashram. One pond is found in close proximity of the proposed site. No significant forest area is nearby. No protected area near the proposed road.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			 
2.	Drain 2 South Belonia corner to SBI Bank (Ward No. 02) Start. Lat-23.253639° Long- 91.457547° End Lat- 23.249634° Long-91.455361°	The proposed drain length is approx 517.49 m. The land use of the drain area is commercial and residential mixed with some open area. The existing drain in the proposed site is approx. 1m wide, for a small stretch, which is open above ground, and full of solid waste and underlying vegetation. The other stretch is nearly 2m wide, earthen and full of underlying vegetation, which surpasses a market area, dumped with market waste. This drain is again connected with a cemented drain which is covered with slabs and ends near SBI Bank. Few waterbody is present close to South Belonia corner. No impact is expected on waterbody. No as such shifting of utility is required. No tree cutting is required. Sensitive receptors include, one School, and one Hospital, but away from impact zone.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
		No significant forest area is nearby. No protected area near the proposed road.	
3.	Drain 3 Vidhya Sagar Market to Sachin Dev Barman Auditorium (Ward No. 09) Start Lat-23.257265° Long-91.465302° End Lat-23.249412° Long-91.460603°	The proposed drain length is approx 1423.65 m. The existing drain passes through a long distance. A segment of the drain is approx. 1.5-2.0 m wide, open cemented drain carrying solid wastes. Another part is open earthen, and full of bushes, herbs and shrubs and underlying vegetation. The width of the earthen drain varied from 0.5 -2.0 m The land use of the drain area is a mixture of commercial and residential area, with some open area. It has few sensitive receptors, which includes, 1no. of School and 1 no. of common water storage reservoir near to the proposed site. But outside the impact zone. According to site condition no tree cutting is required however, a long stretch of the proposed drain needs to be cleared. It is full of bushes, shrubs and underlying vegetation. Few utility shifting is required. No measures have been observed to prevent pollution in drains. Two water body (Pond) is found near to the proposed site. But outside the impact zone.	

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			 
4.	Drain 4 The backside of SD Barman auditorium to Akhandmandali Ashram. (Ward No.11) Start Lat-23.249412° Long-91.460603° End Lat- 23.244276° Long- 91.459663°	A drain of approx. 768.02 m is to be constructed from backside of SD Barman auditorium to Akhandmandali Ashram. Land use of the area is mainly residential, with some open area. Existing drain with a width of approx. 0.5- 2.0 m is present which is open, cemented above ground for a small stretch of the proposed site and the other stretch is narrow open earthen, drain carrying storm and waste water. No water bodies are present close to the proposed site. 2 waterbodies are located 2-5-3.0 m from proposed drain. As per preliminary site visit, one electric pole is required to be shifted. Sensitive receptors include, one Ashram, away from the drain. No tree cutting is required as per site visit; however, clearance of dense bushes, herbs and shrubs is required in few places. No significant forest area is nearby. No protected area near the proposed road.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			
5.	Drain 5 SBI Bank to Jaganath Bari (Ward no. 01) Start Lat-23.250788° Long-91.455159° End Lat- 23.250916° Long- 91.452732°	The proposed drain length is approx 253.78m. The land use of the area is commercial and residential The existing drain is approx. 0.7-1m wide, for a small stretch, the drain is covered with cemented slabs, which is used as footpath. At some places the slabs are broken. Solid waste disposed on the drain. No safety measures are observed, for prevention of pollution. Few places have cross drains which connects the drain with underground main drain. Drain is passing through congested area, with shops, banks and market present nearby. No water bodies are present close to the proposed site. Few are located away from the drain. As per preliminary site visit, four electric poles may be required to be shifted. No tree cutting is required as per site observation. Sensitive receptors include, 2no. of temples away from the drain No significant forest area is nearby. No protected area and environmentally sensitive areas near the proposed road.	 

Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			
6.	Drain 6 Ramthakur Ashram to Shelter House (Ward No. 12) Start Lat-23.246463° Long-91.448990° End Lat- 23.249064° Long-91.454514°	The proposed drain length is approx 989.87m The Land use of the area is partly residential and partly open, commercial for a short stretch. Existing above ground open earthen drain is present for a small stretch with approx. width of 2m with full of herbs, shrubs and trees in the lining. Then it is followed by another stretch with cemented slabs over it. The Foundation stone for Sewage Treatment Plant is also laid down close to the proposed site. The significant stretch of the drain is earthen, which falls in a low-lying marshy area, behind the Shelter House. No preventive measures have been observed, for prevention of pollution. Sensitive receptors include one school and one Ashram away from the drain. As per preliminary site visit, no water body is present nearby, few utility shifting is required. Few trees *(Albizia lebbeck, Zizyphus xylopara)* cutting is required as per site observation, clearing of herbs, bushes and shrubs is required. No significant forest area is nearby. No protected area and environmentally sensitive areas near the proposed road.	 

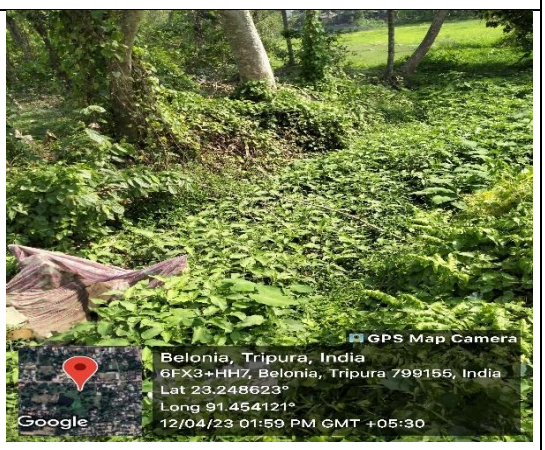
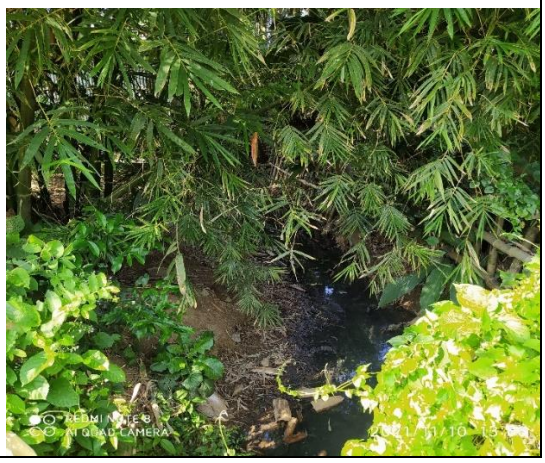
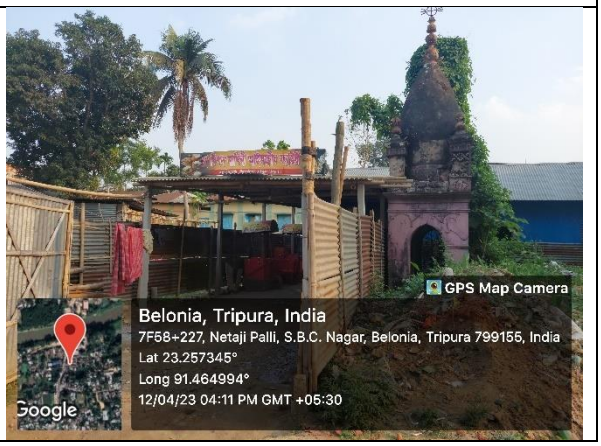
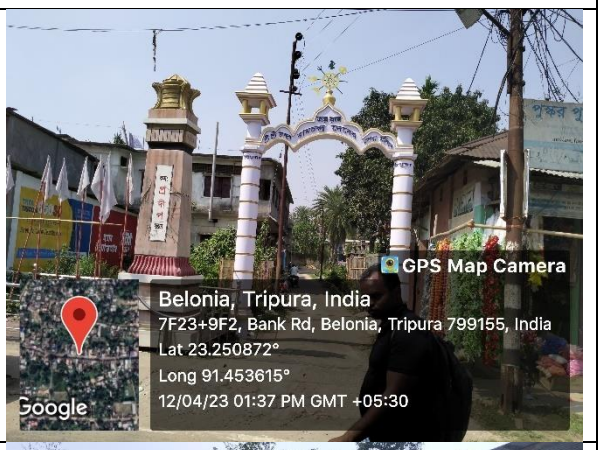
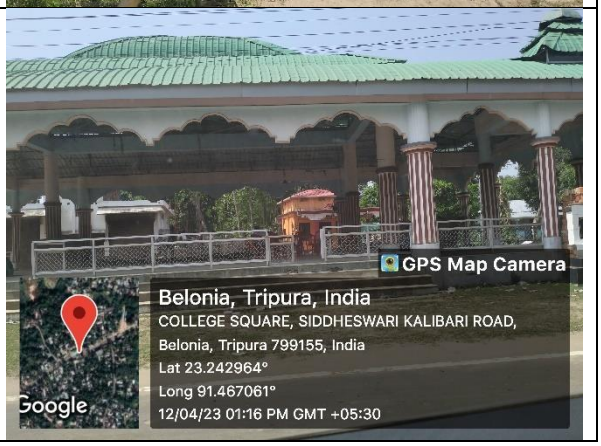
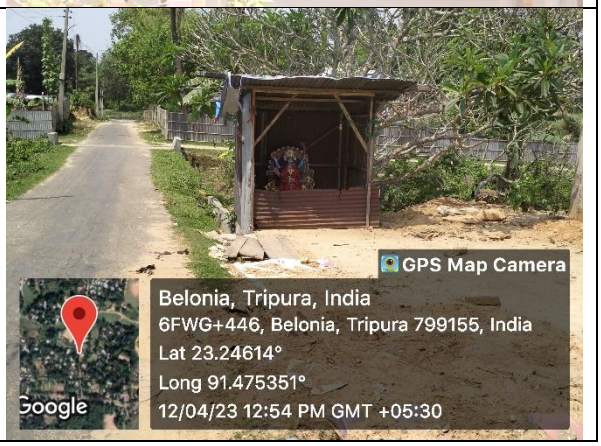
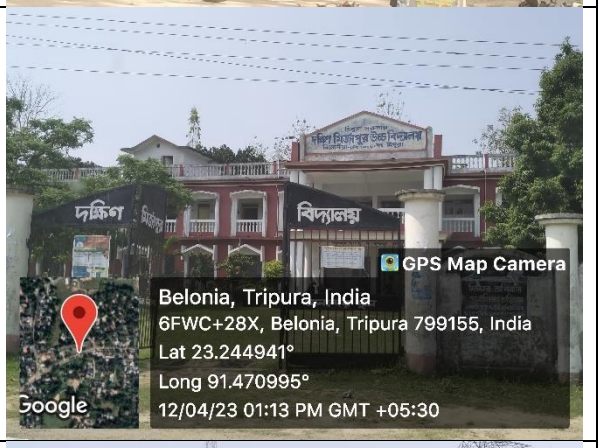
Sl. no	Project Component and location	Environmental Features of the Site	Photograph
			 

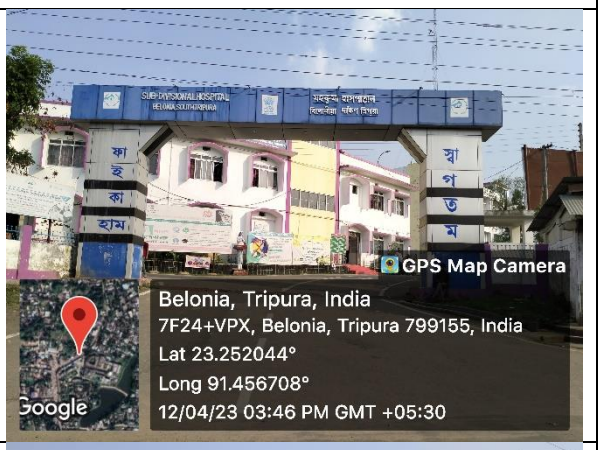
Table 35: Sensitive Receptors in the Project Influence area- Belonia

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
1.	Mandir	Netaji Palli	Approx. 5 meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
2.	Ram Thakur Ashram	Bank Road, Belonia	Approx. 2 meters	
3.	Jaganath Mandir	Kalinagar	Approx. 2 meters	
4.	Siddhesh wari Kali Mandir	College Square	Approx. 5 meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
5.	Ram Thakur Ashram	Belonia	Approx. 5 meters	
6.	Kali Mandir	Railway Station Road	Approx. 2.5 meters	
7.	Kali Mandir	Satmura	Approx. 2 meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
8.	School	Belonia school	Approx. 10 meters	
9.	School	College Square	Approx. 5 meters	
10.	School	Satmura	Approx. 5 meters	

Sl. no	Name of structure	Location	Approximate Distance from construction activity site	Photographs
11.	Hospital	South Belonia Corner	Approx. 15 meters	
12.	Health Center	Belonia	Approx. 5 meters	
13.	Water storage Tank	Vidyasagar Bazar	Approx. 1 meter	

VI. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. Introduction

60. Potential environmental impacts of the proposed infrastructure components are presented in this section. Mitigation measures to minimize/mitigate negative impacts, if any, are recommended along with the agency responsible for implementation. Monitoring actions to be conducted during the implementation phase is also recommended to reduce the impact.

61. Screening of potential environmental impacts are categorized into four categories considering subproject phases: location impacts and design impacts (pre-construction phase), construction phase impacts and operations and maintenance phase impacts.

(i) **Location impacts** include impacts associated with site selection and include loss of on-site biophysical array and encroachment either directly or indirectly on adjacent environments. It also includes impacts on people who will lose their livelihood or any other structures by the development of that site.
(ii) **Design impacts** include impacts arising from Investment Program design, including technology used, scale of operation/throughout, waste production, discharge specifications, pollution sources and ancillary services.
(iii) **Pre-construction impacts** include impacts which are anticipated during construction works but planning is required for proposed mitigation measures before start of construction works such as taking consents from various departments, planning for construction and workers camps, deployment of safety officer, arrangement of required barricades and caution boards etc.
(iv) **Construction impacts** include impacts caused by site clearing, earthworks, machinery, vehicles and workers. Construction site impacts include erosion, dust, noise, traffic congestion and waste production.
(v) **O&M impacts** include impacts arising from the operation and maintenance activities of the infrastructure facility. These include routine management of operational waste streams, and occupational health and safety issues.

62. Screening of environmental impacts has been based on the impact magnitude (negligible/moderate/severe - in the order of increasing degree) and impact duration (temporary/permanent).

63. This section of the IEE reviews possible project-related impacts, in order to identify issues requiring further attention and screen out issues of no relevance. ADB SPS (2009) require that impacts and risks will be analysed during pre-construction, construction, and operational stages in the context of the project's area of influence. The ADB Rapid Environmental Assessment Checklist (**Appendix 1)** has been used to screen the project for environmental impacts and to determine the scope of the IEE.

64. In the case of this project (i) most of the individual elements involve straightforward construction and operation, so impacts are mainly localized and not greatly significant; (ii) most of the predicted impacts are associated with the civil construction process, and are produced because that process is invasive, involving excavation and earth, material movements, disposal of drainage silt/sludge/garbage and (iii) being mostly located in an urban area, will not cause direct impact on biodiversity values. The project has been in properties held by the local government and access to the project location is through public rights-of-way and existing roads hence, land acquisition and encroachment on private property will not occur.

B. Design and Location Impacts

65. **Integration of EMP in bidding documents and contracts**. Lack of awareness by contractors on ADB SPS requirements may result in insufficient budget and non-implementation of EMP.

66. To ensure that EMP will be provided with sufficient budget and implemented:

(i) Once the Contractor is selected, the PIU with support from PMSC will inform contractors on their responsibilities in EMP implementation, in compliance with ADB and government requirements, self -monitoring and reporting procedures.

(ii) The PMU will incorporate the costs of implementing OHS and the EMP as well as specific provisions requiring contractors to comply with all other conditions required by ADB into the bidding and contract document.

67. **Updating of IEE**. The PMU shall update the IEE in case of change in design/ location during design verification prior to start of construction. and during construction, if needed and submit the same for review and clearance of ADB.

68. **Design of the Proposed Components.** The proposed design for the subproject includes construction of roads and drains. The subproject road involves construction of trenches for drainage lines, water supply lines, and electricity and telecommunication cables. The IRC: 98-1997, Guidelines on accommodation of utility services on roads in urban areas is followed. Various design features that will improve the existing condition of the roads are as follows:

- ✓ Storm water drain is provided at the extreme edge of the right of way;
- ✓ Water supply lines carrying water at high pressure may cause damage to the road pavement, so they are provided on one side of the road;
- ✓ There is safe distance between water supply line and drainage line to avoid any intermixing in case of any leakage or pipe burst.
- ✓ Footpaths are provided cater the needs of elderly and persons with disability.
- ✓ The cables are away from tree line to avoid possible entrapment of the cable by tree roots.
- ✓ For road and drainage work at Melaghar and Udaipur near protected wetland and ASI sites mitigation measures will be applied to minimize all impacts on those protected areas

69. **Utilities.** Telephone lines and wires within the proximity to proposed subproject locations may require to be shifted in few cases, exact number of utilities require shifting it will be confirmed after confirmatory survey by contractor. To mitigate the adverse impacts due to relocation of the utilities, contractor will (i) identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase; (ii) provide prior notice (at least one week in advance) to affected areas and (iii) require construction contractors to prepare and implement a contingency plan to include actions to be done in case of unintentional interruption of services. Survey along road and drains in different towns have been carried out. Following Table show the impacted utilities and tree felling requirement in 5 towns. Further confirmatory survey will be carried out by concerned contractor before finalization of list of utilities which required shifting and trees to be felled. Chainage wise strip plan is attached as **Appendix 6.**

Table 36: Summary of utility with proximity to proposed project components

Sr No	Total Impacted/ Shifting Required in no.							Tree felling requirement*
	Electric post	Telephone post	Light post	Transformer	Tube well/ water tap/ Valve	Optical Fiber Cable	Traffic Signal	
Udaipur Roads								
	11	0	0	0	0	0	0	3
Udaipur Drains								

Sr No	Total Impacted/ Shifting Required in no.							Tree felling requirement*
	Electric post	Telephone post	Light post	Transformer	Tube well/ water tap/ Valve	Optical Fiber Cable	Traffic Signal	
	37	8	0	0	3	0	0	19
Amarpur Roads								
	13	0	1	1	1	0	0	9
Amarpur Drains								
	21	2	2	0	1	0	0	11
Bishramganj Roads								
	26	2	0	2	0	0	0	28
Bishramganj Drains								
	33	2	0	0	1	0	0	16
Melaghar Roads								
	42	0	0	0	0	0	0	1
Melaghar Drains								
	54	10	1	0	0	0	1	11
Belonia Roads								
	24	1	0	0	0	0	0	9
Belonia Drains								
	21	2	0	0	1	0	0	2
Total	**282**	**27**	**4**	**3**	**7**	**0**	**1**	**109**
*Local tree species commonly used for avenue plantation like *Ficus benghalensis, Areca catechu, Artocarpus heterophyllus, Holoptelea integrifolia, Cerbera odollam, Sterculia urens, Tectona grandis, Gmelina arborea, Syzygium cumini, Opuntia ficus-indica, Morinda tinctoria, Ziziphus mauritiana, Magnifera Indica, Syzygium branderhorstii, Elaeocarpus serratus, Syzygium cumini, Shorea robusta, Bombax ceiba, Albizia lebbeck, Azadirachta indica, Shorea robusta, Holoptelea integrifolia, Caryota urens, Emblica officinalis, Tamarindus indica, Phoenix dactylifera, Acacia auriculiformis, Delonix regia, Aegle marmelos, Zizyphus xylopara, Averrhoa carambola, Anogeissus pendula, Neolamarckia cadamba etc. may require felling*								

70. **Social and Cultural Resources – Chance Finds.** Any work involving ground disturbance can uncover and damage archaeological and historical remains. For this project, excavation will occur in project sites for construction of roads and drains. PIU and the contractor will follow chance find protocol to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved:

(i) Create awareness among the workers, supervisors and engineers about the chance finds during excavation work
(ii) Stop work immediately to allow further investigation if any finds are suspected;
(iii) Inform Archaeological Department if a find is suspected, and taking any action they require to ensure its removal or protection in situ.

71. **Works near common properties, physical cultural resources other religious, and cultural places**. Damage to private and common properties (such as temples, religious trees, boundary walls, houses). Construction works may also disturb / inconvenience community and

visitors. Measures are required to minimize the impact. Following measures shall be implemented: -

(i) Prior to commencement of construction, consult with concerned religious authorities of these temples, nearby people and devotees and explain the work method and duration of proposed works, take their suggestions and comments in scheduling and conducting the works
(ii) Do not use equipment that generate heavy noise, ground vibration, dust etc., (such as pneumatic drills, dozers etc., within 50 m of these structures
(iii) Put in place proper dust and noise control measures
(iv) Adjacent to religious/social buildings, undertake excavation and construction work in such a way that no structural damage is caused to the structures
(v) Observe the local rituals and important dates of festivals, weekly/monthly/annual religious occasions in the religious places and do not make any disturbance/hindrance/obstacles during such time to the religious places
(vi) Cutting of any religious trees may be avoided, if possible, change alignment to protect old and religious trees.
(vii) Provide proper signage, barricades etc. to protect public and devotees from dangers of construction works.
(viii) Ensure proper traffic management planning to minimize the disruption to the normal traffic flow in the area and ensure the safety of the people.
(ix) Clear the work site of unnecessary material, equipment and debris / surplus soil; do not stock material / soil at the sites
(x) Conduct continuous consultations with the local people during the works.

72. **Project locations close to protected monuments in Udaipur and close to Rudrasagar Ramsar Wetland in Melaghar.** These protected areas are located within the urban areas of Udaipur and Melaghar, are surrounded by residential areas. Both the ASI monuments (temples) are in the eastern part of the Udaipur town, within urban area. There are no components located in or close to these places. Except part of road and drains to serve the residential areas around these sites and also visitors to these monuments. The proposed drains will also help in improvement of annual flood situation faced by Chaturdash temple. Nearest road and drain to the outer boundary of Gunavati temple (ASI monument) is 430 m, and to Chaturdash devta temple (ASI monument) is 70 m. In Melaghar, the nearest drain is 527 m and road is 446m from the boundary of the Rudrasagar wetland. Proposed roads and will be constructed within the existing ROW. No negative impacts envisaged due to location of these roads and drains. There may be temporary impacts during construction, however given small scale works and that sensitive areas and sites are separated by existing houses, the impacts are likely to be not significant. The general construction measures to control noise, dust, contaminated / silt laden runoff, minimizing inconvenience to visitors etc., will be required.

73. The plan to improve stormwater drainage from Melaghar town to the Gomati river is a significant step towards improving water quality and reducing pollution levels in Rudrasagr lake. It will improve the water quality in Rudrasagar lake, making it safer for aquatic life and recreational activities. Secondly, it will reduce the risk of flooding in the surrounding areas during heavy rainfall events.

- During the pre -construction, PIU to consult ASI (in Udaipur / Agartala) with exact distance of road and drain works within 300 m of the monuments, and include any feedback or measures as suggested by ASI in into construction methodology; obtain prior ASI permission for construction if required

- Prior to commencement of construction, consult with concerned religious authorities of these temples, nearby people and devotees and explain the work method and duration of proposed works, take their suggestions and comments in scheduling and conducting the works
- Prevent dust, noise, accumulated of water, and contaminated surface runoff from the work sites; take necessary measures as needed (these are presented in construction phase impacts-measures)
- No construction camps (workers accommodation, material / waste / soil storage) should be established within 500 m of the monuments in Udaipur
- No construction camps (workers accommodation, material / waste / soil storage) should be established within 1000 m (1 km) from the boundary of Rudrasagar lake; camps should not be located close to drainage lines/streams that flow into Rudrasagar lake
- All project related site staff, construction workers and supervisors, shall be made aware of the sensitive sites, and prevent any harm or damage or disturbance to trees, vegetation, wildlife, birds etc.,
- Proper accommodation and facilities shall be provided within the camps, and workers shall not use the lake or surroundings for open defecation, bathing, or fishing / hunting, collecting firewood etc. Contractor should put in place, a proper system to monitor the staff and workers to prevent damage/ disturbance.
- Do not use equipment that generate heavy noise, ground vibration, dust etc., (such as pneumatic drills, dozers etc, within 100 m of temples, or within 500 m of Rudrasagar lake
- Schedule works during dry season to avoid contaminated runoff from the work sites entering lake; clear the sites of materials, debris, and consolidated the refilled trenches prior to onset of monsoon
- Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;
- Place storage areas for fuels and lubricants away from any drainage leading to water bodies;
- Store fuel, construction chemicals etc., on an impervious floor, also avoid spillage by careful handling
- Dispose any wastes generated by construction activities in designated sites; and
- Conduct surface quality inspection according to the environmental management plan (EMP).
- Conduct continuous consultations with the local people during the works

74. **Impacts on local surface drainage:** Project towns face problems of water logging after heavy rains across the towns, but mainly in the low-lying areas. Improvement of roads will raise the level, and may act as barrier for free movement of surface runoff, leading to water logging. Surface improvement of roads will also increase the runoff volume. This may impact the overall drainage system, if road improvements are not combined with appropriate improvements in drainage system. Under this subproject, improvement of roads is being undertaken along with provision of side lateral drains, and cross drainage structures like culverts where required to collect and convey surface runoff. Therefore, no adverse impacts envisaged on the local drainage due to the proposed subproject. Subproject also includes construction / improvement of existing drains in various places to collect and convey runoff into nearby streams / *charras* /rivers to mitigate the problem of water logging.

75. **Water pollution due to discharge of wastewater into drains.** At present there is no sewerage system in the subproject towns, and households mainly depend on septic tanks for disposal of sewage, and sullage (from kitchen and bath) is discharged into open drains, local streams or on to vacant lands. In some cases, outflow of septic tanks is also connected to open drains. Improvement of drains under the subproject will facilitate the surface drains, however, at the same time, it will also collect and discharge the wastewater that is discharged into drains from the town areas into streams and rivers through outfalls. Discharge of untreated wastewater, especially during the dry season, will degrade the receiving water bodies, impacting both the uses and aquatic life. To mitigate this, Government of Tripura, has proposed to develop an interception, diversion and treatment system under the AMRUT/ similar govt. scheme. This subproject also included faecal sludge management system, under which septage from septic tanks will be collected, conveyed to a treatment facility for treatment and disposal.

76. The proposal under the AMRUT/ other govt. scheme include interception of major drains in the core town areas, and the collection and conveyance of the intercepted wastewater to sewage treatment plant (STP) for treatment and disposal or reuse. Fecal sludge management system includes mobile tankers for collection of septage from septic tanks, and conveyance to STP for treatment and disposal. This project is presently under tendering stage and will be completed in about 2 – 3 years.

77. In Bishramganj panchayat area, no as such treatment of sewerage and nalla wastewater planned at this stage. But in future same strategy will be applied for wastewater treatment for Bishramganj.

78. **Site selection of construction work camps, stockpile areas, storage areas, and disposal areas**. Priority is to locate these near the subproject location. However, if it is deemed necessary to locate elsewhere, sites to be considered will not promote instability and result in destruction of property, vegetation and drinking water supply systems. Thickly populated residential areas shall not be considered for setting up camps to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust, and noise, and to prevent social conflicts, shortages of amenities, and crime). Extreme care needs to be taken to prevent disposals near water bodies or in areas which are inconvenience the community.

79. **Site selection for equipment lay-down and storage area**. Improper selection will affect local environment and inconvenience to public. Possible mitigation measures are:

(i) Choice of location for equipment lay-down and storage areas must consider distances to adjacent land uses, general onsite topography, and water erosion potential of the soil. Impervious surfaces must be provided where necessary.
(ii) Storage areas shall be secure to minimize the risk of crime. They shall also be safe from access by children or animals etc.
(iii) Residents living adjacent to the construction site must be notified of the existence of the hazardous storage area.
(iv) Equipment lay-down and storage areas must be designated, demarcated, and fenced if necessary.
(v) No storage area is permitted near ASI and Ramsar protected sites.
(vi) Fire prevention facilities must be present at all storage areas.
(vii) Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used must be provided to prevent the migration of spillage into the ground and groundwater regime around the temporary storage areas.

(viii) These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of storm water from surrounding areas in order to ensure that accidental spillage does not pollute local soil or water resources.
(ix) Fuel tanks must meet relevant specifications and be elevated so that leaks may be easily detected.
(x) Staff dealing with these materials or substances must be aware of their potential impacts and follow the appropriate safety measures.

80. **Site selection of sources of materials.** The material used for the construction of subproject components are mainly sand, coarse aggregate fine aggregate and gravel for construction works. Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.

81. The natural raw materials like sand, gravel and soil shall be procured/ sourced from the authorized mines listed by Tripura Government as specified in the website http://trpenvis.nic.in/test/natural_resources.html.

82. Aggregates will be collected from Churaibari at North Tripura district, near Assam boarder**.** Sand will be collected from local river Gamoti, Ranagapania and Muhuri and local approved vendors. Contractor will verify all sources for legal compliances and will obtain prior approval of PIU for sourcing materials from any source.

83. Water for construction purpose is available from nearby river, canal, within and nearby the town. In case of use of ground water, NOC needs to be obtained from concerned authority.

84. **Mitigation Measures.** Contractor should procure these materials only from the quarries permitted/ licensed by Mines and Geology Department, Government of Tripura;

- ✓ Contractor should, to the maximum extent possible, procure material from existing authorized quarries;
- ✓ The contractor shall try to procure/ source the material from the nearest possible authorized mines.
- ✓ It will be the construction contractor's responsibility to verify the suitability of all material sources and to obtain the approval of Department of Mines & Geology and local revenue administration
- ✓ Contractor should submit the details of sources and copies of approvals, permissions to Udaipur MC, Amarpur NP, Bishramganj village panchayat, Melaghar MC and Belonia MC should start procurement only after the respective source is approved by Udaipur MC, Amarpur NP, Bishramganj village panchayat, Melaghar MC and Belonia MC.
- ✓ The transportation of raw material should be done in covered vehicles.

85. **Tree cutting.** Felling of trees require a tree cutting permit from the local forest department. All trees cut under a project must be compensated by compensatory afforestation as required by the State Forest Department. Road and drain wise tree felling requirement surveyed for 4 towns and one village panchyat. Details chainage wise information is attached in **Appendix 6** under strip plan and summary is given in **Table 33**. About 109 trees of Local tree species commonly used for avenue plantation like *Ficus benghalensis, Areca catechu, Artocarpus heterophyllus, Holoptelea integrifolia, Cerbera odollam, Sterculia urens, Tectona grandis, Gmelina arborea, Syzygium cumini, Opuntia ficus-indica, Morinda tinctoria, Ziziphus mauritiana, Magnifera Indica, Syzygium branderhorstii, Elaeocarpus serratus, Syzygium cumini, Shorea robusta, Bombax*

ceiba, Albizia lebbeck, Azadirachta indica, Shorea robusta, Holoptelea integrifolia, Caryota urens, Emblica officinalis, Tamarindus indica, Phoenix dactylifera, Acacia auriculiformis, Delonix regia, Aegle marmelos, Zizyphus xylopara, Averrhoa carambola, Anogeissus pendula, Neolamarckia cadamba etc. likely to be felled for construction of road and rehabilitation of drain. List will be finalized after confirmatory survey by contractor. Girth wise tree species, which likely to be impacted is also shown in **Appendix 6.**

86. Mitigation includes:

(i) Minimize tree cutting as much as possible during joint verification with the contractor; where possible, amend the alignment of drains locally to avoid tree cutting.

(ii) As per compensatory afforestation requirement, the tree plantation will be done five times of tree cutting (1:5 of tree cutting).

(iii) No trees shall be removed for setting up construction facilities / ancillary sites.

87. **Maintaining Core Labor Standard.** The Contractor and PMU/PIU are responsible for ensuring that international CLS[12] as reflected in national labor laws and regulations are adhered to. PIU is ultimately responsible for monitoring compliance with national labor laws and regulations, provided that these national laws are consistent with CLS. ADB will carry out due diligence – during loan review missions - to ensure that executing and implementing agencies and contractors comply with applicable (national) core labor standards and labor laws. PMU or PIU will ensure that bidding and contract documents include specific provisions requiring contractors to comply with all: (i) applicable labor laws and core labor standards on: (a) prohibition of child labor as defined in national legislation for construction and maintenance activities; (b) equal pay for equal work of equal value regardless of gender, ethnicity or caste; and (c) elimination of forced labor; and (ii) the requirement to disseminate information on sexually transmitted diseases including HIV/AIDS to employees and local communities surrounding the project sites. These will be monitored as part of the project's safeguards reporting requirements.

88. **Debris and Silt disposal.** The provision has been made in cost estimate to use the roadway excavated materials as necessary for the construction of road, which are as follows:

- ✓ For all types of soil, such as ordinary rock, hard rock and
- ✓ Excavation from drain and foundation of other structures.

89. As per above description, the Contractor will use the excavated roadside material for construction of road. The rest unsuitable material will be disposed suitably. The lead and lift have been considered in cost estimates. Proper disposal plan will be prepared by the Contractor to dispose the unsuitable material generated from road excavation.

90. **Drinking water quality.** Drinking water supply for workers will be likely sourced from Department of water supply (DWS) provided sources. Groundwater in project towns has high iron levels.

91. To avoid any health risks from the drinking water supply:

(i) Contractor will ensure that drinking water supply in compliance with the Indian National drinking water quality standards

(ii) The Contractor will undertake water quality testing via accredited laboratory to confirm quality in compliance with the standards. If the groundwater quality does not comply with

[12] Core Labor Standards (CLSs) are a set of four internationally recognized basic rights and principles at work: (i) freedom of association and the right to collective bargaining; (ii) elimination of all forms of forced or compulsory labor; (iii) effective abolition of child labor; and (iv) elimination of discrimination in respect of employment and occupation.

the standards, the contractor will source potable water from an alternative source or provide a potable onsite treatment facility with own costs and after approval from PIU/PMU

92. **EMP Implementation Training.** If the contractors and construction supervision engineers are not aware about the requirements of this EMP, the project may not proceed and comply with ADB and GoI and GoT environmental policies.

93. The PMU, PIU and contractors will be required to undergo training on EMP implementation. Methodology of capacity and training activities are discussed in next sections. The capacity building program will be participatory to the extent possible to make it more effective, with learning by doing, role playing, group exercises, on-the job training, etc. Pre- and post-training assessment will be conducted to measure the effectiveness of the program. Special training will be arranged before construction work nearby the ASI and Ramsar wetland protected area.

94. **Preparation of H&S Plan for Pandemic like COVID- 19.** With the existing EHS guidelines contracture has to prepare a site specific EHS plan including COVID -19 guidelines based on following principles and it get approved from PMU before staring of construction, the Contractor shall abide by the most stringent procedure available.

- ✓ Consistently practice social distancing.
- ✓ Cover coughs and sneezes.
- ✓ Maintain hand hygiene.
- ✓ Clean surfaces frequently.

95. **Community awareness on project activities and impacts.** Lack of community awareness on project activities may result in potential community health and safety concerns and complaints.

96. Before the start of project construction, a meaningful consultation with the affected communities will be conducted. This meaningful consultation will aim to engage community stakeholders, listen to their views, and try to come to a common understanding about the need for an improved drainage system and the sacrifices that need to be made to achieve it. To aid in the consultation process, it is important that the community should be made aware of the details of project activities. Important information to be disseminated to the people are, among others, the following:

- Overview and objectives of the proposed project;
- Preliminary and/or final detailed design of proposed project components;
- Potential environmental and social impacts (positive and negative) of the project, and the proposed mitigation measures for the perceived negative impacts; and
- Grievance redress mechanism and contact details of the project.

C. Construction Impacts

97. **Construction Planning**. Inadequate planning could lead to non-implementation of EMP during the construction phase and result in significant environmental impacts leading to non-compliance with ADB's environmental safeguard requirements.

98. To ensure that EMP will be implemented during the construction phase, the contractor should, prior to start of construction activities:

(i) Designate an Environmental Health and Safety Officer (EHSO).
(ii) Conduct training on the rationale for and implementation of the SEMP and EMP to

enhance general understanding and clarify responsibilities regarding implementation, including monitoring and reporting, must also be provided to relevant staff of contractors (including EHS Officer)

(iii) The Contractor will be required to submit to PMU, for review and approval, a SEMP including (a) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes, (b) specific mitigation measures following the approved EMP; (c) monitoring program as per EMP; and (d) budget for SEMP implementation. No works can commence prior to approval of SEMP. The SEMP shall include, but not limited to the following:
   (a) Traffic management plan;
   (b) Construction health and safety plan (including COVID-19 H&S guidance);
   (c) Construction waste and debris management Plan

99. **Excavation, soil erosion and sediment mobilization.** Excavation during construction will generate loose soil which can be carried through surface run-off during a rainfall.

100. The Contractor shall implement the measures at all times to control soil erosion that shall include, but not be limited to the followings:

(i) The Contractor shall plan his works to minimize surface excavation works during the rainy season where practicable.

(ii) Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms shall be developed by the Contractor.

(iii) The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered.

(iv) Channels, earth bunds, netting, tarpaulin and or sandbag barriers shall be used on site to manage surface water runoff and minimize erosion.

(v) The overall slope of the works areas and construction yards shall be kept to a minimum to reduce the erosive potential of surface water flows.

(vi) Monitor groundwater quality that could exist close to the working areas to ensure compliance.

101. **Sources of Materials**. Since the construction work is not heavy, moderate amount of sand and coarse aggregate will be required for this sub-project. Quarries inevitably cause few physical changes; as construction materials are excavated from the ground, leaving large cavities, or levelling hillsides, etc. The physical damage caused by quarries is controlled by allowing them to operate within specific limited areas only, so the damage is restricted in extent and not allowed to spread indiscriminately. Contractor should avoid new borrow pits/quarries as far as possible, if necessary, all the permissions, including conduct of environmental assessment, and environmental clearance as necessary shall be obtained prior to start of quarrying activity. The contractor should also make a concerted effort to re-use as much excavated material from this sub-project as possible. The construction contractor will be required to:

- ✓ Obtain construction materials only from government approved quarries with prior approval of Cluster-PIU;
- ✓ Cluster-PIU to review, and ensure that proposed quarry sources have all necessary clearances/ permissions in place prior to approval;
- ✓ Contractor to submit to Cluster-PIU on a monthly basis documentation on material obtained from each source (quarry/ borrow pit);
- ✓ Avoid creation of new borrow areas, quarries etc., for the project; if unavoidable, contractor to obtain all clearances and permissions as required under law, including Environmental Clearance prior to approval by Cluster- PIU.

102. **Impact on Air Quality**. There will be two main sources of air emissions, i.e., mobile sources and fixed sources during construction phase. Mobile sources are mostly associated with vehicles involved in construction activities. On the other hand, air pollution from fixed sources is mainly from generator sets, bitumen/concrete mixing plants, other construction equipment (e.g., compressors) and excavation/ grading activities.

103. Dust and gaseous emissions will be generated by the construction machinery. Pollutants of primary concern include particulate matter. However, suspended dust particles are coarse and settle within a short distance of the construction area. Therefore, the impact will be direct but temporary, and will be restricted to areas in close vicinity of the construction activities only.

104. Construction work also involves breaking up, digging, transporting, and dumping large quantities of dry material. The particulate matter from these can cause health impacts, i.e., respiratory problems, irritation in eyes and reduction in visibility.

105. In the conduct of construction activities and the operation of equipment, contractors shall utilize all practical methods to control, prevent and otherwise minimize atmospheric emissions, specifically:

(i) Take every precaution to reduce the levels of dust at construction sites
(ii) Fit all heavy equipment and machinery with air pollution control devices that are operating correctly.
(iii) Asphalt / bitumen, and concrete mixing plants should be operated within the permissible emission standards, and should be located away from settlements (up wind)
(iv) Vehicles travelling to and from the construction site must adhere to speed limits to avoid producing excessive dust.
(v) Reduce dust by spraying stockpiled soil, excavated materials, and spoils.
(vi) Cover with tarpaulin vehicles transporting soil and sand.
(vii) Cover stockpiled construction materials with tarpaulin or plastic sheets.
(viii) Heavy equipment and transport vehicles shall move only in designated areas and roads.
(ix) Water spraying to access roads, camp sites and work sites to reduce dust emissions.
(x) Machines and vehicles must be regularly examined and maintained to comply with requirements of technical specifications.
(xi) All vehicles, equipment, and machinery used for construction will be regularly maintained to ensure that pollution emission levels comply with the relevant standards. Copies of conformance will be submitted regularly to the PIU.
(xii) Repair and maintain access roads, as necessary.
(xiii) Monitor air quality according to the environmental monitoring plan.
(xiv) Clean wheels and undercarriage of vehicles prior to leaving construction site;
(xv) Prohibit burning firewood in work and labor camps (promote liquified petroleum gas for cooking purposes and electric heater for heating purposes);
(xvi) Use vehicles that have government-issued permits and registrations; and
(xvii) Prohibit open burning of solid waste.

106. **Noise and Vibration Levels**. Proposed road and drain are in urban/ semi urban areas where there are houses, religious places, noise sensitive area (academic institutions, religious places, court and hospital) and businesses. The sensitive receptors are the general population in these areas. Increase in noise level may be caused by excavation, particularly breaking of cement

concrete or bitumen roads for drain and road construction works, operation of construction equipment like asphalt, concrete mixers, and the transportation of equipment, materials, and people. Vibration generated from construction activity may have impact on nearby buildings. This impact is negative but short-term, and reversible by mitigation measures. The construction contractor will be required to:

- Plan activities in consultation with Cluster-PIU so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance;
- Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and use portable street barriers to minimize sound impact to surrounding sensitive receptor;
- Construction work shall be limited to day light hours (8 AM to 6 PM) for all the works located within the town
- Adapt low noise producing work methods, and provide additional noise control measures (such as temporary barriers / enclosures) near sensitive receptors as mentioned above;
- Near school, Anganwadi, religious places and health center work need to be completed in shorter period. Noise generation should be restricted near the above sensitive receptors. Work should be carried out during day time only and non-school hours.
- Noise level should be controlled and below the standard near ASI protected areas and no construction will be allowed at night near the protected areas.
- Noise level not exceeding 80 decibels (dBA) when measured at a distance of 10 m or more from the vehicle/s;
- Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach; and
- Consult local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious and cultural festivals.

107. **Surface water pollution.** Silt-laden run-off from stockpiled materials, solid wastes and domestic wastewater from the construction camp, and leaks from chemical storage areas and machineries may contaminate or result in water pollution if disposed or discharged to nearby receiving bodies of water. Untreated sewage from the worker camps, construction facilities etc., could enter surface water if not properly, treated and disposed. Periods of high rainfall could lead to the overflow of the septic tanks and overland flow. Raw sewage can potentially impact surface water quality by promoting the growth of algae and delivering pathogens may be harmful to human and ecological receptors. Solvents and vehicle maintenance fluid (oil, coolant) and diesel fuel may contaminate surface and groundwater if these are disposed of directly into the ground or washed into the streams. Human waste from construction workers may also contaminate surface water and groundwater if there are no adequate sanitary facilities. The proposed works invariably include cleaning and desilting of drains. In the existing situation, drains are carrying wastewater, and indiscriminate disposal of solid waste into drains is also prevalent. The drains have been chocked and water accumulated at many stretches of drain. The proposed works therefore include dewatering of drains by pumping out of accumulated wastewater, and desilting.

108. To mitigate these impacts, the contractor will be required to:

(i) Disposal of drain sludge/silt in solid waste disposal sites with prior permission from municipal council and/or TSPCB

(ii) Provision of temporary sedimentation canal along construction areas, particularly alignments that are adjacent to receiving bodies of water or canals.

(iii) Works of culvert construction shall be planned in lean or dry / lean flow season only
(iv) establish safety procedures against flash floods and other hazards associated with working in or near water during the construction of culverts on rivers
(v) The measures to address soil erosion at the proposed facilities will consist of measures as per design, or as directed by the construction supervision consultant/PIU to control soil erosion, sedimentation, and water pollution. All temporary sedimentation, pollution control works, and maintenance thereof will be deemed incidental to the earthwork or other items of work.
(vi) All temporary discharge points shall be located, designed, and constructed in a manner that will minimize erosion in the receiving channels.
(vii) Ensure proper compaction of refilled soil and there shall not be any loose soil particles on the top; the material shall be refilled in layers and compacted properly layer by layer.
(viii) Use surplus soil for beneficial purposes such as in any other construction activities, or to raise the level of low-lying areas.
(ix) Avoid scheduling of excavation work during the monsoon season. Earthworks during dry season.
(x) Confine construction area including the material storage (sand and aggregate) so that runoff will not enter the site.
(xi) Ensure that drains are not blocked with excavated soil
(xii) Stockyards, storage of fuel and lubricants at least 50 meters (m) away from watercourses.
(xiii) Fuel and other petroleum products stored at storage areas away from water drainage and protected by impermeable lining and bunded 110%.
(xiv) Daily control of machinery and vehicles for leakages
(xv) No obstruction in flowing water.
(xvi) For effluents from workplace, camps, and offices, provide treatment arrangements such as retention ponds and septic tanks which should be incorporated in the facility designs. A sewage management plan must be prepared by the contractor and agreed with the PMSC.
(xvii) Monitor water quality according to the environmental monitoring plan.

109. For management and final disposal of solid wastes following mitigation, contractor will be required to apply the follow-up measures such as:

(i) collection of recyclable solid wastes and supply to scrap vendors;
(ii) ensure all the camp wastes and construction wastes are placed in the designated waste collection pits away from receiving water;
(iii) establishment of separate bunded and lined areas with 110% volume for the storage of all the toxic material wastes, including batteries, oil filters, mobile, burnt oils, etc. at the construction site; and
(iv) consultation with PIU on the proper disposal of all residual wastes.

110. **Construction Activity Near Rudrasagar Lake at Melaghar town.** In Melaghar, the nearest proposed road is about 446 m from the boundary of the Rudrasagar wetland, whereas nearest proposed drain is about 527 m from Rudrasagar lake. In case of road only rehabilitation and strengthening are proposed, similarly for drain only improvement of existing stormwater drain is planned under the project. All the work area is already developed urban area with houses. Potential impacts are due to soil erosion, water pollution, noise, and dust pollution. Worker's camp should not be located near protected wetland, no storage of construction materials and equipment

storage near wetland, hauling activity during day time only & construction only during dry season, and education about protecting the wetland should be provided. Ultimately, it is important to ensure that the construction is carried out in an environmentally responsible manner to minimize the impact on the ecosystem. The contractor will be required to:

- Prepare SEMP before starting any work
- No construction camps (workers accommodation, material / waste / soil storage) should be established within 1000 m (1 km) from the boundary of Rudrasagar lake; camps should not be located close to drainage lines/streams that flow into Rudrasagar lake
- Movement of workers and staff should be confined to work site, and not be allowed in wetland area which may disturb the sensitive area; ensure via strict supervision no poaching, fishing, cutting / damaging trees/vegetation or wildlife, birds etc.,
- All project related site staff, construction workers and supervisors, shall be made aware of the sensitive sites, and prevent any harm or damage or disturbance to trees, vegetation, wildlife, birds etc.,
- Proper accommodation and facilities shall be provided within the camps (at least 1 km away from the wetland), and workers shall not use the lake or surroundings for open defecation, bathing, or fishing / hunting, collecting firewood etc. Contractor should put in place, a proper system to monitor the staff and workers to prevent damage/ disturbance.
- Schedule works during dry season to avoid contaminated runoff from the work sites entering lake; clear the sites of materials, debris, and consolidated the refilled trenches prior to onset of monsoon
- Implement sediment and erosion control measures to prevent soil erosion and sedimentation in the wetland. Prevent entry of silt-laden / contaminated runoff into wetland or drains leading to wetland from the construction sites or construction camps. Appropriate measures such as sedimentation ponds, and filtration systems should be installed to prevent sediment and other pollutants from entering the water supply. Soil stabilization measures should also be taken to prevent soil erosion during construction, Construction near wetland to be planned in dry seasons only.
- Place storage areas for fuels and lubricants away from any drainage leading to water bodies;
- Store fuel, construction chemicals etc., on an impervious floor, also avoid spillage by careful handling
- Do not use equipment that generate heavy noise, ground vibration, dust etc., (such as pneumatic drills, dozers etc.), within 500 m of Rudrasagar lake. Adapt manual excavation as far as possible
- Construction sites often generate significant amounts of dust that can impact nearby habitats. Dust suppression measures, such as watering down exposed soil, can help to reduce dust levels.
- Dispose any wastes generated by construction activities in designated sites; and
- Monitor the project closely throughout construction to ensure that all mitigation measures are being implemented effectively and that any issues are identified and addressed promptly.
- Conduct surface quality inspection according to the environmental management plan (EMP).
- Conduct continuous consultations with the local people during the works

111. **Groundwater Quality.** Another physical impact that is often associated with excavation is the effect on drainage and the local water table if groundwater and surface water collect in the voids. In the sub-project area, groundwater depth is shallow, there are few water bodies and ponds, and it also receives high rainfall during the monsoon. Conducting excavation works during non-monsoon season will certainly help, but due to high water table, water may collect in pits as they are excavated. The water collected in excavated pits will contain silt and disposal of this in drainage channels lead to silting. To avoid this the contractor needs to be implement the following measures:

- ✓ Create a temporary drainage channel around the work area to arrest the entry of runoff from upper areas into the work area
- ✓ Pump out the water collected in the pits / excavations to a temporary sedimentation pond; dispose of only clarified water into drainage channels/streams after sedimentation in the temporary ponds
- ✓ Consider safety aspects related to pit collapse due to accumulation of water

112. It is necessary that arrangement for safe drinking water is made prior to start of work. Water will be supplied for consumption only after adequate analysis and requisite treatment. The workers may also be trained on the need for judicious use of freshwater resources. The contractors will use water in consideration to its value as a resource. All tube wells, test holes, monitoring wells that are no longer in use or needed shall be properly decommissioned.

113. **Generation of Construction Wastes.** Solid wastes to be generated from the construction activities are excess excavated earth (spoils) during road and side drain construction, drain silt/ sludge, discarded construction materials, cement bags, wood, steel, oils, fuels and other similar items. Domestic solid wastes may also be generated from the workers' camp. Improper waste management could cause odor and vermin problems, pollution and flow obstruction of nearby watercourses and could negatively impact the landscape. The following mitigation measures to minimize impacts from waste generation shall be implemented by the contractor:

- ✓ Prepare and implement a Construction Waste Management Plan;
- ✓ As far as possible utilize the debris and excess soil in construction purpose,
- ✓ Avoid stockpiling any excess spoils at the site for long time. Excess excavated soils should be disposed at approved designated areas immediately;
- ✓ If disposal is required, the site shall be selected preferably from barren, infertile lands; site should be located away from residential areas, few water bodies and any other sensitive land uses;
- ✓ No disposal of construction wastes on protected wetland and ASI protected sites
- ✓ Domestic solid wastes should be properly segregated in biodegradable and non-biodegradable for collection and disposal to designated solid waste disposal site; create a compost pit at workers' camp sites for disposal of biodegradable waste; non-biodegradable / recyclable material shall be collected separately and sold in the local recycling material market;
- ✓ Residual and hazardous wastes such as oils, fuels, and lubricants shall be disposed of in disposal sites approved by TSPCB;
- ✓ Prohibit burning of construction and/or domestic waste;
- ✓ Ensure that wastes are not haphazardly thrown in and around the project site, provide proper collection bins, and create awareness to use the dust bins;
- ✓ Conduct site clearance and restoration to original condition after the completion of construction work; Cluster-PIU to ensure that site is properly restored prior to issuing of construction completion certificate.

114. Waste can be disposed at nearby landfill site. In all the cases NOC needs to be obtained from concerned authority.

115. **Disturbance to terrestrial flora and fauna**. The subproject area is a built-up area, hence, the impacts to flora and fauna will be insignificant. For trees found at the site, the design will ensure that these trees will not be cut, or if tree cutting is necessary, mitigation measure should be strictly followed.

- Conduct final confirmatory tree cutting and bird nest survey before start of construction.
- No trees will be removed without prior approval of concerned government agency/foresee department.
- Restrict vegetation removal to within ROW / actual work site.
- Tree cutting is avoided to maximum possible, transplant trees, where feasible
- For any tree cut, conduct replacement planting at a ratio of 1(cut):5 (new planting)
- Before any tree cutting activity takes place, a thorough inspection of the tree must be conducted to check for any active bird nests. If an active nest is found, the tree cutting activity must be postponed until the young birds have flown off from their nests and are no longer dependent on them. This measure ensures that young birds are not harmed and that their habitats are protected.
- The contractor will not use or permit the use of wood as a fuel for the execution of any part of the works, including but not limited to the extent practicable shall ensure that fuels other than wood are used for cooking.
- Within RoWs, minimize land cover removals, and install protective physical barriers around trees.
- All ROW to be re-vegetated and landscaped after construction completed.
- Prior to tree cutting, placard/s shall be installed in conspicuous places to inform the public that the tree cutting is authorized
- Protect giant trees and locally important trees (for religious reasons), if any is identified at the site during implementation
- Prohibit employers and workers from poaching animals and cutting of trees for firewood in the vicinity of the site

116. **Impacts on aquatic ecology**. Some of the subproject alignments are near or adjacent to ponds, canals and rivers. The construction of the subproject may affect these ponds and rivers due to siltation and chemical spills, and improper waste disposal, and therefore may impact the quality of the water and any thriving aquatic species.

117. To mitigate this impact, contractor will be required to:

- Provide temporary protection at sections near the river/ponds to avoid sliding of soils;
- Store spoils away from the side of the river/pond;
- Implement proper storage/disposal of materials, chemicals, and waste
- Implement mitigation measures for excavation, soil erosion and sediment mobilization, surface water pollution, and construction waste generation.

118. **Drainage Congestion.** Construction material getting into surface runoff or uncontrolled disposal may cause drainage congestion. The impact of these on hydrology is expected to be more pronounced during post monsoon period with rapid movement of rainwater through existing drainage structures, which if blocked by construction waste and debris may cause flooding or waterlogging in neighbouring areas.

119. Wastes and construction debris will not be disposed in a manner that these would end up in drainage channels. The on-site storage of excessive quantities of unwanted spoil and aggregate materials should be avoided. Where storage is necessary, the Contractor shall ensure heaps and stockpiles are located at sites that they do not permit direct runoff into watercourses and are on land sloping at less than 1.5%. All heaps shall be of a size and stability that will ensure the risk of mass movement during period of heavy rainfall is minimized.

120. **Management Plan for Night works** (if required). Following requirements should be fulfilled for construction works at night hours-

- Night works should be avoided at construction sites specially in residential areas and should be performed only when day works are not possible due to excessive traffic/public/pedestrian movement, site of cultural or religious importance, where there is huge crowd during day hours or any other unavoidable circumstances;
- Contractor should plan for night works only after directions from PMU/PIU/project consultants
- Contractor should submit plan for night works for approval from PIU;
- PIU should ensure that prior written information should be given to local authorities such as district administration, Police/traffic police, line agencies concerned, resident's welfare association/business association/vyapar of the affected areas and their consents/permissions should be taken prior to start of night works;
- PIU/PMSC engineers should check and ensure that all the preparation as per management plan is done by contractor and contractor is having all the necessary equipment and materials for night works;
- Contractor is required to have following equipment/arrangements for night works;
- Contractors should have handheld noise level meter for measurement of noise during night hours;
- Contractors should have handheld lux meter for the measurement of illumination during night hours;
- Preferably electrical connections are available for running equipment otherwise sound proof/super silent Diesel Generator set should be available;
- Sound level should not increase as per following-

Type of area of work	Maximum noise level dB(A)
Industrial	70
Commercial	55
Residential	45
Silence zone	40

- Illumination should be as follows-

Minimum illumination	Areas to be illuminated	Type of work activity
54	Illumination throughout the work area	General work area lighting, and performance of visual tasks of large size, or medium contrast, or low require accuracy

Minimum illumination	Areas to be illuminated	Type of work activity
108	Illumination of work area and areas adjacent to equipment	Performance of visual tasks of medium size, or low to medium contrast, or medium required accuracy
216	Illumination of task	Performance of visual tasks of small size, or low contrast or high required accuracy or fine finish

- As far as possible ready-mix concrete from batching plant to be used, otherwise the concrete should be prepared away from residential areas and brought to the site;
- All the noise activity like hammering, cutting, crushing, running of heavy equipment should be done in day time and avoided in night time;
- Workers engaged in night works should have adequate rest/sleep in day time before start of night works;
- Worker engaged for night works should have previous experience of night works and should be physically fit for such works including clear vision in night;
- All the necessary provisions of traffic aids such as traffic signals, road signage, barricades, cautions boards, traffic diversion boards etc. should be available with fluorescent/retro-reflective arrangements;
- Workers should be trained before start of night works about risks and hazards of night works and their mitigation measures and should be provided all the protective aids (PPEs) including fluorescent/retro-reflective vests;
- Horns should not be permitted by equipment and vehicles;
- Workers should not shout and create noise;
- First aid and emergency vehicles should be available at site;
- Emergency preparedness plan should be operative during night works;
- Old persons and pregnant women and women having small kids should not work in night time;
- All the vehicles and equipment being used at night works should have adequate type of silencers/enclosures/mufflers to reduce noise;
- All the vehicles should be checked for working head lamps, tail lamps, inner lights etc. before start of night works;
- PIU/PMSC site engineers and contractor's safety personnel should closely monitor the safety of works continuously and noise and illumination levels on hourly basis and maintain photographic and video graphic records as well as register the observations;
- Night works should be stopped early in the morning at least one hour before start of pedestrian/traffic movement;
- After completion of night works all the site should be cleaned and maintained obstruction free for day time movement of vehicles and pedestrians;
- Drivers and workers should be alert and responsive during night works;
- All the wages to workers working in night hours should be as per the applicable labour acts;
- Avoid any nuisance which may create problems to nearby habitants and work peacefully during night hours; and
- Night works should not be conducted near hospitals and during peak seasons such as peak tourist season, students' exam times etc.

121. **Accessibility.** Excavation along the roads for construction of drain, hauling of construction materials and operation of equipment on-site can cause traffic problems. Roads connecting sites are narrow and carry considerable local traffic, mainly comprise bicycles, 2 wheelers, mini trucks, auto rickshaws, buses etc., Hauling of construction material, equipment, construction waste, etc., to and from the work site may increase the road traffic on local roads, which are not in good condition. This will further inconvenience the local community and road users. Potential impact is negative but short term and reversible by mitigation measures. The construction contractor will be required to:

122. Hauling (material, waste/debris, and equipment) activities

- Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites;
- Schedule transport and hauling activities during non-peak hours;
- Locate entry and exit points in areas where there is low potential for traffic congestion;
- Drive vehicles in a considerate manner;
- Notify affected public by public information notices, providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints; and
- Work needs to be complete at earliest near protected areas.

123. **Traffic diversion or road closure.** On the project road, utilities within the RoW at few locations that will have to be shifted / removed prior to construction. As works are conducted on or along the roads, traffic may experience delays when diverted around active construction areas, but will be more severely hampered at the locations where temporary road closures are necessary. In narrow, single lane roads, complete road closure may be needed to conduct the road works, whereas drain works may not require road closure. Diversion and road closure points will have proper signs indicating the nature of the problem envisaged. Contractor will ensure that information on the timing of construction works and notifications of road closure (if any) is provided through the local community heads. At certain locations on the road, particularly at bridge /culvert sites, traffic will be temporarily diverted from the existing carriageway while construction is in progress and temporary traffic diversions will be managed within the RoW..

124. The following measures are to be included in the project and implemented:

- Start the work from downstream end of the drains
- Prepare and implement a traffic management plan
- Conduct work in small sections, say 100 m at a time; confine the drain in the section and stop all inlets in general, and into that section in particular
- Provide a bypass arrangement for the water coming for upstream by providing pumping arrangement so that the water coming from upstream side of the selected section are pumped through a pipe to the downstream
- Dewater the selected section; pump the accumulated water into the downstream;
- As far as possible allow the silt to dry before start of desilting work.
- Avoid manual desilting of drains as far as possible in the section where there is space to employ mechanical diggers or appropriate equipment and tools
- Provide proper tools and equipment for desilting (winches and buckets), and personal protection equipment (PPE) for workers (gloves, gum boots, face masks, etc.); additional oxygen tanks
- Provide onsite training to workers on safe handling of contaminated water and sludge, and

- Silt/soil generated from desilting shall be disposed municipal land fill site with prior permission from respective municipal councils and in consultation with Tripura State Pollution Control Board

125. The drain construction works will also disturb some modern-day social and cultural resources, such as schools, hospitals, and religious places. Repair and rehabilitation of Drain interrupt access to commercial establishments, residences and for pedestrians and vehicles. This will be achieved through several of the measures recommended above, including:

- Avoiding working at sensitive times,
- Limiting dust by removing waste soil quickly, bringing sand to site only when necessary, covering and watering stockpiles, and covering soil and sand when carried on trucks;
- Increasing the workforce in sensitive areas to complete the work quickly;
- Providing wooden bridges for pedestrians and metal sheets for vehicles to allow access across open trenches where required (including access to houses);

126. **Socio-Economic – Income**. Blocking of access to the business / livelihood activities, especially during drainage construction work along the roads, may impact the income of households. The impacts will result from excavation and construction works, stockpiling, the operation of construction vehicles and equipment, and accidental damage to utilities (e.g., power supply poles, open drains, and water taps or hoses). The potential impacts include disturbance to economic activities, particularly to the businesses operating along the alignments of construction works. Contractor will be required to:

- Implement the traffic management plan in collaboration with local authorities;
- Where traffic congestion will likely occur, place traffic flagmen during working hours;
- Avoid full road closures by applying the construction method on section-wise and/or chainage-wise approach during excavation, concreting and/or curing periods;
- If full road closure is not possible, especially on very narrow roads, ensure that alternate routes are identified and that affected residents and establishments are informed prior to conducting the construction activities;
- Provide convenient access to pedestrians when works occur in front of residential, commercial, or institutional establishments. Examples are planks with handrails that should be provided to cross excavated areas.
- Provide appropriate compensation to qualified affected people or businesses per approved resettlement plan for the subproject;
- Manage stockpile;
- Manage pumped water from excavations either to drains or drums for later use;
- Relocate the affected power supply poles, and
- Advise the concerned authority during accidental damage to utilities.

127. **Socio-Economic – Employment**. Construction skilled and unskilled workers will be required during the 36 months construction stage. This can result in generation of temporary employment and increase in local revenue. The construction contractor will be required to employ local labor force as far as possible.

128. **Occupational Health and Safety**. Workers need to be mindful of the occupational hazards which can arise from working at excavation works. Potential impacts are negative and long-term but reversible by mitigation measures. The construction contractor will be required to:

- ✓ Comply with all national, state, and local labour laws (see **Appendix 5**);
- ✓ Implementation of international best practices on occupational health and safety such as those in Section 4.2 of World Bank EHS Guidelines on Construction and Decommissioning Activities
- ✓ Develop and implement site-specific occupational health and safety (OHS) Plan along with COVID-19 SOP which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use personal protective equipment; (c) OHS Training[13] including COVID 19 for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents;
- ✓ Ensure availability of first aid box at work site;
- ✓ Ensure the workers follow COVID 19 SOP and implement accordingly;
- ✓ Provide medical insurance coverage for workers;
- ✓ Maintain Safe distance at work and use of Mask should be encouraged for safeguard from COVID-19
- ✓ Secure all installations from unauthorized intrusion and accident risks;
- ✓ Provide health and safety orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers;
- ✓ Make sure vaccination against COVID-19 is done for the labourers
- ✓ Ensured the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;
- ✓ Ensured moving equipment is outfitted with audible back-up alarms;
- ✓ Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate;
- ✓ Disallow worker exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.
- ✓ Provide supplies of potable drinking water;
- ✓ Provide clean eating areas where workers are not exposed to hazardous or noxious substances

129. **Community Health and Safety.** Drainage and road construction works along the road, and hauling of equipment and vehicles have potential to create safety risks to the community. Hazards posed to the public, specifically in high-pedestrian areas may include traffic accidents

[13] Some of the key areas that may be covered during training as they relate to the primary causes of accidents include (i) slips, trips and falls; (ii) personal protective equipment; (iii) ergonomics, repetitive motion, and manual handling; workplace transport; and (v) legislation and responsibilities. Training can provide the foundations of competence but it does not necessarily result in a competent worker. Therefore, it is essential to assess staff competence to ensure that the training provided is relevant and effective. Supervision and monitoring arrangements shall be in place to ensure that training has been effective and the worker is competent at their job. The level of supervision and monitoring required is a management decision that shall be based on the risks associated with the job, the level of competence required, the experience of the individual and whether the worker works as part of a team or is a lone worker.

and vehicle collision with pedestrians. Potential impact is negative but short-term and reversible by mitigation measures. The construction contractor will be required to:

- ✓ Contractor's implementation of community health and safety plan following international best practices on community health and safety such as those in Section 4.3 of World Bank Environmental Health and Safety (EHS) Guidelines on Construction and Decommissioning Activities. As a minimum and whichever is applicable, the health and safety plan shall ensure the following:
- ✓ implement risk management strategies to protect the community from physical, chemical, or other hazards associated with sites under construction and decommissioning;
- ✓ restricting access to the site, through a combination of institutional and administrative controls, with a focus on high-risk structures or areas depending on site-specific situations, including fencing, signage, and communication of risks to the local community;
- ✓ removing hazardous conditions on construction sites that cannot be controlled affectively with site access restrictions, such as covering openings to small confined spaces, ensuring means of escape for larger openings such as trenches or excavations, or locked storage of hazardous materials;
- ✓ implement measure to prevent proliferation of vectors of diseases at work sites;
- ✓ Implement necessary structural safety and site safety measures to prevent collapse of trenches, and damage / structural failure / collapse of adjacent buildings, boundary walls and other structures; provide proper braces, struts, anchors as required in the trench and for protecting the adjoining structures; avoid placing of material, equipment, waste, close to the trench edges
- ✓ adequate space and lighting, temporary fences, reflectorized barriers and signage's at active work sites
- ✓ contractor's preparedness in emergency response;
- ✓ adequate dissemination of GRM and contractor's observance and implementation of GRM
- ✓ Restrict construction vehicle movements to defined access roads and demarcated working areas (unless in the event of an emergency);
- ✓ Enforce strict speed limit (20-30 kmph) for playing on unpaved roads, construction tracks;
- ✓ Night-time driving will be by exception only, as approved by the Cluster-PIU to minimise driving risk and disturbance to communities;
- ✓ Temporary traffic control (e.g. flagmen) and signs will be provided where necessary to improve safety and provide directions;
- ✓ All drivers will undergo safety and training; along with COVID-19 awareness
- ✓ Public access to all areas where construction works are on-going will be restricted through the use of barricading and security personnel;
- ✓ Warning signs, blinkers will be attached to the barricading to caution the public about the hazards associated with the works, and presence of excavation;
- ✓ Control dust pollution – implement dust control measures as suggested under air quality section;
- ✓ Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure;
- ✓ Provide road signs and flag persons to warn of on-going trenching activities.

130. **Works near ASI monuments, and other religious, cultural and other sensitive places**. Chaturdash Devta temple and Gunavati Group of temples in Udaipur town which ASI

protected sites. No permanent structure will be constructed near ASI protected site. Nearest road/ footpath and drain work site is about 70 m from the Chaturdash devta temple and 430 m from Gunavati group of temples boundary. The construction sites and ASI protected monuments are separated by existing houses. Only rehabilitation/ strengthening of existing road, footpath and improvement of existing storm water drains will be taken up under the project. There may be temporary impacts during construction The prominent wind direction in Udaipur is north to south most of the works are planned in western direction of monuments. Construction works may also disturb / inconvenience community and visitors. Measures are required to minimize the impact. Following measures shall be implemented: -

(i) Before implementation of the project, PIU to consult ASI (in Udaipur / Agartala) about project components within 300 m of the monuments, and include any feedback or measures as suggested by ASI in construction methodology; obtain prior ASI permission for construction if required
(ii) Prior to commencement of construction, consult with concerned religious authorities of these temples, nearby people and devotees and explain the work method and duration of proposed works, take their suggestions and comments in scheduling and conducting the works
(iii) No construction camps (workers accommodation, material / waste / soil storage) should be established within 500 m of the monuments in Udaipur
(iv) Do not use equipment that generate heavy noise, ground vibration, dust etc., (such as pneumatic drills, dozers etc.), within 100 m of ASI monuments
(v) Put in place proper dust and noise control measures
(vi) Adjacent to religious/social/historical buildings, undertake excavation and construction work in such a way that no structural damage is caused to the structures
(vii) Observe the local rituals and important dates of festivals, weekly/monthly/annual religious occasions in the religious places and do not make any disturbance/hindrance/obstacles during such time to the religious places
(viii) Provide proper signage, barricades etc. to protect public and devotees from dangers of construction works.
(ix) Ensure proper traffic management planning to minimize the disruption to the normal traffic flow in the area and ensure the safety of the people.
(x) Clear the work site of unnecessary material, equipment, and debris / surplus soil; do not stock material / soil at the sites
(xi) Conduct continuous consultations with the local people during the works

131. **Construction Camps.** Contractor will set up a construction camp – for temporary storage of construction material (cement, steel, fixtures, fuel, lubricants etc.,), and stocking of surplus soil, and include separate living areas for migrant workers. The contractor is however encouraged to engage local workers as much as possible. Operation of work camps cause temporary air, noise and water pollution, and may become a source of conflicts, and unhealthy environment if not operated properly. Potential impacts are negative but short-term and reversible by mitigation measures. The construction contractor is required to:

(i) As far as possible locate the camp site away from residential areas (at least 50 m buffer shall be maintained)
(ii) Avoid tree cutting for setting up camp facilities
(iii) Ensured that a proper compound wall is provided, and erect a wind/dust screen around
(iv) Camp site shall not be located near (50 m) water bodies, flood plains flood prone/low lying areas, or any ecologically, socially, archeologically sensitive

areas

(v) Construction camp must be safeguarded from COVID -19 including safe eating area, maintaining Hygiene inside camp, ensure physical distancing measures
(vi) Separate the workers living areas and material storage areas clearly with a fencing and separate entry and exit
(vii) Provide proper temporary accommodation with proper materials, adequate lighting and ventilation, appropriate facilities for winters and summers; ensure conditions of liveability at work camps are maintained at the highest standards possible at all times;
(viii) Consult Cluster-PIU before locating project offices, sheds;
(ix) Minimize removal of vegetation and disallow cutting of trees
(x) Ensure conditions of liveability at work camps are always maintained at the highest standards possible; living quarters and construction camps shall be provided with standard materials (as far as possible to use portable ready to fit-in reusable cabins with proper ventilation); thatched huts, and facilities constructed with materials like GI sheets, tarpaulins, etc., shall not be allowed as accommodation for workers
(xi) Camp shall be provided with proper drainage, there shall not be any water accumulation
(xii) Ensure COVID vaccination is done for all the labours involved in the work
(xiii) Provide drinking water, water for other uses, and sanitation facilities for employees
(xiv) Prohibit employees from cutting of trees for firewood; contractor should be provided proper facilities including cooking fuel (oil or gas; fire wood not allowed)
(xv) Train employees in the storage and handling of materials which can potentially cause soil contamination
(xvi) Recover used oil and lubricants and reuse or remove from the site
(xvii) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; provide a compost pit for biodegradable waste, and non-biodegradable / recyclable waste shall be collected and sold in local market
(xviii) Remove all wreckage, rubbish, or temporary structures which are no longer required
(xix) At the completion of work, camp area shall be cleaned and restored to pre-project conditions, and submit report to Cluster-PIU; Cluster-PIU to review and approve camp clearance and closure of work site.

132. **Appendix 10** shows guideline for set up worker's camp.

133. **Social and Cultural Resources.** Significant negative social impacts in project are not anticipated. Site of social/cultural importance (schools, hospitals, and religious places) may be distributed by noise, dust, safety risks and impeded access. There are schools located close to the project sites, and these may pose safety risks to school children, staff and visitors. This short-term impact, mitigated by the following mitigation measures.

- ✓ Avoiding working at sensitive times,
- ✓ Limiting dust by removing waste soil quickly, bringing sand to site only when necessary, covering and watering stockpiles, and covering soil and sand when carried on trucks;
- ✓ Using modern vehicles and machinery with standard adaptations to reduce noise and exhaust emissions, and ensuring they are maintained to manufacturers' specifications.

- ✓ Implement community health and safety measures recommended above; isolate work site from the school access road; provide proper barricading to prevent entry of children / public into work site; create awareness.

134. **Post-construction clean-up and reinstatement.** Construction debris, spoils, and excess construction materials may pose hazards to properties, community and environment if left unattended after construction.

135. The contractor will reinstate all working areas and access routes as work proceeds during construction. All plant, equipment, materials, temporary infrastructure, and vehicles will be removed at the earliest opportunity and the surface of the ground restored as near as practicable to its original condition. The following generic measures should be taken up:

- Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required;
- All excavated roads shall be reinstated to original condition;
- All disrupted utilities restored;
- All affected structures rehabilitated/compensated;
- The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up;
- All hardened surfaces within the construction camp area shall be ripped;
- All imported materials removed, and the area shall be top soiled and regressed using guidelines set out in the re-vegetation specification that forms part of this document;
- The contractor must arrange the cancellation of all temporary services;
- Request cluster-PIU to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.

D. Operation and Maintenance Impacts

136. ***Roads***. In the operations and maintenance (O&M) phase, the roads will operate with routine maintenance, which should not affect the environment. Routine repairs will be very small in scale, to be conducted manually by small teams of workers with simple equipment (shovels, wheelbarrows, etc.) and works will be very short in duration thus will not cause significant physical impacts. Traffic may be interrupted temporarily but this work will be very small in scale, infrequent, and short in duration, so there will be no economic or other implications. The infrastructures will need to be repaired from time to time, but environmental impacts will be much less than those of the construction period as the work will be infrequent, affecting small areas only.

137. To maintain the safety of workers and road-users, such work should be coordinated with the local police department so that adequate warning signs and traffic diversions can be set up when necessary. Debris need to be collected and disposed at a designated site such as the landfill. Community participation will be encouraged in ensuring drainage canals are clog-free through information and behaviour change campaigns and incentives, if possible.

138. **Air pollution and noise level**. Improved roads may result in elevated noise level and air emissions from increased vehicular traffic over time. However, the extent of air pollution will depend upon i) the rate of vehicular emission and ii) the prevailing meteorological conditions. Air quality is likely to improve in the initial years after commissioning because of saving of fuel in the vehicular traffic riding on smooth and improved roads with much less interruption. locations.

139. **Community safety**. Improved roads may give way to faster vehicle speeds which could endanger people and households along the road alignments. Damage in roads may also cause accidents to motorists.

140. To mitigate these impacts, the PIU will be required to:

(i) Conduct regular inspection of the roads to check for damages, and undertake rehabilitation measures for any damages found;
(ii) Inspect and maintain the integrity of road barriers, especially at critical curves or locations that are prone to vehicular accidents;
(iii) Inspect and maintain speed limiters such as humps installed on road sections near residential areas, schools, and religious establishments.
(iv) Inspect and maintain all road signages, including appropriate warning signages at silent zones, and ensure that these are reflectorized and visible even during night time; and
(v) Ensure pedestrian crossings are maintained.

141. ***Drains***. The drains will not function without maintenance, as silt inevitably collects in areas of low flow over time. The project will therefore provide equipment for cleaning/desilting of drains, including buckets and winches to remove silt.

142. Rehabilitation major drain in Udaipur, Amarpur, Bishramganj, Melaghar and Belonia will improve the drainage system of this area, through quick discharge of rainwater from the localities. Discharge of wastewater and improper disposal of solid waste from households and roadsides may clog the drains in the medium or longer term. This may result to accumulation of putrescible organic materials causing odor nuisance to the community and pollution to the receiving water bodies. This may also attract vectors of communicable diseases such as pests and rodents in the drainage system that could affect public health:

(i) Prevent entry of wastewater into drains; this requires development of sewerage system (intercepting of wastewater) in the town. In the interim, an interception, diversion and treatment of drain water proposed under AMRUT/other govt. scheme; PMU to ensure that this project is implemented as per the schedule so that wastewater that enter the drains is collected and treated prior to discharge into streams and river
(ii) Ensure that sewage/septic tank outflow is not discharged into drains; implementation of the proposed sanitation and septage management system under AMRUT/ other govt. scheme will minimize this impact
(iii) promotion and enforcement of good waste management practices at household level; and
(iv) regular monitoring and cleaning of the drains, and siltation or sedimentation chambers (or similar structures) at the outfalls, to prevent entry or accumulation of silt and solid wastes inside these drains.
(v) Ensure regular cleaning and desilting of drains; project shall include provision of necessary maintenance equipment
(vi) Prevent encroachment of drains

143. **Community hazards due to destroyed or removed drainage cover**. Damaged or removed drain cover exposes the drainage as hazard to people, animals and vehicles in the area, especially at night. PIU / ULB shall conduct regular inspection of the drainage alignments and ensure that all drainage covers are intact. In case of damage or loss of drainage cover, the municipality shall provide replacement of this cover to avoid occurrence of accidents.

144. Repair works could cause some temporary disruption of activities at sensitive locations such as schools, hospitals, religious places, etc., so the same precautions as employed during the construction period should be adopted. ULB will:

- Complete work in these areas quickly; and
- Consult municipal authorities, custodians of important buildings, cultural and tourism authorities and local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious and cultural festivals.

E. Unanticipated Impacts during Construction and Operation

145. In the event of unanticipated environmental impacts not considered as significant during implementation and not considered in the IEE and EMP, the PMU shall prepare a corresponding time-bound and budgeted corrective action plan acceptable to ADB, and ensure that these are implemented by the contractor/s and reported accordingly in environmental monitoring reports to ADB. If unanticipated environmental impacts deemed as significant become apparent during project implementation, the PMU will: (i) inform and seek ADB's advice; (ii) assess the significance of such unanticipated impacts; (iii) evaluate the options available to address them; and (iv) update the IEE including EMP. ADB will help the borrower mobilize the resources required to mitigate any adverse unanticipated impacts or damage.

VII. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. Overview

146. The active participation of stakeholders including local community, NGOs/CBOs, etc., in all stages of project preparation and implementation is essential for successful implementation of the project. It ensures that the subprojects are designed, constructed, and operated with utmost consideration to local needs, ensures community acceptance, and will bring maximum benefits to the people. Public consultation and information disclosure are a must as per the ADB policy.

147. Most of the main stakeholders have already been identified and consulted during preparation of this IEE, and any others that are identified during project implementation will be brought into the process in the future.

148. The primary stakeholders are:

- Residents, shopkeepers and businesspeople who live and work alongside the roads in which improvements will be provided and near sites where facilities will be built;
- Custodians and users of socially and culturally important buildings in affected areas;
- Utility agencies responsible for provision of various services in project area, and Tripura State Pollution Control Board (TSPCB).
- State and local authorities responsible for the protection and conservation of archaeological relics, historical sites and artifacts; and

149. The secondary stakeholders are:

- UDD as the executing agency and TUDA, Udaipur, Amarpur, Bishramganj, Melaghar and Belonia MC as implementation agency;
- Other government institutions whose remit includes areas or issues affected by the subproject (state and local planning authorities);
- Forest Department, ASI, State Archaeology Department;

- NGOs and CBOs working in the affected communities;
- Other community representatives (prominent citizens, religious leaders, elders, women's groups);
- The beneficiary community in general; and
- ADB, Government of India, State Government of Tripura and Ministry of Finance.

B. Public Consultation

150. The public consultation and disclosure program are a continuous process throughout the project implementation, including project planning, design, and construction.

1. Consultation during Project Preparation

151. Institutional consultations were conducted with the project agencies, and Government Departments of Tripura, Tripura State Pollution Control Board, etc. The subproject proposal is formulated in consultation with the local bodies in the project area to suit their requirements.

152. The public participation process included: (i) identifying interested and affected parties (stakeholders); (ii) informing and providing the stakeholders with sufficient background and technical information regarding the proposed development; (iii) creating opportunities and mechanisms whereby they can participate and raise their viewpoints (issues, comments and concerns) with regard to the proposed development; (iv) giving the stakeholders feedback on process findings and recommendations; and (v) ensuring compliance to process requirements with regard to environmental and related legislations.

153. The following methodologies have been used for carrying out public consultation:

(i) Local communities, individuals affected and owners and employees of affected commercial establishments who are directly or indirectly affected were given priority while conducting public consultation.
(ii) Walk-through and informal group consultations in the proposed subproject area.
(iii) The local communities had been informed through public consultation about the project and its benefits.
(iv) The environmental concerns and suggestions made by the participants were listed and discussed. The suggestions were incorporated in the EMP.

154. Different techniques of consultation with stakeholders were used during project preparation (interviews, official meeting, public meetings, etc.). Questionnaire was designed and environmental information was collected. Apart from this, a series of public consultation meetings were conducted during the subproject preparation. Various forms of public consultations (consultation through adhoc discussions on site) have been used to discuss the subproject and involve the community in planning the subproject design and mitigation measures.

155. In **Udaipur** Stakeholder Consultation has been carried out at 5 locations: with 55 nos. of participants. Among 55 participants, female no. covers 34%. FGD has also been carried out with 141 persons, out of which almost 60% are female. In **Amarpur** Stakeholder Consultation has been carried out at 1 location; with 5 nos. of participants (Female- nil). In FGDs Total 89 persons participated in discussion, out of which almost 47% are female. In **Bishramganj** Stakeholder Consultation was carried out at 7 locations and attended by 72 stakeholders (50% female). FGDs was conducted along the project alignment with 39 participant 51% are female. In **Melaghar** Stakeholder Consultation was carried out at 4 locations and attended by 56 stakeholders

(Female- 25%). Focus group discussion has been conducted along the project alignment with 31 participants 84% are female. In **Belonia** Stakeholder Consultation was carried out at 4 locations and attended by 18 stakeholders (Female- 1%). Focus group discussion has been conducted along the project alignment with 112 participants 21% are female.

156. Consultation has also been carried out with local ASI officials at Udaipur and Chaturdash devata temple committee person, priest. Minutes of the meeting is also attached in **Appendix 8.** ASI official informed that rehabilitation of drain, will mitigate the annual flooding problem near these monuments and proposed roads near monuments will be used by visitors of the monuments. The rehabilitation and construction of drains, road and footpath near the ASI protected area does not required any permission from ASI, only intimation to concerned office is required before implementation of the project.

157. The main objectives of the consultation program were to inform stakeholders on adverse environmental & social impacts, efforts to minimize and mitigate negative impacts while making people aware of the road and storm water drainage project benefits. During the discussion, it seemed that the group of people are very enthusiastic and energetic. They have participated in with an open heart and expressed their interest to do something good for betterment of the society.

158. Salient points emerge from the consultation,

- During consultation people were apprised about the road configuration and arrangements to be made during construction for safety of commuters, pedestrians, providing unhindered access to shops, measures to be taken for dust & noise pollution control.
- It was told by the residents that the condition of storm water drainage condition is not up to the mark; the low-lying areas generally get flooded during rainy season
- Residents expressed their views about the willingness to engage with the project and explore job opportunities.
- It was also informed no road closures anticipated due to this work, and if needed during the construction phase, alternative access will be provided. Short term impact explained to local public and it assured that the measures will be included in the Environment Management Plan.

159. It is noted from focus group discussion,

- As regards the storm water drainage and road project, it has been told by the residents that it will improve the roads and condition of low laying areas.
- People are supportive of the project.
- Residents expressed their views about the willingness to engage with the project and explore job opportunities. People demanded for the measures of dust suppression such as water sprinkler to control dust and noise during construction phase.

160. **Summary of Stakeholder Consultation-** Subproject town under Cluster IIA: During the consultation/s the following queries were raised by the local communities, and it was responded by the respected DPR Consultant / PDMC

- All stakeholders were very supporting of the project and promises to extend full cooperation during the construction phase as the activities are proposed to improve the road connectivity and drainage condition.

- As regards the storm water drainage and sewer project, it has been told by the residents that it will improve the roads and condition of low laying areas and improve the quality of river where the outfall will go.
- Stakeholders also indicated that a public notice on works, and awareness programs to be conducted
- The project team explained the proposed mitigation measures to mitigate / minimize such issues. Attention of stakeholders drawn to the EMP, and explained to them how the construction phase issues by avoided, minimized, or mitigated and managed.

161. It was observed that people are willing to extend their cooperation as the proposed activities are to enhance the infrastructure (transport and drainage) service levels and the living standard of the public. The public expressed their concern regarding the nuisance and disturbance (dust, drainage silt accumulation, road closure and traffic management activities) during construction. Team explained about Environment Management Plan (EMP) which will be implemented during construction.

162. Under PRF of TTUDP interactive workshop on Environment and Social safeguard has been arranged on 19th-20th December 2022 at Agartala for all the ULBs (main stakeholders) and project executing and implementation agency. The primary intent of the orientation workshop was to enhance the knowledge base of the ULB officials, TUDA officials and officials of UDD on the mentioned disciplines. Details are attached in **Appendix 9.**

2. Consultation during Implementation

163. Prior to start of construction, PIU in coordination with the local bodies will conduct information dissemination sessions at various places and solicit the help of the local community, leaders/ prominent for the project work. Focus group meetings will be conducted to discuss and plan construction work (mainly pipeline work) with local communities to reduce disturbance and other impacts and regarding the project grievance redress mechanism. A constant communication strategy will be established with the affected communities to redress the environmental issues likely to surface during construction phase. Consultation will continue during implementation and reported through environmental monitoring reports to ADB, semi-annually during construction and annually during operation until project completion.

C. Information Disclosure

164. Executive summary of the IEE will be translated in Bengali (local language) and will be made available at the offices of PMU, PIU, Nagar Panchayet and will be displayed on the notice boards. Hard copies of the IEE will be accessible to citizens to disclose the document and at the same time creating wider public awareness. Electronic version of the IEE in English and Executive Summary in Bengali will be placed in the official website of the TUDA (PIU), UDD (PMU) after approval of the IEE by Government and ADB. Stakeholders will also be made aware of grievance register and redress mechanism.

165. Public information campaigns to explain the project details to a wider population is being conducted. Public disclosure meetings will be conducted at key project stages to inform the public of progress and future plan. Prior to start of construction, the cluster- PIU will issue Notification on the start date of implementation in local newspapers. A board showing the details of the project will be displayed at the construction site for the information of general public.

166. Local communities will be continuously consulted regarding location of construction camps, access and hauling routes and other likely disturbances during construction. The road closure together with the proposed detours will be communicated via advertising, pamphlets, radio broadcasts, road signage, etc.

VIII. GRIEVANCE REDRESS MECHANISM

167. A project will put in place a common GRM to receive, evaluate, and facilitate the resolution of social, environmental or any other project-related grievances. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. The public awareness campaign will generate awareness of the project and its grievance redress procedures. The campaign will ensure that the poor, vulnerable, and others know about the GRM.

168. The GRM will provide an accessible, inclusive, gender sensitive and culturally appropriate platform for receiving and facilitating the resolution of affected persons' grievances related to the project. The multi-tier GRM for the project is outlined below, each tier having time-bound schedules and with responsible persons identified to facilitate and address grievances at each stage. ULB-wide public awareness campaigns will ensure that awareness of grievance redress procedures is generated through the campaign. The project coordinator (urban and tourism), supported by independent consultants (social and environment), will be responsible for timely grievance redress on environmental and social safeguards issues.

169. Besides the project's grievance redress mechanism, the state also has a centralized public grievance redress monitoring system (CPGRMS) where the general public can file grievances through a dedicated web portal (grievance.tripura.gov.in). The general administrative (administrative reforms) department is the nodal agency, and an officer of the rank of joint secretary is responsible for its functioning. Each department of the state has nominated officers to receive the grievances. TUDA and DOT have nominated officers of the rank of Deputy Director as nodal officers, whose names and contact details are provided on its website. The affected persons can also lodge their complaints through this online portal.

170. **Information to the stakeholders about the GRM**: The stakeholders, including affected persons, will be informed about the GRM under the project and of the state through public consultations, disclosures, and distribution of public information booklets (PIB). In the case of illiterate DPs, the information will be provided verbally during meetings with them.

171. **Who can complain:** A complaint can be registered by stakeholders directly or indirectly affected by the project. A representative can register a complaint on behalf of the affected person or group, provided that the affected person or group identifies the representative and submits evidence of the authority to act on their behalf.

172. **What the Grievance/Complaint should contain:** Any comments, complaints, queries and suggestions pertaining to safeguard compliance - environment, involuntary resettlement, and indigenous people, design-related issues, compensation, service delivery or any other issues or concerns related to the project. The complaint must contain the complainant's name, date, address/contact details, location of the problem area, and the problem. A sample grievance registration form is provided in Appendix 9.

173. **Where and how to file a Complaint:** The complaint can be filed both online and offline. The people can submit their complaints at the contractor's site office or at PIU/PMU office. In addition, they can also have grievances/suggestions/queries submitted through phone or e-mails or the state grievance portal.

174. **Grievance redress /Problem solving through participatory Process:** The PMU and PIUs must make efforts to resolve the problems and conflicts amicably through a participatory process with the community and the ULBs. In case of immediate and urgent grievances in the complainant's perception, the contractor and supervision personnel from the PIU will provide the most easily accessible or first level of contact to resolve grievances quickly. Contact phone numbers and names of the concerned staff and contractors will be posted and displayed at all construction sites.

175. **Grievance Redressal Committee:** The GOT will establish the grievance redressal committees at the site, PIU and PMU levels to provide a mechanism to mediate conflict and disputes concerning compensation payments and cut down on lengthy litigation. The following will be the composition of the GRCs.

176. **Site-level GRC (1st level) -** The site-level GRC will comprise a Junior Engineer. PIU, a field engineer of PSMC, safeguard support staff of PSMC, and a representative from the affected community (as and when required). The contractor's site engineer and EHS cum social supervisor will jointly support in meetings, consultations, and site-level grievance resolution. The effort will be made to resolve issues on-site, in consultation with each other and within five days of receipt of a complaint/grievance.

177. **PIU-level GRC (2nd level) -** All grievances that cannot be redressed within five days at the field level will be brought to the notice of the PIU-level GRC established in each PIU. The PIU-level within two days of receipt of the complaint to determine the merit of each grievance brought to the committee. GRC at the PIU-level will be headed by Project Manager (executive/ assistant engineer)- focal for safeguards, and include the construction manager of PSMC, safeguards specialists of PSMC, and the Project Manager of the concerned contractor as members. The PIU-level GRC will also co-opt the representative of line departments (PWD, ULB) and a representative from the affected community, as and when required, including indigenous peoples communities or civil society organization working with indigenous peoples, as and when required.[14]

178. **PMU-Level GRC (3rd level) -** In case the grievances are not addressed at the PIU-level within 10 days of receipt, the same shall be brought to the notice of the PMU-level GRC. The PMU-level GRC will comprise of Project Director as chairman, a Co-Project Director as co-chairman, a Project Coordinator (Urban and Tourism) as member secretary, environment safeguard officer of PMU and social, gender officer of PMU,, women representatives from the line departments (ULB, PWD, Environment and Forests) and representative of affected community (including indigenous people community).[15] The committee can co-opt any other member required for the resolution of the grievances. The GRC at the PMU-level will resolve the grievance within 15 days of receiving the complaint.

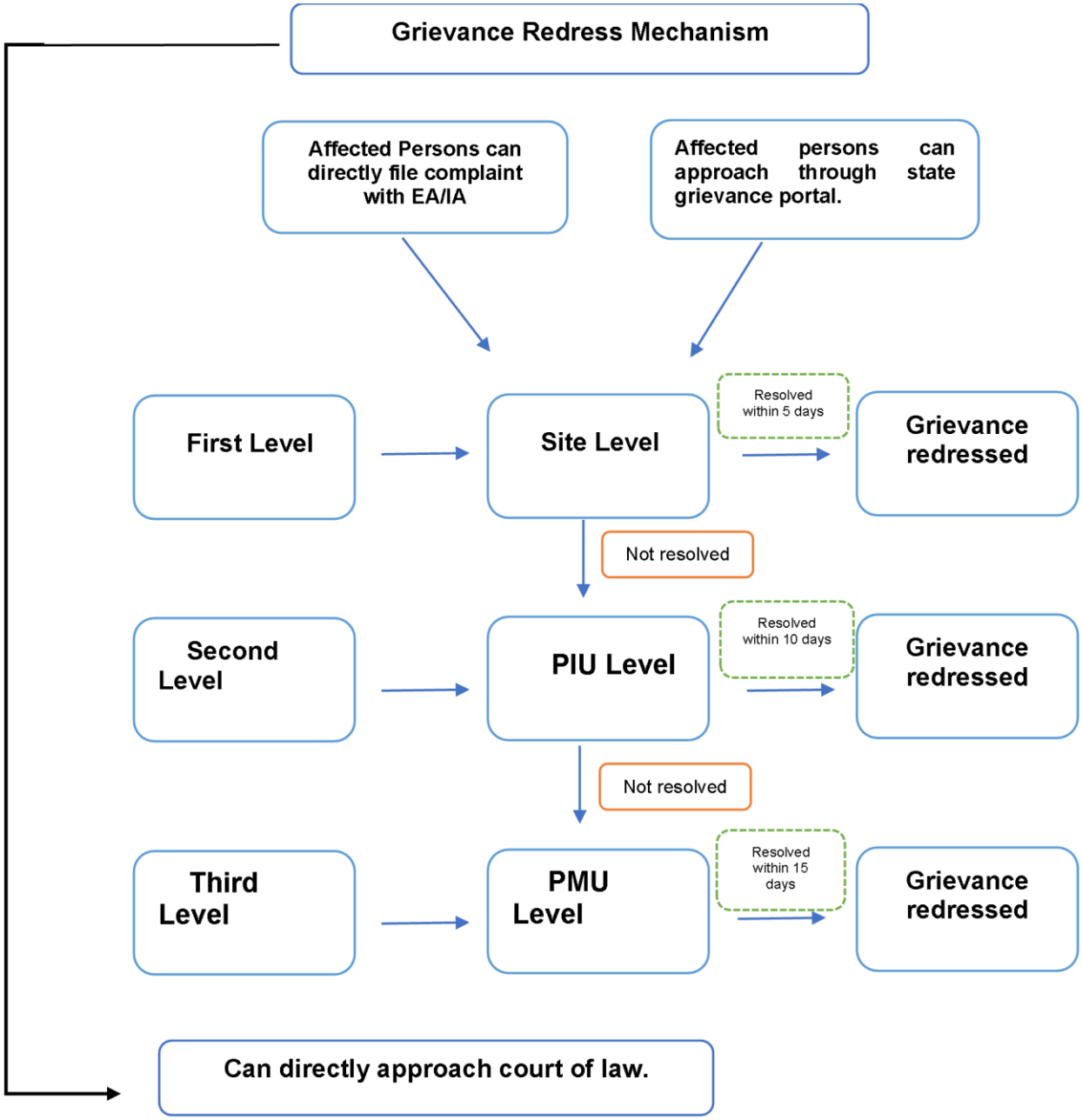
[14] In case of any components with impact on indigenous people, GRC will have representative from affected indigenous people community or NGO working with indigenous people groups.

[15] In case of any components with impact on indigenous people, GRC will have representative from affected indigenous people community, including at least one female indigenous person or NGO working with indigenous people groups.

179. The complainant will be informed in writing about the resolution of their complaint or the decision of the grievance redress committees. The complainants are free to approach the court of law at any time of their own will at any stage, and accessing the country's legal system can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM.

180. **Figure 61** below shows Grievance Redressal Mechanism for the project.

Table 37: Grievance Redress Mechanism



181. **Documentation.** PMU, with the support of PIUs, will be responsible for the timely registration of grievances, related disclosure, and communication with the aggrieved party. PMU will also ensure that all the details from submission to resolution are well recorded and documented.

182. **Record-keeping.** PIUs will keep records of grievances received, including contact details of the complainant, the date the complaint was received, the nature of the grievance, agreed corrective actions and the date these were affected and the final outcome. The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the PMU and PIUs and reported in monitoring reports submitted to ADB on a semi-annual basis.

183. **Periodic review and documentation of lessons learned.** The Project Coordinator, PMU, will periodically review the functioning of the GRM in each town and record information on the effectiveness of the mechanism, especially on the project's ability to prevent and address grievances.

184. **Costs.** All costs related to the resolution of grievances (meetings, consultations, communication and reporting/ information dissemination as well as costs incurred by affected persons to attend GRC meetings, if any) will be borne by PMU.

IX. ENVIRONMENTAL MANAGEMENT PLAN

A. Environmental Management Plan

185. An environmental management plan (EMP) is being developed to provide mitigation measures to reduce all negative impacts to acceptable levels.

186. The EMP will guide the environmentally-sound construction of the subproject and ensure efficient lines of communication between Project Management Unit (PMU), Project Implementation Unit (PIU) / TUDA, ULBs (Nagar Panchayat/ Municipal Council), Consultants and Contractors. The EMP will (i) ensure that the activities are undertaken in a responsible non-detrimental manner; (ii) provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site; (iii) guide and control the implementation of findings and recommendations of the environmental assessment conducted for the subproject; (iv) detail specific actions deemed necessary to assist in mitigating the environmental impact of the sub project; and (v) ensure that safety recommendations are complied with. The EMP includes a monitoring program to measure the environmental condition and effectiveness of implementation of the mitigation measures. It will include observations on- and off-site, document checks, and interviews with workers and beneficiaries.

187. The construction contractor will submit to Cluster - PIUs, for review and approval, a Site-Specific Environmental Management Plan (SEMP) including (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program as per SEMP; and (iv) budget for SEMP implementation. The approved Site-Specific Environmental Management plans will be disclosed in the project website & website links will be provided in Semi- annual Environment Monitoring Report.

188. A copy of the EMP/approved SEMP will be always kept on site during the construction period. The approved EMP to be included in the BID and contract documents. Non-compliance

with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

189. For civil works, the construction contractor will be committed to (i) carry out all the mitigation and monitoring measures set forth in the approved SEMP; and (ii) implement any corrective or preventative actions set out in safeguards monitoring reports that the employer may prepare from time to time to monitor implementation of this IEE and SEMP. The contractor will allocate budget for compliance with these SEMP measures, requirements, and actions.

190. The following tables show the potential environmental impacts, proposed mitigation measures and responsible agencies for implementation and monitoring.

Table 38: Design Stage Environmental Impacts and Mitigation Measures

Field	Anticipated Impact	Mitigation Measures	Responsibility of Mitigation	Monitoring of Mitigation	Cost and Source of Funds
Design of the Proposed Components**.**	Lack of sufficient planning to assure long term sustainability of the improvements and ensure protection of the assets created	(i) Storm water drain is provided at the extreme edge of the right of way; (ii) Water supply lines carrying water at high pressure may cause damage to the road pavement, so they are provided on one side of the road; (iii) There is safe distance between water supply line and drainage line to avoid any intermixing in case of any leakage or pipe burst. (iv) Footpaths are provided cater the needs of elderly and persons with disability. (v) The cables are away from tree line to avoid possible entrapment of the cable by tree roots (vi) For road and drainage work at Melaghar and Udaipur near protected wetland and ASI sites mitigation measures will be applied to minimize all impacts on those protected areas	Contractor / Cluster-PIUs/ PMSC	PMU	Project Costs
Integration of EMP in bidding documents and contracts	Lack of awareness by contractors on ADB SPS requirements may result in insufficient budget and non-implementation of EMP	(i) Once the Contractor is selected, the PIU with support from PMSC will inform contractors on their responsibilities in EMP implementation, in compliance with ADB and government requirements, self -monitoring and reporting procedures. (ii) The PMU will incorporate the costs of implementing OHS and the EMP as well as specific provisions requiring contractors to comply with all other conditions required by ADB into the bidding and contract document.	PMU, PMSC	PMU	Project Costs
Preparation of H&S Plan for Pandemic like COVID- 19.	COVID safety	(i) Consistently practice social distancing. (ii) Cover coughs and sneezes. (iii) Maintain hand hygiene. (iv) Clean surfaces frequently.	Contractor	PIU	Project costs
Works near common properties, physical cultural resources	Impact on religious and common property resources	▪ Prior to commencement of construction, consult with concerned religious authorities of these temples, nearby people and devotees and explain the work method and duration of proposed works, take their suggestions and comments in scheduling and conducting the works	Contractor / cluster-PIUs/ PIU	PMU	PMU

other religious, and cultural places		▪ Do not use equipment that generate heavy noise, ground vibration, dust etc., (such as pneumatic drills, dozers etc., within 50 m of these structures ▪ Put in place proper dust and noise control measures ▪ Adjacent to religious/social buildings, undertake excavation and construction work in such a way that no structural damage is caused to the structures ▪ Observe the local rituals and important dates of festivals, weekly/monthly/annual religious occasions in the religious places and do not make any disturbance/hindrance/obstacles during such time to the religious places ▪ Cutting of any religious trees may be avoided, if possible, change alignment to protect old and religious trees. ▪ Provide proper signage, barricades etc. to protect public and devotees from dangers of construction works. ▪ Ensure proper traffic management planning to minimize the disruption to the normal traffic flow in the area and ensure the safety of the people. ▪ Clear the work site of unnecessary material, equipment and debris / surplus soil; do not stock material / soil at the sites ▪ Conduct continuous consultations with the local people during the works			
Project locations close to protected monuments in Udaipur and close to Rudrasagar Ramsar Wetland in Melaghar	Impact on sensitive areas (ASI monuments, and Ramsar wetland) due to proposed construction works	▪ During the pre -construction, PIU to consult ASI (in Udaipur / Agartala) with exact distance of road and drain works within 300 m of the monuments, and include any feedback or measures as suggested by ASI in into construction methodology; obtain prior ASI permission for construction if required ▪ Prior to commencement of construction, consult with concerned religious authorities of these temples, nearby people and devotees and explain the work method and duration of proposed works, take their suggestions and comments in scheduling and conducting the works ▪ Prevent dust, noise, accumulated of water, and contaminated surface runoff from the work sites; take	Contractor / cluster-PIUs/ PMSC	PMU	PMU

		necessary measures as needed (these are presented in construction phase impacts-measures) ▪ No construction camps (workers accommodation, material / waste / soil storage) should be established within 500 m of the monuments in Udaipur ▪ No construction camps (workers accommodation, material / waste / soil storage) should be established within 1000 m (1 km) from the boundary of Rudrasagar lake; camps should not be located close to drainage lines/streams that flow into Rudrasagar lake ▪ All project related site staff, construction workers and supervisors, shall be made aware of the sensitive sites, and prevent any harm or damage or disturbance to trees, vegetation, wildlife, birds etc., ▪ Proper accommodation and facilities shall be provided within the camps, and workers shall not use the lake or surroundings for open defecation, bathing, or fishing / hunting, collecting firewood etc. Contractor should put in place, a proper system to monitor the staff and workers to prevent damage/ disturbance. ▪ Do not use equipment that generate heavy noise, ground vibration, dust etc., (such as pneumatic drills, dozers etc, within 100 m of temples, or within 500 m of Rudrasagar lake ▪ Schedule works during dry season to avoid contaminated runoff from the work sites entering lake; clear the sites of materials, debris, and consolidated the refilled trenches prior to onset of monsoon ▪ Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; ▪ Place storage areas for fuels and lubricants away from any drainage leading to water bodies; ▪ Store fuel, construction chemicals etc., on an impervious floor, also avoid spillage by careful handling ▪ Dispose any wastes generated by construction activities in designated sites; and ▪ Conduct surface quality inspection according to the environmental management plan (EMP). ▪ Conduct continuous consultations with the local people during the works			

		▪			
Seismic sensitivity	Damage to infrastructure and potential risks: project area in High earthquake risk zone (Zone V)	Designs of project component structures shall comply with relevant codes of design such as Bureau of Indian Standard (BIS) specifications for earthquake resistant design (IS: 1893: Criteria for earthquake resistant design of structures).	Contractor / cluster-PIUs/ PMSC	PMU	
Physical Cultural resource	Encroachment/ damage to protected monuments and chance finds	(i) Create awareness among the workers, supervisors and engineers about the chance finds during excavation work; (ii) Stop work immediately to allow further investigation if any finds are suspected; (iii) Inform local Archaeological Department / Museum office if a find is suspected and take any action, they require to ensure its removal or protection in situ	Contractor / cluster-PIUs/ PMSC	PMU	Project Costs
Site selection of sources of materials	Improper selection source of material	(i) Contractor should, to the maximum extent possible, procure material from existing authorized quarries; (ii) The contractor shall try to procure/ source the material from the nearest possible authorized sources. (iii) It will be the construction contractor's responsibility to verify the suitability of all material sources and to obtain the approval of Department of Mines & Geology and local revenue administration (iv) Contractor should submit the details of sources and copies of approvals, permissions to Udaipur MC, Amarpur NP, Bishramganj village panchyat, Melaghar MC and Belonia MC and should start procurement only after the respective source is approved by respective MC, NP, village panchyat and PIU (v) The transportation of raw material should be done in covered vehicles. (vi)	Contractor / cluster-PIUs	PMSC and PMU	Project Costs
Site selection for equipment lay-down and storage area	Improper selection will affect local environment and inconvenience to public.	(i) Choice of location for equipment lay-down and storage areas must consider distances to adjacent land uses, general onsite topography and water erosion potential of the soil. Impervious surfaces must be provided where necessary. (ii) Storage areas shall be secure to minimize the risk of	Contractor / cluster-PIUs	PMSC and PMU	Project Costs

		crime. They shall also be safe from access by children or animals etc. (iii) Residents living adjacent to the construction site must be notified of the existence of the hazardous storage area. (iv) Equipment lay-down and storage areas must be designated, demarcated, and fenced if necessary. (v) No storage area permitted near ASI and Ramsar protected sites. (vi) Fire prevention facilities must be present at all storage facilities. (vii) Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals, and any hazardous materials to be used must be provided to prevent the migration of spillage into the ground and groundwater regime around the temporary storage areas. (viii) These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of storm water from surrounding areas in order to ensure that accidental spillage does not pollute local soil or water resources. (ix) Fuel tanks must meet relevant specifications and be elevated so that leaks may be easily detected. (x) Staff dealing with these materials or substances must be aware of their potential impacts and follow the appropriate safety measures.			
Tree cutting	Cutting of trees	(i) Minimize tree cutting as much as possible during joint verification with the contractor; where possible, amend the alignment of drains locally to avoid tree cutting. (ii) As per compensatory afforestation requirement, the tree plantation will be done five times of tree cutting (1:5 of tree cutting). (iii) No trees shall be removed for setting up construction facilities / ancillary sites.	Contractor / cluster-PIUs	PMSC and PMU	Project Costs
Drinking water quality	Health risks from the poor supplied drinking water	(i) Contractor will ensure that drinking water supply in compliance with the Indian National drinking water quality standards (ii) The Contractor will undertake water quality testing via accredited laboratory to confirm quality in compliance with y standards. If the groundwater quality does not comply with the standards, the contractor will source potable water from an	Contractor / cluster-PIUs	PMSC and PMU	Project Costs

		alternative source or provide a potable onsite treatment facility with own costs and approval from PIU/PMU.			

Table 39: Pre-Construction Stage Environmental Impacts and Mitigation Measures

Field	Anticipated Impact	Mitigation Measures	Responsibility of Mitigation	Monitoring of Mitigation	Cost and Source of Funds
Compliance with environmental subproject selection criteria	Environmental impacts due to subproject	Compliance with environmental subproject selection criteria	Contractor in collaboration with Cluster-PIUs, and with approval of PMSC/ PIU	PMU	No costs required
Legal compliance	Environmental legal noncompliance may attract legal actions Failure to obtain necessary consents, permits, NOCs etc. can result to design revisions and/or stoppage of works	Obtain all consents, clearances (CTE/CTO from TSPCB), permits NOCs etc. before start of construction works Ensure that all necessary approvals for construction to be obtained by contractor are in place before start of construction work	PIU/Consultants in coordination of ULB	PMU	Cost of obtaining all consents, permits, clearance, NOCs etc. prior to start of civil works responsibility of PIU.
Environmental monitoring of baseline conditions of air, noise, water and soil	To establish base line environmental conditions	Environmental monitoring through NABL accredited laboratory	Construction contractor	(i) Report for NABL laboratory	Project Cost
Utilities	Telephone lines, electric poles and wires, water lines within proposed project area may be affected	(i) Operators of these utilities have been identified and included in the detailed design documents to prevent unnecessary disruption of services during construction phase; (ii) Utility shifting will be required before start of construction; (iii) Construction contractor will prepare and implement a contingency plan to include	Contractor in collaboration with Cluster-PIUs, and with approval of PMSC/ PIU	(ii) List of affected utilities (if any) and operators; (iii) Bid document to include requirement	Project Cost

Field	Anticipated Impact	Mitigation Measures	Responsibility of Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		actions to be taken in case of unintentional interruption of services. (iv) Consult with and prior information to affected households and business (at least 1 week prior) on the intended utility shifting and likely disruptions in services.		for a contingency plan for service interruptions	
Construction work camps, stockpile areas, storage areas, and disposal areas.	Conflicts with local community; disruption to traffic flow and sensitive receptors	(i) Construction camp to be set up in open area, slightly away from residential area (ii) Extreme care to be taken in selecting sites to avoid direct disposal waste/ excess earth near water body which may inconvenience the community. If required, for excess spoil disposal, (a) sites will be selected from barren, infertile lands. In case agricultural land selected, written consent will be taken from landowners; (b) debris disposal site will be selected 200 m away from surface water bodies; (c) no residential areas be located within 50 m downwind side of the site; and (d) site will be selected 250 m away from sensitive locations like settlements, ponds/lakes or other water bodies.	Contractor to finalize locations in consultation and approval of Cluster-PIUs	List of selected sites for construction work camps, spot mix plants, stockpile areas, storage areas, and disposal areas. Written consent of landowner/s (not lessee/s)	Project Cost
Works near common properties, physical cultural resources other religious, and cultural places	Disturbance of private and common properties (such as ramps, drainage, boundary walls, houses, soak well, lamp post), and physical	• Prior to commencement of construction, consult with concerned religious authorities of these temples, nearby people and devotees and explain the work method and duration of proposed works, take their suggestions and comments in scheduling and conducting the works • Do not use equipment that generate heavy noise, ground vibration, dust etc.,	PIU, PMSC	Survey data and site condition	Project Cost

Field	Anticipated Impact	Mitigation Measures	Responsibility of Mitigation	Monitoring of Mitigation	Cost and Source of Funds
	cultural resources	(such as pneumatic drills, dozers etc., within 50 m of these structures • Put in place proper dust and noise control measures • Adjacent to religious/social buildings, undertake excavation and construction work in such a way that no structural damage is caused to the structures • Observe the local rituals and important dates of festivals, weekly/monthly/annual religious occasions in the religious places and do not make any disturbance/hindrance/obstacles during such time to the religious places • Cutting of any religious trees may be avoided, if possible, change alignment to protect old and religious trees. • Provide proper signage, barricades etc. to protect public and devotees from dangers of construction works. • Ensure proper traffic management planning to minimize the disruption to the normal traffic flow in the area and ensure the safety of the people. • Clear the work site of unnecessary material, equipment, and debris / surplus soil; do not stock material / soil at the sites • Conduct continuous consultations with the local people during the works			
Traffic Management	Impede traffic flow during construction	Prepare a traffic management plan during pre-construction phase.	Contractor to finalize traffic management plan in consultation with cluster PIUs	Ensure Traffic Management Plan is prepared	Project Cost

Field	Anticipated Impact	Mitigation Measures	Responsibility of Mitigation	Monitoring of Mitigation	Cost and Source of Funds
Disposal sites of dredge materials and solid wastes	Cleaning of drains will generate large amounts of dredge material (i.e., silt) and solid waste which needs to be disposed in designated area away from sensitive receptors	Identify agreed sites with local officials to dispose of dredged materials	Contractor to finalize disposal plan in consultation with cluster PIUs	Cluster PIUs, and PMSC to ensure sites are agreed with local officials and in locations which are away from sensitive receptors.	Project Cost
EMP Implementation Training	Noncompliance with ADB, GoI and GoT environmental policies	The PMU, PIU and contractors will be required to undergo training on EMP implementation. Methodology of capacity and training activities are discussed in next sections. The capacity building program will be participatory to the extent possible to make it more effective, with learning by doing, role playing, group exercises, on-the job training, etc. Pre- and post-training assessment will be conducted to measure the effectiveness of the program. Before implementation of project training related to protection of ASI site and Ramsar protected sites will be arranged.	PMSC	Training document	Project cost
Community Awareness on Project Activities and Impacts	Lack of community awareness on project activities may result in potential community health and safety	• The community should be made aware of overview and objectives of the proposed project; • Preliminary and/or final detailed design of proposed project components; • Potential environmental and social impacts (positive and negative) of the project, and the proposed mitigation measures for the perceived negative impacts; and	PIU, Contractor, PMSC	Awareness document, consultation document and record	Project cost

Field	Anticipated Impact	Mitigation Measures	Responsibility of Mitigation	Monitoring of Mitigation	Cost and Source of Funds
	concerns and complaints.	• Grievance redress mechanism and contact details of the project			

Table 40: Construction Stage Environmental Impacts and Mitigation Measures

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
Planning	Inadequate planning could lead to non-implementation of EMP during the construction phase and result in significant environmental impacts leading to non-compliance with ADB's environmental safeguard requirements.	i. Designate an Environmental Health and Safety Officer (EHSO). ii. Conduct training on the rationale for and implementation of the SEMP and EMP to enhance general understanding and clarify responsibilities regarding implementation, including monitoring and reporting, must also be provided to relevant staff of contractors (including EHS Officer) iii. The Contractor will be required to submit to PMU, for review and approval, a SEMP including (a) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes, (b) specific mitigation measures following the approved EMP; (c) monitoring program as per EMP; and (d) budget for SEMP implementation. No works can commence prior to approval of SEMP. The SEMP shall include, but not limited to, the following: (a) Traffic management plan; (b) Construction health and safety plan (including COVID-19 H&S guidance); (c) Construction waste and debris management Plan	Contractor in association with PIU	PMU	Project costs
Excavation, soil erosion and sediment mobilization	Loose soil generated during excavation can be carried through surface run-off during a rainfall. Contamination of surface waterbody.	The Contractor shall always implement the measures to control soil erosion which shall include, but not be limited to the followings: i. The Contractor shall plan works to minimize surface excavation works during the rainy season where practicable. ii. Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms shall be developed by the Contractor. iii. The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered.	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		iv. Channels, earth bunds, netting, tarpaulin and or sandbag barriers shall be used on site to manage surface water runoff and minimize erosion. v. The overall slope of the works areas and construction yards shall be kept to a minimum to reduce the erosive potential of surface water flows. vi. Monitor groundwater quality that could exist close to the working areas to ensure compliance			
Sources of Materials	Selection of material from government approved sources	(i) Obtain construction materials only from government approved quarries with prior approval of Cluster-PIU; (ii) Cluster-PIU to review, and ensure that proposed quarry sources have all necessary clearances/ permissions in place prior to approval; (iii) Contractor to submit to Cluster-PIU on a monthly basis documentation on material obtained from each source (quarry/ borrow pit); (iv) Avoid creation of new borrow areas, quarries etc., for the project; if unavoidable, contractor to obtain all clearances and permissions as required under law, including Environmental Clearance prior to approval by Cluster- PIU.	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.
Air Quality	Emissions from construction related vehicles, equipment, machinery, resulting to dusts and increase in concentration of vehicle related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons	(i) Take every precaution to reduce the levels of dust at construction sites (ii) Fit all heavy equipment and machinery with air pollution control devices that are operating correctly. (iii) Asphalt / bitumen, and concrete mixing plants should be operated within the permissible emission standards, and should be located away from settlements (up wind) (iv) Vehicles travelling to and from the construction site must adhere to speed limits to avoid producing excessive dust. (v) Reduce dust by spraying stockpiled soil, excavated materials, and spoils. (vi) over with tarpaulin vehicles transporting soil and sand.	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		(vii) Cover stockpiled construction materials with tarpaulin or plastic sheets. (viii) Heavy equipment and transport vehicles shall move only in designated areas and roads. (ix) Water spraying to access roads, camp sites and work sites to reduce dust emissions. (x) Completion of activity near sensitive receptor as early as possible; (xi) Machines and vehicles must be regularly examined and maintained to comply with requirements of technical specifications. (xii) All vehicles, equipment, and machinery used for construction will be regularly maintained to ensure that pollution emission levels comply with the relevant standards. Copies of conformance will be submitted regularly to the PIU. (xiii) Repair and maintain access roads, as necessary. (xiv) Monitor air quality according to the environmental monitoring plan. (xv) clean wheels and undercarriage of vehicles prior to leaving construction site; (xvi) prohibit burning firewood in work and labor camps (promote liquified petroleum gas for cooking purposes and electric heater for heating purposes); (xvii) use vehicles that have government-issued permits and registrations; and (xvii) prohibit open burning of solid waste			
Noise and vibration	Increase in noise level due to earth-moving and excavation equipment, and transportation of equipment, materials, and people	✓ Plan activities in consultation with Cluster-PIU so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; ✓ Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and use portable street barriers to minimize sound impact to surrounding sensitive receptor	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		✓ Construction work shall be limited to day light hours (8 AM to 6 PM) for all the works located within the town ✓ Adapt low noise producing work methods, and provide additional noise control measures (such as temporary barriers / enclosures) near sensitive receptors (i.e., religious places, academic institution, health centers etc.). ✓ Noise level not exceeding 80 decibels (dBA) when measured at a distance of 10 m or more from the vehicle/s; ✓ Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach; and ✓ Consult local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious and cultural festivals			
Construction Activity Near Rudrasagar Lake at Melaghar town	Disturbance to Local and Migratory birds	✓ Prepare SEMP before starting any work ✓ No construction camps (workers accommodation, material / waste / soil storage) should be established within 1000 m (1 km) from the boundary of Rudrasagar lake; camps should not be located close to drainage lines/streams that flow into Rudrasagar lake ✓ Movement of workers and staff should be confined to work site, and not be allowed in wetland area which may disturb the sensitive area; ensure via strict supervision no poaching, fishing, cutting / damaging trees/vegetation or wildlife, birds etc., ✓ All project related site staff, construction workers and supervisors, shall be made aware of the sensitive sites, and prevent any harm or damage or disturbance to trees, vegetation, wildlife, birds etc., ✓ Proper accommodation and facilities shall be provided within the camps (at least 1 km away from the wetland), and workers shall not use the lake or surroundings for open defecation, bathing, or fishing	Construction Contractor and PMSC / PIU	PMU	PMU

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		/ hunting, collecting firewood etc. Contractor should put in place, a proper system to monitor the staff and workers to prevent damage/ disturbance. ✓ Schedule works during dry season to avoid contaminated runoff from the work sites entering lake; clear the sites of materials, debris, and consolidated the refilled trenches prior to onset of monsoon ✓ Implement sediment and erosion control measures to prevent soil erosion and sedimentation in the wetland. Prevent entry of silt-laden / contaminated runoff into wetland or drains leading to wetland from the construction sites or construction camps. Appropriate measures such as sedimentation ponds, and filtration systems should be installed to prevent sediment and other pollutants from entering the water supply. Soil stabilization measures should also be taken to prevent soil erosion during construction, Construction near wetland to be planned in dry seasons only. ✓ Place storage areas for fuels and lubricants away from any drainage leading to water bodies; ✓ Store fuel, construction chemicals etc., on an impervious floor, also avoid spillage by careful handling ✓ Do not use equipment that generate heavy noise, ground vibration, dust etc., (such as pneumatic drills, dozers etc), within 500 m of Rudrasagar lake. Adapt manual excavation as far as possible ✓ Construction sites often generate significant amounts of dust that can impact nearby habitats. Dust suppression measures, such as watering down exposed soil, can help to reduce dust levels. ✓ Dispose any wastes generated by construction activities in designated sites; and ✓ Monitor the project closely throughout construction to ensure that all mitigation measures are being			

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		implemented effectively and that any issues are identified and addressed promptly. ✓ Conduct surface quality inspection according to the environmental management plan (EMP). ✓ Conduct continuous consultations with the local people during the works			
Surface water quality	Mobilization of settled silt materials, and chemical contamination from fuels and lubricants during construction can contaminate nearby surface waterbody. Ponding of water in the pits/ foundation excavations	✓ Disposal of drain sludge/silt in solid waste disposal sites with prior permission from municipality and/or TSPCB ✓ Provision of temporary sedimentation canal along construction areas, particularly alignments that are adjacent to receiving bodies of water or canals. ✓ Works of culvert construction shall be planned in lean or dry / lean flow season only ✓ Establish safety procedures against flash floods and other hazards associated with working in or near water during the construction of culverts on rivers. ✓ The measures to address soil erosion at the proposed facilities will consist of measures as per design, or as directed by the construction supervision consultant/PIU to control soil erosion, sedimentation, and water pollution. All temporary sedimentation, pollution control works, and maintenance thereof will be deemed incidental to the earthwork or other items of work. ✓ All temporary discharge points shall be located, designed and constructed in a manner that will minimize erosion in the receiving channels. ✓ Ensure proper compaction of refilled soil and there shall not be any loose soil particles on the top; the material shall be refilled in layers and compacted properly layer by layer. ✓ Use surplus soil for beneficial purposes such as in any other construction activities, or to raise the level of low-lying areas. ✓ Avoid scheduling of excavation work during the monsoon season. Earthworks during dry season.	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		✓ Confine construction area including the material storage (sand and aggregate) so that runoff will not enter the site. ✓ Ensure that drains are not blocked with excavated soil ✓ Stockyards, storage of fuel and lubricants at least 50 meters (m) away from watercourses. ✓ Fuel and other petroleum products stored at storage areas away from water drainage and protected by impermeable lining and bunded 110%. ✓ Daily control of machinery and vehicles for leakages ✓ No obstruction in flowing water. ✓ For effluents from workplace, camps, and offices, provide treatment arrangements such as retention ponds and septic tanks which should be incorporated in the facility designs. A sewage management plan has to be prepared by the contractor and agreed with the PMSC. ✓ Implement measures to protect water quality in the wetland for Melaghar MC. Include measures such as installing sediment basins, using biodegradable lubricants, and minimizing the use of chemicals ✓ Monitor water quality according to the environmental monitoring plan. ✓ Provide uncontaminated water for dust suppression;			
Groundwater use and contamination	The water collected in excavated pits will contain silt and disposal of this in drainage channels lead to silting	(i) Create a temporary drainage channel around the work area to arrest the entry of runoff from upper areas into the work area (ii) Pump out the water collected in the pits / excavations to a temporary sedimentation pond; dispose of only clarified water into drainage channels/streams after sedimentation in the temporary ponds (iii) Consider safety aspects related to pit collapse due to accumulation of water	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.
Generation of Construction Wastes.	Solid wastes to be generated from the construction activities are excess	(i) Prepare and implement a Construction Waste Management Plan; (ii) As far as possible utilize the debris and excess soil in construction purpose,	Construction Contractor and PMSC	PIU and ULB	Cost for implementation of mitigation measures

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
	excavated earth (spoils) during road and side drain construction, drain silt/ sludge during cleaning operation,	(iii) Avoid stockpiling any excess spoils at the site for long time. Excess excavated soils should be disposed at approved designated areas immediately; (iv) If disposal is required, the site shall be selected preferably from barren, infertile lands; site should be located away from residential areas, few water bodies and any other sensitive land uses; (v) Drainage silt/ sludge will be disposed at landfill site or open area away from habitation and after receiving NOC from TSPCB; (vi) Domestic solid wastes should be properly segregated in biodegradable and non- biodegradable for collection and disposal to designated solid waste disposal site; create a compost pit at workers' camp sites for disposal of biodegradable waste; non-biodegradable / recyclable material shall be collected separately and sold in the local recycling material market; (vii) Residual and hazardous wastes such as oils, fuels, and lubricants shall be disposed of in disposal sites approved by TSPCB; (viii) Prohibit burning of construction and/or domestic waste; (ix) Ensure that wastes are not haphazardly thrown in and around the project site, provide proper collection bins, and create awareness to use the dust bins; (x) No disposal of construction wastes near 1 km from protected wetland and ASI protected sites (xi) Conduct site clearance and restoration to original condition after the completion of construction work; Cluster-PIU to ensure that site is properly restored prior to issuing of construction completion certificate.			responsibility of contractor.
Existing Infrastructure and Facilities	Disruption of service and damage to existing infrastructure at specified project location during	(i) Prepare a list of affected utilities and operators if any; and (ii) Prepare a contingency plan to include actions to be done in case of unintentional interruption of service	Construction Contractor and PMSC	PIU and ULB	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
	implementation of the project				
Disturbance to terrestrial flora and fauna	Loss of vegetation and tree cover	(i) Conduct final confirmatory tree cutting and bird nest survey before start of construction. (ii) no trees will be removed without prior approval of concerned government agency/foresee department. (iii) Restrict vegetation removal to within ROW / actual work site. (iv) Tree cutting is avoided to maximum possible, transplant trees, where feasible (v) For any tree cut, conduct replacement planting at a ratio of 1(cut):5 (new planting) (vi) Before any tree cutting activity takes place, a thorough inspection of the tree must be conducted to check for any active bird nests. If an active nest is found, the tree cutting activity must be postponed until the young birds have flown off from their nests and are no longer dependent on them. This measure ensures that young birds are not harmed and that their habitats are protected. (vii) The contractor will not use or permit the use of wood as a fuel for the execution of any part of the works, including but not limited to the extent practicable shall ensure that fuels other than wood are used for cooking. (viii) Within ROWs, minimize land cover removals, and install protective physical barriers around trees. (ix) All ROW to be re-vegetated and landscaped after construction completed. (x) Prior to tree cutting, placard/s shall be installed in conspicuous places to inform the public that the tree cutting is authorized (xi) Protect giant trees and locally important trees (for religious reasons), if any is identified at the site during implementation (xii) Prohibit employers and workers from poaching animals and cutting of trees for firewood in the vicinity of the site	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
Impacts on aquatic ecology	Alterations in aquatic ecology	(i) Provide temporary protection at sections near the river/ponds to avoid sliding of soils; (ii) Store spoils away from the side of the river/pond; (iii) Implement proper storage/disposal of materials, chemicals and waste (iv) Implement mitigation measures for excavation, soil erosion and sediment mobilization, surface water pollution, and construction waste generation.	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.
Management Plan for Night works (if required).	Disturbance to nearby establishment	(i) Night works should be avoided at construction sites specially in residential areas and should be performed only when day works are not possible due to excessive traffic/public/pedestrian movement, site of cultural or religious importance, where there is huge crowd during day hours or any other unavoidable circumstances; (ii) Contractor should plan for night works only after directions from PMU/PIU/project consultants (iii) Contractor should submit plan for night works for approval from PIU; (iv) PIU should ensure that prior written information should be given to local authorities such as district administration, Police/traffic police, line agencies concerned, resident's welfare association/business association/vyapar of the affected areas and their consents/permissions should be taken prior to start of night works; (v) PIU/PMSC engineers should check and ensure that all the preparation as per management plan is done by contractor and contractor is having all the necessary equipment and materials for night works; (vi) Contractor is required to have following equipment/arrangements for night works; (vii) Contractors should have handheld noise level meter for measurement of noise during night hours; (viii) Contractors should have handheld lux meter for the measurement of illumination during night hours;	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.

<table>
<tr><th>Field</th><th>Anticipated Impact</th><th>Mitigation Measures</th><th>Responsible for Mitigation</th><th>Monitoring of Mitigation</th><th>Cost and Source of Funds</th></tr>
<tr><td></td><td></td><td>(ix) Preferably electrical connections are available for running equipment otherwise sound proof/super silent Diesel Generator set should be available;
(x) Sound level should not increase as per following-

<table><tr><th>Type of area of work</th><th>Maximum noise level dB(A)</th></tr><tr><td>Industrial</td><td>70</td></tr><tr><td>Commercial</td><td>55</td></tr><tr><td>Residential</td><td>45</td></tr><tr><td>Silence zone</td><td>40</td></tr></table>
(xi) As far as possible ready-mix concrete from batching plant to be used, otherwise the concrete should be prepared away from residential areas and brought to the site;
(xii) All the noise activity like hammering, cutting, crushing, running of heavy equipment should be done in day time and avoided in night time;
(xiii) Workers engaged in night works should have adequate rest/sleep in day time before start of night works;
(xiv) Worker engaged for night works should have previous experience of night works and should be physically fit for such works including clear vision in night;
(xv) All the necessary provisions of traffic aids such as traffic signals, road signage, barricades, cautions boards, traffic diversion boards etc. should be available with fluorescent/retro-reflective arrangements;
(xvi) Workers should be trained before start of night works about risks and hazards of night works and their mitigation measures and should be provided all the protective aids (PPEs) including fluorescent/retro-reflective vests;</td><td></td><td></td><td></td></tr>
</table>

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		(xvii) Horns should not be permitted by equipment and vehicles; (xviii) Workers should not shout and create noise; (xix) First aid and emergency vehicles should be available at site; (xx) Emergency preparedness plan should be operative during night works; (xxi) Old persons and pregnant women and women having small kids should not work in night time; (xxii) All the vehicles and equipment being used at night works should have adequate type of silencers/enclosures/mufflers to reduce noise; (xxiii) All the vehicles should be checked for working head lamps, tail lamps, inner lights etc. before start of night works; (xxiv) PIU/PMSC site engineers and contractor's safety personnel should closely monitor the safety of works continuously and noise and illumination levels on hourly basis and maintain photographic and video graphic records as well as register the observations; (xxv) Night works should be stopped early in the morning at least one hour before start of pedestrian/traffic movement; (xxvi) After completion of night works all the site should be cleaned and maintained obstruction free for day time movement of vehicles and pedestrians; (xxvii) Drivers and workers should be alert and responsive during night works; (xxviii) All the wages to workers working in night hours should be as per the applicable labour acts; (xxix) Avoid any nuisance which may create problems to nearby habitants and work peacefully during night hours; and (xxx) Night works should not be conducted near hospitals and during peak seasons such as peak tourist season, students' exam times etc.			
Accessibility	Traffic problems and conflicts near project	(i) Hauling (material, waste/debris, and equipment) activities	Construction Contractor	PMSC and PIU	Cost for

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
	locations and haul road Impact on access to house and road user particularly during Construction of road and drain	(ii) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; (iii) Schedule transport and hauling activities during non-peak hours; (iv) Locate entry and exit points in areas where there is low potential for traffic congestion; (v) Drive vehicles in a considerate manner; and (vi) Notify affected public by public information notices, providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.			implementation of mitigation measures responsibility of contractor.
Traffic diversion or road closure	Traffic management and chances of accidents near construction site	(i) Prepare and implement a traffic management plan (ii) Start the work from downstream end of the drains (iii) Conduct work in small sections, say 100 m at a time; confine the drain in the section and stop all inlets in general, and into that section in particular (iv) Provide a bypass arrangement for the water coming for upstream by providing pumping arrangement so that the water coming from upstream side of the selected section are pumped through a pipe to the downstream (v) Dewater the selected section; pump the accumulated water into the downstream; (vi) As far as possible allow the silt to dry before start of desilting work. (vii) Avoid manual desilting of drains as far as possible in the section where there is space to employ mechanical diggers or appropriate equipment and tools (viii) Provide proper tools and equipment for desilting (winches and buckets), and personal protection equipment (PPE) for workers (gloves, gum boots, face masks, etc.); additional oxygen tanks for emergency use (ix) Provide onsite training to workers on safe handling of contaminated water and sludge, and	Construction contractor and PMSC	PIU and ULB	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		(x) Silt/soil generated from desilting shall be disposed municipal land fill site with prior permission from respective municipal councils and in consultation with Tripura State Pollution Control Board			
Socio-Economic - Employment	Generation of temporary employment and increase in local revenue	(i) Employ local labor force as far as possible; and (ii) Comply with labor laws (See **Appendix 5** of this IEE)	Construction Contractor	PMSC and PIU	Contractor costs
Impact on socio economic-Income	Disturbance to economic activities may result from excavation works, stockpiling, the operation of construction vehicles and equipment, and accidental damage to utilities (e.g., power supply poles, open drains, and water taps or hoses)	• Implement the traffic management plan in collaboration with local authorities; • Where traffic congestion will likely occur, place traffic flagmen during working hours; • Avoid full road closures by applying the construction method on section-wise and/or chainage-wise approach during excavation, concreting and/or curing periods; • If full road closure is not possible, especially on very narrow roads, ensure that alternate routes are identified and that affected residents and establishments are informed prior to conducting the construction activities; • Provide convenient access to pedestrians when works occur in front of residential, commercial, or institutional establishments. Examples are planks with handrails that should be provided to cross excavated areas. • Provide appropriate compensation to qualified affected people or businesses per approved resettlement plan for the subproject; • Manage stockpile; • Manage pumped water from excavations either to drains or drums for later use; • Relocate the affected power supply poles, and • Advise the concerned authority during accidental damage to utilities	Construction Contractor	PMSC and PIU	Contractor costs
Occupational Health and Safety	Occupational hazards which can arise	(i) All national, state and local core labor laws to be complied with (see **Appendix 5** of this IEE). Labour	Construction Contractor	PMSC and PIU	Cost for

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
	during work, safe from COVID 19	license and Workmen Compensation policy to be obtained by contractor before start of construction (ii) Implementation of international best practices on occupational health and safety such as those in Section 4.2 of World Bank EHS Guidelines on Construction and Decommissioning Activities (iii) Develop and implement site-specific occupational health and Site-specific occupational health and safety (OHS) Plan and Supplementary H & S plan for COVID 19 to be developed and implemented which included measures such as: (a) excluding public from the site; (b) maintaining social distancing for protection from COVID 19 infection; (c) ensuring all workers are provided with and use personal protective equipment like helmet, gumboot, safety belt, gloves, nose mask, face mask and ear plugs; (d) OHS Training and COVID 19 awareness H & S training for all site personnel; (e) complete COVID 19 vaccinations for workers, (f) documented procedures to be followed for all site activities including follow of SOP for COVID 19 to be developed for the project and H & S plan; and (g) documentation of work-related accidents; (iv) Availability of First aid box/ facility throughout the project period; (v) Medical insurance and tie-up with local hospitals to be provided for workers; (vi) All installations will be secured from unauthorized intrusion and accident risks; (vii) Potable drinking water to be provided for the workers; (viii) Clean eating areas to be provided where workers are not exposed to hazardous or noxious substances; (ix) To provide health and safety orientation training including COVID 19 risk and mitigation to all new workers to ensure that they are apprised of the basic			implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		site rules of work at the site, personal protective protection, and preventing injuring to fellow workers; (x) Visibility of workers to be ensured through the use of high visibility vests when working in or walking through heavy equipment operating areas; (xi) Moving equipment will be outfitted with audible back-up alarms; (xii) Sign boards will be provided for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage is in accordance with international standards and are well known to, and easily understood by workers, visitors, and the general public as appropriate; (xiii) Workers will be disallowed exposure to noise level greater than 85 dB (A) for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively. Standard Operating Procedure (SOP) for the project and Supplementary H & S plan for COVID 19 will be prepared which cover, (xiv) General instruction to follow to prevent the spread of COVID-19 in construction workplace (Refer to Error! Reference source not found.**1)** (xv) Worksite prevention practice at work site, office, during meeting, travelling, etc. (xvi) Precaution to be taken at workmen habitat/ camp (xvii) Use of PPEs: face mask – hand gloves, maintaining social distancing, disinfection, requirement of awareness covered under the H & S plan.			
Community Health and Safety.	Traffic accidents and vehicle collision with pedestrians during material and waste transportation and road, drain construction work	(i) Contractor's implementation of community health and safety plan following international best practices on community health and safety such as those in Section 4.3 of World Bank Environmental Health and Safety (EHS) Guidelines on Construction and Decommissioning Activities. As a minimum and	Construction Contractor	PMSC and PIU	Cost for Implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		whichever is applicable, the health and safety plan shall ensure the following: (ii) implement risk management strategies to protect the community from physical, chemical, or other hazards associated with sites under construction and decommissioning; (iii) restricting access to the site, through a combination of institutional and administrative controls, with a focus on high-risk structures or areas depending on site-specific situations, including fencing, signage, and communication of risks to the local community; (iv) removing hazardous conditions on construction sites that cannot be controlled affectively with site access restrictions, such as covering openings to small confined spaces, ensuring means of escape for larger openings such as trenches or excavations, or locked storage of hazardous materials; (v) implement measure to prevent proliferation of vectors of diseases at work sites; (vi) Implement necessary structural safety and site safety measures to prevent collapse of trenches, and damage / structural failure / collapse of adjacent buildings, boundary walls and other structures; provide proper braces, struts, anchors as required in the trench and for protecting the adjoining structures; avoid placing of material, equipment, waste, close to the trench edges (vii) adequate space and lighting, temporary fences, reflectorized barriers and signage's at active work sites (viii) contractor's preparedness in emergency response; (ix) adequate dissemination of GRM and contractor's observance and implementation of GRM (x) Restrict construction vehicle movements to defined access roads and demarcated working areas (unless in the event of an emergency); (xi) Enforce strict speed limit (20-30 kmph) for playing on unpaved roads, construction tracks;			

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		(xii) Night-time driving will be by exception only, as approved by the Cluster-PIU to minimize driving risk and disturbance to communities; (xiii) Temporary traffic control (e.g. flagmen) and signs will be provided where necessary to improve safety and provide directions; (xiv) All drivers will undergo safety and training; along with COVID-19 awareness (xv) Public access to all areas where construction works are on-going will be restricted through the use of barricading and security personnel; (xvi) Warning signs, blinkers will be attached to the barricading to caution the public about the hazards associated with the works, and presence of excavation; (xvii) Control dust pollution – implement dust control measures as suggested under air quality section; (xviii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure; (xix) Provide road signs and flag persons to warn of on-going trenching activities.			
Work Camps and worksites	Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants. Unsanitary and poor living conditions for workers	(i) As far as possible locate the camp site away from residential areas (at least 50 m buffer shall be maintained) (ii) Avoid tree cutting for setting up camp facilities (iii) Ensured that a proper compound wall is provided, and erect a wind/dust screen around (iv) Camp site shall not be located near (50 m) water bodies, flood plains flood prone/low lying areas, or any ecologically, socially, archeologically sensitive areas (v) No worker's camp is allowed near Wetland area (Rudrasagar lake) at Melaghar and ASI sites at Udaipur (vi) Construction camp must be safeguarded from COVID -19 including safe eating area, maintaining	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		Hygiene inside camp, ensure physical distancing measures (vii) Separate the workers living areas and material storage areas clearly with a fencing and separate entry and exit (viii) Provide proper temporary accommodation with proper materials, adequate lighting and ventilation, appropriate facilities for winters and summers; ensure conditions of liveability at work camps are maintained at the highest standards possible at all times; (ix) Consult Cluster-PIU before locating project offices, sheds; (x) Minimize removal of vegetation and disallow cutting of trees (xi) Ensure conditions of liveability at work camps are always maintained at the highest standards possible; living quarters and construction camps shall be provided with standard materials (as far as possible to use portable ready to fit-in reusable cabins with proper ventilation); thatched huts, and facilities constructed with materials like GI sheets, tarpaulins, etc., shall not be allowed as accommodation for workers (xii) Camp shall be provided with proper drainage, there shall not be any water accumulation (xiii) Ensure COVID vaccination is done for all the labours involved in the work (xiv) Provide drinking water, water for other uses, and sanitation facilities for employees (xv) Prohibit employees from cutting of trees for firewood; contractor should be provided proper facilities including cooking fuel (oil or gas; fire wood not allowed) (xvi) Train employees in the storage and handling of materials which can potentially cause soil contamination			

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		(xvii) Recover used oil and lubricants and reuse or remove from the site (xviii) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; provide a compost pit for biodegradable waste, and non-biodegradable / recyclable waste shall be collected and sold in local market (xix) Remove all wreckage, rubbish, or temporary structures which are no longer required (xx) At the completion of work, camp area shall be cleaned and restored to pre-project conditions, and submit report to Cluster-PIU; Cluster-PIU to review and approve camp clearance and closure of work site.			
Social and Cultural Resources	Risk of archaeological chance finds Works near local religious / cultural places may inconvenience local community	• Before implementation of the project, PIU to consult ASI (in Udaipur / Agartala) about project components within 300 m of the monuments, and include any feedback or measures as suggested by ASI in construction methodology; obtain prior ASI permission for construction if required • Prior to commencement of construction, consult with concerned religious authorities of these temples, nearby people and devotees and explain the work method and duration of proposed works, take their suggestions and comments in scheduling and conducting the works • No construction camps (workers accommodation, material / waste / soil storage) should be established within 500 m of the monuments in Udaipur • Do not use equipment that generate heavy noise, ground vibration, dust etc., (such as pneumatic drills, dozers etc., within 100 m of ASI monuments • Put in place proper dust and noise control measures • Adjacent to religious/social/historical buildings, undertake excavation and construction work in such	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		a way that no structural damage is caused to the structures • Observe the local rituals and important dates of festivals, weekly/monthly/annual religious occasions in the religious places and do not make any disturbance/hindrance/obstacles during such time to the religious places • Provide proper signage, barricades etc. to protect public and devotees from dangers of construction works. • Ensure proper traffic management planning to minimize the disruption to the normal traffic flow in the area and ensure the safety of the people. • Clear the work site of unnecessary material, equipment and debris / surplus soil; do not stock material / soil at the sites • Conduct continuous consultations with the local people during the works • Implement additional safety features for working near the schools; isolate work site from the school access road; provide proper barricading to prevent entry of children / public into work site; create awareness among school children and staff on construction safety			
Monsoon preparedness	Disruption of utilities and water logging in trenches	• As for a possible avoid trench works and excavation works for drain, road during monsoon season to avoid any water logging and accident due to it • if open trenches are not avoidable during monsoon, keep ready all the mitigations measure to avoid water logging such as dewatering pumps and sufficient pipes, traffic assistance, barricades etc. •	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.
Submission of EMP implementation report	Unsatisfactory compliance to EMP	(i) Appointment of Environment, Health and Safety (EHS) cum social Supervisor to ensure EMP implementation (ii) Timely submission of monitoring reports including pictures	Construction Contractor and PIU	PMSC and PMU	Contractor cost

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
Post- construction clean-up	Damage due to debris, spoils, excess construction materials	(i) Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) after completion of work; (ii) All excavated roads shall be reinstated to original condition. (iii) All disrupted utilities will be restored (iv) All affected structures will be rehabilitated/ compensated (v) The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. (vi) The contractor must arrange the cancellation of all temporary services. (vii) Request Cluster-PIU to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.	Construction Contractor	PMSC and PIU	Cost for implementation of mitigation measures responsibility of contractor.

Table 41: Operation Stage Environmental Impacts and Mitigation Measures

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
Drainage Maintenance	Entry of wastewater, blocking/choking of drains due to accumulation of silt, and solid waste could damage the health and environment	(i) Prevent entry of wastewater into drains; this requires development of sewerage system (intercepting of wastewater) in the town. In the interim, an interception, diversion and treatment of drain water proposed under AMRUT/other govt. scheme; PMU to ensure that this project is implemented as per the schedule so that wastewater that enter the drains is collected and treated prior to discharge into streams and river (ii) Ensure that sewage/septic tank outflow is not discharged into drains; implementation of the proposed sanitation and septage management system under AMRUT/ other govt. scheme will minimize this impact (iii) Promotion and enforcement of good waste management practices at household level; (iv) Regular monitoring and cleaning of the drains, and siltation or sedimentation chambers (or similar structures) at the outfalls, to prevent entry or accumulation of silt and solid wastes inside these drains. (v) Ensure regular cleaning and desilting of drains; project shall include	Operation Contractor	ULB	Operating costs

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		provision of necessary maintenance equipment (vi) Prevent encroachment of drains			
Community hazards due to destroyed or removed drainage cover	Repair works could cause some temporary disruption of activities at sensitive locations such as schools, hospitals, religious places, etc.,	Repair works could cause some temporary disruption of activities at sensitive locations such as schools, hospitals, protected areas, religious places, etc., so the same precautions as employed during the construction period should be adopted. ULB will: • Complete work in these areas quickly; and • Consult municipal authorities, custodians of important buildings, cultural and tourism authorities and local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious and cultural festivals.	Operation Contractor	ULB	Operating costs
Routine Maintenance of road	Traffic may be interrupted temporarily but this work will be very small in scale, infrequent, and short in duration, so there will be no economic or other implications. The infrastructures will need to be repaired from time to time, but environmental impacts will be much less than those of the construction period as the work will be infrequent, affecting small areas only.	(i) To maintain the safety of workers and road-users, such work should be coordinated with the local police department so that adequate warning signs and traffic diversions can be set up when necessary. (ii) Debris need to be collected and disposed at a designated site such as the landfill. (iii) Continue to encourage community participation in ensuring drainage canals are clog-free through information and behavior change campaigns and incentives, if possible.	Operation Contractor	ULB	Operating costs
Community safety	Improved roads may give way to faster	(i) Conduct regular inspection of the roads to check for damages, and undertake rehabilitation measures for any damages found;	Operation Contractor	ULB	Operating costs

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
	vehicle speeds which could endanger people and households along the road alignments. Damage in roads may also cause accidents to motorists.	(ii) Inspect and maintain the integrity of road barriers, especially at critical curves or locations that are prone to vehicular accidents; (iii) Inspect and maintain speed limiters such as humps installed on road sections near residential areas, schools, and religious establishments. (iv) Inspect and maintain all road signages, including appropriate warning signages at silent zones, and ensure that these are reflectorized and visible even during night time; and (v) Ensure pedestrian crossings are maintained.			

Table 42: Construction Stage Environmental Monitoring Plan

Monitoring field	Monitoring Location	Monitoring Parameters	Frequency	Responsibility	Monitoring	Cost and Source of Funds
Construction disturbances, nuisances, public and worker safety,	All work sites	Implementation of dust control, noise control, traffic management, and safety measures. Sample site inspection checklist attached as **Appendix 13**	Weekly during construction	Supervising staff and safeguards specialists	PMSC and PIU	No costs required
Tree cutting	Along the proposed drain and road network	Tree cutting permit taken, Tree cutting done	Continuous	Supervising staff, EHS officer and safeguards specialists	PIU and ULB	Contractor
Shifting of utility structure	Along the proposed drain and road network	Inform to concerned service providers and shifting done	Continuous	Supervising staff, EHS officer and safeguards specialists	PIU and ULB	Contractor
Construction, Labour Camp, storage yard Management	Construction, Labour Camp, storage yard sites	As per SEMP	Weekly	EHS officer, Environment Specialist of consultant	PIU and ULB	contractor

Monitoring field	Monitoring Location	Monitoring Parameters	Frequency	Responsibility	Monitoring	Cost and Source of Funds
Solid waste management	Construction, Labour Camp, storage yard Management	As per SEMP	Weekly	EHS officer, Environment Specialist of consultant	PMSC, PIU and ULB	contractor
Construction and demolition waste management	All construction site	As per SEMP and applicable rules and regulations	Monthly	EHS officer, Environment Specialist of consultant	PMSC, PIU and ULB	contractor
Consent to establish of batching plants, crusher, hot mix plant. DG sets etc.	Batching plants, crusher, hot mix plants etc.	Copies of Consents	Periodically	EHS officer, Environment Specialist of consultant	PMSC and PIU	No cost required for monitoring cost for obtaining CTE/CTO from PMU and for others from Contractor
Ambient air quality	**Udaipur** 4 locations, (2 locations on proposed road and 2 locations on proposed drain- covering location near ASI sites and other areas) **Amarpur** 4 locations, (2 locations on proposed road and 2 locations on proposed drain, different areas) **Bishramganj** 4 locations, (2 locations on proposed road and 2 locations on proposed	PM_{10}, $PM_{2.5}$ NO_2, SO_2, CO	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (2.5-years period considered)	Construction Contractor	PMSC and PIU	Cost for implementation of monitoring measures responsibility of contractor

Monitoring field	Monitoring Location	Monitoring Parameters	Frequency	Responsibility	Monitoring	Cost and Source of Funds
	drain, different areas) **Melaghar** 4 locations, (2 locations on proposed road and 2 locations on proposed drain, different areas) **Belonia** 4 locations, (2 locations on proposed road and 2 locations on proposed drain, different areas)					
Ambient noise level	**Udaipur** 4 locations, (2 locations on proposed road and 2 locations on proposed drain- covering location near ASI sites and other areas) **Amarpur** 4 locations, (2 locations on proposed road and 2 locations on proposed drain, different areas) **Bishramganj**	Day time and nighttime noise levels	(i) Once before start of construction. (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (2.5-years period considered)	Construction Contractor	PMSC and PIU	Cost for implementation of monitoring measures responsibility of contractor

Monitoring field	Monitoring Location	Monitoring Parameters	Frequency	Responsibility	Monitoring	Cost and Source of Funds
	4 locations, (2 locations on proposed road and 2 locations on proposed drain, different areas) **Melaghar** 4 locations, (2 locations on proposed road and 2 locations on proposed drain, different areas) **Belonia** 4 locations, (2 locations on proposed road and 2 locations on proposed drain, different areas)					
Surface water quality	Two no. for each town if required (suspected water body contamination) Specifically surface water quality monitoring for Rudrasagar lake nearby road/ drain location	pH, TDS, Oil and grease, Cl, F, NO3, TC, FC, Hardness, Turbidity BOD, COD, DO, Total Alkalinity	(i) Once before start of construction (ii) Yearly 3 times (for seasons: pre-monsoon, post-monsoon and winter) during construction (2.5-years period considered)	Construction Contractor	PMSC and PIU	Cost for implementation of monitoring measures responsibility of contractor

Monitoring field	Monitoring Location	Monitoring Parameters	Frequency	Responsibility	Monitoring	Cost and Source of Funds
COVID-19 Heath Monitoring	At all operating sites	Known symptoms of COVID-19 e.g. fever, cough, etc.	Daily	Construction Contractor	PMSC and PIU	Cost for implementation of monitoring measures responsibility of contractor (Lumpsum)

Table 43: Operation Stage Environmental Monitoring Plan

Monitoring Field	Monitoring Location	Monitoring Parameters	Frequency	Responsibility	Monitoring	Cost and Source of Funds
Monitoring of quality of water on discharge point of the drain	Outfall of the drain sampling in all zones	pH, Nitrite, Nitrate, Turbidity BOD, COD, Hardness, residual chlorine, Total Alkalinity	Quarterly once	Contractor / ULB	ULB	O&M costs
Air quality Monitoring on proposed road	At sensitive locations	PM_{10}, $PM_{2.5}$ NO_2, SO_2, CO	Two times in a year	Contractor / ULB	ULB	O&M costs

B. Implementation Arrangements

191. Urban Development Department (UDD) of Government of Tripura (GOT) is the executing agency, and the implementing agencies are Tripura Urban Planning and Development Authority (TUDA, for urban component) and Tripura Tourism Development Corporation Limited (TTDCL, for tourism component). A Project Management Unit (PMU) will be established with the secretary, UDD as the project director and secretary, Department of Tourism (DOT), GOT, as co-project director. The PMU will also include two additional project directors (one each for urban and tourism), a project coordinator, and an additional project coordinator. Six project implementation units (PIUs) will be established to cover urban and tourism components separately and will be located at Agartala, Udaipur and Kumarghat. Project Management & Supervision Consultant (PMSC) will be engaged to assist PMU and the PIUs for implementation of the project.

192. At PMU level, the project coordinator at PMU will be the nodal officer for environmental, social safeguards and gender and will be responsible for ensuring compliance with ADB's Safeguards Policy Statement (SPS), 2009, during the project implementation, including the monitoring and reporting. PMU will engage a qualified and experienced consultant, designated as environmental safeguards officer (ESO), to support project coordinator in environmental safeguards tasks. Project manager or assistant project manager of PIU will be designated as safeguards focal in each PIU. PMSC team will include an Environmental Safeguards Specialist (ESS), and three support safeguards staff, located in PIUs and will provide all necessary support and expert guidance to PMU and PIUs. Contractor will appoint an Environment, Health and Safety (EHS).

193. **Project Management Unit (PMU).** The PMU will be responsible for planning, management, coordination, supervision and progress monitoring. The PMU has the responsibility of fulfilling environmental requirements of the government and ensuring effective implementation of the environmental management provisions in the IEEs, EMPs and civil works contracts. The following are the key environmental safeguard tasks and responsibilities of the ESO at the PMU:

(i) ensure project compliance with the statutory environmental requirements, ADB SPS 2009, and loan covenants
(ii) ensure that draft IEEs prepared based on preliminary designs are updated to reflect the final subproject detailed designs, and are approved by ADB and disclosed prior to bid invitation (for works contracts) and commencement of works (for design-build contract)
(iii) ensure that IEEs including EMPs are included in bidding documents and contracts
(iv) Ensure that baseline monitoring as suggested in the EMPs are conducted and base values established prior to commencement of works
(v) Ensure that detailed environmental audit conducted for existing facilities and corrective actions are included in project for implementation
(vi) coordinate with design engineers to avoid potential environmental impacts
(vii) ensure that SEMPs are submitted by contractor and cleared by PIU prior to commencement of works
(viii) ensure that construction works are not commenced until all applicable government clearances, permits (including those required by construction contractor) are obtained;
(ix) Oversee and ensure that contractors and their subcontractors comply with labor laws and rules
(x) ensure that the IEEs including EMPs are updated in case of any change project scope, design or location during implementation

(xi) confirm compliance with all measures and requirements set forth in the IEEs, the EMPs and any corrective or preventive actions set forth in safeguard monitoring reports;
(xii) finalize environmental sections quarterly progress reports, and environmental monitoring reports for submission to ADB
(xiii) ensure availability of budget for safeguards activities
(xiv) ensure adequate awareness campaigns, information disclosure among affected communities and timely disclosure of final IEEs/EMPs and SEMRs, including corrective action plans, if any, in project website and in a form accessible to the public;
(xv) assist in setting up of grievance redress mechanism (GRM), identifying grievance redressal committee (GRC) members and developing capacity of GRC members, PIUs, consultants, and contractors in addressing environmental safeguards-related issues/concerns/complaints;
(xvi) ensure any grievances brought about through the GRM are redressed in a timely manner;
(xvii) organize periodic capacity building and training programs on safeguards for PMU, PIUs and contractors.

194. **Project Implementation Units.** The PIUs will be responsible for the day-to-day activities of project implementation in the field and will have direct supervision of all contractors. PIUs will oversee and monitor the day-to-day progress and implementation including environmental safeguards. The following are the key environmental safeguard tasks and responsibilities of the Safeguard Officer at the PIU with the PMSC's support environmental staff:

(i) Promptly report to PMU on any changes in project design / location / scope during the design verification and implementation phase and coordinate with PMSC to update IEEs and EMPs
(ii) Liaise with local offices of regulatory agencies and ensure that clearances /approvals are obtained timely;
(iii) Take necessary action for obtaining right-of-way prior to start of works;
(iv) Review and approve contractor SEMPs;
(v) Oversee implementation of SEMPs by contractors
(vi) Ensure that contractors and their subcontractors comply with labor legislations and standards; ensure that workers are accommodated, paid and treated according to the requirements
(vii) ensure strict implementation of occupational health and safety requirements
(viii) Review monthly reports from contractors on EMP implementation, and support PMU in preparing quarterly reports and SEMRs
(ix) Ensure continuous public consultation and awareness;
(x) Coordinate grievance redress process and ensure timely actions by all parties; and
(xi) Support all other environmental safeguards-related activities and tasks of the PMU as may be needed.
(xii) recommend issuance of construction work completion certification to the contractor upon verification of satisfactory post-construction clean-up.

195. **Project Management and Supervision Consultant.** The PMU and PIUs will be supported by PMSC's Environmental specialist and three support environmental staff. Key tasks of will include, but not limited to, the following:

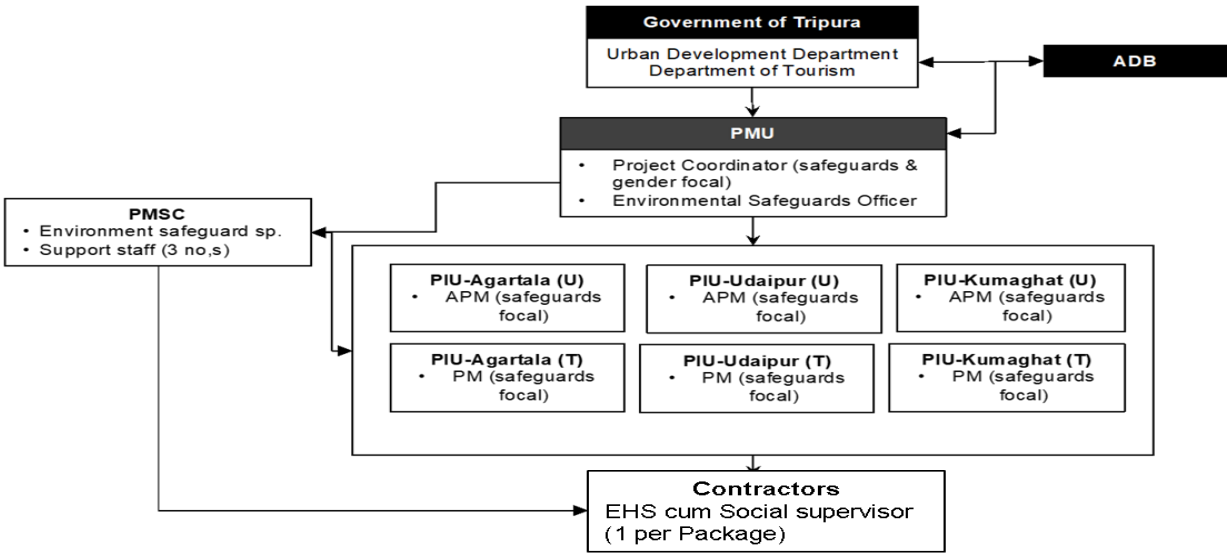
(i) Assist in preparing, updating, reviewing, implementing, monitoring, and reporting of all tasks related to environmental safeguards as required
(ii) Monitoring of EMP implementation, regulatory compliance, grievance redress, reporting etc.,
(iii) Provide all necessary support and expert guidance to ESO and SO in managing environmental safeguards tasks
(iv) Work closely with design teams to include environmental considerations in subproject location, design and technical specifications
(v) Update IEEs and EMPs as needed to reflect detailed designs, changes in design verification and/or implementation phase of subprojects
(vi) Assist in public consultations, feedback and reporting
(vii) Ensure that the relevant provisions of EMPs, including costs of implementing the EMPs, are fully included in bid and contract documents, particularly in the bill of quantities and cost line items;
(viii) Identify statutory clearances / permissions / approvals required and assist in obtaining them;
(ix) Assist in including standards/conditions of regulatory clearances and consents, if any, in the project design;
(x) Conduct training, capacity building activities for PMU, PIU and contractors
(xi) Ensure compliance with ADB's disclosure requirements as per the SPS;
(xii) Assist PMU/PIUs in reviewing and approving contractor SEMPs, and other associated plans
(xiii) Carry out site verification, and monitor the EMP implementation and ensure compliance by the contractors and subcontractors;
(xiv) Ensure that contractors and their subcontractors comply with labor legislations; ensure that workers are paid and treated according to the labor legislations
(xv) Identify any non-compliances or unanticipated impacts and recommend corrective actions
(xvi) Prepare environmental safeguards section in quarterly reports
(xvii) Prepare semi-annual environmental monitoring reports
(xviii) Assist in operating GRM effectively
(xix) Advise contractor on appropriate actions on grievances, ensure timely resolution and proper documentation; and
(xx) Support all other environmental safeguards-related activities and tasks of the PMU and PIUs as may be needed.

196. **Contractor.** The approved draft IEEs and EMPs are to be included in bidding and contract documents. The PMU and PIUs will ensure that bidding and contract documents include specific provisions requiring contractors to comply with: (i) all applicable laws and regulations relating to environment, health and safety; (ii) reinstate pathways, other local infrastructure, and agricultural land to at least to their pre-project condition upon the completion of construction; (iii) all applicable labor laws and core labor standards on (a) prohibition of child labor as defined in national legislation, international treaties for construction and maintenance activities;(b) equal pay for equal work of equal value regardless of gender, ethnicity, or caste; (c) no discrimination in respect of employment and occupation; (d) allow freedom of association and effectively recognize the right to collective bargaining, and (e) elimination of forced labor; and (iv) the requirement to disseminate information on sexually transmitted diseases, including HIV/AIDS, to employees and local communities surrounding the project sites. The contractor will be required to appoint a full time Environment, Health and Safety (EHS) supervisor on-site to implement the EMP. EHS cum social supervisor will assist contractor in the following:

(i) Prepare SEMP and submit to PMU/PIU for approval prior to start of construction
(ii) Comply with the measures forth in the IEEs, the EMPs, and SEMRs
(iii) Ensure implementation of SEMP and report to PIU/PMC on any new or unanticipated impacts
(iv) Ensure that necessary pre-construction and construction permits are obtained
(v) Ensure to adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and
(vi) Conduct orientation, daily briefing sessions, toolbox talks, to workers on environment, health and safety;
(vii) provide appropriate worker facilities at the workplace and labor camps as per the requirements and contractual provisions;
(viii) Carry out site inspections on a regular basis and prepare site-inspection checklists/reports;
(ix) Record EHS incidents and undertake remedial actions;
(x) Conduct environmental monitoring (air, noise, etc.,) as per the monitoring plan
(xi) Prepare monthly EMP monitoring reports and submit to PIU
(xii) Comply with labor legislations, and ensure that subcontractors also implement labor legislations requirements, through cascading of requirements to subcontractors—HR policy, labor management requirements, any worksite specific grievance redress mechanism.
(xiii) Work closely with PIU and PMC to ensure communities are aware of project related impacts, mitigation measures, and GRM;
(xiv) Receive, record, and redress grievances in an effective and timely manner;
(xv) Provide the PIU/ PMU with a written notice of any unanticipated environmental, impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP;
(xvi) Reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction;
(xvii) Site clearance and restoration after the completion of works

197. Safeguards implementation arrangement is shown in **Figure 62.**

Figure 62: Safeguards Implementation Arrangements



ADB = Asian Development Bank; APM = Assistant project manager; EHS = Environment, Health & Safety; IA – Implementing Agency; PIU = Project Implementation Unit; PMSC = Project Management and Supervision Consultant; PMU = Project Management Unit; PM = project manager

C. Capacity Building and Training

198. Safeguard focal of PIU will be trained by Environmental Safeguard Specialist of PMSC on safeguards issues related to the project, EMP, SEMP and GRM. The SEMP, IPPF and GESI action plan will provide indicative capacity building program which included modules on: (i) introduction and sensitization to ADB SPS on environmental, involuntary resettlement and indigenous people policies and requirements; (ii) project related requirements as provided in the EMP, SEMP, IPPF and GESI action plan, (iii) review, updating and preparation of the IEEs, SEMPs, RPs, DDRs and IPPs (as required) upon the completion of project detailed design; (iv) improved coordination within nodal departments; (v) monitoring and reporting system; and (vi) project GRM.

199. The estimated cost is ₹3,00,000 (excluding trainings of contractors which is e part of EMP implementation cost during construction) to be covered by the project's capacity building program. The detailed cost and specific modules are being customized for the available skill set after assessing the capabilities of the target participants and the requirements of the project by the Environment Safeguard specialist (ESS) of PMSC.

Table 44: Outline Capacity Building Program on EMP Implementation

Description	Participants and Venue	Estimate (Rs)	st and Source of Funds
1. Introduction and Sensitization to Environmental Issues (1 day) - ADB Safeguards Policy Statement - Government of India and Tripura state applicable safeguard laws, regulations and policies including but not limited to core labor standards, OHS, etc. - Incorporation of EMP into the project design and contracts - Monitoring, reporting and corrective action planning	All staff and consultants involved in the project At PIU-PMU (combined program for all subprojects in one cluster)	150,000	Included in the overall program cost
2. EMP implementation (1/2 day) - EMP mitigation and monitoring measures - Roles and responsibilities - Public relations, - Consultations - Grievance redress - Monitoring and corrective action planning - Reporting and disclosure - Construction site standard operating procedures (SOP) Health & safety, specifically health risk from COVID 19. -- Chance find (archaeological) protocol -Traffic management plan Waste management plan - Site clean-up and restoration	All Cluster-PIU staff, contractor staff and consultant involved in the subproject At PIU- cluster- PIUs	150,000 (Lump sum)	Included in subproject cost estimates
3. Contractors Orientation to Workers (1/2 day) - Environment, health and safety in project construction -Health impact and protection from COVID 19	Once before start of work, and thereafter regular briefing every month once. Daily briefing / tool box talk on safety prior to start of work All workers (including unskilled laborers)	100,000	Contractor's cost

D. Monitoring and Reporting

200. Immediately after mobilization and prior to commencement of the works, the contractor is to submit a compliance report to cluster-PIU that all identified pre-construction mitigation measures as detailed in the EMP will be undertaken. Contractor should confirm that the staff for EMP implementation (EHS cum social supervisor/officer) is mobilized. Cluster-PIU is required to review, and approve the report and permit commencement of works.

201. During construction, results from internal monitoring by the contractor is to be reflected in their monthly EMP/SEMP implementation reports to the Cluster-PIU/PIU. PMSC is required to review and advise contractors for corrective actions if necessary. Quarterly report summarizing compliance and corrective measures taken is to be prepared by PMSC team at PIU and to be submitted to PMU. During operation, the contractor is required to conduct management and monitoring actions as per the operation stage EMP, and submit to PIU a quarterly report on EMP implementation and compliance.

202. Based on monthly and quarterly reports and measurements, PMU/PIU (assisted by PMSC) is required to submit semi-annual environmental monitoring report (SEMR). Once concurrence from the ADB is received the report will be disclosed on TUDA/PMU websites.

203. ADB will review project performance against the TUTDP commitments as agreed in the legal documents. The extent of ADB's monitoring and supervision activities will be commensurate with the project's risks and impacts. Monitoring and supervising of social and environmental safeguards will be integrated into the project performance management system.

204. ADB's monitoring and supervision activities will be carried out on an on-going basis until a Project Completion Report (PCR) is issued. ADB issues a PCR within 1-2 years after the project is physically completed and in operation.

E. Environmental Management Plan Implementation Cost

205. Most of the mitigation measures require the contractors to adopt good site practices, which should be part of their normal procedures already, so there are unlikely to be major costs associated with compliance. The costs which are specific to EMP implementation and are not covered elsewhere in the projects are given below. **Table 45** indicates cost estimate to implement EMP.

Table 45: Cost Estimates to Implement the Environmental Management Plan

	Particulars	Stages	Unit	Total No.					Rate	Cost	Costs Covered By
									(INR)	(INR)	
				Udaipur	Amarpur	Bishramganj	Melaghar	Belonia			
A.	**Implementation staff**										
1	Environment, Health, and Safety Supervisor	Construction	per month (Effective work period for the town)	30	30	30	30	30	70,000	10,500,000	Construction contractor
	Subtotal (A)									**10,500,000**	
B.	**Mitigation Measures**										
1	Consent for establishments and consent for operation from TSPCB (other than WTP)	Pre-construction	Pre construction – not applicable	-	-	-	-	-	-	-	-
2	Provision for tree cutting and compensatory plantation measures (1: 5 ratio replantation) include plantation around sites	Construction	Per tree	160	150	300	100	100	1,000	810,000	Contract
3	Traffic management at work sites (Pavement Markings, Channelizing Devices, Arrow Panels and Warning Lights)	Construction	Lump sum	100,000	60,000	80,000	100,000	100,000	Lump sum	440,000	Contract

4	Provision for COVID-19 preventive measures e.g., mask, sanitizer, etc.	Construction	Lump sum	50,000	50,000	50,000	50,000	5,0000	Lump sum	250,000	Health & Safety budget
	Subtotal (B)									**1,500,000**	
C.	**Monitoring Measures**										
1	Air quality monitoring	Construction	per sample	32	32	32	32	32	10,000	1,600,000	Contract
2	Noise levels monitoring	Construction	Per sample	32	32	32	32	32	1500	240,000	Contract
3	Surface water monitoring	Construction	Per sample	18	18	18	18	18	8000	720,000	Contract
4	COVID-19 health monitoring at operating sites	Construction	Per thermal gun	5	5	5	5	5	5000	125,000	Item rate contract
	Subtotal (C)									**2,685,000**	
D.	**Capacity Building**										
1	Introduction and Sensitization to Environmental Issues	Pre-construction	Lump sum	1,50,000	1,50,000	1,50,000	1,50,000	1,50,000	Lump sum	750,000	PIU
2	EMP implementation	Pre-construction	Lump sum	1,50,000	1,50,000	1,50,000	1,50,000	1,50,000	Lump sum	750,000	PIU
3	Contractors Orientation to Workers on EMP implementation	Prior to dispatch to worksite	Lump sum	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000	Lump sum	400,000	Contract
	Subtotal (D)									**1,900,000**	
E	**Civil Works**										
	Water Sprinkling for dust suppression	Construction	KL	2000	2000	2000	2000	2000	120	1,200,000	Civil works contract under Contractor

	Subtotal									**1,200,000**	
F	**Barricading**										
1	Providing and fixing Barricading using 40 mm dia M.S. pipe vertical and horizontal posts	Construction	m			Already included in Civil cost					Civil works contract under Contractor
2	Providing and fixing using 40 mm dia M.S. pipe ("B" class) as vertical post and PVC tape	Construction	m			Already included in Civil cost					Civil works contract under Contractor
	Subtotal										
G	**Grievance Redressal Mechanism**			**350000**	**350000**	**350000**	**350000**	**350000**	Lumpsum	**1,750,000**	Civil works contract under DBO Contractor
	Total (A+B+C+D+E+F+G)								**INR**	**19,535,000**	
								Contractor Cost	**INR**	18,035,000	
								PIU Cost	**INR**	1,500,000	
								Total	**INR**	**19,535,000**	

X. CONCLUSION AND RECOMMENDATIONS

206. The process described in this document has assessed the environmental impacts of all elements of the proposed Road and Drain subproject for Cluster IIA towns. All potential impacts are identified in relation to pre-construction, construction, and operation phases. Planning principles and design considerations have been reviewed and incorporated into the site planning and design process wherever possible; thus, environmental impacts as being due to the project design or location were not significant.

207. Road and drainage system rehabilitation will be carried out within existing right of ways or roads and drains. Works are located in urban/ semi urban areas, and there are no notable sensitive environmental features except few local religious places, sensitive receptors like health institutes and educational institutes along the project roads.

208. There are no components located within the 300 m from ASI protected area. Except few proposed road-footpath and drain are located within 300 m of project area at Udaipur. Nearest road/footpath and drain is located 70 m from Chaturdash devata temple (ASI protected monument) and 430 m from Gunavati group of temples (ASI protected monument). Distance of all other roads from ASI site under the sub project varied from 645- 2756 m. Both road/ footpath and drains will be rehabilitated, no new construction will be taken up near the ASI protected site. Hence impact will be minimum. Moreover, specific mitigation measures will be applied for protection of ASI sites.

209. In Melaghar nearest road is located at a distance of 446m from Rudrasagar lake (Ramsar protected site), whereas other roads are located in between 452-1448m. Similarly, nearest drain is located at a distance of 527 m from the Rudrasagar lake, whereas other drains located in between 676-1118m. All drainage and road work will be as rehabilitation/ strengthening work, no new construction near the wetland. Therefore, impact to surrounding environment is minimum. Moreover, specific mitigation measures will be applied for protection of Ramsar site No direct drainage discharge planned at Rudrasagar lake under the sub project.

210. In other 3 towns no ASI or any other protected area in proximity to proposed roads and drains.

211. Road improvements are combined with necessary improvements drainage facilities along the roads, and therefore no adverse impacts due to rehabilitation / construction of roads envisaged. Provision of side lateral drains, and cross drainage structures like culverts where required to collect and convey surface runoff is already included in the proposed roads. Subproject also includes construction / improvement of existing drains in various places to collect and convey runoff into nearby streams / *charras* /rivers to mitigate the problem of water logging. In the existing condition, wastewater, mainly sullage (grey water) from the houses is being discharged into open drains. It is necessary that the proposed septage management and interception, diversion and treatment project under AMRUT/ other govt. scheme is implemented as per the schedule to prevent discharge of wastewater into natural drains, especially during dry season.

212. The public participation processes undertaken during project design ensured stakeholders are engaged during the preparation of the IEE. The planned information disclosure measures and process for carrying out consultation with affected people will facilitate their participation during project implementation.

213. The project's grievance redress mechanism will provide the citizens with a platform for redress their grievances, and describes the informal and formal channels, time frame, and mechanisms for resolving complaints about environmental performance.

214. The EMP will assist the project agencies and contractor in mitigating the environmental impacts and guide them in the environmentally sound execution of the proposed project.

215. A copy of the EMP/approved SEMP shall be always kept on-site during the construction period. The EMP shall be made binding on all contractors operating on the site, and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document shall constitute a failure in compliance.

216. The project will benefit the general public by contributing to the long-term improvement of road & drain and community liveability in the project area, Udaipur, Amarpur, Melaghar, Belonia towns and Bishramganj village panchyat. The potential adverse environmental impacts are mainly related to the construction period, which can be minimized by the mitigating measures and environmentally sound engineering and construction practices.

217. **Conclusion.** Therefore, as per ADB SPS, the project is classified as environmental category B and does not require further environmental impact assessment. However, to conform to government guidelines. In case of any change in scope, design and location IEE report will be updated and to be approved by ADB before final disclosure.

218. **Recommendations.** The following are recommendations applicable to the subproject to ensure no significant impacts:

(i) Obtain all statutory clearances at the earliest time possible and ensure conditions/provisions are incorporated in the detailed design;
(ii) Include this IEE in bid and contract documents;
(iii) Update/revise this IEE in case of change in scope, alignment, or location;
(iv) Conduct safeguards induction to the contractor upon award of contract;
(v) Ensure that the construction and demolition waste generated from demolition is existing structure to be reused and disposed as per guidelines stipulated in Construction and Demolition Waste Management Rules 2016
(vi) Ensure proper disposal of drainage silt after receiving of NOC from Pollution Control Board;
(vii) Ensure contractor appointed qualified environment, health, and safety (EHS) officers prior to start of works;
(viii) Timely disclosure of information and establishment of GRM;
(ix) Involvement of contractors, including subcontractors, in first level GRM;
(x) Strictly supervise EMP implementation specifically near protected areas;
(xi) Continuous consultations with stakeholders;
(xii) Documentation and reporting on a regular basis as indicated in the IEE.
(xiii) Commitment from PMU, PIUs, project consultants, and contractors to protect the environment and the people from any impact during project implementation.

Appendix 1: REA Checklist

RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST- UDAIPUR

Road & Highways- Udaipur

Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Urban development – Road

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	✓		• Within the Udaipur city there is two archaeological protected (ASI) area. Gunavati Group of Temples and Chaturdasa Devata Temple are located at Radhakishorepur, Udaipur. • 2 of the footpaths nearby the cultural heritage site. 2 Footpath and 1 drain are located 70 m away from Chaturdasa Devata Temple, whereas same footpaths and drain are located 430 m from Gunavati Group of Temple. But no impact is expected from improvement of that road and footpath, since those are located within the city urban area which under development and all sort of maintenance activity continued.
▪ Protected Area	✓		• No work components within ASI protected area. But Protected areas as mentioned above located within the city and within the city center
▪ Wetland		✓	None
▪ Mangrove		✓	Not Applicable
▪ Estuarine		✓	Not Applicable
▪ Buffer zone of protected area		✓	• Proposed road not within any buffer zone of protected area
▪ Special area for protecting biodiversity		✓	• None of the subproject component sites are adjacent to or within any special area for protecting biodiversity
B. Potential Environmental Impacts Will the Project cause…			
▪ encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		✓	• Work will be done within existing ROW. No encroachment on historical/cultural areas have been identified. No major disfiguration of landscape is envisaged as the roads pass through generally flat terrains.
▪ encroachment on precious ecology (e.g. sensitive or protected areas)?		✓	

Screening Questions	Yes	No	Remarks
▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?	✓		• Inclusion of drainage works in critical areas will help reduce flooding risks in these sections.
▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?	✓		• There may be siltation of natural streams/drains located in the vicinity of project sites during construction and operation and mitigation measures have been proposed in the EMP • Poor camp management may lead to runoff of silt and other wastes from workers' camps. This possible impact has been identified and mitigation measures have been included in the EMPs.
▪ increased local air pollution due to rock crushing, earth cutting and filling works, and chemicals from asphalt processing?	✓		• Dust generation from earthworks and fumes from equipment and construction vehicles would be unavoidable. Measures to minimize local air pollution problems have been proposed in the EMP. • Due to the nature of construction works, it is anticipated that air pollution will be increased during construction phase. Local regulations will also apply. Other mitigation measures needed will be covered in the EMP.
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	✓		• As a standard, workers will be provided with PPEs to minimize exposure to risks and associated harmful occupational health effects • Although, the scale of construction works is relatively small, occupational health and safety (OHS) risks have still been taken into consideration and mitigation measures have been proposed in the EMP.
▪ noise and vibration due to blasting and other civil works?	✓		• Although, the use of blasting is not proposed under the project, noise and vibration will be generated from construction works. Measures for minimizing this nuisance have been identified in the EMP. Specific mitigation measures will be applied during construction particularly near ASI protected site
▪ dislocation or involuntary resettlement of people?		✓	• Minimal impact is anticipated since improvement work will mostly be accommodated within available ROW. Temporary impact may be during construction work.
▪ dislocation and compulsory resettlement of people living in right-of-way?		✓	• ROW encroachment in the project state is very uncommon although some commercial structures (e.g. kiosks, stores) will have to be relocated temporarily. These have been covered in the resettlement plans (RPs).

Screening Questions	Yes	No	Remarks
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	• Currently, no specific vulnerable groups have been identified in the project areas
▪ other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		✓	• ROW encroachment in the project site is very uncommon although some commercial Impacts to air quality will be highly localized and temporary during construction activity. Regular water sprinkling is a standard measure that will be employed to reduce the dust.
▪ hazardous driving conditions where construction interferes with pre-existing roads?	✓		• With strict occupational health and safety requirements, restrictions on construction timing and mitigation measures against dust and other forms of pollution, serious concerns on respiratory problems and stress are not expected • Contractors are required to prepare traffic management plans to avoid hazards and risks
▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?	✓		• As a standard practice, these issues have been covered in the provisions for sanitation, healthcare, and solid and liquid waste management in the contract documents.
▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?		✓	• Minimal risk is anticipated. Regular monitoring of drains and other potential breeding grounds for mosquitoes and proper waste management in camps will be implemented
▪ accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?	✓		• The preparation of traffic management plans and road safety provisions are included in the EMPs.
▪ increased noise and air pollution resulting from traffic volume?	✓		• Noise barriers at sensitive receptors and community place will be provided to minimize impacts. Additional plantation along the road has been planned (depends on space availability) and improved road conditions will improve the air quality in the areas during operation.
▪ increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?		✓	• Major impacts are expected from accidental spillage which is not very likely. The project includes roads safety measures to ensure that the risks are minimized.
▪ social conflicts if workers from other regions or countries are hired?		✓	• As a standard requirement, most of the workers will be locals. No such conflict is anticipated
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	• Workers will be mostly locals. Workers from remote places will be provided with adequate boarding facilities.

Screening Questions	Yes	No	Remarks
▪ 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?	✓		• Road and footpath construction involves the use of fuel, lubricants and bitumen which poses risk during transport and storage. Appropriate mitigation measures are covered in the EMPs.
▪ 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.	✓		• Adequate measures have been adopted to mitigate such risks • The project includes road safety measures to ensure that the risks are minimized during operation.

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[16]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?	1	Some project location may experience increased flooding during high rain season. However, no project components are sited in flood plains and road specifications have been designed taken into account increased risk of water logging.
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	Proposed investments will not be passing through riverine areas
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	Work involved improvement of footpath and improvement of small stretch of the road. Not much impact anticipated.
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Increased flooding due to predicted increased precipitation will likely increase the cost of maintenance of the roads to maintain an acceptable level of service.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-	0	Increase in temperature may cause rutting but not projected to be at a scale that can affect achieving the project objective of providing safe and efficient transport.

[16]If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Screening Questions		Score	Remarks[16]
	power generation facilities) throughout their design life time?		Likely road blockages may occur during extreme weather events.

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**

Other Comments: None

Rapid Environmental Assessment Checklist- Udaipur
Storm Water Drain- Udaipur
Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Sewerage & Drainage

Screening Questions	Yes	No	Remarks
B. Project Siting Is the project area…			
▪ Densely populated?		✓	• Udaipur city is not densely populated. The subproject area comprises different part of the city, Project locations supports open area, residential and commercial areas.
▪ Heavy with development activities?		✓	• The area comprises of residential structures, commercial establishments, and open area. The developmental activities such as construction works are ongoing at an average pace.
▪ Adjacent to or within any environmentally sensitive areas?		✓	• Drainage work will be carried out within Udaipur city. There is no forest area nearby.
▪ Cultural heritage site	✓		• Within the Udaipur city there is two archaeological protected (ASI) area. Gunavati Group of Temples and Chaturdasa Devata Temple are located at Radhakishorepur, Udaipur. • Proposed nearest drain no 1(Shitalbari to Brahmabari to Sukhsagar Lake) is located 70 m away from the Chaturdas Devata Temple. Nearest drain to Gunavati Group of Temples is Drain no 1, which is 430 m away from the temple. No impact is expected on ASI protected sites
▪ Protected Area	✓		• No work components within ASI protected area. But Protected areas as mentioned above located within the city and within the city center, urban development area
▪ Wetland		✓	None
▪ Mangrove		✓	Not Applicable
▪ Estuarine		✓	Not Applicable
▪ Buffer zone of protected area		✓	• Drainage location not within any buffer zone of protected area
▪ Special area for protecting biodiversity		✓	• None of the subproject component sites are adjacent to or within any special area for protecting biodiversity

Screening Questions	Yes	No	Remarks
▪ Bay		✓	Not Applicable
A. Potential Environmental Impacts Will the Project cause…			
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?		✓	• No historical/cultural/ monuments/ areas exist in or close vicinity of the subproject components. Hence no such impacts are anticipated. • One drain is located at 70 m form Chaturdasa Devata Temple and same drain is located at distance of 430 m from Gunavati Group of Temples at Radhakishorepur, Udaipur, both are ASI protected monuments .
▪ interference with other utilities and blocking of access to buildings; nuisance to neighbouring areas due to noise, smell, and influx of insects, rodents, etc.?	✓		• No significant impact is anticipated. However, during construction there will be minor impacts due to noise, and dust of construction activities. • The interference with access to buildings and commercial establishments is anticipated during construction phase. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. • No problems of smell, influx of insects, rodents, etc. are anticipated due to implementation of sub project. The works will be mainly restricted within the existing storm water drains.
▪ dislocation or involuntary resettlement of people?		✓	• Scope of the sub-project will entail no involuntary resettlement impacts and no physical dislocation of people is anticipated. Temporary impact may be during construction phase. This deals under RP/ due diligence report
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	No such impact is anticipated.
▪ impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?		✓	• Not applicable as sub project pertains to rehabilitation of existing storm water drains and outfalls.
▪ overflows and flooding of neighbouring properties with raw sewage?		✓	• No such impact is anticipated. The proposed subproject will reduce the water logging and flooding in the drainage zones
▪ environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?		✓	Not Applicable

Screening Questions	Yes	No	Remarks
▪ noise and vibration due to blasting and other civil works?	✓		• Noise due to operation of machines during civil works is anticipated. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. Specific mitigation measures will be applied during construction particularly near ASI protected site. No blasting activity shall be involved
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards during project construction and operation?	✓		• During execution stage, workers may face occupational health and safety related issues if personal protection measures are not used properly. No such impact is anticipated in operation stage.
▪ discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?		✓	• Not applicable as the subproject involves rehabilitation of existing storm water drains
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities?		✓	• Not applicable. Pumping and treatment plants are not involved.
▪ road blocking and temporary flooding due to land excavation during the rainy season?	✓		• Temporary road blocking during construction of culverts shall be there for which proper traffic management and diversion arrangements shall be implemented. Due care shall be taken to carry out the works during dry periods to avoid any incidence of temporary flooding in the areas
▪ noise and dust from construction activities?	✓		• Minor noise and dust from construction activities is anticipated which shall be temporary in nature coinciding only with the duration of construction activities. Specific mitigation measures will be applied during construction particularly near ASI protected site
▪ traffic disturbances due to construction material transport and wastes?		✓	• The transportation of construction material and wastes shall be site specific and restricted to daily requirements which is not expected to result into traffic disturbances. However, traffic diversion plan, if required, will be prepared by contractor in consultation with Engineer to avoid traffic disturbances.
▪ temporary silt runoff due to construction?	✓		• Temporary silt run off may be there during rainy season. Majority of the works shall be carried out during dry periods to avoid such impacts. To avoid silt flow in drains, during construction, silt fencing arrangements will be provided at the banks of drains.

Screening Questions	Yes	No	Remarks
▪ hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?		✓	Not Applicable
▪ deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?		✓	• Not anticipated as the proposed subproject envisages rehabilitation of existing storm water drains. • The major drains running the core area of the town are identified for interception and diversion to the proposed STP site. These components are proposed to be funded under AMRUT/ Similar scheme of GOI
▪ contamination of surface and ground waters due to sludge disposal on land?		✓	No as such impact anticipated
▪ health and safety hazards to workers from toxic gases and hazardous materials which maybe contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and unsterilized sludge?		✓	• Not anticipated as there will be construction and rehabilitation of existing open drains. However, the workers shall be provided with personal protective equipment like gumboots, gloves and masks, etc. while working within the drains to avoid any occupational health hazards.
▪ large population increase during project construction and operation that causes increased burden on social infrastructure (such as sanitation system)?		✓	No as such impact anticipated
▪ social conflicts between construction workers from other areas and community workers?		✓	• No such conflicts are anticipated. Preference will be given to local laborers and migratory labour shall be employed in unavoidable circumstances only.
▪ 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?		✓	No as such impact anticipated
▪ community safety risks due to both accidental and natural hazards, 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?		✓	• No such impact is anticipated in case of the proposed drainage work

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[17]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?	1	Extreme weather, specifically high rain intensity may result flooding of the drain. Outfall area of drain should be cleaned for final discharge of storm water to River
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Maintenance of the drain will be affected under extreme climatic condition.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**

Other Comments: None

[17] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST- AMARPUR

Road & Highways- Amarpur
Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Urban development – Road

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		✓	Chabimura is a Geo-heritage / Geo-tourism site of Tripura which is situated about 8.1 km away from Amarpur Drainage project components are not located nearby the ASI protected area
Protected Area		✓	No as such protected area nearby the proposed roads and footpath considered for improvement
Wetland		✓	None
Mangrove		✓	Not Applicable
Estuarine		✓	Not Applicable
Buffer zone of protected area		✓	Proposed roads are not within buffer zone of protected area
Special area for protecting biodiversity		✓	None of the subproject component sites are adjacent to or within any special area for protecting biodiversity
B. Potential Environmental Impacts **Will the Project cause…**			
Encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		✓	Work will be done within existing ROW. No encroachment on historical/cultural areas have been identified. No major disfiguration of landscape is envisaged as the roads pass through generally flat terrains.
Encroachment on precious ecology (e.g. sensitive or protected areas)?		✓	Not applicable – no protected areas nearby the roads
Alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?	✓		Inclusion of drainage works with roads in critical areas will help reduce flooding risks in these sections.
Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?	✓		There may be siltation of natural streams/drains located in the vicinity of project sites during construction and operation and mitigation measures have been proposed in the EMP Poor camp management may lead to runoff of silt and other wastes from workers' camps. This possible impact has been identified and mitigation measures have been included in the EMPs.

Screening Questions	Yes	No	Remarks
Increased local air pollution due to rock crushing, earth cutting and filling works, and chemicals from asphalt processing?	✓		Dust generation from earthworks and fumes from equipment and construction vehicles would be unavoidable. Rock crushing and asphalt processing will be sited away from settlements and other sensitive receptors. Measures to minimize local air pollution problems have been proposed in the EMP. Due to the nature of construction works, it is anticipated that air pollution will be increased during construction phase. As such guidance will be provided on the siting requirements for hot mix and ready-mix plants. Local regulations will also apply. Other mitigation measures needed will be covered in the EMP.
Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	✓		As a standard, workers will be provided with PPEs to minimize exposure to risks and associated harmful occupational health effects. Although, the scale of construction works is relatively small for brick/ mud road, occupational health and safety (OHS) risks have still been taken into consideration and mitigation measures have been proposed in the EMP.
Noise and vibration due to blasting and other civil works?	✓		Although, the use of blasting is not proposed under the project, noise and vibration will be generated from construction works. Measures for minimizing this nuisance have been identified in the EMP
Dislocation or involuntary resettlement of people?		✓	Minimal impact is anticipated since improvement work will mostly be accommodated within available ROW. Temporary impact may be during construction work.
Dislocation and compulsory resettlement of people living in right-of-way?		✓	ROW encroachment in the project state is very uncommon although some commercial structures (e.g. kiosks, stores) will have to be relocated temporarily. These have been covered in the resettlement plans (RPs).
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	Currently, no specific vulnerable groups have been identified in the project areas
Other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		✓	ROW encroachment in the project state is very uncommon although some commercial Impacts to air quality will be highly localized and temporary during construction activity. Regular water sprinkling is a standard measure that will be employed to reduce the dust.
Hazardous driving conditions where construction interferes with pre-existing roads?	✓		With strict occupational health and safety requirements, restrictions on construction timing and mitigation measures against dust and other forms of pollution, serious concerns on respiratory problems and stress are not expected Contractors are required to prepare traffic management plans to avoid hazards and risks
Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?	✓		As a standard practice, these issues have been covered in the provisions for sanitation, health care and solid and liquid waste management in the contract documents.

Screening Questions	Yes	No	Remarks
Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?		✓	Minimal risk is anticipated. Regular monitoring of drains and other potential breeding grounds for mosquitoes and proper waste management in camps will be implemented
Accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?	✓		The preparation of traffic management plans and road safety provisions are included in the EMPs.
Increased noise and air pollution resulting from traffic volume?	✓		Noise barriers at sensitive receptors and community place will be provided to minimize impacts. Additional plantation along the road has been planned (depends on space availability) and improved road conditions will improve the air quality in the areas during operation.
increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?		✓	Major impacts are expected from accidental spillage which is not very likely. The project includes roads safety measures to ensure that the risks are minimized.
Social conflicts if workers from other regions or countries are hired?		✓	As a standard requirement, most of the workers will be locals. No such conflict is anticipated
Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	Workers will be mostly locals. Workers from remote places will be provided with adequate boarding facilities.
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?	✓		Road construction involves the use of fuel, lubricants and bitumen which poses risk during transport and storage. Appropriate mitigation measures are covered in the EMPs.
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.	✓		Adequate measures have been adopted to mitigate such risks The project includes road safety measures to ensure that the risks are minimized during operation.

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[18]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?	1	Some project location may experience increased flooding during high rain season. However, no project components are sited in flood plains and road specifications have been designed taking into

[18] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Screening Questions		Score	Remarks[18]
			account increased risk of water logging.
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	Proposed investments will not be passing through riverine areas
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	Work involved improvement of small stretch of the road. Not much impact anticipated.
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Increased flooding due to predicted increased precipitation will likely increase the cost of maintenance of the roads to maintain an acceptable level of service.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	Increase in temperature may cause rutting but not projected to be at a scale that can affect achieving the project objective of providing safe and efficient transport. Likely road blockages may occur during extreme weather events.

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**

Other Comments: None

Rapid Environmental Assessment Checklist- Amarpur
Storm Water Drain
Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Sewerage & Drainage

Screening Questions	Yes	No	Remarks
A. Project Siting **Is the project area…**			
Densely populated?		✓	Amarpur is not densely populated. The subproject area comprises different part of the town, Project locations supports open area, residential and commercial areas.
Heavy with development activities?		✓	The area comprises of residential structures, commercial establishments, and open area. The developmental activities such as construction works are ongoing at an average pace.
Adjacent to or within any environmentally sensitive areas?		✓	Drainage work will be carried out within Amarpur town. There is no forest area nearby.
Cultural heritage site		✓	Chabimura is a Geo-heritage / Geo-tourism site of Tripura which is situated 8.1 km away from Amarpur Drainage sector sub-project components are not located nearby the ASI protected area
Protected Area		✓	No as such protected area nearby the proposed drainage locations
Wetland		✓	None
Mangrove		✓	Not Applicable
Estuarine		✓	Not Applicable
Buffer zone of protected area		✓	Drainage location not within buffer zone of protected area
Special area for protecting biodiversity		✓	None of the subproject component sites are adjacent to or within any special area for protecting biodiversity
Bay		✓	Not Applicable
B. Potential Environmental Impacts Will the Project cause…			
Impairment of historical/cultural monuments/areas and loss/damage to these sites?		✓	No historical/cultural/ monuments/ areas exist in or close vicinity of the subproject components. Hence no such impacts are anticipated.

Screening Questions	Yes	No	Remarks
Interference with other utilities and blocking of access to buildings; nuisance to neighbouring areas due to noise, smell, and influx of insects, rodents, etc.?	✓		No significant impact is anticipated. However, during construction there will be minor impacts due to noise, and dust of construction activities. The interference with access to buildings and commercial establishments is anticipated during construction phase. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. No problems of smell, influx of insects, rodents, etc. are anticipated due to implementation of sub project. The works will be mainly restricted within the existing storm water drains.
Dislocation or involuntary resettlement of people?		✓	Scope of the sub-project will entail no involuntary resettlement impacts and no physical dislocation of people is anticipated. Temporary impact may be during construction phase. This deals under RP/ due diligence report
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	No such impact is anticipated.
Impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?		✓	Not applicable as sub project pertains to rehabilitation of existing storm water drains and outfalls.
Overflows and flooding of neighbouring properties with raw sewage?		✓	No such impact is anticipated. The proposed subproject will reduce the water logging and flooding in the drainage zones
Environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?		✓	Not Applicable
Noise and vibration due to blasting and other civil works?	✓		Noise due to operation of machines during civil works is anticipated. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. No blasting activity shall be involved
Risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards during project construction and operation?	✓		During execution stage, workers may face occupational health and safety related issues if personal protection measures are not used properly. No such impact is anticipated in operation stage.
Discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?		✓	Not applicable as the subproject involves rehabilitation of existing storm water drains
Inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities?		✓	Not applicable. Pumping and treatment plants are not involved.

Screening Questions	Yes	No	Remarks
Road blocking and temporary flooding due to land excavation during the rainy season?	✓		Temporary road blocking during construction of culverts shall be there for which proper traffic management and diversion arrangements shall be implemented. Due care shall be taken to carry out the works during dry periods to avoid any incidence of temporary flooding in the areas
Noise and dust from construction activities?	✓		Minor noise and dust from construction activities is anticipated which shall be temporary in nature coinciding only with the duration of construction activities.
Traffic disturbances due to construction material transport and wastes?		✓	The transportation of construction material and wastes shall be site specific and restricted to daily requirements which is not expected to result into traffic disturbances. However, traffic diversion plan, if required, will be prepared by contractor in consultation with Engineer to avoid traffic disturbances.
Temporary silt runoff due to construction?	✓		Temporary silt run off may be there during rainy season. Majority of the works shall be carried out during dry periods to avoid such impacts. To avoid silt flow in drains, during construction, silt fencing arrangements will be provided at the banks of drains.
Hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?		✓	Not Applicable
Deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?		✓	Not anticipated as the proposed subproject envisages rehabilitation of existing storm water drains. The major drains running the core area of the town are identified for interception and diversion to the proposed STP site. These components are proposed to be funded under AMRUT/ Similar scheme of GOI
Contamination of surface and ground waters due to sludge disposal on land?		✓	No as such impact anticipated
Health and safety hazards to workers from toxic gases and hazardous materials which may be contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and unsterilized sludge?		✓	Not anticipated as there will be construction and rehabilitation of existing open drains. However, the workers shall be provided with personal protective equipment like gum boots, gloves and masks, etc. while working within the drains to avoid any occupational health hazards.
Large population increase during project construction and operation that causes increased burden on social infrastructure (such as sanitation system)?		✓	No as such impact anticipated
Social conflicts between construction workers from other areas and community workers?		✓	No such conflicts are anticipated. Preference will be given to local laborers and migratory labour shall be employed in unavoidable circumstances only.

Screening Questions	Yes	No	Remarks
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?		✓	No as such impact anticipated
Community safety risks due to both accidental and natural hazards, 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?		✓	No such impact is anticipated in case of the proposed drainage work

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[19]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?	1	Extreme weather, specifically high rain intensity may result flooding of the drain. Outfall area of drain should be cleaned for final discharge of storm water to River
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Maintenance of the drain will be affected under extreme climatic condition.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**

Other Comments: None

[19] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Rapid Environmental Assessment Checklist- Bishramganj Road
Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Urban development – Road

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		✓	Ancient Remains, Boxanagar-The discovery of massive Buddhist stupa, chaityagriha, a monastery and other associated burnt brick structures at Boxanagar has reflected the art and architecture & religious aspects of ancient Tripura hitherto unknown. This archaeological is situated 17.83 KM (aerial distance) away from the Bishramganj. Proposed roads are not located nearby the ASI protected area
Protected Area		✓	Sepahijala wildlife sanctuary located about 5.9 km (aerial distance) from Bishramganj town. No as such protected area nearby the proposed roads considered for improvement
Wetland		✓	Rudrasagar Lake is situated in Melaghar town. Rudrasagar Lake located 12 km (aerial distance) from Bishramganj town.
Mangrove		✓	Not Applicable
Estuarine		✓	Not Applicable
Buffer zone of protected area		✓	Proposed roads are not within buffer zone of protected area
Special area for protecting biodiversity		✓	Sepahijala wildlife sanctuary located about 5.9 km (aerial distance) from Bishramganj town. None of the subproject component sites are adjacent to or within any special area for protecting biodiversity
B. Potential Environmental Impacts Will the Project cause…			
Encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		✓	Work will be done within existing ROW. No encroachment on historical/cultural areas has been identified. No major disfiguration of landscape is envisaged as the roads pass through generally flat terrains.
Encroachment on precious ecology (e.g. sensitive or protected areas)?		✓	Not applicable – no protected areas nearby the roads
Alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?	✓		Inclusion of drainage works with roads in critical areas will help reduce flooding risks in these sections.

Screening Questions	Yes	No	Remarks
Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?	✓		There may be siltation of natural streams/drains located in the vicinity of project sites during construction and operation and mitigation measures have been proposed in the EMP Poor camp management may lead to runoff of silt and other wastes from workers' camps. This possible impact has been identified and mitigation measures have been included in the EMPs.
Increased local air pollution due to rock crushing, earth cutting and filling works, and chemicals from asphalt processing?	✓		Dust generation from earthworks and fumes from equipment and construction vehicles would be unavoidable. Measures to minimize local air pollution problems have been proposed in the EMP. Due to the nature of construction works, it is anticipated that air pollution will be increased during construction phase. Local regulations will also apply. Other mitigation measures needed will be covered in the EMP.
Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	✓		As a standard, workers will be provided with PPE to minimize exposure to risks and associated harmful occupational health effects Although, the scale of construction works is relatively small for brick/ mud road, occupational health and safety (OHS) risks have still been taken into consideration and mitigation measures have been proposed in the EMP.
Noise and vibration due to blasting and other civil works?	✓		Although, the use of blasting is not proposed under the project, noise and vibration will be generated from construction works. Measures for minimizing this nuisance have been identified in the EMP
Dislocation or involuntary resettlement of people?		✓	Minimal impact is anticipated since improvement work will mostly be accommodated within available ROW. Temporary impact may be during construction work.
Dislocation and compulsory resettlement of people living in right-of-way?		✓	ROW encroachment in the project state is very uncommon although some commercial structures (e.g. kiosks, stores) will have to be relocated temporarily. These have been covered in the resettlement plans (RPs).
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	Currently, no specific vulnerable groups have been identified in the project areas
Other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		✓	ROW encroachment in the project state is very uncommon although some commercial Impacts to air quality will be highly localized and temporary during construction activity. Regular water sprinkling is a standard measure that will be employed to reduce the dust.
Hazardous driving conditions where construction interferes with pre-existing roads?	✓		With strict occupational health and safety requirements, restrictions on construction timing and mitigation measures against dust and other forms of pollution, serious concerns on respiratory problems and stress are not expected Contractors are required to prepare traffic management plans to avoid hazards and risks

Screening Questions	Yes	No	Remarks
Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?	✓		As a standard practice, these issues have been covered in the provisions for sanitation, health care and solid and liquid waste management in the contract documents.
Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?		✓	Minimal risk is anticipated. Regular monitoring of drains and other potential breeding grounds for mosquitoes and proper waste management in camps will be implemented
Accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?	✓		The preparation of traffic management plans and road safety provisions are included in the EMPs.
Increased noise and air pollution resulting from traffic volume?	✓		Noise barriers at sensitive receptors and community place will be provided to minimize impacts. Additional plantation along the road has been planned (depends on space availability) and improved road conditions will improve the air quality in the areas during operation.
increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?		✓	Major impacts are expected from accidental spillage which is not very likely. The project includes roads safety measures to ensure that the risks are minimized.
Social conflicts if workers from other regions or countries are hired?		✓	As a standard requirement, most of the workers will be locals. No such conflict is anticipated
Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	Workers will be mostly locals. Workers from remote places will be provided with adequate boarding facilities.
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?		✓	Road construction involves the use of paver block, no as such impact expected during transportation. Appropriate mitigation measures (as per requirement) are covered in the EMPs.
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.	✓		Adequate measures have been adopted to mitigate such risks The project includes road safety measures to ensure that the risks are minimized during operation.

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[20]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be	1	Some project location may experience increased flooding

[20] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level

Screening Questions		Score	Remarks[20]
	affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?		during high rain season. However, no project components are sited in flood plains and road specifications have been designed considering increased risk of water logging.
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	Proposed investments will not be passing through riverine areas
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	Work involved improvement of small stretch of the road. Not much impact anticipated.
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Increased flooding due to predicted increased precipitation will likely increase the cost of maintenance of the roads to maintain an acceptable level of service.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	Increase in temperature may cause rutting but not projected to be at a scale that can affect achieving the project objective of providing safe and efficient transport. Likely road blockages may occur during extreme weather events.

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**
Other Comments: None

might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Rapid Environmental Assessment Checklist- Bishramganj
Storm Water Drain
Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Sewerage & Drainage

Screening Questions	Yes	No	Remarks
A. Project Siting **Is the project area…**			
Densely populated?		✓	Bishramganj is not densely populated. The subproject area comprises different part of the town, Project locations supports open area, residential and commercial areas.
Heavy with development activities?		✓	The area comprises of residential structures, commercial establishments, and open area. The developmental activities such as construction works are ongoing at an average pace.
Adjacent to or within any environmentally sensitive areas?		✓	Drainage work will be carried out within Bisharamganj town. There is no forest area nearby.
Cultural heritage site		✓	Drainage components are not located nearby the ASI protected area. Ancient Remains, Boxanagar-The discovery of massive Buddhist stupa, chaityagriha, a monastery and other associated burnt brick structures at Boxanagar has reflected the art and architecture & religious aspects of ancient Tripura hitherto unknown. This archaeological is situated 17.83 KM (aerial distance) away from the Bishramganj.
Protected Area		✓	No as such protected area nearby the proposed drainage locations. Sepahijala wildlife sanctuary located about 5.9 km (aerial distance) from Bishramganj town.
Wetland		✓	Rudrasagar Lake is situated in Melaghar town. Rudrasagar Lake located 12 km (aerial distance) from Bishramganj town
Mangrove		✓	Not Applicable
Estuarine		✓	Not Applicable
Buffer zone of protected area		✓	Drainage location not within buffer zone of protected area
Special area for protecting biodiversity		✓	None of the subproject component sites are adjacent to or within any special area for protecting biodiversity
Bay		✓	Not Applicable
B. Potential Environmental Impacts **Will the Project cause…**			
Impairment of historical/cultural monuments/areas and loss/damage to these sites?		✓	No historical/cultural/ monuments/ areas exist in or close vicinity of the subproject components. Hence no such impacts are anticipated.

Screening Questions	Yes	No	Remarks
Interference with other utilities and blocking of access to buildings; nuisance to neighbouring areas due to noise, smell, and influx of insects, rodents, etc.?	✓		No significant impact is anticipated. However, during construction there will be minor impacts due to noise, and dust of construction activities. The interference with access to buildings and commercial establishments is anticipated during construction phase. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. No problems of smell, influx of insects, rodents, etc. are anticipated due to implementation of sub project. The works will be mainly restricted within the existing storm water drains.
Dislocation or involuntary resettlement of people?		✓	Scope of the sub-project will entail no involuntary resettlement impacts and no physical dislocation of people is anticipated. Temporary impact may be during construction phase. This deals under RP/ due diligence report
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	No such impact is anticipated.
Impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?		✓	Not applicable as sub project pertains to rehabilitation of existing storm water drains and outfalls.
Overflows and flooding of neighbouring properties with raw sewage?		✓	No such impact is anticipated. The proposed subproject will reduce the water logging and flooding in the drainage zones
Environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?		✓	Not Applicable
Noise and vibration due to blasting and other civil works?	✓		Noise due to operation of machines during civil works is anticipated. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. No blasting activity shall be involved
Risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards during project construction and operation?	✓		During execution stage, workers may face occupational health and safety related issues if personal protection measures are not used properly. No such impact is anticipated in operation stage.
Discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?		✓	Not applicable as the subproject involves rehabilitation of existing storm water drains
Inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities?		✓	Not applicable. Pumping and treatment plants are not involved.
Road blocking and temporary flooding due to land excavation during the rainy season?	✓		Temporary road blocking during construction of culverts shall be there for which proper traffic management and diversion arrangements shall be implemented. Due care shall be taken to carry out the works during dry periods to avoid any incidence of temporary flooding in the areas

Screening Questions	Yes	No	Remarks
Noise and dust from construction activities?	✓		Minor noise and dust from construction activities is anticipated which shall be temporary in nature coinciding only with the duration of construction activities.
Traffic disturbances due to construction material transport and wastes?		✓	The transportation of construction material and wastes shall be site specific and restricted to daily requirements which is not expected to result into traffic disturbances. However, traffic diversion plan, if required, will be prepared by contractor in consultation with Engineer to avoid traffic disturbances.
Temporary silt runoff due to construction?	✓		Temporary silt run off may be there during rainy season. Majority of the works shall be carried out during dry periods to avoid such impacts. To avoid silt flow in drains, during construction, silt fencing arrangements will be provided at the banks of drains.
Hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?		✓	Not Applicable
Deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?		✓	Not anticipated as the proposed subproject envisages rehabilitation of existing storm water drains.
Contamination of surface and ground waters due to sludge disposal on land?		✓	No as such impact anticipated
Health and safety hazards to workers from toxic gases and hazardous materials which may be contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and unsterilized sludge?		✓	Not anticipated as there will be construction and rehabilitation of existing open drains. However, the workers shall be provided with personal protective equipment like gum boots, gloves and masks, etc. while working within the drains to avoid any occupational health hazards.
Large population increase during project construction and operation that causes increased burden on social infrastructure (such as sanitation system)?		✓	No as such impact anticipated
Social conflicts between construction workers from other areas and community workers?		✓	No such conflicts are anticipated. Preference will be given to local laborers and migratory labour shall be employed in unavoidable circumstances only.
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?		✓	No as such impact anticipated
Community safety risks due to both accidental and natural hazards, 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?		✓	No such impact is anticipated in case of the proposed drainage work

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[21]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?	1	Extreme weather, specifically high rain intensity may result flooding of the drain. Outfall area of drain should be cleaned for final discharge of storm water to River/ waterbody
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Maintenance of the drain will be affected under extreme climatic condition.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**
Other Comments: None

[21] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Rapid Environmental Assessment Checklist- Melaghar Road
Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Urban development – Road

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		✓	Ancient Remains, Boxanagar-The discovery of massive Buddhist stupa, chaityagriha, a monastery and other associated burnt brick structures at Boxanagar has reflected the art and architecture & religious aspects of ancient Tripura hitherto unknown. This archaeological site is situated about 18 km (aerial distance) away from the Melaghar. Proposed roads are not located nearby any ASI protected area
Protected Area		✓	Sepahijala wildlife sanctuary located about 15 km (aerial distance) from Melaghar town. No as such protected area nearby the proposed roads considered for improvement
Wetland		✓	Rudrasagar Lake is located in Melaghar MC. It is a natural sedimentation reservoir which receives flow from three perennial streams, viz., Noacherra, Durlavnarayan-cherra and Kamtali-cherra. None of the roads are adjacent to the Rudrasagar Lake. Nearest road no1- Bhagirath Chowmohuni To Birrama Temple is located about 446 m from the Rudrasagar lake.
Mangrove		✓	Not Applicable
Estuarine		✓	Not Applicable
Buffer zone of protected area		✓	Proposed roads are not within buffer zone of protected area
Special area for protecting biodiversity		✓	Sepahijala wildlife sanctuary located about 15 km (aerial distance) from Melaghar town. None of the subproject component sites are adjacent to or within any special area for protecting biodiversity
B. Potential Environmental Impacts Will the Project cause…			
Encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		✓	Work will be done within existing ROW. No encroachment on historical/cultural areas has been identified. No major disfiguration of landscape is envisaged as the roads pass through generally flat terrains. Most of the roads are brick or mud road.
Encroachment on precious ecology (e.g. sensitive or protected areas)?		✓	Not applicable – no protected areas nearby the roads
Alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?	✓		Inclusion of drainage works with roads in critical areas will help reduce flooding risks in these sections.

Screening Questions	Yes	No	Remarks
Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?	✓		There may be siltation of natural streams/drains located in the vicinity of project sites during construction and operation and mitigation measures have been proposed in the EMP Poor camp management may lead to runoff of silt and other wastes from workers' camps. This possible impact has been identified and mitigation measures have been included in the EMPs.
Increased local air pollution due to rock crushing, earth cutting and filling works, and chemicals from asphalt processing?	✓		Dust generation from earthworks and fumes from equipment and construction vehicles would be unavoidable. Measures to minimize local air pollution problems have been proposed in the EMP. Due to the nature of construction works, it is anticipated that air pollution will be increased during construction phase. Local regulations will also apply. Other mitigation measures needed will be covered in the EMP.
Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	✓		As a standard, workers will be provided with PPE to minimize exposure to risks and associated harmful occupational health effects Although, the scale of construction works is relatively small for brick/ mud road, occupational health and safety (OHS) risks have still been taken into consideration and mitigation measures have been proposed in the EMP.
Noise and vibration due to blasting and other civil works?	✓		Although, the use of blasting is not proposed under the project, noise and vibration will be generated from construction works. Measures for minimizing this nuisance have been identified in the EMP
Dislocation or involuntary resettlement of people?		✓	Minimal impact is anticipated since improvement work will mostly be accommodated within available ROW. Temporary impact may be during construction work.
Dislocation and compulsory resettlement of people living in right-of-way?		✓	ROW encroachment in the project state is very uncommon although some commercial structures (e.g. kiosks, stores) will have to be relocated temporarily, particularly during footpath construction. These have been covered in the resettlement plans (RPs).
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	Currently, no specific vulnerable groups have been identified in the project areas
Other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		✓	ROW encroachment in the project state is very uncommon although some commercial Impacts to air quality will be highly localized and temporary during construction activity (particularly for footpath construction). Regular water sprinkling is a standard measure that will be employed to reduce the dust.
Hazardous driving conditions where construction interferes with pre-existing roads?	✓		With strict occupational health and safety requirements, restrictions on construction timing and mitigation measures against dust and other forms of pollution, serious concerns on respiratory problems and stress are not expected Contractors are required to prepare traffic management plans to avoid hazards and risks

Screening Questions	Yes	No	Remarks
Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?	✓		As a standard practice, these issues have been covered in the provisions for sanitation, health care and solid and liquid waste management in the contract documents.
Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?		✓	Minimal risk is anticipated. Regular monitoring of drains and other potential breeding grounds for mosquitoes and proper waste management in camps will be implemented
Accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?	✓		The preparation of traffic management plans and road safety provisions are included in the EMPs.
Increased noise and air pollution resulting from traffic volume?	✓		Noise barriers at sensitive receptors and community place will be provided to minimize impacts. Plantation along the road has been planned (depends on space availability) and improved road conditions will improve the air quality in the areas during operation. Mitigation measures will be applied during construction particularly near Ramsar protected site
Increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?		✓	Major impacts are expected from accidental spillage which is not very likely. The project includes roads safety measures to ensure that the risks are minimized.
Social conflicts if workers from other regions or countries are hired?		✓	As a standard requirement, most of the workers will be locals. No such conflict is anticipated
Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	Workers will be mostly locals. Workers from remote places will be provided with adequate boarding facilities.
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?	✓		Road construction involves the use of fuel, lubricants and bitumen which poses risk during transport and storage. Appropriate mitigation measures are covered in the EMPs.
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.	✓		Adequate measures have been adopted to mitigate such risks The project includes road safety measures to ensure that the risks are minimized during operation.

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[22]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?	1	Some project location may experience increased flooding during high rain season. However, no project components are sited in flood plains and road specifications have been designed taking into account increased risk of water logging.
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	Proposed investments will not be passing through riverine areas
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	Work involved improvement of small stretch of the road. Not much impact anticipated.
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Increased flooding due to predicted increased precipitation will likely increase the cost of maintenance of the roads to maintain an acceptable level of service.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	Increase in temperature may cause rutting but not projected to be at a scale that can affect achieving the project objective of providing safe and efficient transport. Likely road blockages may occur during extreme weather events.

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**
Other Comments: None

[22] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Rapid Environmental Assessment Checklist- Melaghar
Storm Water Drain
Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Sewerage & Drainage

Screening Questions	Yes	No	Remarks
A. Project Siting **Is the project area…**			
Densely populated?		✓	Melaghar is not densely populated. The subproject area comprises different part of the town, Project locations supports open area, residential and commercial areas.
Heavy with development activities?		✓	The area comprises of residential structures, commercial establishments and open area. The developmental activities such as construction works are ongoing at an average pace.
Adjacent to or within any environmentally sensitive areas?		✓	Drainage work will be carried out within Melaghar town. There is no forest area nearby.
Cultural heritage site		✓	Drainage components are not located nearby the ASI protected area. Ancient Remains, Boxanagar-The discovery of massive Buddhist stupa, chaityagriha, a monastery and other associated burnt brick structures at Boxanagar has reflected the art and architecture & religious aspects of ancient Tripura hitherto unknown. This archaeological protected area is situated 18 km (aerial distance) away from the Melaghar.
Protected Area		✓	Rudrasagar Ramsar site is within the Melaghar town but no proposed drain is located near the proposed Ramsar site. Sepahijala wildlife sanctuary located about 15 km (aerial distance) from Melaghar town.
Wetland		✓	Rudrasagar Lake, Ramsar protected site is located in Melaghar MC. It is a natural sedimentation reservoir which receives flow from three perennial streams, viz., Noacherra, Durlavnarayan-cherra and Kamtali-cherra. None of the drainage project sites are adjacent to the Rudrasagar Lake. Nearest drain - Thakurpara Red Lotus Club to Ramthakur Ashram is located 527 m from the Rudrasagar lake. No impact is expected during construction phase. No drainage discharge on Rudrasagar lake.
Mangrove		✓	Not Applicable
Estuarine		✓	Not Applicable
Buffer zone of protected area		✓	Drainage location not within buffer zone of protected area

Screening Questions	Yes	No	Remarks
Special area for protecting biodiversity		✓	None of the subproject component sites are adjacent to or within any special area for protecting biodiversity
Bay		✓	Not Applicable
B. Potential Environmental Impacts Will the Project cause…			
Impairment of historical/cultural monuments/areas and loss/damage to these sites?		✓	No historical/cultural/ monuments/ areas exist in or close vicinity of the subproject components. Hence no such impacts are anticipated.
Interference with other utilities and blocking of access to buildings; nuisance to neighbouring areas due to noise, smell, and influx of insects, rodents, etc.?	✓		No significant impact is anticipated. However, during construction there will be minor impacts due to noise, and dust of construction activities. The interference with access to buildings and commercial establishments is anticipated during construction phase. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. No problems of smell, influx of insects, rodents, etc. are anticipated due to implementation of sub project. The works will be mainly restricted within the existing storm water drains.
Dislocation or involuntary resettlement of people?		✓	Scope of the sub-project will entail no involuntary resettlement impacts and no physical dislocation of people is anticipated. Temporary impact may be during construction phase. This deals under RP/ due diligence report
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	No such impact is anticipated.
Impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?		✓	Not applicable as sub project pertains to rehabilitation of existing storm water drains
Overflows and flooding of neighbouring properties with raw sewage?		✓	No such impact is anticipated. The proposed subproject will reduce the water logging and flooding in the drainage zones
Environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?		✓	Not Applicable
Noise and vibration due to blasting and other civil works?	✓		Noise due to operation of machines during civil works is anticipated. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. Mitigation measures will be applied during construction particularly near Ramsar protected site. No blasting activity shall be involved

Screening Questions	Yes	No	Remarks
Risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards during project construction and operation?	✓		During execution stage, workers may face occupational health and safety related issues if personal protection measures are not used properly. No such impact is anticipated in operation stage.
Discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?		✓	Not applicable as the subproject involves rehabilitation of existing storm water drains
Inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities?		✓	Not applicable. Pumping and treatment plants are not involved.
Road blocking and temporary flooding due to land excavation during the rainy season?	✓		Temporary road blocking during construction of culverts shall be there for which proper traffic management and diversion arrangements shall be implemented. Due care shall be taken to carry out the works during dry periods to avoid any incidence of temporary flooding in the areas
Noise and dust from construction activities?	✓		Minor noise and dust from construction activities is anticipated which shall be temporary in nature coinciding only with the duration of construction activities.
Traffic disturbances due to construction material transport and wastes?		✓	The transportation of construction material and wastes shall be site specific and restricted to daily requirements which is not expected to result into traffic disturbances. However, traffic diversion plan, if required, will be prepared by contractor in consultation with Engineer to avoid traffic disturbances.
Temporary silt runoff due to construction?	✓		Temporary silt run off may be there during rainy season. Majority of the works shall be carried out during dry periods to avoid such impacts. To avoid silt flow in drains, during construction, silt fencing arrangements will be provided at the banks of drains.
Hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?		✓	Not Applicable
Deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?		✓	Not anticipated as the proposed subproject envisages rehabilitation of existing storm water drains. The major drains running the core area of the town are identified for interception and diversion to the proposed STP site. These components are proposed to be funded under AMRUT/ Similar scheme of GOI
Contamination of surface and ground waters due to sludge disposal on land?		✓	No as such impact anticipated

Screening Questions	Yes	No	Remarks
Health and safety hazards to workers from toxic gases and hazardous materials which may be contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and unsterilized sludge?		✓	Not anticipated as there will be construction and rehabilitation of existing open drains. However, the workers shall be provided with personal protective equipment like gum boots, gloves and masks, etc. while working within the drains to avoid any occupational health hazards.
Large population increase during project construction and operation that causes increased burden on social infrastructure (such as sanitation system)?		✓	No as such impact anticipated
Social conflicts between construction workers from other areas and community workers?		✓	No such conflicts are anticipated. Preference will be given to local laborers and migratory labour shall be employed in unavoidable circumstances only.
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?		✓	No as such impact anticipated
Community safety risks due to both accidental and natural hazards, 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?		✓	No such impact is anticipated in case of the proposed drainage work

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[23]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?	1	Extreme weather, specifically high rain intensity may result flooding of the drain. Outfall area of drain should be cleaned for final discharge of storm water to River
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	

[23] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Maintenance of the drain will be affected under extreme climatic condition.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**
Other Comments: None

Rapid Environmental Assessment Checklist- Belonia
Road & Highways
Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Urban development – Road

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		✓	Thakurani Tila- The site is situated in south Tripura district and it is about1 13.6 km away from Belonia town. This is ASI protected area. Shyamsundar Tila - A brick-built Buddhist monastic complex, ASI protected site located at Jolaibari, South Tripura and which is 14.6 km away from Belonia town. Proposed roads are not located nearby the ASI protected area
Protected Area		✓	No as such protected area nearby the proposed roads considered for improvement
Wetland		✓	None
Mangrove		✓	Not Applicable
Estuarine		✓	Not Applicable
Buffer zone of protected area		✓	Proposed roads are not within buffer zone of protected area
Special area for protecting biodiversity		✓	None of the subproject component sites are adjacent to or within any special area for protecting biodiversity
B. Potential Environmental Impacts **Will the Project cause…**			
Encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		✓	Work will be done within existing ROW. No encroachment on historical/cultural areas have been identified. No major disfiguration of landscape is envisaged as the roads pass through generally flat terrains.
Encroachment on precious ecology (e.g. sensitive or protected areas)?		✓	Not applicable – no protected areas nearby the roads
Alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?	✓		Inclusion of drainage works with roads in critical areas will help reduce flooding risks in these sections.
Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?	✓		There may be siltation of natural streams/drains located in the vicinity of project sites during construction and operation and mitigation measures have been proposed in the EMP Poor camp management may lead to runoff of silt and other wastes from workers' camps. This possible impact has been identified and mitigation measures have been included in the EMPs.

Screening Questions	Yes	No	Remarks
Increased local air pollution due to rock crushing, earth cutting and filling works, and chemicals from asphalt processing?	✓		Dust generation from earthworks and fumes from equipment and construction vehicles would be unavoidable. Rock crushing and asphalt processing will be sited away from settlements and other sensitive receptors. Measures to minimize local air pollution problems have been proposed in the EMP. Due to the nature of construction works, it is anticipated that air pollution will be increased during construction phase. As such guidance will be provided on the siting requirements for hot mix and ready-mix plants. Local regulations will also apply. Other mitigation measures needed will be covered in the EMP.
Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	✓		As a standard, workers will be provided with PPEs to minimize exposure to risks and associated harmful occupational health effects Although, the scale of construction works is relatively small for brick/ mud road, occupational health and safety (OHS) risks have still been taken into consideration and mitigation measures have been proposed in the EMP.
Noise and vibration due to blasting and other civil works?	✓		Although, the use of blasting is not proposed under the project, noise and vibration will be generated from construction works. Measures for minimizing this nuisance have been identified in the EMP
Dislocation or involuntary resettlement of people?		✓	Minimal impact is anticipated since improvement work will mostly be accommodated within available ROW. Temporary impact may be during construction work.
Dislocation and compulsory resettlement of people living in right-of-way?		✓	ROW encroachment in the project state is very uncommon although some commercial structures (e.g. kiosks, stores) will have to be relocated temporarily. These have been covered in the resettlement plans (RPs).
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	Currently, no specific vulnerable groups have been identified in the project areas
Other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		✓	ROW encroachment in the project state is very uncommon although some commercial Impacts to air quality will be highly localized and temporary during construction activity. Regular water sprinkling is a standard measure that will be employed to reduce the dust.
Hazardous driving conditions where construction interferes with pre-existing roads?	✓		With strict occupational health and safety requirements, restrictions on construction timing and mitigation measures against dust and other forms of pollution, serious concerns on respiratory problems and stress are not expected Contractors are required to prepare traffic management plans to avoid hazards and risks
Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?	✓		As a standard practice, these issues have been covered in the provisions for sanitation, health care and solid and liquid waste management in the contract documents.

Screening Questions	Yes	No	Remarks
Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?		✓	Minimal risk is anticipated. Regular monitoring of drains and other potential breeding grounds for mosquitoes and proper waste management in camps will be implemented
Accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?	✓		The preparation of traffic management plans and road safety provisions are included in the EMPs.
Increased noise and air pollution resulting from traffic volume?	✓		Noise barriers at sensitive receptors and community place will be provided to minimize impacts. Additional plantation along the road has been planned (depends on space availability) and improved road conditions will improve the air quality in the areas during operation.
increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?		✓	Major impacts are expected from accidental spillage which is not very likely. The project includes roads safety measures to ensure that the risks are minimized.
Social conflicts if workers from other regions or countries are hired?		✓	As a standard requirement, most of the workers will be locals. No such conflict is anticipated
Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	Workers will be mostly locals. Workers from remote places will be provided with adequate boarding facilities.
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?	✓		Road construction involves the use of fuel, lubricants and bitumen which poses risk during transport and storage. Appropriate mitigation measures are covered in the EMPs.
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.	✓		Adequate measures have been adopted to mitigate such risks The project includes road safety measures to ensure that the risks are minimized during operation.

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[24]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?	1	Some project location may experience increased flooding during high rain season. However, no project components are sited in flood plains and road specifications have been designed taking into

[24] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Screening Questions		Score	Remarks[24]
			account increased risk of water logging.
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	Proposed investments will not be passing through riverine areas
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	Work involved improvement of small stretch of the road. Not much impact anticipated.
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Increased flooding due to predicted increased precipitation will likely increase the cost of maintenance of the roads to maintain an acceptable level of service.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	Increase in temperature may cause rutting but not projected to be at a scale that can affect achieving the project objective of providing safe and efficient transport. Likely road blockages may occur during extreme weather events.

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**

Other Comments: None

Rapid Environmental Assessment Checklist- Belonia
Storm Water Drain
Country/Project Title: India/ Tripura Urban & Tourism Development Project
Sector: Sewerage & Drainage

Screening Questions	Yes	No	Remarks
A. Project Siting **Is the project area…**			
Densely populated?		✓	Belonia is not densely populated. The subproject area comprises different part of the town, Project locations supports open area, residential and commercial areas.
Heavy with development activities?		✓	The area comprises of residential structures, commercial establishments, and open area. The developmental activities such as construction works are ongoing at an average pace.
Adjacent to or within any environmentally sensitive areas?		✓	Drainage work will be carried out within Belonia town. There is no forest area nearby.
Cultural heritage site		✓	Thakurani Tila- The site is situated in south Tripura district and it is about1 13.6 km away from Belonia town. This is ASI protected area. Shyamsundar Tila - A brick-built Buddhist monastic complex, ASI protected site located at Jolaibari, South Tripura and which is 14.6 km away from Belonia town. Drainage components are not located nearby the ASI protected area
Protected Area		✓	No as such protected area nearby the proposed drainage locations
Wetland		✓	None
Mangrove		✓	Not Applicable
Estuarine		✓	Not Applicable
Buffer zone of protected area		✓	Drainage location not within buffer zone of protected area
Special area for protecting biodiversity		✓	None of the subproject component sites are adjacent to or within any special area for protecting biodiversity
Bay		✓	Not Applicable
B. Potential Environmental Impacts Will the Project cause…			
Impairment of historical/cultural monuments/areas and loss/damage to these sites?		✓	No historical/cultural/ monuments/ areas exist in or close vicinity of the subproject components. Hence no such impacts are anticipated.

Screening Questions	Yes	No	Remarks
Interference with other utilities and blocking of access to buildings; nuisance to neighbouring areas due to noise, smell, and influx of insects, rodents, etc.?	✓		No significant impact is anticipated. However, during construction there will be minor impacts due to noise, and dust of construction activities. The interference with access to buildings and commercial establishments is anticipated during construction phase. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. No problems of smell, influx of insects, rodents, etc. are anticipated due to implementation of sub project. The works will be mainly restricted within the existing storm water drains.
Dislocation or involuntary resettlement of people?		✓	Scope of the sub-project will entail no involuntary resettlement impacts and no physical dislocation of people is anticipated. Temporary impact may be during construction phase. This deals under RP/ due diligence report
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	No such impact is anticipated.
Impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?		✓	Not applicable as sub project pertains to rehabilitation of existing storm water drains and outfalls.
Overflows and flooding of neighbouring properties with raw sewage?		✓	No such impact is anticipated. The proposed subproject will reduce the water logging and flooding in the drainage zones
Environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?		✓	Not Applicable
Noise and vibration due to blasting and other civil works?	✓		Noise due to operation of machines during civil works is anticipated. This shall be temporary in nature and shall be restricted to the duration of construction activities at a particular site. No blasting activity shall be involved
Risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards during project construction and operation?	✓		During execution stage, workers may face occupational health and safety related issues if personal protection measures are not used properly. No such impact is anticipated in operation stage.
Discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?		✓	Not applicable as the subproject involves rehabilitation of existing storm water drains
Inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities?		✓	Not applicable. Pumping and treatment plants are not involved.

Screening Questions	Yes	No	Remarks
Road blocking and temporary flooding due to land excavation during the rainy season?	✓		Temporary road blocking during construction of culverts shall be there for which proper traffic management and diversion arrangements shall be implemented. Due care shall be taken to carry out the works during dry periods to avoid any incidence of temporary flooding in the areas
Noise and dust from construction activities?	✓		Minor noise and dust from construction activities is anticipated which shall be temporary in nature coinciding only with the duration of construction activities.
Traffic disturbances due to construction material transport and wastes?		✓	The transportation of construction material and wastes shall be site specific and restricted to daily requirements which is not expected to result into traffic disturbances. However, traffic diversion plan, if required, will be prepared by contractor in consultation with Engineer to avoid traffic disturbances.
Temporary silt runoff due to construction?	✓		Temporary silt run off may be there during rainy season. Majority of the works shall be carried out during dry periods to avoid such impacts. To avoid silt flow in drains, during construction, silt fencing arrangements will be provided at the banks of drains.
Hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?		✓	Not Applicable
Deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?		✓	Not anticipated as the proposed subproject envisages rehabilitation of existing storm water drains. The major drains running the core area of the town are identified for interception and diversion to the proposed STP site. These components are proposed to be funded under AMRUT/ Similar scheme of GOI
Contamination of surface and ground waters due to sludge disposal on land?		✓	No as such impact anticipated
Health and safety hazards to workers from toxic gases and hazardous materials which may be contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and unsterilized sludge?		✓	Not anticipated as there will be construction and rehabilitation of existing open drains. However, the workers shall be provided with personal protective equipment like gum boots, gloves and masks, etc. while working within the drains to avoid any occupational health hazards.
Large population increase during project construction and operation that causes increased burden on social infrastructure (such as sanitation system)?		✓	No as such impact anticipated
Social conflicts between construction workers from other areas and community workers?		✓	No such conflicts are anticipated. Preference will be given to local laborers and migratory labour shall be employed in unavoidable circumstances only.
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?		✓	No as such impact anticipated

Screening Questions	Yes	No	Remarks
Community safety risks due to both accidental and natural hazards, 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?		✓	No such impact is anticipated in case of the proposed drainage work

A Checklist for Preliminary Climate Risk Screening

Screening Questions		Score	Remarks[25]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?	1	Extreme weather, specifically high rain intensity may result flooding of the drain. Outfall area of drain should be cleaned for final discharge of storm water to River
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	Maintenance of the drain will be affected under extreme climatic condition.
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

Result of Initial Screening (Low, Medium, High): **Medium Risk**

Other Comments: None

[25] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Appendix 2: National Ambient Air Quality Standards

Parameter	Location [a]	India Ambient Air Quality Standard ($\mu g/m^3$)[b]	WHO Air Quality Guidelines ($\mu g/m^3$)			Applicable Per ADB SPS[e] ($\mu g/m^3$)
			Global Update [c] 2005	Second Edition 2000[d]	Air Pollution Guideline 2021	
PM_{10}	Industrial Residential, Rural and Other Areas	60 (Annual) 100 (24-hr)	20 (Annual) 50 (24-hr)	-	15 (Annual) 45 (24-hr)	20 (Annual) 50 (24-hr)
	Sensitive Area	60 (Annual) 100 (24-hr)	20 (Annual) 50 (24-hr)	-		20 (Annual) 50 (24-hr)
PM_{25}	Industrial Residential, Rural and Other Areas	40 (Annual) 60 (24-hr)	10 (Annual) 25 (24-hr)	-	05 (Annual) 15 (24-hr)	10 (Annual) 25 (24-hr)
	Sensitive Area	40 (Annual) 60 (24-hr)	10 (Annual) 25 (24-hr)			10 (Annual) 25 (24-hr)
SO_2	Industrial Residential, Rural and Other Areas	50 (Annual) 80 (24-hr)	20 (24-hr) 500 (10-min)	-	40 (24-hr) 500 (10-min)	50 (Annual) 20 (24-hr) 500 (10-min)
	Sensitive Area	20 (Annual) 80 (24-hr)	20 (24-hr) 500 (10-min)	-		20 (Annual) 20 (24-hr) 500 (10-min)
NO_2	Industrial Residential, Rural and Other Areas	40 (Annual) 80 (24-hr)	40 (Annual) 200 (1-hr)	-	10 (Annual) 25 (24-hr) 200 (1-hr)	40 (Annual) 80 (24-hr) 200 (1-hr)
	Sensitive Area	30 (Annual) 80 (24-hr)	40 (Annual) 200 (1-hr)	-		30 (Annual) 80 (24-hr) 200 (1-hr)
CO	Industrial Residential, Rural and Other Areas	2,000 (8-hr) 4,000 (1-hr)	-	10,000 (8-hr) 100,000 (15-min)	4 mg/ m^3 (24-hr) 10 mg/ m^3 (8-hr)	2,000 (8-hr) 4,000 (1-hr) 100,000 (15-min)
	Sensitive Area	2,000 (8-hr) 4,000 (1-hr)	-	10,000 (8-hr) 100,000 (15-min)	35 mg/ m^3(1-hr) 100 mg/ m^3(15-minute)	2,000 (8-hr) 4,000 (1-hr) 100,000 (15-min)
Ozone (O_3)	Industrial Residential, Rural and Other Areas	100 (8-hr) 180 (1-hr)	100 (8-hr)		60 (peak season) 100 (8-hr)	100 (8-hr) 180 (1-hr)
	Sensitive Area	100 (8-hr) 180 (1-hr)	100 (8-hr)			100 (8-hr) 180 (1-hr)
Lead (Pb)	Industrial, Residential, Rural and Other Areas	0.5 (Annual) 1.0 (24-hr)		0.5 (Annual)		0.5 (Annual) 1.0 (24-hr)
	Sensitive Area	0.5 (Annual) 1.0 (24-hr)		0.5 (Annual)		0.5 (Annual) 1.0 (24-hr)
Ammonia (NH_3)	Industrial Residential, Rural and	100 (Annual) 400 (24-hr)				100 (Annual) 400 (24-hr)

Parameter	Location [a]	India Ambient Air Quality Standard ($\mu g/m^3$)[b]	WHO Air Quality Guidelines ($\mu g/m^3$)			Applicable Per ADB SPS[e] ($\mu g/m^3$)
			Global Update [c] 2005	Second Edition 2000[d]	Air Pollution Guideline 2021	
	Other Areas					
	Sensitive Area	100 (Annual) 400 (24-hr)				100 (Annual) 400 (24-hr)
Benzene (C_6H_6)	Industrial Residential, Rural and Other Areas	5 (Annual)				5 (Annual)
	Sensitive Area	5 (Annual)				5 (Annual)
Benzo(o)pyrene (BaP) particulate phase only	Industrial Residential, Rural and Other Areas	0.001 (Annual)				0.001 (Annual)
	Sensitive Area	0.001 (Annual)				0.001 (Annual)
Arsenic (As)	Industrial Residential, Rural and Other Areas	0.006 (Annual)				0.006 (Annual)
	Sensitive Area	0.006 (Annual)				0.006 (Annual)
Nickel (Ni)	Industrial Residential, Rural and Other Areas	0.02 (Annual)				0.02 (Annual)
	Sensitive Area	0.02 (Annual)				0.02 (Annual)

[a] *Sensitive area refers to such areas notified by the India Central Government.*

[b] *Notification by Ministry of Environment and Forests, Government of India Environment (Protection) Seventh Amendment Rules, 2009*

[c] *WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide. Global update 2005. WHO 2006*

[d] *Air Quality Guidelines for Europe Second Edition. WHO 2000*

[e] *As per ADB SPS, the government shall achieve whichever of the ambient air quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS*

Appendix 3: Ambient Noise Level Standards

Receptor/ Source	India National Noise Level Standards[a] (dBA)		WHO Guidelines Value For Noise Levels Measured Out of Doors [b] (One Hour LA_q in dBA)		Applicable Per ADB SPS (dBA) [c]	
	Day	**Night**	**07:00 – 22:00**	**22:00 – 07:00**	Day time	Night time
Industrial area	75	70	70	70	70	70
Commercial area	65	55	70	70	65	55
Residential Area	55	45	55	45	55	45
Silent Zone	50	40	55	45	50	40

Note-

[a] Noise Pollution (Regulation and Control) Rules, 2002 as amended up to 2010.

[b] Guidelines for Community Noise. WHO. 1999

[c] Per ADB SPS, the government shall achieve whichever of the ambient quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

Appendix 4: Vehicle Exhaust Emission Norms

1. Passenger Cars

Norms	CO(g/km)	HC+ NOx(g/km)
1991Norms	14.3-27.1	2.0(Only HC)
1996 Norms	8.68-12.40	3.00-4.36
1998Norms	4.34-6.20	1.50-2.18
India stage 2000 norms	2.72	0.97
Bharat stage-II	2.2	0.5
Bharat Stage-III	2.3	0.35 (combined)
Bharat Stage-IV	1.0	0.18 (combined)

2. Heavy Diesel Vehicles

Norms	CO(g/kmhr)	HC (g/kmhr)	NOx (g/kmhr)	PM(g/kmhr)
1991Norms	14	3.5	18	-
1996 Norms	11.2	2.4	14.4	-
India stage 2000 norms	4.5	1.1	8.0	0.36
Bharat stage-II	4.0	1.1	7.0	0.15
Bharat Stage-III	2.1	1.6	5.0	0.10
Bharat Stage-IV	1.5	0.96	3.5	0.02

Source: Central Pollution Control Board

CO = Carbon Monoxide; g/kmhr = grams per kilometer-hour; HC = Hydrocarbons; NOx = oxides of nitrogen; PM = Particulates Matter

Appendix 5: Labour Laws

SALIENT FEATURES OF MAJOR LABOR LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN CONSTRUCTION OF CIVIL WORKS

(i) Workmen Compensation Act, 1923 - The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

(ii) Payment of Gratuity Act, 1972 - Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years' service or more or on death at the rate of 15 days' wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

(iii) Employees' PF and Miscellaneous Provisions Act, 1952 - The Act provides for monthly contributions by the employer plus workers @10 % or 8.33 %. The benefits payable under the Act are: (a) Pension or family pension on retirement or death as the case may be; (b) deposit linked insurance on the death in harness of the worker; (c) payment of PF accumulation on retirement/death etc.

(iv) Maternity Benefit Act, 1951 - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

(v) Contract Labour (Regulation and Abolition) Act, 1970 - The Act provides for certain welfare measures to be provided by the Contractor to contract labor and in case the Contractor fails to provide, the same are required to be provided by the Principal Employer by Law. The principal employer is required to take Certificate of Registration and the Contractor is required to take a License from the designated Officer. The Act is applicable to the establishments or Contractor of principal employer if they employ 20 or more contract labor.

(vi) Minimum Wages Act, 1948 - The employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employment.

(vii) Payment of Wages Act, 1936 - It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

(viii) Equal Remuneration Act, 1979 - The Act provides for payment of equal wages for work of equal nature to Male and Female workers and not for making discrimination against Female employees in the matters of transfers, training and promotions etc.

(ix) Payment of Bonus Act, 1965 - The Act is applicable to all establishments employing 20 or more workmen. The Act provides for payments of annual bonus subject to a minimum of 8.33 % of wages and maximum of 20 % of wages to employees drawing Rs. 3,500/- per month or less. The bonus to be paid to employees getting Rs. 2,500/- per month or above up to Rs.3,500/- per month shall be worked out by taking wages as Rs.2,500/- per month only. The Act does not apply to certain establishments. The newly set up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of the Act.

(x) Industrial Disputes Act, 1947 - The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

(xi) Industrial Employment (Standing Orders) Act, 1946 - It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government

to 50). The Act provides for laying down rules governing the conditions of employment by the employer on matters provided in the Act and get the same certified by the designated Authority.

(xii) Trade Unions Act, 1926 - The Act lays down the procedure for registration of trade unions of workmen and employees. The trade unions registered under the Act have been given certain immunities from civil and criminal liabilities.

(xiii) Child Labor (Prohibition and Regulation) Act, 1986 - The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of child labor is prohibited in Building and Construction Industry.

(xiv) Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979 - The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The inter-state migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc.

(xv) The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Cess Act of 1996 - All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under this Act. All such establishments are required to pay Cess at rate not exceeding 2% of the cost of construction as may be notified by the Government. The employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodation for workers near the workplace etc. The employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

Appendix 6: Strip Plan for Proposed Road and Drain

Strip Plan of Cluster IIA towns for Road and Drain
Udaipur Road

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed road – impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
Road 1 - From NH-08 to house of Mrinal Kanti Das,Ward No - 13					
1	**0-100m**	**1 Electric Posts 0.2m outside proposed ROW at 45m chainage**	**1 Electric Posts 0.4m outside proposed ROW at 10m chainage. 1 Electric Posts 0.3m outside proposed ROW at 25m chainage. 1 Electric Posts inside proposed ROW at 60m chainage**	Residential	Residential
2	**100m-134m**	**-**	**1 Electric Posts inside proposed ROW at 110m chainage.** 2 Trees 0.6m and 1.3m outside proposed ROW at 120m chainage	Residential	Residential
Road 2 - From house of Sunil Debnath to house of ICB Pavement Sultan Miah Ward No - 15					
1	**0-100m**	**1 Electric Posts 0.3m outside proposed ROW at 5m chainage**	**1 Tree 0.5m outside proposed ROW at 98m chainage**	Agricultural	Agricultural
2	**100m-194m**	**-**	**1 Tree 0.4m outside proposed ROW at 107m chainage. 1 Tree 0.2m outside proposed ROW at 150m chainage**	Agricultural	Agricultural
Road 3 - New CC Road from Gonida Dey to Housing Board					
1	0-100m	**-**	**1 Electric Posts 0.3m outside proposed ROW at 30m chainage. 1 Electric Posts 0.2m outside proposed ROW at 60m chainage.** 1 Trees 1.5m outside proposed ROW at 25m chainage.	Residential. Water body 3m outside proposed ROW at 25m chainage	Residential
2	100m-200m	**1 Electric Posts 0.2m outside proposed ROW at 105m chainage**	**2 Electric Posts inside proposed ROW at 165m and 195m chainage**	**Residential**	**Residential**
2	200m-233m	**-**	**-**	**Residential**	**Residential**

Udaipur Drain

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
Drain 1 - Shitalbari to Brahmabari to Sukhsagar Lake					
1	0-100m	**1 Electric Post inside proposed drain at 80m chainage.**	-	Water body 10m outside proposed drain from 0-60m chainage.	Road
2	100m-200m	**1 Electric Post inside proposed drain at 160m chainage.**	**1 Electric Post 0.45m outside proposed drain at 130m chainage.**	Open	Road

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone				Nearby Land Use (Religious places & water bodies)	
		Left Side Drain		Right Side Drain			
		LHS	RHS	LHS	RHS	LHS	RHS
3	200m-300m	**1 Electric Post inside proposed drain at 250m chainage. 1 Electric Post 0.3m outside proposed drain at 275m chainage**	-	-	-	Commercial	Residential
4	300m-400m	-	-	**1 Electric Post inside proposed drain at 320m chainage**	-	Open	Residential
5	400m-500m	**1 Electric Post inside proposed drain at 475m chainage.**	**1 Electric Post 0.3m outside proposed drain at 410m chainage**	-	**1 Tree 0.5m outside proposed drain at 480m chainage**	Commercial	Residential and commercial
6	500m-600m	-	-	**1 Telephone Post inside proposed drain at 510m chainage**	-	Commercial	Residential
7	600m-700m	-	**1 Tree 0.5m outside proposed drain at 680m chainage**	-	-	Commercial	Commercial
8	700m-800m	**1 Telephone Post 0.3m outside proposed drain at**	-	**2 Electric Post inside proposed drain at 740m chainage**	-	Residential	Commercial

		740m chainage					
9	800m-900m	**-**	**-**	**1 Electric Post inside proposed drain at 805m chainage**	**-**	Residential	Commercial
10	900m-1000m	**-**	**1 Tree 0.4m outside proposed drain at 960m chainage. 1 Electric Post 0.4m outside proposed drain at 990m chainage**	**-**	**1 Electric Post 0.4m outside proposed drain at 920m chainage**	Residential	Commercial
11	1000m-1034m	**-**	**-**	**-**	**-**	Residential	Commercial

Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**		**Nearby Land Use (Religious places & water bodies)**	
		LHS	**RHS**	**LHS**	**RHS**
12	1034m1100m	**1 Electric Post inside proposed drain at 1020m chainage**	1 Tree 0.8m outside proposed drain at 1080m chainage	Residential	Road
13	1100m1232m	**-**	**1 Tree 0.5m outside proposed drain at 1120m chainage**	Road	Commercial

Drain 2 - Bridge Chowmuhani to Gada Chowmuhani Saw Mill Road to Gomati River

Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**				**Nearby Land Use (Religious places & water bodies)**	
		Left Side Drain		**Right Side Drain**			
		LHS	**RHS**	**LHS**	**RHS**	**LHS**	**RHS**
1	0-100m	**-**	**1 Electric Post 0.3m outside proposed drain at 30m chainage**	**1 Electric Post inside proposed drain at 60m chainage**	**-**	Commercial. Ashram outside proposed drain at 40m chainage.	Market
2	100m-200m	**1 Tree inside proposed drain at 190m chainage**	**1 Electric Post 0.4m outside proposed drain at 30m chainage**	**1 Tree 0.3m outside proposed drain at 110m chainage. 1 Tree 0.4m outside proposed drain at 155m chainage**	**1 Electric Post inside proposed drain at 105m chainage**	Commercial and partly residential	Residential
3	200m-300m	**1 Electric Post inside proposed**	**1 Tree inside proposed drain at 260m chainage**	**1 Tree 0.4m outside proposed drain at**	**1 Electric Post 0.4m outside proposed**	Residential	Commercial

		drain at 260m chainage.		295m chainage	drain at 2700m chainage. 1 Tree 0.3m outside proposed drain at 280m chainage		
4	300m-400m	2 Electric Post inside proposed drain at 320m chainage. 2 Tree inside proposed drain at 370m and 395m chainage	1 Tree 0.4m outside proposed drain at 310m chainage	1 Water Tap inside proposed drain at 350m chainage	1 Electric Post inside proposed drain at 380m chainage	Commercial	Commercial
5	400m-500m	-	-	1 Telephone Post inside proposed drain at 405m chainage	1 Electric Post inside proposed drain at 460m chainage	Commercial	Commercial
6	500m-600m	2 Electric Post inside proposed drain at 555m chainage	-	-	5 Trees 0.5m outside proposed drain at 515m-530m chainage	Commercial	Commercial
7	600m-700m	2 Telephone Post inside proposed drain at 630m and 660m chainage	3 Electric Post inside proposed drain at 650m, 670m and 690m chainage	-	-	Commercial	Commercial

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
9	0-100m	-	-	Residential	Road
10	100m-200m	-	-	Residential	Road
11	200m-300m	-	-	Residential.	Road
12	300m-342m	-	-	Open. Loknath Ashram outside proposed Drain at 310m chainage.	Open

Drain 3 - Central Road to Gomati River

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone				Nearby Land Use (Religious places & water bodies)	
		Left Side Drain		Right Side Drain			
		LHS	RHS	LHS	RHS	LHS	RHS
1	0-100m	-	-			Commercial	Commercial
2	100m-200m	-	1 Electric Post 0.4m outside proposed drain at 160m chainage. 1 Electric Post	Electric Post inside proposed drain at 5m, 50m and 80m chainage	-	Commercial	Commercial

			0.3m outside proposed drain at 190m chainage				
3	200m-300m	**1 Electric Post inside proposed drain at 225m chainage.**	**1 Telephone Post inside proposed drain at 260m chainage**	**-**	**-**	Residential	Commercial
4	300m-400m	**1 Electric Post inside proposed ROW at 355m drain.**	**1 Telephone Post inside proposed drain at 375m chainage**	**-**	**1 Electric Post inside proposed drain at 400m chainage**	Commercial	Commercial
5	400m-480m	**1 Telephone Post inside proposed drain at 440m chainage**	**-**	**1 Water Tap inside proposed drain at 320m chainage**	**-**	Commercial	Commercial

Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**		**Nearby Land Use (Religious places & water bodies)**	
		LHS	**RHS**	**LHS**	**RHS**
7	480m-600m				
8	600m-700m	**-**	**-**	Commercial	Road
9	700m-803m	**-**	Trees 1.5m outside proposed drain at 710m, 720m and 730m chainage	Commercial	Road
Drain 4 - Central Road to Sukhsagar Lake					
1	0-100m	**1 Electric Post inside proposed drain at 10m chainage**	**-**	Road	Open and Water Body 10 outside proposed drain.
2	100m-200m	**1 Electric Post inside proposed drain at 160m chainage.** 1 Tree 1.3m outside proposed drain at 170m chainage.	**-**	Road	Market
3	200m-300m	1 Tree 1.2m outside proposed drain at 210m chainage**.**	**-**	Road	Market
4	300m-400m	**1 Electric Post inside proposed drain at 360m chainage**	**1 Water Tap inside proposed drain at 390m chainage**	Road. 1 Temple encroaches proposed drain at 370m chainage.	Commercial
5	400m-500m	**-**	**-**	Residential	Road
6	500m-600m	**1 Electric Post inside proposed drain at 565m chainage**	**-**	Residential	Road
7	600m-700m	**-**		Residential	Road
8	700m-800m	**-**	1 Tree 1.2m outside proposed drain at 750m chainage.	Residential	Road
9	800m-900m	**-**		Residential	Road
10	900m-1000m	**-**	1 Tree 0.8m outside proposed drain at 900m chainage.	Residential	Road

11	1000m-1100m	-	-	Residential	Road
12	1100m-1200m	-	-	Residential	Road
13	1200m-1300m	-	-	Residential	Road
14	1300m-1400m	-	-	Residential	Road
15	1400m-1500m	-	-	Residential	Road
16	1500m-1600m	-	-	Residential	Road
17	1600m-1700m	-	-	Residential	Road
18	1700m-1800m	-	-	Residential	Road
19	1800m-1900m	-	-	Residential	Road
20	1900m-2000m	-	-	Open	Open
21	2000m-2099m	-	-	Open	Open
Drain 5 - Ramesh Chowmuhani to Gomati River					
1	0-100m	-	-	Open	Open. Water body 1.5m outside proposed drain at 95m chainage.
2	100m-200m	-	-	Open	Open and Residential
3	200m-300m	**1 Tree inside proposed drain at 240m chainage.**		Open	Open
4	300m-400m	-	-	Open	Open
5	400m-500m	-	-	Open	Open

Amarpur Road

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Road – impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
Road 1 - Rangamati bridge to Takcherra bridge					
1	0-100m	-	**1 Electric Post 0.5m outside ROW at 10m chainage**	Open	Open
2	100m-200m	**1 Electric Post inside ROW at 150m chainage. 1 Tree 3m outside ROW at 175m chainage**	**1 Electric Post 0.5m outside ROW at 130m chainage**	Residential.	Residential
3	200m-300m	-	**1 Electric Post 0.2m outside ROW at 260m chainage. 3 Trees 0.2m-0.3m outside ROW at 260m chainage.**	Residential.	Residential.
4	300m-400m	1 Tree 1m outside ROW at 370m chainage	**1 Electric Post inside ROW at 330m chainage**	Water Body 9m outside ROW at 300m chainage.	Residential.
5	400m-500m	**1 Tree 0.4m outside ROW at 450m chainage. 1 Tree inside ROW at 465m chainage**	**1 Electric Post 0.3m outside ROW at 490m chainage**	Water Body 9m outside ROW at 400m chainage.	Residential.
6	500m-600m	1 Tree 1.1m outside ROW at 525m chainage. **1 Tree inside ROW at 540m chainage**	**1 Electric Post inside ROW at 560m chainage. 1 Transformer inside ROW at 590m chainage.**	Water Body 10m outside ROW at 500m chainage.	Residential and partly commercial
7	**600m-700m**	-	**1 Water Valve inside ROW at 690m chainage.**	Water Body 10m outside ROW at 600m chainage	Residential.

			1 Tree 0.4m outside ROW at 630m chainage		
8	**700m-800m**	**1 Light Post 0.2m outside ROW at 760m chainage. 1 Tree 1.4m outside ROW at 760m chainage**	1 Tree 0.7m outside ROW at 745m chainage	Water Body 10m outside ROW at 700m chainage.	Residential and partly commercial.
9	**800m-900m**	**1 Electric Post 0.2m outside ROW at 830m chainage. 1 Tree 0.4m outside ROW at 815m chainage**	**-**	Open. Temple 2.5m outside ROW at 880m chainage.	Residential
10	**900m-1000m**	1 Tree 1m outside ROW at 920m chainage.	**-**	Playground.	Commercial. Culvert at 970 m chainage across ROW.
11	**1000m-1100m**	-	**-**	Sishu Niketan School outside ROW at 1000m chainage	Commercial. Temple 3m outside ROW at 1080m chainage.
12	**1100m-1200m**	1 Tree 1m outside ROW at 1140m chainage	**-**	Dakshin Amarpur School outside proposed Road at 1150m chainage.	Residential
13	**1200m-1300m**	1 Tree 1m outside ROW at 1290m chainage **1 Tree inside ROW at 1250m chainage.**	**1 Electric Post 0.4m outside ROW at 1200m chainage**	Residential.	Residential
14	**1300m-1400m**	**1 Electric Post inside ROW at 1325m chainage**	**1 Electric Post inside ROW at 1375m chainage**	Commercial.	Commercial. Temple 3m outside ROW at 1430m chainage.
15	**1400m-1500m**	**-**	**-**	Commercial. Culvert at 1420m chainage across ROW.	Commercial
16	**1500m-1600m**	**-**	**1 Electric Post inside ROW at 1530m chainage**	Commercial. Culvert at 1540m chainage across ROW.	Commercial
17	**1600m-1700m**	**-**	**1 Electric Post 0.2m outside ROW at 1630m chainage**	Commercial	Commercial
18	**1700m-1720m**	**-**	**-**	Commercial	Commercial

Amarpur Drain

Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**		**Nearby Land Use (Religious places & water bodies)**	
		LHS	**RHS**	**LHS**	**RHS**
Drain 1 - English Medium School to Gomati River via Tri-Junction					
1	0-100m	**1 Tree 0.2m outside proposed drain at 10m chainage**	**1 Tree inside proposed drain at 20m chainage**	Open. Amarpur Englsih School outside proposed drain at 50m chainage.	Open.
2	100m-200m	**-**	**1 Transformer 1.1m outside Proposed**	Open	Residential

			Drain at 305m chainage		
3	200m-300m	-		Open	Residential
4	300m-400m	-		Residential.	Residential.
5	400m-500m	-	**1 Electric Post inside Proposed Drain at 455m chainage**	Residential	Residential
6	500m-600m	**1 Electric Post inside Proposed Drain at 510m chainage.** 1 Tree 1.5m outside proposed drain at 510m chainage. **1 Tree 0.4m outside proposed drain at 570m chainage**	**1 Light Post inside Proposed Drain at 570m chainage**	Residential.	Residential
7	600m-700m	-	-	Residential.	Commercial.
8	700m-800m	-		Residential	Commercial
9	800m-900m (Drain node at 900m chainage)		-	Residential Culvert at 880m chainage	Commercial
10	900m-1000m	-	-	Residential	Residential. Water Body partly inside proposed drain at 930m chainage
11	1000m-1100m	**1 Tree inside proposed drain at 1025m chainage**	-	Residential.	Residential. Water Body outside proposed drain at 1020m chainage
12	1100m-1200m	**1 Electric Post inside Proposed Drain at 1120m chainage**	-	Nala	Open
13	1200m-1300m			Nala	Open. Water body outside proposed drain at 1200m chainage.
14	1300m-1400m			Nala. Clvert at 1310m chainage across proposed drain	Open
15	1400m-1500m			Nala	Residential
16	1500m-1530m			Nala	Open
17	0-100m (Branch joining main drain)			Residential	Road
18	100m-200m			Residential	Road

Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**				**Nearby Land Use (Religious places & water bodies)**	
		Left Side Drain		**Right Side Drain**			
		LHS	**RHS**	**LHS**	**RHS**	**LHS**	**RHS**
19	200m-300m	**1 Electric Post inside Proposed Drain at 225m chainage**	**1 Electric Post inside Proposed Drain at 275m chainage**			Commercial	Commercial

20	300m-400m	**1 Electric Post inside Proposed Drain at 380m chainage**		**1 Electric Post inside Proposed Drain at 340m chainage**	**1 Electric Post inside Proposed Drain at 370m chainage**	Commercial. Temple outside proposed drain at 310m chainage.	Commercial
21	400m-510m (Joins at main drain)	1 Tree 1.2m outside proposed drain at 460m chainage	**1 Electric Post inside Proposed Drain at 440m chainage**			Commercial.	Commercial

Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**		**Nearby Land Use (Religious places & water bodies)**	
		LHS	**RHS**	**LHS**	**RHS**
22	0m-100m Chandimata Temple to the House of Akhil Das via Amarpur-Teliamura Rd	**1 Tree inside proposed drain at 30m chainage**		Road	Residential
23	100m-200m		**1 Tree 0.3m outside proposed drain at 180m chainage**	Road	Residential
24	200m-300m	**1 Electric Post and 1 transformer 0.3m outside Proposed Drain at 200m chainage.**		Road	Residential
25	300m-400m			Road	Residential
26	400m-490m			Road	Residential
Drain 2 - Amarsagar Lake to Chhara via Shankar Saha House					
1	0-100m		1 Transformer 0.9m outside Proposed Drain at 70m chainage. 1 Tree 2m outside proposed drain at 75m chainage	Road	Residential.
2	100m-200m	**1 Water Valve inside Proposed Drain at 165m chainage**	**1 Electric Post 0.5m outside Proposed Drain at 125m chainage. 1 Light Post 0.3m outside proposed drain Proposed Drain at 165m chainage. 1 Electric Post 0.2m outside proposed drain Proposed Drain at 175m chainage.** 1 Tree 0.7m outside proposed drain at 110m chainage	Road	Residential.
3	200m-300m	**1 Electric Post 0.3m outside proposed drain Proposed Drain at 250m chainage.**	**1 Electric Post inside Proposed Drain at 210m chainage. 1 Electric Post inside Proposed Drain at 280m chainage**	Road.	Residential

		1 Tree 0.4m outside proposed drain at 210m chainage			
4	300m-400m	-		Road.	Residential.
5	400m-500m	-		Road	Residential
6	500m-600m	**1 Tree 1.5m outside proposed drain at 510m chainage.** **1 Tree 0.4m outside proposed drain at 570m chainage**		Road and partly open.	Residential
7	600m-700m	-	**1 Electric Post inside Proposed Drain at 670m chainage**	Open.	Residential.
8	700m-800m	-		Open	Residential and partly open
9	800m-850m		-	Open	Open
Drain 3 - Amarsagar Lake to Gomati River via Ampinagar-Amarpur Road					
1	0-100m	**1 Electric Post inside Proposed Drain at 15m chainage. 1 Electric Post 0.4m outside proposed drain Proposed Drain at 60m chainage**		Residential	Road.
2	100m-200m	**1 Electric Post inside Proposed Drain at 120m chainage. 1 Electric Post inside Proposed Drain at 150m chainage. 1 Telephone Post inside Proposed Drain at 170m chainage**	**1 Electric Post 0.5m outside proposed drain Proposed Drain at 105m chainage**	Residential	Road.
3	200m-300m	**1 Telephone Post 0.5m outside proposed drain Proposed Drain at 240m chainage.**	**1 Electric Post inside Proposed Drain at 210m chainage. 1 Electric Post inside Proposed Drain at 280m chainage.** **3 Trees inside proposed drain at 260m chainage**	Residential.	Road.
4	300m-400m	-		Residential and partly Open.	Road
5	400m-500m	-		Open	Road
6	500m-580m			Open	Road
Drain 4 - Amarpur Hospital Chowmuhani to Gomati River					
1	0-100m	-	-	Residential	Road.
2	100m-200m	-	**1 Electric Post 0.4m outside proposed drain Proposed Drain at 190m chainage**	Residential	Road.
3	200m-300m			Residential and partly Open.	Road.
4	300m-340m	-	1 Tree 3m outside proposed drain at 310m chainage	Open	Open.
Drain 5 - Amarpur Sub-Divisional Hospital to Nalla via Radha Krishna Mandir					

1	0-100m	-	**1 Electric Post 0.5m outside proposed drain Proposed Drain at 5m chainage**	Open	Open. Water body partly inside proposed Drain at 10m and 50m chainages.
2	100m-200m	-	-	Residential and partly Open	Residential and partly Open
3	200m-300m	-	-	Open	Open. Temple outside proposed drain at 200m chainage

Bishramganj Road

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Road – impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
Road 1 - Priyalal Debbarma house to Bikash Debbarma house					
1	0-100m	2 Trees 1.5m outside ROW at 15m chainage	**1 Telephone Post 0.5m outside ROW at 15m chainage**	Residential.	Residential
2	100m-200m	**5 Trees inside ROW at 180m-195m chainage**	**1 Tree 0.5m outside ROW at 105m chainage.**	Residential.	Residential.
3	200m-300m	**1 Tree inside ROW at 220m chainage. 1 Tree inside ROW at 255m chainage**	**2 Trees inside ROW at 230m chainage. 1 Tree inside ROW at 260m chainage**	Residential and partly Open.	Residential and partly Open.
4	300m-360m	-	-	Open.	Residential.
Road 2 - Lalit Debnath house to Subhash Saha house viaGour Sankar house					
1	0-100m	**1 Tree 0.3m outside ROW at 20m chainage.** 1 Trees 0.8m outside ROW at 40m chainage	**1 Telephone Post 0.5m outside ROW at 15m chainage**	Residential and partly Open.	Open and partly Residential
2	100m-200m	**1 Electric Post 0.5m outside ROW at 165m chainage**	-	Residential.	Rubber Plantation.
3	200m-300m	**1 Electric Post 0.3m outside ROW at 205m chainage**	-	Residential and partly Open. Water body outside ROW at 210m chainage.	Rubber Plantation and partly Open. Water body outside ROW at 210m chainage.
4	300m-400m	-	**1 Electric Post inside ROW at 320m chainage**	Residential.	Residential.
5	400m-500m	**1 Electric Post 0.1m outside ROW at 495m chainage**	**1 Electric Post inside ROW at 440m chainage**	Residential	Residential
6	500m-600m	-	-	Rubber Plantation.	Rubber Plantation.
7	600m-622m	-	-	Open	Open
Road 3 - Ramani Paul house to Krishna Debnath house via Sujan Debnath house					
1	0-100m	**1 Tree 0.2m outside ROW at 10m chainage. 1 Trees 1.9m outside ROW at 80m chainage**	**1 Electric Post inside ROW at 85m chainage**	Residential and partly Open.	Residential and partly Open.

2	100m-200m	-	**1 Electric Post 0.15m outside ROW at 110m chainage. 2 Trees inside ROW at 150m chainage. 2 Trees inside ROW at 175m chainage. 1 Tree 0.2m outside ROW at 120m chainage.**	Residential. Water body 1m outside ROW at 175m chainage. Water body 0.2m outside ROW at 195m chainage.	Residential.
3	200m-300m	**1 Electric Post 0.3m outside ROW at 205m chainage**	**1 Electric Post 0.3m outside ROW at 260m chainage. 1 Tree 0.3m outside ROW at 245m chainage.**	Open.	Residential.
4	300m-400m	-	**1 Electric Post inside ROW at 385m chainage.** 1 Tree 0.8m outside ROW at 325m chainage.	Open.	Residential. Water body 0.3m outside ROW at 330m chainage.
5	400m-440m	**1 Electric Post 0.1m outside ROW at 495m chainage**	**1 Electric Post inside ROW at 440m chainage**	Agricultural	Residential
Road 4 - Prahllad Datta house to Nirmal Sutradhar's house 4 3 217.365					
1	0-100m	**1 Electric Post inside ROW at 5m chainage. 1 Electric Post 0.5m outside ROW at 75m chainage. 1 Tree 0.5m outside ROW at 35m chainage.**	**1 Electric Post inside ROW at 85m chainage**	Residential. Water body partly inside ROW at 50m and 90m chainage.	Residential
2	100m-200m	**1 Electric Post inside ROW at 105m chainage**	-	Open. Culvert at 105m chainage across ROW.	Residential.
3	200m-217m	-	-	Residential.	Residential.
Road 5 - Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge					
1	0-100m	-	**1 Electric Post inside ROW at 85m chainage. 1 Trees 2m outside ROW at 20m chainage.**	Open.	Residential.
2	100m-200m	**1 Tree 0.3m outside ROW at 150m chainage.** 1 Tree 1m outside ROW at 180m chainage	**1 Electric Post 0.5m outside ROW at 140m chainage. 1 Electric Post 0.4m outside ROW at 170m chainage**	Open.	Residential.
3	200m-300m	**1 Electric Post inside ROW at 200m chainage. 1 Transformer inside ROW at 270m chainage**	**1 Electric Post inside ROW at 220m chainage**	Residential.	Residential.
4	300m-400m	**Electric Posts inside ROW at 305m and 320m chainage**	1 Tree 2m outside ROW at 330m chainage.	Residential	Open.

5	400m-500m	-	-	Agricultural	Open. Water body outside ROW at 490m chainage.
6	500m-600m	-	-	Agricultural	Agricultural
7	600m-700m	-	-	Agricultural. Water body inside ROW at 630m chainage.	Agricultural. Water body inside ROW at 630m chainage.
8	700m-800m	**1 Transformer 0.4m outside ROW at 750m chainage**	-	Agricultural	Agricultural
9	800m-900m	-	**6 Trees inside ROW at 860m-900m chainages.**	Agricultural	Agricultural.
10	900m-1000m	**1 Electric Post 0.3m outside ROW at 920m chainage**	-	Agricultural. Water body outside ROW at 490m chainage.	Agricultural. Water body outside ROW at 490m chainage.
11	1000m-1100m	-	**1 Electric Post 0.15m outside ROW at 1080m chainage.** **1 Tree inside ROW at 1050m chainage**	Agricultural	Agricultural.
12	1100m-1200m	-	-	Agricultural	Agricultural
13	1200m-1300m	-	**Electric Posts inside ROW at 1220m and 1280m chainage.**	Agricultural	Agricultural
14	1300m-1320m	-	**2 Electric Posts inside ROW at 1320m chainage.**	Agricultural	Agricultural

Bishramganj Drain

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
Drain 1 - Chesrimai Drain 1					
1	0-100m	**1 Tree 0.45m outside proposed drain at 55m chainage**	**1 Tree 0.2m outside proposed drain at 60m chainage**	Residential. Water Body 1.8m outside proposed drain at 65m chainage.	Road.
2	100m-143m	-	-	Residential	Road
Drain 2 - Chesrimai Drain 2 & 3					
1	0-100m	**1 Electric Post 0.5m outside proposed drain at 30m chainage. 1 Electric Post 0.45m outside proposed drain at 50m chainage.** 1 Tree 1m outside proposed drain at 75m chainage	-	Residential.	Road.
2	100m-119m	-	-	Open	Road
Drain 3 - Chesrimai Drain 4					
1	0-100m	-	-	Open. Temple 3m outside proposed drain at 10m chainage.	Road.
2	100m-200m	**1 Electric Post 0.5m outside proposed**	-	Open	Road. School 6m outside proposed

		drain at 167m chainage			drain at 170m chainage.
3	200m-300m	1 Tree 3.5m outside proposed drain at 270m chainage.	-	Open.	Road
4	300m-400m	**1 Electric Post 0.5m outside proposed drain at 360m chainage.** 2 Trees 1.8m outside proposed drain at 340m chainage. 1 Tree 1m outside proposed drain at 360m chainage.	-	Open.	Road
5	400m-437m	-	-	Open	Road
Drain 4 - Chesrimai Drain 5					
1	0-100m	.	**1 Electric Post inside proposed drain at 60m chainage**	Road.	Residential.
2	100m-200m	-	**2 Electric Posts inside proposed drain at 290m chainage**	Road	Residential
3	200m-300m	-	**1 Electric Post 0.3m outside proposed drain at 220m chainage.**	Road	Rubber plantation
Drain 5 - Chesrimai Drain 6					
1	0-100m	.	**1 Electric Post 0.4m outside proposed drain at 15m chainage. 1 Electric Post 0.5m outside proposed drain at 60m chainage.** 1 Tree 2.5m outside proposed Drain at 50m chainage.	Road.	Rubber Plantation.
2	100m-200m	-	**1 Electric Post 0.5m outside proposed drain at 110m chainage.** 1 Tree 1.5m outside proposed Drain at 120m chainage.	Road	Open and partly residential.
3	200m-300m	-	**1 Electric Post 0.4m outside proposed drain at 220m chainage.** **1 Tree 0.4m outside proposed Drain at 245m chainage**. 1 Tree 1.5m outside proposed Drain at 280m chainage.	Road	Open and partly residential.
4	300m-400m	-	4 Trees 1.5m outside proposed Drain at 350m chainage.	Road	Open.

5	400m-500m	-	1 Tree 1.7m outside proposed Drain at 470m chainage	Road	Open.
6	500m-600m		**1 Electric Post inside proposed drain at 535m chainage.**	Road	Agricultural
7	600m-700m	-	-	Road	Agricultural
8	700m-735m	-	-	Road	Agricultural
Drain 6 - Chesrimai Drain 7					
1	0-100m	4 Trees 1.5m outside proposed Drain at 5m-30m chainage.	-	Open.	Road
2	100m-200m	**1 Electric Post 0.5m outside proposed drain at 130m chainage.** 5 Trees 1.5m outside proposed Drain at 40m-60m chainage.	-	Open.	Road.
3	200m-284m	-	-	Agricultural. Water body 2.5m outside proposed drain at 225m chainage.	Road.
Drain 7 - Chesrimai Drain 8					
1	0-100m	.	1 Tree 2.5m outside proposed Drain at 20m chainage.	Road.	Residential.
2	100m-200m	-	-	Road	Residential
3	200m-300m	-	**1 Electric Post 0.4m outside proposed drain at 220m chainage.** 1 Tree 1m outside proposed Drain at 295m chainage.	Road	Residential and partly Open.
4	300m-400m	-	1 Tree 2m outside proposed Drain at 328m chainage.	Road	Open.
5	400m-484m	-		Road	Open

Drain 8 - Bishramganj Drain 9

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone				Nearby Land Use (Religious places & water bodies)	
		Left Side Drain		Right Side Drain			
		LHS	RHS	LHS	RHS	LHS	RHS
1	0-94m	-	-			Residential and partly open.	Road
2	94m-200m	-	-			Residential.	Open and partly residential
3	200m-300m	-		**1 Tree inside proposed Drain at 275m chainage.**	**1 Electric Post inside proposed drain at 240m chainage. 1 Tree 1m outside proposed Drain at 260m chainage.**	Residential. Water body 2m outside proposed drain at 275m chainage.	Residential.

					1 Tree 0.3m outside proposed Drain at 285m chainage.		
4	300m-329m	**-**		**-**	**-**	**Residential**	**Open**
Drain 9 - Bishramganj Drain 10							
Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**		**Nearby Land Use (Religious places & water bodies)**			
		LHS	**RHS**	**LHS**	**RHS**		
1	0-100m	**-**	**1 Electric Post 0.5m outside proposed drain at 95m chainage.**	Road	Residential		
2	100m-200m	**-**	1 Tree 2m outside proposed Drain at 180m chainage.	Road.	Residential.		
3	200m-289m	**-**	**-**	Road	Open		
Drain 10 - Bishramganj Drain 4C & 11							
1	0-100m	**1 Electric Post 0.2m outside proposed drain at 5m chainage.**	**1 Electric Post 0.5m outside proposed drain at 75m chainage.**	Open and partly residential. Water body 0.7m outside proposed drain at 60m chainage.	Road		
2	100m-139m	**-**	1 Tree 2m outside proposed Drain at 180m chainage.	Open. Water body 1.6m outside proposed drain at 120m chainage.	Road		
3	0-100m	**-**	**1 Telephone Post 0.5m outside proposed drain at 0m chainage. 1 Electric Post 0.5m outside proposed drain at 90m chainage.**	Road	Residential		
4	100-142m	**-**	**-**	Road	Residential		
5	0-100m	**1 Electric Post 0.5m outside proposed drain at 0m chainage. 1 Electric Post 0.5m outside proposed drain at 30m chainage.**	**-**	Road	Open and Residential		
6	100m-200m	**1 Electric Post 0.5m outside proposed drain at 175m chainage.**	**-**	Open	Road		
7	200m-289m	**-**	**-**	Open	Road		
Drain 11 - Bishramganj Drain 12							
1	0-100m	**1 Tree 0.5m outside proposed Drain at 95m chainage.**	**1 Tree inside proposed Drain at 5m chainage**	Residential	Road		
2	100m-166m	**-**	**1 Electric Post 0.5m outside proposed drain at 130m chainage**	Residential	Road		
3	0-100m	**-**	**-**	Open	Road		

4	100m-200m	-	1 Tree 1m outside proposed Drain at 150m chainage.	Agricultural	Road
5	200m-300m	-	**1 Telephone Post 0.5m outside proposed drain at 215m chainage**	Agricultural	Road
6	300m-347m	-	-	Open	Open
7	0-100m	-	**1 Telephone Post 0.4m outside proposed drain at 50m chainage. 1 Electric Post 0.3m outside proposed drain at 70m chainage**	Road	Open
8	100m-122m	-	-	Agricultural	Open
Drain 12 - Bishramganj Drain 13					
1	0-100m	-	-	Residential	Road
2	100m-200m	-	-	Residential	Road
3	200m-300m	**1 Electric Post 0.5m outside proposed drain at 260m chainage**	**1 Water Tap 0.5m outside proposed drain at 270m chainage**	Residential	Road
4	300m-400m	**1 Electric Post inside proposed drain at 310m chainage**	**1 Electric Post 0.5m outside proposed drain at 375m chainage**	Agricultural	Road
5	400m-500m	-	-	Agricultural	Road
6	500m-600m	**1 Electric Post 0.35m outside proposed drain at 570m chainage**	**1 Electric Post 0.4m outside proposed drain at 510m chainage**	Residential	Road
7	600m-700m	**1 Electric Post 0.4m outside proposed drain at 620m chainage**	**1 Electric Post 0.5m outside proposed drain at 620m chainage**	Residential	Road
8	700m-731m	-	-	Residential and partly Open	Road
Drain 13 - Bishramganj Drain 14					
1	0-100m	-	**1 Tree 1.3m outside proposed Drain at 90m chainage.**	Road	Residential and partly Open. Culvert at 50m chainage.
2	100m-200m	**1 Electric Post 0.5m outside proposed drain at 155m chainage.** **1 Tree inside proposed Drain at 120m chainage.**	**1 Tree inside proposed Drain at 110m chainage.**	Road	Residential
3	200m-300m	**1 Electric Post 0.5m outside proposed drain at 200m chainage.**	**1 Tree 0.15m outside proposed Drain at 270m chainage.**	Road	Open. Water Body 2m outside proposed Drain at 210 m chainage.
4	300m-400m	-	-	Road	Residential

5	400m-417m	-	-	Open	Road

Drain 14 - Barjala Drain 15

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone				Nearby Land Use (Religious places & water bodies)	
		Left Side Drain		Right Side Drain			
		LHS	RHS	LHS	RHS	LHS	RHS
1	0-100m	1 Tree 1m outside proposed Drain at 10m chainage.	-	-	-	Residential	Residential
2	100m-130m	-	-	-	-	Residential	Residential

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
3	130m-200m (Left Side drain into individual drain from 130m chainage)	**1 Tree inside proposed Drain at 170m chainage.**	**1 Tree inside proposed Drain at 180m chainage.**	Residential and partly Open. Water Body 2m outside proposed drain at 175m-200m chainage.	Open. Water Body 1.5m outside `proposed drain at 130m-200m chainage.
4	200m-216m	**1 Tree 0.3m outside proposed Drain at 208m chainage.**	**1 Tree 0.2m outside proposed Drain at 200m chainage.**	Water body outside proposed drain at 200m-216m chainage.	Water body outside proposed drain at 200m-216m chainage.
5	130m-173m (Right Side drain into individual drain from 130m chainage)	**1 Tree 0.2m outside proposed Drain at 150m chainage.**	-	Open	Residential. Temple 0.6m outside proposed Drain at 140m chainage.

Drain 15 - Barjala Drain 16

1	0-100m	-	-	Road	Residential and Rubber plantation
2	100m-200m	-	-	Residential and Rubber plantation.	Road.
3	200m-300m	-	-	Rubber plantation	Road
4	300m-400m	-	-	Rubber plantation	Road
5	400m-500m	-	1 Tree 0.8m outside proposed Drain at 480m chainage.	Rubber plantation	Road
6	500m-594m	-	**1 Tree inside proposed Drain at 580m chainage.**	Open	Road

Melaghar Road

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Road– impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
Road 1 - Melaghar Bishramganj main road (PWD road) to Biswajit Chakraborty house (Arabindapally)					
1	0-100m	**1 Electric Post inside proposed ROW at 5m chainage.**	**2 Electric Posts inside proposed ROW at 30m chainage.**	Residential	Open
2	100m-200m	-	-	Residential	Residential
3	200m-300m	**1 Electric Post inside proposed ROW at 230m chainage.**	-	Residential	Residential
4	300m-400m	-	**1 Electric Post inside proposed ROW at 230m chainage.**	Residential	Open
5	400m-500m	-	-	Residential	Open
6	500m-527m	-	**1 Electric Post inside proposed ROW at 525m chainage.**	Residential	Open
Road 2 - Melaghar hospital to Subal ch. SB school					
1	0-100m	-	-	Residential	Open. Hospital outside proposed ROW at 0-100m chainage.
2	100m-200m	**1 Electric Post inside proposed ROW at 150m chainage.**	-	Residential	Residential
3	200m-300m	**1 Electric Post inside proposed ROW at 260m chainage.**	**1 Electric Post 0.3m outside proposed ROW at 220m chainage.**	Residential	Residential
4	300m-400m	-	**1 Electric Post inside proposed ROW at 300m chainage.**	Residential	Residential
5	400m-500m	-	-	Residential	Residential
6	500m-600m	**1 Electric Post inside proposed ROW at 570m chainage.**	**1 Electric Post inside proposed ROW at 525m chainage.**	Residential	Residential
7	600m-700m	-	**1 Electric Post inside proposed ROW at 650m chainage.**	Residential	Residential
8	700m-800m	**2 Electric Post inside proposed ROW at 790m chainage.**	**1 Electric Post 0.2m outside proposed ROW at 705m chainage.**	Agricultural	Agricultural
9	800m-900m	**1 Electric Post inside proposed ROW at 855m chainage.**	3 Trees 4m outside proposed ROW at 815m chainage.	Agricultural	Residential
10	900m-913m	-	-	Agricultural	Residential
Road 3 - Bhagirath Chowmuhani to Veeramma temple					
1	0-100m	-	**1 Electric Post 0.5m outside proposed ROW at 90m chainage.**	Residential	Residential

2	100m-200m	-	**1 Electric Post 0.4m outside proposed ROW at 195m chainage.**	Residential	Residential
3	200m-300m	-	-	Residential. Water Body 5m outside proposed ROW at 225m chainage.	Residential
4	300m-400m	**1 Electric Post inside proposed ROW at 310m chainage.**	**1 Electric Post 0.2m outside proposed ROW at 300m chainage. 1 Electric Post inside proposed ROW at 375m chainage.**	Residential	Residential
5	400m-500m	**1 Electric Post inside proposed ROW at 475m chainage.**	**3 Electric Post inside proposed ROW at 440m chainage.**	Residential	Residential
6	500m-600m	-	-	Residential	Residential
7	600m-700m	-	**1 Electric Post inside proposed ROW at 625m chainage.**	Residential	Residential
8	700m-800m	1 Tree 1.5m outside proposed ROW at 740m chainage. 1 Tree 2m outside proposed ROW at 790m chainage.	-	Residential	Residential
9	800m-900m	-	3 Trees 4m outside proposed ROW at 815m chainage.	Open. Rangamura School 3m outside proposed ROW at 800m chainage.	Residential
10	900m-1000m	-	**1 Electric Post inside proposed ROW at 960m chainage.**	Open	Residential and partly Market
11	1000m-1043m	**1 Electric Post 0.2m outside proposed ROW at 10150m chainage. 1 Tree 0.3m outside proposed ROW at 1010m chainage.**	-	Open	Residential. Water Body 2m outside proposed ROW at 1010m chainage.
Road 4 - Charu kabiraj house Samakaji para					
1	0-100m	**1 Electric Post 0.4m outside proposed ROW at 45m chainage.**	-	Open and partly Agricultural. Water Body 2m outside proposed ROW at 50m chainage.	Open
2	100m-200m	**1 Electric Post 0.5m outside proposed ROW at 170m chainage.**	**1 Electric Post 0.2m outside proposed ROW at 125m chainage. 1 Electric Post 0.4m outside proposed ROW at 150m chainage.**	Agricultural	Agricultural
3	200m-300m	**1 Electric Post 0.4m outside proposed**	**1 Electric Post inside proposed ROW at 260m chainage.**	Agricultural. Water Body 2m outside	Residential

		ROW at 220m chainage.		proposed ROW at 250m chainage.	
4	300m-400m	**-**	**-**	Agricultural	Residential
5	400m-500m	**-**	**-**	Agricultural	Residential
6	500m-600m	**-**	**-**	Residential. Water Body 1m outside proposed ROW at 520m chainage.	Residential
7	600m-700m	**3 Electric Post inside proposed ROW at 605m, 630m and 690m chainage.**	**-**	Residential. Graveyard boundary encroaches proposed ROW at 520m chainage.	Residential
8	700m-800m	**1 Electric Post inside proposed ROW at 610m chainage.** 1 Tree 2m outside proposed ROW at 790m chainage.	**-**	Residential and property line encroaches along chainage.	Residential and partly Agricultural
9	800m-900m	**1 Electric Post inside proposed ROW at 820m chainage**	**-**	Residential and property line encroaches along chainage.	Residential
10	900m-1002m	**-**	**1 Electric Post inside proposed ROW at 1000m chainage.**	Agricultural	Agricultural
Road 5 - Melaghar - Bishramganj Road (PWD road) to Nikhil Barman house.					
1	0-100m	**-**	**-**	Rubber plantation	Rubber plantation
2	100m-200m	**-**	**-**	Residential	Residential
3	200m-300m	**1 Electric Post 0.5m outside proposed ROW at 250m chainage.**	**-**	Residential and partly Rubber plantation. Water Body 1.3m outside proposed ROW at 220m chainage.	Residential and partly Rubber plantation.
4	300m-324m	**-**	**-**	Agricultural	Residential

Melaghar Drain

Drain 1 - Storm water drain from AOC to Motor Stand							
Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**				**Nearby Land Use (Religious places & water bodies)**	
		Left Side Drain		**Right Side Drain**			
		LHS	**RHS**	**LHS**	**RHS**	**LHS**	**RHS**
1	0-100m	**1 Tree inside proposed Drain at 90m chainage**	**1 Electric Post inside proposed drain at 40m chainage. 1 Telephone Post 0.3m outside proposed drain at 60m chainage**	**1 Electric Post inside proposed drain at 50m chainage**	**-**	Open	Road
2	100m-200m	**1 Electric Post 0.3m outside**	**1 Tree inside proposed**	**1 Traffic Signal Post 0.5m outside**	**1 Telephone Post inside proposed drain**	Commercial	Tripura Forest department. Shiv Mandir 1m

		proposed drain at 180m chainage	Drain at 195m chainage	proposed drain at 130m chainage.	at 190m chainage		outside proposed Drain at 130m chainage.
3	200m-300m	1 Tree 0.3m outside proposed Drain at 275m chainage		4 Electric Post inside proposed drain at 220m chainage	-	Residential	Market and partly residential
4	300m-400m	1 Tree 0.5m outside proposed Drain at 390m chainage	-	-	-	Commercial	Residential and partly Market
5	400m-500m	1 Telephone Post inside proposed drain at 490m chainage	1 Electric Post 0.5m outside proposed drain at 460m chainage	1 Electric Post 0.3m outside proposed drain at 420m chainage.	1 Electric Post 0.2m outside proposed drain at 430m chainage. 2 Electric Post inside proposed drain at 460m and 475m chainage	Commercial	Residential
6	500m-600m	1 Electric Post inside proposed drain at 530m chainage		2 Electric Post inside proposed drain at 555m chainage 1 Tree inside proposed Drain at 560m chainage. 1 Tree 0.5m outside proposed Drain at 580m chainage.	1 Electric Post 0.2m outside proposed drain at 430m chainage. 1 Tree 0.5m outside proposed Drain at 540m chainage. 1 Tree inside proposed Drain at 590m chainage.	Commercial	Residential
7	600m-700m	-	-	1 Tree inside proposed Drain at 620m chainage. 2 Electric Post inside proposed drain at 625m and 665m chainage	-	Commercial	Residential
8	700m-800m	-	-	1 Electric Post inside proposed drain at 750m chainage	1 Tree 0.5m outside proposed Drain at 600m chainage.	Commercial	Market
9	800m-900m	-	-	1 Electric Post inside proposed drain at 875m chainage	-	Commercial	Residential and partly Commercial
10	900m-1000m	1 Telephone Post inside proposed	-	-	-	Commercial	Commercial

		drain at 490m chainage					
11	1000m-1100m	-	-	**2 Electric Post inside proposed drain at 1030m and 1070m chainage**	-	Commercial	Commercial
12	1100m-1200m	**1 Electric Post 0.3m outside proposed drain at 1120m chainage**	-	**1 Electric Post inside proposed drain at 1150m chainage**	-	Commercial	Commercial
13	1200m-1300m	-	**1 Electric Post inside proposed drain at 1230m chainage**	**1 Electric Post inside proposed drain at 1270m chainage**	-	Commercial	Commercial
14	1300m-1400m	**1 Electric Post inside proposed drain at 1380m chainage**	**1 Telephone Post 0.4m outside proposed drain at 1395m chainage**	**1 Light Post 0.3m outside proposed drain at 1385m chainage**	-	Commercial	Commercial. Shani Temple 1m outside proposed Drain at 1320m chainage.
15	1400m-1500m	-	-	-	**1 Electric Post 0.3m outside proposed drain at 1450m chainage**	Commercial	Commercial
16	1500m-1600m	**1 Telephone Post inside proposed drain at 1525m chainage**	-	-	**1 Electric Post 0.4m outside proposed drain at 1520m chainage**	Commercial	Commercial
17	1600m-1700m	-	**1 Electric Post inside proposed drain at 1650m chainage**	-	-	Commercial	Commercial
18	1700m-1800m	-	-	-	-	Open	Open
19	1800m-1874m	-	-	-	-	Open	Open

Drain 2 - Storm water drain from AOC to English Medium School

Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**		**Nearby Land Use (Religious places & water bodies)**	
		LHS	**RHS**	**LHS**	**RHS**
1	0-100m (Junction of Melaghar Sonamura Road to Junction of Jagannath Bari Road)	**1 Electric Post inside proposed drain at 50m chainage**	-	Residential and partly Market	Residential and partly Bushes Area

2	100m-200m	-	-	Open and partly residential	Bushes Area
3	200m-300m			Residential	Open. Water body 1.7m outside proposed drain at 250m chainage
4	300m-400m	-	-	Residential	Open. Water body 2m outside proposed drain at 320m chainage
5	400m-500m	-	-	Residential and Road from 450m chainage.	Open
6	500m-600m	-	**1 Electric Post 0.5m outside proposed drain at 540m chainage.**	Open. Water body 3m proposed drain at 540m chainage	Road
7	600m-700m	-	-	Open	Road
8	700m-776m	**1 Electric Post inside proposed drain at 770m chainage**	-	Open	Road
9	0-100m (From the Junction of Jagannath Bari Road to junction of Municipality Road along the side of Road)	2 Tree 1m outside proposed Drain at 65m chainage	**1 Electric Post inside proposed drain at 40m chainage. 1 Telephone Post 0.3m outside proposed drain at 60m chainage**	Open. Water body 1m outside proposed drain at 60m chainage	Road
10	100m-200m	1 Tree 0.8m outside proposed Drain at 105m chainage	-	Residential and partly Open. Water body 1m outside proposed drain at 105m chainage	Road
11	200m-228m	**1 Tree 0.3m outside proposed Drain at 275m chainage**	-	Residential	Road
12	0-100m (From the Junction of Jagannath Bari Road to junction of Municipality Road along the alignment of existing drain)	-	-	Open and partly residential	Open. Water body 1.5m outside proposed drain at 75m chainage
13	100m-200m	-	-	Residential	Open. Water body 2m outside proposed drain at 150m chainage
`4	200m-278m	-	-	Residential	Residential

Drain 3 - Storm water drain from Muncipality road to English Meium School

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone				Nearby Land Use (Religious places & water bodies)	
		Left Side Drain		Right Side Drain			
		LHS	RHS	LHS	RHS	LHS	RHS

1	0-100m	-	-	-	**1 Electric Post 0.5m outside proposed drain at 15m chainage. 1 Telephone Post 0.3m outside proposed drain at 70m chainage**	Residential	Residential
2	100m-200m	**1 Electric Post 0.5m outside proposed drain at 120m chainage.**	**1 Electric Post 0.5m outside proposed drain at 150m chainage. 1 Electric Post inside proposed drain at 185m chainage.**	-	-	Stadium	Residential
3	200m-300m	1 Tree 0.8m outside proposed Drain at 290m chainage	-	-	-	Open. Ramakrishna Sisu Tirtha School outside proposed drain at 325m chainage	Residential. Rmakrishna Ashram outside proposed drain at 270m chainage
4	300m-400m	-	-	-	-	Residential	Residential
5	400m-500m	**1 Electric Post 0.5m outside proposed drain at 430m chainage.**	**1 Electric Post 0.5m outside proposed drain at 470m chainage.**	-	-	Residential and Road from 450m chainage.	Residential
6	500m-522m	-	-	-	-	Residential and Melaghar English School at last chainage.	Residential

Drain 4 - Storm water drain from Vivekananda Club to Netaji Chowmuhani via Sukanta Pally					
Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**		**Nearby Land Use (Religious places & water bodies)**	
		LHS	**RHS**	**LHS**	**RHS**
1	0-100m	**1 Electric Post 0.4m outside proposed drain at 20m chainage.**	-	Residential	Residential
2	100m-200m	-	-	Residential	Residential
3	200m-227m	**1 Telephone Post 0.5m outside proposed drain at 227m chainage**	-	**Residential**	**Residential**
Drain 5 - Storm water drain from Neatji Chowmuhani to near house of Upendra Das					
1	0-100m	-	-	Residential	Road and Open

2	100m-200m	-	**1 Electric Post 0.4m outside proposed drain at 140m chainage**	Residential	Open
3	200m-258m	-	-	Residential	Road
Drain 6 - Storm water drain from Hospital Chowmuhani to near house of Priyalal Saha					
1	0-100m	**1 Electric Post 0.5m outside proposed drain at 70m chainage**	-	Residential	Road
2	100m-166m	-	-	Residential	Road

Drain 7 - Storm water drain from Thakurpara Red Lotus Club to Melaghar Sonamura Road

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone				Nearby Land Use (Religious places & water bodies)	
		Left Side Drain		Right Side Drain			
		LHS	RHS	LHS	RHS	LHS	RHS
1	0-100m	**1 Electric Post 0.5m outside proposed drain at 60m chainage**	-	-	-	Residential	Market. Temple 0.2m outside proposed drain at 80m chainage.
2	100m-200m	--	-	-	-	Residential	Residential
3	200m-300m	**1 Electric Post 0.4m outside proposed drain at 210m chainage**	**1 Electric Post and 1 Telephone Post inside proposed drain at 250m chainage. 1 Electric Post inside proposed drain at 270m chainage**	-	-	Residential	Residential
4	300m-400m	**1 Telephone Post 0.3m outside proposed drain at 335m chainage. 1 Telephone Post inside proposed drain at 350m chainage.**	**1 Electric Post 0.3m outside proposed drain at 335m chainage**	-	-	Residential	Residential
5	400m-507m	-	-	-	-	Residential	Residential

Drain 8 - Storm water drain from Thakurpara Red Lotus Club to Ramthakur Ashram

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone				Nearby Land Use (Religious places & water bodies)	
		Left Side Drain		Right Side Drain			
		LHS	RHS	LHS	RHS	LHS	RHS
1	0-100m	**1 Electric Post inside proposed drain at 40m chainage**	-	**1 Electric Post inside proposed drain at 90m chainage**	**1 Electric Post 0.4m outside proposed drain at 90m chainage**	Residential	Market. Ashram encroaches proposed drain at 75m chainage.

2	100m-200m	**1 Electric Post 0.5m outside proposed drain at 140m chainage**	-	-	-	Residential	Residential
3	200m-300m	-	-	-	**1 Electric Post inside proposed drain at 255m chainage**	Residential	Residential
4	300m-342m	-		-	-	Residential	Residential
Drain 9 - Storm water drain from Vivekananda Club to Hospital Chowmuhani							
Sl. No.	**Chainage**	**Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone**		**Nearby Land Use (Religious places & water bodies)**			
		LHS	**RHS**	**LHS**	**RHS**		
1	0-100m	-	-	Road	Residential		
2	100m-195m	-	**1 Electric Post 0.5m outside proposed drain at 190m chainage**	Road	Residential		
Drain 10 - Storm water drain from Melaghar Sonamura Road to Post office via Sanghati Market							
1	0-100m	-	-	Residential and Open	Road		
2	100m-197m	-	-	Residential	Road		
Drain 11 - Storm water drain from Padam Dhepa Fishery Samity to Gomati River via Sanghati Market							
1	0-100m	-	-	Agricultural	Open		
2	100m-200m	-	-	Agricultural	Agricultural		
3	200m-300m	-	-	Agricultural	Agricultural		
4	300m-400m	-	-	Agricultural	Agricultural. Water Body 4m outside proposed drain at 350m chainage		
5	400m-500m	-	-	Road	Agricultural		
6	500m-600m	-	-	Agricultural	Agricultural		
7	600m-700m	1 Tree 1m outside proposed Drain at 635m chainage.	-	Agricultural	Agricultural		
8	700m-800m	1 Tree 1.8m outside proposed Drain at 765m chainage.	-	Agricultural	Agricultural		
9	800m-900m	-	-	Agricultural. River crossing at 800m and 875m chainage	Agricultural		
10	900m-1000m	-	-	Agricultural	Agricultural		
11	1000m-1100m	-	-	Agricultural	Agricultural		

Belonia Road

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Road – impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
Road 1 - Bridge no.4 to ITI college via college square & AIR					
1	0-100m	-	-	Belonia ITI College outside proposed ROW	Open
2	100m-200m	**1 Electric Post 0.2m outside proposed ROW at 100m chainage.**	**1 Electric Post inside proposed ROW at 140m chainage.**	Belonia ITI College outside proposed ROW	Open
3	200m-300m	-	-	Belonia ITI College outside proposed ROW	Open
4	300m-400m	**1 Electric Post 0.2m outside proposed ROW at 310m chainage.**	**1 Electric Post 0.3m outside proposed ROW at 350m chainage.**	Open	All India Radio outside proposed ROW
5	400m-500m	-	-	Open	All India Radio and partly Open. Culvert at 465m chainage.
6	500m-600m	**1 Electric Post inside proposed ROW at 510m chainage. 1 Electric Post 0.2m outside proposed ROW at 550m chainage.**	**1 Electric Post inside proposed ROW at 560m chainage.**	Open	Open
7	600m-700m	-	**1 Electric Post inside proposed ROW at 630m chainage. 1 Electric Post inside proposed ROW at 660m chainage.**	Open	Open
8	700m-800m	-	-	Open	Substation
9	800m-900m	-	**1 Telephone Post 0.5m outside proposed ROW at 850m chainage. 1 Tree inside proposed ROW at 840m chainage. 1 Tree inside proposed ROW at 840m chainage.**	Residential	Market
10	900m-1000m		**1 Electric Post inside proposed ROW at 920m chainage**	Residential	Residential
11	1000m-1100m	-	**1 Electric Post inside proposed ROW at 1020m chainage. 1 Electric Post 0.3m outside proposed ROW at 1070m chainage**	Residential	Residential

12	1100m-1200m		**1 Electric Post inside proposed ROW at 1110m chainage**	Residential	Residential
13	1200m-1300m	**3 Trees inside proposed ROW at 1215m chainage**	**1 Electric Post inside proposed ROW at 1275m chainage**	Residential	Residential
14	1300m-1400m	**1 Electric Post inside proposed ROW at 1330m chainage**	-	Open	Dakshin Mirjapur High School outside ROW
15	1400m-1500m	**1 Tree 0.3m outside proposed ROW at 1470m chainage**	-	Commercial	Commercial
16	1500m-1600m		-	Commercial	Commercial
17	1600m-1700m	**1 Tree inside proposed ROW at 1620m chainage. 1 Electric Post 0.2m outside proposed ROW at 1670m chainage**	-	Commercial	Commercial
18	1700m-1800m	-	-	Commercial	Commercial
19	1800m-1900m	**1 Electric Post 0.4m outside proposed ROW at 1800m chainage**	-	Residential	Commercial. Temple outside ROW at 1850m chainage.
20	1900m-2000m	-	-	Residential	Residential
21	2000m - 2100m		-	Residential	Residential
22	2100m - 2200m	**1 Electric Post inside proposed ROW at 2120m chainage**	-	Residential	Residential
23	2200m - 2300m	-	-	Residential	Residential
24	2300m - 2400m	-	-	Residential	Residential
25	**2400m - 2421m**	-	-	**Residential**	**Residential**
Road 2 - Satmura S.B school to AIR road 4 3 758					
1	0-100m	**1 Electric Post 0.3m outside proposed ROW at 70m chainage. 1 Electric Post inside proposed ROW at 80m chainage.**	**2 Trees inside proposed ROW at 60m chainage**	Open	Open. Water body 0.8m outside proposed ROW at 50m chainage.
2	100m-200m	-	**1 Electric Post 0.3m outside proposed ROW at 175m chainage**	Open. Satmura S.B. School outside ROW at 120m chainage.	Residential
3	200m-300m	-	-	Residential	Open.
4	300m-400m	-	**1 Electric Post inside proposed ROW at 315m chainage**	Open	Open
5	400m-500m	-	**1 Electric Post 0.3m outside proposed ROW at 455m chainage**	Open	Agricultural

6	500m-600m	-	-	Open and partly Residential	Residential
7	600m-700m	**1 Electric Post 0.4m outside proposed ROW at 625m chainage**	**1 Tree 1.5m outside proposed ROW at 645m chainage**	Residential. Culvert at 640m chainage.	Residential. Water body 0.6m outside ROW at 615m chainage.
8	700m-800m	-	-	Residential	Residential

Belonia Drains

Sl. No.	Chainage	Utilities, trees adjacent (Less than 0.5m) to/inside proposed Drain – impact zone		Nearby Land Use (Religious places & water bodies)	
		LHS	RHS	LHS	RHS
Drain 1 - Jaganathbari to kalinagar motor stand via asit saha house					
1	0-100m	**1 Telephone Post inside proposed drain at 70m chainage. 1 Electric Post 0.5m outside proposed drain at 85m chainage.**	-	Market. Temple 1.5m outside proposed drain at 30m chainage.	Road
2	100m-200m	**1 Water Tap inside proposed drain at 120m chainage.** **1 Electric Post inside proposed drain at 195m chainage**	**1 Electric Post 0.4m outside proposed drain at 20m chainage.**	Market.	Road
3	**200m-300m**	-	**1 Electric Post 0.2m outside proposed drain at 270m chainage.**	Road	Market. Jaganath Bari outside proposed drain at 250m chainage
4	300m-400m	1 Tree 1m outside proposed Drain at 360m chainage.	**1 Electric Post inside proposed drain at 300m chainage**	Open	Road. Water body 1m outside proposed drain at 300m chainage.
5	400m-500m	**1 Electric Post 0.5m outside proposed drain at 440m chainage. 1 Electric Post 0.5m outside proposed drain at 460m chainage.**	-	Residential	Road
6	500m-600m	-	**1 Electric Post 0.2m outside proposed drain at 580m chainage**	Road	Residential
7	600m-700m	-	**1 Electric Post 0.4m outside proposed drain at 625m chainage**	Residential	Road
8	700m-800m	-	-	Open	Open
9	800m-900m	-	-	Residential	Residential
10	900m-1000m	**1 Electric Post 0.5m outside proposed drain at 930m chainage**	**1 Electric Post inside proposed drain at 945m chainage. 1 Electric Post inside proposed drain at 990m chainage**	Market	Road
11	1000m-1100m	-	-	Market	Road

12	1100m-1200m	-	-	Open	Open
13	1200m-1224m	-	-	Residential	Residential
14	0-100m	-	-	Road	Commercial
15	100m-145m	-	-	Road	Commercial
Drain 2 - South Belonia corner to SBI bank					
1	0-100m	-	1 Tree 0.8m outside proposed Drain at 80m chainage.	Residential and partly Open.	Open. Water body 3m outside proposed drain at 70m chainage.
2	100m-200m	1 Tree 1.8m outside proposed Drain at 125m chainage.	-	Open.	Open. Water body 1.5m outside proposed drain at 130m chainage.
3	200m-300m	-	-	Residential	Open. Water body 1.8m outside proposed drain at 200m chainage.
4	300m-400m	-	-	Residential	Open and partly commercial
5	400m-500m	-	-	Commercial	Commercial and partly residential
6	500m-517m	-	-	Road	Residential
Drain 3 - Vidyasagar market to Sachin Dev Barman auditorium					
1	0-100m	**1Telephone Post 0.4m outside proposed drain at 0m chainage. 1 Electric Post inside proposed drain at 25m chainage.**	1 Tree 0.8m outside proposed Drain at 80m chainage.	Commercial	Road
2	100m-200m	-	-	Open and partly Residential	Open. Water body 2m outside proposed drain at 105m chainage.
3	200m-300m	1 Tree 1m outside proposed Drain at 240m chainage.	-	Open. Water body 2.5m outside proposed drain at 225m chainage.	Open.
4	300m-400m	-	-	Open	Open
5	400m-500m	-	-	Residential	Open. Water body 3m outside proposed drain at 475m chainage.
6	500m-600m	-	-	Commercial	Open
7	600m-700m	**1 Electric Post 0.5m outside proposed drain at 605m chainage.**	-	Commercial	Residential and partly open.
8	700m-800m	-	-	Residential	Road
9	800m-900m	**1 Electric Post 0.4m outside proposed drain at 820m chainage.**	**1 Electric Post 0.5m outside proposed drain at 880m chainage.**	Open	Road

10	900m-1000m	-	-	Open and partly residential	Road
11	1000m-1100m	-	-	Open and partly residential	Road
12	1100m-1200m	-	-	Water body 2m outside proposed drain at 1100m chainage.	Road
13	1200m-1300m	-	-	Road	Open and partly residential
14	1300m-1400m	-	-	Road	Open and partly residential
15	1400m-1424m	-	-	Road	Open
Drain 4 - The backside of sd barman auditorium to Akhandmandali Ashram					
1	0-100m	-	-	Open	Open. Water body 3m outside proposed drain at 50m chainage.
2	100m-200m	**1 Electric Post 0.5m outside proposed drain at 135m chainage.**	-	Open and partly Residential. Culvert at 150m chainage.	Open and partly Residential.
3	200m-300m	-	-	Residential	Residential
4	300m-400m	-	-	Open	Open. Water body 2.5m outside proposed drain at 325m chainage.
5	400m-500m	-	-	Open and partially Residential	Open
6	500m-600m	-	-	Residential	Residential
7	600m-700m	-	-	Residential	Residential
8	700m-768m	-	-	Residential and partly Open	Residential and partly Open
Drain 5 - SBI bank to Jaganathbari					
1	0-100m	-	**1 Electric Post 0.5m outside proposed drain at 30m chainage.**	Residential	Road
2	100m-200m	1 Tree 2.5m outside proposed drain at 30m chainage. 1 Tree 1.5m outside proposed drain at 170m chainage. 1 Tree 1m outside proposed drain at 180m chainage.	-	Open. Water Body 3m outside proposed drain at 120m chainage.	Residential
3	200m-254m	**1 Electric Post 0.5m outside proposed drain at 270m chainage.**	**1 Electric Post 0.5m outside proposed drain at 230m chainage. 1 Electric Post 0.3m outside proposed drain at 285m chainage.**	Residential	Residential
Drain 6 - Ramthakur ashram to shelter house					
1	0-100m	-	-	Residential	Road

2	100m-200m	-	-	Residential	Residential
3	200m-300m		**1 Electric Post 0.5m outside proposed drain at 270m chainage.**	Residential	Residential
4	300m-400m	-	**1 Tree 0.7m outside proposed ROW at 370m chainage. 1 Tree 0.5m outside proposed ROW at 390m chainage.**	Residential	Open
5	400m-500m	-	-	Residential	Open
6	500m-600m	-	-	Residential	Open
7	600m-700m	-	-	Open	Open.
8	700m-800m	-	**1 Tree 0.5m outside proposed ROW at 735m chainage.**	Open	Open. Water body 1m outside proposed drain at 710m chainage.
9	800m-900m	-	-	Open	Open
10	900m-990m	-	-	Open	Open

Tree felling details for Cluster IIA Roads: - Amarpur, Belonia, Bishramganj, Melaghar and Udaipur					
Sl No	**Chainage**	**Tree Species Local/ English Name**	**Scientific Name**	**Girth Size (in m)**	**IUCN Status**
ULB	**Amarpur : Roads**				
Road no. 1: - Rangamati bridge to Takcherra bridge					
1	200 – 300 m	Banyan	*Ficus benghalensis*	3.5	NA
2		Supari	*Areca catechu*	0.4	NA
3		Kanthal	*Artocarpus heterophyllus*	0.9	NA
4	400 – 500 m	Rongeen	*Holoptelea integrifolia*	0.5	NA
5		Chamar	*Cerbera odollam*	1.6	NA
6	500 – 600 m	Rongeen	*Sterculia urens*	0.8	NA
7	600 – 700 m	Sagaun	*Tectona grandis*	1.35	NA
8	800 – 900 m	Gammer	*Gmelina arborea*	0.6	NA
9	1200-1250m	Rongeen	*Holoptelea integrifolia*	0.7	NA
ULB	**Belonia: - Roads**				
Road 1: Bridge no. 4 to ITI college via college square & AIR					
10	800 – 900 m	Kalauja Tree	*Syzygium cumini*	0.7	NA
11		Fig Tree	*Opuntia ficus-indica*	0.5	NA
12	1200 – 1300 m	Mehrook Tree	*Morinda tinctoria*	1.1	NA
13		Boroi Tree	*Ziziphus mauritiana*	0.7	NA
14		Mango	*Magnifera Indica*	0.8	NA
15	1400 – 1500 m	Bonmalai Tree	*Syzygium branderhorstii*	1.1	NA
16	1600 – 1700 m	Jalpai Tree	*Elaeocarpus serratus*	0.6	NA
Road no. 2: Satmura S. B School to AIR road 4 3 758					
17	0 – 100 m	Kul Tree	*Ziziphus mauritiana*	0.86	NA
18		Simul	*Bombax ceiba*	1.2	NA
ULB	**Bishramganj: - Roads**				
Road no. 1: Priyalal Debbarma house to Bikash Debbarmaa house					
19	100 – 200 m	Jam	*Syzygium cumini*	0.98	NA
20		Sal	*Shorea robusta*	1.4	NA
21		Mango	*Magnifera Indica*	3	NA
22		Simul	*Bombax ceiba*	1.7	NA
23		Kanthal	*Artocarpus heterophyllus*	1.5	NA
24		Kanthal	*Artocarpus heterophyllus*	0.9	NA
25	200 – 300 m	Gammar	*Gmelina arborea*	0.5	NA
26		Mango	*Magnifera Indica*	2.5	NA
27		Jam	*Syzygium cumini*	1.2	NA
28		Bonmalai Tree	*Syzygium branderhorstii*	1.6	NA
29		Fig Tree	*Opuntia ficus-indica*	0.7	NA
Road no. 2 : Lalit Debnath house to Subhash Saha house via Gour Sankar house					
30	0 – 100 m	Siris	*Albizia lebbeck*	0.8	NA

Road no. 3: Ramini Paul house to Krishna Debnath house via sujan Devnath house					
31	0 – 100 m	Neem	*Azadirachta indica*	0.95	NA
32	100 – 200 m	Sal	*Shorea robusta*	1.5	NA
33		Segun	*Tectona grandis*	1.8	NA
34		Rongeen	*Holoptelea integrifolia*	0.5	NA
35		Mango	*Magnifera Indica*	0.7	NA
36		Kanthal	*Artocarpus heterophyllus*	0.9	NA
37	200 – 300 m	Simul	*Bombax ceiba*	1.5	NA
Road 4 - Prahllad Datta house to Nirmal Sutradhar's house 4 3 217.365					
38	0 – 100 m	Mango	*Magnifera Indica*	1.3	NA
Road 5 - Thalabhanga NBCC road to Singumani Bari via Thalabhanga steel foot bridge					
39	100 – 200 m	Coconut	*Cocos nucifera*	0.8	NA
40	800 – 900 m	Khejur	*Phoenix sylvestris*	1.1	NA
41		Sagaun	*Tectona grandis*	1.8	NA
42		Kadam	*Neolamarckia cadamba*	1.1	NA
43		Simul	*Bombax ceiba*	1.6	NA
44		Gammer	*Gmelina arborea*	0.5	NA
45		Jam	*Syzygium cumini*	1.3	NA
46	1000 – 1100 m	Kanthal	*Artocarpus heterophyllus*	1.3	NA
ULB	**Melaghar: - Roads**				
Road 3 - Bhagirath Chowmuhani to Veeramma temple					
47	1000 – 1043 m	Kamranga	*Averrhoa carambola*		NA
ULB	**Udaipur: - Roads**				
Road 2 - From house of Sunil Debnath to house of ICB Pavement Sultan Miah Ward No - 15					
48	0 – 100 m	Mango	*Magnifera Indica*	1.5	NA
49	100 – 194 m	Moolsari	*Mimusops elengi*	0.48	NA
50		Jam	*Syzygium cumini*	0.5	NA

Tree felling details for Cluster IIA Drains - Amarpur, Belonia, Bishramganj, Melaghar and Udaipur					
Sl No	**Chainage**	**Tree Species Local/ English Name**	**Scientific Name**	**Girth size (in m)**	**IUCN status**
ULB	**Amarpur : Drains**				
Drain 1 - English Medium School to Gomati River via Tri-Junction					
1	0 – 100 m	Mango	*Magnifera Indica*	1.3	NA
2		Jamun	*Syzygium cumini*	0.6	NA
3	500 – 600 m	Rongeen	*Holoptelea integrifolia*	0.4	NA
4	1000 – 1100 m	Kanthal	*Artocarpus heterophyllus*	0.7	NA
5	0 – 100 m Chandimata Temple to the house of Akhil Das via Amarpur Teliamura Road	Ghot	*Zizyphus xylopara*	0.6	NA
6	100 – 200 m	Jamun	*Syzygium cumini*	0.85	NA
Drain 2 - Amarsagar Lake to Chhara via Shankar Saha House					
7	200 – 300 m	Gammer	*Gmelina arborea*	0.95	NA
8	500 – 600 m	Mango	*Magnifera Indica*	0.45	NA
Drain 3 - Amarsagar Lake to Gomati River via Ampinagar-Amarpur Road					
9	200 – 300 m	Ghot	*Zizyphus xylopara*	0.6	NA
10		Kadam	*Neolamarckia cadamba*	0.4	NA
11		Mango	*Magnifera Indica*	0.9	NA
ULB	**Belonia: - Drains**				
Drain 6 - Ramthakur ashram to shelter house					
12	300 – 400 m	Siris	*Albizia lebbeck*	0.9	NA
13	700 – 800 m`	Ghot	*Zizyphus xylopara*	0.39	NA
ULB	***Bishramganj : - Drains***				
Drain 1 - Chesrimai Drain 1					
14	0 – 100 m	Baniyan	*Ficus religiosa*	1.5	NA
15		Harra	*Terminalia chebula*	0.95	NA
Drain 5 - Chesrimai Drain 6					
16	200 – 300 m	Ghot	*Zizyphus xylopara*	0.5	NA
Drain 8 - Bishramganj Drain 9					
17	200 – 300 m	Mango	*Magnifera Indica*	1.22	NA
18		Kanthal	*Artocarpus heterophyllus*	0.8	NA
Drain 11 - Bishramganj Drain 12					
19	0 – 100 m	Neem	*Azadirachta indica*	0.4	NA
20		Bel	*Aegle marmelos*	0.55	NA

Drain 13 - Bishramganj Drain 14					
21	100 – 200 m	Siris	*Albizia lebbeck*	0.8	NA
22		Mango	*Magnifera Indica*	0.95	NA
23	200 – 300 m	Krishnachura	*Delonix regia*	1.9	NA
Drain 14 - Barjala Drain 15					
24	130 – 200 m	Neem	*Azadirachta indica*	0.4	NA
25		Tad (LHS)	*Caryota urens*	0.8	NA
26	200 – 216 m	Amla	Emblica officinalis	0.6	NA
27		Tarmarind	*Tamarindus indica*	1.2	NA
28	130 – 173 m	Kardhai	*Anogeissus pendula*	0.6	NA
Drain 15 - Barjala Drain 16					
29	500 – 594 m	Ghot	*Zizyphus xylopara*	0.3	NA
ULB	**Melaghar : Drains**				
Drain 1 - Storm water drain from AOC to Motor Stand					
30	0 – 100 m	Mango	*Magnifera Indica*	0.6	NA
31	100 – 200 m	Baniyan	*Ficus religiosa*	1.6	NA
32	200 – 300 m	Supari	*Areca catechu*	0.3	NA
33	300 – 400 m	Kanthal	*Artocarpus heterophyllus*	0.7	NA
34	500 – 600 m	Khejur	*Phoenix dactylifera*	0.7	NA
35		Imli	*Tamarindus indica*	1.1	NA
36		Siris	*Albizia lebbeck*	0.98	NA
37		Gammer	*Gmelina arborea*	0.83	NA
38	600 – 700 m	Ghot	*Zizyphus xylopara*	1.2	NA
39	700 – 800 m	Rongeen	*Holoptelea integrifolia*	0.6	NA
Drain 2 - Storm water drain from AOC to English Medium School					
40	200 – 228 m	Boroi Tree	*Ziziphus mauritiana*	1.2	NA
ULB	**Udaipur: Drains**				
Drain 1 - Shitalbari to Brahmabari to Sukhsagar Lake					
41	400 – 500 m	Mango	*Magnifera Indica*	0.5	NA
42	600 – 700 m	Boroi	*Ziziphus mauritiana*	1.3	NA
43	900 – 1000 m	Imli	*Tamarindus indica*	1.6	NA
44	1100 – 1232 m	Ghot	*Zizyphus xylopara*	1.2	NA
Drain 2 - Bridge Chowmuhani to Gada Chowmuhani Saw Mill Road to Gomati River					
45	100 – 200 m	Sonajhuri	*Acacia auriculiformis*	1.4	NA
46		Jamun	*Syzygium cumini*	1.6	NA
47		Tad (LHS)	*Caryota urens*	0.8	NA
48	200 – 300 m	Ghot	*Zizyphus xylopara*	0.6	NA
49		Kadam	*Neolamarckia cadamba*	1.3	NA
50		Mango	*Magnifera Indica*	1.6	NA
51	300 – 400 m	Harra	*Terminalia chebula*	0.95	NA
52		Ghot	*Zizyphus xylopara*	0.5	NA
53		Neem	*Azadirachta indica*	0.4	NA
54	500 – 600 m	Tad	*Caryota urens*	0.7	NA
55		Amla	Emblica officinalis	0.45	NA
56		Tarmarind	*Tamarindus indica*	1.7	NA

57		Koha/ Arjun	*Terminalia arjuna*	0.5	NA
58		Neem	*Azadirachta indica*	0.4	NA
Drain 5 - Ramesh Chowmuhani to Gomati River					
59	200 – 300 m	Banyan	*Ficus benghalensis*	1.6	NA

Appendix 7: Drinking Water Standards

Group	National Standards for Drinking Water[a]			WHO Guidelines for Drinking-Water Quality, 4th Edition, 2011[b]	Applicable Per ADB SPS[c, d]
	Parameter	Unit	Max. Concentration Limits[d]		
Physical	Turbidity	NTU	1 (5)	-	1 (5)
	pH		6.5 – 8.5	none	6.5 – 8.5
	Color	Hazen units	5 (15)	none	5 (15)
	Taste and Odor		Agreeable	-	Agreeable
	TDS	mg/l	500 (2,000)	-	500 (2,000)
	Iron	mg/l	0.3	-	0.3
	Manganese	mg/l	0.1 (0.3)	-	0.1 (0.3)
	Arsenic	mg/l	0.01 (0.05)	0.01	0.01
	Cadmium	mg/l	0.003	0.003	0.003
	Chromium	mg/l	0.05	0.05	0.05
	Cyanide	mg/l	0.05	none	0.05
	Fluoride	mg/l	1 (1.5)	1.5	1 (1.5)
	Lead	mg/l	0.01	0.01	0.01
	Ammonia	mg/l	0.5	none established	0.5
Chemical	Chloride	mg/l	250 (1,000)	none established	250 (1,000)
	Sulphate	mg/l	200 (400)	none	200 (400)
	Nitrate	mg/l	45	50	45
	Copper	mg/l	0.05 (1.5)	2	0.05 (1.5)
	Total Hardness	mg/l	200 (600)	-	200 (600)
	Calcium	mg/l	75 (200)	-	75 (200)
	Zinc	mg/l	5 (15)	none established	5 (15)
	Mercury	mg/l	0.001	0.006	0.001
	Aluminum	mg/l	0.1 (0.3)	none established	0.1 (0.3)
	Residual Chlorine	mg/l	0.2 (1.0)	5	0.2
Micro Germs	E-coli	MPN/100ml	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample
	Total Coliform	MPN/100ml			

Note-

[a] Bureau of India Standard 10500: 2012. Value within bracket indicated values permissible limits in absence of alternative source

[b] Health-based guideline values.

[c] Per ADB SPS, the government shall achieve whichever of the standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

[d] Figures in parenthesis are maximum limits allowed in the absence of alternate source.

Appendix 8: Stakeholder Consultations

Summary of Consultation with Stakeholders Udaipur

Date	Location	No. of Participants	Participants	Topics Discussed	Issues & Perception of community
4th April, 2023	Chanban, Udaipur (Ward no. 01)	3 F=3	Community members	• Briefing on project objectives probable implementation procedures • Potential positive and negative impacts due to project implementation • Relevant information of the upcoming project and benefits of the project. • Present problems faced by the community members • In what way they may associate with the project	• People are well aware of the project. They responded with positivity and demanded for early implementation of the project components. • The area faces severe water logging issues during the monsoon season, so requested for early execution of the Road project. • The community welcomed the project and expressed need for it. • They are aware of the temporary, short-term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle, and are ready to cooperate. • Project area is having sufficient space for worker's camp. Local people will allow to set up labor camp
4th April 2023	Rajarbag Panchayat Chowmuhani (Ward no.16)	6 M=6	Community members	• Briefing on project objectives probable implementation procedures • Relevant information of the upcoming project and benefits of the project. • Potential positive and negative impacts due to project implementation	• The project is equipped with numerous components, so people were briefed about the objectives and the implementation procedure. • The members of the area are well aware of the benefits of the project. They are ready to cooperate with Short term impact on air quality- dust generation, noise level, access

Date	Location	No. of Participants	Participants	Topics Discussed	Issues & Perception of community
				• Dust and noise pollution and disturbances during construction work • Present issues faced by the community members due to present earthen roads	problem, inconvenience for public and movement of vehicle, as they are in grave need of the development of roads. • The people of the area face serious problems all year round due to earthen narrow roads. Issues of transportation of goods, increase in labour and carrying cost, and water logging issues during the monsoon season.
20th March 2023	Udaipur Municipal Council office	15 M= 13 F= 2	ULB officer	• Briefing on project objectives probable implementation procedures • Present road and drain condition • Potential positive and negative impacts due to project implementation	• Improved road and drainage system after completion of project • No impacts on structures, livelihoods anticipated-assurance given • Short term impact on air quality-dust generation, noise level, access problem, inconvenience for public and movement of vehicle.
20th March 2023	Chanban, Housing Board, Ward no- 02	21 M= 12 F=9	Community	• Briefing on project objectives probable implementation procedures • Relevant information of the upcoming project and benefits of the project. • No impact on structure	• Application of mitigation measures in case of impacts • Improved road and drainage system after completion of project. •
2nd May 2023	Newtown road, Daspara(Backside) - ward no-10	10 M=5 F=5	Community members	• Briefing on project objectives probable implementation procedures • Relevant information of the upcoming road and drain project and benefits of the project.	• People are fed up with water logging, frequent traffic jams and wanted that the subproject may be executed on a fast track so that this problem is eliminated.

Date	Location	No. of Participants	Participants	Topics Discussed	Issues & Perception of community
				• Information on the benefits of the subproject in terms of economic and environmental enhancement • People in general were very enthusiastic about the benefits of the subproject in terms of water logging and also an improvement in the environmental quality.	• Generally, all the people consulted were aware about the proposed subproject. • Short term impact on air quality-dust generation, noise level, access problem, inconvenience for public and movement of vehicle.



Stakeholder Consultation at Udaipur, Chanban



Stakeholder Consultation at Udaipur, Rajarbag Panchayat Chowmuhani



Stakeholder Consultation at Udaipur, Newtown road, Daspara(Backside)



Consultation at Udaipur MC office



Community consultation at Chanban Housing Board

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Udaipur MC Ward No: - 13

Place: - Chanban Date: - 04.04.2023.

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Rita Rani Dey	F	8132477700	Rita Rani Dey (Des)
2.	Madhabi Debnath	F	7774447393	Madhabi Debnath
3.	Bina Debnath	F	8787771266.	Bina Debnath

List of Participants in Consultation Meeting at Udaipur, Chanban

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Udaipur MC Ward No: - 15

Place: - Rajarbag Panchayat Chowmuhani Date: - 04.04.2023

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Ali Ahamad	M		
2.	Jalil Miah	M	6909466717	
3.	Kabir Miah	M	9862479930	
4.	Shamima Khatun	F		
5.	Shilpi Begum	F	9862479930	
6.	Prahlad Ghosh	M	6909956723	

List of Participants in Consultation Meeting at Rajarbag Panchayat Chowmuhani, Udaipur

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Udaipur MC Ward No: - 10

Place: - New Town Road, Daspara (Backside) Date: - 2.5.23.

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Sabitra Das	F	9612415450	Sabita Das
2.	Gopal Das	M	9862703454	Gopal Das
3.	Bishnupada Das	M	7085179041	Bishnupada Das
4	Pratima Das	F		Pratima Das
5.	Duluvani Das	F		[illegible]
6.	Manibala Das	F		Manibala Das
7	Shakti Das	M	9612600342	Shakti Das
8.	Tapan Kr. Saha	M	7640992688	Tapan Kr Saha
9.	Manish Bhowmik	M	7005667611	Manish Bhowmik
10.	Balai Das	M	8259837116	Balai Das
11.				

→ (Previous Councellors)
5 ← Current (2020-)

List of Participants in Consultation Meeting at Newtown road, Daspara(Backside)

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Udaipur Ward No: - 05

Place: - Udaipur ULB office Date: - 20-03-2023

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
①	Mamata Tolang	F	9425600905	
②	K.S. Chhetri	M	9883137118	
③	Pradip Pal	M	8794021032	
④	MAMITA DEBBARMA	F	8415022347	
⑤	LITAN CHAKRABORTY	M	9612078224	
⑥	Er. PARTHA SARKAR	M	9436189753	20/3/23
⑦	Pradeep Saha	m	8707001669	
⑧	Sachin Palit	M	9932313841	
⑨	Vipin Negi	M	9690057783	
⑩	SUBRATA DEB	m	9485065872	
⑪	S. K. Basu	M	9830439554	
⑫	Govind Singh Rathore	M	9560967524	
⑬	Ardhendu Mitra	M	9830415953	
⑭	Sourav Seal	M	7980272820	
⑮	Sujoy Chakraborty	M	7862246728	
⑯				

Place- Udaipur Municipal Council Office, Dated- 20-03-2023

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Udaipur Ward No: 02

Place: - Chanban, Housing Board Date: - 20-3-2023

Sl. No.	Name (CAPITAL LETTER)	m/F	Contact NO.	Signature
1	Mamita Telang	F	9425680906	Mamita.
2	Govind Singh Rathore	m	9580967524	
3	Jayanta Chakraborty	M	8761805667	
4	Arjhendu Mitra	M	9830415953	A Mitra
5	[illegible]	m		
6	Mithun Majumder	m	9862163920	
7	Purnima Sarkar	F	6909440076	Purnima Sarkar
8	Dilip Bumik	m	8837270212	
9	Bishnu pada majumder	m	8118935900	
10	Dulal Bhowmik	m	9862542413	
11	Mompi Sarkar	F	7005073642	
12	Debasish Nag.	m	8787866185	
13	Aparna Majumder	F	8787855651	
14	Bhanu Deb nath	F		
15	[illegible]	F		
16	[illegible]	F		
17	[illegible]	F		
18	[illegible]	F	9862089088	
19	Kali [illegible]	m	9831317118	
20	Sucharita Palit	M	9932313841	
21	Pradeep [illegible]	m	8707001669	

Place- Chanban, Housing Board, Ward no- 02, Dated- 20-03-2023

Minutes of Meeting for ASI Site in Udaipur – Dated 22nd May 2023 in presence of Environment Safeguard Consultant, ADB

1. It is learned that as per the ASI Act, 2010 item 20(c) water supply and drainage is exempted. No permanent structure construction is allowed within 300 m. But permission is to be obtained for this type of work.

2. As per our project scope under road and drainage part will be renovation, upgradation of road/ footpath and drainage system (nearest from ASI site) is around 101 & 251 m respectively from the Chaturdash Devta temple and about 456 & 518 m respectively from Gunavati group of temples which are also exempted for this type of activities.

3. Mr. Biltu Debnath (Conservatory assistant) also underlined that the drain situated outside of the ASI site, is clogged and during rainy season water logging issues found inside of the campus drains. But presently this drain is not taken up under ADB funded project to save the ASI site. But in future that drain will be considered for renovation under another Govt. scheme.

4. As per discussion with Secretary of the Chaturdash Devta temple Mr. Ratan Lal Saha (M:- 7628859012) and manager of the temple (Mr. Ajit Sarkar) and Priest of the temple (Mr. Gopal Bhadra) it is understood that the heavy traffic and devotees are found from the month of March to July, due to local festival. Accordingly, constructions should be avoided near the ASI site in that period.

5. It is known from the meeting with Conservatory Assistant that no new excavation, structure construction works is permitted near the campus and the construction works nearby the area are under jurisdiction prudence.

6. Prior to construction in Udaipur near ASI site, an intimation letter for this is to be sent to "Superintending Archeologist, The ASI Office, Aizawl Circle, Mizoram" and a copy need to be given to the "Conservatory Assistant office, Udaipur sub-circle office in mail udaipursubcircleasi@gmail.com which should include all the plans and methodology for the works.

7. All the work-related issues regarding ASI operations should be mentioned in the Tender document so that during implementation phase no problem arises.

8. If any type of problem arises during implementation, then intimation to the local office of ASI is needed where the Conservatory Assistant will oversee it personally.

Summary of Focus Group discussion held at Udaipur

Focus-group discussions with affected persons and other stakeholders were conducted to learn their views and concerns. General public and the people residing along the project activity areas were also consulted during visits to the project sites.

Summary Outcome of Consultations

Sl. No	Date	Type of consultation	Location	Total No. of Participants	No. of Female Participants
1	13.09.2021	Focus group discussion	Ward no-10	09	09
2	14.09.2021		Ward No- 11	09	09
3			Ward No- 14	10	10
4	22.09.2021		Ward No- 13	10	10
5			Ward No- 07	09	09
6	23.01.2021		Ward No- 06	10	10
7			Ward No- 03	09	09
8	03.11.2021		Neheru Super Market	05	00
9			Ramesh Chowmuhani	06	00
10			Ramesh Chowmuhani Market	12	00
11			Rajarbagh	04	00
12	19-03-2022	Meeting with project beneficiaries	Chanban, Ward No-1	04	01
13			Giridhari Palli , Ward No- 6	09	07
14			N.K. Datta Lane, Ward No-19	07	02
15			Near Ramesh Boarding, Ward No-19	09	06
16			Fulkumari, Ward No-23	08	00
17	03-09-2021	Meeting	With Honorable Ex-Chairperson, Udaipur Municipal Council, at Ramesh Chowmuhani	05	00
18			With Secretary of Neheru Market	06	00
Total				**141**	**84**

Summary Outcome

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
1.	13.09.2021 Ward no-10	09	Discussed about present drainage system and its quality & proposed works and its advantages, their willingness to project work, temporary inconveniences during pipe laying works, contractor's cooperation, willingness to pay for sustainability of the project	• The community welcomed the project and expressed need for it. • The area has insufficient and inadequate drinking water supply. The area faces severe water crisis during the summer season when the ground water level drops, and contains high iron content in drinking water. Problem of water logging. • People are concerned about the drainage and poor road quality. • The willingness of the people for the proposed projects were appreciated.
2.	14.09.2021 Ward No- 11	09	Present status of drainage system in the town. The quality of water provided presently, and the duration of supply. Proposed works under this project. Environment and Health impacts of proposed project.	• They expressed their willingness for the proposed drainage and road works, as they are aware that this will improve health and environmental conditions of the town. • The area has insufficient and inadequate drinking water supply.
3.	14.09.2021 Ward No- 14	10	Present Status of Water Supply, drainage, and road in the town and proposed project. Environment & Health impacts of proposed project	• The participants informed that they know about this project and sub projects, and they are willing to provide all types of support during execution of work, as they are aware this will improve the quality of life of the people. • They shared the details of inadequate water supply and extreme crisis during summer months.
4.	22.09.2021 Ward No-13	10	Drinking water problem and discussion about possibility of local disturbances due to Project Construction Work. Water logging and drainage problem if any.	• They expressed their positive cooperation during the project construction period. • They are ready to cooperate with the temporary disturbances, in order to get proper supply of water for their daily requirements.
5.	22.09.2021 Ward No- 07	09	Present Status of Water Supply in the town and proposed project. Environment & Health impacts of proposed project. Possibility of Local disturbances due to Project Construction Work Water logging and drainage problem.	• The area has insufficient and inadequate drinking water supply. • People demand for better road and drainage quality. • They are well versed about the advantages of the project and improvement in health and environment. • Ready to cooperate during the construction period.
6.	23.01.2021 Ward No- 06	10	Discussions on potential positive and negative	• No adverse impacts on structures, livelihoods anticipated.

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
			impacts due to project implementation. Present drainage and road condition of the town.	• Short term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle. Mitigation measures will be applied during implementation of the project. • They are concerned about the inadequate drainage network of the numerous ward.
7.	23.01.2021 Ward No- 03	09	Discussed about: Awareness about the subproject and extent of the project impact and development, benefits of the subproject for the economic and social upliftment of community at large, possibility of local disturbances due to project construction work, water logging and drainage problem if any.	• Water logging and drainage problems should be permanently mitigated • They are ready to cooperate during the construction period. • People agreed that local disturbance is minimum in terms of the long term benefit of the project
8.	03.11.2021 Neheru Super Market	05	Discussed about: the subproject and extent of the project impact and development, benefits of the subproject for the economic and social upliftment of community at large, overall impact of the project.	• The area has insufficient and inadequate drainage network and poor road condition. • Mobile vendors will be given sufficient notice and assistance to shift to nearby locations, so that they do not face income loss. Mobile street vendors agreed to the proposal.
9.	03.11.2021 Ramesh Chowmuhani	06	Tentative Project implementation period and possible inconveniences during the construction period were discussed. Detailed discussion about current drainage and road of this town.	• On learning about the project, they expressed that they were happy that the entire community would be benefited from the upgraded water supply, as they face a lot of issues relating to inadequate supply of water, and quality of water.

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
10.	03.11.2021 Ramesh Chowmuhani Market	12	Potential positive and negative impacts due to project implementation Briefing on project objectives probable implementation procedures Discussions were made on need of improvement of the present situation.	• Water logging and drainage problem should also be properly addressed also apart from this water supply project • On learning about the project, they expressed that they were happy that the entire community would be benefited from the upgraded water supply. • People were briefed about the complaint redress mechanism.
11.	03.11.2021 Rajarbagh	04	Potential positive and negative impacts due to project implementation Relevant information of the upcoming project and benefits of the project.	• The representative from community raised issue regarding the existing water supply quality is not upto the mark, so this project will be beneficial for the public. • They also expressed their views on temporary inconveniences, and are ready to cooperate.
12.	19-03-2022 Chanban, Ward No-1	04	Relevant information of the upcoming project and benefits of the project. No adverse impacts on structures, livelihoods anticipated.	• People responded that the area has insufficient and inadequate drainage network. They face severe water crisis during the summer season. • No adverse impacts on structures, livelihoods anticipated.
13.	19-03-2022 Giridhari Palli , Ward No- 6	09	Briefing on project objectives probable implementation procedures.	• People are filled with positivity after hearing the benefits of the project, as the components will lead to betterment of society and developments will lead to a better way of living.
14.	19-03-2022 N.K. Datta Lane, Ward No-19	07	Discussion on the need of improvement of the present situation.	• People shared the hardships they face during summer months. The project is a ray of light, which can overcome the water quality and quality issues that they face in their daily lives.
15.	19-03-2022 Near Ramesh Boarding, Ward No- 19	09	Potential positive and negative impacts due to project implementation	• The people were well aware of the positive sides of the project and willing to extend their cooperation for it, and they are ready to overcome the temporary inconveniences that are on its way.
16.	19-03-2022 Fulkumari, Ward No- 23	08	Detailed discussion about drainage condition and road of the town. Tentative Project implementation period and possible	• Mobile vendors will be given sufficient notice and assistance to shift to nearby locations, so that they do not face income loss. Mobile street vendors agreed to the proposal.

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
			inconveniences during the construction period shared during consultation with community present from the locality. Shifting of Street vendors. Shifting or adjusting extended potion of shopkeepers.	• The area has insufficient and inadequate drinking water supply and high iron content in the drinking water. • Some small restaurant/food stall owners expressed a concern that dust during excavation may fall on / spoil eatables.
17.	03-09-2021 With Honorable Ex- Chairperson, Udaipur Municipal Council, at Ramesh Chowmuhani	05	Detailed discussion about drainage condition and road of the town. Benefits of the Project was discussed in detail.	• The need for the project components were evident, which could help in overcoming the water issues in various wards. • This project will uplift the well being of the human beings and serve for better health and environment.
18.	03-09-2021 With Secretary of Neheru Market	06	Potential positive and negative impacts due to project implementation.	• The people were well aware of the positive sides of the project and willing to extend their cooperation for it, and they are ready to overcome the temporary inconveniences that are on its way.

Annexure

Photographs of Key Informants Interview and Focus Group discussion



Ward No- 10, Dated- 13-09-2021



Ward No- 11, Dated- 14-09-2021



Ward No- 14, Dated- 14-09-2021



Ward No- 13, Dated- 22-09-2021



Ward No- 07, Dated- 22-09-2021



Ward No- 03, Dated- 23-09-2021



Ramesh Chowmuhani Market, Dated- 03-09-2021



Ramesh Chowmuhani Market , Dated- 03-09-2021



Neheru Super Market, Dated- 03-09-2021



Giridhari Palli, Ward No-06, Dated- 19-03-2022



Near Ramesh Boarding, Ward No- 19, Dated- 19-03-2022



N.K. Datta Lane, Ward no- 19, Dated- 19-03-2022



Fulkumari, Ward No- 23, Dated- 19-03-2022



Chanban, Ward No- 01, Dated- 19-03-2022

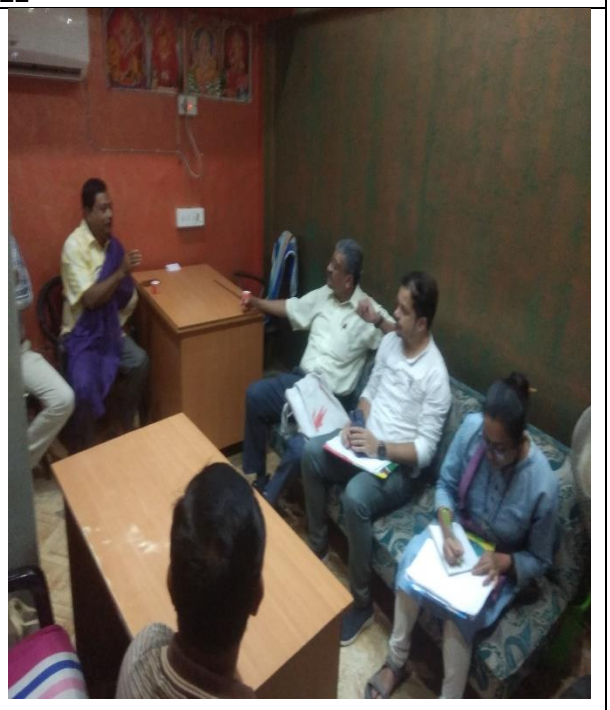
Stakeholder Consultation





Consultation with Honorable Ex-Chairperson of UMC at Ramesh Chowmuhani, Dated- 03-09-2021





Consultation with Udaipur Market Committee, Dated- 03-09-2021

Annexure
Attendance Sheet of Focus Group Discussion (FGD)

Ward - No - 10

FGD UDAIPUR

Sl No.	Name	Occupation	Phone	Signature
1	Payel Dey	House wife	9089083592	Payel Dey
2	Rakela Khatun	House wife	8794784907	Rakela Khatun
3	Hasima Begam	House wife	9862169376	Hasima Begam
4	Marjina Khatun	House wife	7085754307	Marjina Khatun
5	Jamina Begam	House wife	7628828065	762 Jamina Begam
6	Kalpana Begam	House wife	8257008520	8257008520
7	Shilpi Begam	Housewife	9856634521	Shilpi Begam
8	Saraswati Vowel		9436577773	
9	Ranu Das		8259008027	

Ward No-10 (13-09-20221

FGD (UDAIPUR)

Sl.No.	Name	Occupation	Mobile	Signature
1	Arati Banik	house wife	9077210272	
2	Tripti Banik	house wife	9862504993	Tripti Banik
3	[illegible]		9862163206	
4	Piyoshi Saha poddar	housewife	8415071916	Piyoshi Saha poddar
5	[illegible]	housewife	9612015027	[illegible]
6	Gitta Rai Saha	housewife	9131812221	Gitta Rai Saha
7	Arpita Sutradhar	housewife	9612536588	Arpita Sutradhar
8			9612677081	Suchitra Munda (Pau
9	Pinku saha (Podder)		9862187782	Pinku saha (Podd

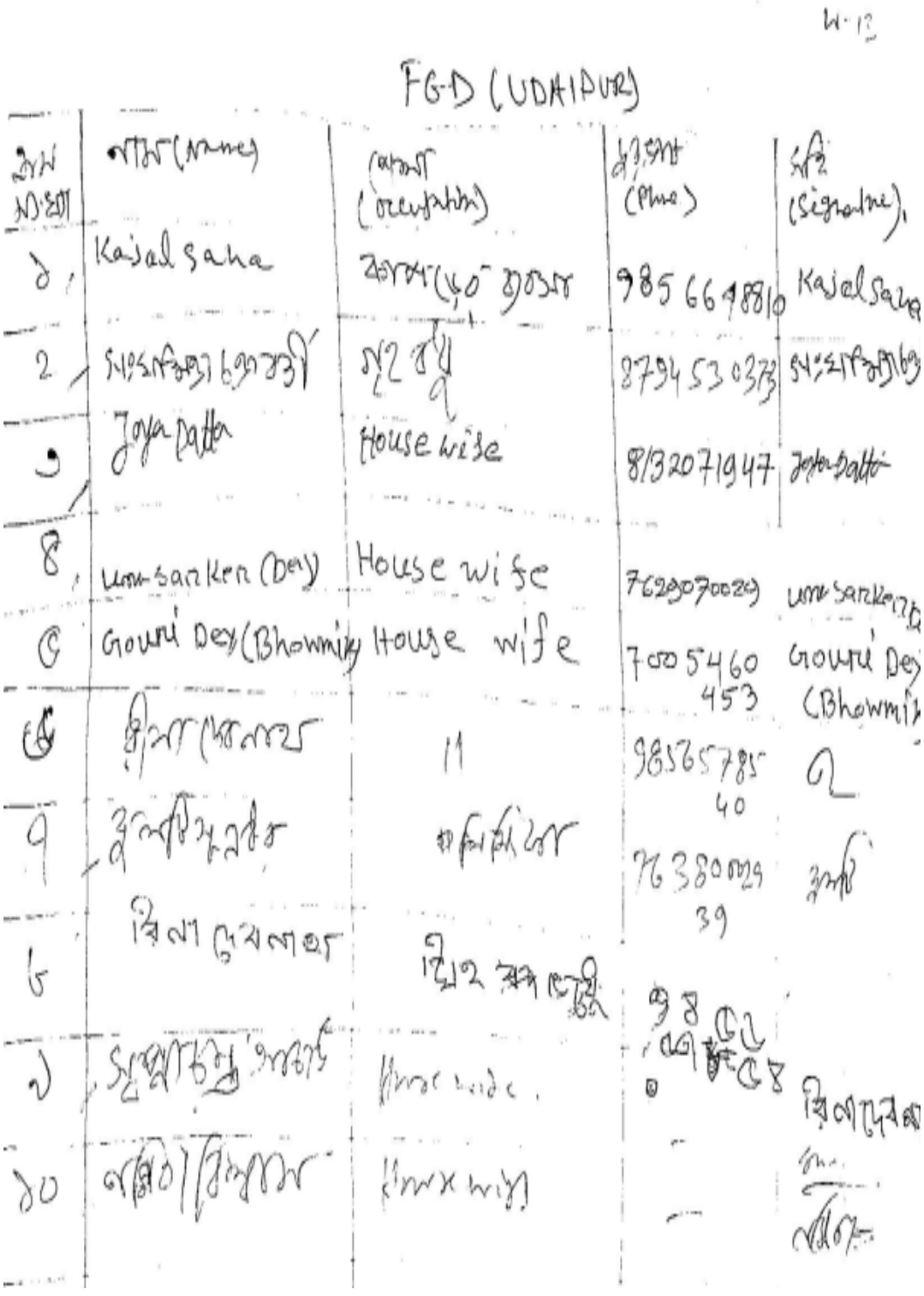
Ward No-11, (14-09-2021)

Ward-14

FGD UDAIPUR.

ক্রম	নাম (Name)	পেশা (occupation)	ফোন (Phone)	স্বাক্ষর (Signature)
১.	Aparna Roy (Saha)	R.D. Agent.	9862821455	Aparna Roy (Sa
২	Shilpi Sarkar (Dey)	House wife	9856636462	Shilpi Sarkar
৩	Namita Majumder	11	9774073909	Namita Majumd
৪	Aparna Barman Chakraborty.		8131953858	
৫	Bapi Das		8794352850	
৬	Sabita Das		6909519543	
৭	Mausumi Saha		8258907679	
৮	Mithu Rani Chowdhury		—	
৯	Shila Barman		8131953828	
১০	Nalur Rani Biswa Dey		8729864513	

Ward No- 14 (14-09-2021)



FG-D (UDAIPUR)

		(occupation)	(Phone)	(Signature)
1.	Kajal saha	House wife	9856698810	Kajal Saha
2.	[illegible]	[illegible]	8794530373	[illegible]
3.	Joya patta	House wife	8132071947	Joya patta
4.	Uma sankar (Dey)	House wife	7629970029	Uma Sankar (D
5.	Gouri Dey (Bhowmik	House wife	7005460453	Gouri Dey (Bhowmik
6.	[illegible]	[illegible]	9856578540	[illegible]
7.	[illegible]	[illegible]	7638002939	[illegible]
8.	[illegible]	[illegible]	[illegible]	[illegible]
9.	[illegible]	[illegible]	[illegible]	[illegible]
10.	[illegible]	[illegible]	[illegible]	[illegible]

Ward No- 13 (22-09-2021)

W-7

FGD UDAIPUR

PARTICIPANT LIST

SL NO	NAME	OCCUPATION	Phone NO	Signature
1				
2				
3				
4	Rinku Baik (Achabjee)	"	9089151673	
5		"	8974776568	
6	Manoni Das Baishnab (Debnath)		8738073219	
7	Madhuri Debnath Das Baishnab		8794628998	
8	Shipra Debnath	"	8837352758	
9		"	5709412025	
10		"	9612760912	
11		"	8837397	
12		"	9862083280	Rina Das Gupta
13				

Ward No- 07 (22-09-2021)

FGD UDAIPUR

1		Homemaker		
2		"	7 6408675 30	
3		"		
4		"		
5		"		
6		"		
7		"	8974504972	
8		"	9362669331	
9		"		
10		"	9862164823	

Ward No-06, (23-09-2021)

FGD WARD NO - 3 UDAIPUR

GENDER

Sl.no	NAME	OCCUPATION	Phone no	Signature
1.	Ajanta Dey (Sarkar)	Jinia SHG	7640983189	Ajanta Dey (Sarkar)
2.	[illegible]	"	7630950160	[illegible]
3.	Mampi Sarkar	"	9366410774	Mampi Sarkar
4.	Uma Bamik	"	8974051364	Uma Bamik
5	Shibu Rani Saha (Sarkar)	"	8413810925	Shibu Rani Saha (Sarkar)
6.	Mithu Halder	"	9362521136	Mithu Halder
7.	Prita Rani Lodh (Deb)	"	6009781900	Prita Rani Lodh (Deb)
8.	[illegible]	"	9366099575	[illegible]
9.	[illegible]	"		

Ward No- 03, (23-09-2021)

Summary of Consultation with Stakeholders- Amarpur

Date	Location	No. of Participants	Participants	Topics Discussed	Issues & Perception of community
5th April, 2023	Amarpur, Amarsagar Area (Ward no. 05)	5 M-5	Community members	• Briefing on project objectives probable implementation procedures • Potential positive and negative impacts due to project implementation • Relevant information of the upcoming project and benefits of the project. • Present problems faced by the community members • In what way they may associate with the project	• People are well aware of the project, and its objectives. They responded with positivity, and looking forward for the work to start. • They are keen to know about the time of implementation of the project. • The area doesn't have proper drainage system; thus it poses serious issues specially during the monsoon season. • The community welcomed the project and expressed need for it, and requested for rapid execution of the project components. • They are aware of the temporary, short-term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle, and are ready to cooperate. • Local people are willing supportive for giving space for workers camp, and any other assistance required.



Figure 63: Stakeholder Consultation at Amarpur, Amarsagar Area, Ward no. 05

List of Participants in Consultation Meeting at Amarpur, Amarsagar Area

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Amarpur Nagar Panchayat. Ward No: - 05

Place: - Amarsagar Area. Date: -

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Pinu Saha	M	9485810120	Pinu Saha
2.	Diganta Kr. saha	M	8837312738	Diganta kr. Saha
3.	Ranjit Das	M	9485420469	Ranjit Das
4.	Sajal Saha	M		সজল সাহা
5.	Prasenjit Roy	M	9089846782	প্রসেনজিত রায়

Summary of Focus Group discussion and Stakeholder Consultations Held at Amarpur

	Date	Type of consultation	Location	Total No. of Participants	No. of Female Participants
1	17.11.2021	Focus group discussion	Near Amarpur Motor stand	05	00
2	30-12-2021		East Bank of Amarsagar	09	00
3	08-02-2022		Chandi Para, Ward no-1	11	11
4			Ward No-2	07	07
5			Ward No-5	11	11
6			Ward No-8	07	07
7	04-03-2022	Meeting with project beneficiaries	Chandi Para, Ward No-1	06	01
8			Sukumar Colony, Ward No- 7	06	02
9	30-12-2021	Meeting	With Honorable MLA, Amarpur at East bank of Amar Sagar	07	00
10	04-03-2022		With Honorable Chairperson of Amarpur Nagar Panchayat	06	00
11	04-03-2022		With Respected SDM of Amarpur	06	00
12	05.07.2022		With households of Sankar Pally	08	03
Total				**89**	**42**

Summary Outcome

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
1.	17.11.2021 Near Amarpur Motor stand	05	Topics of discussion included present water supply system, drainage and road. They were explained about the proposed works and its advantages. They were also informed about the temporary inconveniences during the laying of pipeline, contractors' cooperation.	• The people responded positively, and extended their willingness towards the project and expressed the need for it. • The area has insufficient and inadequate drainage network and road. • Short term impacts, on air quality, dust generation, noise problems and access issues were also discussed and sorted.
2.	30-12-2021 East Bank of Amarsagar	09	Present status of water supply and drainage system in the town. The quality of water provided presently, and the duration of supply. Proposed works under this project. Environment and Health impacts of proposed project.	• They expressed their willingness for the proposed water supply works, drainage, footpath and road, as they are aware that this will improve health and environmental conditions of the town. • The area has insufficient and inadequate drinking water supply.
3.	08-02-2022 Chandi Para, Ward no- 1	11	Present Status of road and drainage network in the town and proposed project. Environment & Health impacts of proposed project	• The participants responded that they know about this project and sub projects, and they are willing to provide all types of support during execution of work, as they are aware that this will improve health and environment and in return would serve better quality of living for the people. • They shared the details of inadequate drainage networks and road condition.
4.	08-02-2022 Ward No-2	07	Water logging problem and discussion about possibility of local disturbances due to Project Construction Work.	• They expressed their positive cooperation during the project construction period. • They are ready to cooperate with the temporary disturbances, in order to get proper drainage system.
5.	08-02-2022 Ward No-5	11	Present Status of Water Supply and road condition in the town and proposed project. Environment & Health impacts of proposed project. Possibility of Local disturbances due	• The area has insufficient and inadequate drainage and drinking water supply. • They are well versed about the advantages of the project and improvement in health and environment. • Ready to cooperate during the

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
			to Project Construction Work Water logging and drainage problem.	construction period.
6.	08-02-2022 Ward No-8	07	Water logging problem and discussion about possibility of local disturbances due to Project Construction Work.	• The area has insufficient and inadequate drinking water supply and drainage especially during the months of summer. • They are ready to cooperate during the construction period.
7.	04-03-2022 Chandi Para, Ward No-1	06	Discussion on project objectives and implementation procedures, present drinking water conditions and drainage network. Potential positive and negative impacts. Present waste water disposal procedure and how they may be associated with the project.	• The area has insufficient and inadequate drainage network. • The community expressed their desire for the project. • Short- term impacts like dust generation, noise pollution , access problems , these can be overcome through proper management. • Project area is having sufficient space for worker's camp, local people will allow to set labor camp.
8.	04-03-2022 Sukumar Colony, Ward No- 7	06	Tentative Project implementation period and possible inconveniences during the construction period were discussed. Detailed discussion about current level of service of Water supply and quality of water.	• On learning about the project, they expressed that they were happy that the entire community would be benefited from the upgraded drainage condition, as they face a lot of issues during rainy season. • During construction phase local people may be hired which can increase their earning potential and eventually standard of living and provide assistance to all those persons
9.	30-12-2021 East bank of Amar Sagar	07	Di Present waste water disposal procedure and how they may be associated with the project. Benefits of the Project was discussed in detail.	• The need for the project components were evident, which could help in overcoming the water issues in various wards. s project will uplift the well-being of the human beings and serve for better health and environment in future.
10.	04-03-2022 Amarpur Nagar Panchayat	06	Potential positive and negative impacts due to project implementation	• They believe the project will uplift the well-being of the human beings and serve for better health and environment

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
			Relevant information of the upcoming project and benefits of the project.	in future. • They also expressed their full-time cooperation in any matters needed.
11.	04-03-2022 SDM of Amarpur	06	Relevant information of the upcoming project and benefits of the project. No adverse impacts on structures, livelihoods anticipated.	• Time frame of the project was discussed. • The need for the project components were briefly discussed and its impacts were bought into consideration. • They also expressed their full-time cooperation in any matters needed for the execution of the project.

Photographs of Consultation and Focus Group discussion



Near Motor stand, Ward No- 6, Dated- 17-11-2021



East Bank of Amarsagar, Dated- 30-12-2021



Chandi Para, Ward No- 1, Dated- 08-02-2022



Ward No-2, Dated- 08-02-2022



Ward No- 2, Dated- 08-02-2022



Ward No- 8, Dated- 08-02-2022



Chandi Para, Ward No-1, Dated- 04-03-2022



Sukumar Colony, Ward No- 7, Dated- 04-03-2022

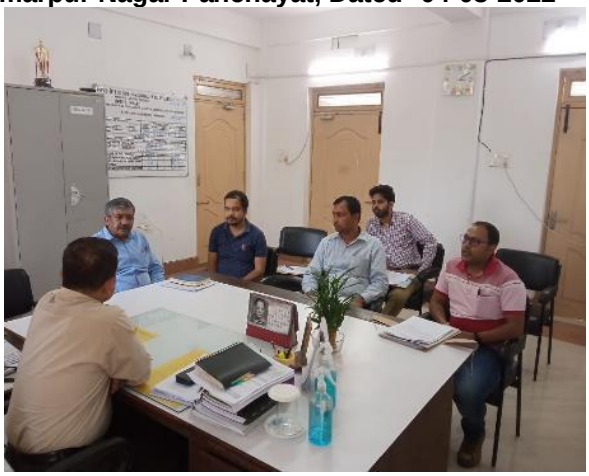
<u>Stakeholder Consultation</u>




Consultation with Honorable MLA & Respected SDM, Amarpur, Dated- 30-12-2021




Consultation with Honorable Chairperson of Amarpur Nagar Panchayat, Dated- 04-03-2022

Consultation with Respected SDM of Amarpur, Dated- 04-03-2022

Attendance Sheet of Focus Group Discussion (FGD)

Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Amarpur Ward Nos. :- 01

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Kanka Dey	01	9863851332	F	Kanka Dey	
2	Sampa Sutradhar (Das)	01	9366267674	F	Sampa Sutradhar (Das)	
3	[illegible]	01	9402115692	F	[illegible]	
4	Namita Das Malakar.	01	9862658727	F	Namita Das Malakar.	
5	Shilpi Bhadra (Dey)	01	8794960955	F	Shilpi Bhadra (Dey)	
6	Mou Chakraborty	12	8837382032	F	Mou Chakraborty	
7	Anjana Das (majumder)	8	9612559120	F	Anjana Das (majumder)	
8	Chandana Saha	01	9485481081	F	Chandana Saha	
9	Pompi Bhattacharjee (Risidas)	01	8033817022	F	Pompi Bhattacharjee (Risidas)	
10	[illegible]	01		F	[illegible]	
11	[illegible]	01		F	[illegible]	

Signature of the respective Surveyor

Raj Kumar Malakar
8119894787

Verified By the respective ULB staff

Name: -
Assistant Town Supervisor
Amarpur Nagar Panchayat
Amarpur, Gomati, Tripura
Signature with Seal

Chandi Para, Ward No-1 (08-02-2022)

Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Amarpur Ward Nos. :- 2

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1.	Mary Majumder (malik)	2	9362533211	F	Mary Majumder (malik)	
2.	Monti Paul	2	9863112009	F	Monti Paul	
3.	Kiran Das	2	9436524480	F	Kiran Das	
4	Rakhi Das	2	8378037680	F	Rakhi Das	
5	Bijaya Das	2	6909951965	F	Bijaya Das	
6	Shikha Rani ghosh.	2	9436477214	F	Shikha Rani ghosh.	
7	Pinki majumder.	2	6033138506	F	Pinki majumder.	

Signature of the respective Surveyor:

Raj Kumar Malakar
8119894787

Verified By the respectiveULB staff

Name: -
Assistant Town Supervisor
Amarpur Nagar Panchayat
Amarpur, Gomati, Tripura.
Signature with Seal: -

Ward No-02, (08-02-2022)

Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Amarpur Ward Nos. :- 5

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Purnima Sutradhare (Das)	5	6909431024	F	Purnima Sutradhare (Das)	
2	Sikpra Rani Saha	5	9436156104	F	Sikpra Rani Saha	
3	Bir Rani Pam	5	9436581762	F	Bir Rani Pam	
4	Bappi Das	5	6009827366	F	Bappi Das	
5	[illegible]	5	9362314343	F	[illegible]	
6	[illegible]	5	9366429668	F	[illegible]	
7	Purnima Das.	5	9436548497	F	Purnima Das.	
8	[illegible]	5	9485451031	F	[illegible]	
9	Asha Rani majumder (da)	5	9414839218	F	Asha Rani majumder (das)	
10	[illegible]	5	9862084520	F	[illegible]	
11	[illegible]	5			[illegible]	

Signature of the respective Surveyor

Raj Kumar Malakar
8119894787

Verified By the respectiveULB staff

Name:-

Designation:- Assistant Town Supervisor
Amarpur Nagar Panchayat
Amarpur, Gomati, Tripura

Signature with Seal:-

Ward No- 05 (08-02-2022)

Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Amarpur Ward Nos. :- 8

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	[illegible]	8		F	[illegible]	
2	Mallika Das (Ghosh)	8	9485422315	F	Mallika Das (Ghosh)	
3	Uttalalas majumder	8	9436451438	F	Uttalalas majumder	
4	[illegible]	8	9485478661	F	[illegible]	
5	Aparna Debnath	8	9485451073	F	Aparna Debnath	
6	Atanu Debnath	8	8414934430	F	[signature]	
7	Anjana Das (Majumder)	8	9612559120	F	[signature]	

Signature of the respective Surveyor

Raj Kumar Malakar
8119894787

Verified By the respectiveULB staff

Name: -
Designation
Assistant Town Supervisor
Amarpur Nagar Panchayat
Amarpur, Gomati, Tripura.
Signature with Seal: -

Ward No- 08 (08-02-2022)

Summary of Consultation with Stakeholders- Melaghar

Date	Location	No. of Participants	Participants	Topics Discussed	Issues & Perception of community
11th April, 2023	Melaghar Motor Stand (Ward no.1 0)	6 M=6	Community members	• Briefing on project objectives probable implementation procedures • Potential positive and negative impacts due to project implementation • Relevant information of the upcoming project and benefits of the project. • Present problems faced by the community members • In what way they may associate with the project	• People are looking forward for the project components. They are positive about the outcomes of the project objectives, however concerned about the timeframe for execution of the project. • They are keen to know about the time of implementation of the project. • The area doesn't have proper drainage system; in fact, Melaghar has serious drainage issues in few wards, especially during the monsoon season when things become more unmanageable thus the people living over there are eagerly, waiting for initiation of the execution work. • They are aware of the temporary, short-term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle, and are ready to cooperate. • Local people are willingly supportive for giving space for workers camp, and any other assistance required.
18th March 2023	Melaghar Municipal Council Office	23 M=17 F=06	Stakeholder Consultation	• Briefing on project objectives probable implementation procedures • Present drinking water supply source and its condition- only 1 hours of supply per day • Briefing on project objectives probable implementation procedures • Potential positive and negative impacts due to project implementation	• The area has insufficient and inadequate drinking water supply. • Short term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle. • No adverse impacts on structures, livelihoods anticipated.

Date	Location	No. of Participants	Participants	Topics Discussed	Issues & Perception of community
				• Relevant information of the upcoming project and benefits of the project.	
18th March 2023	Indiranagar, Ward No-07	10 M=08 F=02	Community Consultation	• Briefing on project objectives probable implementation procedures • Present drinking water supply source and its condition- only 1 hours of supply per day • Present road and drainage condition • Potential positive and negative impacts due to project implementation • Area to be covered under this project	• People agree with the proposed water supply, drainage works and understand that proposed works will improve health and environmental conditions of town and chances of waterborne diseases will be mitigated at some extent. • People are supportive of the project.
18th March 2023	Indiranagar, Ward No-08,	17 M=11 F=06	Community Consultation	• Discussed about: Present Status of Water Supply, road and drainage condition in the town. • Proposed works under this project • Environment & Health impacts of proposed projects	• People are concerned about the poor water quality issue and drainage condition. • People demanded for the measures of dust suppression during implementation of the project • People are supportive of the project.



Stakeholder Consultation at Melaghar, Motor Stand, Ward no. 10



Stakeholder Consultation at Melaghar Municipal Council Office



Stakeholder Consultation at Indiranagar, Ward No-07



Stakeholder Consultation at Indiranagar, Ward No-08

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Melaghar NP Ward No: - 10

Place: - Motor Stand Area Date: - 11/4/2023

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Shisir Roy.	M	9612698085	Shisir Roy.
2.	Bhupal Sarkar	M	8837472849	Bhupal Sarkar
3.	Ranjan Ali	M	8730845541	Ranjan Ali
4.	Ranajoy Sarkar	M	9388121647	R. Sarkar
5.	Swapan Das.	M	9366886853	S Das.
6.	Idrish Miah.	M	8787529174	I M.

List of Participants in Consultation Meeting at Melaghar Motor Stand, Ward no. 10

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Melaghar Ward No: -

Place: - Melaghar ULB Office Date: - 18/03/23

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Anamika Ghosh (Tabrey)	F	9862767662	
2.	SHIBAJYOTI DUTTA	M	9402382285	
3	Sunil Poddar	M	9436330934	
4	K. S. Chakma	M	9831317118	
5	Govind Singh Rathore	M	9360697524	
6	Mamita Telang	F	9425250906	
7	Pritam Saha.	M.	9774119382	
8	Bikram Bhattacharjee	M	8787731991	
9	S. K. Basu	M	9830439554	
10.	Dr. ARDHENDU MITRA	M	9830415953	
11	Snehasis Palit	M	9932313841	
12	Kalyan Ash	M	9836328867	
13	C S Sinha	M	9910060789	
14	Vipin Negi	M	9690057783	
15.	Supriya Pal	F	9402342677	
16.	Arpita Sarkar	F	7005012215	

Place- Melaghar Municipal Council Office, Dated- 18-03-2023

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Melaghar Ward No: -

Place: - Melaghar ULB Office Date: - 18/03/23

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	SHIBAJYOTI DUTTA	M	9402382285	
2	Sunil Poddar.	M	9436330734	
3.	Anamika Ghosh (Pabroy)	F	9362767662	
4	Pritam Saha.	M	9774149382	
5	Mamsha Telang	F	9425600906	
6	Gajind Singh Rathore	M	9360967524	
7	K.S. Ghosh	M	9831317778	

Place- Melaghar Municipal Council Office, Dated- 18-03-2023

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: -

Ward No: - 7

Place: - Indiranagar (Cham)

Date: - 18/3/23

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1	Supriya Pal	F	9402342677	Spal
2	S. K. Babu	M	9830439559	
3	[illegible]	m	9856428642	[illegible]
4	[illegible]	m	9612664157	
5	[illegible]	m		[illegible]
6	Ashis Kr. Bakshi.	M	9383064407	Ashis Kr. Bakshi.
7	Dr. Bulbe Sail	M	9856578299	Dr. Bulbe Sail
8	Govind Singh Rathore	M	9580967124	
9	M. S. [illegible]	m	9837377318	
10	Mamcha Tripura	f	9428609906	Mamcha

Place- Indiranagar, Ward no- 07, Dated- 18-03-2023

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Melaghar Ward No: - 8.

Place: - Indira nagar Date: - 18-03-2023

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1	Mamita Ghosh	F	9425609908	Mamita
2	Govind Singh Rathor	M	9560967524	Govind.
3	K.S. Debbarma	M	9831317118	
4	Paritosh Das	m	8258890644	
5	[illegible]	m	9362976776	[illegible]
6	Jalil Mich	m	9615078846	Jalil Mich
7	Sahanur kazi	m	9774667609	Sahanur kazi
8	[illegible]	m		[illegible]
9	Abutahar	m		Abutahar
10	Hanufa Begam	f	9774667609	Hanufa Begam
11	[illegible]	f	"	[illegible]
12	[illegible]	f	"	[illegible]
13	[illegible]	f	"	[illegible]
14	[illegible]	f	"	[illegible]
15	Jayanta Chakraborty	M	8761805667	
16.	Ardhendu Mitra	M	9830415953	Amitra
17.	S.K. Basu	M	9830439554	

Place- Indiranagar, Ward no- 08, Dated- 18-03-2023

Summary Outcome of FGD

Sl. No	Date	Type of consultation	Location	Total No. of Participants	No. of Male Participants	No. of Female Participants

1	09.03.2022	Focus Group Discussion	Ward No- 1,2,3,4,5	10	02	08
2			Ward No-10,11	08	00	08
3			Ward No- 12,13	07	03	04
4			Ward No- 2, 12,13	06	00	06
Total				**31**	**05**	**26**

Summary Outcome

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
1.	09.03.2022 Ward No-1,2,3,4,5	10	Discussed on project objectives probable implementation procedures. Present condition of drinking water supply source, road and drainage system. Potential positive and negative impacts due to project implementation	• People responded that the area has insufficient and inadequate drainage system. • The people of Chandighar area face severe water crisis during the summer season when the ground water level drops. • The willingness of the people for the proposed projects were appreciated, as long as the impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle, these are short term, they are ready to cooperate.
2.	09.03.2022 Ward No-10,11	08	Discussions on relevant information of the upcoming project and benefits of the project. Relevant information of the upcoming urban road and drain project and benefits of the project Potential positive and negative impacts due to project implementation Area to be covered under this project	• The area has insufficient and inadequate drainage system and urban road. The area faces severe water crisis during the summer season when the ground water level drops. • People are in support of the proposed project. • They expressed their willingness for the proposed water supply works, as they are aware that this will improve health and environmental conditions of the town.
3.	09.03.2022 Ward No- 12,13	10	Benefits of the subproject for the economic and social upliftment of community at large Labour availability in the Project area or requirement of outside labour Possibility of Local disturbances due to Project Construction Work	• The participants informed that they know about this project and sub projects, and they are willing to provide all types of support during execution of work, as they are aware this will improve the quality of life of the people. • The affected persons understood that this venture would be beneficial to the whole community and would spur development in the area. Impacts such as loss of livelihood were explained to them. They understood the

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
				implications and accepted the impacts as being necessary to development. They were willing to shift back where necessary and possible. They assured that whenever the project was implemented, they would ensure full cooperation to the authorities.
4.	09.03.2022 Ward No- 2, 12, 13	6	Water stagnation problem and discussion about possibility of local disturbances due to Project Construction Work.	• The community welcomed the project with positivity and expressed need for it. • People responded that they get 3 hours (2times/day) of water supply per day which is sufficient to fulfil their daily needs. They expressed their positive cooperation during the project construction period.

Annexure

Photographs of Key Informants Interview and Focus Group discussion









Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Melaghar Ward Nos. :- 12, 3

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Niranjan Das	3	9612331301	M	Niranjan Das	9612331301
2	Shibani Malakar	3	8837442807	F	শিবানী মালাকার	8837442807
3	Jaydip Das	3	9615113616	M	JAYDIP DAS	9615113616
4	Tutan Das	3	9366133502	M	Tutan Das	9366133502
5	Anjana Shil	12	9366511383	F	Anjana Shil	
6	Mamoni Shil	12	8413807297	F	মনি শীল	
7	Sandhyamoni Das	12	9362887311	F	সন্ধ্যারানী দাস	

Rej. Kumar Malakar

Signature of the respective Surveyor

Verified By the respectiveULB staff

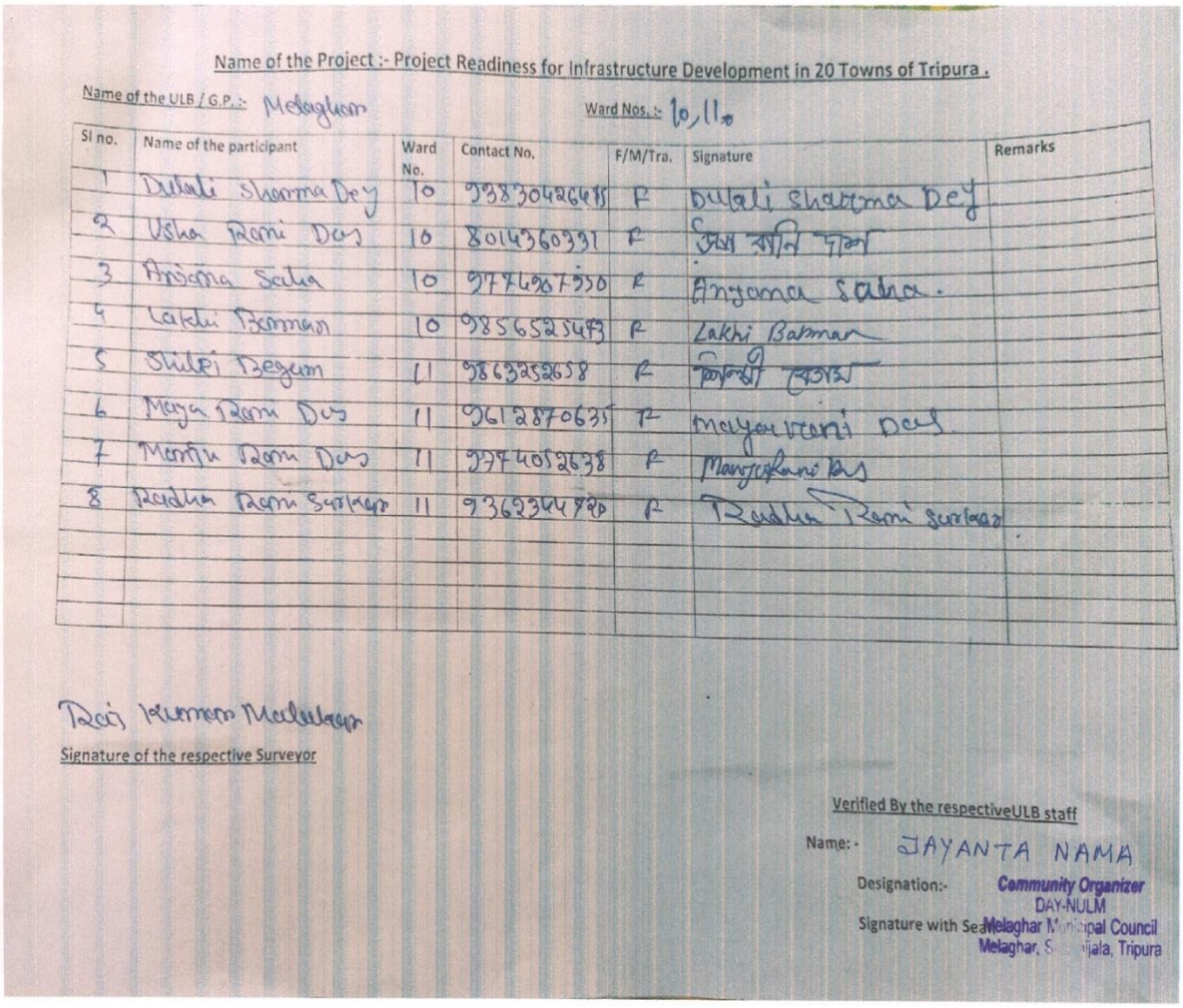
Name: - JAYANTA NAMA

Designation:- Community Organizer DAY-NULM

Signature with Seal: - Melaghar Municipal Council Melaghar, Sepahijala, Tripura

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Ward No- 1,2,3,4,5



Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Melaghar Ward Nos. :- 10, 11.

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Dulali Sharma Dey	10	9383042648	F	Dulali Sharma Dey	
2	Usha Rani Das	10	8014360331	F	উষা রানি দাস	
3	Anjana Saha	10	9774987550	F	Anjana Saha.	
4	Lakhi Barman	10	9856525473	F	Lakhi Barman	
5	Shilpi Begum	11	9863252658	F	[illegible]	
6	Maya Rani Das	11	9612870635	F	Mayarani Das	
7	Manju Rani Das	11	9774052638	F	Manjurani Das	
8	Radha Rani Sarkar	11	9362344720	F	Radha Rani Sarkar	

Raj Kumar Murasingh

Signature of the respective Surveyor

Verified By the respectiveULB staff

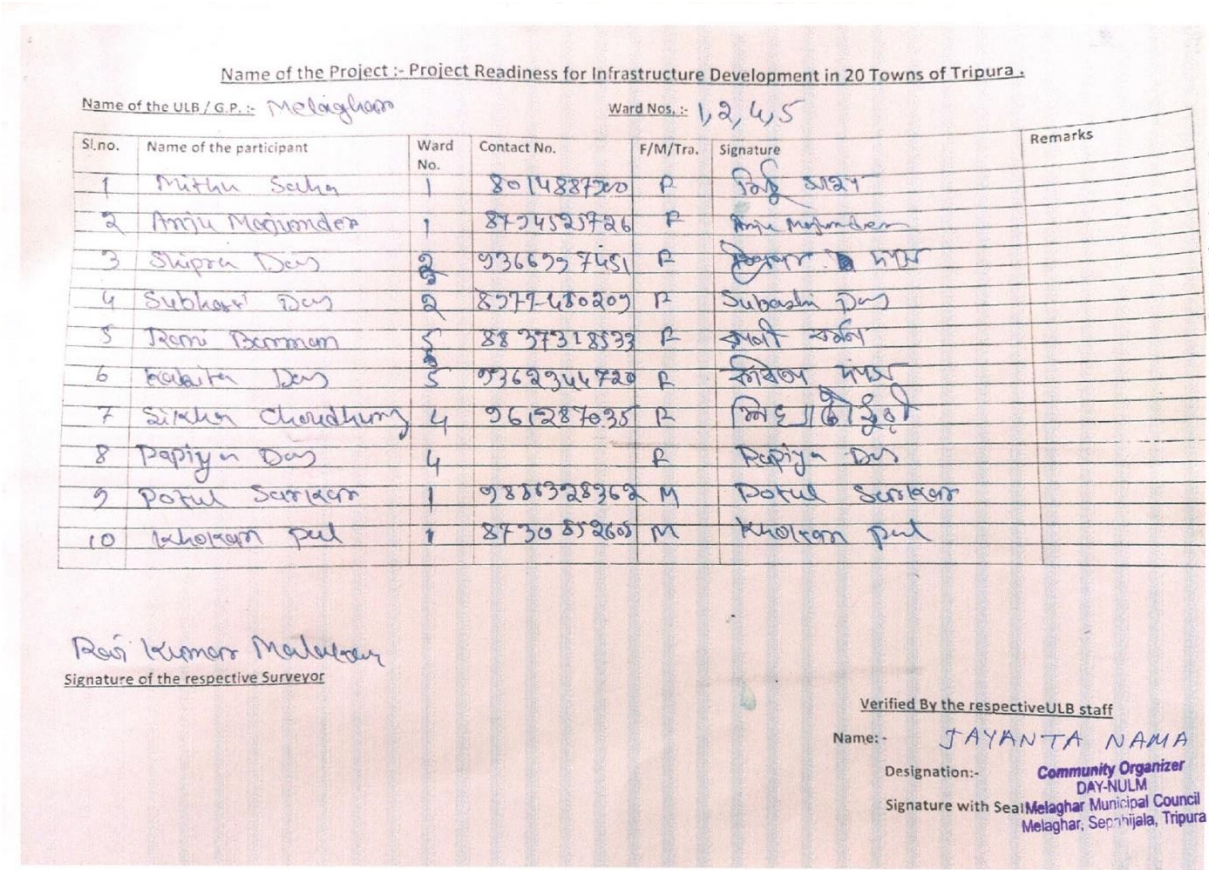
Name: - JAYANTA NAMA

Designation:- Community Organizer DAY-NULM

Signature with Seal Melaghar Municipal Council Melaghar, Sonamura, Tripura

Scanned with CamScanner

Ward No- 10,11



Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Melaghar Ward Nos. :- 1, 2, 4, 5

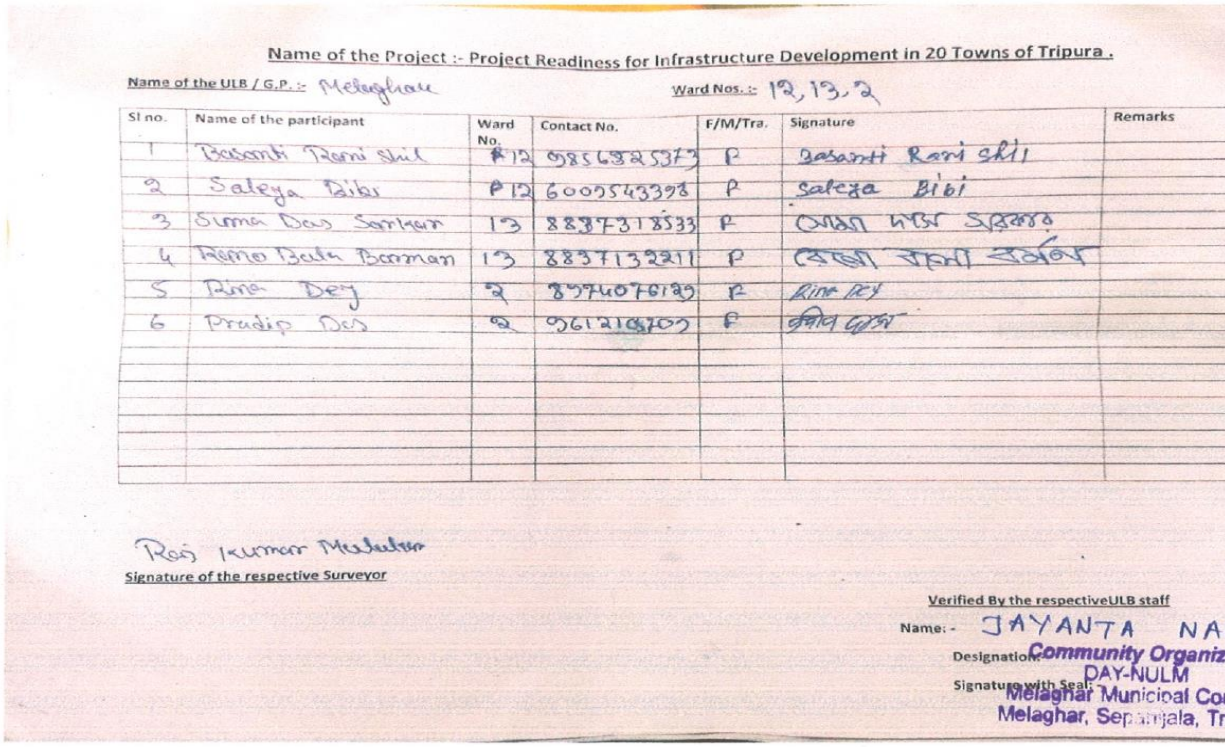
Sl.no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Mithu Sarkar	1	8014887220	F		
2	Anju Majumder	1	8794529726	F		
3	Shipra Das	2	9366977451	F		
4	Subhasri Das	2	8794680209	F	Subashri Das	
5	Reena Barman	5	8837318833	F		
6	Kabita Das	5	9362344720	F		
7	Sikha Choudhury	4	9612870351	F		
8	Papiya Das	4		F	Papiya Das	
9	Potul Sarkar	1	9883928362	M	Potul Sarkar	
10	Kholaram pal	1	8730859269	M	Kholaram pal	

Raj Kumar Malakar
Signature of the respective Surveyor

Verified By the respectiveULB staff
Name:- JAYANTA NAMA
Designation:- Community Organizer DAY-NULM
Signature with Seal Melaghar Municipal Council Melaghar, Sepahijala, Tripura

Scanned with CamScanner

Ward No- 12,13



Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Melaghar Ward Nos. :- 12, 13, 2

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Basanti Rani Shil	12	9856825373	F	Basanti Rani Shil	
2	Saleya Bibi	12	6009543398	F	Saleya Bibi	
3	Suma Dey Sarkar	13	8837318533	F	সুমা দেব সরকার	
4	Nemo Bala Barman	13	8837132211	F	নেমো বালা বর্মন	
5	Rina Dey	2	8974078189	F	Rina Dey	
6	Pradip Das	2	9612165707	F	প্রদীপ দাস	

Raj Kumar Mesharam
Signature of the respective Surveyor

Verified By the respectiveULB staff
Name:- JAYANTA NA
Designation: Community Organiz
Signature with Seal: DAY-NULM
Melaghar Municipal Co
Melaghar, Sepahijala, Tr

Ward No- 12,13,2

Public Consultation in Bishramganj Village Panchayat

Date	Location	No. of Participants	Participants	Topics Discussed	Issues
25th April 2023	Thalabhanga(Mandal Para) Ward no- 01, Chesrimai GP	17 M=8 F=9	Community members	• Briefing on project objectives probable implementation procedures • Relevant information of the upcoming urban road and drain project and benefits of the project. • Information on the benefits of the subproject in terms of economic and environmental enhancement • Information on the benefits of the subproject in terms of economic and environmental enhancement	• People wanted that an efficient traffic management plan shall be in place before the construction works are started so that problems like traffic congestion, air and noise pollution shall be contained to the minimum. • Generally, all the people consulted were aware about the proposed subproject. • Short term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle. • In addition, people belong to labour force wanted that they shall be provided employment during the subproject execution.
25th April 2023	Chesrimai Haribol Das Para, Ward No-03, Chesrimai GP	10 M=05 F=05	Community members	• Briefing on project objectives probable implementation procedures • Information on the benefits of the subproject in terms of economic and environmental enhancement • The people of the Bishramganj required proper traffic control to prevent accidents.	• Locals will be given preference in employment during construction • Socio-economic conditions likely impacted due to proposed drain improvement • Safety measures will be provided. Adequate signages will be provided.
25th April 2023	Saranarthi Colony, Ward no -5, Barjala VP	06 M=03 F=03	Community members	• Briefing on project objectives probable implementation procedures • Relevant information of the upcoming urban road and drain project and benefits of the project. • Information on the benefits of the subproject in terms of economic and environmental enhancement	• People wanted that an efficient traffic management plan shall be in place before the construction works are started so that problems like traffic congestion, air and noise pollution shall be contained to the minimum. • Generally, all the people consulted were aware about the proposed subproject.

Date	Location	No. of Participants	Participants	Topics Discussed	Issues
				• Information on the benefits of the subproject in terms of economic and environmental enhancement	• Short term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle. • In addition, people belong to labour force wanted that they shall be provided employment during the subproject execution.
26th April 2023	Jur Pukur, Bishramganj VP, ward no -01	08 M=04 F=04	Community members	• Briefing on project objectives probable implementation procedures • Potential positive and negative impacts due to project implementation • Relevant information of the upcoming project and benefits of the project. • Information on perceived benefits from the proposed subproject including reduction in water logging in rainy seasons. • Availability of labour during construction time	• The local people of the Bishramganj VP expressed need for the project, drainage and road and willingness to take it up; • Operation and maintenance of the facilities developed under the project and community participation • People in general were very enthusiastic about the benefits of the subproject in terms of water logging and also an improvement in the environmental quality. • People had concern on loss of livelihood • Socio-economic conditions likely impacted due to proposed drain improvement • Local Skilled worker are easily available in this area.
26th April 2023	Barjala, Pushkar Bari Ward no - 05	08 M=04 F=04	Community members	• Briefing on project objectives probable implementation procedures • Relevant information of the upcoming road and drain project and benefits of the project. • Information on the benefits of the subproject in terms of economic and environmental enhancement	• People are fed up with water logging, poor road condition due to earthen road and wanted that the subproject may be executed on a fast track so that this problem is eliminated. • Generally all the people consulted were well aware about the proposed subproject.

Date	Location	No. of Participants	Participants	Topics Discussed	Issues
				• People in general were very enthusiastic about the benefits of the subproject in terms of water logging and also an improvement in the environmental quality.	• Short term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle. e proposed subproject road will provide better road connectivity to the nearby facilities.
26th April 2023	Near Hospital Road, - Maddhyapara Ward no -02	14 M=07 F=07	Community members	• Briefing on project objectives probable implementation procedures • Discussion about requirement of the project and willingness of residents to pay for improved services of Storm water drainage, Benefits of road and storm water drainage.	• Residents expressed their views about the willingness to engage with the project and explore job opportunities. • As regards the storm water drainage and road project, it has been told by the residents that it will improve the roads and condition of low laying areas. • It was told by the residents that the condition of storm water drainage condition is not up to the mark; the low-lying areas generally get flooded during rainy season • Short term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle.
26th April 2023	Ramkrishna pally, ward no - 8	09 M=05 F=04	Community members	• Detailed discussion about current level of service of Water supply and condition of storm water drainage in the town/ Present Road condition and storm water management problem quantity and quality • Tentative Project implementation period and possible inconveniences during the construction period shared during	• Few people have told that they are aware of the proposed subproject, • All the residents expressed their concerned about the poor drainage condition and road connectivity. • Residents expressed their views about the willingness to engage with the project and explore job opportunities

Date	Location	No. of Participants	Participants	Topics Discussed	Issues
				consultation with community present from the locality	





Public Consultation at Thalabhanga(Mandal Para)



Consultation at Chesrimai Haribol Das



Consultation at Saranarthi Colony



Consultation at Jur Pukur, Bishramganj VP



Consultation at Barjala, Pushkar Bari

	
Consultation at Near Hospital Road	**Consultation at Ramkrishna pally**

List of Participants in Consultation Meeting at Thalabhanga(Mandal Para)

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Bhesrimai GP. Ward No: - 01

Place: - Thalabhanga (Mandal para) Date: - 25/4/23.

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Partha Debnath	M	8414942458	Partha Debnath
2.	Meena rani Das	F	7629802125.	
3.	Durga Das	F		
4.	Paresh Das	M	8974562491	
5.	Maya rani Das	F.	9856137930	
6.	Rakhal Das	M	9233058902	
7.	Deepali Das	F	Do -	
8.	Meenati Das	F	6033057970	
9.	Mamibala Das	F		
10.	Rama Debnath	F	8414-094 58	Rama Debnath
11.	Raju Das	M	8794652925	Raju Das
12.	Ratna Das	F		
13.	Tapas Debnath	M	8014561174.	Tapas Debnath
14.	Manthami Das	F	9089878776	
15.	Purnima Das	F	Do	Purnima Das
16.	Rajib Das.	M	9856137930	
17.	Sanjit Das	M	9863162233	Sanjit Das

List of Participants in Consultation Meeting at Chesrimai Haribol Das Para

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town:- Chamrjimi. Ward No:- 3

Place:- Hamibal Dan parra. Date:- 25/9/23.

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Manik Lal Chakraborty	M	7005429440	Manik Lal Chakraborty 25/9/23
2.	Subal Debnath	M	7005368470	সুবল দেবনাথ
3.	Laxmi Debnath	F	8798799262	লক্ষ্মী দেবনাথ
4.	Dulal Debnath	M	8837300990	Dulal Debnath
5.	Mukul Debnath	M	8837303169	Mukul Debnath
6	Shilpi Debnath	F	8794798749	Shilpi Debnath
7.	Bantana Debnath	F	9612151980	বন্টনা দেবনাথ
8.	Babita Debnath	F	9366768741	Babita Debnath
9.	Joy Debnath	M	6009075854	Joy Debnath
10.	Mantu Debnath	M	8837955578	Mantu Debnath

List of Participants in Consultation Meeting at Saranarthi Colony

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Bishramganj VP. Ward No: - 5.

Place: - Saraswathi Colony. Date: - 25.04.23.

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Suman Shil	M	8612657960	সুমন শীল
2.	Namita Ch. Das.	M	8787666042	নমিতা চন্দ্র দাস
3.	Laxman shil	M	8974249135	Laxman Shil
4.	Swarasti Saha	F	8730058356	Saraswati Saha
5.	Champa Adhikari	F	8612802418	Champa Adhikari
6.	Laxmi Debnath	F	9077101146	লক্ষ্মী দেবনাথ

List of Participants in Consultation Meeting at Jur Pukur, Bishramganj VP

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Bishramganj N.P Ward No: - 1

Place: - Jor pukur Date: - 26.4.23.

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Shyamal Deb	M	9612180391	
2.	Archana De	F	8415951522	
3.	Niranjan De	M	Do -	
4.	Swapna Pal	F		
5	Minati Sarkar	F		
6	Geetadarjan Das	F	9862164861	
7.	Proipali Karmakar	F	8974866929	
8.	Sumi Majumder	M	9862176642	

List of Participants in Consultation Meeting at Pushkar Bari

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Barjala NP Ward No: - 5

Place: - Pushkar bari Date: - 26.4.23.

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Manilal D/B	M	9612853752	Manilal D/B
2.	Manmranjan D/B	M	7628921166.	Manoranjan D/B
3.	Babita D/B	F	7085998161	Babita Debbarma
4.	Mira Rani D/B	F	8787811022	Mira Rani Debbarma
5.	Rakhi D/B	F		Rakhi Debbarma

List of Participants in Consultation Meeting at Near Hospital Road, - Maddhyapara

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Bishramganj NP. Ward No: - 2

Place: - Near Hospital - Madhyapara Date: - 26.4.13

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Sibankrishnapal	M	9774701716	Sibankrishnapal
2.	Buti Ghosh	F	9862799555	Beauty Ghosh
3.	Bhulan Das	F		
4.	Utpal Saha	M	9774116279	Saha
5.	Dulal Sarkar	M	9856258760	Dulal Sarkar
6.	Goutam Ghosh	M	9 ০৮ 50 ২৯ ২৯ 69	Ghosh
7.	Sukumar Pal	M		
8.	Shahibirani Mukherjee	F	9383122703	Sahibirani Mukherjee
9.	Rekha Das D/N Nath	F		
			6৯০২৭৬৭৯৭০৭	
10.	Bela rani Ghosh	F	9C12 497272	Bela Rani Ghosh
11	Jayanta Das.		7005974452	Jayanta Das.
12.	Dipika Datta	F	9436187091	Dipika Datta
13	Utpal Pal			
	Vivek Bishnupal	F	8731922813	Bishnu Paik Nadia (Tripura)
	Pal			

List of Participants in Consultation Meeting at Ramkrishna pally

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Bishramganj N.P. Ward No: - 8

Place: - Ramkrishnapally Date: - 28.4.23

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Shulan Das	F	7628924418	Shulan Das
2	Parul Sarkar	F	9089083967	Parul Sarkar
3.	Sima Malik	F	7627908473.	Sima Malik
4	Mamoni Rani Das	F		Mamoni Rani Das
5	Bhashan Ghosh	M	9863127887	Bhashan Ghosh
6.	Ranjit Naha	M	8787647509	Ranjit Naha
7.	Gopal Debnath	M	8624734 08	Gopal Debnath
8.	Ratan Sarkar	M	8837055595	Ratan Sarkar
9.	Mampi Das Majumder	F	9915809527	Mampi Das Majumder

Summary of Focus Group discussion held at Bishramganj

Focus-group discussions with affected persons and other stakeholders were conducted to learn their views and concerns. General public and the people residing along the project activity areas were also consulted during visits to the project sites.

Summary of Outcome

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
1.	28-04-2022 Ward No-01,02,05,08	07	Detailed discussions were made on present drainage system and road network. They were explained about the proposed works and its advantages. They were also informed about the temporary inconveniences during the laying of pipeline, contractors' cooperation.	• The community welcomed the project with positivity and expressed need for it. • During consultation it has come out that the drainage condition of this area in not good and road condition also very poor. • The willingness of the people for the proposed projects were appreciated.
2.	28-04-2022 Ward No-01,02,04,05	07	Present status of water supply and drainage in the town. The quality of water provided presently, and the duration of supply. Proposed works under this project. Environment and Health impacts of proposed project.	• They expressed their willingness for the proposed water supply, road and drainage works, as they are aware that this will improve health and environmental conditions of the town. • The area has good quality water but the pressure is less, and the duration is insufficient.
3.	28-04-2022 Ward No-04	07	Present Status of drainage and road in the town and proposed project. Environment & Health impacts of proposed project. Possibility of Local disturbances due to Project Construction Work.	• The participants informed that they know about this project and sub projects, and they are willing to provide all types of support during execution of work, as they are aware this will improve the quality of life of the people. • They shared the details of water quality which they claimed to be good, but the duration of supply being insufficient.
4.	28-04-2022 Ward No-02	05	Drainage problem and discussion about possibility of local disturbances due to Project Construction Work.	• The People in the Project areas agreed on the relevance of the road and drain. • The community members voiced that the initiative is very relevant so as to improved water supply system in the area as well as maintenance of old pipeline network in the area. • They are ready to cooperate with the temporary disturbances, in order to get proper supply of water for their daily requirements.
5.	06-09-2022 Barjala, Near FSTP Site	06	Potential positive and negative impacts due to project implementation. Briefing on project objectives probable implementation procedures.	• They are well versed about the advantages of the project and improvement in health and environment. • Ready to cooperate during the construction period. • They are very positive about

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
			Discussions were made on need of improvement of the present situation.	the outcomes of the project, and shared that labour can be locally available if needed, this will improve the economic conditions of the area and increase employment opportunities.
6.	20-10-2022 Barjala Madhya Para Ward No-03	07	Relevant information of the upcoming project and benefits of the project. No adverse impacts on structures, livelihoods anticipated.	• No adverse impacts on structures, livelihoods anticipated. • Short term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle. Mitigation measures will be applied during implementation of the project. • They are ready to cooperate during the construction period, willing to extend their help, and overcome the temporary inconveniences that are on its way

Focus Group discussion and Stakeholder consultations, Photo and Attendance

Consultation Photo and Signature Sheet
Photographs of Key Informants Interview and Focus Group discussion



Ward No-01,02,05,08, Dated-28-04-2022
Bishramganj Village Panchayat



Ward No- 01,02,04,05, Dated- 28-04-2022
Bishramganj Village Panchayat



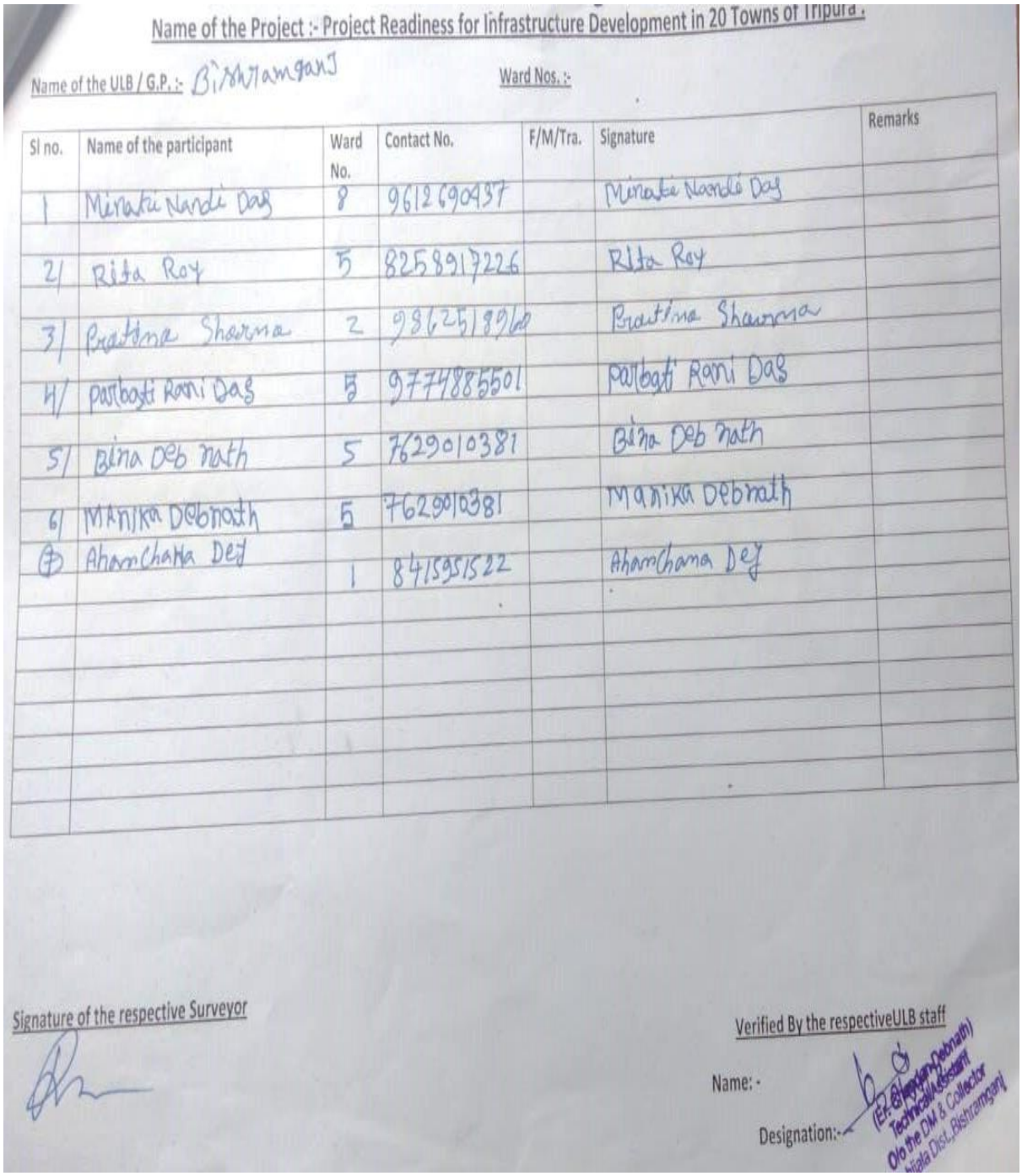
Ward No- 04, Dated- 28-04-2022
Bishramganj Village Panchayat



Ward No- 02, Dated- 28-04-2022
Bishramganj Village Panchayat



Barjala, Near FSTP Site, Dated- 06.09.2022



Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura.

Name of the ULB / G.P. :- Bishramganj

Ward Nos. :-

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Minakshi Nandi Das	8	9612690437		Minakshi Nandi Das	
2	Rita Roy	5	8258917226		Rita Roy	
3	Pratima Sharma	2	9862518960		Pratima Sharma	
4	Parbati Rani Das	5	9774885501		Parbati Rani Das	
5	Bina Deb nath	5	7629010381		Bina Deb nath	
6	Manika Debnath	5	7629010381		Manika Debnath	
7	Ahamchana Dey	1	8415951522		Ahamchana Dey	

Signature of the respective Surveyor

Verified By the respectiveULB staff

Name: -

Designation:-

(Er. Bhandari Debnath)
Technical Assistant
O/o the DM & Collector
Sipahijala Dist., Bishramganj

Ward No-01,02,05,08, Dated-28-04-2022 Bishramganj Village Panchayat

Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Bishramganj

Ward Nos. :-

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Lipika Debnath	5	9774984384		Lipika Debnath	
2	[illegible]	5	9774082541		[illegible]	
3	Sima Das	2	7005566179		Sima Das	
4	Mithu Dutta	(1)	9862517392		Mithu Dutta.	
5	Swapana Debnath Majumder	(1)	9774695059		Swapana Debnath Majumder	
6	Swapna DCY	(2)	~~8~~7005517007		Swapna DCY	
7	[illegible]	(1)			[illegible]	
8						

Signature of the respective Surveyor

Verified By the respectiveULB staff

Name: -

Designation: -

28/04/22 (Er. Chandan Debnath) Technical Assistant O/O the DM & Collector Unit, Bishramganj

Ward No- 01,02,04,05, Dated- 28-04-2022 Bishramganj Village Panchayat

Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura

Name of the ULB / G.P. :- Bishramganj Ward Nos. :-

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1/	Biva Bhakta	4W	7005744764		Biva Bhakta	
2/	Soma Das	4	8119824853		Soma Das	
3/	পুষ্পা রাণী দেববর্মা	4			পুষ্পা রাণী দেববর্মা	
4	জয়শ্রী দেববর্মা	4	7642913217		জয়শ্রী দেববর্মা	
5	Bithi Rani Debnath	4	7642913217		Bithi Rani Debnath	
6.	Mani Deb Nath	4	9862488102		Mani Deb Nath	
7.	Beauti Debnath.	4	8794118421		Beauti Debnath.	

Signature of the respective Surveyor

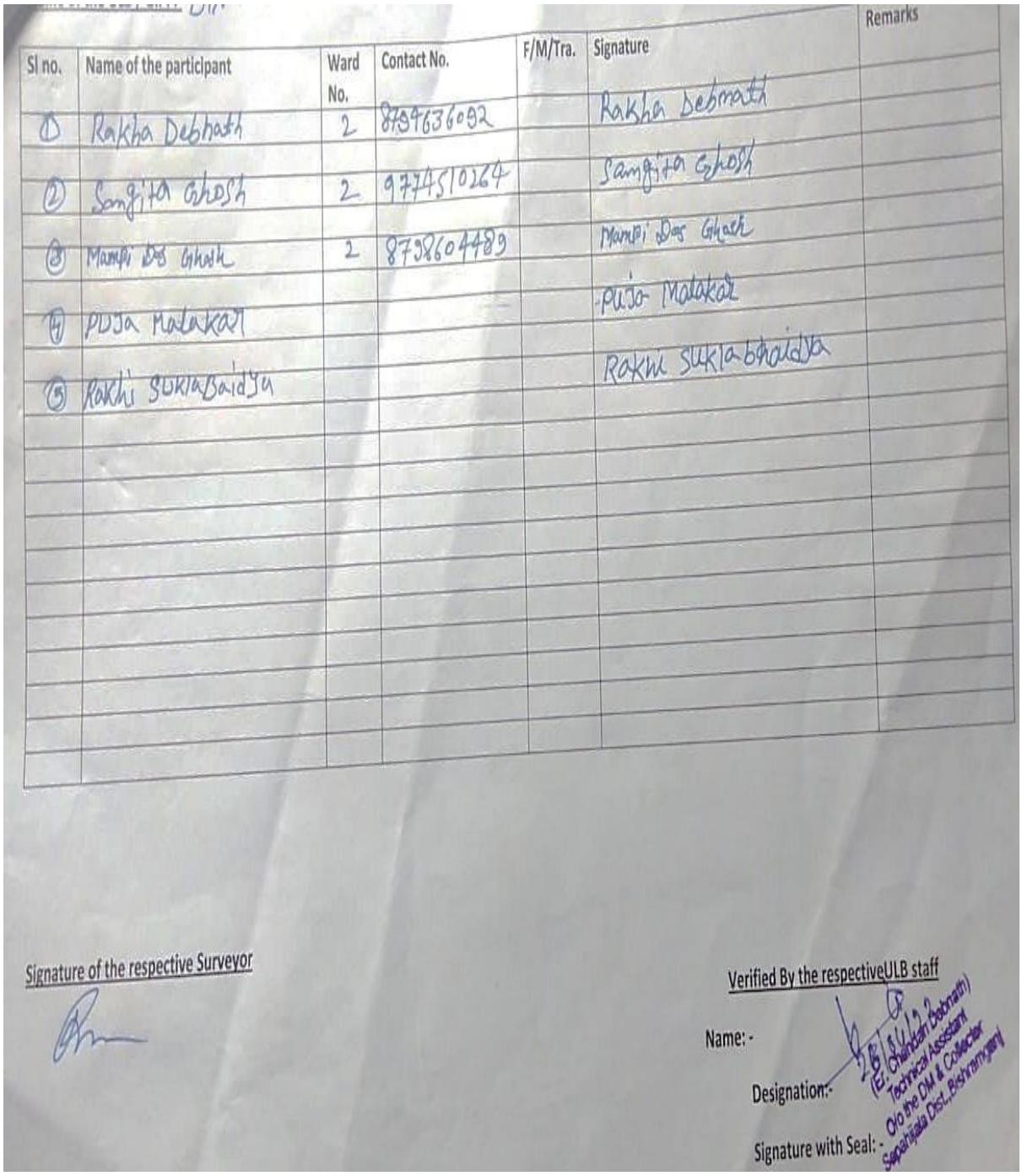
Verified By the respectiveULB staff

Name: -

Designation: 28/04/22

(Er. Chandan Debnath)
Technical Assistant
O/o the DM & Collector
Unakoti Distt., Bishramganj

Ward No- 04, Dated- 28-04-2022 Bishramganj Village Panchayat



Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
①	Rakha Debnath	2	8794636092		Rakha Debnath	
②	Sangita Ghosh	2	9774510264		Sangita Ghosh	
③	Mampi Das Ghosh	2	8798604489		Mampi Das Ghosh	
④	Puja Malakar				Puja Malakar	
⑤	Rakhi Sukla Baidya				Rakhi Sukla Baidya	

Signature of the respective Surveyor

Verified By the respectiveULB staff

Name: -

Designation:-

Signature with Seal: -

(Er. Chhaban Debnath)
Technical Assistant
O/o the DM & Collector
Sepahijala Dist., Bishramganj

Ward No- 02, Dated- 28-04-2022 Bishramganj Village Panchayat

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Bishalgarh Ward No:

Place: - Barjala Date: - 06/09/22

Sl. No.	Name (CAPITAL LETTER)	Contact NO.	Signature
1	Nikhil Manjunath	7642009030	
2	Nimai Sarkar	6009152947	
3	Titon Sarkar	8575675527	
4	Subash Saha	8415955053	
5	Topan Sarkar	-	
6	Sibu Sarkar	-	

Barjala, Near FSTP Site, Dated- 06-09-2022

Summary of Consultation with Stakeholders- Belonia

Date	Location	No. of Participants	Participants	Topics Discussed	Issues & Perception of community
29.01.2022	ULB Belonia	4 M=4 F=0	Consultation with Honorable Chairperson	• Present drinking water supply source and its condition, road and drain condition. Need of improvement of the present situation • Briefing on project objectives probable implementation procedures	• Belonia is operating the water supply system for the town, but capacity to be further built. • Improvement is required for drainage system and road infrastructure. • The Chairman of the ULB expressed need for the project and willingness to take it up • The prime concern and apprehension of the ULB Chairman regarding the project was whether it will be a financial burden on the MC.
17.03.2022	SDM office Belonia	7 M=7 F=0	Consultation With Respected SDM of Belonia	• Present water supply system, road and drainage condition, Awareness of the project – including Project Coverage area, • Dust and noise pollution and disturbances during construction work,	• People are concerned about the water quality issue, road & drainage isues • People demanded for the measures of dust suppression such as water sprinkler to control dust and noise during construction phase. • People are supportive of the project.
17.03.2022	English School	3 M=3 F=0	Consultation with Teachers of Jnanoday English Medium School	• Present water supply system, road and drainage condition, Awareness of the project – including Project Coverage area	• People are supportive of the project and indicated their willingness to participate in the project to make It successful (especially women) • People are aware of the proposed Project. • Proposed road and drain work will improve overall environmental condition of the town.
12th April, 2023	Near Vidya Sagar Market (Ward no. 09)	4 M=3, F=1	Community Members	• Briefing on project objectives probable implementation procedures • Relevant information of the upcoming project and benefits of the project.	• They are keen to know about the time of implementation of the project. • They are aware of the temporary, short-term impact on air quality- dust generation, noise level, access problem, inconvenience for public and movement of vehicle, and are ready to cooperate.

Date	Location	No. of Participants	Participants	Topics Discussed	Issues & Perception of community
				• Potential positive and negative impacts due to project implementation • Present problems faced by the community members	• The area has drains most of which are not functional, some are filled with solid waste, some are in broken condition, and some areas are not well connected with drains. The people of the area have positive response towards the project components, and reciprocated with enthusiasm, and promised to cooperate with the project needs.



Stakeholder Consultation near Vidyasagar Market, Belonia



Consultation with Honorable Chairperson of Belonia Municipal Council, Dated- 29-01-2022



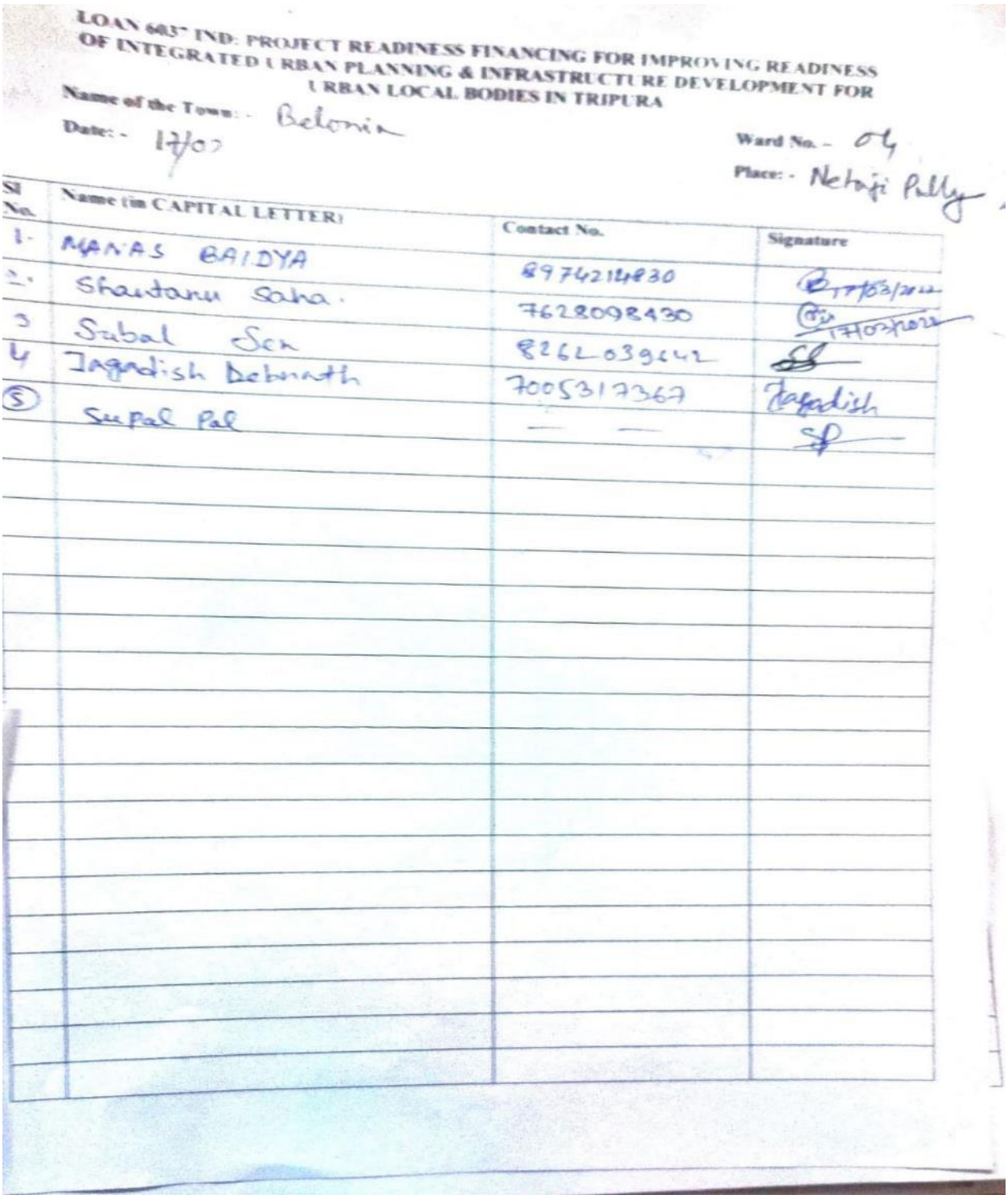
Consultation with Respected CEO and Honorable Chairperson of Belonia Municipal Council, Dated- 17-03-2022



Consultation with Junior Engineer of DWS, Dated- 29-01-2022



Consultation with Teachers of Jnanoday English Medium School, Dated- 17-03-2022



LOAN 603* IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Belonia

Date: - 17/07

Ward No. - 04

Place: - Netaji Pally

Sl No.	Name (in CAPITAL LETTER)	Contact No.	Signature
1.	MANAS BAIDYA	8974214830	
2.	Shantanu Saha.	7628098430	
3	Subal Sen	8261039642	
4	Jagadish Debnath	7005317367	Jagadish
5	Sudal Pal	— —	

List of Participants in Consultation Meeting at Jnanoday English Medium School

LOAN 6037 IND: PROJECT READINESS FINANCING FOR IMPROVING READINESS OF INTEGRATED URBAN PLANNING & INFRASTRUCTURE DEVELOPMENT FOR URBAN LOCAL BODIES IN TRIPURA

Name of the Town: - Belonia

Ward No: - 09

Place: - Near Vidyasagar Market, Belonia

Date: - 12/04/2023

Sl. No.	Name (CAPITAL LETTER)	Male / Female	Contact NO.	Signature
1.	Swapan Debnath	M	9612688184	S. Debnath
2.	Rana Roy	M	8730825541	[illegible]
3.	Ranu Debnath	F	8787519174	Ranu debnath
4.	Deepak Das	M	9385120642	Deepak Das

List of Participants in Consultation Meeting near Vidyasagar Market, Belonia

Summary of FGD & Meeting Held at Belonia

Sl. No	Date	Type of consultation	Location	Total No. of Participants	No. of Male Participants	No. of Female Participants
1	18.11.2021	Focus Group Discussion	Vidyasagar Market, Bankar	16	16	00
2			Behind Night Angle Shelter House	04	04	00
3			Infront of Amlapara Lake	06	06	00
4	29.01.2022		Hall Chowmuhani	04	04	00
5			Kali Nagar Motor Stand	04	04	00
6			College Square	06	06	00
7			Near Check Post	11	11	00
8			Infront of Govt. Food Godown	04	04	00
9			Infront of English Medium School	05	05	00
10			Vidyapith Corner	04	04	00
11	05.02.2022		Ward No- 01	08	00	08
12			Ward No- 12	05	01	04
13	06.02.2022		Ward No- 13	07	00	07
14			Ward No- 14	05	00	05
15	17.03.2022	Meeting with project beneficiaries	Netaji Palli	05	05	00
16	29.01.2022	Meeting	Consultation with Honorable Chairperson	04	04	00
17			Consultation with Junior Engineer of DWS Department	04	04	00
18	17.03.2022		Consultation With Respected SDM of Belonia	07	07	00
19			Consultation with Teachers of Jnanoday English Medium School	03	03	00
Total				**112**	**88**	**24**

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
1.	18.11.2021 Vidyasagar Market, Bankar Behind Night Angle Shelter House Infront of Amlapara Lake	Total-16 M-16, F-0 Total-04 M-04, F-0 Total-06 M-06, F-0	Discussion was made on present water supply system, drainage and road condition. They were briefed about the project, ADB safeguard framework and likely proposed project interventions (w/s, Drainage, SWM and other urban amenities). They were explained about the proposed works and its advantages. They were also informed about the temporary inconveniences during the laying of pipeline, contractors' cooperation.	• The local people are very enthusiastic and energetic. • They expressed their interest to cooperate for the betterment of the society and environment. • The willingness of the people for the proposed projects were appreciated.
2.	29.01.2022 Hall Chowmuhani Kali Nagar Motor Stand College Square Near Check Post Infront of Govt. Food Godown Infront of English Medium School Vidyapith Corner	Total-04 M-04, F-0 Total-04 M-04, F-0 Total-06 M-06, F-0 Total-11 M-11, F-0 Total-04 M-04, F-0 Total-05 M-05, F-0 Total-04 M-04, F-0	Present status of water supply, drainage network and road in the town. The quality of water provided presently, and the duration of supply. Proposed works under this project. Environment and Health impacts of proposed project.	• People are in support of the proposed project. • They expressed their willingness for the proposed water supply works, road, drain works as they are aware that this will improve health and environmental conditions of the town.
3.	05.02.2022 Ward No- 01	Total-08 M-08, F-0	Present Status of Water Supply, road and drain in the town and proposed project.	• The participants informed that they know about this project and sub projects, and they are willing to provide all types of support during execution of work, as

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
	Ward No- 12	Total-05 M-05, F-0	Environment & Health impacts of proposed project	they are aware this will improve the quality of life of the people.
4.	06.02.2022 Ward No-13 Ward No- 14	 Total-07 M-07, F-0 Total-05 M-05, F-0	Drinking water problem, water stagnation problem and discussion about possibility of local disturbances due to Project Construction Work. Water logging and drainage problem if any.	• Some of wards get 30 mints of water supply per day which is not sufficient to fulfil their daily needs as pressure of water is also very less. • They expressed their positive cooperation during the project construction period. • Appreciated the drainage part of the project and voiced it as relevant.
5.	17.03.2022 Meeting with project beneficiaries at Netaji Palli	Total-05 M-05 F-0	Discussed about present water supply system and roads connectivity & proposed works and its advantages, their willingness to project work, temporary inconveniences during pipe laying works, contractor's cooperation, willingness to pay for sustainability of the project	• People are supportive of the project. • People are agreeing with the proposed water supply works and understand that proposed works will improve health and environmental conditions of town and chances of waterborne diseases will be mitigated at some extent.
6.	17.03.2022 Consultation With Respected SDM of Belonia	Total-07 M-07, F-0	Present water supply, drainage and road, Awareness of the project –including Project Coverage area, Dust and noise pollution and disturbances during construction work,	• People are concerned about the water quality issue and water logging issues during the rainy season. • People demanded for the measures of dust suppression such as water sprinkler to control dust and noise during construction phase. • People are supportive of the project.
7.	17.03.2022 Consultation with Teachers of Jnanoday English Medium School	Total -03 M-03, F-0	Present Status of Water Supply and storm water drainage in the town, Awareness of the project-including Project Coverage area,	• People are supportive of the project and indicated their willingness to participate in the project to make It successful (especially women) • People are aware of the

Sl no.	Date and place of consultation	Persons consulted	Topics discussed During consultation	Outcome of Consultations
			Present drinking water problem-quantity and quality	proposed Project. • Proposed water supply works will provide good and sufficient quantity of water, which will save time and energy of people present spent to collect water from existing supply
8.	29.01.2022 Consultation with Honorable Chairperson	Total-04 M-04, F-0	Present drinking water supply source and storm water drainage condition. Need of improvement of the present situation Briefing on project objectives probable implementation procedures	• Belonia is operating the water supply system for the town, but capacity to be further built. • Major problem in this town is water stagnation during the rainy season • The Chairman of the ULB expressed need for the project and willingness to take it up • The prime concern and apprehension of the ULB Chairman regarding the project was whether it will be a financial burden on the MC.
9.	29.01.2022 Consultation with Junior Engineer of DWS Department	Total-04 M-04, F-0	Present drinking water supply source and its condition. Need of improvement of the present situation Briefing on project objectives probable implementation procedures.	• They expressed need for the project and willingness to take it up • Its operating the water supply system for the town, but capacity to be further built.
10.	17.03.2022 Meeting with affected persons 1.Jaganath Bari Road 2. 1no. Tilla 3.Geetanjali Rest House Para 4. Netaji Palli	Total-04 M-04, F-0 Total-07 M- 07, F-0 Total-06 M-06, F-0 Total-12 M-10, F-02	Present Status of Water Supply in the town. Proposed works under this project Quality of present Water Supply Environment & Health impacts of proposed projects. Details of complaint redress mechanism.	People were briefed about the complaint redress mechanism.

Photographs Key Informants Interview and Focus Group discussion



Vidyasagar Market, Bankar, Dated- 18-11-2021



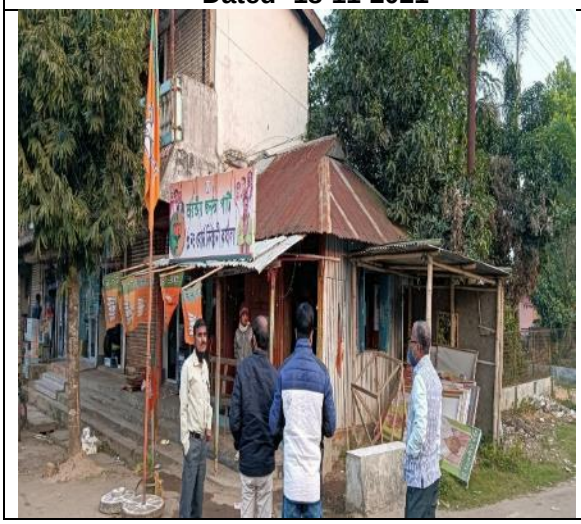
Vidyasagar Market, Bankar, Dated- 18-11-2021



Behind Night Angle Shelter House, Dated- 18-11-2021



Infront of Amla Para Lake, Dated- 18-11-2021

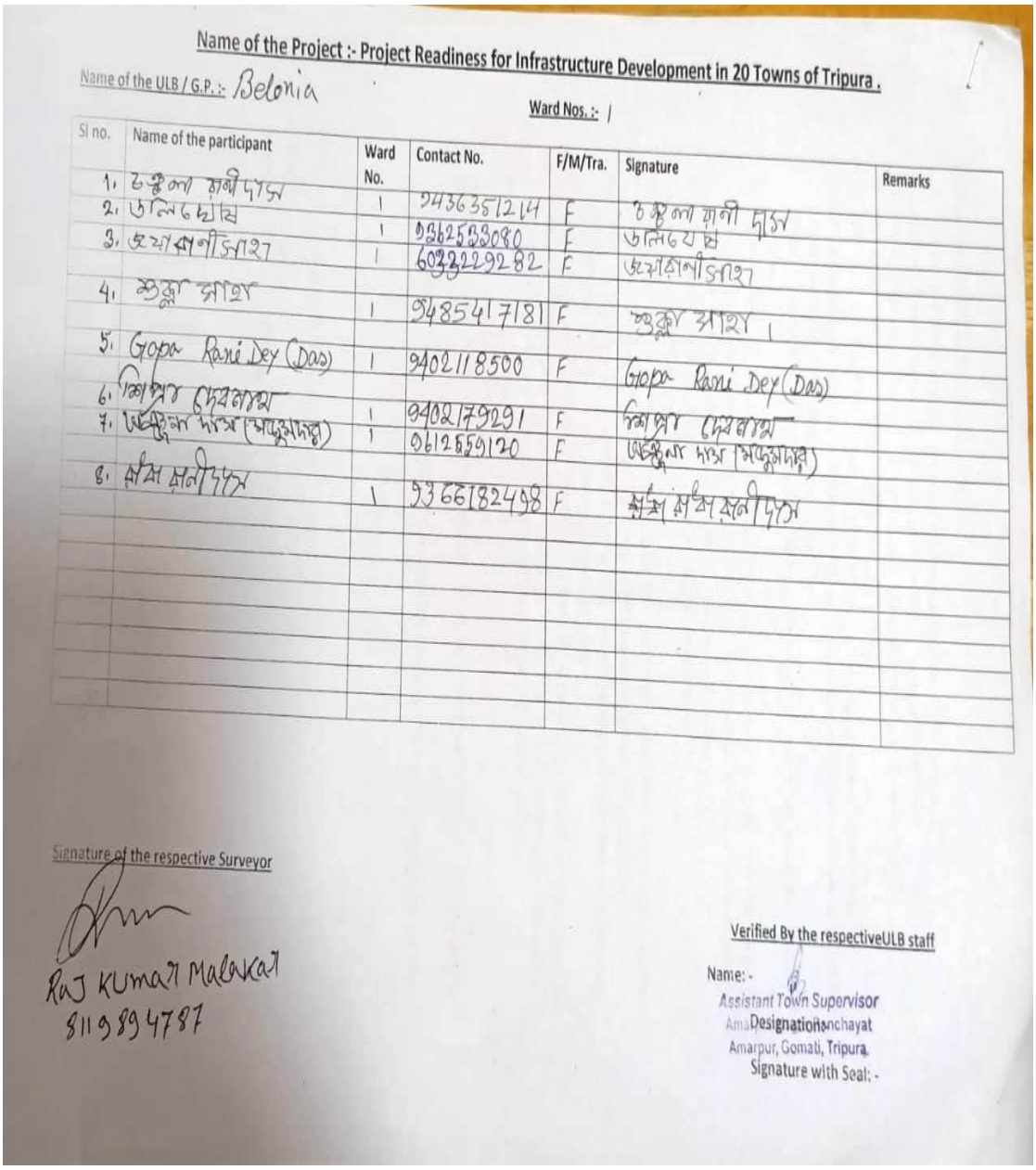




Hall Chowmuhani, Dated- 29-01-2022	Kalinagar Motor stand, Dated- 29-01-2022
	
College Square, Dated- 29-01.2022	**Infront of Belonia Govt. English Medium School, Dated- 29-01-2022**
	
Near India- Bangladesh Check Post, Dated- 29-01-2022	**Infront of Government Food Godown, Dated- 29-01-2022**
	
Ward No- 13, Dated- 06-02-2022	**Ward No-14, Dated- 06-02-2022**

	
Netaji Palli, Dated- 17-03-2022	**Madhya Para, Dated-17-03-2022**

Attendance Sheet of Focus Group Discussion (FGD)



Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Belonia

Ward Nos. :- 1

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1.	ঝুমুর রানী দাস	1	9436351214	F	ঝুমুর রানী দাস	
2.	তনিমা ঘোষ	1	9862533080	F	তনিমা ঘোষ	
3.	ফেমাঙ্গনী ত্রিপুরা	1	6033229282	F	ফেমাঙ্গনী ত্রিপুরা	
4.	শুক্লা সাহা	1	9485417181	F	শুক্লা সাহা	
5.	Gopa Rani Dey (Das)	1	9402118500	F	Gopa Rani Dey (Das)	
6.	ঝিপ্রা দেবনাথ	1	9402179291	F	ঝিপ্রা দেবনাথ	
7.	[illegible]	1	9612559120	F	[illegible]	
8.	মিস মনী দাস	1	9366182498	F	মিস মিস মনী দাস	

Signature of the respective Surveyor

Raj Kumari Malakar
8119894787

Verified By the respectiveULB staff

Name: -
Designation: Assistant Town Supervisor
Amarpur Nagar Panchayat
Amarpur, Gomati, Tripura.
Signature with Seal: -

Ward No-01 (05-02-2022)

Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Belonia

Ward Nos. :- 13

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Bandana Majumder (Chowdhury)	13	8731970053	F	Bandana majumder Chowdhury	
2	Purnima Rani Bhoumik (Mahajan)	13	9402336591	F	Purnima Rani Bhoumik (Mahajan)	
3	Malati Dutta (Majumder)	13	9436526350	F	Malati Dutta (Majumder)	
4	Prativa Sarkar (Dutta)	13	8436505962	F	Prativa Sarkar (Dutta)	
5	Sukla Sarkar (Choudhury)	13	9436376561	F	Sukla Sarkar (Choudhury)	
6	Hima Sarkar (Bhoumik)	13	9436177798	F	Hima Sarkar (Bhoumik)	
7	Dipa Pal (Majumder	13	9383030742	F	Dipa Pal (Majumder	

Signature of the respective Surveyor

Rajkumar Malakar

10/2/2022

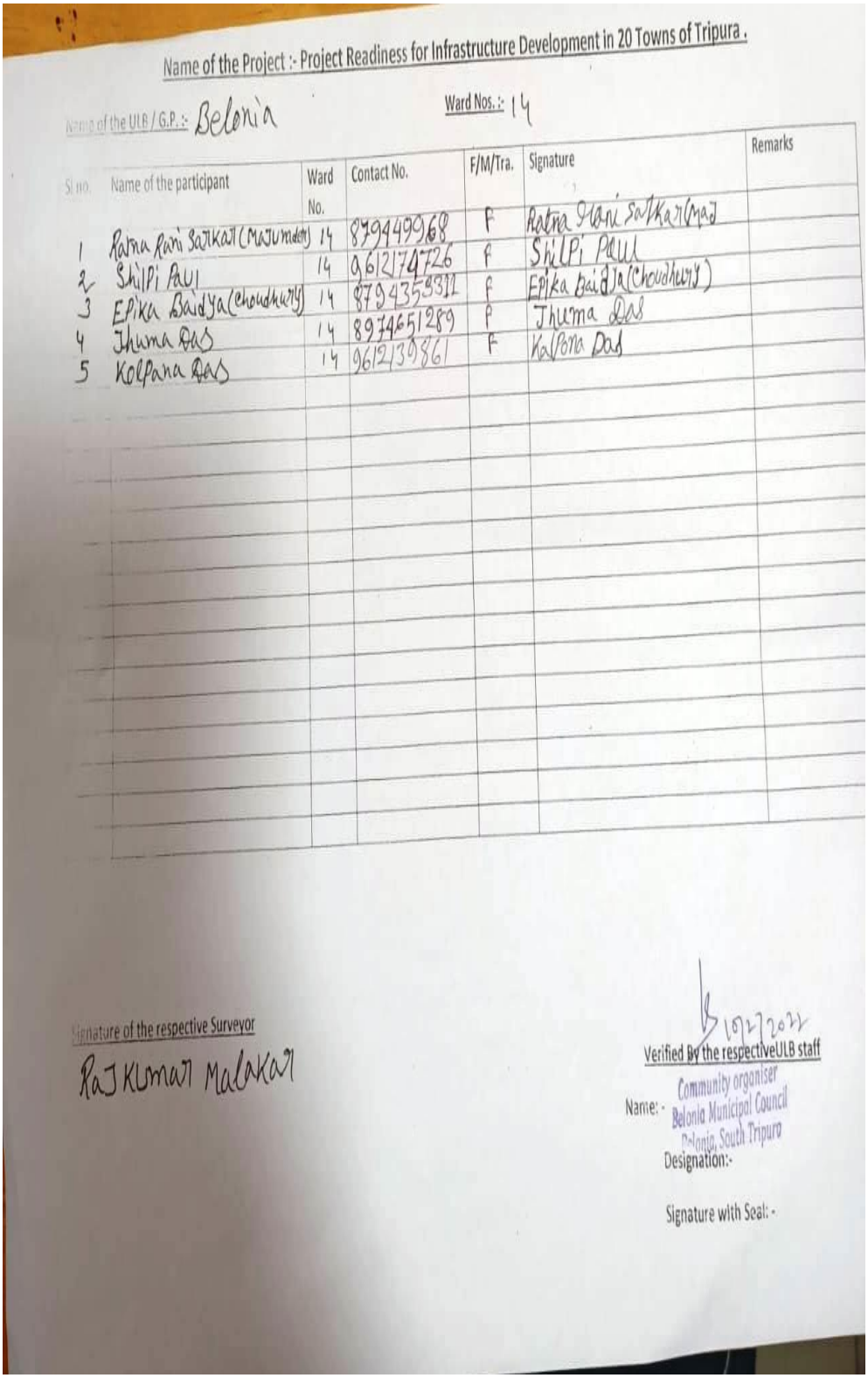
Verified By the respective ULB staff

Name: - Community organiser Belonia Municipal Council Belonia, South Tripura

Designation:-

Signature with Seal: -

Ward No- 13 (06-02-2022)



Name of the Project :- Project Readiness for Infrastructure Development in 20 Towns of Tripura .

Name of the ULB / G.P. :- Belonia

Ward Nos. :- 14

Sl no.	Name of the participant	Ward No.	Contact No.	F/M/Tra.	Signature	Remarks
1	Ratna Rani Sarkar (Majumder)	14	8794499968	F	Ratna Rani Sarkar(Maj	
2	Shilpi Paul	14	9612174726	F	Shilpi Paul	
3	Epika Baidya (Choudhury)	14	8794353311	F	Epika Baidya(Choudhury)	
4	Jhuma Das	14	8974651289	F	Jhuma Das	
5	Kalpana Das	14	9612130861	F	Kalpana Das	

Signature of the respective Surveyor

Raj Kumar Malakar

10/2/2022

Verified By the respectiveULB staff

Name:- Community organiser
Belonia Municipal Council
Belonia, South Tripura

Designation:-

Signature with Seal:-

Ward No-14, (06-02-2022)

INTERACTIVE WORKSHOP – ENVIRONMENT , SOCIAL SAFEGUARD- PART OF PRF Tripura Urban and Tourism Development Project (TUDDP)

Report of Orientation Workshop on ADB Safeguards Policy- Finance – Procurement – Institutional Arrangements for the Officials of Tripura Urban Planning and Development Authority (TUDA) & Project ULBs

Introduction

Government of Tripura initiated the Project Readiness Financing (PRF) of Integrated Urban Planning & Infrastructure Development for Urban Local Bodies in 20 towns[1] of the State under the loan no. 6037-IND assisted by the Asian Development Bank (ADB). The aim of the project is to plan, develop, implement and manage project activities and infrastructure assets for sustainable development and economic growth of the state as a whole. The project has two components viz URBAN and TOURISM. Urban infrastructure is looked after by TUDA whereas the Tourism part is under the TTDCL. The Urban Infrastructure Development subprojects are spread over 5 major components like Water supply, Storm water drainage, Septage management, Roads and Urban Amenities.

To achieve the project objectives efficiently, capacity building of the engineering and other non-engineering stakeholders is an inevitable part of the project. In the initial stage of preparation of DPR, Bid document and prior to the floating of tenders, DPR preparation and floating of tender documents, the technical and non-technical stakeholders, who are supposed to be directly or indirectly involved the Subprojects at all level needs to be oriented on the project prerequisites like, Safeguards Policy and measures to be followed, Financial modalities of externally aided projects, Procurement, Institutional arrangement structure etc. so as to enable project executing staffs to have a better understanding in discharge their roles and duties in a better way for assured quality services.

In this regard, a two days' workshop was organized with the joint effort of TUDA and PDMC where officials from all twenty project towns, TUDA and UDD have participated. The primary intent of the orientation workshop was to enhance the knowledge base of the ULB officials, TUDA officials and officials of UDD on the mentioned five disciplines, namely, a) Social safeguard, GRM and Gender, b) Environmental safeguards c) Financial modalities of externally aided projects, d) Procurement procedures, and e) Institutional arrangements.

Objective of the workshop

The specific objective of the workshop is to raise awareness on risks/issues, implications and arrangements of this project across various disciplines and creating a pathway to establish safeguard framework/plan and application of tools customizing to local conditions.

- The participants from ULBs and TUDA have a better understanding of the prerequisite parameters of an externally aided project
- Participants will be able to learn the process of continuous monitoring of the prerequisite parameters of safeguards, procurement process, contract management, financial implications, and institutional arrangements
- Avoid adverse impacts resulting from the project on environment and affected people, where ever possible
- Minimizing, mitigate and / or compensate for adverse project impacts on the environment and persons affected if efforts to avoid adverse impacts if not possible
- Helping borrowers / clients to strengthen the safeguard systems and build the capacity to manage social and environmental risks

- ❖ Reflect on their own supervision approach in a comprehensive perspective
- ❖ Exchange experiences or new ideas for guidance and suggestions to be used in the project
- ❖ Other objectives for the Orientation Workshop are to make the organization for creating a Field of Preparation.

Location and period of the workshop

The mentioned workshop was a residential workshop and was organized at Gitanjali Guest House, Bholagiri, Agartala. The workshop was organized for two days 19th and 20th December 2022

Total number of participants

The total number of participants were approximately 52 for the two days orientation workshop, comprising of 2 officials each from 20 ULBs and officials from TUDA/UDD.

Methodology of the workshop

The proposed orientation workshop has been conducted mostly in an interactive communication mode. The methodology followed during the orientation workshop are as under:

- ❖ Lecture
- ❖ Presentation
- ❖ Group discussions
- ❖ Subject related learning games etc.

Training Team & Organizing Team

The members of the organizing team comprised of Subject Experts and other support staffs of TUDA – PDMC including Social Safeguard Expert, Environmental Expert, Institutional Expert, Procurement and Finance Expert.

Outcome

The outcome of the two days “Orientation Workshop” related to the understanding of the participants. The outcomes are as under:

- Participants understood the different policies, procedures of Social & Environmental Safeguards
- Importance of social and environmental safeguards,
- Why gender in projects and basics of gender,
- Participants could also have an idea of the modalities of Institutional setups within the project
- Municipal Administration System
- Overview of urban scenario in Tripura
- Participants have learned Project accounting system under ADB and disbursement modalities
- Participants were made aware of the various Stages of procurement
- Types of procurement
- Methods of procurement under ADB project

Session Details – Day One

Session 1: Opening Session

The opening session is intended to welcome the participants and the trainer and the participants to get to know each other. The opening session was addressed by Dr. Tamal Majumder (TCS), Director, UDD, in which he welcomed all the participants and explained the importance of orientation workshop and the specific subjects as well. The opening session was followed by an address regarding the importance and prerequisites in ADB funded projects by Dr. A.K. Aditya, Team Leader, PDMC. After the opening session, participants were addressed and educated regarding ADB Protocols and Guidelines by Mr. M. K. Gop. The

session also provided a brief overview of the whole designed workshop schedule - the back ground, objectives, content and schedule of the course and highlights about the training methodology. The session was conducted in an interactive in nature.

manner and was more oriented towards learning from each other. The course handouts and reading materials are disseminated.

Session 2: Development Induced Social Issues, Social Safeguards & Impacts

The second session was intended to create an understanding of social impacts in implementation of urban infrastructure and development projects in urban areas and their positive and negative implications. It also aimed planners, implementors and decision makers to understand how and when to diagnose the social issues in the process of planning and designing infrastructure projects. The session was designed to assist the participants in distinguishing between “project benefitted people” and “project affected people” through discussions based on identified possible social issues due to urban infrastructure projects based on their experience. During the session, presentations were made deriving from national experience to supplement the learning efforts. It was discussed that development induced social issues will be inevitable unless appropriate social safeguards are not included into infrastructure development plans. This session was the foundation to understand the concept of social safeguards, grievance redressal mechanism and gender related issues and mainstreaming. The said session was so designed that a high level of active participation of the participants was observed although the session. The topics discussed under the session are as under:

- Understanding of Social Safeguard and its principles
- ADB’s Safeguard Policy, 2009 & Scope of application
- Safeguard requirements 2 and safeguard requirements 3
- Policy Objectives & Scope of Policy application
- Understanding Involuntary Resettlement
- Eligible displaced persons & types of displacements
- Basic IR Principles
- Negotiated Land Acquisition
- Categorization of Projects
- IR Impacts, types and categorization of the same
- Who are Indigenous People (IP)
- Safeguards Compliance Flowchart
- IR impacts – what to consider?
- Grievance Redressal Mechanism (GRM / GRC) Structure & ADB’s Accountability Mechanism
- Project stages for preparation of safeguard documents
- Case sharing for best practices of safeguard application in the field
- Consequences of not following safeguard norms on time
- Preparation of DDR and RP
- Process of land donation or negotiated land purchase
- Checklist for social safeguard and gender while visiting sites
- Gender – meaning, understanding and key concepts
- Considering gender in project designing and implementation
- Gender equality and equity
- Common perception regarding gender

Session 3: Environmental Safeguards and its applications

During the session in the respective subject matter, Environmental Safeguard Team– PDMC made an effort to make the participants understand that Environment Safeguards aims at minimizing environmental impacts while executing the project activities in the field. Process of doing the same was discussed through

implementation of Environmental Management Plan (EMP) proper awareness, and taking required mitigative measures. It was also shared with the participants that contractor has to continually comply with EMP strictly, proper solid waste/ waste water management, use of personal protective equipment's (PPE), continued supply of potable drinking water and First aid kits to workers/staffs and proper Health and Safety Plan (OHSP).

The report summarizes how ADB is structured and how it operates. ADB aims to improve environmental conditions of the rural and urban poor to enhance their chances for a better quality of life. We do this by working with governments and the private sector to fund land and water management systems; better resource management systems; cleaner energy production; expanded water supply, sanitation, and waste management services; and much more.

ADBs current strategies emphasizes infrastructure investments with new approaches to focus on sustainability of their economic development. The impact of poor environmental quality and degraded resources on individuals, families, and communities poses a threat to the poor and increases the strain on those living on the margins of poverty. Most of the poor live in rural areas where they are highly dependent on ecosystems for their needs. Yet unsustainable exploitation and conversion is severely straining the forests, coastal systems, and lands from which they make their livings. And the very poorest tend to depend on the most marginal of areas, often contributing to resource degradation just to survive. As rural ecosystems become degraded, they lose their life-supporting functions—which sustain not only rural communities but urban populations. All queries of the respective ULBs were satisfactorily resolved regarding environmental concerns.

Topics discussed under Environment Safeguards are:

- Safeguard Requirement (ADB's Safeguard Policy Statement 2009)
- Importance of Safeguards (Prevent and mitigate harm to people and environment)
- Environmental Safeguards Policy Principles and requirements-ADB
- Major Rules and regulations for compliance
- Environmental Safeguard-Schedule and time frame of activities
- Details of Environmental Management plan (EMP)
- Activities during pre-construction phase (Statutory clearance, consent, NOC, Utility Shifting, selection of location, stockpile areas, disposal areas, material etc.)
- Environment safeguard requirement before start of project implementation
- Environment safeguard requirement during project implementation
- Project Implementation Phase EMP-site Environment Compliance
- Environmental Safeguard -Reporting

Session 4: Institutional Setups in Urban Scenario and Municipal Administration

This Session was focused on the urban scenario related to ULBs. Tripura urban sector has been facing crucial challenges like all other northeastern Indian cities. Geographical location and limited connectivity with India's main land are some permanent challenges. But those challenges can convert as value addition by improvement of governance efficiency. Natural resources, historical and tourist attractions are investment values for the urban sector. Those can be optimally utilized by attracting new urban investments and building new urban infrastructure. A few issues and challenges are mentioned below.

- Urban investments and improvement in the Physical Infrastructure of Cities.
- Reform linked investment strategy.
- Creating a self-sustainable service delivery mechanism and augmenting resources.
- Implementation of urban reforms addressing the causes and problems of the cities in the implementation of the reforms and suggest measures.

In addition to it the key objectives of creating Tripura Municipal Services were also discussed during the said session. In context of the same, the present scenario of ULBs, its staffing, institutional setting at ULBs, urban governance and administrative framework and the way forward was also a part of session.

Opening session

The opening session is staring with greeting of the guest of honour: -

1) Dr. Tamal Majumdar, Director of Urban Development,
2) Mr. Mihir Kanti Gop , Cheif planner TUDA & Project Coordinator PMU, TUDA , ADB project ,
3) Dr. Anup Kumar Aditya, Team Leader, PDMC.

After that the Expert of PDMC and the participants of the ULBs to get to know each other. The introduction will cover the background, work related to infrastructure devel opment of the participants. In the of the workshop Dr. Tamal Majumder (Director of UDD) give his valuable inaugural speech related to ADB project followed Mr. Mihir Kanti Gop , Cheif planner TUDA & Project Coordinator PMU, TUDA , ADB project & Dr. Anup Kumar Aditya ,Team Leader , PDMC.

Orientation workshop session

Training/ Learning Objectives	**Session Mode**	**Duration**	**Resource Person**
Day One- 19.12.2022			
Registration for the Workshop cum training		Mins	
Welcome address to the participants and introductory session		Mins	Dr. Tamal Majumder (TCS), Director, UDD
Orientation on ADB Guidelines and Protocol	• Lecture • Discussion • Power Point presentation through Projector	Mins	Mr. M.K. Gop, Chief Planner, TUDA
Social Safeguards ➢ Orientation on the basic Safeguard Principles ➢ Project Categorizations ➢ Social Safeguard Reports and documentations ➢ Social Safeguard Requirements for project implementation ➢ Difference of DDR with RP/ IPP & SSMR ➢ Good practices of safeguard ➢ Consequence of bad safeguard practices	• Lecture • Discussion • Power Point presentation through Projector	120 Mins	Jayanta Chakraborty, Safeguard Expert, PDMC
➢ Uses & Importance of GRM & GRCs at various levels. ➢ Gender Equality & Social Inclusion	• Lecture • Discussion • Power Point presentation through Projector	60 Mins	Jayanta Chakraborty, Safeguard Expert, PDMC
Environmental Safeguards ➢ Orientation on the basic Safeguard Principles ➢ Project Categorizations ➢ Environmental Safeguard Reports and documentations	• Lecture • Discussion • Power Point presentation through Projector	120 Mins	hendu Mitra, nment Safeguard Expert, PDMC

➢ Environmental Safeguard Requirements for project implementation ➢ Different types of reports – IEE, SEMP & SEMR ➢ Good practices of safeguard ➢ Consequence of bad safeguard practices			
Feedback from participants		30 Mins.	All participants
Day Two- 20.12.2023			
Topic: ➢ **Municipal Administration and overview of urban scenario in Tripura** ➢ ULB governance/administration in Tripura and the role of urban staff in urban development and infrastructure ➢ Discussion follows with participants to share their existing scenario in respective ULBs. ➢ Discussion constitution/statutory obligations with reference to 74th CAA and Tripura Municipal Act, ➢ ULB as organisation, powers and functions of ULB and role of various functionaries ➢ Urban governance reforms – way forward	• Lecture • Discussion • Power Point presentation through Projector	2 Hours	Institutional Expert, PDMC
Finance: ➢ Modalities of project fund disbursement ➢ Project Accounting System	• Lecture • Discussion • Power Point presentation through Projector	2 Hours	Finance Expert, PDMC
➢ Procurement & its principles ➢ Various stages of procurement ➢ Types of procurement ➢ Procurement Methods ➢ Procurement Checklist ➢ Basics of contract management	• Lecture • Discussion • Power Point presentation through Projector	2 Hours	Procurement Expert, PDMC
Feedback from participants		15 Mins	All participants
Valedictory Session		5 Mins.	Official from TUDA

Closing session

After complete all the session by the experts of PDMC, Certificates are distribute to all them participants per procuration Mr. Mihir Kanti Gop , Chief planner TUDA & Project Coordinator PMU, TUDA , ADB project & Dr. Anup Kumar Aditya ,Team Leader , PDMC. And close up the workshop with vote of thanks by means of Mr. Mihir Kanti Gop , Chief planner TUDA & Project Coordinator PMU, TUDA , ADB project.


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ORIENTATION WORKSHOP ON
FINANCE, PROCUREMENT & INSTITUTIONAL
ARRANGEMENTS
ORGANISED BY
(PDMC)
&
(TUDA)




ADB
ORIENTATION WORKSHOP ON SAFEGUARDS,
FINANCE, PROCUREMENT & INSTITUTIONAL
ARRANGEMENTS
ORGANISED BY

Annexure II

Attendance Sheet

ORIENTATION WORKSHOP ON SAFEGUARDS, FINANCE, PROCUREMENT & INSTITUTIONAL ARRANGEMENTS - 2022

PDMC (TUDA)
Venue - Geetanjali State Guest House.

DATE- 19.12.2022

Sl./No	Name	Designation & ULB Name	Sex (Male / Female)	Contact No.	Signature.
1	Ratish Ch. Deb Barman	JR. Er, Bishalgarh M.C.	M	8974093128	
2	Subha Dhanee	Acct DMC	m	9862122801	
3	Farukh Hossain	C.O, BMC	M	7005693783	
4	Bijoygit Bhattacharjee	Accountant, Bubaran MC	M	9485067001	
5	Er. Deparkar Sharma	JE, Ambassa MC	M	7005535201	
6	Er. Amrita Debbarma	J.E, Chailam R.D Block	F	9774579116	
7	Somali Paul	LDC. chailam RD Block	F	9383133641	
8	Bishal Deb	Account Section	M	8787352526	
9	Er. Sushanta Chakraborty	J.E, Mohanpur MC	M	9436484762	
10	Er. Abhijit Debnath	JE, Jirania NP	M	7085639026	
11	Bivajit Das.	Asstt. Manager (Finance), SNP	M	7005248629	
12	Er. Prosenjith Sha.	Junior Engineer, Amarpur NP	M	9436505127	

Sl./No	Name	Designation & ULB Name	Sex (Male / Female)	Contact No.	Signature.
13	Abhijit Dasgupta	Actans Sec Amarpur N-P.	M	8014477123	
14	Er. Swapan Chakraborty	JE, Kanchanpur MC	M	7005278189	
15	Er. Shubhajit Paul	Technical Section, RMC	M	6009576328	
16	Er. Jukal Ch. Ghosh	JE - Kamalpur N.P.	M	9436588423	
17	Parimal Chandra Nandi	Accountant Belonia MC	M	9862610248	
18	Er. Kamal Nag	J.E Belonia M.C.	M	7627966564	19/12/2022
19	Gopendra Biswas	Accountant, Teliamura Municipal Council	M	9436488974	19/12/2022
20	Er. Biju Bon Barma.	J/E, Teliamura Municipal.	M.	7005583306	Bon.
21	Er. Pribam Saha.	JE. Melaghar Municipal.	M.	9774119382	
22	Er. Pranjit Nath	J.E Sonamura Nagar Panchayet	M	8837210671	
23	Dhan Chakraborty	Cashier, Sabroom	M	9612472435	
24	Radheshyam Saha	Accounts Incharge SNP	(M)	9436517198	19/12/22
25	Runa Pal Deb	Acct-in-charge RMC	(F)	9485062654	19-12-2022
26	Subrata Deb.	JE, Kailashahar MC.	(M)	8415861186	
27	Binoy Bhushan Paul	JE, Kumarghat MC	M	8837233816	
28	Bafulla Kumar Deb	Cashier, Acctt I/C Kgt MC	(M)	9402355912	
29	Raj Kumar Debbarma	I D C Cum Cashier	(M)	8787701715	
30	Amaresh Das	J.E(U.M.C)	(M)	8259093314	

Sl./No	Name	Designation & ULB Name	Sex (Male / Female)	Contact No.	Signature.
31	Tapan Sarkar	DRW UMC	Male	7629041426	
32	Saikat Roy	Asstt. Khowai MC	Male	9436514027	
33	Subhra Pachare	Asstt. UMC	male	9862122807	
34	Prasenjit Deb	office Assistant (TUDA)	Male	8837341214	
35	Mousumi Das.	JE, TUDA	Female	7005292934.	
36	Sujoy Chakraborty	SOCIAL Safeguard (Suppl)	Male	9862246728	
37	Rita Mandal.	Environment Safeguard (Expert)	Female	9051749939	
38	Pradeep Sarkar	Social Safeguard	male	9707001669	
39	Jayanta chakraborty	Social Safeguard & Gender Expert	M	8761805667	
40	Atanu Chakraborty	Office Assistant, PDMC	M	8787832479	
41	Susmita Begam	Socio Economic (TUDA) PDMC Surveyor	F	8132049782	
*42	Rupak Debnath	CMM (TOLM), Panisagar NP	M	8118937105	
*43	Prabanta Das.	SBM Expert Panisagar NP.	M	8131971297	

ORIENTATION WORKSHOP ON SAFEGUARDS, FINANCE, PROCUREMENT & INSTITUTIONAL ARRANGEMENTS - 2022

PDMC (TUDA)
Venue - Geetanjali State Guest House.

DATE- 20/12/2022

Sl./No	Name	Designation & ULB Name	Sex (Male / Female)	Contact No.	Signature.
1	Biswajit Bhattacharjee	Accountant, Ambassa MC	M.	9485067029	20-12-22
2	Rupak Debnath	CMM (TOLM) Panisagar NP	M	8118937105	
3	Prabanta Das.	SBM Expert	M	8131971297	
4	Anjida D/Barma	J.E, Chhailam Block	F	9774579116	20/12/22
5	Sonali Paul	LDC, Chailam Block.	F	9383133641	20/12/22
6	Mridul Dey	SA, Sabroom Nagar Panchayat	M	9612004653	20/12
7	Bishal Deb	Account Section	M	8787352526	
8	Er. Subrata Chakraborty	J.E, Mohanpur MC	M	9436184762	
9	Er. Prasenjith Das.	J.E, Amarpur — NP	M	9436505127	
10	Er. Swapan Chakraborty	J.E Ranirbazar N.C	M	7005278180	
11	Er. Shubhajit Paul	Technical Section, RMC	M	6009576328	
12	Er. Dulen Ch. Ghosh.	J.E, Kamalpur NP.	M.	9436582423	

Sl./No	Name	Designation & ULB Name	Sex (Male / Female)	Contact No.	Signature.
13	Parimal Chandra Mandi	Acctt. Belonia MC	M	9862610248	
14	Abhijit Dasgupta	Accounts Sec Amarpur M.P.	M	8014477123	
15	Bijan Das Barma.	J/E	M	8005583306	Bijan Das Barma.
16	Gopeshdeva Biswas	Accountant/Teliamura M.C	M	8837068546	
17	Abhijit Debnath	Junior Engineer, JNP	M	7005639006	
18	Swapan Das.	Asstt. Manager (Finance)	M	7005243629	
19	Farrukh Hossain	C/O, Bishalgarh MC	M	7005693783	
20	Subhra Jyoti De	Acct. UMC	M	9862122801	
21	Tapan Sarkar	Acct. UMC	M	7629041426	
22	Bijoy Chakraborty	Cashier SMC	M	9612472425	
23	Rajkumar Debbarma	Melaghar MC Cashier	(M)	8787761715	
24	Amaresh Das.	J.E, UMC	(M)	8259093314	
25	Subrata Deb	JE, Kamalasahar MC.	(M)	8415861186	
26	Binay Bhushan Baul	JE, Kumarghat MC	(M)	8837233816	
27	Bafulla Kumar Deb	Cashier, I/C Accts Sec KSC MC	(M)	9402355912	
28	Ruma Pal Deb	Accth-in-Charge Hatt Sec.	(F)	9485062654	
29	Rathesh yam Deb	Accth. in-charge	(M)	9436517198	
30	Pranjit Das	JE Sonamura Nagar Panchayat	(M)	8837210671	
41	Hiran Chakraborty	Office Assistant, PDMC	M	8787832479	
42	Dr. K. Sriram	Urban Livelihood Expert JUIDA	M	9440136718	
43	Bikash Biswas	FMS Expert PDMC, TUSA	M	9830154226	
44	Pavan Pareek	FME TUSAG TTDCL	M	9314602211	
45	Susmita Begam	Socio Economic Survey - YOO - PDMC	F	8120497888	
46	Er. Dipankar Sharma	J.E, Ambasa	M	7005353201	
47	Er. Kasim Miah	J.E Belonia	M	7629966564	
48	Er Royob Deb Barma	JE Khowai	M	8416048223	

Appendix 9: Sample Grievance Form

(To be available in Bengali and English)

The_____Project welcomes complaints, suggestions, queries, and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback.
Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date	Place of registration	Project Town Project:			
Contact information/personal details					
Name		Gender	Male Female	Age	
Home address					
Place					
Phone no.					
E-mail					
Complaint/suggestion/comment/question Please provide the details (who, what, where, and how) of your grievance below: If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of official registering grievance)	
Mode of communication: Note/letter E-mail Verbal/telephonic	
Reviewed by: (Names/positions of officials reviewing grievance)	
Action taken:	
Whether action taken disclosed:	Yes No
Means of disclosure:	

অভিযোগ নিবন্ধন ফর্মের নমুনা

..... প্রকল্পকে বাস্তবায়িত করার লক্ষে অভিযোগ, পরামর্শ, অনুসন্ধান এবং মন্তব্যের জন্য স্বাগত।

আমরা অভিযোগকারীকে অভিযোগ সহ নাম জানাতে উৎসাহিত করি এবং আপনার সাহচর্যে এসে এর শোধন ও প্রতিক্রিয়া জানাতে সক্ষম হই।

অবশ্যই আপনি আপনার ব্যক্তিগত বিষয় বিস্তারিত ভাবে যুক্ত করতে ইচ্ছাপ্রকাশ করবেন। যে তথ্য আপনি দেবেন, তা অবশ্যই গোপন থাকবে। তাই অনুগ্রহ করে আপনার নাম লিখে / টাইপ করে জানান।

তারিখ	নিবন্ধনের জায়গা	প্রকল্পের শহর প্রকল্পঃ			
যোগাযোগের তথ্য / বিস্তারিত ব্যক্তিগত তথ্য					
নাম		লিঙ্গ	পুরুষ মহিলা	বয়স	
বাড়ীর ঠিকানা					
জায়গা / স্থান					
ফোন নঃ					
ই-মেল					
যেকোন অভিযোগ / পরামর্শ / মন্তব্য / প্রশ্ন অনুগ্রহ করে নিচে বিস্তারিতভাবে (কে, কি, কোথায় এবং কেমন করে) আপনার অভিযোগ জানান যদি কোন সংযুক্তি / চিরকুট / চিঠি অন্তর্ভুক্ত করতে চান, অনুগ্রহ করে সেখানে টিক দিন।					
আপনার অভিযোগ / মন্তব্যের হালনাগাদ (আপডেট) বা প্রতিক্রিয়া কিভাবে পেতে চান?					

Office ব্যবহারের জন্যঃ

অভিযোগ নিবন্ধনকারী আধিকারিকের নামঃ	
যোগাযোগ ব্যবস্থাঃ চিরকুট / চিঠি- ই-মেল- মৌখিক / টেলিফোন-	
নিবন্ধকৃত অভিযোগ পর্যালোচনাকারী আধিকারিকের নাম ও পদঃ	
অভিযোগের বিরুদ্ধে গৃহীত ব্যবস্থা-	
গৃহীত ব্যবস্থা প্রকাশ্যে আনা হয়েছে কি না	হ্যা না
প্রকাশের উপায়	

Appendix 10: Guidelines for Workers Camps

(Based on IFC benchmark standards for workers accommodation)

Guidelines for Workers' Accommodation

1. Availability of sufficient number of clean rooms for the workers with adequate facilities of ventilation, Drinking water, Electricity/fan/light (natural and artificial lighting) etc. in each room.
2. Camps should not be subjected to periodic flooding nor located within 200 feet of swamps, pools, sink holes or other surface collections of water. All sites should be graded, ditches and rendered free from depressions in which water may become a nuisance.
3. Accessibility to an adequate and convenient supply of potable water to the workers. Depending upon the climate, weather conditions and accommodation standards, 80 to 180 litres per persons per day water should be available and drinking water should meet the national/WHO drinking water standards.
4. Camp site should be adequately drained to avoid the accumulation of stagnant water.
5. All tanks used for the storage of drinking water should be constructed and covered as to prevent water stored therein from becoming polluted or contaminated.
6. All sites should be adequate in size to prevent overcrowding of necessary structures.
7. Camps should have Crèche facility for children with necessary arrangements.
8. The grounds and open areas surrounding the shelters should be maintained in a clean and sanitary condition free from rubbish, debris, waste papers, garbage or other refuse.
9. Beds, cots, or bunks, and suitable storage facilities such as wall lockers for clothing and personal articles should be provided in every room used for sleeping purposes.
10. A separate bed for each worker should be provided. Double deck bunks are not advisable for the safety and hygiene reasons and their use should be minimized. If they are used there must be enough clear space between the lower and upper bunk of the bed. Standard range is 0.7 to 1.10 meters. Triple deck bunks are prohibited.
11. All heating, cooking, and water heating equipment should be installed in accordance with State and local ordinances, codes, and regulations governing such installations. If a camp is used during cold weather, adequate heating equipment should be provided.
12. If food is provided, it should cater for different cultural needs. Kitchens should be provided with facilities to maintain adequate personal hygiene including a sufficient number of washbasins designated for cleaning hands with clean running water and materials for hygiene drying.
13. All kitchen floors, ceiling and wall surface adjacent to or above food preparation and cooking areas should be built using durable, non-absorbent, easily cleanable, non-toxic materials.
14. No person with any communicable disease shall be employed or permitted to work in the preparation, cooking, serving, or other handling of food, foodstuffs, or materials used therein, in any kitchen or dining room operated in connection with a camp or regularly used by persons living in a camp.
15. There should be recreation facilities for the camp workers i.e. TV/sports/newspaper/magazine etc.
16. There should be facility of mosquito's prevention and control i.e. use of mosquito net/coil/electric repellent/pesticide etc.
17. Sanitary and toilet facilities should be constructed of the materials that are easily cleanable. Standard range of the toilets varies from 1 unit for 6 persons to 15 persons. For urinals, standards are 1 unit for 15 persons.
18. There is no need to provide separate urinals in any place where less than 50 workers are employed or where the latrines are connected to water borne sewage system.
19. Sanitary and toilet facilities should be designed to provide workers with adequate privacy including ceiling to floor partitions and lockable doors.
20. Separate toilet and bathing facilities should be available for Men and women. These facilities shall be distinctly marked "for men" and "for women" by signs printed in English and in the native language of the persons using the facilities, and/or marked with easily understood pictures or symbols.

21. Workers' gender, religious, cultural, and social backgrounds should be respected. Workers should be provided with the possibility of celebrating religious holidays and observances.
22. No pets, birds or livestock should be kept or fed unless approved by management or camp operator.
23. There should be proper arrangement of colour coded dustbins i.e. Green for wet/biodegradable wastes, blue for dry/non-biodegradable waste and red for safe disposal of domestic hazardous waste i.e. sanitary napkins and diapers.
24. There should be adequate facility for waste water management (i.e. septic tanks/soak pits) and for disposal of Municipal solid waste (i.e. composting).
25. The person in charge of managing the accommodations has a specific duty to report to the health authorities the outbreak of any contagious diseases, food poisoning and any other important casualties.
26. Guidance on the detrimental effects of the abuse of alcohol and drugs and other potentially harmful substances and the risk, concerns related to HIV/AIDS and other health risk related activities should be provided to the workers through group/individual orientations and should also be displayed at camps as visual boards.
27. Workers should have easy access to medical facilities and medical staff where possible female doctors/nurses should be available for female workers. Regular health check up should be done for the workers. First-AID Kit/Health care facilities should be available in the camps. There should be proper demarcation/display of First Aid facility and First Aider.
28. A specific fire safety plan should be prepared including training of fire wardens, periodic testing and monitoring of fire safety equipment.
    All key contacts, emergency contact number, including nearby hospital should be posted in a prominent place and in all languages present e.g. at camp gate and throughout the camp.

Appendix 11: Guidelines for Prevention and Control of COVID-19

Introduction:

Construction worksite and other workplaces are relatively close settings, with shared spaces like work area,pathways, Worker camp, Site office and material handling area etc. and COVID-19 infection can spread relatively fast among workers, staffs and visitors.

There is a need to prevent spread of infection and to respond in a timely and effective manner in case suspect case of COVID-19 is detected in these settings, so as to limit the spread of infection.

Principles of Worker Protection:

- Consistently practice social distancing.
- Cover coughs and sneezes.
- Maintain hand hygiene.
- Clean surfaces frequently.

Maximum Precaution for Persons/Labourers Reporting To Work:

- IF SICK, STAY HOME!
- IF SICK, GO HOME!
- IF SOMEONE SICK, SEND THEM HOME!

Covid-19 Typical Symptoms:

- Fever
- Cough
- Shortness of Breath
- Sore Throat

Morning and evening temperature screening of all persons at the worksite is done by EHS officer with Infrared Thermometer and register was also maintained.

Self-Attestation By Persons/Labour Prior To Work:

Prior to starting a work, each labour /worker will self-attest to the supervisor and the documents is collected by EHS Officer. It consists the following points,

- No signs of COVID-19 symptoms within the past 24 hours.
- No contact with an individual diagnosed with COVID-19. (contact means living with a positive person, being within 6 ft. of positive person OR sharing things of positive person).
- Not undergone quarantine or isolation (in case of any labourer /worker who has been quarantined or isolated previously, the engagement shall be only after obtaining the requisite clearance from trained and registered medical practitioner).

The self-attestation would be verified by EHS officer deployed at site through discussions with laborers /workers and/or preliminary checks such as temperature checks, etc. prior to their engagement at site.
Persons/Labourers showing COVID-19 symptoms or not providing self-attestation will be directed to leave the work site and report to the fever clinic/quarantine Centre immediately. Labour not to return to the work site until cleared by fever clinic/quarantine Centre.

General Guidelines:

- No hand shake is permissible at site, office.
- Non-essential physical work that requires close contact between workers will not be carried out.
- Hand sanitizer is used before entry of the site.
- No unauthorized person will enter the work site other than mentionedby supervisor during start of work.
- All individual work group meetings/ talks will follow social distancing.
- Worksite had COVID-19 safety guidelines.
- All restroom /toilet facilities will be properly cleaned, and hand washing facilities provided with soap,

hand sanitizer.

- Water bottle present at site will not be shared.
- Social Distancing will be maintained during breaks and lunch.
- Coughing or sneezing must cover with a personal handkerchief and then wash hands. Coughing or sneezing in hands was avoided.
- Avoid touching eyes, nose, and mouth with hands.
- If family member is feeling ill, stay home.
- Separate disposal bins were placed for collection of used masks/used hand tissues, etc.
- Spitting will be strictly prohibited.

Work-Site Prevention Practices:

- At the start of each day, confirmation will be taken from all employees that they are healthy and all workers will be informed about reusable and disposable PPE.
- Outside person(s) will be strictly prohibited at worksite.
- Use of eye protection (reusable safety goggles/face shields) is recommended.
- In work conditions where required **social distancing is impossible** to achieve, such employees will be supplied with appropriate PPE's.
- All employees will drive to work site in a single occupant vehicle.
- Workers will maintain separation of 6 feet from each other wherever possible.
- High contact surfaces will be properly disinfected in order to minimize the spread of germs in the areas that people touch frequently.
- The contactless temperature checks was done for the workers prior to site entrance and after site works to identify persons showing signs of being unwell with the COVID-19 symptoms.

Washing Facility:

- Worksites already have access to toilet and hand washing facility.
- At entrances and exits hand cleaning facilities is provided.
- All onsite workers help to maintain and keep work area clean.

Labour Camp

- follows a zero-tolerance policy on wearing of masks.
- Masks provided to all the persons/labourers for use at the camp site as well as at the worksite.

Toilet Facility

- The number of people using Toilet facility will be limited at any one time.
- Hands washing must be done before and after using the facilities.

Eating/snacks Arrangements

- Dedicated eating areas is marked on camp and workers also instructed to reduce food waste and contamination.
- Hand cleaning facilities or hand sanitizer is available at the entrance of worker dining room.
- Workers seated at a distance of 2 meters apart from each other while eating.
- Drinking water provided with proper cleaning measures and consists of tap mechanism.
- All areas used for eating is thoroughly cleaned at the end of each break and shift.

EHS Officer will ensure compliances with prevention issues at the labour camp.

Training

- All workers get training by EHS officer on above requirements before start of any construction activities.
- During construction period frequent visual and verbal reminders will be given to workers forimproving compliance with hand hygiene practices and thus reduce rates of infection.

Emergency Contact

- Emergency contact number(s) at work site and labour camp for reporting COVID-19 symptoms is provided.

COVID-19 Safety Coordinator(s)		
Name	**Title/Facility Location**	**Contact Information (office location, phone, email address)**

Sequence of operation performed regarding COVID-19 safety performed at site:-

- Before entering the worksite for the first time the workers must fill and sign the self-declaration form and also submit the vaccination certificate.
- Before starting each day work the workers body temperature is monitored. If workers body temperature was found higher, then he was not allowed to work at site and he will be consult with doctor as per guidelines.
- Along with body temperature measurement workers hand also sanitized with hand sanitizer.
- With face mask workers, supervisors & officials were only allowed at worksite.
- If any situation suffocation problem is arise then the worker is instructed to maintain proper distance from others and work individually.
- During the work wherever possible social distance was maintained. But during construction activities where social distancing is not possible to maintain, there proper PPE's was used.
- During lunch or tiffin time the worker was instructed to clean his hand with hand wash and water.
- Worker camp areas and work location were disinfected time to time.
- Before leaving the worksite the workers body temperatures was again measured and noted on the register.

Appendix 12: IBAT Assessment Checklists of Project Towns

IBAT

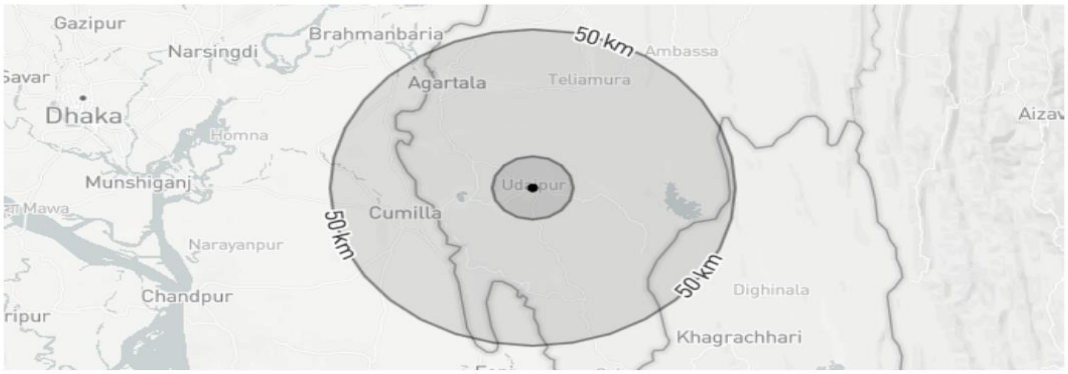
Integrated Biodiversity Assessment Tool

PROXIMITY REPORT
UDAIPUR, TRIPURA

Country: India
Location: [23.5, 91.5]
Date of analysis: 14 March 2023 (GMT)
Buffers applied: 10 km | 50 km
IUCN Red List Biomes: Marine, Freshwater, Terrestrial
Generated by: Govind Rathore
Organisation: ADB

Overlaps with:

Protected Areas	3
Key Biodiversity Areas	4
IUCN Red List	71



Displaying project location and buffers: 10 km, 50 km

About this report

This report presents the results of [30102-40852] proximity analysis to identify the biodiversity features and species which are located within the following buffers: 10 km, 50 km.

This report is one part of a package generated by IBAT on 14 March 2023 (GMT) that includes full list of all species, protected areas, Key Biodiversity Areas in CSV format, maps showing the area of interest in relation to these features, and a 'How to read IBAT reports' document.

WARNING: IBAT aims to provide the most up-to-date and accurate information available at the time of analysis. There is however a possibility of incomplete, incorrect or out-of-date information. All findings in this report must be supported by further desktop review, consultation with experts and/or on-the-ground field assessment. Please consult IBAT for any additional disclaimers or recommendations applicable to the information used to generate this report.

Please note, sensitive species data are currently not included in IBAT reports in line with the Sensitive Data Access Restrictions Policy for the IUCN Red List. This relates to sensitive Threatened species and KBAs triggered by sensitive species.

Data used to generate this report

- UNEP-WCMC and IUCN, 2023. Protected Planet: The World Database on Protected Areas (WDPA)[On-line], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net - March 2023.
- BirdLife International (on behalf of the KBA Partnership), 2022. Key Biodiversity Areas - November 2022.
- IUCN, 2022. IUCN Red List of Threatened Species - December 2022.
- IUCN. The IUCN Red List of Threatened Species. Version 2019-3. (2019). https://www.iucnredlist.org
- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

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Protected Areas

The following protected areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Within buffer of
Pablakhali	50 km
Rajeshpur Eco-Park	50 km
Rudrasagar Lake	50 km

Key Biodiversity Areas

The following key biodiversity areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Distance
Gumti Wildlife Sanctuary	50 km
Rudrasagar Lake	50 km
Sepahijala	50 km
Trishna Wildlife Sanctuary	50 km

IUCN Red List of Threatened Species

The following threatened species are potentially found within 50km of the area of interest.

For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Nilssonia nigricans	Black Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Indotestudo elongata	Elongated Tortoise	REPTILIA	CR	Decreasing	Terrestrial
Manis pentadactyla	Chinese Pangolin	MAMMALIA	CR	Decreasing	Terrestrial
Aquilaria malaccensis	Agarwood	MAGNOLIOPSIDA	CR	Decreasing	Terrestrial
Aythya baeri	Baer's Pochard	AVES	CR	Decreasing	Freshwater
Houbaropsis bengalensis	Bengal Florican	AVES	CR	Decreasing	Terrestrial
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial
Emberiza aureola	Yellow-breasted Bunting	AVES	CR	Decreasing	Terrestrial, Freshwater
Pelochelys cantorii	Asian Giant Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Cuon alpinus	Dhole	MAMMALIA	EN	Decreasing	Terrestrial
Cuora amboinensis	Southeast Asian Box Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Elephas maximus	Asian Elephant	MAMMALIA	EN	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Geoclemys hamiltonii	Spotted Pond Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Hardella thurjii	Crowned River Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Morenia petersi	Indian Eyed Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Panthera tigris	Tiger	MAMMALIA	EN	Decreasing	Terrestrial
Varanus flavescens	Yellow Monitor	REPTILIA	EN	Decreasing	Terrestrial
Nilssonia gangetica	Indian Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nilssonia hurum	Indian Peacock Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nycticebus bengalensis	Bengal Slow Loris	MAMMALIA	EN	Decreasing	Terrestrial
Hoolock hoolock	Western Hoolock Gibbon	MAMMALIA	EN	Decreasing	Terrestrial
Platanista gangetica	Ganges River Dolphin	MAMMALIA	EN	Decreasing	Freshwater
Trachypithecus phayrei ssp. phayrei		MAMMALIA	EN	Decreasing	Terrestrial
Cuora mouhotii	Keeled Box Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Amblyceps arunchalensis		ACTINOPTERYGII	EN	Unknown	Freshwater
Urogymnus polylepis	Giant Freshwater Whipray	CHONDRICHTHYES	EN	Decreasing	Marine, Freshwater
Perdicula manipurensis	Manipur Bush-quail	AVES	EN	Decreasing	Terrestrial, Freshwater
Asarcornis scutulata	White-winged Duck	AVES	EN	Decreasing	Terrestrial, Freshwater
Calidris tenuirostris	Great Knot	AVES	EN	Decreasing	Terrestrial, Marine
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial
Laticilla cinerascens	Swamp Grass-babbler	AVES	EN	Decreasing	Terrestrial, Freshwater
Tor putitora		ACTINOPTERYGII	EN	Decreasing	Freshwater
Trachypithecus phayrei	Phayre's Leaf-monkey	MAMMALIA	EN	Decreasing	Terrestrial
Trachypithecus pileatus ssp. pileatus	Blond-bellied Langur	MAMMALIA	EN	Decreasing	Terrestrial
Crocodylus palustris	Mugger	REPTILIA	VU	Stable	Terrestrial, Freshwater
Helarctos malayanus	Sun Bear	MAMMALIA	VU	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Lutrogale perspicillata	Smooth-coated Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Macaca arctoides	Stump-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Neofelis nebulosa	Clouded Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Panthera pardus	Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Trachypithecus pileatus	Capped Langur	MAMMALIA	VU	Decreasing	Terrestrial
Ursus thibetanus	Asiatic Black Bear	MAMMALIA	VU	Decreasing	Terrestrial
Dipterocarpus costatus		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial
Dipterocarpus turbinatus		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial
Macaca leonina	Northern Pig-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Arctictis binturong	Binturong	MAMMALIA	VU	Decreasing	Terrestrial
Rusa unicolor	Sambar	MAMMALIA	VU	Decreasing	Terrestrial
Aonyx cinereus	Asian Small-clawed Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Wallago attu		ACTINOPTERYGII	VU	Decreasing	Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Ophiophagus hannah	King Cobra	REPTILIA	VU	Decreasing	Terrestrial
Elaphe taeniura	Cave Racer	REPTILIA	VU	Decreasing	Terrestrial
Python bivittatus	Burmese Python	REPTILIA	VU	Decreasing	Terrestrial
Ortygornis gularis	Swamp Francolin	AVES	VU	Decreasing	Terrestrial, Freshwater
Aythya ferina	Common Pochard	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Buceros bicornis	Great Hornbill	AVES	VU	Decreasing	Terrestrial
Halcyon pileata	Black-capped Kingfisher	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Sterna aurantia	River Tern	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga clanga	Greater Spotted Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Aquila heliaca	Eastern Imperial Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Leptoptilos javanicus	Lesser Adjutant	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga hastata	Indian Spotted Eagle	AVES	VU	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Arctonyx collaris	Greater Hog Badger	MAMMALIA	VU	Decreasing	Terrestrial
Oryza malampuzhaensis		LILIOPSIDA	VU	Decreasing	Terrestrial
Lissemys punctata	Indian Flapshell Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Xenochrophis cerasogaster	Painted Keelback	REPTILIA	VU	Decreasing	Freshwater
Schizothorax plagiostomus	Snow Trout	ACTINOPTERYGII	VU	Decreasing	Freshwater
Capricornis sumatraensis	Mainland Serow	MAMMALIA	VU	Decreasing	Terrestrial
Hoolock hoolock ssp. hoolock	Western Hoolock Gibbon	MAMMALIA	VU	Decreasing	Terrestrial
Dalbergia thomsonii		MAGNOLIOPSIDA	VU	Unknown	Terrestrial
Bagarius bagarius		ACTINOPTERYGII	VU	Decreasing	Freshwater

Recommended citation

IBAT Proximity Report. Generated under licence 30102-40852 from the Integrated Biodiversity Assessment Tool on 14 March 2023 (GMT). www.ibat-alliance.org

How to use this report

This report provides an indication of the potential biodiversity-related features - protected areas, key biodiversity areas and species - close to the specified location. It provides an early indication of potential biodiversity concerns, and can provide valuable guidance in making decisions. For example, this information can be helpful when assessing the potential environmental risk and impact of a site, categorising investments/projects, preparing the terms of reference for an impact assessment, focusing attention on key species of conservation concern and sites of known conservation value, and reviewing the results of an impact assessment.

The report does not provide details of potential indirect, downstream or cumulative impacts. Furthermore, the report should be regarded as a "first-step", providing a set of conservation values sourced from global data sets, and is not a substitute for further investigation and due diligence, especially concerning national and/or local conservation priorities.

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Integrated Biodiversity Assessment Tool

PROXIMITY REPORT
AMARPUR, TRIPURA

Country: India

Location: [23.5, 91.7]

Date of analysis: 14 March 2023 (GMT)

Buffers applied: 10 km | 50 km

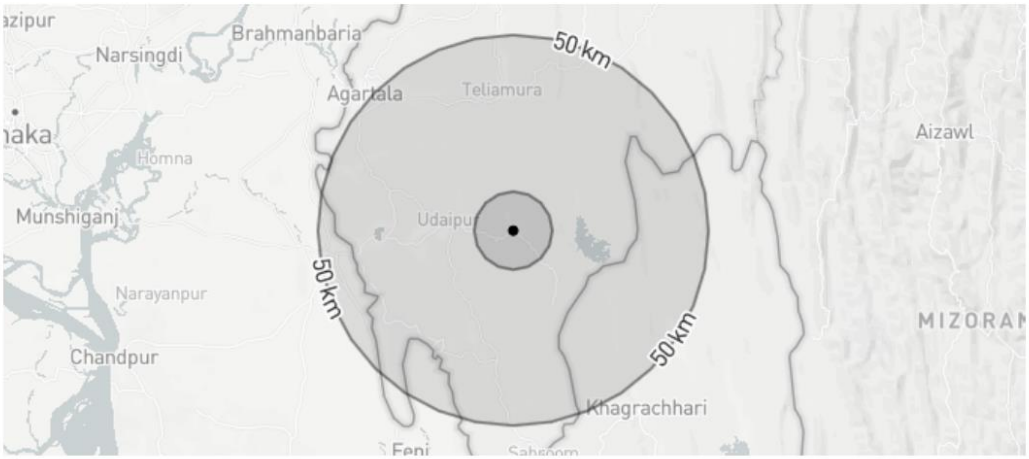
IUCN Red List Biomes: Marine, Freshwater, Terrestrial

Generated by: Govind Rathore

Organisation: ADB

Overlaps with:

Protected Areas	3
Key Biodiversity Areas	4
IUCN Red List	69



Displaying project location and buffers: 10 km, 50 km

About this report

This report presents the results of [30102-40846] proximity analysis to identify the biodiversity features and species which are located within the following buffers: 10 km, 50 km.

This report is one part of a package generated by IBAT on 14 March 2023 (GMT) that includes full list of all species, protected areas, Key Biodiversity Areas in CSV format, maps showing the area of interest in relation to these features, and a 'How to read IBAT reports' document.

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Please note, sensitive species data are currently not included in IBAT reports in line with the Sensitive Data Access Restrictions Policy for the IUCN Red List. This relates to sensitive Threatened species and KBAs triggered by sensitive species.

Data used to generate this report

- UNEP-WCMC and IUCN, 2023. Protected Planet: The World Database on Protected Areas (WDPA)[On-line], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net - March 2023.
- BirdLife International (on behalf of the KBA Partnership), 2022. Key Biodiversity Areas - November 2022.
- IUCN, 2022. IUCN Red List of Threatened Species - December 2022.
- IUCN. The IUCN Red List of Threatened Species. Version 2019-3. (2019). https://www.iucnredlist.org
- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

IBAT

Protected Areas

The following protected areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Within buffer of
Pablakhali	50 km
Rajeshpur Eco-Park	50 km
Rudrasagar Lake	50 km

Key Biodiversity Areas

The following key biodiversity areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Distance
Gumti Wildlife Sanctuary	50 km
Rudrasagar Lake	50 km
Sepahijala	50 km
Trishna Wildlife Sanctuary	50 km

IUCN Red List of Threatened Species

The following threatened species are potentially found within 50km of the area of interest.

For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Nilssonia nigricans	Black Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Indotestudo elongata	Elongated Tortoise	REPTILIA	CR	Decreasing	Terrestrial
Manis pentadactyla	Chinese Pangolin	MAMMALIA	CR	Decreasing	Terrestrial
Aquilaria malaccensis	Agarwood	MAGNOLIOPSIDA	CR	Decreasing	Terrestrial
Aythya baeri	Baer's Pochard	AVES	CR	Decreasing	Freshwater
Houbaropsis bengalensis	Bengal Florican	AVES	CR	Decreasing	Terrestrial
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial
Emberiza aureola	Yellow-breasted Bunting	AVES	CR	Decreasing	Terrestrial, Freshwater
Pelochelys cantorii	Asian Giant Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Cuon alpinus	Dhole	MAMMALIA	EN	Decreasing	Terrestrial
Cuora amboinensis	Southeast Asian Box Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Elephas maximus	Asian Elephant	MAMMALIA	EN	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Hardella thurjii	Crowned River Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Panthera tigris	Tiger	MAMMALIA	EN	Decreasing	Terrestrial
Varanus flavescens	Yellow Monitor	REPTILIA	EN	Decreasing	Terrestrial
Nilssonia gangetica	Indian Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nilssonia hurum	Indian Peacock Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nycticebus bengalensis	Bengal Slow Loris	MAMMALIA	EN	Decreasing	Terrestrial
Hoolock hoolock	Western Hoolock Gibbon	MAMMALIA	EN	Decreasing	Terrestrial
Platanista gangetica	Ganges River Dolphin	MAMMALIA	EN	Decreasing	Freshwater
Axis porcinus	Hog Deer	MAMMALIA	EN	Decreasing	Terrestrial, Freshwater
Trachypithecus phayrei ssp. phayrei		MAMMALIA	EN	Decreasing	Terrestrial
Cuora mouhotii	Keeled Box Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Amblyceps arunchalensis		ACTINOPTERYGII	EN	Unknown	Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Urogymnus polylepis	Giant Freshwater Whipray	CHONDRICHTHYES	EN	Decreasing	Marine, Freshwater
Perdicula manipurensis	Manipur Bush-quail	AVES	EN	Decreasing	Terrestrial, Freshwater
Asarcornis scutulata	White-winged Duck	AVES	EN	Decreasing	Terrestrial, Freshwater
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial
Tor putitora		ACTINOPTERYGII	EN	Decreasing	Freshwater
Trachypithecus phayrei	Phayre's Leaf-monkey	MAMMALIA	EN	Decreasing	Terrestrial
Trachypithecus pileatus ssp. pileatus	Blond-bellied Langur	MAMMALIA	EN	Decreasing	Terrestrial
Crocodylus palustris	Mugger	REPTILIA	VU	Stable	Terrestrial, Freshwater
Helarctos malayanus	Sun Bear	MAMMALIA	VU	Decreasing	Terrestrial
Lutrogale perspicillata	Smooth-coated Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Macaca arctoides	Stump-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Neofelis nebulosa	Clouded Leopard	MAMMALIA	VU	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Panthera pardus	Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Trachypithecus pileatus	Capped Langur	MAMMALIA	VU	Decreasing	Terrestrial
Ursus thibetanus	Asiatic Black Bear	MAMMALIA	VU	Decreasing	Terrestrial
Dipterocarpus costatus		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial
Dipterocarpus turbinatus		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial
Macaca leonina	Northern Pig-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Arctictis binturong	Binturong	MAMMALIA	VU	Decreasing	Terrestrial
Rusa unicolor	Sambar	MAMMALIA	VU	Decreasing	Terrestrial
Aonyx cinereus	Asian Small-clawed Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Wallago attu		ACTINOPTERYGII	VU	Decreasing	Freshwater
Ophiophagus hannah	King Cobra	REPTILIA	VU	Decreasing	Terrestrial
Elaphe taeniura	Cave Racer	REPTILIA	VU	Decreasing	Terrestrial
Python bivittatus	Burmese Python	REPTILIA	VU	Decreasing	Terrestrial
Ortygornis gularis	Swamp Francolin	AVES	VU	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Aythya ferina	Common Pochard	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Mulleripicus pulverulentus	Great Slaty Woodpecker	AVES	VU	Decreasing	Terrestrial
Buceros bicornis	Great Hornbill	AVES	VU	Decreasing	Terrestrial
Halcyon pileata	Black-capped Kingfisher	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Sterna aurantia	River Tern	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga clanga	Greater Spotted Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Leptoptilos javanicus	Lesser Adjutant	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga hastata	Indian Spotted Eagle	AVES	VU	Decreasing	Terrestrial
Arctonyx collaris	Greater Hog Badger	MAMMALIA	VU	Decreasing	Terrestrial
Tropidophorus assamensis	North-Eastern Waterskink	REPTILIA	VU	Unknown	Terrestrial, Freshwater
Oryza malampuzhaensis		LILIOPSIDA	VU	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Lissemys punctata	Indian Flapshell Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Xenochrophis cerasogaster	Painted Keelback	REPTILIA	VU	Decreasing	Freshwater
Schizothorax plagiostomus	Snow Trout	ACTINOPTERYGII	VU	Decreasing	Freshwater
Capricornis sumatraensis	Mainland Serow	MAMMALIA	VU	Decreasing	Terrestrial
Hoolock hoolock ssp. hoolock	Western Hoolock Gibbon	MAMMALIA	VU	Decreasing	Terrestrial
Dalbergia thomsonii		MAGNOLIOPSIDA	VU	Unknown	Terrestrial
Bagarius bagarius		ACTINOPTERYGII	VU	Decreasing	Freshwater

Recommended citation

IBAT Proximity Report. Generated under licence 30102-40846 from the Integrated Biodiversity Assessment Tool on 14 March 2023 (GMT). www.ibat-alliance.org

How to use this report

This report provides an indication of the potential biodiversity-related features - protected areas, key biodiversity areas and species - close to the specified location. It provides an early indication of potential biodiversity concerns, and can provide valuable guidance in making decisions. For example, this information can be helpful when assessing the potential environmental risk and impact of a site, categorising investments/projects, preparing the terms of reference for an impact assessment, focusing attention on key species of conservation concern and sites of known conservation value, and reviewing the results of an impact assessment.

The report does not provide details of potential indirect, downstream or cumulative impacts. Furthermore, the report should be regarded as a "first-step", providing a set of conservation values sourced from global data sets, and is not a substitute for further investigation and due diligence, especially concerning national and/or local conservation priorities.

IBAT

Integrated Biodiversity Assessment Tool

PROXIMITY REPORT
BISHRAMGANJ, TRIPURA

Country: India

Location: [23.6, 91.3]

Date of analysis: 14 March 2023 (GMT)

Buffers applied: 10 km | 50 km

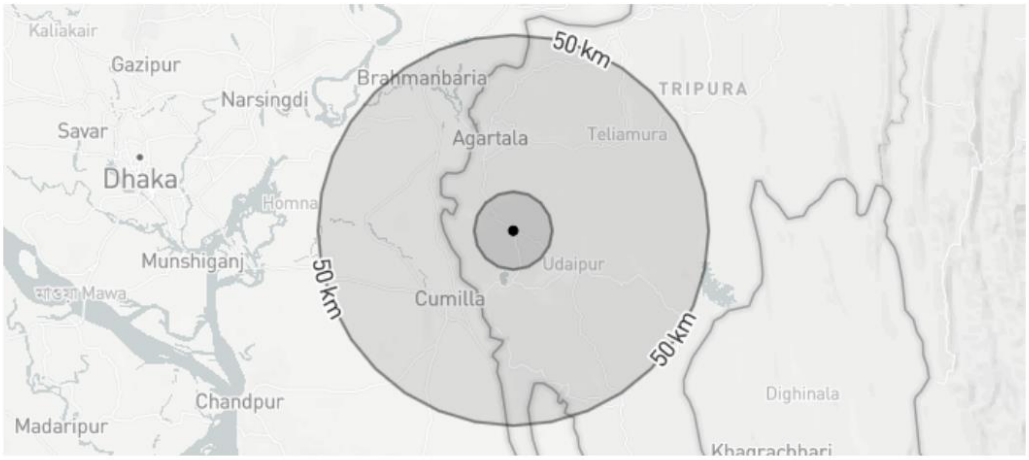
IUCN Red List Biomes: Marine, Freshwater, Terrestrial

Generated by: Govind Rathore

Organisation: ADB

Overlaps with:

Protected Areas	2
Key Biodiversity Areas	4
IUCN Red List	69



Displaying project location and buffers: 10 km, 50 km

About this report

This report presents the results of [30102-40850] proximity analysis to identify the biodiversity features and species which are located within the following buffers: 10 km, 50 km.

This report is one part of a package generated by IBAT on 14 March 2023 (GMT) that includes full list of all species, protected areas, Key Biodiversity Areas in CSV format, maps showing the area of interest in relation to these features, and a 'How to read IBAT reports' document.

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Data used to generate this report

- UNEP-WCMC and IUCN, 2023. Protected Planet: The World Database on Protected Areas (WDPA)[On-line], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net - March 2023.
- BirdLife International (on behalf of the KBA Partnership), 2022. Key Biodiversity Areas - November 2022.
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- IUCN. The IUCN Red List of Threatened Species. Version 2019-3. (2019). https://www.iucnredlist.org
- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

Protected Areas

The following protected areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Within buffer of
Rajeshpur Eco-Park	50 km
Rudrasagar Lake	50 km

Key Biodiversity Areas

The following key biodiversity areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Distance
Sepahijala	10 km
Gumti Wildlife Sanctuary	50 km
Rudrasagar Lake	50 km
Trishna Wildlife Sanctuary	50 km

IUCN Red List of Threatened Species

The following threatened species are potentially found within 50km of the area of interest.

For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Nilssonia nigricans	Black Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Indotestudo elongata	Elongated Tortoise	REPTILIA	CR	Decreasing	Terrestrial
Aquilaria malaccensis	Agarwood	MAGNOLIOPSIDA	CR	Decreasing	Terrestrial
Aythya baeri	Baer's Pochard	AVES	CR	Decreasing	Freshwater
Houbaropsis bengalensis	Bengal Florican	AVES	CR	Decreasing	Terrestrial
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial
Emberiza aureola	Yellow-breasted Bunting	AVES	CR	Decreasing	Terrestrial, Freshwater
Pelochelys cantorii	Asian Giant Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Cuon alpinus	Dhole	MAMMALIA	EN	Decreasing	Terrestrial
Cuora amboinensis	Southeast Asian Box Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Elephas maximus	Asian Elephant	MAMMALIA	EN	Decreasing	Terrestrial
Geoclemys hamiltonii	Spotted Pond Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Hardella thurjii	Crowned River Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Morenia petersi	Indian Eyed Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Panthera tigris	Tiger	MAMMALIA	EN	Decreasing	Terrestrial
Varanus flavescens	Yellow Monitor	REPTILIA	EN	Decreasing	Terrestrial
Nilssonia gangetica	Indian Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nilssonia hurum	Indian Peacock Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nycticebus bengalensis	Bengal Slow Loris	MAMMALIA	EN	Decreasing	Terrestrial
Hoolock hoolock	Western Hoolock Gibbon	MAMMALIA	EN	Decreasing	Terrestrial
Platanista gangetica	Ganges River Dolphin	MAMMALIA	EN	Decreasing	Freshwater
Trachypithecus phayrei ssp. phayrei		MAMMALIA	EN	Decreasing	Terrestrial
Urogymnus polylepis	Giant Freshwater Whipray	CHONDRICHTHYES	EN	Decreasing	Marine, Freshwater
Perdicula manipurensis	Manipur Bush-quail	AVES	EN	Decreasing	Terrestrial, Freshwater
Asarcornis scutulata	White-winged Duck	AVES	EN	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial
Leptoptilos dubius	Greater Adjutant	AVES	EN	Decreasing	Terrestrial, Freshwater
Laticilla cinerascens	Swamp Grass-babbler	AVES	EN	Decreasing	Terrestrial, Freshwater
Tor putitora		ACTINOPTERYGII	EN	Decreasing	Freshwater
Trachypithecus phayrei	Phayre's Leaf-monkey	MAMMALIA	EN	Decreasing	Terrestrial
Trachypithecus pileatus ssp. pileatus	Blond-bellied Langur	MAMMALIA	EN	Decreasing	Terrestrial
Crocodylus palustris	Mugger	REPTILIA	VU	Stable	Terrestrial, Freshwater
Helarctos malayanus	Sun Bear	MAMMALIA	VU	Decreasing	Terrestrial
Lutrogale perspicillata	Smooth-coated Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Macaca arctoides	Stump-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Neofelis nebulosa	Clouded Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Panthera pardus	Leopard	MAMMALIA	VU	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Trachypithecus pileatus	Capped Langur	MAMMALIA	VU	Decreasing	Terrestrial
Ursus thibetanus	Asiatic Black Bear	MAMMALIA	VU	Decreasing	Terrestrial
Dipterocarpus costatus		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial
Dipterocarpus turbinatus		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial
Macaca leonina	Northern Pig-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Arctictis binturong	Binturong	MAMMALIA	VU	Decreasing	Terrestrial
Rusa unicolor	Sambar	MAMMALIA	VU	Decreasing	Terrestrial
Aonyx cinereus	Asian Small-clawed Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Pangshura tecta	Indian Roofed Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Wallago attu		ACTINOPTERYGII	VU	Decreasing	Freshwater
Ophiophagus hannah	King Cobra	REPTILIA	VU	Decreasing	Terrestrial
Elaphe taeniura	Cave Racer	REPTILIA	VU	Decreasing	Terrestrial
Python bivittatus	Burmese Python	REPTILIA	VU	Decreasing	Terrestrial
Ortygornis gularis	Swamp Francolin	AVES	VU	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Aythya ferina	Common Pochard	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Buceros bicornis	Great Hornbill	AVES	VU	Decreasing	Terrestrial
Halcyon pileata	Black-capped Kingfisher	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Sterna aurantia	River Tern	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga clanga	Greater Spotted Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Aquila heliaca	Eastern Imperial Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Leptoptilos javanicus	Lesser Adjutant	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga hastata	Indian Spotted Eagle	AVES	VU	Decreasing	Terrestrial
Arctonyx collaris	Greater Hog Badger	MAMMALIA	VU	Decreasing	Terrestrial
Oryza malampuzhaensis		LILIOPSIDA	VU	Decreasing	Terrestrial
Lissemys punctata	Indian Flapshell Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Xenochrophis cerasogaster	Painted Keelback	REPTILIA	VU	Decreasing	Freshwater
Schizothorax plagiostomus	Snow Trout	ACTINOPTERYGII	VU	Decreasing	Freshwater
Capricornis sumatraensis	Mainland Serow	MAMMALIA	VU	Decreasing	Terrestrial
Hoolock hoolock ssp. hoolock	Western Hoolock Gibbon	MAMMALIA	VU	Decreasing	Terrestrial
Dalbergia thomsonii		MAGNOLIOPSIDA	VU	Unknown	Terrestrial
Bagarius bagarius		ACTINOPTERYGII	VU	Decreasing	Freshwater

Recommended citation

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IBAT

Integrated Biodiversity Assessment Tool

PROXIMITY REPORT
MELAGHAR, TRIPURA

Country: India

Location: [23.5, 91.3]

Date of analysis: 14 March 2023 (GMT)

Buffers applied: 10 km | 50 km

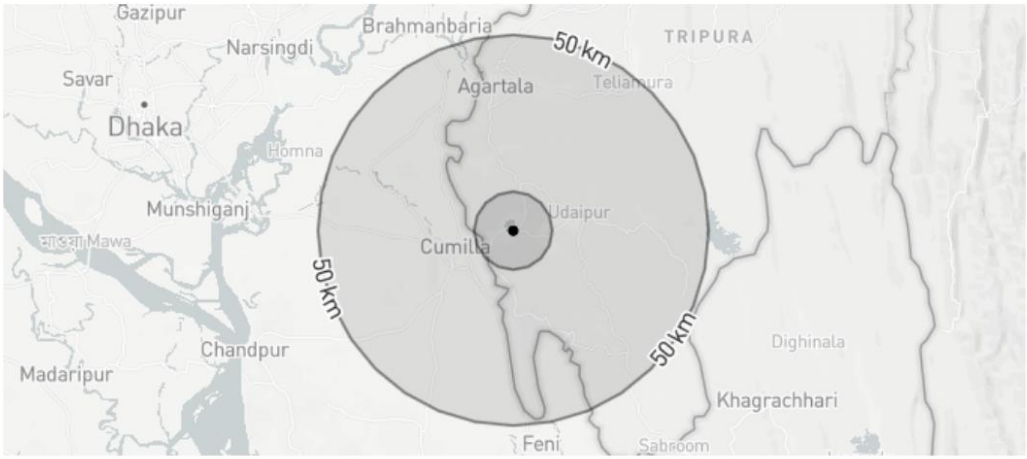
IUCN Red List Biomes: Marine, Freshwater, Terrestrial

Generated by: Govind Rathore

Organisation: ADB

Overlaps with:

Protected Areas	2
Key Biodiversity Areas	4
IUCN Red List	68



Displaying project location and buffers: 10 km, 50 km

About this report

This report presents the results of [30102-40851] proximity analysis to identify the biodiversity features and species which are located within the following buffers: 10 km, 50 km.

This report is one part of a package generated by IBAT on 14 March 2023 (GMT) that includes full list of all species, protected areas, Key Biodiversity Areas in CSV format, maps showing the area of interest in relation to these features, and a 'How to read IBAT reports' document.

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Data used to generate this report

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- BirdLife International (on behalf of the KBA Partnership), 2022. Key Biodiversity Areas - November 2022.
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- IUCN. The IUCN Red List of Threatened Species. Version 2019-3. (2019). https://www.iucnredlist.org
- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

Protected Areas

The following protected areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Within buffer of
Rudrasagar Lake	10 km
Rajeshpur Eco-Park	50 km

Key Biodiversity Areas

The following key biodiversity areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Distance
Rudrasagar Lake	10 km
Trishna Wildlife Sanctuary	10 km
Gumti Wildlife Sanctuary	50 km
Sepahijala	50 km

IUCN Red List of Threatened Species

The following threatened species are potentially found within 50km of the area of interest.

For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Nilssonia nigricans	Black Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Indotestudo elongata	Elongated Tortoise	REPTILIA	CR	Decreasing	Terrestrial
Batagur dhongoka	Three-striped Roofed Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Aquilaria malaccensis	Agarwood	MAGNOLIOPSIDA	CR	Decreasing	Terrestrial
Aythya baeri	Baer's Pochard	AVES	CR	Decreasing	Freshwater
Houbaropsis bengalensis	Bengal Florican	AVES	CR	Decreasing	Terrestrial
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial
Batagur baska	Northern River Terrapin	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Pelochelys cantorii	Asian Giant Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Cuon alpinus	Dhole	MAMMALIA	EN	Decreasing	Terrestrial
Elephas maximus	Asian Elephant	MAMMALIA	EN	Decreasing	Terrestrial
Geoclemys hamiltonii	Spotted Pond Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Hardella thurjii	Crowned River Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Morenia petersi	Indian Eyed Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Panthera tigris	Tiger	MAMMALIA	EN	Decreasing	Terrestrial
Varanus flavescens	Yellow Monitor	REPTILIA	EN	Decreasing	Terrestrial
Nilssonia gangetica	Indian Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nilssonia hurum	Indian Peacock Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nycticebus bengalensis	Bengal Slow Loris	MAMMALIA	EN	Decreasing	Terrestrial
Hoolock hoolock	Western Hoolock Gibbon	MAMMALIA	EN	Decreasing	Terrestrial
Platanista gangetica	Ganges River Dolphin	MAMMALIA	EN	Decreasing	Freshwater
Trachypithecus phayrei ssp. phayrei		MAMMALIA	EN	Decreasing	Terrestrial
Urogymnus polylepis	Giant Freshwater Whipray	CHONDRICHTHYES	EN	Decreasing	Marine, Freshwater
Asarcornis scutulata	White-winged Duck	AVES	EN	Decreasing	Terrestrial, Freshwater
Calidris tenuirostris	Great Knot	AVES	EN	Decreasing	Terrestrial, Marine

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial
Leptoptilos dubius	Greater Adjutant	AVES	EN	Decreasing	Terrestrial, Freshwater
Laticilla cinerascens	Swamp Grass-babbler	AVES	EN	Decreasing	Terrestrial, Freshwater
Tor putitora		ACTINOPTERYGII	EN	Decreasing	Freshwater
Trachypithecus phayrei	Phayre's Leaf-monkey	MAMMALIA	EN	Decreasing	Terrestrial
Trachypithecus pileatus ssp. pileatus	Blond-bellied Langur	MAMMALIA	EN	Decreasing	Terrestrial
Crocodylus palustris	Mugger	REPTILIA	VU	Stable	Terrestrial, Freshwater
Helarctos malayanus	Sun Bear	MAMMALIA	VU	Decreasing	Terrestrial
Lutrogale perspicillata	Smooth-coated Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Macaca arctoides	Stump-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Neofelis nebulosa	Clouded Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Panthera pardus	Leopard	MAMMALIA	VU	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Trachypithecus pileatus	Capped Langur	MAMMALIA	VU	Decreasing	Terrestrial
Ursus thibetanus	Asiatic Black Bear	MAMMALIA	VU	Decreasing	Terrestrial
Dipterocarpus costatus		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial
Dipterocarpus turbinatus		MAGNOLIOPSIDA	VU	Decreasing	Terrestrial
Macaca leonina	Northern Pig-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Arctictis binturong	Binturong	MAMMALIA	VU	Decreasing	Terrestrial
Rusa unicolor	Sambar	MAMMALIA	VU	Decreasing	Terrestrial
Aonyx cinereus	Asian Small-clawed Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Wallago attu		ACTINOPTERYGII	VU	Decreasing	Freshwater
Ophiophagus hannah	King Cobra	REPTILIA	VU	Decreasing	Terrestrial
Elaphe taeniura	Cave Racer	REPTILIA	VU	Decreasing	Terrestrial
Python bivittatus	Burmese Python	REPTILIA	VU	Decreasing	Terrestrial
Ortygornis gularis	Swamp Francolin	AVES	VU	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Aythya ferina	Common Pochard	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Buceros bicornis	Great Hornbill	AVES	VU	Decreasing	Terrestrial
Halcyon pileata	Black-capped Kingfisher	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Sterna aurantia	River Tern	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga clanga	Greater Spotted Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Aquila heliaca	Eastern Imperial Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Leptoptilos javanicus	Lesser Adjutant	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga hastata	Indian Spotted Eagle	AVES	VU	Decreasing	Terrestrial
Arctonyx collaris	Greater Hog Badger	MAMMALIA	VU	Decreasing	Terrestrial
Oryza malampuzhaensis		LILIOPSIDA	VU	Decreasing	Terrestrial
Lissemys punctata	Indian Flapshell Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Xenochrophis cerasogaster	Painted Keelback	REPTILIA	VU	Decreasing	Freshwater
Schizothorax plagiostomus	Snow Trout	ACTINOPTERYGII	VU	Decreasing	Freshwater
Capricornis sumatraensis	Mainland Serow	MAMMALIA	VU	Decreasing	Terrestrial
Hoolock hoolock ssp. hoolock	Western Hoolock Gibbon	MAMMALIA	VU	Decreasing	Terrestrial
Dalbergia thomsonii		MAGNOLIOPSIDA	VU	Unknown	Terrestrial
Bagarius bagarius		ACTINOPTERYGII	VU	Decreasing	Freshwater

Recommended citation

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How to use this report

This report provides an indication of the potential biodiversity-related features - protected areas, key biodiversity areas and species - close to the specified location. It provides an early indication of potential biodiversity concerns, and can provide valuable guidance in making decisions. For example, this information can be helpful when assessing the potential environmental risk and impact of a site, categorising investments/projects, preparing the terms of reference for an impact assessment, focusing attention on key species of conservation concern and sites of known conservation value, and reviewing the results of an impact assessment.

The report does not provide details of potential indirect, downstream or cumulative impacts. Furthermore, the report should be regarded as a "first-step", providing a set of conservation values sourced from global data sets, and is not a substitute for further investigation and due diligence, especially concerning national and/or local conservation priorities.

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Integrated Biodiversity Assessment Tool

PROXIMITY REPORT
BELONIA, TRIPURA

Country: India

Location: [23.2, 91.5]

Date of analysis: 14 March 2023 (GMT)

Buffers applied: 10 km | 50 km

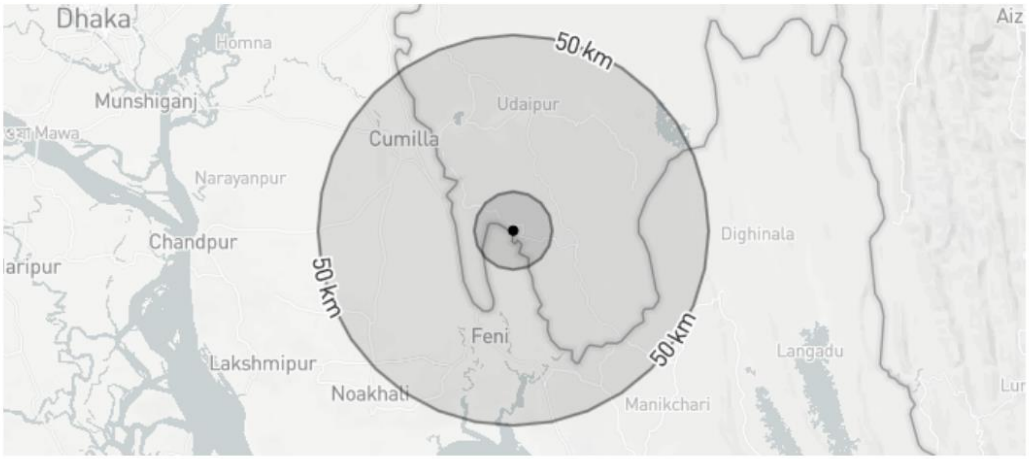
IUCN Red List Biomes: Marine, Freshwater, Terrestrial

Generated by: Govind Rathore

Organisation: ADB

Overlaps with:

Protected Areas	2
Key Biodiversity Areas	5
IUCN Red List	141



Displaying project location and buffers: 10 km, 50 km

About this report

This report presents the results of [30102-40847] proximity analysis to identify the biodiversity features and species which are located within the following buffers: 10 km, 50 km.

This report is one part of a package generated by IBAT on 14 March 2023 (GMT) that includes full list of all species, protected areas, Key Biodiversity Areas in CSV format, maps showing the area of interest in relation to these features, and a 'How to read IBAT reports' document.

WARNING: IBAT aims to provide the most up-to-date and accurate information available at the time of analysis. There is however a possibility of incomplete, incorrect or out-of-date information. All findings in this report must be supported by further desktop review, consultation with experts and/or on-the-ground field assessment. Please consult IBAT for any additional disclaimers or recommendations applicable to the information used to generate this report.

Please note, sensitive species data are currently not included in IBAT reports in line with the Sensitive Data Access Restrictions Policy for the IUCN Red List. This relates to sensitive Threatened species and KBAs triggered by sensitive species.

Data used to generate this report

- UNEP-WCMC and IUCN, 2023. Protected Planet: The World Database on Protected Areas (WDPA)[On-line], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net - March 2023.
- BirdLife International (on behalf of the KBA Partnership), 2022. Key Biodiversity Areas - November 2022.
- IUCN, 2022. IUCN Red List of Threatened Species - December 2022.
- IUCN. The IUCN Red List of Threatened Species. Version 2019-3. (2019). https://www.iucnredlist.org
- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

Protected Areas

The following protected areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Within buffer of
Rajeshpur Eco-Park	50 km
Rudrasagar Lake	50 km

Key Biodiversity Areas

The following key biodiversity areas are found within 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

Area name	Distance
Trishna Wildlife Sanctuary	10 km
Gumti Wildlife Sanctuary	50 km
Muhuri Dam	50 km
Rudrasagar Lake	50 km
Sepahijala	50 km

IUCN Red List of Threatened Species

The following threatened species are potentially found within 50km of the area of interest.

For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Nilssonia nigricans	Black Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Eretmochelys imbricata	Hawksbill Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine
Batagur dhongoka	Three-striped Roofed Turtle	REPTILIA	CR	Decreasing	Terrestrial, Freshwater
Manis pentadactyla	Chinese Pangolin	MAMMALIA	CR	Decreasing	Terrestrial
Carcharhinus longimanus	Oceanic Whitetip Shark	CHONDRICHTHYES	CR	Decreasing	Marine
Sphyrna lewini	Scalloped Hammerhead	CHONDRICHTHYES	CR	Decreasing	Marine
Sphyrna mokarran	Great Hammerhead	CHONDRICHTHYES	CR	Decreasing	Marine
Rhinobatos annandalei	Bengal Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Rhinobatos lionotus	Smoothback Guitarfish	CHONDRICHTHYES	CR	Decreasing	Marine
Sonneratia griffithii		MAGNOLIOPSIDA	CR	Decreasing	Terrestrial, Marine
Houbaropsis bengalensis	Bengal Florican	AVES	CR	Decreasing	Terrestrial
Calidris pygmaea	Spoon-billed Sandpiper	AVES	CR	Decreasing	Terrestrial, Marine, Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial
Batagur baska	Northern River Terrapin	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Maculabatis bineeshi	Shorttail Whipray	CHONDRICHTHYES	CR	Decreasing	Marine
Pelochelys cantorii	Asian Giant Softshell Turtle	REPTILIA	CR	Decreasing	Terrestrial, Marine, Freshwater
Glyphis gangeticus	Ganges Shark	CHONDRICHTHYES	CR	Decreasing	Marine, Freshwater
Balaenoptera musculus	Blue Whale	MAMMALIA	EN	Increasing	Marine
Cuon alpinus	Dhole	MAMMALIA	EN	Decreasing	Terrestrial
Cuora amboinensis	Southeast Asian Box Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Elephas maximus	Asian Elephant	MAMMALIA	EN	Decreasing	Terrestrial
Geoclemys hamiltonii	Spotted Pond Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Hardella thurjii	Crowned River Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Orcaella brevirostris	Irrawaddy Dolphin	MAMMALIA	EN	Decreasing	Marine, Freshwater
Panthera tigris	Tiger	MAMMALIA	EN	Decreasing	Terrestrial

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Rhincodon typus	Whale Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Varanus flavescens	Yellow Monitor	REPTILIA	EN	Decreasing	Terrestrial
Isurus oxyrinchus	Shortfin Mako	CHONDRICHTHYES	EN	Decreasing	Marine
Carcharhinus amblyrhynchos	Grey Reef Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Nilssonia gangetica	Indian Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nilssonia hurum	Indian Peacock Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Nycticebus bengalensis	Bengal Slow Loris	MAMMALIA	EN	Decreasing	Terrestrial
Hoolock hoolock	Western Hoolock Gibbon	MAMMALIA	EN	Decreasing	Terrestrial
Platanista gangetica	Ganges River Dolphin	MAMMALIA	EN	Decreasing	Freshwater
Eusphyra blochii	Winghead Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula eregoodoo	Longhorned Pygmy Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Negaprion acutidens	Sharptooth Lemon Shark	CHONDRICHTHYES	EN	Decreasing	Marine

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Stegostoma tigrinum	Zebra Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Aetomylaeus maculatus	Mottled Eagle Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Rhinoptera javanica	Javanese Cownose Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula tarapacana	Sicklefin Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula thurstoni	Bentfin Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Isurus paucus	Longfin Mako	CHONDRICHTHYES	EN	Decreasing	Marine
Acropora rudis		ANTHOZOA	EN	Decreasing	Marine
Trachypithecus phayrei ssp. phayrei		MAMMALIA	EN	Decreasing	Terrestrial
Pateobatis uarnacoides	Whitenose Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Maculabatis gerrardi	Whitespotted Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Alopias pelagicus	Pelagic Thresher	CHONDRICHTHYES	EN	Decreasing	Marine
Himantura undulata	Honeycomb Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Amblyceps arunchalensis		ACTINOPTERYGII	EN	Unknown	Freshwater

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Heritiera fomes		MAGNOLIOPSIDA	EN	Decreasing	Terrestrial, Marine, Freshwater
Holothuria scabra	Golden Sandfish	HOLOTHUROIDEA	EN	Decreasing	Marine
Holothuria lessoni	Golden Sandfish	HOLOTHUROIDEA	EN	Decreasing	Marine
Thelenota ananas	Pineapple Sea Cucumber	HOLOTHUROIDEA	EN	Decreasing	Marine
Urogymnus polylepis	Giant Freshwater Whipray	CHONDRICHTHYES	EN	Decreasing	Marine, Freshwater
Rhinoptera jayakari	Oman Cownose Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula birostris	Oceanic Manta Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Asarcornis scutulata	White-winged Duck	AVES	EN	Decreasing	Terrestrial, Freshwater
Calidris tenuirostris	Great Knot	AVES	EN	Decreasing	Terrestrial, Marine
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial
Telatrygon crozieri	Indian Sharpnose Ray	CHONDRICHTHYES	EN	Decreasing	Marine

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Pateobatis bleekeri	Bleeker's Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Mobula mobular	Spinetail Devil Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Tor putitora		ACTINOPTERYGII	EN	Decreasing	Freshwater
Aetobatus flagellum	Longhead Eagle Ray	CHONDRICHTHYES	EN	Decreasing	Marine
Lamiopsis temminckii	Broadfin Shark	CHONDRICHTHYES	EN	Decreasing	Marine
Trachypithecus phayrei	Phayre's Leaf-monkey	MAMMALIA	EN	Decreasing	Terrestrial
Trachypithecus pileatus ssp. pileatus	Blond-bellied Langur	MAMMALIA	EN	Decreasing	Terrestrial
Himantura uarnak	Coach Whipray	CHONDRICHTHYES	EN	Decreasing	Marine
Carcharhinus limbatus	Blacktip Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharodon carcharias	White Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Crocodylus palustris	Mugger	REPTILIA	VU	Stable	Terrestrial, Freshwater
Helarctos malayanus	Sun Bear	MAMMALIA	VU	Decreasing	Terrestrial
Hippocampus histrix	Thorny Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Hippocampus trimaculatus	Three-spot Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Lepidochelys olivacea	Olive Ridley Turtle	REPTILIA	VU	Decreasing	Terrestrial, Marine
Lutrogale perspicillata	Smooth-coated Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Macaca arctoides	Stump-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Neofelis nebulosa	Clouded Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Panthera pardus	Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Trachypithecus pileatus	Capped Langur	MAMMALIA	VU	Decreasing	Terrestrial
Ursus thibetanus	Asiatic Black Bear	MAMMALIA	VU	Decreasing	Terrestrial
Carcharhinus amboinensis	Pigeye Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharhinus falciformis	Silky Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Carcharhinus leucas	Bull Shark	CHONDRICHTHYES	VU	Decreasing	Marine, Freshwater
Carcharhinus melanopterus	Blacktip Reef Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Triaenodon obesus	Whitetip Reef Shark	CHONDRICHTHYES	VU	Decreasing	Marine

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Urogymnus asperrimus	Porcupine Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Macaca leonina	Northern Pig-tailed Macaque	MAMMALIA	VU	Decreasing	Terrestrial
Carcharhinus amblyrhynchoides	Graceful Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Hippocampus kelloggi	Great Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Arctictis binturong	Binturong	MAMMALIA	VU	Decreasing	Terrestrial
Physeter macrocephalus	Sperm Whale	MAMMALIA	VU	Unknown	Marine
Rusa unicolor	Sambar	MAMMALIA	VU	Decreasing	Terrestrial
Chiloscyllium indicum	Slender Bambooshark	CHONDRICHTHYES	VU	Decreasing	Marine
Chiloscyllium griseum	Grey Bamboo Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Nebrius ferrugineus	Tawny Nurse Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Hemipristis elongata	Snaggletooth Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Aonyx cinereus	Asian Small-clawed Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Gymnura poecilura	Longtail Butterfly Ray	CHONDRICHTHYES	VU	Decreasing	Marine

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Heliopora coerulea	Blue Coral	ANTHOZOA	VU	Decreasing	Marine
Narcine timlei	Brown Numbfish	CHONDRICHTHYES	VU	Decreasing	Marine
Chaenogaleus macrostoma	Hooktooth Shark	CHONDRICHTHYES	VU	Decreasing	Marine
Alopias superciliosus	Bigeye Thresher	CHONDRICHTHYES	VU	Decreasing	Marine
Brevitrygon imbricata	Bengal Whipray	CHONDRICHTHYES	VU	Decreasing	Marine
Wallago attu		ACTINOPTERYGII	VU	Decreasing	Freshwater
Istiophorus platypterus	Sailfish	ACTINOPTERYGII	VU	Decreasing	Marine
Halophila beccarii	Ocean Turf Grass	LILIOPSIDA	VU	Decreasing	Marine
Ophiophagus hannah	King Cobra	REPTILIA	VU	Decreasing	Terrestrial
Stichopus herrmanni	Curryfish	HOLOTHUROIDEA	VU	Decreasing	Marine
Mola mola	Ocean Sunfish	ACTINOPTERYGII	VU	Decreasing	Marine
Elaphe taeniura	Cave Racer	REPTILIA	VU	Decreasing	Terrestrial
Python bivittatus	Burmese Python	REPTILIA	VU	Decreasing	Terrestrial
Mobula alfredi	Reef Manta Ray	CHONDRICHTHYES	VU	Decreasing	Marine

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Neophocaena phocaenoides	Indo-Pacific Finless Porpoise	MAMMALIA	VU	Decreasing	Marine
Holothuria fuscogilva		HOLOTHUROIDEA	VU	Decreasing	Marine
Ortygornis gularis	Swamp Francolin	AVES	VU	Decreasing	Terrestrial, Freshwater
Aythya ferina	Common Pochard	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Buceros bicornis	Great Hornbill	AVES	VU	Decreasing	Terrestrial
Halcyon pileata	Black-capped Kingfisher	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Sterna aurantia	River Tern	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga clanga	Greater Spotted Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Aquila heliaca	Eastern Imperial Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Leptoptilos javanicus	Lesser Adjutant	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga hastata	Indian Spotted Eagle	AVES	VU	Decreasing	Terrestrial
Aetobatus ocellatus	Spotted Eagle Ray	CHONDRICHTHYES	VU	Decreasing	Marine

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Omobranchus smithi		ACTINOPTERYGII	VU	Unknown	Marine
Arctonyx collaris	Greater Hog Badger	MAMMALIA	VU	Decreasing	Terrestrial
Pastinachus ater	Broad Cowtail Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Sousa chinensis	Indo-Pacific Humpback Dolphin	MAMMALIA	VU	Decreasing	Marine, Freshwater
Aetomylaeus nichofii	Banded Eagle Ray	CHONDRICHTHYES	VU	Decreasing	Marine
Hippocampus spinosissimus	Hedgehog Seahorse	ACTINOPTERYGII	VU	Decreasing	Marine
Oryza malampuzhaensis		LILIOPSIDA	VU	Decreasing	Terrestrial
Lissemys punctata	Indian Flapshell Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Xenochrophis cerasogaster	Painted Keelback	REPTILIA	VU	Decreasing	Freshwater
Schizothorax plagiostomus	Snow Trout	ACTINOPTERYGII	VU	Decreasing	Freshwater
Capricornis sumatraensis	Mainland Serow	MAMMALIA	VU	Decreasing	Terrestrial
Hoolock hoolock ssp. hoolock	Western Hoolock Gibbon	MAMMALIA	VU	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Dalbergia thomsonii		MAGNOLIOPSIDA	VU	Unknown	Terrestrial
Bagarius bagarius		ACTINOPTERYGII	VU	Decreasing	Freshwater

Recommended citation

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The report does not provide details of potential indirect, downstream or cumulative impacts. Furthermore, the report should be regarded as a "first-step", providing a set of conservation values sourced from global data sets, and is not a substitute for further investigation and due diligence, especially concerning national and/or local conservation priorities.

Appendix 13: Sample Environmental Site Inspection Report

Project Name Contract Number

NAME:.DATE:_TITLE:_DMA: LOCATION:_____GROUP:

WEATHER:	**Project Activity Stage**	**Survey**	
		Design	
		Implementation	
		Pre-Commissioning	
		Guarantee Period	

	Compliance
Compliance marked as Yes / No / Not applicable (NA) / Partially Implemented (PI)	
EHS supervisor appointed by contractor and available on site	
Construction site management plan (spoils, safety, schedule, equipment etc.,) prepared	
Traffic management plan prepared	
Dust is under control	
Excavated soil properly placed within minimum space	
Construction area is confined; no traffic/pedestrian entry observed	
Surplus soil/debris/waste is disposed without delay	
Construction material (sand/gravel/aggregate) brought to site as & when required only	
Tarpaulins used to cover sand & other loose material when transported by vehicles	
After unloading , wheels & undercarriage of vehicles cleaned prior to leaving the site	
No chance finds encountered during excavation	
Work is planned in consultation with traffic police	
Work is not being conducted during heavy traffic	
Work at a stretch is completed within a day (excavation, pipe laying & backfilling)	
Pipe trenches are not kept open unduly	
Road is not completely closed; work is conducted on edge; at least one line is kept open	
Road is closed; alternative route provided & public informed, information board provided	
Pedestrian access to houses is not blocked due to pipe laying	
Spaces left in between trenches for access	
Wooden planks/metal sheets provided across trench for pedestrian	
No public/unauthorized entry observed in work site	
Children safety measures(barricades, security)in place at works in residential areas	
Prior public information provided about the work, schedule and disturbances	
Caution/warning board provided on site	
Guards with red flag provided during work at busy roads	
Workers using appropriate PPE (boots, gloves, helmets, ear muffs etc)	
Workers conducting or near heavy noise work is provided with ear muffs	
Contractor is following standard & safe construction practices	
Deep excavation is conducted with land slip/protection measures	
First aid facilities are available on site and workers informed	
Drinking water provided at the site	
Toilet facility provided at the site	
Separate toilet facility is provided for women workers	
Workers camps are maintained cleanly	
Adequate toilet & bath facilities provided	
Contractor employed local workers as far as possible	

	Compliance
Workers camp set up with the permission of PIU	
Adequate housing provided	
Sufficient water provided for drinking/washing/bath	
No noisy work is conducted in the nights	
Local people informed of noisy work	
No blasting activity conducted	
Pneumatic drills or other equipment creating vibration is not used near old/risky buildings	

Signature

_____

_____ _____

Name Name

Position Position