Social Impact Assessment Report

October: 2021

Project ID: P154990

Sub-Project: Improvement & Up-gradation of Gulhati to Shahdra Sharief Road (District Rajouri) Jammu.

Jhelum Tawi Flood Recovery Project

(World Bank Funded)

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ABBREVIATIONS

BPL	Below Poverty Line
CBO	Community Based organisations
COI	Corridor of Impact
CPR	Common Property Resources
DC	District Collector
DSC	Design & Supervision Consultant
DED	Detailed Engineering Design
EIA	Environmental Impact Assessment
EP	Entitlement/Eligible Persons
ERA	Economic reconstruction Agency
ESMF	Environment and Social Management Framework
ESSR	Environment & Social Screening Report
EM	Entitlement Matrix
GBV	Gender Based violence
GESI	Gender Equality and Social Inclusion
Govt.	Government
GRC	Grievance Redressal Cell/Committee
HP	Halqa Panchayat
IRC	Indian Road Congress
IDA	International Development Agency
IRAP	International Road Assessment Programme
JTFRP	Jhelum Tawi Flood Recovery Project
J&K	Jammu & Kashmir
DSC	Design & Supervision Consultant
DEA	Department of Economic Affairs
DPR	Detailed Project report

NGO	Non-Governmental Organization
OP	Operational Policy
PAP	Project Affected Person
PAF	Project Affected Family
PDF	Project Displaced Family
PDP	Project Displaced Person
PIU	Project Implementation Unit
PMU	Project Management Unit
PMC	Project Management Consultant
R&R	Resettlement & Rehabilitation
RAP	Resettlement Action Plan
RFCTLAR&R	Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement act, 2013
RDNA	Rapid Damage and Needs Assessment
ROW	Right of Way
RTI	Right to information Act
SAR	Social Assessment Report
SES	Socio- Economic Survey
SEO	Site Engineering Office
SH	State Highway
SIA	Social Impact Assessment
SC/ST	Schedule Caste and Schedule Tribe
SMF	Social Management Framework
SMP	Social Management Plan
SOR	Schedule of Rates

Definition of Words and Phrases

Affected Persons (APs)

Affected Persons (APs), for this Project, means all the people directly affected by a project-related land acquisition that leads to their physical relocation or loss of assets, or access to assets, with adverse impacts on livelihoods. This includes any person, household (sometimes referred to as project affected family), firms, or public or private institutions who on account of project-related land acquisition would have their;

1. standard of living adversely affected;
2. right, title or interest in all or any part of a house, land (including residential, commercial, artisanal mining, agricultural, plantations, forest and/or grazing land), water resources or any other moveable or fixed assets acquired, possessed, restricted or otherwise adversely affected, in full or in part, permanently or temporarily; and/or
3. business, occupation, place of work or residence, or habitat adversely affected, with or without displacement. APs therefore include;
    - persons affected directly by the acquisition or clearing of the right-of-way or construction work area;
    - persons whose agricultural land or other productive assets such as mining, trees or crops are affected;
    - persons whose businesses are affected and who might experience loss of income due to project-related land acquisition impacts;
    - persons who lose work/employment as a direct result of project-related land acquisition; and
    - people who lose access to community resources/property as a result of project-related land acquisition.

Census

Census means the pre-appraisal population record of potentially affected people, which is prepared through a count based on the village or other local population data or census.

Compensation

Compensation means payment in cash or kind for an asset to be acquired or affected by a project at replacement costs.

Cut-off-date

Cut-off-date means the date after which people will not be considered eligible for compensation if they are not included in the list of APs as defined by the census. Normally, the cut-off date for the titleholders is the date of the detailed measurement survey.

Displacement

Displacement means either physical relocation or economic displacement directly caused by project-related land acquisition.

Encroachers

Encroachers mean those persons who extend their property beyond that for which they hold a Title are encroachers and would not be eligible for compensation for land for which they do not possess a title.

Entitlement

Entitlement means the range of measures comprising cash or kind compensation, relocation cost, income rehabilitation assistance, transfer assistance, income substitution, and relocation which are due to /business restoration which is due to APs, depending on the type and degree nature of their losses, to restore their social and economic base.

Livelihood Restoration

Livelihood Restoration means the measures required to ensure that APs have the resources to at least restore, if not improve, their livelihoods. Restoration of livelihood of all APs is one of the key objectives of the World Bank's resettlement policy. It requires that people are given the means and assistance necessary for them to improve, or at least restore, their livelihood and living conditions to pre-project levels. Inventory of Losses means the pre-appraisal inventory of assets as a preliminary record of affected or lost assets.

Land Acquisition

Land Acquisition means the process whereby a person is compelled by a public agency to alienate all or part of the land s/he owns, possesses, or uses, to the ownership and possession of that agency, for public purposes, in return for prompt and fair compensation. This includes direct acquisition and easement.

Non-Titled

Non-titled means those who have no recognizable rights or claims to the land that they are occupying and includes people using private or state land without permission, permit, or grant.

Rehabilitation

Rehabilitation means the assistance provided to severely affected APs to supplement payment of compensation for acquired assets to improve, or at least achieve full restoration of, their pre-project living standards and quality of life to pre-project level.

Resettlement

Resettlement means all social and economic impacts that are permanent or temporary and are:

(i) caused by the acquisition of land and other fixed assets,
(ii) by the change in the use of land, or
(iii) restrictions imposed on land as a result of the project.

Resettlement Plan

Resettlement Plan means the time-bound action plan with budget setting out resettlement strategy, objectives, entitlements, actions, responsibilities, monitoring, and evaluation.

Structures

Structures mean all structures affected, or to be acquired, by the project such as living quarters, wells, hand pumps, agricultural structures such as rice bins, animal pens, stores/warehouses, commercial enterprises including roadside shops and businesses.

Squatters

Squatters mean the same as a non-titled person i.e. those people without legal title to land and/or structures occupied or used by them. World Bank policy explicitly states that such people cannot be denied assistance to restore livelihoods and living conditions based on the lack of title.

Vulnerable

Vulnerable means any people who might suffer disproportionately or face the risk of being marginalized from the effects of resettlement i.e; (i) single household heads with dependents; (ii) disabled household heads; (iii) poor households; (iv) elderly households with no means of support; (v) the landless or households without the security of tenure; and (vi) ethnic minorities.

Social Impact Assessment (SIA)

Social impact assessment (SIA) is the process of identifying and managing the social impacts of industrial projects. It can also be applied to policies, plans, and programs. SIA is used to predict and mitigate negative impacts and identify opportunities to enhance benefits for local communities and broader society.

Project Area Influence

The area likely to be affected by the project, including all its ancillary aspects, such as power transmission corridors, pipelines, canals, tunnels, relocation, and access roads, borrow and disposal areas, and construction camps, as well as unplanned developments induced by the project (e.g., spontaneous settlement, logging, or shifting agriculture along access roads). The area of influence may include, for example, the area where the project road is located.

Executive Summary

Catastrophic deluge of September 2014 caused negative impact on the socio-economic aspects of the Union territory of Jammu and Kashmir (erstwhile state) and massive infrastructure damaged in which not only Srinagar but other districts were also affected. It left behind a trail of siltation in most of the water bodies as environmental degradation, which is always synonymous with major floods. In connection to catastrophic flood, a mission of the World Bank visited the Union territory of Jammu and Kashmir (erstwhile state) during February 1-6, 2015 on request of Government of India to review and assess the damages in order to produce a rapid multi-sectoral assessment report of the damages and needs. The RDNA estimates the total damages and loss caused by floods at about INR 211,975 million (US$ 3,550.45), most of it to housing, livelihoods, and roads and bridges, which combined represented more than 70% of the damages in terms of value.

Based on the RDNA results, restoration works underway, and discussions with the GoJ&K, "Jhelum and Tawi Flood Recovery Project (JTFRP)" will focus on restoring critical infrastructure using international best practice on resilient infrastructure. One of the sub-projects identified under Component 2 of JTFRP is **"**Improvement and Upgradation of "Gulhati to Shahdra Sharief Road" in district Rajouri. The proposed subproject has a total length of 27.80 km and traverses through the number of settlements such as "Gulhatti, Dehri Ralyot, Ghambeer Muglian, Bharot, Rajdhani and Shahdara Sharief"**.**

Sub-projects under **"Jhelum and Tawi Flood Recovery Project"** have a prior requirement of screening which has been conducted and is based on three categories; viz., nature of the project, size of the project and location of the project with a sensitive area criterion. The objective of Environment and social screening is to identify the potentially significant environmental/ social issues of the sub-project at an early stage for detailed Environmental and Social impacts. The screening of the sub-project was conducted and it did not envisage any significant social impact of the proposed sub-project.

One of the significant requirements under JTFRP is to disseminate project information by the method of "meaningful public consultation with stakeholders and the general public". The consultation for this sub-project was conducted successfully with local residents/ stakeholders in Ghulati and Ghambir Muglian on 5.12.2018 and 17.7.2019 respectively. During the consultation process, people have expressed keen interest in the proposed sub-project. They stated that although, there is no requirement of private land as confirmed by engineers but in case any requirement of private land arises during execution, people should be compensated for

same. Another issue highlighted by people is the construction of protection walls wherever executing agency does land cutting along the road.

Project Manager (Transport, Jammu division) vide letter no ERA/PM/T/2021/2197 dated 31.07.2021 provided a non-encumbrance certificate on the basis of RoW certificate provided by PWD (R&B) Division Rajouri which confirms that RoW of 15.00 meters is available for road upgradation and no further land is require for upgradation of the proposed road.

The revenue record of the proposed sub-project could not be obtained from the concern department by JK ERA. Since the revenue record of the proposed sub-project was not available, therefore PMU, JTFRP published a notice in the two local newspapers namely "Amar Ujala" and "State Times" on 19.09.2021 and 20.9.2021 respectively, informing general people and those who are likely to be benefitted/affected in particular, about the upgradation of this road sub-project within the existing right of way under World Bank funding. It also called for any objection from the local people regarding use of RoW, along with supporting documentary evidence within 07 days of publication of the notice in the newspaper. The office of Director safeguards did not receive any objection or claim from anyone even after the lapse of one month of the publication of notice in two local newspapers. Thereafter, Director Safeguards issued an official letter vide no. ERA/DSG/PS/88-93 dated 25.10.2021 regarding encumbrance free RoW detailing therein the process followed to reconfirm the ROW ownership status.

Therefore, on the basis of certificate issued by Project Manager (Transport, Division Jammu), site visits, approved DPR and notice published in the newspaper it can be said that the sub-project does not have any adverse impact on the assets such as structures, land or on livelihood of anyone. However, if during execution, there is any unanticipated impact of the sub-project on any asset, the issue shall be addressed as per the provisions of Environment & Social Management Framework (ESMF) for the project, applicable policies of the WB and that of U.T of J&K.

1. Background Introduction

1.1 Project Background

In September 2014, Jammu & Kashmir experienced torrential monsoon rains in the region causing major flooding and landslides. The continuous spell of rains from September 2-6, 2014, caused Jhelum, Chenab, and Tawi Rivers as well as many other streams/tributaries to flow above the danger mark. The Jhelum River also breached its banks flooding many low-lying areas in the Kashmir region, including the capital. In many districts, the rainfall exceeded the normal by over 600%. In the Jammu division also, many districts received rainfall above normal. Jammu district itself recorded over 467.3 mm of rainfall during Sept 2014, which is 339% excess of the normal. (Source-Indian Meteorological department website). The Indian Meteorological Department (IMD) records precipitation above 244.4 mm as extremely heavy rainfall, and J&K received 558mm of rain in the June- September period, as against the normal 477.4 mm.

Due to the unprecedented heavy rainfall, the catchment areas particularly the low-lying areas were flooded for more than two weeks. Some areas in urban Srinagar stayed flooded for 28 days. Water levels were as high as 27 feet in many parts of Srinagar. The areas from the main tributaries of river Jhelum vis-à-vis Brengi nallah, Vishav nallah, Lider nallah and Sandran nallah started overflowing due to the heavy rainfall causing water levels in Jhelum River to rise. Subsequently, the discharge of the river Suran was 200 thousand cusecs as against an average of 50 thousand cusecs. With the excessive discharge of water, the river Suran affected the basin areas and also took a different course at various locations causing damages to the surrounding villages in the catchment area. Water levels also increased in the rivers of Chenab and Tawi, both of which were flowing above normal levels. Due to the rivers overflowing nearly 20 districts of the Union territory of Jammu and Kashmir (erstwhile state) were impacted.

A joint team led by the Department of Economic Affairs (DEA), GoI, with representation from the World Bank visited J&K on October 21, 2014. Subsequently, GoI has sent a request to the World Bank on January 5, 2015, to field a Joint Rapid Damage and Needs Assessment (RDNA) Mission within the Union territory of Jammu and Kashmir (erstwhile state). In response, a mission of the World Bank visited the Jammu and Kashmir (erstwhile state) during February 1-6, 2015 to produce a rapid multi-sectorial assessment report of the damages and needs. The RDNA estimates the total damages and loss caused by floods at about INR 211,975 million (US$ 3,550.45), most of it to housing, livelihoods, and roads and bridges, which combined represented more than 70% of the damages in terms of value.

Public service infrastructure and equipment of hospitals and education centers were also severely damaged and are still not fully operational. Based on the Rapid Damage Needs Assessment (RDNA) results, restoration works underway, and discussions with the GoJ&K, the project will focus on restoring critical infrastructure using international best practices on resilient infrastructure.

Given the Jammu and Kashmir (erstwhile state)'s vulnerability to both floods and earthquakes, the infrastructure will be designed with upgraded resilient features and will include contingency planning for future disaster events. Therefore, the project aims at both restoring essential services disrupted by the floods and improving the design standard and practices in the Jammu and Kashmir (erstwhile state) to increase resilience.

1.2 Project Development Objective[1]

The Project Development Objective (PDO) is to support the recovery and increase disaster resilience in targeted areas of the Jammu and Kashmir (erstwhile state) and increase the capacity of the Jammu and Kashmir (erstwhile state) entities to respond promptly and effectively to an eligible crisis or emergency.

1.3 Project Components

The project is comprised of the following seven components:

1. Reconstruction and strengthening of critical infrastructure
2. Reconstruction of roads and bridges
3. Restoration of urban flood management infrastructure
4. Strengthening and restoration of livelihoods
5. Strengthening disaster risk management capacity
6. Contingent Emergency Response
7. Implementation Support.

1.4 Sub- Project Background

Component 2 of the "Jhelum and Tawi Flood Disaster Recovery Project" is 'to restore and improve the connectivity disrupted due to the disaster through the reconstruction of damaged roads and bridges. The component will finance and support the reconstruction of about 300 km. of damaged roads and associated drainage works, retaining walls, breast walls, and other structures to increase resilience, designed to be seismic resilient (as per the guidelines of the Bureau of Indian Standards) and concerning topography and

[1] Source: JTFRP- Environmental & Social Management Framework (ESMF), 2015.

hydrology (as per the guidelines of the Indian Roads Congress, the Ministry of Road Transport and Highways), and projected demographic changes.

One of the identified roads undertaken in component 2 for the Improvement and Upgradation is "Gulhati to Shahdra Sharief Road" in district Rajouri. The proposed sub-project has a total length of 27.80 km and traverses through the number of settlements of Gulhatti, Dehri Ralyot, Ghambeer Muglian, Bharot, Rajdhani, Shahdara Sharief villages.

1.5 Sub-Project Description

Project Road takes off from Ghulati of Rajouri Poonch Road and ends at Shadra Sharief. Categorically, it is village Road, having an existing carriageway less than the standard single lane. From a connectivity & pilgrim point of view, this particular road has high importance and gives connectivity to Dehri Ralyot, Ghambeer Muglian, Bharot, Rajdhani, Shahdara Sharief villages. Project Road has been divided into two sections – Section I from Km 0.000 to Km 10.000 (Length 10 Km) and Section II from Km 15.000 to Km 32.280 (Length 17.28 Km). From Km 10.000 to Km 15.000, stretch developed under PMGSY Scheme. 50 % of road length having BT surface and rest portion either Earthen or Gravel surface. Pavement eroded during heavy rain. Due to the non-existence of throughout CC drain, the pavement was badly damaged and the slope eroded at several locations. Necessary protection work requires several stretches with the provision of CC drain.

1.6 Benefits of the Sub-Project

Project Road takes off from Gulhati of Rajouri Poonch Road and ends at Shahdra Sharief. Categorically, it is village road, having an existing carriageway less than the standard single lane. Out of the total length of 28.00 kms, 5 kms i.e., from 10.00kms to 15.000 kms has been developed under PMGSY. 50% of road length having BT surface and rest portion either Earthen or Gravel surface.

From pilgrim point of view, this road provides connectivity to the Shahdra Sharief Ziarat which is locally very famous. Project Road connects with several villages namely Dehri Ralyot (Population, 998), Ghambeer Muglian (Population 5860), Bharot (Population, 1446), Rajdhani (Population, 1290), Shahdara Sharief (Population, 1488). A total of 11082 souls will reap the benefits in terms of access to basic services such as throughout year access to schools, hospitals and to district headquarters. The road gives connectivity to various areas famous for apricot, walnut and plums. The project will not cause any adverse impacts rather it will simplify the life of locals, teacher's fraternity and specifically of the women, elders and children. The sub-project has no adverse impact on any cultural aspect, indigenous people or constitutionally defined vulnerable groups.

1.7 Need for Social Impact Assessment

Social Impact Assessment (SIA) is a tool for anticipating and mitigating the potentially negative impacts of projects, such as dams, roads, power projects, mining, and other development projects. SIA alerts project planners (public and private bodies) as to the likely social and economic costs and benefits of a proposed project. The knowledge of the potential costs, when weighed against the likely benefits of a project, helps decision-makers in deciding whether the project should be carried out, with or without modifications, or abandoned completely. The agency carrying out the SIA also develops a mitigation plan to overcome the potential negative impacts on individuals and communities.

The purpose of the SIA is to ascertain whether a project proposed by the developer is truly in the public purpose, and whether the project is located at a site which is least-displacing and requires the bare minimum amount of land.

1.7.1 Need for SIA in Gulhati to Shahdra Sharief Road Sub-Project

Social Impact Assessment study in the sub-project road was conducted to identify and assess the land requirement for the proposed sub-project besides identifying the temporary and permanent impacts. Gulhati to Shahdra Sharief sub-project road is going to be improved and upgraded on existing alignment and the existing RoW is 15.00 meters**.** No additional land is required for improvement and up-gradation of the road. Though the sub-project does not require private land acquisition, therefore, the Social Impact Assessment was conducted to identify and assess any other impact on the people and communities due to project implementation such as any impact on private assets (of both titleholders and non-titleholders), on the livelihood of people, common property resources or any other type of impacts. Further, it will guide Executing Agency (EA) to prepare a sound Social Management Plan that will provide guidance to the contractor & PIU to manage social issues during execution and post execution.

1.8 Objective and Scope of Social Impact Assessment

The objective of SIA is as follows:

The Social Impact Assessment study involves the identification of potential social issues in the project and trying to address them through design interventions. The SIA further carries out impact prediction and evaluation of social issues of the project and proposed mitigation measures in the form of Social Management Plan. The major objectives of the SIA are given below:

- To gather baseline data for assessment of impacts (both direct and indirect);

- To identify all potential adverse and positive social issues /impacts of the project;
- To suggest mitigation measures to effectively manage potential adverse impacts;
- To involve local people in the SIA study and project activities.

1.9 The methodology adopted for the SIA

1. Defining the Impact area

The first step undertaken was to define the Area of Impact. For defining the project area (both directly and indirectly), a map that will show the project area was prepared. Besides, a field visit to the area were undertaken on 5.12.2018 and 17.07.2019 to have a better understanding of the geographic limits of the area and the people living there.

2. Identifying the Information/Data Requirements and their Sources

The existing secondary data (census 2011) on impacts likely to follow from the project was reviewed and used for assessment purposes. This has provided disaggregated data according to caste, religion, sex, and other administrative categories, such as persons below the poverty line.

3. Public Consultation

Project-related information's were shared with all the concerned stakeholders in Gulhati and Gambhir Mughlan villages on 5.12.2018 and 17.07.2019. This was the first step in developing plans for consultation and participation is to identify stakeholders who will be involved in the consultative processes. Since the sub-project does not envisage acquisition of assets such as land and structures and there is no adverse impact on the livelihood either. Therefore, only people residing along the sub-project road were involved in the consultation and identified as major stakeholder along with PIU, PMU and line departments. The basic questions considered in identifying stakeholders include:

Public consultation at Kutli (5.12.2018)

- Direct and indirect impact due to sub-project execution
- Vulnerable groups
- Sub-project design and funding
- Social safeguards policy of WB
- RoW availability

Public consultation at Bahrde Gali (Ghambir Muglan) (17.7.2019)

- Direct and indirect impact due to sub-project execution
- Vulnerable groups

- Sub-project design and funding
- Social safeguards policy of WB
- RoW availability

4. Conducting Screening

Social Impact Assessment (SIA) process began with screening. Screening was undertaken in the very beginning stages of project development. The purpose of screening was to screen out "no significant impacts" from those with significant impacts and get a broad picture of the nature, scale, and magnitude of the issues. This helped in determining the scope of detailed SIA that would be subsequently carried out. The screening results revealed that the project will not have any significant impact. It has been decided that the proposed road will be upgraded in the available RoW and there are no structures either commercial, residential or any CPR in the alignment of the road.

5. Scoping in the Field

The next step was scoping. Essentially, this involves a visit to the project site, and consultation with all stakeholders. It is important to confirm their understanding of key issues. On-site appreciation of impacts is indispensable for projects that cause displacement on a large scale. The local knowledge can be invaluable in finding alternatives that help avoid or at least reduce the magnitude and severity of adverse impacts.

6. Developing a Mitigation Plan

SIA study helps and guides in the preparation of social mitigation and management plan for the envisaged and unanticipated impacts. In this study SMP has been prepared in consultation with the locals, PIU and other stakeholders which will serve as blueprint for managing and mitigating social issues/impacts during execution of the sub-project.

1.10 Structure of SIA Report

To Present the findings of the SIA study, the information's have been suggested in the following chapters:

Executive Summary

1. Introduction & Background
2. Project Description
3. Legal and Regulatory Framework
4. Socio-Economic Profile of the Project Impact Area
5. Analysis of Alternatives

6. Stakeholder's Consultation
7. Analysis of Social Impacts
8. Mitigation Measures
9. Grievance Redressal Mechanism
10. Institutional Arrangements
11. Monitoring and Evaluation

2. Project Description

2.1 Description of the Project

The Jammu & Kashmir region owing to its geographical and geo-climatic setting is a multi-hazard prone region that has experienced natural disasters like earthquakes, floods, landslides, avalanches, high-velocity winds, and snowstorms. Most of the project roads in Kashmir Valley fall in plain terrain whereas roads under Jammu Province are passing through hilly terrain. In Kashmir, Floods and flash floods are also frequent. Floods generally occur in the summer when heavy rains are followed by snowmelt. Flooding of the river Jhelum is the main cause of floods in the region. In Jammu province, hill roads are mainly damaged frequently during the beginning of summer due to snowmelt and due to heavy rain. Hill slopes are badly damaged and sliding comes on the roads as there is no such protection work exists towards hill slide slope. Even Jammu Srinagar National Highway is not unturned from it.

ln September 2014, the northern region of India experienced torrential monsoon rains in the region causing major flooding and landslides. The continuous spell of rains from September 2nd to 6th, 2014, caused Jhelum and Chenab Rivers as well as many other streams/tributaries to flow above the danger mark. Due to the unprecedented heavy rainfall, the catchment areas particularly the low laying areas were flooded for more than two weeks. As a result, the main tributaries of river Jhelum vis-a-vis Brengi Nallah, Vishav Nallah, Lider Nallah, and Sundran Nallah started overflowing. The water level also increased in the rivers of Chenab and Tawi, both of which the water flowing above normal levels. Due to the rivers overflowing nearly 20 districts were impacted. The total damage and loss caused by the flood is about INR 211,975 million, most of it to housing, livelihoods, and roads and bridges, which combined represented more than70% of the damages in terms of value. Public service infrastructure and equipment of hospitals and education centers were also severely damaged and are still not fully operational.

The project "Jhelum & Tawi Flood Recovery Project" will focus on restoring critical infrastructure using the international best practice of resilient infrastructure. Given the region's vulnerability to both floods and earthquakes, the infrastructure will be designed with upgraded resilient features and will include contingency planning for future disaster events. Therefore, a study followed by detailed reports on flood management aims at both restoring essential services disrupted by the floods and improving the design standards and practices to increase resilience.

Based on the RDNA results, restoration works underway, and discussions with the Govt. of J&K, "Jhelum and Tawi Flood Disaster Recovery Project (JTFRP)" will focus on restoring critical infrastructure using international best practice on resilient infrastructure. Component 2 of JTFRP is 'to restore and improve the connectivity disrupted due to the disaster through the reconstruction of damaged roads and bridges. The project will finance the restoration and improvement of about 27 damaged roads, as per the guidelines of the Indian Roads Congress, the Ministry of Road Transport and Highways.

2.2 Sub-Project Description

Project Road takes off from Gulhati of Rajouri Poonch Road and end at Shadra Sharief. Categorically, it is Village Road, having existing carriageway less than standard single lane. From connectivity & pilgrim point of view, this particular road has high importance. Project Road connects with several villages namely Dehri Ralyot, Ghambeer Muglian, Bharot, Rajdhani, Shahdara Sharief and divided into two section – Section I from Km 0.000 to Km 10.000 (Length 10 Km) and Section II from Km 15.000 to Km 32.280 (Length 17.28 Km). From Km 10.000 to Km 15.000, stretch developed under PMGSY Scheme.

2.3 Project Location

Project Road takes off from Gulhati of Rajouri Poonch Road and ends at Shadra Sharief. Categorically, it is Village Road, having existing carriageway less than a standard single lane**.** Project Road connects with several villages namely, Dehri Ralyot, Ghambeer Muglian, Bharot, Rajdhani, Shahdara Sharief, and divided into two section – Section I from Km 0.000 to Km 10.000 (Length 10 Km) and Section II from Km 15.000 to Km 32.280 (Length 17.29 Km). From Km 10.000 to Km 15.000, stretch developed under PMGSY Scheme (annexure 2).

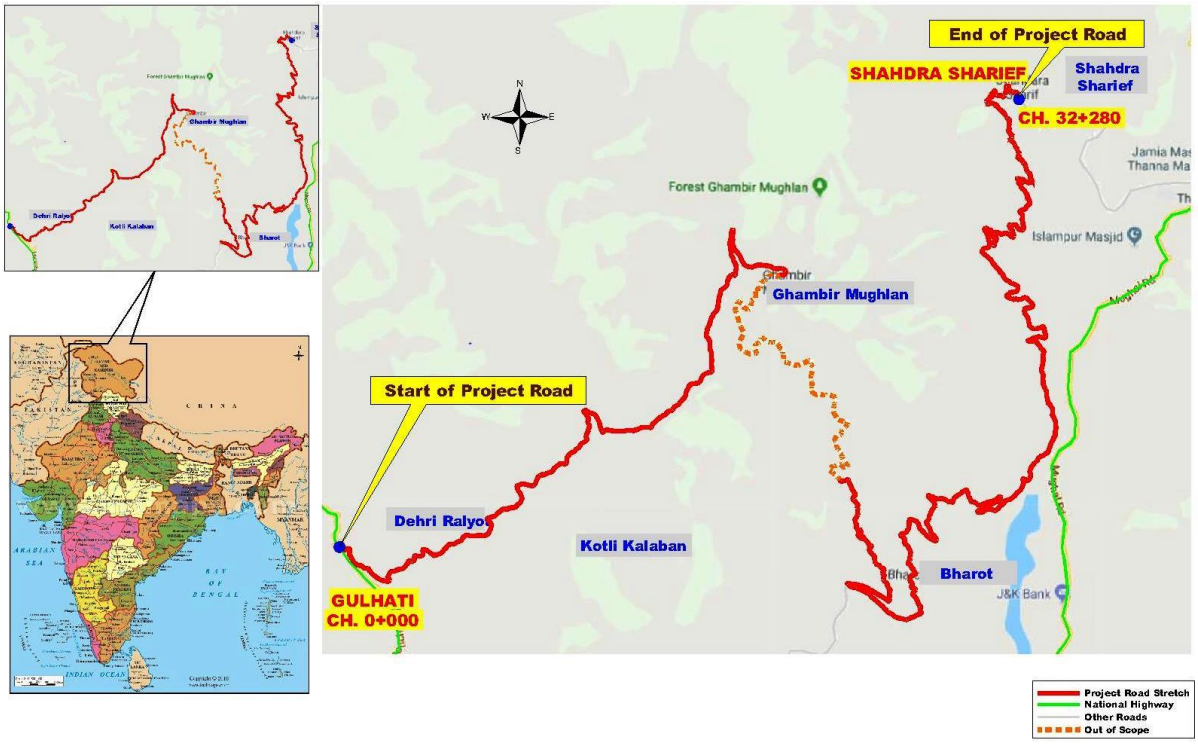


Figure 1: Overview of Proposed Road in Gulhati to Shadra Sharief Road Sub Project

2.4 Details of Existing Project Road

2.4.1 The embankment, Carriageway, and Shoulder

The average width of the existing carriageway varies from 2.50 m to 3.00 m with an average shoulder width of 0.50 m resulting in the average formation width varies from 3.50 m to 4.00 m. The details of carriageway, Surface & Shoulder condition, etc are mentioned in annexure III of DPR.

2.4.2 Horizontal and vertical alignment

Project road runs in Hilly terrain and the existing alignment is in fair condition. The differences in existing vertical gradients are within codal limitation.

2.4.3 Pavement Condition

The existing pavement is flexible is in poor condition for the entire stretch. Pavement composition is not uniform throughout as maintenance has been executed with different specifications at different times. Flexible Broken BT surface exists for a net length of 14.000 Km (Km 0.000 to Km 0.500, Km 3.500 to Km 4.000, 4.500 Km to 5.500 Km, 7.500 Km to 10.000 Km, 16.500 Km to 20.500 Km, 22.500 km to 27.000 Km) and rest stretches are either Gravel or Earthen, condition of pavement severely damaged mostly.

Km 1.000

Km 2.000

Km 3.000

Km 3.800

Km 4.700

Km 6.000

Km 6.935 (Bridge)

Km 7.900

Km 9.500

Km 10.000 (Starting PMGSY RD)

Km 15.000

Km 16.000

Km 16.500

Km 17.500

Km 18.500

Km 20.000

Km 22.300

Km 23.300

Km 26.500

Km 27.800

Km 28.000

Km 29.000

Km 30.000

Km 31.500

2.4.4 Cross Drainage Structures

There are 123 nos. of CD structure in the project road, out of which 69 nos of CD structure are in Section I and 54 nos exist in Section II. There are 102 nos HP culverts, 16 nos Slab culverts, and 5 Nos of Bridges. Out of these 102 nos HP culverts are chocked by siltation and poor condition; need to replace by 1.2 m dia HP Culverts and 3 nos of Slab Culverts which are in poor condition, converted into Box culverts of suitable size. The details are given in Table 1.

Table 1: List of Existing Cross Drainage Structures

Sl No.	Structures		
	Chainage	Types	Dia/Span(m)
1	0+100	Pipe Culvert	1 x 0.6
2	0+480	Pipe Culvert	1 x 0.6
3	0+700	Pipe Culvert	1 x 0.6
4	0+950	Pipe Culvert	1 x 0.6
5	1+050	Pipe Culvert	1 x 0.6
6	1+200	Pipe Culvert	1 x 0.6
7	1+325	Pipe Culvert	1 x 0.6
8	1+450	Pipe Culvert	1 x 0.6

Sl No.	Structures		
	Chainage	Types	Dia/Span(m)
9	1+515	Pipe Culvert	1 x 0.6
10	1+605	Pipe Culvert	1 x 0.6
11	1+690	Pipe Culvert	1 x 0.6
12	1+850	Pipe Culvert	1 x 0.6
13	1+900	Pipe Culvert	1 x 0.6
14	2+120	Pipe Culvert	1 x 0.6
15	2+170	Pipe Culvert	Not Visible
16	2+450	Pipe Culvert	1 x 0.6
17	2+520	Pipe Culvert	1 x 0.6
18	2+650	Pipe Culvert	1 x 0.6
19	2+670	Pipe Culvert	Not Visible
20	2+775	Pipe Culvert	Not Visible
21	2+880	Pipe Culvert	1 x 0.6
22	2+970	Pipe Culvert	1 x 0.6
23	3+090	Pipe Culvert	1 x 0.6
24	3+150	Pipe Culvert	1 x 0.6
25	3+450	Slab Culvert	1 x 1.1
26	3+300	Pipe Culvert	1 x 0.6
27	3+510	Pipe Culvert	1 x 0.6
28	4+020	Pipe Culvert	1 x 0.6
29	4+160	Pipe Culvert	1 x 0.6
30	4+260	Pipe Culvert	1 x 0.6
31	4+310	Pipe Culvert	1 x 0.6
32	4+520	Pipe Culvert	Not Visible

Sl No.	Structures		
	Chainage	Types	Dia/Span(m)
33	4+610	Pipe Culvert	1 x 0.6
34	4+650	Slab Culvert	1 x 1.0
35	4+780	Pipe Culvert	1 x 0.6
36	4+880	Bridge	14.0
37	5+125	Pipe Culvert	1 x 0.6
38	5+380	Pipe Culvert	1 x 0.6
39	5+580	Pipe Culvert	1 x 0.6
40	5+710	Pipe Culvert	1 x 0.6
41	5+890	Pipe Culvert	1 x 0.6
42	6+050	Slab Culvert	1 x 1.0
43	6+160	Slab Culvert	1 x 1.2
44	6+300	Slab Culvert	1 x 1.1
45	9+490	Slab Culvert	1 x 1.1
46	6+700	Pipe Culvert	1 x 0.6
47	6+780	Pipe Culvert	1 x 0.6
48	6+935	Bridge	15.0
49	6+970	Slab Culvert	1 x 1.0
50	7+190	Pipe Culvert	1 x 0.6
51	7+320	Pipe Culvert	1 x 0.9
52	7+370	Pipe Culvert	1 x 0.6
53	7+512	Pipe Culvert	1 x 0.6
54	7+670	Pipe Culvert	1 x 0.6
55	7+730	Pipe Culvert	1 x 0.6
56	7+790	Pipe Culvert	Not Visible

Sl No.	Structures		
	Chainage	Types	Dia/Span(m)
57	7+890	Pipe Culvert	1 x 0.6
58	8+050	Pipe Culvert	1 x 0.6
59	8+100	Pipe Culvert	1 x 0.6
60	8+300	Slab Culvert	1 x 3.2
61	8+470	Pipe Culvert	1 x 0.6
62	8+650	Pipe Culvert	1 x 0.6
63	8+780	Pipe Culvert	1 x 0.6
64	8+980	Pipe Culvert	1 x 0.6
65	9+620	Pipe Culvert	Not Visible
66	9+690	Pipe Culvert	Not Visible
67	9+750	Pipe Culvert	Not Visible
68	9+840	Pipe Culvert	1 x 0.6
69	9+920	Bridge	8.0
70	15+000	Pipe Culvert	1 x 0.6
71	15+110	Slab Culvert	1 x 1.2
72	15+270	Pipe Culvert	1 x 0.6
73	15+870	Pipe Culvert	1 x 0.6
74	15+990	Pipe Culvert	1 x 0.6
75	16+150	Pipe Culvert	1 x 0.6
76	16+220	Pipe Culvert	1 x 0.6
77	16+380	Pipe Culvert	1 x 0.6
78	16+570	Pipe Culvert	1 x 0.6
79	17+890	Pipe Culvert	1 x 0.6
80	18+070	Pipe Culvert	1 x 0.6

Sl No.	Structures		
	Chainage	Types	Dia/Span(m)
81	18+980	Pipe Culvert	1 x 0.6
82	19+080	Pipe Culvert	1 x 0.6
83	19+220	Pipe Culvert	1 x 0.6
84	19+350	Pipe Culvert	1 x 0.6
85	19+500	Pipe Culvert	Not Visible
86	19+580	Pipe Culvert	1 x 0.6
87	19+640	Pipe Culvert	1 x 0.6
88	19+850	Pipe Culvert	Not Visible
89	20+000	Slab Culvert	1 x 2.4
90	20+150	Pipe Culvert	1 x 0.6
91	20+250	Pipe Culvert	1 x 0.6
92	20+520	Pipe Culvert	1 x 0.6
93	20+630	Pipe Culvert	1 x 0.6
94	20+810	Pipe Culvert	1 x 0.6
95	21+090	Pipe Culvert	1 x 0.6
96	22+010	Pipe Culvert	Not Visible
97	22+150	Pipe Culvert	Not Visible
98	22+270	Pipe Culvert	1 x 0.6
99	22+800	Pipe Culvert	Not Visible
100	22+880	Pipe Culvert	1 x 0.6
101	23+240	Pipe Culvert	1 x 0.6
102	23+580	Slab Culvert	1 x 3.2
103	23+840	Pipe Culvert	1 x 0.9
104	23+960	Pipe Culvert	Not Visible

Sl No.	Structures		
	Chainage	Types	Dia/Span(m)
105	24+110	Slab Culvert	1 x 0.8
106	24+390	Pipe Culvert	1 x 0.6
107	24+590	Slab Culvert	1 x 2.0
108	24+770	Slab Culvert	1 x 7.0
109	25+120	Pipe Culvert	1 x 0.3
110	25+170	Pipe Culvert	1 x 1.2
111	25+500	Pipe Culvert	Not Visible
112	25+590	Slab Culvert	1 x 5.0
113	25+830	Pipe Culvert	1 x 1.2
114	26+130	Pipe Culvert	1 x 1.2
115	26+970	Pipe Culvert	1 x 1.2
116	27+820	Bridge	28.0
117	28+150	Pipe Culvert	1 x 0.9
118	28+480	Pipe Culvert	1 x 0.6
119	29+950	Pipe Culvert	1 x 1.0
120	30+650	Pipe Culvert	1 x 0.9
121	31+550	Bridge	15.0
122	31+750	Slab Culvert	1 x 1.7
123	32+090	Pipe Culvert	Not Visible

2.4.5 Existing drain

In this project road, there are only 8994.93 m earthen (unlined) drain exists at different stretches. Details are shown in Table 2.

Table 2: List of Existing Drain

Sl No	Chainage	Left	Right	Type of Drain

	From	To	Length (m)		
Section I (From Km 0.000 to Km 10.000)					
1	6+950	6+975	-	24.882	Unlined
2	7+520	7+722	-	202.105	Unlined
3	8+000	8+242	-	242.089	Unlined
4	8+305	8+565	-	260.417	Unlined
5	8+600	8+857	-	257.238	Unlined
6	10+110	10+339	229.063	-	Unlined
Section II (From Km 15.000 to Km 32.290)					
14	15+050	15+238	188.486	-	Unlined
15	15+250	15+481	-	231.076	Unlined
16	15+525	15+789	-	263.583	Unlined
17	15+800	15+905	-	105.437	Unlined
18	16+000	16+061	-	60.776	Unlined
19	16+150	16+216	-	65.92	Unlined
20	16+222	16+292	-	70.457	Unlined
21	16+400	16+426	-	25.763	Unlined
22	16+575	16+936	-	360.654	Unlined
23	17+670	17+735	-	65.007	Unlined
Section II (From Km 15.000 to Km 32.290)					
24	17+800	18+698	898.288	-	Unlined
25	18+880	18+983	103.172	-	Unlined
26	19+025	19+091	65.819	-	Unlined
27	19+200	19+244	44.209	-	Unlined
28	19+350	19+557	206.791	-	Unlined
29	19+578	19+600	22.491	-	Unlined
30	19+650	19+668	18.265	-	Unlined

Sl No	Chainage		Left	Right	Type of Drain
	From	To	Length (m)		
31	19+725	19+864	139.086	-	Unlined
32	19+925	19+988	63.171	-	Unlined
33	20+000	20+104	104.36	-	Unlined
34	20+220	20+245	24.66	-	Unlined
35	20+825	20+849	24.314	-	Unlined
36	21+025	21+141	116.179	-	Unlined
37	21+178	21+343	165.244	-	Unlined
38	21+400	21+469	69.099	-	Unlined
39	21+550	21+624	74.222	-	Unlined
40	21+650	21+871	220.863	-	Unlined
41	21+890	21+957	67.031	-	Unlined
42	21+990	22+060	69.566	-	Unlined
43	22+092	22+298	206.375	-	Unlined
44	22+380	22+418	37.99	-	Unlined
45	22+450	22+518	67.962	-	Unlined
46	22+800	23+551	750.731	-	Unlined
47	23+600	23+733	132.7	-	Unlined
48	23+930	23+948	17.539	-	Unlined
49	24+080	24+327	247.215	-	Unlined
50	24+370	24+414	44.048	-	Unlined
51	24+550	24+759	208.864	-	Unlined
52	24+800	25+047	246.574	-	Unlined
53	25+150	25+555	405.181	-	Unlined
54	25+720	25+836	115.78	-	Unlined
55	25+840	26+079	238.627	-	Unlined

Sl No	Chainage		Left	Right	Type of Drain
	From	To	Length (m)		
56	26+140	26+524	383.915	-	Unlined
57	26+570	26+625	55.045	-	Unlined
58	28+250	28+413	163.016	-	Unlined
59	28+400	28+523	-	123.228	Unlined
60	28+650	28+798	148.088	-	Unlined
61	29+495	29+513	18.284	-	Unlined
62	29+900	30+022	122.077	-	Unlined
63	32+115	32+227	111.906	-	Unlined
		Length	**6636.30**	**2358.63**	
		Total Length	**8994.93**		

2.4.6 Existing Protection Wall (Breast wall & Retaining wall)

In this project road, there are only 1415.50 m Breast Wall and 2664.82 m Retaining Wall exists in the form of stone masonry at different stretches. Details are shown in Table 3.

Table 3: List of Existing Breast Wall

Sl No.	Chainage		Breast Wall		Chainage		Retaining Wall	
			Left	Right			Left	Right
	From	To	Length (m)		From	To	Length (m)	
Section I (From Km 0.000 to Km 10.000)								
1	0+100	0+103	-	3.239	0+118	0+137	-	18.505
2	1+200	1+208	-	7.617	0+950	1+013	63.08	-
3	1+314	1+337	-	23.116	1+080	1+091	-	10.806
4	1+480	1+481	-	1.218	1+110	1+128	17.53	-
5	1+846	1+893	-	47.026	2+179	2+300	121.355	-
6	1+903	1+924	-	21.4765	2+360	2+385	24.83	-

Sl No.	Chainage		Breast Wall		Chainage		Retaining Wall	
			Left	Right			Left	Right
	From	To	Length (m)		From	To	Length (m)	
7	2+120	2+122	-	2.435	2+580	2+593	13.121	-
8	2+625	2+641	-	16.153	2+650	2+767	117.117	-
9	2+649	2+659	-	9.478	2+880	2+944	64.104	-
10	2+867	2+872	-	5.0475	3+162	3+200	38.031	-
11	2+879	2+885	-	5.7045	3+482	3+500	18.024	-
12	3+150	3+167	-	16.768	3+515	3+529	14.442	-
13	3+300	3+310	-	10.054	3+650	3+726	76.347	-
14	4+150	4+164	-	14.227	3+840	3+852	12.318	-
15	4+260	4+270	-	9.7655	4+180	4+188	7.65	-
16	4+310	4+326	-	16.476	5+170	5+231	-	60.545
17	4+600	4+612	-	12.436	6+000	6+011	11.213	-
18	4+647	4+654	-	7.023	6+070	6+082	12.04	-
19	4+660	4+680	-	20.3735	6+393	6+449	55.628	-
20	4+841	4+866	-	24.668	6+970	6+979	-	9.132
21	4+910	4+920	9.6825	-	7+072	7+170	-	97.588
22	4+930	4+935	-	4.7155	7+730	7+748	-	17.82
23	4+895	4+915	-	20.4535	7+790	7+929	-	138.891
24	5+560	5+655	-	94.842	8+430	8+457	-	27.018
25	5+930	5+935	-	5.2025	9+200	9+208	7.697	-
26	6+930	6+935	4.3685	4.7105	9+330	9+405	75.372	-
27	7+035	7+045	10.1235	-	9+850	9+868	17.626	-
28	7+361	7+386	24.79	-	10+050	10+070	19.884	-
29	7+660	7+671	11.069	-	10+100	10+150	50.168	-
30	8+095	8+104	8.911	-	10+350	10+365	15.397	-

Sl No.	Chainage		Breast Wall		Chainage		Retaining Wall	
			Left	Right			Left	Right
	From	To	Length (m)		From	To	Length (m)	
31	8+340	8+362	22.1285	-	10+390	10+437	46.134	-
32	8+420	8+475	54.657	-	10+993	11+114	120.704	-
33	8+700	-	21.663	8.617	11+550	11+615	-	64.88
34	9+020	9+023	2.655	-	12+070	12+109	39.362	-
35	8+900	8+915	14.894	-	12+250	12+290	39.925	-
36	8+788	8+800	-	12.092	12+873	12+927	53.641	-
37	8+991	9+028	-	36.884	12+983	13+053	70.004	-
38	9+041	9+094	-	53.38	13+580	13+593	12.561	-
39	9+315	9+350	-	34.7795	13+700	13+730	30.419	-
40	9+367	9+381	-	14.207	14+205	14+248	42.583	-
41	9+393	9+447	-	54.4885	17+180	17+195	-	14.717
42	9+550	9+593	-	43.384	17+600	17+686	-	85.892
43	9+713	9+728	-	14.912	17+715	17+789	74.265	-
Section I (From Km 0.000 to Km 10.000)								
44	9+840	9+902	-	61.663	18+000	18+056	55.664	-
45	9+900	9+913	13.157	-	18+076	18+193	117.764	-
		Length	**198.099**	**738.632**		**Length**	**1556.00**	**545.794**
Section II (From Km 15.000 to Km 32.290)								
63	15+350	15+371	20.662	-	28+678	28+812	134.281	-
64	15+860	15+881	20.668	-	30+030	30+081	-	50.938
65	15+960	15+994	-	33.723	30+190	30+256	65.918	-
66	16+000	16+021	-	21.2725	30+563	30+708	145.42	-
67	16+150	16+166	15.5335	-	30+870	30+902	32.479	-
68	16+210	16+222	11.751	-	31+580	31+594	14.4	-

Sl No.	Chainage		Breast Wall		Chainage		Retaining Wall	
			Left	Right			Left	Right
	From	To	Length (m)		From	To	Length (m)	
69	17+577	17+585	8.108	-	31+760	31+780	20.237	
70	17+800	17+858	-	57.6455	31+770	31+791	-	21.252
71	17+858	17+891	33.823	-	31+900	31+966	65.521	-
72	18+331	18+587	255.583	-	32+240	32+253	12.575	-
		Length	**366.129**	**112.641**		**Length**	**490.831**	**72.190**
		Total Length	**1415.50**			**Total**	**2664.82**	

2.4.7 Existing Pavement Composition

The said road is very old road which was initially constructed not on the basis of traffic on the section but to give connectivity to hill side villages. Afterward, several maintenances work of the different specifications have been undertaken over the road. Specification adopted for such maintenance widely varies from year to year as well as from stretches to stretches. But during heavy rain in the year 2014, the alignment is severely damaged and connectivity with villages was cut off for a few weeks. Trial Pit Investigation has been conducted for detailing pavement composition at different locations and on average following composition is found as existing hard crust as mentioned in Table 5.

From 0.000 to Km 10.000 (Section I)

The average pavement thickness is 302 mm. The total thickness of the hard crust varies in between 70 mm – 580 mm where existing crust comprises of GSB consists of compacted granular materials having thickness 50 mm to 300 mm thick (average 173 mm), partly disintegrated base course with WBM materials of 30 mm to 380 mm thick (average 146 mm) and Bituminous/ Binder course varying from 10 mm to 80 mm thick (average 30 mm). A detail of pit wise existing pavement compositions is provided below:

Table 4: Details of Existing Pavement Composition

From Km 0.000 to Km 10.000				
Location	Side	Description of	Individual (mm)	Thickness (mm)

		Layers		Surface (Bituminous) in mm	Base Course in mm	Sub-Base Course in mm	Total
RD 0.000 / TP 1	RHS	Bituminous	20	20	70	50	140
		Metal Soling	70				
		Sand Layer	50				
RD 0.500 / TP 2	RHS	Bituminous	40	40	70	80	190
		Metal Soling	70				
		Sand Layer	80				
RD 1.000 / TP 3	RHS	Bituminous	50	50	90	90	230
		WBM	70				
		Metal Soling	90				
RD 1.500 / TP 4	LHS	Bituminous	40	40	70	130	240
		WBM	70				
		Metal Soling	130				
RD 2.000 / TP 5	LHS	Screening Material	30		30	60	90
		Metal Soling	60				
RD 2.500 / TP 6	LHS	Screening Material	70		70		70
RD 3.000 / TP 7	LHS	Metal Soling	200		310	230	540
		Screening Material	80				
		Bituminous	30				
		Screening Material	230				
RD 3.500 / TP 8	LHS	Metal Soling	200		380	200	580
		Screening Material	140				

From Km 0.000 to Km 10.000							
Location	Side	Description of Layers	Individual (mm)	Thickness (mm)			
				Surface (Bituminous) in mm	Base Course in mm	Sub-Base Course in mm	Total
		Bituminous	40				
		Screening Material	200				
RD 4.000 / TP 9	LHS	Bituminous	20	20	165	190	375
		Metal Soling	140				
		Bituminous	25				
		Metal Soling	190				
RD 4.500 / TP 10	LHS	Metal Soling	150		175	130	305
		Bituminous	25				
		Metal Soling	130				
RD 5.000 / TP 11	LHS	Bituminous	50	50	125	210	385
		Metal Soling	100				
		Bituminous	25				
		Metal Soling	210				
RD 5.500 / TP 12	RHS	Bituminous	45	45	135	230	410
		Metal Soling	110				
		Bituminous	25				
		Metal Soling	230				
RD 6.000 / TP 13	RHS	Metal Soling	100		130	190	320
		Bituminous	30				
		Metal Soling	190				
RD 6.500 / TP 14	LHS	Metal Soling	110		150	180	330
		Bituminous	40				

From Km 0.000 to Km 10.000							
Location	Side	Description of Layers	Individual (mm)	Thickness (mm)			
				Surface (Bituminous) in mm	Base Course in mm	Sub-Base Course in mm	Total
		Metal Soling	180				
RD 7.000 / TP 15	LHS	Metal Soling	200	30	120	200	200
RD 7.500 / TP 16	RHS	Bituminous	30			180	330
		Metal Soling	90				
		Bituminous	30				
		Metal Soling	180				
RD 8.000 / TP 17	RHS	Bituminous	80	80	200	280	560
		WBM	200				
		Metal Soling	280				
RD 8.500 / TP 18	RHS	Bituminous	60	60	200	300	560
		WBM	200				
		Metal Soling	300				
RD 9.000 / TP 19	LHS	Bituminous	10	10	130		140
		WBM	130				
RD 9.500 / TP 20	LHS	Bituminous	20	20	160		180
		WBM	160				
RD 10.000 / TP 21	LHS	Bituminous	20	20	140		160
		WBM	140				
Average Thickness from Km 0.000 to Km 10.000				**38**	**146**	**173**	
Minimum Thickness from Km 0.000 to Km 10.000				**10**	**30**	**50**	**70**
Maximum Thickness from Km 0.000 to Km 10.000				**80**	**380**	**300**	**580**

From 15.000 to Km 32.290 (Section II)

The average pavement thickness is 161 mm. The total thickness of the hard crust varies in between 30 mm – 340 mm where existing crust comprises of GSB consists of compacted granular materials having thickness 30 mm to 250 mm thick (average 114 mm), partly disintegrated base course with WBM materials of 70 mm to 180 mm thick (average 90 mm) and Bituminous/ Binder course varying from 10 mm to 110 mm thick (average 53 mm). A detail of pit wise existing pavement compositions is provided below;

Table 5: Details of Existing Pavement Composition (Section II)

From Km 15.000 to Km 32.290							
Location	Side	Description of Layers	Individual (mm)	Thickness (mm)			
				Surface (Bituminous) in mm	Base Course in mm	Sub-Base Course in mm	Total
RD 15.000 / TP 22	LHS	Metal Soling	160			160	160
RD 15.500 / TP 23	LHS	Metal Soling	190			190	190
RD 16.000 / TP 24	LHS	Metal Soling	210			210	210
RD 16.500 / TP 25	LHS	Metal Soling	210			210	210
RD 17.000 / TP 26	LHS	Bituminous	20	20	70	40	130
		Metal Soling	50				
		Bituminous	20				
		Metal Soling	40				
RD 17.500 / TP 27	RHS	Bituminous	15	15	80	50	145
		Metal Soling	60				
		Bituminous	20				
		Metal Soling	50				
RD 18.000 /	RHS	Bituminous	10	10	75		85

From Km 15.000 to Km 32.290							
Location	Side	Description of Layers	Individual (mm)	Thickness (mm)			
				Surface (Bituminous) in mm	Base Course in mm	Sub-Base Course in mm	Total
TP 28	LHS	Metal Soling	75				
RD 18.500 / TP 29		Bituminous	10	10	90		100
		Metal Soling	90				
RD 19.000 / TP 30	LHS	Bituminous	10	10	100		110
		Metal Soling	100				
RD 19.500 / TP 31	RHS	Bituminous	40	40	130		170
		Metal Soling	130				
RD 20.000 / TP 32	RHS	Bituminous	100	100	180		280
		Metal Soling	180				
RD 20.500 / TP 33	RHS	Bituminous	110	110	70	100	280
		Metal Soling	70				
		Screening Material	100				
RD 21.000 / TP 34	LHS	Screening Material	50			150	150
		Metal Soling	100				
RD 21.500 / TP 35	LHS	Screening Material	80			250	250
		Metal Soling	170				
RD 22.000 / TP 36	LHS	Screening Material	130			210	210
		Metal Soling	80				
RD 22.500 / TP 37	LHS	Screening Material	30			70	70

From Km 15.000 to Km 32.290							
Location	Side	Description of Layers	Individual (mm)	Thickness (mm)			
				Surface (Bituminous) in mm	Base Course in mm	Sub-Base Course in mm	Total
		Metal Soling	40				
RD 23.000 / TP 38	LHS	Bituminous	50	50	110		160
		Metal Soling	110				
RD 23.500 / TP 39	LHS	Bituminous	50	50	70	180	300
		WBM	70				
		Metal Soling	180				
RD 24.000 / TP 40	LHS	Bituminous	60	60	80	200	340
		WBM	80				
		Metal Soling	200				
RD 24.500 / TP 41	LHS	Bituminous	50	50	80	180	310
		WBM	80				
		Metal Soling	180				
RD 25.000 / TP 42	RHS	Bituminous	80	80	70	130	280
		WBM	70				
		Metal Soling	130				
RD 25.500 / TP 43	RHS	Bituminous	90	90	70	160	320
		WBM	70				
		Metal Soling	160				
RD 26.000 / TP 44	LHS	Bituminous	60	60	70	160	290
		WBM	70				
		Metal Soling	160				
RD 26.500 /	LHS	Bituminous	70	70	90	150	310

From Km 15.000 to Km 32.290							
Location	Side	Description of Layers	Individual (mm)	Thickness (mm)			
				Surface (Bituminous) in mm	Base Course in mm	Sub-Base Course in mm	Total
TP 45		WBM	90				
		Metal Soling	150				
RD 27.000 / TP 46	RHS	Bituminous	70	70	90	150	310
		WBM	90				
		Metal Soling	150				
RD 27.500 / TP 47	LHS	Screening Material	40			40	40
RD 28.000 / TP 48	LHS	Screening Material	30			30	30
RD 28.500 / TP 49	RHS	Screening Material	50			50	50
RD 29.000 / TP 50	RHS	Screening Material	40			40	40
RD 29.500 / TP 51	RHS	Screening Material	60			60	60
RD 30.000 / TP 52	LHS	Screening Material	50			50	50
RD 30.500 / TP 53	LHS	Screening Material	60			60	60
RD 31.000 / TP 54	RHS	Screening Material	50			50	50
RD 31.500 / TP 55	LHS	Screening Material	60			60	60
RD 32.000 / TP 56	RHS	Screening Material	40			40	40
RD 32.500 / TP 57	RHS	Screening Material	60			60	60

From Km 15.000 to Km 32.290							
Location	Side	Description of Layers	Individual (mm)	Thickness (mm)			
				Surface (Bituminous) in mm	Base Course in mm	Sub-Base Course in mm	Total
RD 33.000 / TP 58	LHS	Screening Material	40			40	40
Average Thickness from Km 15.000 to Km 32.290				**53**	**90**	**114**	
Minimum Thickness from Km 15.000 to Km 32.290				**10**	**70**	**30**	**30**
Maximum Thickness Km 15.000 to Km 32.290				**110**	**180**	**250**	**340**

2.4.8 RoW Details of the Sub-Project Road

Project Manager (Transport, Jammu division) vide letter no PIU/T/ERA/2021/865 dated 16.03.2021 provided a non-encumbrance certificate which confirms that RoW of 6.5 meters is available for road upgradation and its encumbrances free which means that no private, public or any other structure exists on the whole alignment**.** The proposed improvement and up-gradation work will be carried out within the available land. Some portion of land (approx. 3 to 4 meters) is private land but the proposed construction activities will be carried out on the available government land. Private land falling in the alignment has not been considered while preparing the design of the project in DPR. Project Manager (Transport, Jammu division) has issued an encumbrance-free certificate for the project roads which confirms that the whole alignment does not have a temporary or permanent structure (annexure 4).

2.4.9 Major Utilities Along the Existing Road

A detailed road inventory survey was carried out at 100 m intervals mainly the proposed alignment. Detailed information was collected and utilized for planning, design, and cost estimate.

An inventory of the project road has been carried out through dimensional measurement and visual inspection. Features like chainage, terrain and land-use, the height of fill or depth of cut, the width of pavement and shoulders, important road junctions and geometric deficiencies, utilities, etc., were recorded.

These surveys were carried out by visual observation supplemented with sample measurements using tape etc.

2.5 Proposed Activities (Improvement & Up-gradation)

Table 6: Proposed Technical Description in the Sub-Project Road

Sl.No.	Description of item	Details	
1	Road length	Existing Section I - 10.000 Km Section II – 17.000 Km	Design Section I - 10.000 Km Section II – 17.280 Km
2	Road Configuration	Existing:- 2.50 m to 3.0 m wide carriageway	Propose:- 3.75 m wide carriageway
3	Terrain	Hilly	
4	Land use pattern	Open, Agricultural & Residential	
5	Existing Surface of carriageway	Flexible Broken BT surface exists for a net length of 14.000 Km (Km 0.000 to Km 0.500, Km 3.500 to Km 4.000, 4.500 Km to 5.500 Km, 7.500 Km to 10.000 Km, 16.500 Km to 20.500 Km, 22.500 km to 27.000 Km) and rest of stretches are either Gravel or Earthen.	
7	Existing Formation Width	3.50 m to 4.00 m	
8	Right of Way (ROW)	15.00 meters	
9	Pavement Condition	Poor	
10	New Flexible Pavement thickness	OGPC-25 mm; BM -50 mm, WBM - 225 mm; GSB-200 mm	
11	Design CBR	5.76 % (Av CBR)	
12	Junctions	Major- 01	
13	Traffic	T9 (15 ESAL to 20 EASL) – IRC SP 72 -2015	
14	Cross drainage structures	Existing Culvert- 123 HP Culvert - 102 Nos. Slab Culvert – 16 Nos Bridge - 5 no	Proposed Culvert- 105 (Reconstruction) HP Culvert - 102 Nos Box Culvert – 3 Nos
15	Settlement	Dehri Ralyot, Ghambeer Muglian, Bharot, Rajdhani, Shahdara Sharief	

2.5.1 Carriageway Width

In general, the proposed cross-section comprises of 3.75 m wide carriageway with 1.000 m wide shoulder on either side of the c/w. The camber on either side of the carriageway and hard shoulder is 2.5 % & on the shoulder, it is 3.0 %. The proposed cross-sections are presented in TCS-1 & TCS - 2 having 3.75 m CW in figure 2 below.

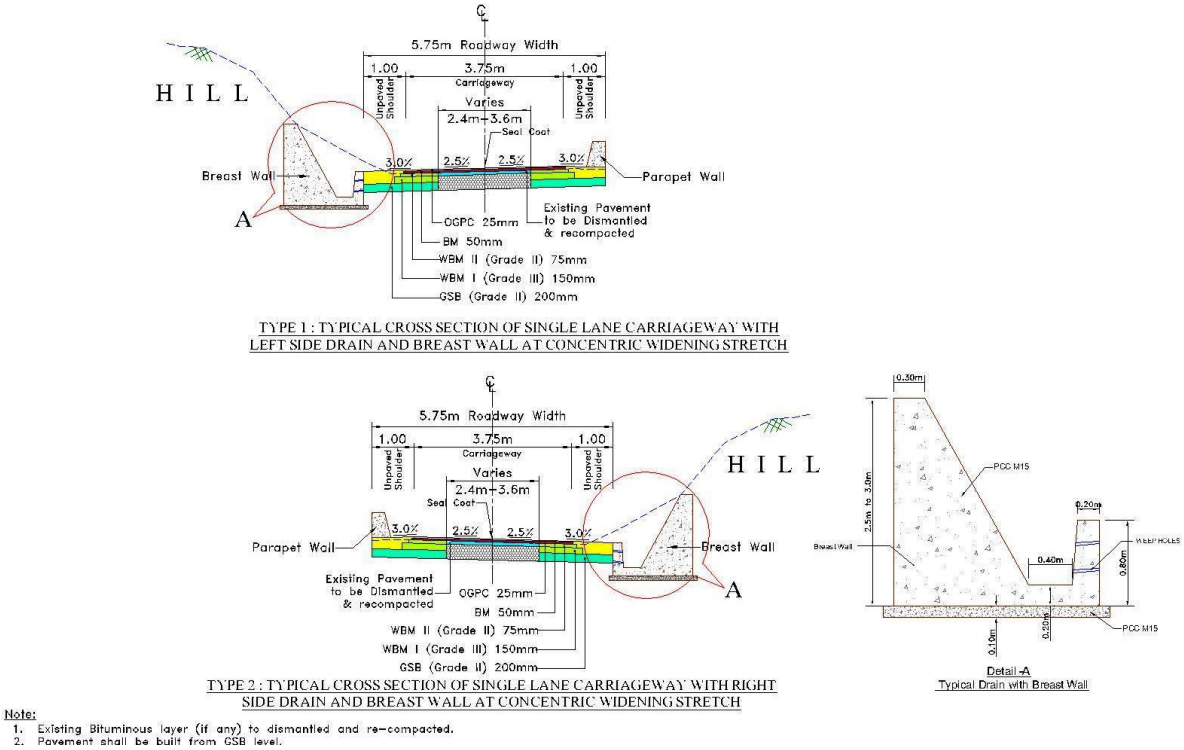


Figure 2 proposed cross-sections

2.5.2 Horizontal and vertical alignment

Existing alignment is followed to widen and strengthen the existing road and it is found that mostly the required ruling design speed of 40 km/hour is maintained. The existing carriageway will be provided with the required grade after making the provision of a profile corrective course with proper cambers over the existing carriageway surface. Due to land constraints, most of the curve radius is less than 60, henceforth 0.6 m to 0.9 m extra widening provide at those locations as per IRC norms. Horizontal & Vertical Curve details and Extra Widening details are mentioned in Annexure IV of DPR.

2.5.3 Improvement of Sight Distance

Improvement of sight distance on the proposed alignment has been taken care of while designing the alignment. However, a necessary road sign has to be provided where speed is restricted wherever required.

2.5.4 Improvement of Cross Drainage Structures

There are 123 nos. of CD structure in the project road, out of which 69 nos of CD structure are in Section I and 54 nos exist in Section II. There are 102 nos HP culverts, 16 nos Slab culverts, and 5 Nos of Bridges. Out of these 102 nos HP culverts are chocked by siltation and poor condition; need to replace by 1.2 m dia HP Culverts and 3 nos of Slab Culverts which are in poor condition, converted into either 3x3 or 2x2 Box culverts. The details are mentioned in table 7.

Table 7: Details of Proposed Culverts

Sl No.	Structures						Proposed Structure		
	Chainage	Types	Dia /Span (m)	Width (m)	Width of Head/ Parapet Wall (m)	Condition	Types	Dia/Span (m)	Remarks
Section I (From Km 0.000 to Km 10.000)									
1	0+100	HPC	1 x 0.6	7.674	0.900	C & P	HPC	1 x 1.2	R & NC
2	0+480	HPC	1 x 0.6	6.803	1.000	C & P	HPC	1 x 1.2	R & NC
3	0+700	HPC	1 x 0.6	7.977	0.900	C & P	HPC	1 x 1.2	R & NC
4	0+950	HPC	1 x 0.6	5.979	0.950	C & P	HPC	1 x 1.2	R & NC
5	1+050	HPC	1 x 0.6	5.759	0.950	C & P	HPC	1 x 1.2	R & NC
6	1+200	HPC	1 x 0.6	7.665	0.900	C & P	HPC	1 x 1.2	R & NC
7	1+325	HPC	1 x 0.6	7.642	1.000	C & P	HPC	1 x 1.2	R & NC
8	1+450	HPC	1 x 0.6	6.794	0.900	C & P	HPC	1 x 1.2	R & NC
9	1+515	HPC	1 x 0.6	7.055	1.000	C & P	HPC	1 x 1.2	R & NC
10	1+605	HPC	1 x 0.6	6.770	0.950	C & P	HPC	1 x 1.2	R & NC
11	1+690	HPC	1 x 0.6	6.994	1.000	C & P	HPC	1 x 1.2	R & NC

Sl No.	Structures						Proposed Structure		
	Chainage	Types	Dia /Span (m)	Width (m)	Width of Head/ Parapet Wall (m)	Condition	Types	Dia/Span (m)	Remarks
12	1+850	HPC	1 x 0.6	6.696	0.900	C & P	HPC	1 x 1.2	R & NC
13	1+900	HPC	1 x 0.6	5.938	0.950	C & P	HPC	1 x 1.2	R & NC
14	2+120	HPC	1 x 0.6	7.715	0.900	C & P	HPC	1 x 1.2	R & NC
15	2+170	HPC	-	8.119	-	C & P	HPC	1 x 1.2	R & NC
16	2+450	HPC	1 x 0.6	6.511	0.900	C & P	HPC	1 x 1.2	R & NC
17	2+520	HPC	1 x 0.6	7.600	0.950	C & P	HPC	1 x 1.2	R & NC
18	2+650	HPC	1 x 0.6	7.721	1.000	C & P	HPC	1 x 1.2	R & NC
19	2+670	HPC	-	5.936	-	C & P	HPC	1 x 1.2	R & NC
20	2+775	HPC	-	4.773	-	C & P	HPC	1 x 1.2	R & NC
21	2+880	HPC	1 x 0.6	7.609	0.950	C & P	HPC	1 x 1.2	R & NC
22	2+970	HPC	1 x 0.6	6.736	1.000	C & P	HPC	1 x 1.2	R & NC
23	3+090	HPC	1 x 0.6	7.063	1.000	C & P	HPC	1 x 1.2	R & NC
24	3+150	HPC	1 x 0.6	7.684	1.000	C & P	HPC	1 x 1.2	R & NC
25	3+450	SC	1 x 1.1	5.755	1.400	Good	-	-	Retained
26	3+300	HPC	1 x 0.6	6.849	0.950	C & P	HPC	1 x 1.2	R & NC
27	3+510	HPC	1 x 0.6	7.241	0.950	C & P	HPC	1 x 1.2	R & NC
28	4+020	HPC	1 x 0.6	7.048	0.950	C & P	HPC	1 x 1.2	R & NC
29	4+160	HPC	1 x 0.6	7.276	1.000	C & P	HPC	1 x 1.2	R & NC
30	4+260	HPC	1 x 0.6	7.199	0.950	C & P	HPC	1 x 1.2	R & NC
31	4+310	HPC	1 x 0.6	6.394	1.000	C & P	HPC	1 x 1.2	R & NC
Section I (From Km 0.000 to Km 10.000)									
32	4+520	HPC	-	6.744	-	C & P	HPC	1 x 1.2	R & NC

Sl No.	Structures						Proposed Structure		
	Chainage	Types	Dia /Span (m)	Width (m)	Width of Head/ Parapet Wall (m)	Condition	Types	Dia/Span (m)	Remarks
33	4+610	HPC	1 x 0.6	7.830	0.950	C & P	HPC	1 x 1.2	R & NC
34	4+650	SC	1 x 1.0	9.788	1.350	Good	-	-	Retained
35	4+780	HPC	1 x 0.6	6.216	0.950	C & P	HPC	1 x 1.2	R & NC
36	4+880	Bridge	14.000	4.546	15.000	Good	-	-	Retained
37	5+125	HPC	1 x 0.6	6.749	1.000	C & P	HPC	1 x 1.2	R & NC
38	5+380	HPC	1 x 0.6	8.021	1.000	C & P	HPC	1 x 1.2	R & NC
39	5+580	HPC	1 x 0.6	7.674	1.000	C & P	HPC	1 x 1.2	R & NC
40	5+710	HPC	1 x 0.6	7.583	0.900	C & P	HPC	1 x 1.2	R & NC
41	5+890	HPC	1 x 0.6	7.411	0.900	C & P	HPC	1 x 1.2	R & NC
42	6+050	SC	1 x 1.0	5.721	1.300	Good	-	-	Retained
43	6+160	SC	1 x 1.2	4.812	1.500	Poor	BC	2 x 2	NC
44	6+300	SC	1 x 1.1	5.665	1.400	Good	-	-	Retained
45	6+490	SC	1 x 1.1	4.481	1.500	Poor	BC	3 x 4	NC
46	6+700	HPC	1 x 0.6	7.761	0.950	C & P	HPC	1 x 1.2	R & NC
47	6+780	HPC	1 x 0.6	7.021	1.000	C & P	HPC	1 x 1.2	R & NC
48	6+935	Bridge	15.000	4.621	16.000	Good	-	-	Retained
49	6+970	SC	1 x 1.0	9.837	1.350	Good	-	-	Retained
50	7+190	HPC	1 x 0.6	6.899	1.000	C & P	HPC	1 x 1.2	R & NC
51	7+320	HPC	1 x 0.9	5.731	1.300	C & P	HPC	1 x 1.2	R & NC
52	7+370	HPC	1 x 0.6	7.347	1.000	C & P	HPC	1 x 1.2	R & NC
53	7+512	HPC	1 x 0.6	7.054	1.000	C & P	HPC	1 x 1.2	R & NC
54	7+670	HPC	1 x 0.6	5.912	0.950	C & P	HPC	1 x 1.2	R & NC

Sl No.	Structures						Proposed Structure		
	Chainage	Types	Dia /Span (m)	Width (m)	Width of Head/ Parapet Wall (m)	Condition	Types	Dia/Span (m)	Remarks
55	7+730	HPC	1 x 0.6	7.462	0.950	C & P	HPC	1 x 1.2	R & NC
56	7+790	HPC	-	6.559	-	C & P	HPC	1 x 1.2	R & NC
57	7+890	HPC	1 x 0.6	6.446	0.900	C & P	HPC	1 x 1.2	R & NC
58	8+050	HPC	1 x 0.6	6.817	0.950	C & P	HPC	1 x 1.2	R & NC
59	8+100	HPC	1 x 0.6	7.764	1.050	C & P	HPC	1 x 1.2	R & NC
60	8+300	SC	1 x 3.2	5.118	3.600	Good	-	-	Retained
61	8+470	HPC	1 x 0.6	7.250	0.900	C & P	HPC	1 x 1.2	R & NC
62	8+650	HPC	1 x 0.6	7.382	0.950	C & P	HPC	1 x 1.2	R & NC
63	8+780	HPC	1 x 0.6	6.239	0.950	C & P	HPC	1 x 1.2	R & NC
64	8+980	HPC	1 x 0.6	7.821	0.950	C & P	HPC	1 x 1.2	R & NC
65	9+620	HPC	-	9.834	-	C & P	HPC	1 x 1.2	R & NC
66	9+690	HPC	-	7.167	-	C & P	HPC	1 x 1.2	R & NC
67	9+750	HPC	-	7.314	-	C & P	HPC	1 x 1.2	R & NC
68	9+840	HPC	1 x 0.6	7.812	1.000	C & P	HPC	1 x 1.2	R & NC
69	9+920	Bridge	8.0	5.520	9.000	Good	-	-	Retained
Section I (From Km 15.000 to Km 32.290)									
70	15+000	HPC	1 x 0.6	7.691	0.900	C & P	HPC	1 x 1.2	R & NC
71	15+110	SC	1 x 1.2	6.498	1.500	Good	-	-	Retained
72	15+270	HPC	1 x 0.6	7.882	0.950	C & P	HPC	1 x 1.2	R & NC
73	15+870	HPC	1 x 0.6	6.630	1.000	C & P	HPC	1 x 1.2	R & NC
74	15+990	HPC	1 x 0.6	7.207	0.950	C & P	HPC	1 x 1.2	R & NC
75	16+150	HPC	1 x 0.6	7.334	0.950	C & P	HPC	1 x 1.2	R & NC

Sl No.	Structures						Proposed Structure		
	Chainage	Types	Dia /Span (m)	Width (m)	Width of Head/ Parapet Wall (m)	Condition	Types	Dia/Span (m)	Remarks
76	16+220	HPC	1 x 0.6	7.199	1.000	C & P	HPC	1 x 1.2	R & NC
77	16+380	HPC	1 x 0.6	7.032	0.900	C & P	HPC	1 x 1.2	R & NC
78	16+570	HPC	1 x 0.6	6.785	0.900	C & P	HPC	1 x 1.2	R & NC
79	17+890	HPC	1 x 0.6	10.057	0.950	C & P	HPC	1 x 1.2	R & NC
80	18+070	HPC	1 x 0.6	7.825	1.000	C & P	HPC	1 x 1.2	R & NC
81	18+980	HPC	1 x 0.6	7.034	1.000	C & P	HPC	1 x 1.2	R & NC
82	19+080	HPC	1 x 0.6	7.318	0.950	C & P	HPC	1 x 1.2	R & NC
83	19+220	HPC	1 x 0.6	7.730	0.950	C & P	HPC	1 x 1.2	R & NC
84	19+350	HPC	1 x 0.6	7.168	0.950	C & P	HPC	1 x 1.2	R & NC
85	19+500	HPC	-	7.766	-	C & P	HPC	1 x 1.2	R & NC
86	19+580	HPC	1 x 0.6	7.092	0.900	C & P	HPC	1 x 1.2	R & NC
87	19+640	HPC	1 x 0.6	6.896	0.900	C & P	HPC	1 x 1.2	R & NC
88	19+850	HPC	-	5.909	-	C & P	HPC	1 x 1.2	R & NC
89	20+000	SC	1 x 2.4	5.809	2.700	Good	-	-	Retained
90	20+150	HPC	1 x 0.6	10.719	0.950	C & P	HPC	1 x 1.2	R & NC
91	20+250	HPC	1 x 0.6	7.389	0.950	C & P	HPC	1 x 1.2	R & NC
92	20+520	HPC	1 x 0.6	5.443	0.900	C & P	HPC	1 x 1.2	R & NC
93	20+630	HPC	1 x 0.6	7.530	1.000	C & P	HPC	1 x 1.2	R & NC
94	20+810	HPC	1 x 0.6	9.569	1.000	C & P	HPC	1 x 1.2	R & NC
95	21+090	HPC	1 x 0.6	6.910	1.000	C & P	HPC	1 x 1.2	R & NC
96	22+010	HPC	-	6.730	-	C & P	HPC	1 x 1.2	R & NC
97	22+150	HPC	-	6.308	-	C & P	HPC	1 x 1.2	R & NC

Sl No.	Structures						Proposed Structure		
	Chainage	Types	Dia /Span (m)	Width (m)	Width of Head/ Parapet Wall (m)	Condition	Types	Dia/Span (m)	Remarks
98	22+270	HPC	1 x 0.6	6.294	0.950	C & P	HPC	1 x 1.2	R & NC
99	22+800	HPC	-	7.297	-	C & P	HPC	1 x 1.2	R & NC
100	22+880	HPC	1 x 0.6	7.174	0.900	C & P	HPC	1 x 1.2	R & NC
101	23+240	HPC	1 x 0.6	8.697	0.900	C & P	HPC	1 x 1.2	R & NC
102	23+580	SC	1 x 3.2	5.610	3.600	Good	-	-	Retained
103	23+840	HPC	1 x 0.9	7.868	1.300	C & P	HPC	1 x 1.2	R & NC
104	23+960	HPC	-	5.615	-	C & P	HPC	1 x 1.2	R & NC
105	24+110	SC	1 x 0.8	19.031	1.350	Good	-	-	Retained
106	24+390	HPC	1 x 0.6	4.996	0.900	C & P	HPC	1 x 1.2	R & NC
107	24+590	SC	1 x 2.0	5.161	2.400	Good	-	-	Retained
108	24+770	SC	1 x 7.0	6.505	3.100	Good	-	-	Retained
109	25+120	HPC	1 x 0.3	5.952	0.600	C & P	HPC	1 x 1.2	R & NC
110	25+170	HPC	1 x 0.9	9.199	1.250	C & P	HPC	1 x 1.2	R & NC
111	25+500	HPC	-	4.552	-	C & P	HPC	1 x 1.2	R & NC
112	25+590	SC	1 x 5.0	6.322	5.400	Good	-	-	Retained
113	25+830	HPC	1 x 0.9	6.787	1.350	C & P	HPC	1 x 1.2	R & NC
114	26+130	HPC	1 x 0.9	6.059	1.300	C & P	HPC	1 x 1.2	R & NC
115	26+970	HPC	1 x 0.9	6.794	1.250	C & P	HPC	1 x 1.2	R & NC
116	27+820	Bridge	28.000	3.442	29.000	Good	-	-	Retained
117	28+150	HPC	1 x 0.9	7.175	1.300	C & P	HPC	1 x 1.2	R & NC
118	28+480	HPC	1 x 0.6	5.074	1.000	C & P	HPC	1 x 1.2	R & NC
119	29+950	HPC	1 x 0.9	11.410	1.250	C & P	HPC	1 x 1.2	R & NC

Sl No.	Structures						Proposed Structure		
	Chainage	Types	Dia /Span (m)	Width (m)	Width of Head/ Parapet Wall (m)	Condition	Types	Dia/Span (m)	Remarks
120	30+650	HPC	1 x 0.9	10.092	1.300	C & P	HPC	1 x 1.2	R & NC
121	31+550	Bridge	15.000	4.850	16.000	Good	-	-	Retained
122	31+750	SC	1 x 1.7	4.309	2.100	Poor	BC	3 x 3	NC
123	32+090	HPC	-	7.194	-	C & P	HPC	1 x 1.2	R & NC

2.5.5 Protective works

New construction concept has been adopted for the entire stretch. Breast wall has been adopted about 4545m length. Breast Wall Height limited to max 1.5 m.

PCC Retaining Wall required about length 250 m at the following Chainages (table 8).

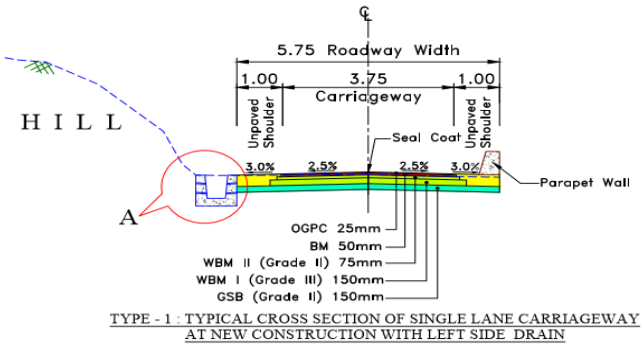
Table 8: List of Protective Work (Breast wall & Retaining wall)

Breast Wall Details			
Nos	From	To	Length
1	170	220	50
2	1413	1640	227
3	7280	7375	95
4	8560	8675	115
5	8560	8675	115
6	8925	8975	50
7	16053	16150	97
8	17615	17675	60
9	18380	18421	41
10	18825	19125	300

Retaining Wall Details			
Nos	From	To	Length
1	1+375	1+425	50
2	2+600	2+700	100
PMGSY Road			
4	18+900	20+000	100
Total Length=			250

11	19365	19425	60
12	20085	20172	87
13	22375	22750	375
14	23845	23910	65
15	23910	24082	172
16	23910	24082	172
17	25725	25975	250
18	27120	27280	160
19	27575	27780	205
20	27810	28086	276
21	28700	28781	81
22	29440	29530	90
23	29780	29932	152
24	29921	30664	743
25	30690	30751	61
26	31355	31801	446
Total Length=			4545

A. Catchment Area (A)



TYPE - 1 : TYPICAL CROSS SECTION OF SINGLE LANE CARRIAGEWAY AT NEW CONSTRUCTION WITH LEFT SIDE DRAIN

Half of Carriageway		1.875	m
Paved Shoulder		0	m
Un Paved Shoulder		1	m
Turfing (Extra widening)		1.5	m
Adjacent Build up/ Rock width		30	m
Total Width contributing		**34.375**	m
Total Length contributing		500	m
	Area	1.71875	hec

B. Average coefficient of runoff(Pav)

Type of Surface	Coefficient of runoff (P)	Width of Road
Paved Shoulder	0.9	1.875
Unpaved	0.4	1
Adjacent Build up lane or Rock area	0.3	31.5
	Pav	0.336

C. Time of concentration (tc)

Tc= (.87XL3/H)^0.385	0.332	Hour

L-distance from the most remote point to outlet in km

H- fall in level from most remote point to outlet in m 1.9 m

Tc= 20.00 Minutes

D. Critical rainfall intensity Ic =

	25 year 24 hour rainfall (mm) from Flood Estimation Report=	220.1 mm/.	22.01	cm/h, *(Flood Estimation Report)*
IRC:SP:13	**Io**=Rainfall record failing that from Local Data =	$I_o = \frac{F}{2}\left(1 + \frac{1}{T}\right)$	12	cm/h
IRC:SP:13	**Ic**=Rainfall Intensity "*Ic=D35/10*2/(C32+1)*"=	$I_c = I_o\left(\frac{2}{t_c + 1}\right)$	17.34	cm/h

E. Discharge

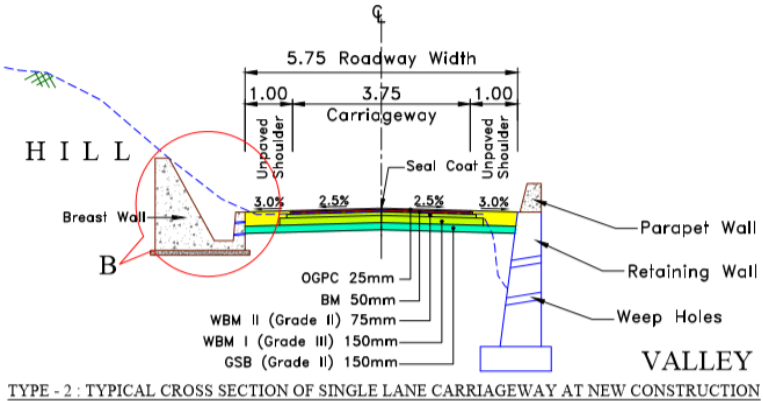
A- Catchment Area	1.719	
Pav - Coefficient of runoff for the given catchment characteristics	0.336	
f - spread factor of converting point rainfall into areal mean rainfall	0.86	
Ic - Rainfall intensity in cu/hr	17.34	cm/h

Q=0.028 Pav x f x A x Ic

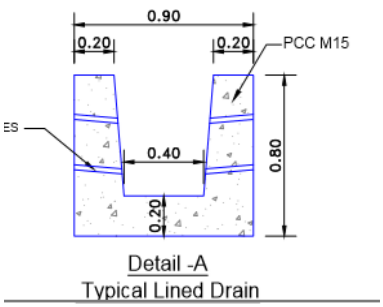
Q (25 Yr-frequency) 0.24 m^3/s

Q = 0.028 P_mxI xA, Design Discharge for

Required Discharge Capacity **0.28** m^3/s



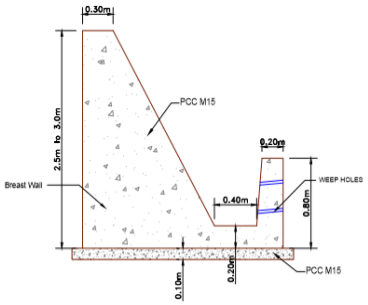
TYPE - 2 : TYPICAL CROSS SECTION OF SINGLE LANE CARRIAGEWAY AT NEW CONSTRUCTION WITH DRAIN & BREAST WALL AT LEFT SIDE & RETAINING WALL AT RIGHT SIDE



Detail -A
Typical Lined Drain

F. Hydraulic Parameters

Targeted discharge	0.28	m^3/s
Longitudinal slop	0.07	*Max 7%*
Bed width (B)	0.4	*m*
Side slop (H:1V)	0.17	
Top width (T)	0.5	*m*
Depth of flow (d)	0.6	*m*
Area (A)	0.27	m^2
Wetted Perimeter (P)	1.65	*m*
Hydraulic radius	0.16	*m*
Manning's coefficient (n)	0.04	*As per Table-7.1*
Velocity (V)		
v= 1/n X R^2/3 X S^1/2	2.00	m/s
Maximum Discharge Capacity (QA)	**0.541**	m^3/s



G. Check for Critility

Normal velocity	2.00	m/s
Flow regime		

H. Recommendation

Adopted bed width for drain	0.4	m
Adopted bed of flow	0.4	m
Free boarded	0.15	m

Adopted depth of drain	0.45	m
Top width of drain	0.5	m
Effective Area of drain	0.2025	m^2
Standard Discharge Capacity	**0.406**	

Summary

Required Discharge Capacity	**0.28**
Standard Discharge Capacity	**0.41**
Maximum Discharge Capacity (QA)	**0.54**

Required Design discharge within Standard Design Discharge

2.5.6 Pavement Design

After doing the pavement investigation and pavement condition survey, it has been studied thoroughly. After that pavement design has been done as per the following considerations:

- Rehabilitation on existing pavement
- Reconstruction of existing pavement

The consultants have worked out the designs for all the above cases based on results of survey/investigations with regard to traffic, axle load spectrum, pavement condition and strength, subgrade/material properties etc.

The design life adopted in the analysis is 10 years for flexible pavement from the date of opening the road to traffic. Pavement design for various cases has been illustrated in the following paragraphs.

2.5.7 Rehabilitation of existing pavement

Strengthening design involves prudent engineering judgment and decision-making in analyzing and using the various investigations data for the purpose. It may be mentioned that deflection testing (generally use for strengthening design) is primarily related to traffic-associated fatigue cracking of a pavement. If the pavement is exhibiting deformation /

without bitumen top surface / poor condition of the bituminous surface, it will be necessary to sample and test/observe component layers before deciding on an overlay/strengthening.

Design of flexible pavement for new construction has been done following "Tentative Guidelines for the Design of Flexible Pavement" (IRC: 72-2015).

The following Survey has been conducted and procedure followed for design and construction:

1. Conducted the Traffic Study and based on PCU, lane configuration finalized. In the case of land constraint, lane configuration has been restricted upto the availability of space between properties of both sides.
2. In case land availability allows providing required lane configuration to upgrade (widening), rehabilitation and reconstruction considered for these stretches. For the widening portion, mostly concentric widening is considered. After both edge trimming, prepare the original ground for construction of embankment, followed by sub-grade, GSB, WMM, DBM, and BC.
3. Raising of Existing Carriageway is not done where roadside establishment exists. On those stretches, reconstruction has been proposed. Where lane configuration is not feasible for the upgrade, the carriageway has been restricted upto the availability of space between properties of both sides.
4. The existing condition of the road is poor. Hence, the BBD test was not carried out. Existing bituminous layer to be dismantled and re-compaction to be done after dismantling bituminous layer. Re-compacted level shall be compared for design level and WBM/GSB (depending upon the level difference of FRL and level after re-compaction). Existing Base and Subbase layers are generally more than the required thickness than that of new pavement. Widening portion to be constructed from subgrade as per the design.

Soil samples were collected from the sub-grade level after excavating the existing pavement thickness at the selected locations along the carriage way edge. Soil Samples taken to the laboratory were tested for L.L., P.L., and Gradation. Remolded soil samples were thereafter made by compacting at the maximum dry density and OMC. The samples were then soaked for 4 days and then tested for CBR value. For each location, three such remolded samples were prepared and tested for soaked CBR, and the average value of CBR at each location was determined. The CBR value varies between 5.10 % to 6.70 %. The Average CBR is 5.40 %. Mostly ML classified soil exists on the entire stretch. The summary of Test Results is presented herein.

Design of flexible pavement for Reconstruction or partly new construction has been done by following "Guidelines for the Design of Flexible Pavements for Low Volume of Rural Roads" (IRC SP 72: 2015). This is described as following: -

DESIGN OF FLEXIBLE PAVEMENT

As per IRC: SP:72-2015

Average Daily Traffic in Season

Animal drawn Carts = 2 MCV (Laden)	0
Cycles & Cycle Rickshaws / Hand Cart	0
2 Axles, LCVs & Mini Bus	148
Agricultural Tractor- Trailers + (Animal drawn Carts = 2 MCV (Laden))=	95
Cars & Jeeps	193
Motor Cycles	103
Total	**539**

Average Daily Traffic During the Season (T) =**539**

Design CBR (%) = **5.40**

AADT = T+(1.2nTt)/365 = 539+(1.2x1x539x120)/365 752

Here n = 1

t = 120 days

Here n = Multiplying Factor for Harvesting Season

t = No of days in one Harvesting Season

After opening of road to traffic, AADT = 752 x (1.06) ^2

After opening of road to traffic, AADT = 845

Assuming an initial growth rate of 6%

From the given traffic count data, the proportions of HCV and MCV out of the ADT of 845

work out as under:

Heavy Commercial Vehicles (HCV) =	148 x 845/539=	232
Medium Heavy Commercial Vehicles (MCV) =	95 x 845/539=	149
Projected Design Traffic (CVPD) =		381

Traffic count data does not given the proportion of unladen and laden vehicles, it is assumed that these are equal in number.

Heavy Commercial Vehicles (HCV) (Laden) =	116
Heavy Commercial Vehicles (HCV) (Unladen) =	116
Medium Heavy Commercial Vehicles (MCV) (Laden) =	75
Medium Heavy Commercial Vehicles (MCV) (Unladen) =	74

Taking the VDF value from para 3.4.4 from IRC:SP: 72-2015,

The ESAL applications per day =

= HCV x 2.86 + HCV x 0.31 + MCV x 0.34 + MCV x 0.02

= 116 x 2.86 +116 x 0.31 +75 x 0.34 +74 x 0.02

= 394.7

Cumulative ESAL applications over 10 years @ 6% growth rate

= 4811 x 394.7 = **18,98,902**

Traffic Categories	**Cumulative ESAL Applications**		
T01	10,000.00	-	30,000.00

T02	30,000.00	-	60,000.00
T03	60,000.00	-	1,00,000.00
T04	1,00,000.00	-	2,00,000.00
T05	2,00,000.00	-	3,00,000.00
T06	3,00,000.00	-	6,00,000.00
T07	6,00,000.00	-	10,00,000.00
T08	10,00,000.00		15,00,000.00
T09	15,00,000.00		20,00,000.00

Traffic category: T09 (Cumulative ESAL Application, Para No. 3.5,(1500000 to 2000000).

Design pavement thickness as per IRC-SP - 72 – 2015 (As Per Fig 4 in Page 22 of IRC SP 72:2015) = 475mm

Hence Thickness Corresponding to CBR 5.4% (mm) to be adopted 475mm.

Thickness of BM = 50mm

Thickness of Base Course (WBM) = 225mm

Thickness of GSB = 200mm

Provide OGPC as wearing course

2.5.8 Traffic Safety and Other Appurtenances

Following road furniture and miscellaneous items have been designed keeping safety aspects in mind.

I. Road Markings

Road Markings on the carriageway and the objects within and adjacent to the roadway are used as a means of guiding and cont Hilly the traffic. They promote road safety and ensure the smooth flow of traffic in the required paths of travel.

The location and type of marking lines, material, and colour are followed using IRC: 35-2015 – "Code of Practice for Road Markings".

The road markings were carefully planned on carriageways, intersections, and bridge locations.

II. Road Signs

Road signs were planned to supply information, to regulate traffic by imparting messages to the drivers. The type, locations, sizes were planned using IRC: 67 2012 "Code of Practice for Road Sign". Details of Road Signage are given in table 9.

Table 9: Details of Road Signages

Sl no	Sign		Size	Nos.
	Fig No	Description		
1	14.02	Give Way	900 Equilateral	1
2	14.23	Overtaking Prohibited	600 Equilateral	0
3	15.01	Left Hand Curve	600 Equilateral	24
4	15.02	Right Hand Curve	600 Equilateral	24
5	15.03	Right Hairpin Curve	600 Equilateral	11
6	15.04	Left Hairpin Curve	600 Equilateral	11
7	15.05	Right Reverse Bend	600 Equilateral	16
8	15.06	Left Reverse Bend	600 Equilateral	14
9	15.07	Series of Bends	600 Equilateral	82
10	15.09	Side Road Right	600 Equilateral	0
11	15.10	Side Road Left	600 Equilateral	0
12	15.18, 15.19, 15.20, 15.21	Intersection	600 Equilateral	1
13	15.23	Narrow Road Ahead	600 Equilateral	0
14	15.24	Road Widens	600 Equilateral	0
15	15.34	School Ahead	600 Equilateral	4
16	15.35	Build Up Area	600 Equilateral	6
17	15.72	Chevron(Normal)		0
18	15.76	Object Hazard(Left)	90 cm x 30 cm rectangular	246
19	15.77	Object Hazard(right)	90 cm x 30 cm rectangular	246
20	16.02	Directional Sign	60 cm x 90 cm rectangular	1
21	16.04	Directional Sign	60 cm x 90 cm rectangular	0

22	16.06	Place Identification Sign	60 cm x 45 cm rectangular	14
23	14.37	Maximum Speed Limit	600 mm dia	257
24	15.30,15.31	Start & End of Dual Carriageway	600 Equilateral	0
25	17.07	Hospital Ahead	600 Equilateral	2
Total				**960**

III. Delineators

The role of delineators is to provide visual assistance to the driver about the alignment of the road ahead, especially at night. Reflectors are used on the delineators for better night visibility. IRC: 79-1981 "Recommended Practice for Road Delineators" was followed to plan location details. Two types of road delineators were planned i.e. hazard markers and object markers. Hazard markers are to define obstructions like guardrails, and abutments adjacent to the carriageway, for instance at culverts and bridges. Object markers are used to indicate hazards and obstructions within the vehicle flow path, at channeling islands close to intersections.

IV. Crash Barrier

W Type Metal crash barriers are proposed/ provided for the safety of the traffic on the stretches on approaches of bridges. It is also proposed on the curves for the safety of traffic irrespective of embankment height as per NHAI Circular (NHAI/PH-II/NHDP/ADB/GM (NS)-I dated May 19, 2004).

V. Parapet Wall

Parapet walls are provided along the edge of the shoulders at the valley side throughout the project stretch excluding the settlement areas. These are provided to prevent the vehicles from toppling over. 11140m length parapet wall provided along the project stretches.

VI. Convex Mirror

Roadside Convex Safety Mirrors are widely used by both commercial and private properties to help eliminate blind spots on approach roads, junctions, and entrances. Convex mirrors are ideal for use in road safety applications because the domed effect of the mirror will give a wider-angle view and allows the driver to see down the road from a wider range of parked positions.

Typically, a 600 mm diameter convex mirror is useful when viewed no more than 6 Metres or 20 feet away. Above this distance, you need to use a bigger mirror. 18 nos. convex mirror required along the project road at the following changes.

Table 10: Details of Convex Mirrors

4+800	8+850	9+800	16+100	16+150	17+700
20+750	21+350	22+480	22+850	25+670	26+555
26+970	27+900	29+040	30+070	30+200	33+720

3. Legal and Regulatory Framework

This section deals with the laws, regulations, and policies, of the Government of India, the State Government, and the World Bank, related to environmental and social issues. Only the laws, regulations, and policies relevant to the project are discussed here. This section needs to be updated as to when new laws, regulations, and policies are made and enforced or the existing ones are revised.

3.1 Operational Policies of World Bank

The safeguard policies, the triggers for each policy, as well as the status of their relevancy for the proposed project are presented in the table below:

Table 11: World Bank's Operational Policies

Operational Policy	Key Features	Applicability
Involuntary Resettlement (OP 4.12)	Physical relocation and land loss resulting in: (i) relocation or loss of shelter; (ii) loss of assets or access to assets; (iii) loss of income sources or means of livelihood, whether or not the affected people must move to another location.	Not Applicable The sub-project does not have any impact on private assets.
Indigenous Peoples (OP 4.10)	If there are indigenous peoples in the project area, and potential adverse impacts on indigenous peoples are anticipated, and indigenous peoples are among the intended beneficiaries.	Not Applicable The sub-project does not adversely impact any Schedule caste/tribe population.
Physical Cultural Resources (OP 4.11)	The policy is triggered by projects which, prima facie, entail the risk of damaging cultural property (e.g. any project that includes large-scale excavations, movement of earth, surface environmental changes or demolition).	Not applicable No impact on any cultural resources.

3.2 World Bank's Environment Health and Safety Guidelines

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The applicability of the EHS Guidelines should be tailored to the hazards and risks that may occur in the sub-project on the basis during pre-construction, construction, and operation phases.

3.3 National & State Policies

S.No.	Acts/Policies/Rules	Relevance to this project	Applicability in the sub-project
1	The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 The old act is Land Acquisition Act, 1894 and it is replaced by new Act RFCTLARR,2013	The Act has provisions to provide fair compensation to those whose land is taken away, brings transparency to the process of acquisition of land to set up factories or buildings, infrastructural projects and assures rehabilitation of those affected.	Not Applicable. The sub-project does not have any impact on private assets.
2	State Land Acquisition Act 1990 (1934 AD)	The Sate Land Acquisition Act 1990 (1934 AD) is in force in state of Jammu and Kashmir. This Act provides the legal framework for land acquisition for public purposes in J&K. It enables the State Government to acquire private lands for a public purpose, and seeks to ensure that no person is deprived of land except under the Act.	Not Applicable. The sub-project does not have any impact on private assets.

S.No.	Acts/Policies/Rules	Relevance to this project	Applicability in the sub-project
3	Jammu and Kashmir Common Lands (Regulation) Act, 1956	An Act to regulate the rights in common lands. Provide relief to the user of the lands, used for common purposes like roads, streets, lanes, pathways, water channels, drains, wells, tanks or any other source of water supply to the villagers in general. Provision for prohibition of encroachments over such common lands and public places and eviction thereof and in case of encroachments, to restore the rights of the users. Provision for assigning land for extension of "Village Abadi", if existing land is in adequate for habitation of the villagers at any point of time.	Not Applicable The sub-project does not require common or community lands.

3.4 Other Central and State acts which may be applicable in the Sub-project:

- Minimum Wages Act, 1948
- Contract Labor Act, 1970
- The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
- The Bonded Labor System (Abolition) Act, 1976
- Child Labor (Prohibition and Regulation) Act 1996 along with Rules, 1988
- Children (Pledging of Labor) Act, 1933 (as amended in 2002)
- The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995
- The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Rules, 1996
- Untouchability Offences Act, 1955
- The Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989
- The Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Rules, 1995
- Disaster Management Act 2005: specifies that while providing compensation and relief to victims of disasters there shall be no discrimination on the grounds of sex, caste, community, descent or religion.

- The Jammu and Kashmir Protection of Human Rights Act 1997
- The Jammu and Kashmir Natural Calamities Destroyed Areas Improvement Act, 1955:
- The Jammu and Kashmir Right to Information Act 2004
- Backward Classes Commission Act, 1997
- Persons with Disabilities Act, 1998
- J&K Reservation Act, 2004

4. Socio-Economic Profile of the Project Impact Area

4.1 Physical features

The district with an area of 2,630 Sq.Kms. has peculiar features. The Dhaula Dhar range runs across the north eastern part of the district and topography of Rajouri, Budhal and part of Kalakote tehsils consists of numerous hills and small valleys of meandering brooks. District Rajouri offers a representative of the State in climate, culture and secular outlook. The district presents a composite culture- Pahari, Gojri, Dogra and Kashmiri. Irrespective of ethnic groups all speak the pahari language with ease. The climate varies from semi-tropical in the southern part to temperate in the mountainous northern part. The sub-tropical region receives regular monsoons whereas the northern part prone to hailstorms experiences excessive rains. The district is drained by small rivers.

4.2 Location and size

Rajouri district is located in the foot hills of Pir Panjal range and lies in the south-western side of the State. It falls between 70° and 74°- 4' east longitude and 31°-58' and 33°-35' north latitude. It is flanked by Punch district in the north, Jammu district in the south, Reasi district in the east and Pak occupied Kashmir (Mirpur area) in the west. The district encompasses an area of 2630 sq.km. having returned a population of 642,415, it accounts for 5.12 per cent of the total population of the state. Its density i.e. population per sq.km.is 244.

4.3 Physiography

Rajauri district has sub-mountainous to mountainous terrain. The Pir Panjal range lies in the north and north-east with off-shoot of Siwalik; namely; Kali Dhar in the south. The most of Rajauri and Budhal tahsils and parts of Kalakote tahsil are comprised of numerous hills and valleys. The areas towards the Nowshehra tahsil are rather plain and have descending mild slopes. The average altitude varies approximately from 608 metres near Nowshehra and Kalakote to 1,368 metres in Rajauri and Budhal tahsils. The Kali Dhar range also serves as a dividing line between Akhnoor tahsil of Jammu district and the Sunderbani tahsil of Rajauri district. The triangulated height of Kali Dhar is 1,204 metres and that of Akhan Gala is 935 metres. But in the north, the height of the mountains is much more. Some of the peaks are Dhakiar (4,648 metres), Rupri (4,092 metres), Janjanwali Chhe Sari (3,777 metres), Ratanpir (2,480 metres), Neakka (1,970 metres) etc. The mountain tops in this area remain

[2]Source:https://www.censusindia.gov.in/2011census/DCHB/DCHB_A/01/0106_PART_A_DCHB_RAJOURI.pdf

covered with a thick layer of snow even in summers, whereas the lower areas are undulating and full of forests. Rajauri Deciduous Forested range has an oblique shape and extends from east to north-west. From the physiographic point of view, this region can be said to be very beautiful and picturesque. Though it has undulating lands and stretches of deep and dense forests but the topography is not as rugged as that of the Pir Panjal region. An oval shaped blue water lake named Samotsar is situated at an altitude of 3,550 metres on the northern end of Badjari marg. This one km. long lake is accessible in four hours from Budhal to enjoy the beauty of nature scattered in this part of Pir Panjal range.

4.4 Drainage

The district area is drained by a number of perennial rivers and ephemeral streams. These nallas /streams remain dry in summer but create havoc due to flash floods especially in rainy seasons. They carry huge load of boulders, pebbles, sand and silt during monsoon period. The district is drained by the Munawwar Tawi and its tributaries named Nowshera Tawi, Neari Tawi, and Thandepaniwali Tawi, except the eastern side which is drained by Ans River. Both falls in Chenab sub basin. These rivers originate from the north of the district limit. The northern part of the district is characterized by the dendritic to sub dentritic drainage pattern controlled by the natural topography of the area and geological structures.

4.5 Underground Water Resources

Most of the district is in concentrated in valley portion drained by major river Munnawar Tawi and its tributaries. In the past, development of ground water was mainly through dug wells and percolation wells along the riverbeds, nallhas and also with springs, which have played a major role for sustainable domestic and irrigational purposes. In some of the areas, at present too these are the only sources of water.

However, in recent years modern means of ground water development have been employed. Public Health Engineering has been constructing number of hand pumps and shallow-moderate depth tube wells for large-scale water supplies

4.6 Climate

The climate varies from semi-tropical in the southern part comprising Kalakote, Sunderbani and Nowshehera to temperate in the mountainous northern part consisting the areas of Rajouri, Budhal and Darhal blocks of the district. The subtropical region receives regular monsoon, whereas the northern part prone to hailstorms experiences excessive rains. The

average rainfall is 500 mm and the average temperature varies from a minimum of 7.4 degree celsius to maximum of 37.4 degree celsius. The temperature in the northern part remains very pleasant in summer and cold in winter, whereas the southern areas are somewhat hot.

4.7 Soils

The soils of the district are comprised of Ochrepts-Orthents and OchreptsOrthents-Ustalfs. The Ochrepts-Orthents soils are located in the northern most and southern parts of the district. The Ochrepts-Orthents-Ustalfs soils are spread in the middle portion of the district. The origin of the soil is sand stone and granite. It is of light brown colour having fine loamy texture. This type of soil is suitable for crops like maize and wheat.

4.8 Geology

Northern side of the district comprises of Older Crystalline and Metamorphic rocks consisting of Salkhala, Tanawal and Ramban Formations of Precambrian to Eocene age. The southern part of the district comprises of Siwalik Formation. The Lower Siwalik semi consolidated subgroup constitutes light grey, medium to coarse sandstone, few claystones. The sandstones are well compact. The Siwalik consists predominantly of light grey, medium to coarse sandstone and clays. About 80% of the district comprises of Murree Group of rocks of late Eocene- Early Miocene age and is disconformably underlined by the rocks of Subathu Formation in the district. Murree Group consists of pink Sand stone & Clay. It is separated from Siwalik in south by Mandli - Kishanpur thrust and in north by Murree Thrust from Older Crystalline and Metamorphic rocks

4.9 Population

In 2011, Rajouri had population of 642,415 of which male and female were 345,351 and 297,064 respectively.

4.10 Sex Ratio

As per census 2011 the sex ratio of the district was 860 females per 1000 males.

4.11 Workers

According to 2011 census the working population in the district was 151912 out of which 101144 are male and 50768 are female.

4.12 Literacy

Average literacy rate of Rajouri in 2011 were 68.17 compared to 57.99 of 2001. Total literate in Rajouri District were 364,109 of which male and female were 224,469 and 139,640 respectively.

4.13 Cropping Patterns

The main food crops of the district are maize and rice in Kharif and Wheat in Rabi season. The most important crop is maize which is grown in the entire district, wheat ranks next. The area under rice cultivation is small. The area sown under different food crops in the district during the year 2009-10 is as under.

Table 12: Cropping Patterns

Sl.No.	Name of the Food Crops	Area Sown (000 Ha)
1.	Maize	47185
2.	Wheat	45,096
3.	Rice/Paddy	5,313
4.	Bajra	65
5.	Pulses	1,232
6.	Condiments & Spices	288
7.	Fruits & Vegetables	248
	Total food Crops	99,427

In the district dissemination of modern agriculture technology is being done both in irrigated and rain-fed areas. The climatic conditions of Rajauri district are favourable for horticulture. No doubt that land holdings are very small and most of the farmers are inclined towards agricultural activities which is the main source of their livelihood. But due to vigorous efforts made by the Government, number of orchards has come up in the recent past.

The district has orchards of various fruit varieties but plantation is in a scattered manner. In plain areas of Sunderbani, Kalakote, Nowshehra, Rajauri and Manjakote fruit trees of various species like peach, apricot, plum, mangoes, guava etc. are grown, whereas in the areas situated at high altitude, like Budhal and Thanamandi, walnut and pear are also grown.

4.14 Irrigation

No major medium network is available in the district except Rajal Canal which was completed during 1993-94 at the cost of Rs.8.01 crore. The total length of this canal is 19.50 kms. The irrigation potential is 2,417 hectares. The other sources of irrigation in the district are Darhali Tawi, Thanna Tawi, Sukh Tawi, Khandli, Jamola and Ans rivers.

4.15 Animal Husbandry

Animal Husbandry sector is engaged in treating the animals i.e. vaccination against contagious diseases, doses etc. and for genetic up gradation of the animals. The total livestock population was 10.191 Lakhs as per Live Stock Census 2008. As per the 2008 Livestock census, there were 1.72 lacs cattle, 1.61 lacs buffaloes, 3.42 lacs sheep, 3.16 lacs goats, 0.19 lacs Horses & Ponies, 0.08 lacs donkeys & mules and 0.006 lacs Pigs.

4.16 Socio-Economic Profile of Sub-Project villages

The socio-economic profile of the village falling under the proposed sub-project is given below:

Village Galhotti- Galhotti is a large village located in Rajauri Tehsil of Rajouri district, Jammu and Kashmir with a total of 628 families residing. The Galhotti village has a population of 3220 of which 1613 are males while 1607 are females as per Population Census 2011.

In Galhotti village the population of children age 0-6 is 581 which makes up 18.04 % of the total population of the village. The Average Sex Ratio of Galhotti village is 996 which is higher than the Jammu and Kashmir state average of 889. Child Sex Ratio for the Galhotti as per census is 969, higher than the Jammu and Kashmir average of 862.

Galeotti village has a lower literacy rate compared to Jammu and Kashmir. In 2011, the literacy rate of Galhotti village was 62.52 % compared to 67.16 % of Jammu and Kashmir. In Galhotti Male literacy stands at 73.60 % while the female literacy rate was 51.48 %.

In Galhotti village out of the total population, 1409 were engaged in work activities. 30.87 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 69.13 % were involved in Marginal activity providing a livelihood for less than 6 months. Of 1409 workers engaged in Main Work, 339 were cultivators (owner or co-owner) while 1 was Agricultural laborer.

Village Dehri Ralyot- Dehri Ralyot is a large village located in Rajauri Tehsil of Rajouri district, Jammu and Kashmir with a total of 576 families residing. The Dehri Ralyot village has a population of 2619 of which 1319 are males while 1300 are females as per Population Census 2011.

In Dehri Ralyot village population of children, age 0-6 is 478 which makes up 18.25 % of the total population of the village. The Average Sex Ratio of Dehri Ralyot village is 986 which is

higher than the Jammu and Kashmir state average of 889. The child Sex Ratio for the Dehri Ralyot as per census is 951, higher than the Jammu and Kashmir average of 862.

Dehri Ralyot village has a higher literacy rate compared to Jammu and Kashmir. In 2011, the literacy rate of Dehri Ralyot village was 75.71 % compared to 67.16 % of Jammu and Kashmir. In Dehri Ralyot Male literacy stands at 88.55 % while the female literacy rate was 62.79 %.

In Dehri Ralyot village out of the total population, 901 were engaged in work activities. 14.43 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 85.57 % were involved in Marginal activity providing a livelihood for less than 6 months. Of 901 workers engaged in Main Work, 0 were cultivators (owner or co-owner) while 1 was Agricultural laborer.

Village Ghambeer Muglian- Ghambeer Muglian is a large village located in Rajauri Tehsil of Rajouri district, Jammu and Kashmir with total of 1137 families residing. The Ghambeer Muglian village has a population of 5860 of which 3072 are males while 2788 are females as per Population Census 2011.

In Ghambeer Muglian village population of children with age 0-6 is 1088 which makes up 18.57 % of total population of village. Average Sex Ratio of Ghambeer Muglian village is 908 which is higher than Jammu and Kashmir state average of 889. Child Sex Ratio for the Ghambeer Muglian as per census is 915, higher than Jammu and Kashmir average of 862.

Ghambeer Muglian village has higher literacy rate compared to Jammu and Kashmir. In 2011, literacy rate of Ghambeer Muglian village was 67.60 % compared to 67.16 % of Jammu and Kashmir. In Ghambeer Muglian Male literacy stands at 79.19 % while female literacy rate was 54.81 %.

In Ghambeer Muglian village out of total population, 2591 were engaged in work activities. 44.62 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 55.38 % were involved in Marginal activity providing livelihood for less than 6 months. Of 2591 workers engaged in Main Work, 673 were cultivators (owner or co-owner) while 4 were Agricultural labourer.

Village Bharot-

Bharot is a large village located in Thanamandi Tehsil of Rajouri district, Jammu and Kashmir with total 605 families residing. The Bharot village has population of 3121 of which 1616 are males while 1505 are females as per Population Census 2011.

In Bharot village population of children with age 0-6 is 524 which makes up 16.79 % of total population of village. Average Sex Ratio of Bharot village is 931 which is higher than Jammu and Kashmir state average of 889. Child Sex Ratio for the Bharot as per census is 801, lower than Jammu and Kashmir average of 862.

Bharot village has lower literacy rate compared to Jammu and Kashmir. In 2011, literacy rate of Bharot village was 64.50 % compared to 67.16 % of Jammu and Kashmir. In Bharot Male literacy stands at 75.17 % while female literacy rate was 53.38 %.

In Bharot village out of total population, 1279 were engaged in work activities. 53.17 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 46.83 % were involved in Marginal activity providing livelihood for less than 6 months. Of 1279 workers engaged in Main Work, 313 were cultivators (owner or co-owner) while 24 were Agricultural labourer.

Village Rajdhani- Rajdhani is a large village located in Rajauri Tehsil of Rajouri district, Jammu and Kashmir with total 512 families residing. The Rajdhani village has population of 2426 of which 1251 are males while 1175 are females as per Population Census 2011.

In Rajdhani village population of children with age 0-6 is 475 which makes up 19.58 % of total population of village. Average Sex Ratio of Rajdhani village is 939 which is higher than Jammu and Kashmir state average of 889. Child Sex Ratio for the Rajdhani as per census is 696, lower than Jammu and Kashmir average of 862.

Rajdhani village has lower literacy rate compared to Jammu and Kashmir. In 2011, literacy rate of Rajdhani village was 64.58 % compared to 67.16 % of Jammu and Kashmir. In Rajdhani Male literacy stands at 74.46 % while female literacy rate was 54.80 %.

In Rajdhani village out of total population, 652 were engaged in work activities. 55.06 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 44.94 % were involved in Marginal activity providing livelihood for less than 6 months. Of 652 workers engaged in Main Work, 170 were cultivators (owner or co-owner) while 1 were Agricultural labourer.

Village Shahdara Sharief- Shahdra Sharief is a large village located in Thanamandi Tehsil of Rajouri district, Jammu and Kashmir with total 662 families residing. The Shahdra village has population of 3299 of which 1705 are males while 1594 are females as per Population Census 2011.

In Shahdra Sharief village population of children with age 0-6 is 673 which makes up 20.40 % of total population of village. Average Sex Ratio of Shahdra village is 935 which is higher than Jammu and Kashmir state average of 889. Child Sex Ratio for the Shahdra as per census is 859, lower than Jammu and Kashmir average of 862.

Shahdra Sharief village has higher literacy rate compared to Jammu and Kashmir. In 2011, literacy rate of Shahdra village was 68.96 % compared to 67.16 % of Jammu and Kashmir. In Shahdra Male literacy stands at 77.66 % while female literacy rate was 59.86 %.

In Shahdra Sharief village out of total population, 810 were engaged in work activities. 97.04 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 2.96 % were involved in Marginal activity providing livelihood for less than 6 months. Of 810 workers engaged in Main Work, 410 were cultivators (owner or co-owner) while 2 were Agricultural labourer.

5. Analysis of Alternatives

For this sub-project, the analysis of alternatives has been made, considering the "with and without project scenarios" which considered the potential social impacts, both positive and negative, of the sub-project.

5.1 'Without' and 'With' Project Scenario'

5.1.1 'Without' Project Scenario

Project Road takes off from Gulhati of Rajouri Poonch Road and ends at Shadra Sharief. Categorically, it is village road, having an existing carriageway less than the standard single lane. From a connectivity & pilgrim point of view, this particular road has high importance. Project Road has been divided into two sections – Section I from Km 0.000 to Km 10.000 (Length 10 Km) and Section II from Km 15.000 to Km 32.280 (Length 17.28 Km). From Km 10.000 to Km 15.000, stretch developed under PMGSY Scheme. 50% of road length having BT surface and rest portion either Earthen or Gravel surface. Pavement eroded during heavy rain. Due to the non-existence of throughout CC drain, the pavement was badly damaged and the slope eroded at several locations. Necessary protection work requires at several stretches with the provision of CC drain. Project Road connects with several villages namely Dehri Ralyot, Ghambeer Muglian, Bharot, Rajdhani, Shahdara Sharief. During the year 2014, connectivity with all villages was cut off for a few weeks. Development of the sub-project road is essential for the enhancement of the economy of Rajouri and Jammu Province as well.

5.1.2 'With' Project Scenario

The reconstruction of the proposed road will be a great help to the farmers to transport agricultural products, children would be able to travel faster and safer to go to school, as well as the local people when accessing to basic facilities such as health center/hospital, markets, working place, place of worship, and other areas. Besides that, the road will have less dusts during the dry season which may aggravate the health condition of the children and elderly; unlike the condition of the roads during the rainy season which is muddy and slippery, is risky for the lives of the road users especially those using bicycles and motorcycles.

From pilgrim point of view, up graded road will provide connectivity to the Shahdra Sharief Ziarat which is locally very famous. Sub-project road connects several villages namely Dehri Ralyot (Population, 998), Ghambeer Muglian (Population 5860), Bharot (Population, 1446), Rajdhani (Population, 1290), Shahdara Sharief (Population, 1488). A total of 11082

souls will reap the benefits in terms of access to basic services such as throughout year access to schools, hospitals and to district headquarters.

The project will not cause adverse impacts for the local people including women and there is no cultural heritage and forest that will be affected. The sub-project will not require any private land acquisition and is therefore, not impacting any other private asset. This has been confirmed through discussion with engineers from PMU, JTFRP (Jammu division). Encumbrance free certificate issued by the Project Manager (Transport, Jammu division) further confirms that the existing road was constructed by the PWD, (R&B) department in the past in the available RoW of 15.00 meters (annexure 3).

6. Stakeholder's Consultation

Stakeholder's Consultation is concerned with involving, informing, and consulting the public in planning, management implementation, and other decision-making activities. It tries to ensure that due consideration is given to public values, concerns, and preferences when decisions are made. It encompasses the public actively sharing in the decisions that government and other agencies make in their search for solutions to issues of public interest.

One of the important aims of the stakeholder engagement exercise is to ensure that all relevant stakeholders are provided with the opportunity to express their concerns and opinions, which are incorporated as early as possible in the project development: at planning, implementation, and operation phase and in the effect minimize the potential unexpected opposition of the proposed project and potential adverse effects to the environment. It is also very beneficial in incorporating the views of the public into the design process for the adoption of the best workable models and systems.

6.1 Identification of Stakeholders

Stakeholder's identification is the process of identifying stakeholders considering the legitimate representatives or the project-affected groups and whose views should take precedence in stakeholder consultations. Project related information has been shared with all the concerned stakeholders on 15.12.2018 and 17.7.2019. This was the first step to identify stakeholders who will be involved in the consultative process. Design of the project was shared with the locals. Since the sub-project does not have any adverse impact in terms of land or asset acquisition, therefore, the stakeholders were the people of the Project corridor, Gram Panchayat, PIU and PMU.

6.2 Objective of Stakeholder's Consultation

The main objective of this exercise is to inform stakeholders about the project and its likely effects, which in turn would incorporate their inputs, views, and concerns, and thus enable their views to be taken into account during the decision-making. The specific objectives of the consultations are geared towards:

- Informing the stakeholders about the project and its potential impacts.
- Obtaining local and traditional knowledge that may be useful in decision making.
- Facilitating consideration of alternatives, mitigation measures and trade-offs (if any).

- Ensuring that important impacts are not overlooked and benefits are maximized.
- Reducing chances of conflict through early identification of contentious issues.
- Providing an opportunity for stakeholders to influence the Project design and operational plan in a positive manner.
- Improving transparency and accountability of decision making.
- Increasing public confidence in the SIA process

6.3 Approach for Consultation

A very sensitive and pro people approach was adopted to engage locals in the sub-project activities. Project design and revenue record along with other project related information were shared with them in order to instil faith and confidence among them about the proposed project and its activities.

Following steps were taken to engage stakeholders.

1. Site visits and informal meetings with the local to know their views and perceptions about the sub-project.
2. Reconnaissance survey and transect walks.
3. Involving Gram Panchayat in the consultations.
4. Sharing of project design and revenue record with the locals.
5. Understanding their needs and requirement.
6. Collection of Baseline information.

6.4 Details of Public Consultation in sub-project road

Several public consultations had been organised to disseminate the project concept and plan among the stakeholders. Consultations were conducted successfully with the people of Gulhatti, Bharde Gali and Ghambeer Mughlan villages on 5.12.2018 and 17.7.2019. The objective of conducting consultation was to share project information along with probable impacts if any and it's mitigation with the concerned stakeholder's (annexure 9).

6.5 Information's Shared

The following information was shared with the people:

Public Consultation on 5.12.2018 at village Kutli.

- Sub-project and its source of assistance, its implementation/execution, etc.

- Benefits from the proposed sub-project including travel time, fuel costs, noise, and air pollution.
- Perceived losses from the proposed sub-project during execution stage in terms of inconvenience to public, air and noise pollution etc.
- Health hazard due to sub-project and mitigation measures.
- Discussion among the public for sharing of information related to project, Social Safeguards policy of World Bank direct and indirect impacts of improvement/ construction work on the environment.
- Impact on trees and measures to be taken for saving scheduled trees in close vicinity of the proposed road.
- Temporary problems during civil works.
- Livelihood generation by involving local labor with the project during the construction stage of the project.

Public Consultation on 17.07.2019 at village Gulati and Bahrde Gali.

- Project Proposal and funding agency
- Requirement of land and social safeguard policies of World Bank
- Role of people in the project
- Grievance Redressal
- Social Management Plan
- Temporary problems during civil works

6.6 Feedback received

During the consultation process, people have expressed keen interest in the proposed sub-project. The local people are expecting a good road to be developed and are aware of the upcoming work. People, in general, were very enthusiastic about the benefits of the sub-project in terms of reduction in travel time and fuel cost. The major problems faced by people are related to the dilapidated condition of the existing road. In the time of emergency, like accidents, fast commutation is very difficult and sometimes impossible. People are ready to extend all types of support during the execution of the sub-project as their major difficulties will overcome after completion of the sub-project. The sub-project during the construction stage will generate employment opportunities for local people and the people are aware of this fact. Although they know that sub-project does not require private land but they stated that in case private land is required they shall be compensation. They also asked to provide retaining walls wherever, EA does land cutting to save the land from erosion.

7. Analysis of Social Impacts

7.1 Impact on Land

The total length of the sub-project road for reconstruction is 28.8 kms. The average width of the existing carriageway varies from 2.50 m to 3.00 m with an average shoulder width and formation width of 3.50 m to 4.00 m. The proposed carriageway is 3.75 m with a 1.000 m wide granular hard shoulder on either side of the carriageway. The available RoW in the sub-project road is 15.00 meters.

PWD (R&B) Division Rajouri vide letter no. EER/R&B/01/2019-204370-73 dated 22.7.2019 (annexure 3) which confirms that RoW of 15.00 meters is available for road upgradation. Project Manager (Transport, Jammu division) vide letter no ERA/PM/T/2021/2197 dated 31.07.2021, issued a non-encumbrance certificate on the basis of RoW certificate provided by R&B division, Rajouri and confirmed that its encumbrance free (annexure 4). J&K ERA, has tried to obtain revenue record from the concerned department but due to one or another issue it could not be obtained.

Since the revenue record of the proposed sub-project was not available, therefore PMU, JTFRP published a notice in the two local newspapers namely “Amar Ujala” and “State Times” on 19.09.2021 and 20.9.2021 respectively, informing general people and those who are likely to be benefitted/affected in particular, about the upgradation of this road sub-project within the existing right of way under World Bank funding (annexure 5). It also called for any objection from the local people regarding use of RoW, along with supporting documentary evidence within 07 days of publication of the notice in the newspaper. The office of Director safeguards did not receive any objection or claim from anyone even after the lapse of one month of the publication of notice in two local newspapers. Thereafter, Director Safeguards issued an official letter vide no. ERA/DSG/PS/88-93 dated 25.10.2021 regarding encumbrance free RoW detailing therein the process followed to reconfirm the ROW ownership status (annexure 6).

Therefore, on the basis of certificate issued by Project Manager (Transport, Division Jammu), site visits, approved DPR and notice published in the newspaper it can be said that the sub-project does not have any adverse impact on the assets such as structures, land or on livelihood of anyone.

However, if during execution, there is any unanticipated impact of the sub-project on any asset, the issue shall be addressed as per the provisions of Environment & Social

Management Framework (ESMF) for the project, applicable policies of the WB and that of U.T of J&K.

7.2 Impacts on Structures

As per the design of the sub-project no structure Residential, Commercial or Religious is falling in the alignment of the road. Further, there is no Community Property Resource in the alignment. Project Manager (Transport, Jammu division) vide letter no ERA/PM/T/2021/2197 dated 31.07.2021, issued a non-encumbrance certificate on the basis of RoW certificate provided by PWD (R&B) Division Rajouri (annexure 3) which confirms that RoW of 15.00 meters is available for road upgradation. Further, PIU also confirmed that no land acquisition is required for the sub-project (annexure 4). Strip plan of the road (annexure 7) also confirms that there is no structure inside the alignment of the proposed road.

7.3 Impacts on Livelihood

There are no commercial structures either temporary or permanent in the proposed alignment of the road. Further, there is no squatter on the road earning livelihood by using the available RoW and none has encroached upon the road. Therefore, sub-project has no impact on the livelihood of anyone.

8. Mitigation Measures

8.1 Social Management Plan

The Social Impact Assessment study does not envisage any significant adverse impact of the sub-project i.e., there is no involuntary displacement and land acquisition. Further, there is no temporary or permanent impact of any kind on the livelihood of people. Structures proposed shall be improved in the existing RoW. Technical department from PMU & PIU have made required modifications in design at initial stages to avoid negative impact as a part of mitigation measures.

DPR for the sub-project has been approved. The Social Management Plan suggests the mitigation measures needs to be adopted during execution to deal with unanticipated impact of the sub-project.

8.2 Objectives

The main objective of the Social Management Plan is to mitigate the various adverse social impacts which may arise during the pre-construction, construction, and post-construction of the sub-project. The objective of SMP in preconstruction, construction & post-construction stages are as follows:

Pre-construction Stage

To discuss the design and technical proposal with the stakeholders to know their suggestions and inputs. To inform them about the project, its funding, land requirements, and policies and guidelines of funding agencies and applicable to the project.

Construction Stage

To ensure that the provision of the SMP (Social Management Plan) is strictly followed and implemented by strengthening implementation arrangement.

To address the construction stage social impacts arising due to various project activities en route the corridor and particularly at habitations through specific measures that need to be applied across and certain specific measures that shall be determined on a case by case basis.

Post-construction Stage

To ensure that all the issues that arose during the construction stage shall be addressed properly. In case land and other assets utilized by the EA or contractor shall be restored to the satisfaction of communities and owners of that assets.

8.3 Scope

The Social Management Plan (SMP) in the sub-project, consists of the set of mitigation, monitoring and institutional measures to be taken during the pre-construction, construction, and operation stages of the project to eliminate adverse social impacts, to compensate them, offset them, or to reduce them to acceptable levels following the mitigation hierarchy. The plan also includes the actions needed for the implementation of these measures.

The major components of the Social Management Plan are:

- Mitigation of potentially adverse impacts;
- Integration of SMP with Project in construction and operation phases;
- Institutional Capacity Building and Training;
- Monitoring during project implementation and operations;

8.4 Context for the SMP

This Social Management Plan for "Gulhati to Shahdra Sharief road" is based on Social Impact Assessment study during which site visits were carried out in the project corridor. Consultations and meetings were conducted with the people and project design was discussed and evaluated on the ground.

The sub-project does not have any impact on private land and all the construction activities will be carried out within the available ROW. There would be no impact on the private assets, CPRs and any other religious property due to any project activities. Project Manager (Transport, Jammu division) vide letter no ERA/PM/T/2021/2197 dated 31.07.2021, issued a non-encumbrance certificate on the basis of RoW certificate provided by PWD (R&B) Division Rajouri (annexure 3) which confirms that RoW of 15.00 meters is available for road upgradation. Further, PIU also confirmed that no land acquisition is required for the sub-project (annexure 4). There can be few temporary impacts due to construction activities and to address these impacts, a Social Management Plan has been prepared which lays down mitigation measures that needs to implemented for any impact on site. SMP will be implemented by the contractor under the supervision of PMU & PIU, JTFRP.

8.5 Methodology for SMP Preparation

The comprehensive social management approach for the project involves following key steps and processes.

- Screening of social impacts during the SIA study
- Public consultation with the stakeholders.
- Discussion of Technical Proposal with the stakeholders.
- Transect walk and Identification of issues that can crop up during the construction stage.
- Development of measures aimed at avoiding, mitigating, and offsetting, or reducing impacts to levels that are socially accepted during implementation and operation of the project road.

8.6 Probable Social Issues that may arise during the construction stage

- Loss of land due to land-slides resulting from hill cutting activities.
- Cracks in structures or damage due to construction works e.g., hill cutting activities
- Temporary – short duration or prolonged disruption to services such as water supply, power supply etc.
- Temporary Disruption to traffic movement leading to time delays.
- Possibility of gender-based violence arising from influx of migrant labour for construction works.
- Labour influx issues may arise if contractor will employ the manpower from outside
- Labour issues like unequal wages to men and women, discrimination in employment opportunities, Child labour.
- Inconvenience and Nuisance to Public due to accumulation of excavated earth
- Stagnation of water leading to mosquito breeding and public health problems.
- Spread of diseases at construction and camp sites due to influx of labour like HIV AIDs, COVID 19 etc.

8.7 Social Management Plan

Based on the findings and issues identified during SIA study, Social Management Plan has been prepared for the sub-project. The mitigation measures for the potential impacts are presented in form of a matrix according to the sequential flow of activities in the project life cycle. These measures would be further updated by Contractor during the implementation of the SMP. The Social Management Plan will be a part of Bid document.

Table 13: Social Management Plan

Sl.No.	Project Phase/Activity	Issues/ Potential impacts	Proposed Mitigation Measures	Responsibility	Monitoring Agency/ Frequency
Planning/Pre-construction Phase					
1	**Pre-construction phase**	• Sharing of design with the community. • Utilization of private land temporarily, if required. • Provision of alternative access to the community for commuting wherever required. • Restoration and relocation of Common Property Resources if any.	• Consultation with local community and stakeholder engagement. • Written consent from the community or owner of the land required for stocking construction material temporarily. • Involving locals (Gram Sabha) wherever any issue arises.	Contractor	PIU
Construction Phase					
2	**Influx of labor**	• Construction Camp Locations Selection, Design, and Lay-out. • Conflict with the community due to social and cultural differences with the host community. • The potential impact of spreading infectious diseases from labor to the local or vice versa. • Possibility of Sexual abuse and assault in the labor camps or otherwise. • Drug abuse, gambling, etc.	• Minimize labor influx as much as possible by engaging the local labour force. • Ensure labor camps for the labor (Away from religious places and localities to the extent possible). • Awareness of the health and sanitation for the labor. • Ensure the least contact between the host community and the labor. • Awareness of sexual assault & drug abuse.	Contractor	PIU/ PMU Monthly Monitoring
		• Facilities for the Labour in camp and on the worksite	• Providing accommodation facilities to the migrant laborers with proper ventilations. • Provision for safe drinking water and appropriate cooking arrangement at labor camps; • Provision of Separate toilet and bathing facilities for men and women • Provision of medical facility which includes first aid kit at the camp site and also ambulance facility to take patients to the hospital in case of emergency. • Proper drainage facility at the camp site along with water sewerage treatment facilities. No waste water	Contractor	PIU/ PMU Monthly Monitoring

Sl.No.	Project Phase/Activity	Issues/ Potential impacts	Proposed Mitigation Measures	Responsibility	Monitoring Agency/ Frequency
			should be discharge to any surrounding area without required permission and proper treatment. • Provision of prayer rooms as per the religious beliefs of the workers. • Safe storage facilities for the gas cylinder, petroleum, and other chemicals, used by laborers. • Proper solid waste collection and disposal system at the camp site. • The camp should have proper security arrangements, like a Security fence. • Preparing a code of conduct for the migrant workers. • Conducting awareness program about sexually transmitted diseases among the migrant workers, laborers and for the community around project site; • Awareness program on COVID-19. • Provision of hand sanitizer, masks in the labor camps. • Provision of separate accommodation for COVID-19 infected labors or persons engaged by the contractor. • Provision of crèche on site for children. • Training programs for construction workers in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of sexually transmitted infections (STI) HIV/AIDS. • Labour Registration. • Awareness program for labor rights • No employment of child labor.		
		• Registration of Complaints received from	• Arrangement to register and redress the grievance of	Contractor	PIU/ PMU Monthly

Sl.No.	Project Phase/Activity	Issues/ Potential impacts	Proposed Mitigation Measures	Responsibility	Monitoring Agency/ Frequency
		labor.	workers. • Grievance Redressal System for the project to address such issues including sexual harassment at the workplace		Monitoring
		• Equality of opportunity to work. • Equal Pay for equal work • Preference to the Women Laborers	• To be ensured throughout the project cycle. • Maintenance of payment registers by the contractor.	Contractor,	PIU/ PMU Monthly Monitoring
3	**Community Health and Safety**	• Injury & sickness due to construction work and movement of heavy vehicles, contamination, or other natural or human-made hazards.	• Provision of access to the community, shops, religious places during the construction phase. • Better marking and signage. • Provision of alternative transportation routes for vehicles and ambulances wherever required. • Undertaking regular surveillance at the site to check on Hygiene conditions for disease control. • Treating mass awareness on HIV and STDs and COVID-19. • Ensure the least contact between the labor and the local population. • Sharing grievance redressal system with the community and displaying contact numbers at the site to register any grievances due to the project. • contamination of water bodies due to stocking of construction material etc. • Safeguarding pedestrians' safety including women, children. • During construction of side, drains provide temporary/safe access to shops, kids, hospital/clinic, religious places, etc. • Community Consultation	Contractor	PIU/ PMU Monthly Monitoring
4	**Occupational health and safety**	• Injury and sickness of labor	• Provide training on health and safety to all the workers. • Provide PPE to workers as per work requirements. • Regular checking of body temperature and other	Contractor	PIU/ PMU Monthly Monitoring

Sl.No.	Project Phase/Activity	Issues/ Potential impacts	Proposed Mitigation Measures	Responsibility	Monitoring Agency/ Frequency
			symptoms among the laborers for COVID-19 and maintaining a register. • Awareness program on COVID-19. • Provision of hand sanitizer, masks in the labor camps and on the sites. • Displaying of COVID-19 help line numbers on-site as well as in labor camps. • Provide separate toilets for male and female labor at the construction site • Provide safe drinking water at the construction site. • Providing a separate resting area at the site for breaks during the work period • Provide adequate lighting in the construction area and along the roads. • Conduct an initial health screening of the laborers working at the construction site, especially those who are coming from outside the project area. • Provide first aid facility at the construction site • Provide HIV awareness programming, including STI (Sexually Transmitted Infections) and HIV information, education, and communication for all workers on regular basis.		
5	**Gender-Based Violence**	• Sexual Exploitation and Abuse (SEA) • Workplace Sexual Harassment • Human Trafficking • Non-SEA	• Awareness program for the Contractors, Local Communities, and laborers on national laws. • Introducing a worker's code of conduct. • Displaying of various legal provisions on-site, in labor camps, and at prominent locations in the project area. • Ensure that complaints of GBV are registered and maintained confidentially in a register. • Strict code of conduct for workers with no tolerance for physical or verbal abuse	Contractor	PIU/ PMU Monthly Monitoring

Sl.No.	Project Phase/Activity	Issues/ Potential impacts	Proposed Mitigation Measures	Responsibility	Monitoring Agency/ Frequency
			of women or children.		
Post Construction Phase					
6	**Rehabilitation of site used for camp, storage etc.**	• Handing over temporarily used private/ community land to the landholders/ community by the contractor without restoration work and payment of dues/ lease amount. • Non-removal of debris and other construction material from the site.	• Consultation with the private party or Community and restoration of their land. • Removing of left-over construction material from the site. • Payment of lease amount/rent, if any due, to the private party or community for utilization of their resources.	Contractor	PIU/PMU Within one Month

8.8 Gender Action Plan

8.8.1 Status of Women in J&K

Women constitute around 47% of the total population of the State. The development of women, no doubt, has been a part of the development planning process right from the inception of Five-Year Plans but the shift in approach from welfare to development toward women took place in a focused manner in the 6th and 7th Five Year Plans. The 8th Five Year Plan promised to ensure that benefits of development do not by-pass women. The 9th Five Year Plan changed the strategy for women from development to empowerment and emphasis on preparation of a separate Women Component Plan (WCP) by identifying specific Schemes/Projects having a direct bearing on the welfare and development of Women. The 10th Five Year Plan further strengthened the implementation of the Women Component Plan (WCP).

Moreover, the Women and Child Development Department in the Ministry of Social Justice and Empowerment has also enjoined upon the states to monitor closely the flow of benefits of various schemes for the empowerment of women on regular basis. These initiatives have helped in improving the status of women in various spheres to a great extent, but the imbalance still exists which needs to be addressed over the years. The 11th Plan had taken numerous steps forward. However, the targets set out could be only partially achieved. In the 12th plan, the Government's priority would be to consolidate the existing initiatives and interventions relating to women, build upon the achievements and also move beyond to respond to new challenges. The female population of J&K State slashed down from 47.15% of the total population in 2001 to 46.88% in 2011. As per details from Census 2011, Jammu and Kashmir have a population of 1.25 Crore souls over the figure of 1.01 Crore in the 2001

census. The total population of Jammu and Kashmir as per the 2011 census is 12,548,926 of which male and female are 6,665,561 and 5,883,365 respectively indicating a reduced sex ratio of 883. The corresponding figures of male and female as per Census 2001 were 5,360,926 and 4,782,774 respectively indicating a sex ratio of 892. Sex ratio (females per thousand of males) is an important indicator of the social conditions particularly for women's status in any society.

The low sex ratio shows indulgence of artificial interventions, distorting the biological trend and natural balance in terms of the number of females per thousand males. An important concern in the present status of Jammu and Kashmir's demographic transition relates to the adverse sex ratio. The sex-ratio as per census 2011 was 883 which is a matter of great concern and needs to be addressed on priority. Education of the women is very effective tool for women's empowerment not only from the point of view of literacy, but it has inter-linkage with other social parameters viz. population growth, health care, education of children, etc. It enables rural women to acquire new knowledge and technology, required for improving and developing their tasks in all fields, besides availing new opportunities and combating emerging challenges of a dynamic society.

Female education is essential for higher standards of health and improved "maternal competence" which leads to lower infant mortality. It also raises women's economic productivity. Despite its linkage to so many positive outcomes and the progress made over the past 50 years, female literacy remains low in J&K State as compared to men. Jammu and Kashmir's literacy rate has increased by 13% in the last decade i.e. from 55% in the 2001 Census to 68% in the 2011 Census. While female literacy has increased from 42.22% in the 2001 Census to 58.01% in 2011. Gender differential still exists both in rural and urban areas but it is comparatively higher in rural areas. This can be attributed to some factors viz., lack of access to schools, parents feeling insecure about sending girl children to schools, their engagement in agricultural and other domestic activities, etc. Though still being at a disadvantageous position, the womenfolk are breaking the barriers/shackles to get an equal share in basic human rights. With a higher growth rate than male literacy, the goal is expected to be achieved in near future.

8.8.2 Legal Provision Related to Women in J&K

- J&K Protection of Women from Domestic Violence Act, 2010
- Jammu and Kashmir Juvenile Justice (Care and Protection of Children) Act, 2013
- State Commission for Women Act, 1999

8.8.3 Strategy

Suggestive Actions to be taken in the sub-project

- Ensure participation of vulnerable groups in the project activities.
- Ensuring facilities in construction camps.
- Carrying out other responsibilities towards vulnerable groups.

Suggestions for increasing the Women's Participation in the sub-project

- Allow women to take part in the consultation process. Ensure that the women are consulted and invited to participate in group-based activities, to gain access and control over the resources.
- Provide separate training to women groups for upgrading the skill in the alternative livelihoods and assist throughout till the beneficiaries startup with production and business.
- Encourage women to evaluate the project outputs from their point of view and their useful suggestions should be noted for taking necessary actions for further modifications in the project creating a better and congenial situation for increasing participation from women.
- Devise ways to make others vulnerable to participate in the project activities.

Involvement during Construction

Wherever possible, women's involvement in construction activities should be encouraged to help them have access to the benefits of project activities. The construction contractors set up their construction camps on identified locations, where the labor force required for the construction activities will be provided with temporary residential accommodation and other necessary infrastructure facilities. Also, there is a requirement of unskilled labor, where women can certainly contribute.

Ensuring Facilities in Construction Camps

Foreseeing the involvement of women, both direct and indirect in the construction activities, PMU, PIU & PMC shall ensure certain measures that are required to be taken by the construction contractor towards welfare and well- being of women and children during the construction phase such as:

- **Temporary Housing:** During the construction, the families of laborers/workers should be provided with residential accommodation suitable to nuclear families.

- **Day Crèche Facilities:** It is expected that among the women workers there will be mothers with infants and small children. Provision of a day crèche may solve the problems of such women, who can leave behind their children in such a crèche and work for the day in the construction activities. If the construction work involves women in its day-night schedules, the provision of such a crèche should be made available on a 24-hour basis.
- **Proper Scheduling of Construction Works:** Owing to the demand for fast construction work, it is expected that a 24 hours-long work-schedule would be in operation. Engaging women labour during night services should be avoided by the project or can be permitted only after getting written request from the women labour. In this case crèche facilities in the construction camps must be extended to them in the night. If unavoidable, crèche facilities in the construction camps must be extended to them in the night shifts too.
- **Control on Child Labor:** Minors, i.e., persons below the age of 14 years, should be restricted from getting involved in construction activities. It will be the responsibility of the Social and Environmental experts of PMU, JTFRP to ensure that no child laborer is engaged in the activities. PMU& PIU shall keep strong vigilance to ensure the cessation of such exploitation.
- **Control on Child Labor:** Minors, i.e., persons below the age of 14 years, should be restricted from getting involved in construction activities. It will be the responsibility of the Social and Environmental experts of PMU, JTFRP to ensure that no child laborer is engaged in the activities. PMU& PIU shall keep strong vigilance to ensure the cessation of such exploitation.

8.8.4 Avoiding Gender based violence

The contractor will prepare and implement robust measures to address the risk of gender-based violence that include:

- Mandatory and repeated training and awareness-raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women;
- informing workers about national laws that make sexual harassment and gender-based violence a punishable offense which is prosecuted;

- introducing a Worker Code of Conduct as part of the employment contract and including sanctions for non-compliance (e.g., termination), and (iv) contractors adopting a policy to cooperate with law enforcement agencies in investigating complaints about gender-based violence.

8.9 Labor influx and Labor Management

Since the construction activities are mostly labor intensive by nature, therefore, it is also envisaged that both local and migrant labor shall be employed by the project. These migrant laborers will be accommodated in a temporary campsite within the project area.

8.9.1 Objectives

The influx of migrant labor will have both negative and positive impacts on the nearby community and local environment. The labor will be accommodated in a temporary campsite within the project area which can have a significant interface with the host community. The influx of migrant workers would lead to a transient increase of population near the project area for a limited time. This would put pressure on the local resources such as roads, fuel for cooking, water, etc. Hence, a plan has been designed to demonstrate the:

- Potential impacts associated with the influx on the host population and receiving environment are minimized;
- Provision of safe and healthy working conditions, and a comfortable environment for migrant labor; and
- To ensure compliance with the national labor laws, including guidance provided on the latest COVID 19 epidemic in the country.

8.9.2 General Requirements

All migrant workers are envisaged to be accommodated in a proper temporary campsite within the project area. If migrant workers are accompanied by their families, provisions should be made accordingly. As per the National Acts, the inclusion of requirements for labor camp to be established by contractors during the construction phase of the project. Contractor(s) shall ensure implementation of the following measures to minimise the potential negative impacts of worker accommodation and workers on local communities:

- **Cleanliness and Sanitization:** Pest extermination, vector control, and disinfection are to be carried out throughout the living facilities in compliance with local requirements and/or good practice. In light of the COVID-19 outbreak

and increased risks to community health and safety and occupational health and safety, the contractor needs to put in place a COVID-19 safeguards measures at place.

- **Complaints and incident reporting:** A formal Complaints Procedure will be implemented to ensure the timely and transparent response to complaints as received from labor.
- **Labor education:** The workforce will be sensitized to local social and cultural practices through the provision of an induction course for all employees that stipulates expected behaviour;
- **Labor behaviour in the campsite provided:** A Code of Behaviour governing appropriate behaviour in the accommodation facilities to be kept in place and to be strictly enforced. The contractor shall ensure implementation of the "rules of engagement" between laborers living in the campsite and community and shall be implemented by construction contractors for all engaged laborers.
- **Labor Compensation and Accommodation:** JTFRP shall ensure that laborers are provided with benefits such as leave, weekly rest day, etc. Accommodation to be provided for the construction labor which covers facilities (including catering facilities, dining areas, washing and laundry facilities, etc.) and supporting utilities.

8.9.3 Hiring & Recruitment Procedures

- The manpower wherever possible shall be locally recruited by the contractor. The following general measures shall be considered for the workforce during their employment tenure:
- The implementing agency in consultation with the PMU will include a code of conduct relating to the accommodation to be signed with the contract document of contractors.
- The contractor shall not employ any person below the age of 18 years nor will have any forced labor; The construction laborers will be provided with documented information regarding their rights under national labor and employment law such as but not limited to Factories Act, Minimum Wages Act, 1948 Trade Unions Act, and Workmen's Compensation Act; 1923
- The first priority for employment of labor should be given those impacted by the project such as landowners who have lost land / donated land;

- No discrimination shall be done by the construction contractor for recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, termination of employment or retirement, and disciplinary practices;
- The contractor to ensure that work hours are set at eight hours a day, 48 hours a week, with a weekly rest day for all engaged labor;
- Every labor is entitled to a maximum of only two hours a day as Overtime (OT) work. OT pay is twice the hourly remuneration;
- The project will ensure that equal wages for male and female workers for work of equal nature or value is maintained;
- A grievance redressal mechanism for workers to be put in place by the contractor to raise workplace concerns. The workers to be informed about the grievance mechanism at the time of recruitment; and
- The Contractor to ensure that they develop and implement a procedure to review the performance of their sub-contractors.
- The procedure developed should include regular inspection of the campsites, maintaining information of labor sourced by sub-contractors;

8.9.4 Worker's Accommodation

The EA has to supervise and monitor the activities performed by their contractor and accommodation facilities provided in the campsite. The following measures shall be provided:

- The laborers to provide with accommodation made of insulating material and locally available building material, etc. along with storage of personal belongings;
- The migrant workers with families will be provided with individual accommodation comprising bedroom, sanitary, and cooking facilities;
- The units to be supported by common latrines and bathing facilities duly segregated for male and female labor; A minimum of 1 unit to 15 males and 1 unit for 10 females shall be provided;
- The contractor shall provide a canteen facility with the facility to cook food of appropriate nutritional value respecting religious/cultural backgrounds;

- All doors and windows shall be lockable and mobile partitions/curtains shall be provided for privacy;
- Dust bins to be provided for collection of garbage and to be removed daily;
- It is also required to provide first aid box in adequate numbers; and
- Ventilation should be appropriate for the climatic conditions and provide workers with a comfortable and healthy environment to rest and spend their spare time.

8.9.5 Security

The contractors shall put in place the following security measures to ensure the safety of the workers. The following measures shall be incorporated:

- Access to the campsite shall be limited to the residing workforce;
- The contractor shall be responsible for deploying an adequate number of guards;
- Adequate, day-time night-time lighting shall be provided;
- The security personnel shall be provided with training to respect the community traditions and in dealing with, use of force, etc.; and
- The rental accommodation shall be provided with firefighting equipment and portable fire extinguishers.

8.9.6 Provisions for Drinking Water

- Access to an adequate and convenient supply of free potable water is a necessity for workers. The domestic water conforming to the IS 10500:2012 supply shall be made available by the contractor.
- The direct usage of water from bore well should not be allowed;
- The Contractor(s) should regularly monitor the quality of drinking water. In case of non-compliance with the Drinking Water Specifications, additional treatment shall be provided, or alternative sources of water supply shall be arranged; and
- All storage container of drinking water to be monitored from becoming polluted or Contaminated.

8.9.7 Cooking Arrangements

- Places for food preparation are designed to permit good food hygiene practices, including protection against contamination between and during food preparation;

- Adequate personal hygiene including a sufficient number of washbasins designated for cleaning hands with clean, running water; and
- All kitchen floors, ceiling and wall surfaces adjacent to or above food preparation and cooking areas are built using durable, non-absorbent, easily cleanable, non-toxic materials;
- Food preparation tables are equipped with a smooth, durable, easily cleanable, non-corrosive surface made of non-toxic materials.
- To ensure that the fuel need of laborers in the project area does not interfere with the local requirements, necessary arrangements for the supply of fuel to the laborers shall be done by the contractor.

8.9.8 Waste Water Generation

- There will of generation of wastewater from the campsite. About 80% of the water used shall be generated as sewage/wastewater.
- Contractors to ensure that the campsite is equipped with a septic tank and soak pit for disposal of sewage. It is also recommended that the stormwater and sewage system should be separated. The surface water drainage shall include all necessary gutters, downpipes, gullies, traps, catch pits, manholes, etc.
- Sanitary and toilet facilities are constructed of easily cleanable materials. Sanitary and toilet facilities are required to be cleaned frequently and kept in working condition.

8.9.9 Medical facilities

The following medical facilities shall be provided by contractors for the construction workers:

- A first-aid centre shall be provided for the labor within the construction site equipped with medicines and other basic facilities;
- Adequate first aid kits shall be provided in the campsite in an accessible place. The kit shall contain all type of medicines and dressing material;
- The contractor shall identify and train an adequate number of workers to provide first aid during medical emergencies;
- Regular health check-ups shall be carried out for the construction laborers every six month and health records shall be maintained;

- Labors should have easy access to medical facilities and first aider; where possible, nurses should be available for female workers;
- First aid kits are adequately stocked. Where possible a 24/7 first aid service/facility is available.
- An adequate number of staff/workers is trained to provide first aid; and
- Information and awareness of communicable diseases, AIDS, etc. shall be provided to workers.

9. Monitoring and Evaluation

The Project requires detailed supervision, monitoring, and evaluation of the impact on the environment and social aspects. Monitoring is the periodical checking of planned activities, which provides midway inputs, facilitates changes, if necessary, and provides feedback to Project Authority for better management of project activities. It helps in making suitable changes and modifications in safeguard documents during project implementation. Evaluation on the other hand assesses whether the activities have achieved the intended goal and objectives. Thus, monitoring and evaluation are critical to measuring the project performance and fulfilment of project objectives.

To carry out this, PMU has made specific arrangements. The executing agency has a dedicated unit to deal with the social and environmental safeguards. This unit is headed by Director Safeguards who is assisted by full-time Social Safeguards and Environmental Experts. To ensure compliance with the World Banks' social safeguard issues Director Safeguards will monitor and evaluate routine activities. Half-yearly Environmental and Social Audit, of ESMF implementation, will be done by the Technical Audits and Quality Control Consultants. Progress on social safeguards and other issues will be flagged in the MPR and QPRs.

9.1 Safeguards Supervision

This will be done by PMU with the support of PIU and consultants. All the sub-projects will be visited at regular intervals by PMU to check if all safeguard requirements are met and to identify any issues that need to be addressed. PMU should submit quarterly progress reports to The World Bank on safeguards implementation.

9.2 Concurrent Monitoring and Quarterly Reporting

The concurrent internal social monitoring will be done as part of the regular monitoring by the PIU, Implementing Agencies, and TAQAC. However, PMU, with the help of an in-house Social Specialist will do the regular social monitoring of sub-projects for safeguards compliance.

9.3 Safeguards Monitoring Plan

Apart from the quarterly monitoring reports submitted to the World Bank, once every year, the PMU will prepare a report of social situation in the project districts including data and analysis of relevant parameters as given in the plan below. This report also should give a

listing of relevant new legislation and regulations that have a bearing on the environmental and social performance of the project. PMU will submit this report to The World Bank.

9.4 Independent Safeguard Audits

The PMU will appoint Independent Project Implementation Quality Audit Consultants with expertise in social and environmental safeguards to conduct a half-yearly project quality audit, which will include Environmental and Social Audit of selected sub-projects for compliance with the ESMF.

9.5 Right to Information and Disclosure

The Jammu and Kashmir Right to Information Act 2004 gives the right to persons to obtain any document or information relating to the affairs of the state or public body. In addition to the provisions of the above Act, the JTFRP provides for voluntary disclosure of information and project documents in English, Hindi, and Urdu on the Government and implementing agencies' websites for public consumption.

10. Grievance Redressal Mechanism

Grievance Redressal Mechanism is a process to address people's grievances related to land acquisition, resettlement, and rehabilitation, or any other social issue arising out of the project-related activities; executing agency will establish two bodies, one at a local level (site level) and another at District level. In case, the grievances are not resolved at these two levels, then they will be forwarded to R&R Committee at the Divisional level for this project which will be established under the Divisional Commissioner, Jammu/Srinagar. The grievances will be registered at the Project site. The local level grievance committee will try to resolve the case in a maximum of 14 days. In case the aggrieved person is not satisfied with the decision delivered at the local level or the grievance/s is not resolved, the same shall be forwarded to the district level committee, headed by District Collector. No grievance can be kept pending for more than a month which means the committee has to meet every month. Executing Agency through PMU, JTFRP will monitor the implementation of the decision of the committee. In case the aggrieved party is not satisfied with the proposed redressal measures, it can approach the Divisional Level Redressal Committee, headed by Divisional Commissioner, Jammu/Srinagar. If the aggrieved party is not satisfied with the decision delivered or the committee is not successful in resolving the grievance/s, they can approach the court of law on their own expenses. The committees' composition is detailed below:

10.1 Composition of Grievance Redress Committee (GRC) at various levels of the project

A. **Grievance Redress** Committee **at Local Level:** This committee/cell will work at the local level i.e. site level. This will be comprised of the following members:
    a. Engineer from PMU
    b. Assistant Executive Engineer (PIU)
    c. Site Engineer (PIU)
    d. Local Revenue officer
    e. Social Safeguard Officer
    f. Ward Member/Halqa Panchayat member
    g. Women representative (Retired Officer/Academicians/Development Professional)

B. **Grievance Redress Committee at District Level:** In case of grievance/s are not addressed at the local level or PAP/ aggrieved person is not satisfied with the decision delivered at the local level, he/she can approach the grievance redressal committee constituted at the district level. The following will be the composition of the committee.
    a) District Collector

b) Director/Head PIU (Convener)
c) Nodal officer of the Project Component (PMU)
d) Nodal Officer (Social Safeguards, PMU)
e) Representative of PRIs
f) A Prominent Women (Retired Officer/Academicians/Development Professional)
g) A senior representative of SC/ST Welfare Board

C. **Division Level Redressal Committee (DLC)**: In case, grievance/s are not addressed at the local and district level, the same will be forwarded to the Divisional Level Redressal Committee through PMU. The committee will provide a major platform to people who might have objections for the decisions taken at the two previous levels. The committee will look into the grievances of the people and will assign responsibilities to implement the decisions of the committee. This Committee (after formation) will be convened by the Chief Executive Officer, ERA/JTFRP, and headed by Divisional Commissioner Jammu/Srinagar. This committee should meet every quarter to solve any grievance/s and will decide within 03 months of receiving the grievance/complaint. Nodal Officer (Social Safeguards) will coordinate the meetings. This committee will also provide policy-related directions to the Grievance Redressal Committee and the participating departments about land acquisition and resettlement and rehabilitation.

The following will be the composition of the committee:

a. Divisional Commissioner, (Chair)
b. Chief Executive Officer, JPFRP/JK ERA (Convener)
c. Heads of participating departments
d. Director Technical (PMU/JTFRP)
e. A senior representative, one each from BC & EBC and SC & ST Welfare
f. A senior representative of the revenue department
g. A senior representative of the Disaster Management Department
h. Social Safeguard Specialist (Nodal officer, PMU)
i. A prominent women representative (Retired/ Development Professional/Academician)
j. A PRI representative
k. A representative of PAPs who can articulate well.

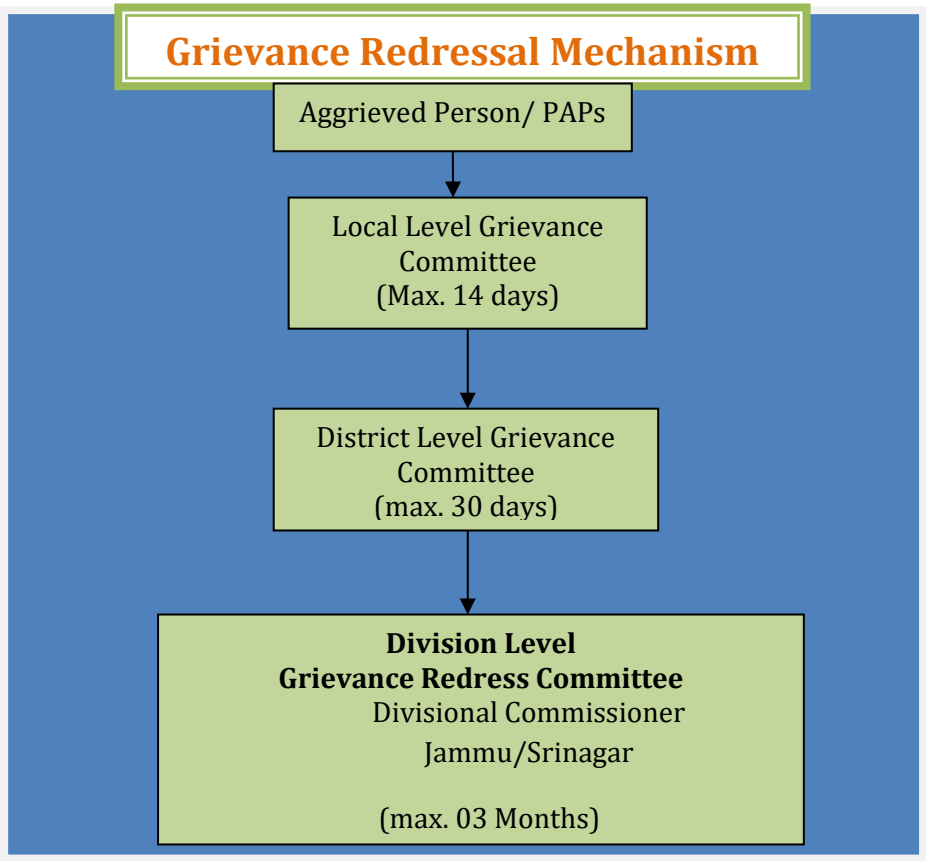


Figure 3: Structure of GRM

10.2 Approach to GRC

Project Affected Person/aggrieved party can approach GRC for the redress of their grievances through **any** of the following modes:

1. **Web-based:** The grievance corner will be provided at the website of PIU/PMU so that the affected person can register their complaint online.
2. **Telecom-based:** If needed a toll-free number will be issued by the PMU/ PIU so that affected people can register their complaints through telephone / mobile phone to the PIU/PMU office.
3. **Through LGC:** The LGC will collect the problems & issues of the community or affected persons and pass on the same to PIU/PMU and try to resolve them. A grievance register will be maintained by the contractor/PIU at each site office. The phone number of the concerned engineer shall be displayed at the site so that the aggrieved person can contact the concerned site engineer in case of an emergency.
4. **Through PMU:** PAPs/aggrieved party can register/file grievance/s directly to the PMU also. PMU will enroute the same through PIU to the site engineer who will try to resolve it within the stipulated time and the rest process will follow.

Besides the grievance redress mechanism of JTFRP, the state has an online grievance monitoring system known as Awaz-A-Awam (People's voice). The PAPs can also lodge their grievance online at http://www.jkgrievance.nic.in.

10.3 Legal Options to Aggrieved persons/PAPs

In case PAPs are not satisfied with the decision of GRC at the local/district level and Divisional Level committee, they are free to approach the court of law on their own will and expenses at any time to redress their grievance/s. The general public and PAPs specifically will be informed about the Grievance/s redress committee and mechanism through public consultations, disclosures, and distribution of PIBs. All PIBS will be translated into Urdu and will be distributed to the PAPs.

11. Institutional Arrangement

11.1 Institutional arrangement in the project

A project steering committee has been set up for the overall strategic guidance and monitoring of the project. It is headed by Chief Secretary and comprises of all involved line departments and additionally departments of planning, environment and social welfare. A Project Management Unit (PMU) for the project (JTFRP), housed in Jammu & Kashmir Economic Reconstruction Agency (JK ERA) is responsible for the overall management of the "Jhelum Tawi Flood Recovery Project (JTFRP)". This PMU is headed by Chief Executive Officer (CEO). Social Development Specialist has been positioned in PMU to provide assistance and support to Director Safeguards to address all safeguard-related issues during documentation, execution, and implementation of ARAP and monitoring.

The Chief Executive Officer (JKERA/JTFRP) will be responsible for overall coordination, reporting, technical assistance, monitoring, and budgeting of all the components associated with the project. The CEO will have the administrative and financial powers for the implementation of the project including the implementation of ARAP wherever required. The Chief Executive Officer (CEO) will be supported by Director Technical, Director Safeguards, Director Planning and Coordination, Director Disaster Management, Executive Engineers, AEEs, and Social Development Specialist. The PMU will be responsible for providing overall policy guidance, training, and capacity-building support to PIU (JK ERA) to ensure compliance with World Bank's Safeguard Policies and applicable Union Territories and other acts, notifications, guidelines, etc. Director Safeguards with the assistance of a Social Development Specialist in EA will ensure that all social safeguards issues are complied with as detailed out in Social Management Plan. Social issues will be coordinated by Social Development Specialist (SDS) within the PMU and PIU. PMU will be assisted by Project Management Consultants (Technical Assistance and Quality Audit Consultants) for technical support and advice, monitoring and impact evaluation, etc.

11.2 Implementation Stage

The sub-project does not involve involuntary displacement, land acquisition, and livelihood loss either temporary or permanent. The Project Implementation Unit is headed by the Project Manager (Transport) in JK ERA. Overall civil work shall be carried out under his supervision and guidance. Director Safeguards with the support of the Social Development Specialist in PMU, JK ERA will ensure compliance with the WB policies and other provisions

applicable to the project. For this sub-project, Only Social management Plan needs to be implemented during the execution of the sub-project.

Annexures

Annexure1: Environment and Social Screening Data Sheets

Part A: General information

1. Name of the sub-project	Improvement & Up-gradation of Gulhatti to ShadraSharief Road in District Rajouri	
2. Type of proposed activity (tick the applicable option and provide details)		
• Road	√	
• Bridge		-
• Fire Station		-
• Hospital/Health Facility		-
• Educational Institute		-
• Building for Livelihoods		-
• Flood Infrastructure Related		
• Other Public Building		-.
• Any Other (Please Specify)		-
3. Location of the proposed sub-project		
• Name of the Region	Jammu (J&K State)	
• Name of the District	Rajouri	
• Name of the Block	*Manjakote, Thanamandi*	
• Name of the Settlement	Gulhatti, Dehri Ralyot, Ghambeer Muglian, Bharot, Rajdhani, Shahdara Sharief	
• Latitude	33°29'57.61"N (Ch 0+000 Gulhatti), 33°32'00"N (End of the Road at Shahdra)	

• Longitude	74°15'18.19"E(RD 0+000 Gulhatti), 74°20'26.19"E (End of the Road at Shahdra)
4a. Proposed Nature of Work (tick the applicable options)	
• Minor Repairs	-
• Major Repairs/Rehabilitation	-
• Upgrading/Major Improvement	√
• Expansion of the facility	-
• New Construction	-
• Any Other	-
4b. Size of the sub-project (approx. area in sq. m/ha. or length in m/km, as relevant)	28.80 Km
5. Land Requirement (in ha./sq.mt.)	
• Total Requirement	No land acquisition is required. Work will be carried out in the available RoW, which is 15.00 meters
• Private Land	Nil
• Govt. Land	Nil
• Forest Land	Nil
6. Implementing Agency Details (sub-project level)	
• Name of the Department/Agency	PIU-ERA (Jammu)
• Name of the contact person	Mr. Nand Kishore Gupta
• Designation	Project Manager (Transport)
• Contact Number	9419187368
• E-mail Id	pmjkusdipjmu2@gmail.com
7. Screening Exercise Details	
• Date on which it was carried out	15.12.2018 and 17.7.2019

• Name of the Person	Vikash Sharma/ CharanJeet Singh
• Contact Number	+9419125803/9419893392
• E-mail Id	jkerasocial@gmail.com jcharan.sim@gmail.com

Part B (1): Environment Screening

Question	Yes	No	Details
1. Is the sub-project located in whole or part within 1 km of the following environmentally sensitive areas?			
a. Biosphere Reserve		No	-
b. National Park		No	-
c. Wildlife/Bird Sanctuary		No	-
d. Wildlife/Bird Reserve		No	-
e. Important Bird Areas (IBAs)		No	-
f. Habitat of migratory birds (outside protected areas)		No	-
g. Breeding/Foraging/Migratory route of Wild Animals (outside protected areas)		No	-
h. Area with threatened/rare/ endangered fauna (outside protected areas)		No	-
i. Area with threatened/rare/ endangered flora (outside protected areas)		No	
j. Reserved/Protected Forest		No	-
k. Other category of Forest		No	-

l. Wetland		No	
m. Natural Lakes		No	
n. Rivers/Streams	Yes		Ghambeer Muglian Nallah is within the 1 km of the existing road (near end of the road)
Question	**Yes**	**No**	**Details**
o. Swamps/Mudflats		No	-
p. Zoological Park		No	-
q. Botanical Garden		No	
2. Is the sub-project located in whole or part within 500 mts. of any of the following sensitive features?			
a. World Heritage Sites		No	-
b. Archaeological monuments/ sites (under ASI's central/state list)		No	-
c. Historic Places/Monuments/ Buildings/Other Assets (not listed under ASI list but considered locally important or carry a sentimental value)		No	-
d. Religious Places (regionally or locally important)		No	-
e. Reservoirs/Dams		No	-
f. Canals		No	-

g. Public Water Supply Areas from Rivers/Surface Water Bodies/ Ground Water Sources		No	-
3. What is the High Flood Level inthe sub-project area?	-		
Is any scheduled/protected tree like Chinar, Mulberry or Deodar likely to be affected/ cut due to the project?		No	
Is the sub-project located in a landslide/heavy erosion prone area or affected by such a problem?		No	
Is sub-project located in an area that faces water paucity or water quality issues?		No	

Part B (2): Result/Outcome of Environmental Screening Exercise

1.	Environment Impact Assessment Required	No
2.	Environment Clearance Required	No
3.	Forest land Clearance/Diversion Required	No
4.	Tree Cutting Permission Required	No
5.	ASI (Centre/State) Permission Required	No
6.	Permission from ULB/Local Body/Department Required	No
7.	Any other clearance/permission required	Consent to Establish (CTE) and Consent to Operate (CTO) from SPCB will be required for Hot mix Plants, Wet Mix Plants, Stone Crushers, PUC's and other fitness certificates of equipment etc.

Part C (1): Social Screening

1. Does the sub-project activity require acquisition of land?			
Yes		No	√
Give the following details:	Private Land (sq. m / ha.)		Nil
	Govt. Land (sq. m / ha.)		Nil
	Forest Land (sq. m / ha.)		Nil
2. Does the proposed sub-project activity result in demolition/removal of existing structures?			
Yes		No	√
If so, give the following details:			
• Number of public structures/buildings		Nil	
• Number of common property resources (such as religious/cultural/ drinking water/wells/etc.)		Nil	
• Number of private structures (located on private or public land)		Nil	
3. Does the proposed project activity result in loss of crops/trees?			
Yes		No	√
4. Does the proposed Project activity result in loss of direct livelihood/ employment?			
Yes		No	√
5. Does the proposed activity result in loss of community forest/pastures on which nearby residents/local population are dependent?			
Yes		No	√
If yes, give the details of the extent of area to be lost (in acres/ha).		-	
6. Does the proposed Project activity affect scheduled tribe/caste communities?			

Yes		No	√

Part C (2): Result/Outcome of Social Screening Exercise

S.No.	Result/Outcome	Outcome
1.	Answer to all the questions is 'No' and only forest land is being acquired	No SIA/RAP required
2.	Answer to any question is 'Yes' and the sub-project does not affect more than 200 people (i.e. either complete or partial loss of assets and/or livelihood)	No Abbreviated RAP is required
3.	Answer to any question is 'Yes' and the sub-project affects more than 200 people *(i.e. either complete or partial loss of assets and/or livelihood)*	No SIA/RAP Required

Outcome of Screening:

As per the screening exercise, the proposed sub-project does not have significant social and environmental issues. The proposed sub-project is only the "Improvement & Up-gradation of the existing road and does not involve the land acquisition of private or government land. Wherever the required land width is not available, the construction will be carried out in the available land width. Modification in the design has been completed as a part of the mitigation measures.

However, in order to assess the temporary impacts, existence of squatters and encroachers on the site SIA required for the proposed subproject. SIA study will also assist as tool for preparation of Social Management Plan for the sub-project.

Annexure 2: GIS MAPs of the Sub-Project Road

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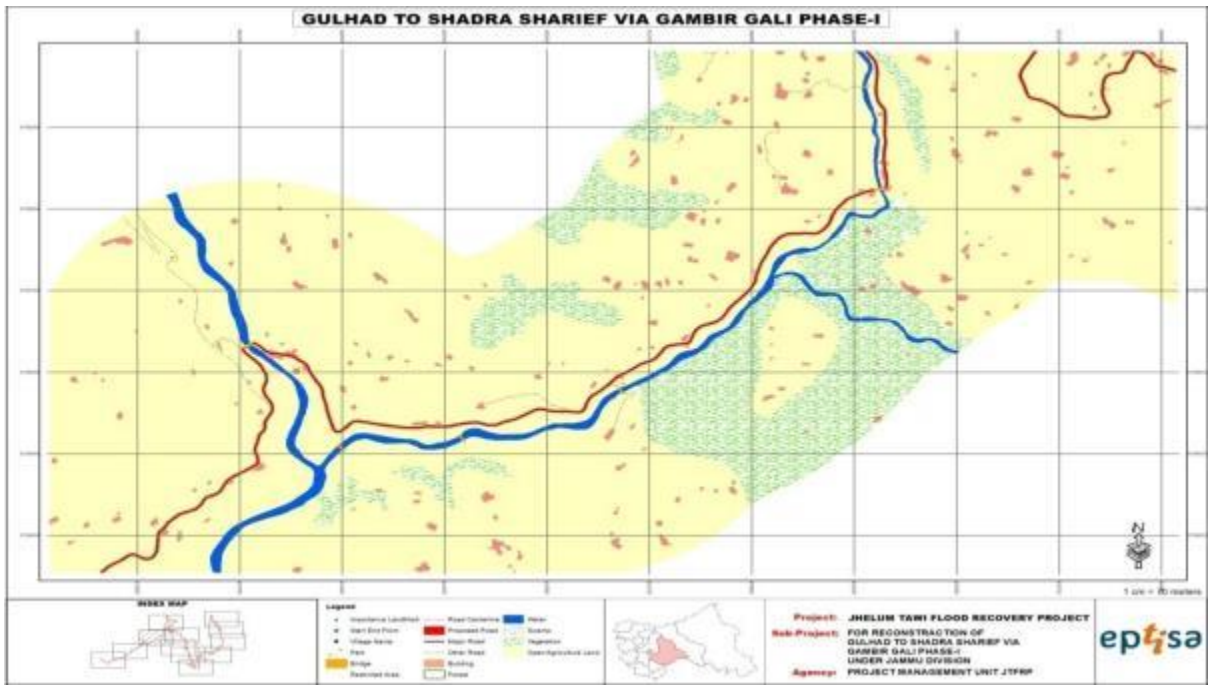
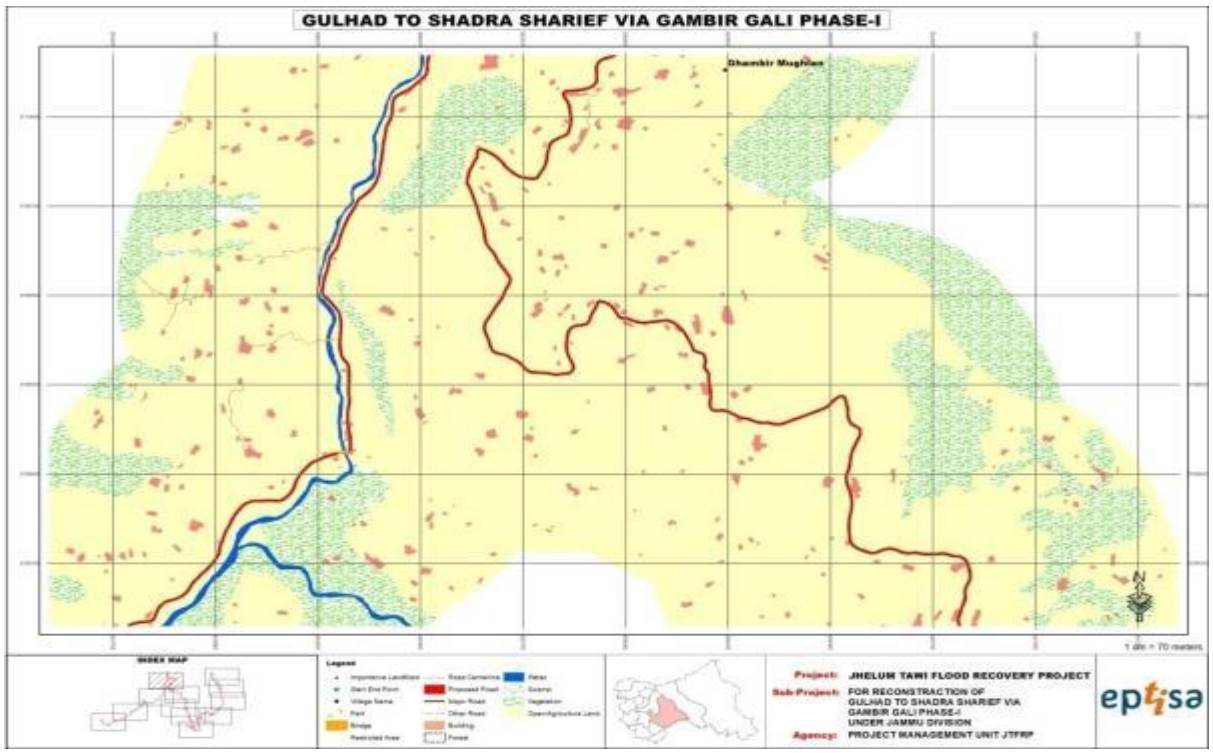
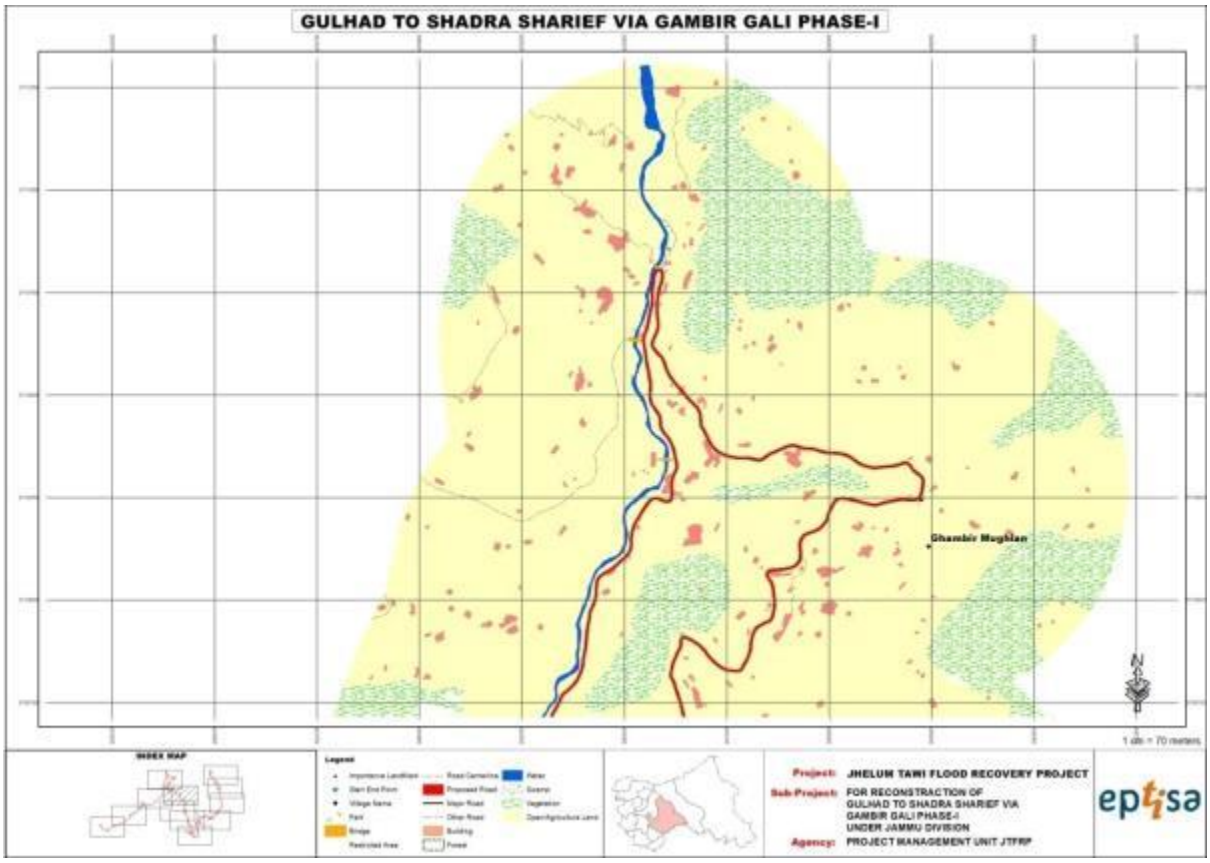
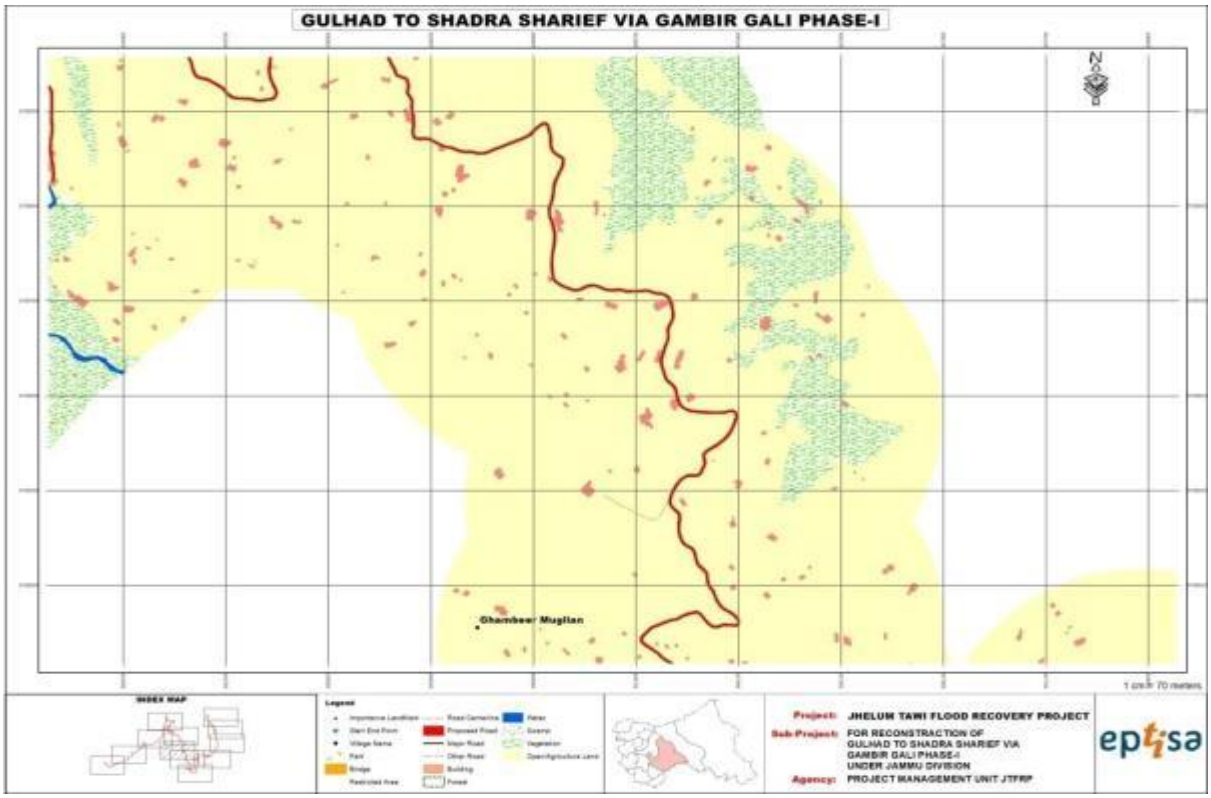





GULHAD TO SHADRA SHARIEF VIA GAMBIR GALI PHASE-I
Ghambir Mughlan
INDEX MAP
Legend
Project: JHELUM TAWI FLOOD RECOVERY PROJECT
Sub Project: FOR RECONSTRACTION OF GULHAD TO SHADRA SHARIEF VIA GAMBIR GALI PHASE-I UNDER JAMMU DIVISION
Agency: PROJECT MANAGEMENT UNIT JTFRP
eptisa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Ghambeer Mughlan
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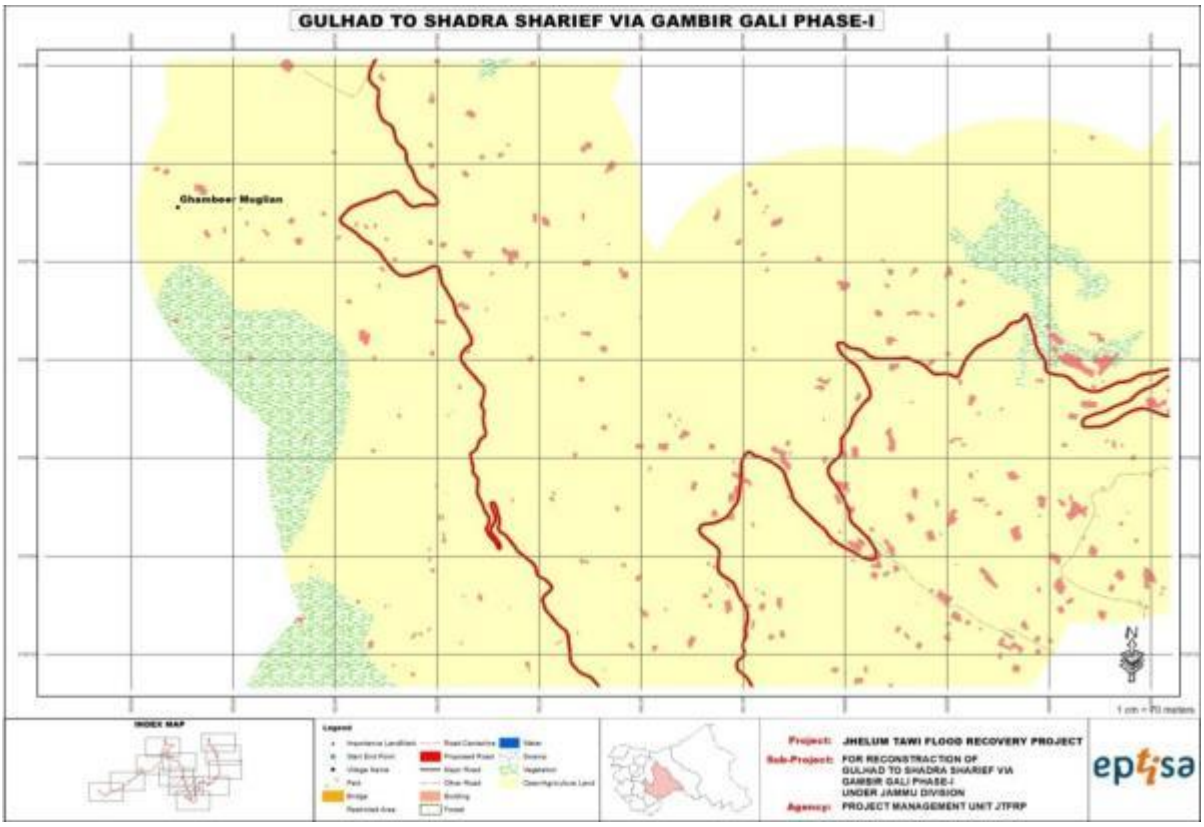
eptisa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Ghamboor Mughlan
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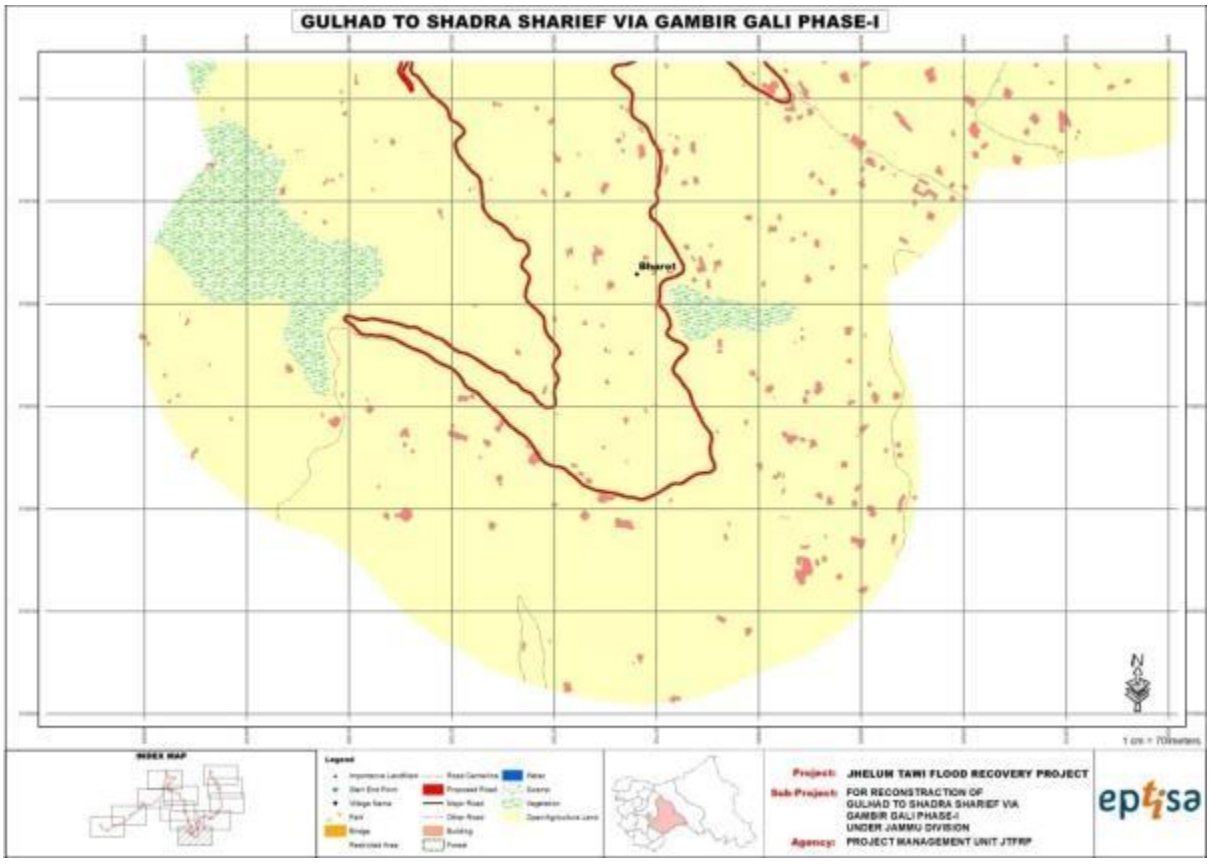
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Bharot
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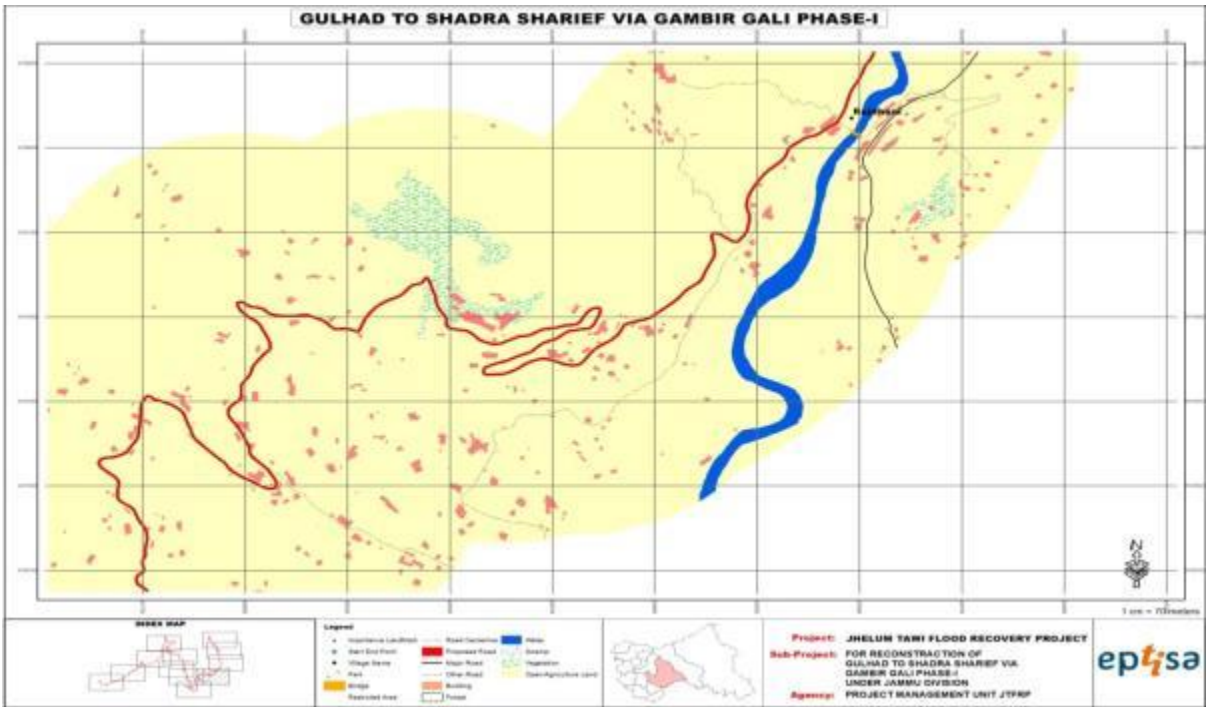
Sub-Project: FOR RECONSTRACTION OF GULHAD TO SHADRA SHARIEF VIA GAMBIR GALI PHASE-I UNDER JAMMU DIVISION
Agency: PROJECT MANAGEMENT UNIT JTFRP
eptisa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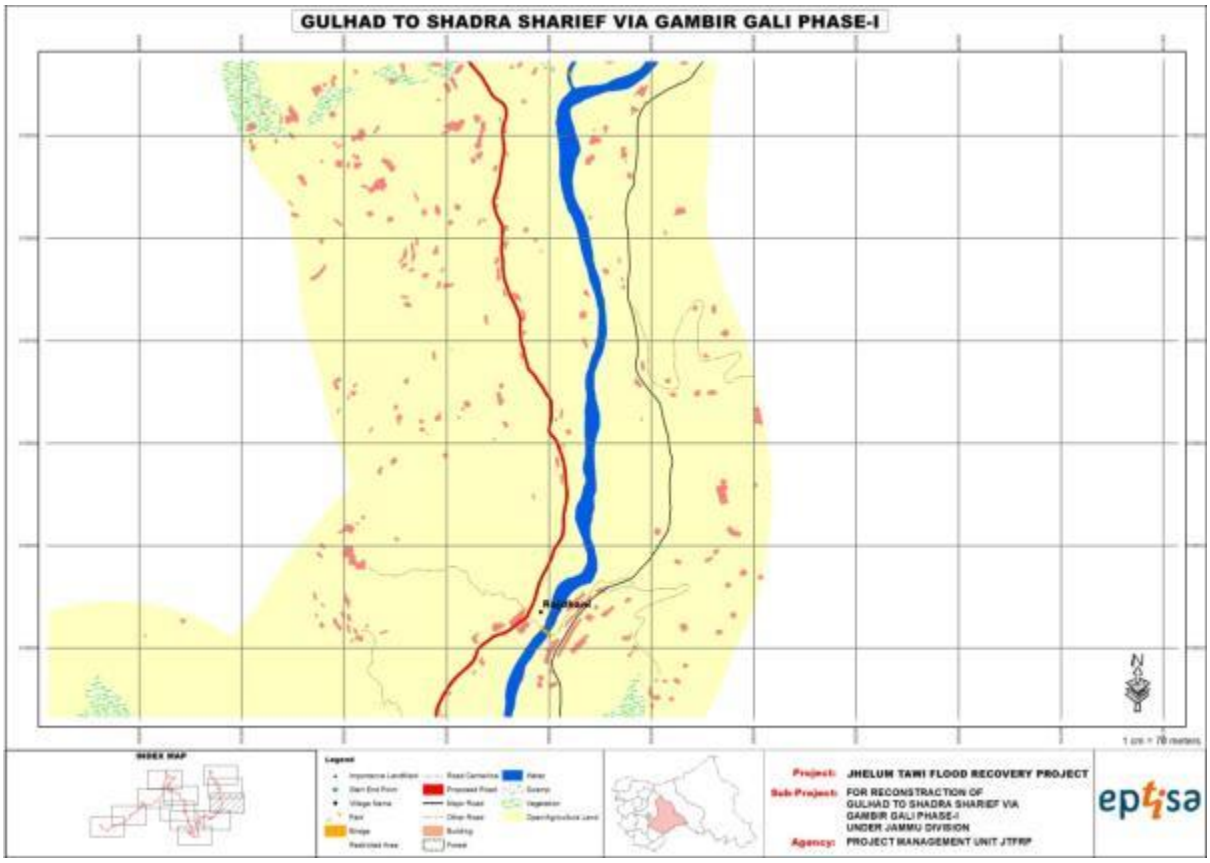
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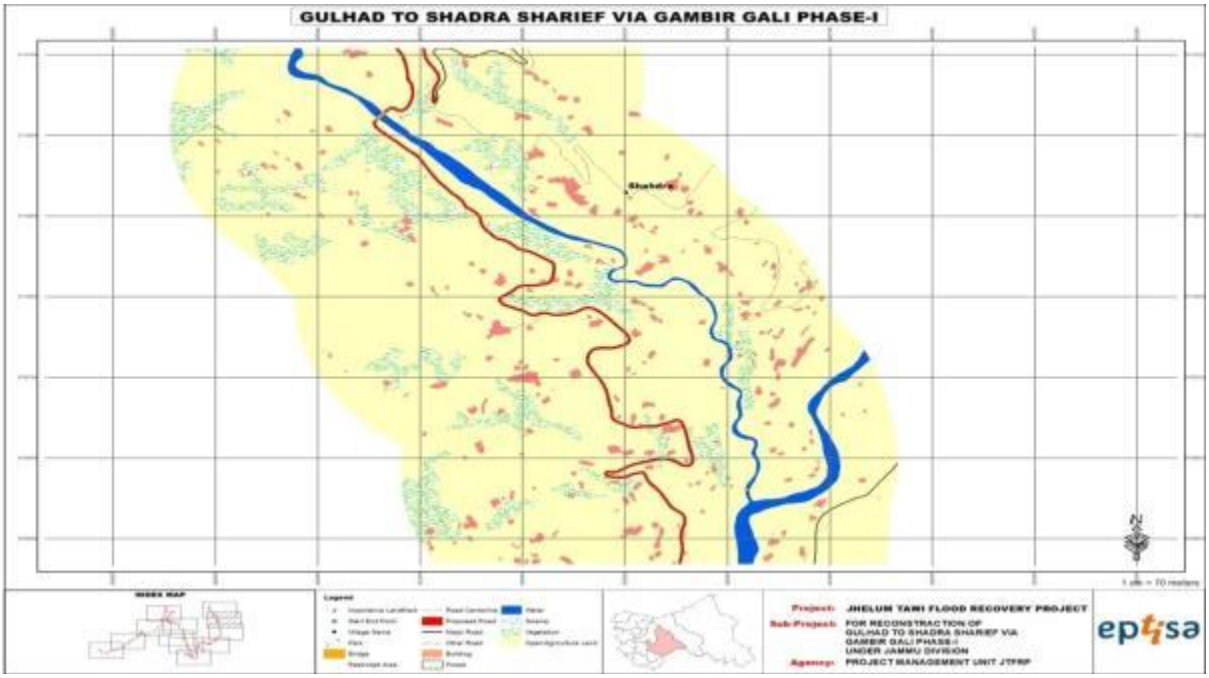
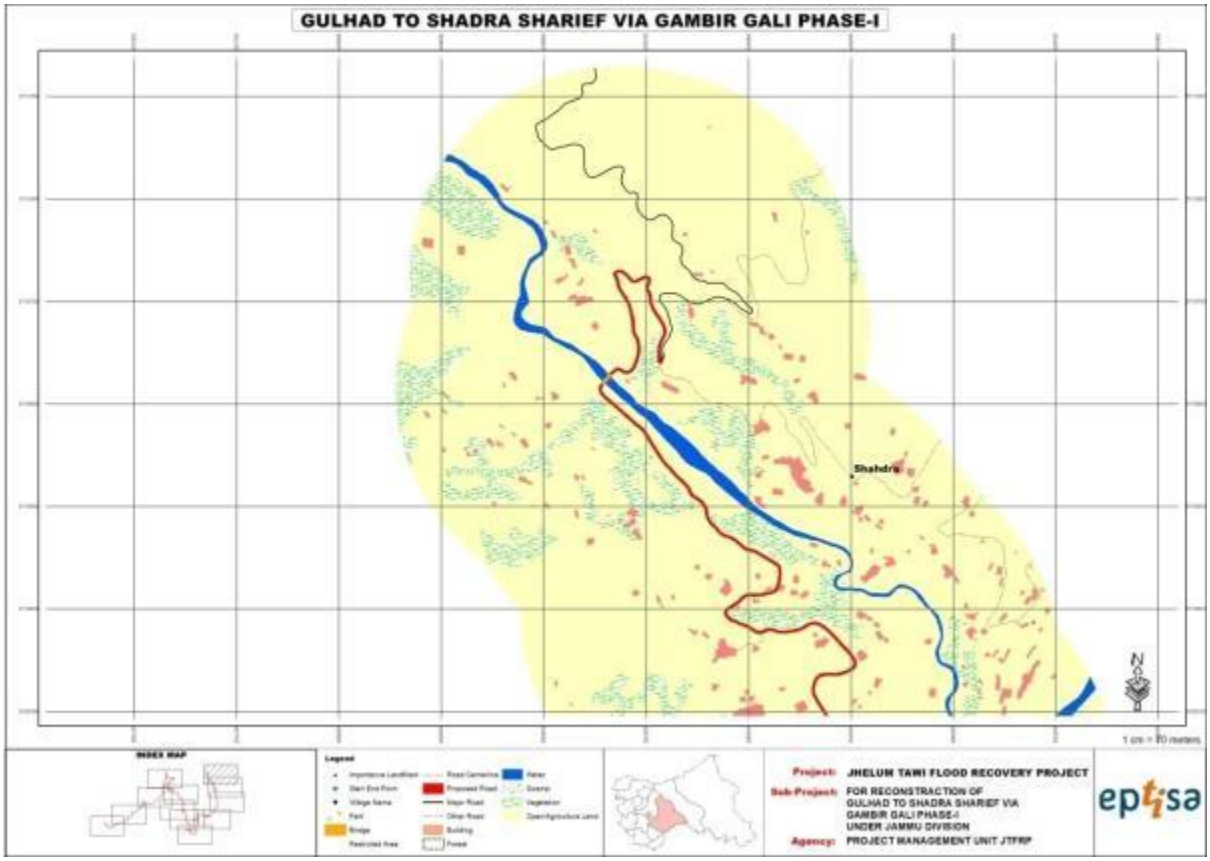

GULHAD TO SHADRA SHARIEF VIA GAMBIR GALI PHASE-I
Shahdra
INDEX MAP
Legend
Project: JHELUM TAWI FLOOD RECOVERY PROJECT
Sub-Project: FOR RECONSTRACTION OF GULHAD TO SHADRA SHARIEF VIA GAMBIR GALI PHASE-I UNDER JAMMU DIVISION
Agency: PROJECT MANAGEMENT UNIT JTFRP
eptisa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Shahdra
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Sub-Project: FOR RECONSTRACTION OF GULHAD TO SHADRA SHARIEF VIA GAMBIR GALI PHASE-I UNDER JAMMU DIVISION
Agency: PROJECT MANAGEMENT UNIT JTFRP
eptisa

Annexure 3: RoW details from PWD (R&B), Rajouri Division

GOVERNMENT OF JAMMU & KASHMIR
OFFICE OF THE EXECUTIVE ENGINEER PWD(R&B) DIVISION RAJOURI
Tele: 01962-263534 Fax: 01962-263534 Mail. pwddivisionrajouri@gmail.com

The Superintending Engineer,
Project Manager (T),
J&K ERA Jammu.

No: EER/R&B/01/2019-20/4370-73
Dated: 22-07-2019

Subject:- Widening/Upgradation of Road from Gulati to Shahdra Sharief via Ghambir Gali Phase -I & Providing of Right of way & formation width thereof.

Sir,

Kindly refer to your email & telephonic discussion regarding Right of way & formation width of the subject road. The information sought by you is as under :

Right of way : 15.00 mtr
Formation width : 6.00 mtr

Yours faithfully

Executive Engineer
PWD(R&B)Division
Rajouri

Copy to the:-
1. Chief Engineer PW(R&B) Department Jammu for favour of information please.
2. Superintending Engineer PWD (R&B) Circle Rajouri for favour of information please.

Annexure 4: Encumbrance Free RoW Certificate issued by PIU

Government of Jammu & Kashmir
J&K Economic Reconstruction Agency (ERA)
Project Management Unit (JTFRP)
2nd floor JKPCC Building Rail Head complex Panama Chowk Jammu

TO WHOM IT MAY CONCERN

Sub:- Non- Encumbrance Certificate.

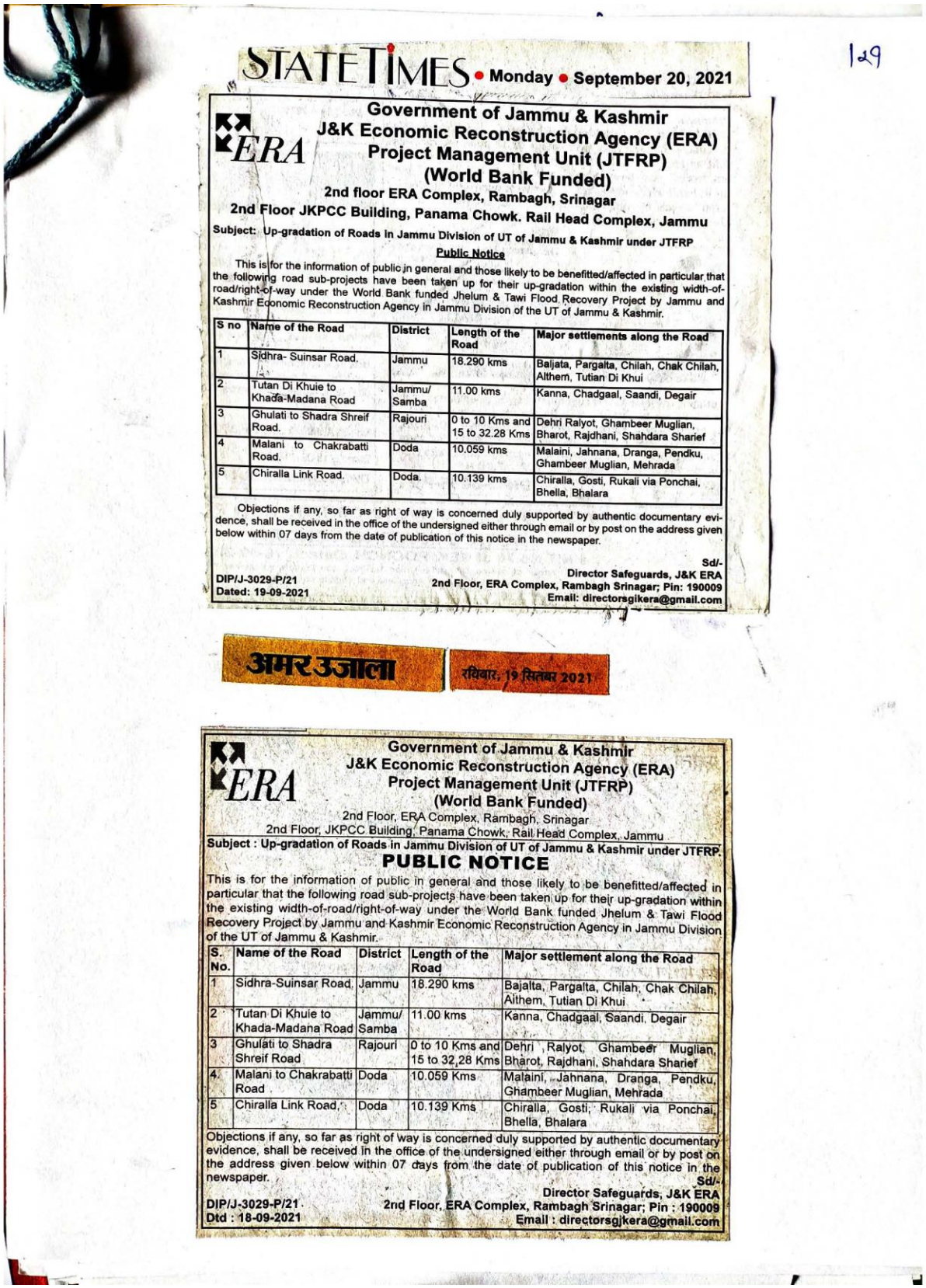
Certified that the Sub-P**roject "Upgradation of Gulhuti to Shahdra Sharief Road via Ghambir Gali "** taken up for execution under World Bank funding , is being executed in the already established road on the available right of way (RoW) provided by the Public Works Department (R&B) Division Rajouri vide their No. EER/R&B/2019-20/4370-73 dated 22-07-2019. Further no acquisition of land required under the sub-project.

Hence the RoW is encumbrance free.

Project Manager (Transport)
ERA. Jammu.

No. ERA/PM/T/ 2021/ 2197
Dated:-31-07-2021

Annexure 5: Newspaper Notification



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STATE TIMES • Monday • September 20, 2021

Government of Jammu & Kashmir
J&K Economic Reconstruction Agency (ERA)
Project Management Unit (JTFRP)
(World Bank Funded)
2nd floor ERA Complex, Rambagh, Srinagar
2nd Floor JKPCC Building, Panama Chowk. Rail Head Complex, Jammu

Subject: Up-gradation of Roads in Jammu Division of UT of Jammu & Kashmir under JTFRP

Public Notice

This is for the information of public in general and those likely to be benefitted/affected in particular that the following road sub-projects have been taken up for their up-gradation within the existing width-of-road/right-of-way under the World Bank funded Jhelum & Tawi Flood Recovery Project by Jammu and Kashmir Economic Reconstruction Agency in Jammu Division of the UT of Jammu & Kashmir.

S no	Name of the Road	District	Length of the Road	Major settlements along the Road
1	Sidhra- Suinsar Road.	Jammu	18.290 kms	Baljata, Pargalta, Chilah, Chak Chilah, Althem, Tutian Di Khui
2	Tutan Di Khuie to Khada-Madana Road	Jammu/ Samba	11.00 kms	Kanna, Chadgaal, Saandi, Degair
3	Ghulati to Shadra Shreif Road.	Rajouri	0 to 10 Kms and 15 to 32.28 Kms	Dehri Ralyot, Ghambeer Muglian, Bharot, Rajdhani, Shahdara Sharief
4	Malani to Chakrabatti Road.	Doda	10.059 kms	Malaini, Jahnana, Dranga, Pendku, Ghambeer Muglian, Mehrada
5	Chiralla Link Road.	Doda.	10.139 kms	Chiralla, Gosti, Rukali via Ponchai, Bhella, Bhalara

Objections if any, so far as right of way is concerned duly supported by authentic documentary evidence, shall be received in the office of the undersigned either through email or by post on the address given below within 07 days from the date of publication of this notice in the newspaper.

Sd/-
Director Safeguards, J&K ERA
2nd Floor, ERA Complex, Rambagh Srinagar; Pin: 190009
Email: directorsgikera@gmail.com

DIP/J-3029-P/21
Dated: 19-09-2021

अमर उजाला रविवार, 19 सितंबर 2021

Government of Jammu & Kashmir
J&K Economic Reconstruction Agency (ERA)
Project Management Unit (JTFRP)
(World Bank Funded)
2nd Floor, ERA Complex, Rambagh, Srinagar
2nd Floor, JKPCC Building, Panama Chowk, Rail Head Complex, Jammu

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Sd/-
Director Safeguards, J&K ERA
2nd Floor, ERA Complex, Rambagh Srinagar; Pin : 190009
Email : directorsgjkera@gmail.com

DIP/J-3029-P/21
Dtd : 18-09-2021

Annexure 6: Reconfirmation of RoW by PMU

Government of Jammu and Kashmir
J&K Economic Reconstruction Agency
Jhelum Tawi Flood Recovery Project
2nd floor ERA Complex, Rambagh, Srinagar
2nd Floor JKPCC Building Railhead Complex Jammu

Subject: Encumbrance-free sites for up-gradation of roads under JTFRP (Jammu Division).

Whereas J&K ERA (J) as PIU for the road sub-projects in Jammu Division certified the Right of Way for all the 07 roads being encumbrance-free vide PM/T/ERA/2021/865 dated 16.03.2021 and ERA/PM/T/2021/2197 dated31/07/2021. The revenue records of 02 roads viz., 1. Construction of *Anji Panasa Road, 2. Deva Mai Ohli Mandir Road (Reasi)* were available and as such their documentation viz a viz environment and social aspects was cleared by the World Bank.

However the RoW provided by the PIU (J), in absence of relevant land records could not be verified for 05 roads viz.,

1. *Sidhra-* Surinsar *Road, 2. Tutain Di khuie to khada Madana Road, 3. Ghulati to Shahdra Shareif Road, 4. Malani to Chakrabatti Road and 5. Chiralla Link Road.*

The matter was discussed and deliberated upon in-house and with the team of the World Bank in different meetings for resolution. It was resolved that PMU would notify the issue in the local newspapers and invite objections from people likely to be benefitted or affected for their livelihood & assets due to execution of these sub-projects under JTFRP. Accordingly, notification for inviting objections was issued in two daily newspapers on 19th September 2021 and 20th September 2021 in State Times (English) and Amar Ujala (Hindi), respectively, (for 05 roads mentioned above), detailing the road's name, its scope, and the villages/habitations likely to be affected/benefitted.

The objections were supposed to be received in the office of Director Safeguards (Kashmir) within seven days after publication of the notification by Post or through Email. Despite lapse of more than a month no objection has been received in the office of Director Safeguards either through email or post.

Therefore, RoW within which the roads are being up-graded/constructed is deemed to be encumbrance-free.

No:- ERA/DSG/PS/88-93
dt:- 25.10.2021

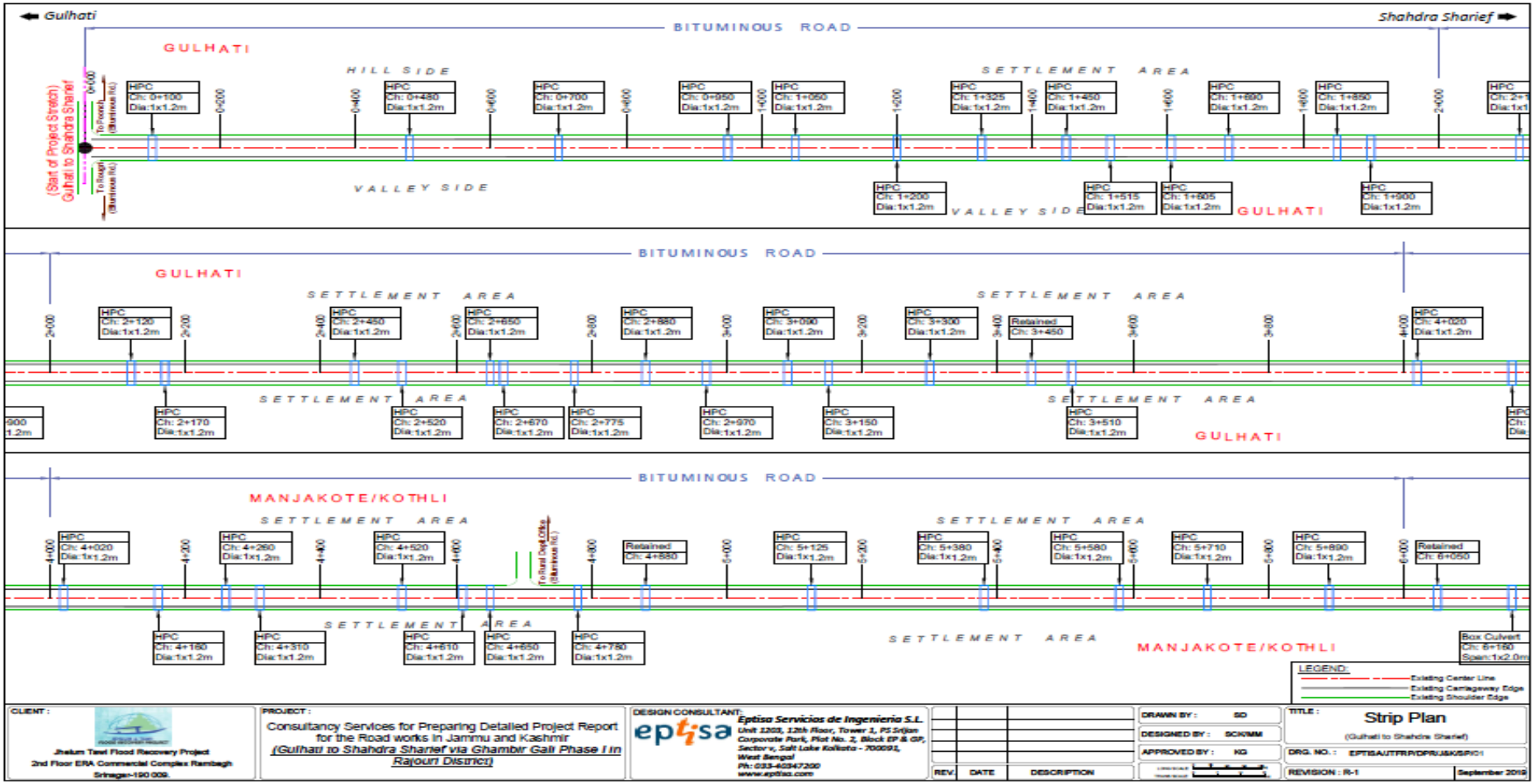
Director Safeguards,
JK ERA/JTFRP

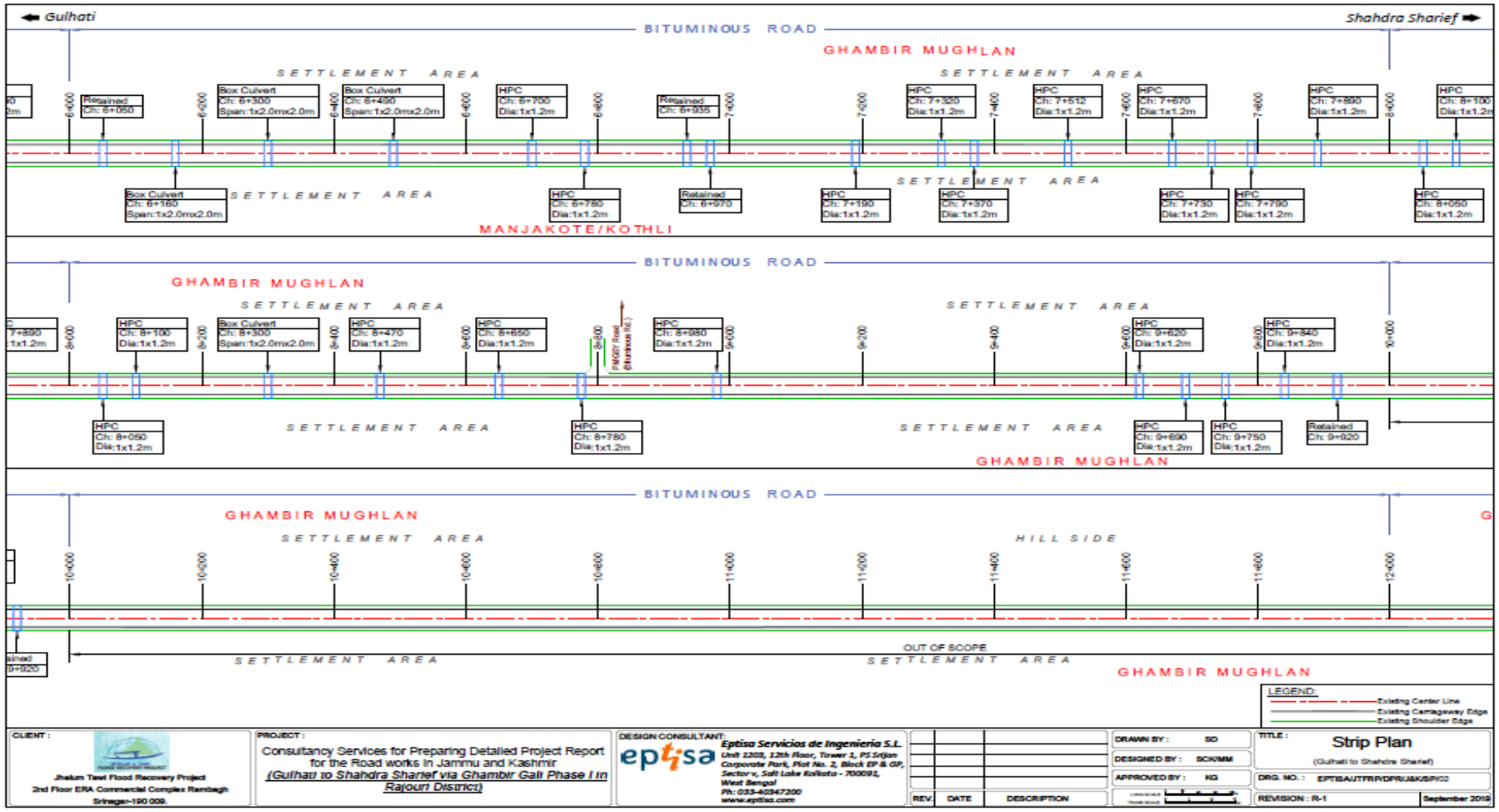
Copy to:-

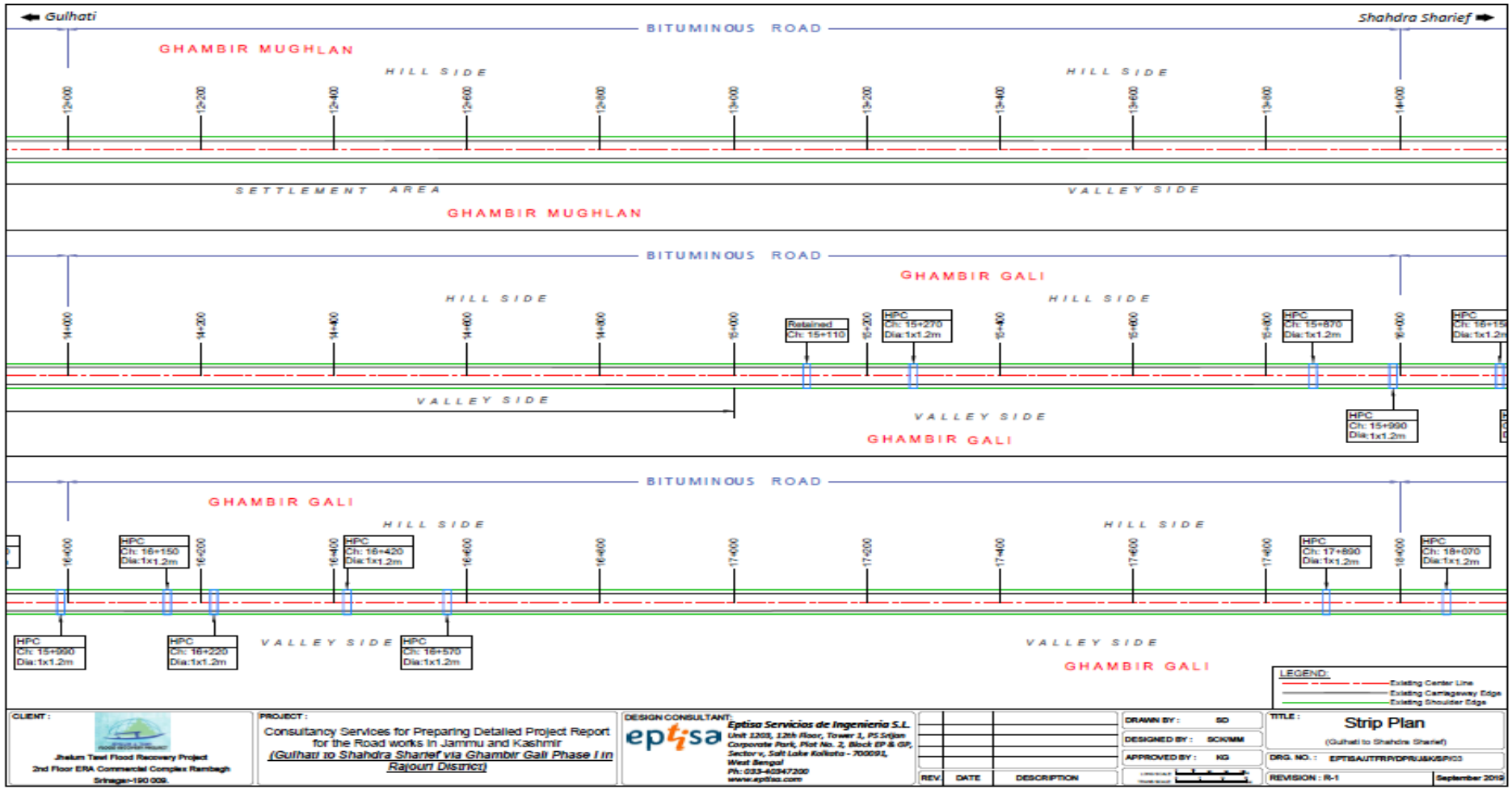
1. Chief Executive Officer, J&K ERA for kind information
2. Director Jammu, J&K ERA for information
3. Project Manager (T), J&K ERA Jammu for information
4. Environmental Expert, J&K ERA for information
5. Social Expert, J&K ERA for information
6. Team Leader, TAQAC for information

Annexure 7: Strip Plan & Profile

Strip Plan




Gulhati
Shahdra Sharief
BITUMINOUS ROAD
GHAMBIR MUGHLAN
SETTLEMENT AREA
MANJAKOTE/KOTHLI
HILL SIDE
OUT OF SCOPE
LEGEND:
Existing Center Line
Existing Carriageway Edge
Existing Shoulder Edge
CLIENT :
Jhelum Tawi Flood Recovery Project
2nd Floor ERA Commercial Complex Rambagh
Srinagar-190 009.
PROJECT :
Consultancy Services for Preparing Detailed Project Report for the Road works in Jammu and Kashmir
(Gulhati to Shahdra Sharief via Ghambir Gali Phase I in Rajouri District)
DESIGN CONSULTANT:
eptisa
Eptisa Servicios de Ingenieria S.L.
Unit 1203, 12th Floor, Tower 1, PS Srijan
Corporate Park, Plot No. 2, Block EP & GP,
Sector v, Salt Lake Kolkata - 700091,
West Bengal
Ph: 033-40347200
www.eptisa.com
REV
DATE
DESCRIPTION
DRAWN BY : SD
DESIGNED BY : SCK/MM
APPROVED BY : KG
TITLE :
Strip Plan
(Gulhati to Shahdra Sharief)
DRG. NO. : EPTISA/JTFRP/DPR/J&K/SP/02
REVISION : R-1
September 2018


Gulhati
Shahdra Sharief
BITUMINOUS ROAD
GHAMBIR MUGHLAN
HILL SIDE
HILL SIDE
SETTLEMENT AREA
VALLEY SIDE
GHAMBIR MUGHLAN
BITUMINOUS ROAD
GHAMBIR GALI
HILL SIDE
HILL SIDE
Retained Ch: 15+110
HPC Ch: 15+270 Dia:1x1.2m
HPC Ch: 15+870 Dia:1x1.2m
HPC Ch: 15+990 Dia:1x1.2m
VALLEY SIDE
VALLEY SIDE
GHAMBIR GALI
BITUMINOUS ROAD
GHAMBIR GALI
HILL SIDE
HILL SIDE
HPC Ch: 16+150 Dia:1x1.2m
HPC Ch: 16+420 Dia:1x1.2m
HPC Ch: 17+890 Dia:1x1.2m
HPC Ch: 18+070 Dia:1x1.2m
HPC Ch: 15+990 Dia:1x1.2m
HPC Ch: 16+220 Dia:1x1.2m
HPC Ch: 16+570 Dia:1x1.2m
VALLEY SIDE
VALLEY SIDE
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LEGEND:
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DATE
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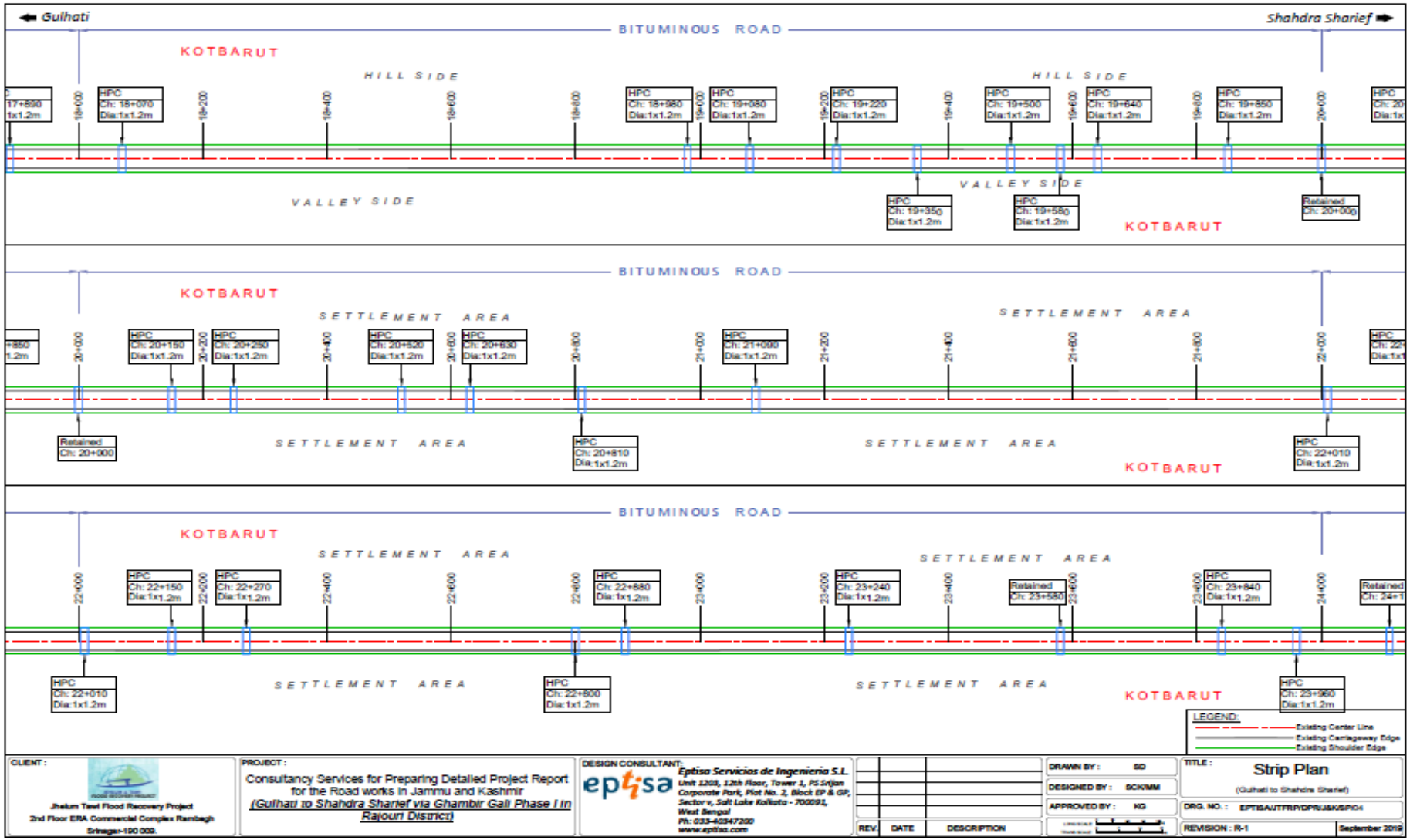
September 2012


Gulhati
Shahdra Sharief
BITUMINOUS ROAD
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Ph: 033-40347200
www.eptisa.com
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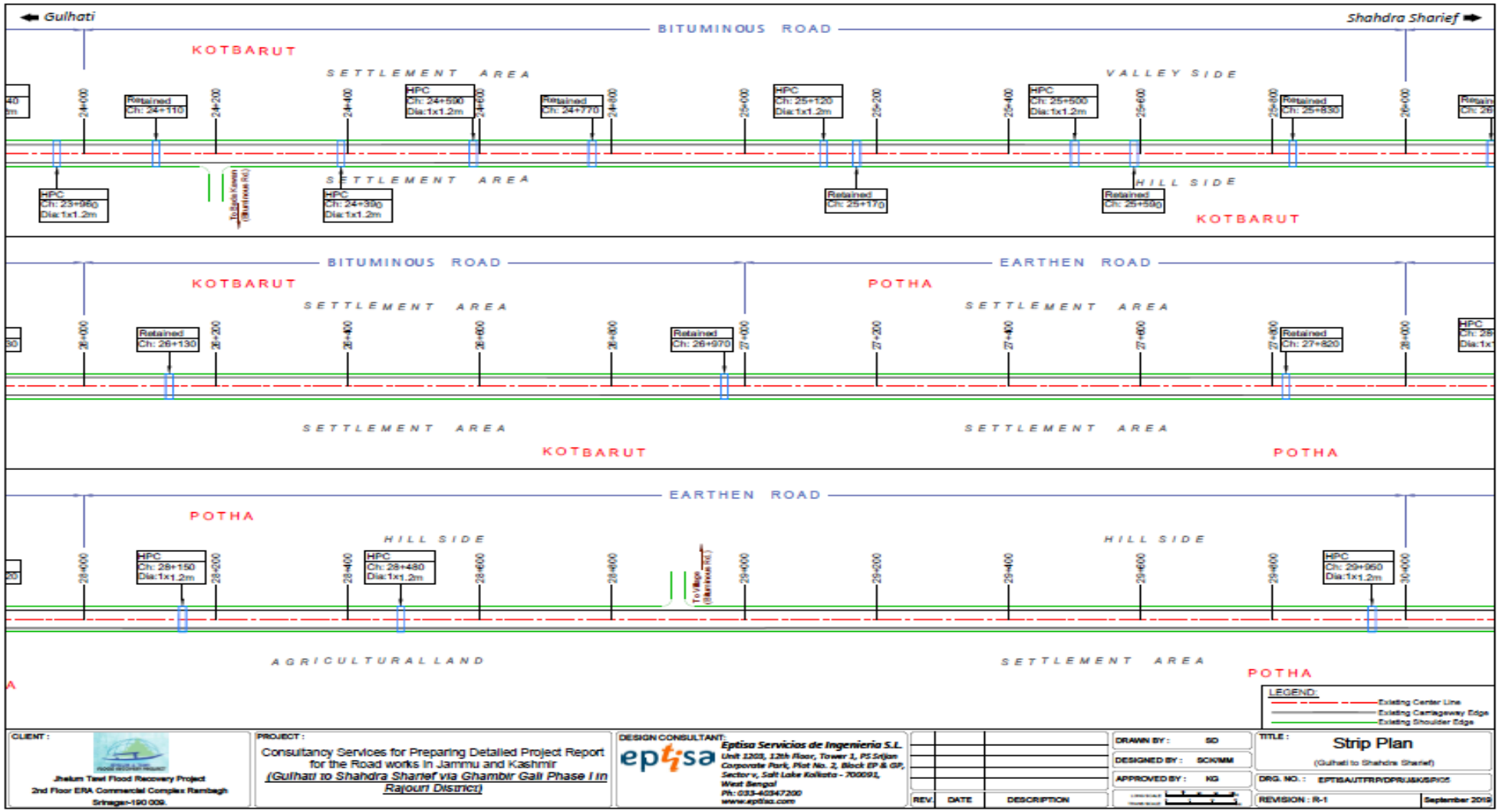
DESIGNED BY : SCK/MM
APPROVED BY : NG
TITLE :
Strip Plan
(Gulhati to Shahdra Sharief)
DRG. NO. : EPTISA/JTFRP/DPR/J&K/SP/04
REVISION : R-1
September 2019
REV.
DATE
DESCRIPTION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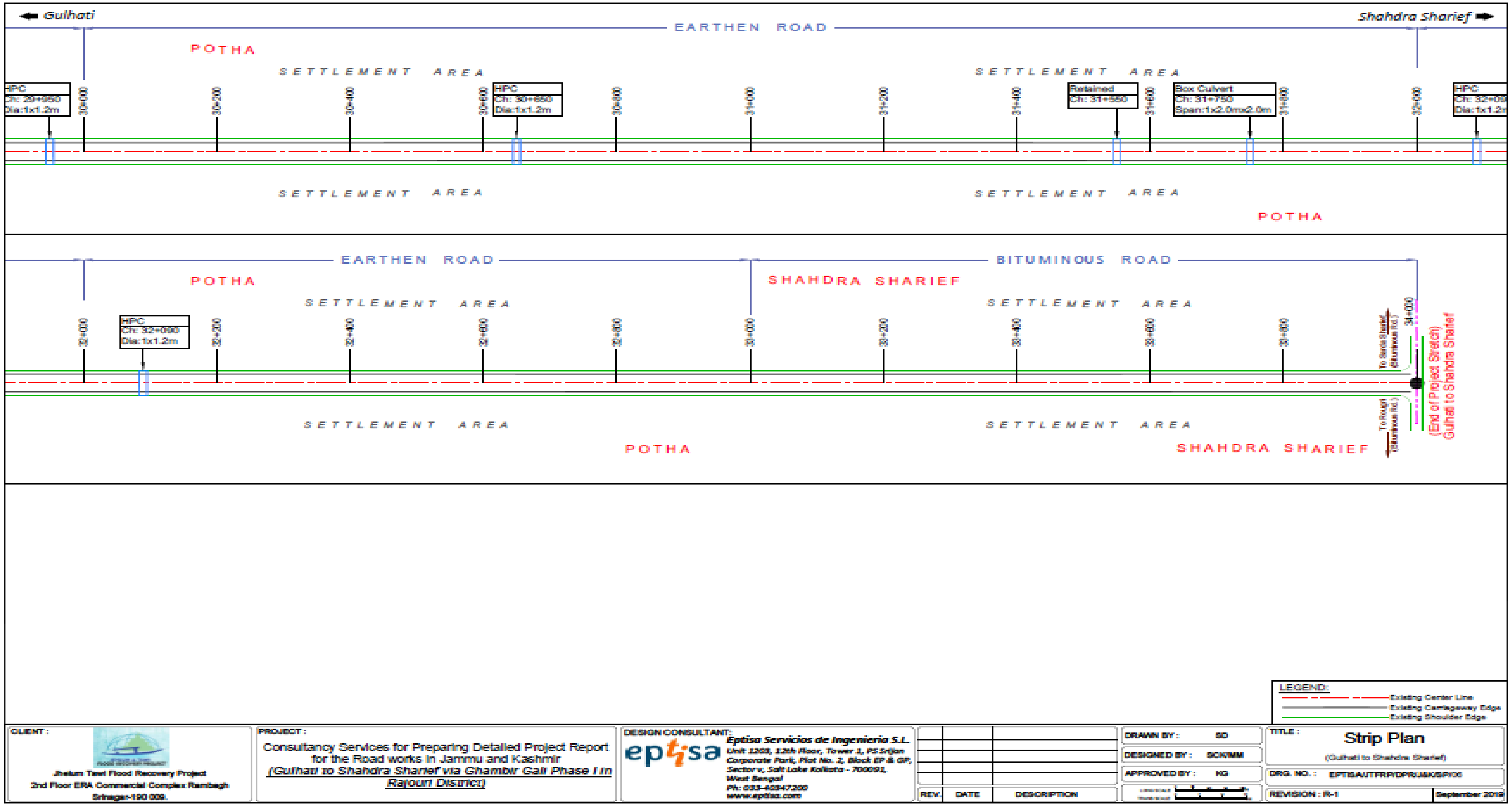
REVISION : R-1
September 2019
REV. DATE DESCRIPTION


Gulhati
Shahdra Sharief
EARTHEN ROAD
POTHA
SETTLEMENT AREA
HPC
Ch: 29+950
Dia:1x1.2m
30+000
30+200
30+400
30+600
HPC
Ch: 30+650
Dia:1x1.2m
30+800
31+000
31+200
31+400
Retained
Ch: 31+550
31+600
Box Culvert
Ch: 31+750
Span:1x2.0mx2.0m
31+800
32+000
HPC
32+200
32+400
32+600
32+800
33+000
33+200
33+400
33+600
33+800
34+000
HPC
Ch: 32+090
Dia:1x1.2m
SHAHDRA SHARIEF
BITUMINOUS ROAD
(End of Project Stretch)
Gulhati to Shahdra Sharief
LEGEND:
Existing Center Line
Existing Carriageway Edge
Existing Shoulder Edge
CLIENT :
Jhelum Tawi Flood Recovery Project
2nd Floor ERA Commercial Complex Rambagh
Srinagar-190 009.
PROJECT :
Consultancy Services for Preparing Detailed Project Report for the Road works in Jammu and Kashmir
(Gulhati to Shahdra Sharief via Ghambir Gali Phase I in Rajouri District)
DESIGN CONSULTANT:
Eptisa Servicios de Ingenieria S.L.
Unit 1203, 12th Floor, Tower 1, PS Srijan Corporate Park, Plot No. 2, Block EP & GP, Sector v, Salt Lake Kolkata - 700091, West Bengal
Ph: 033-40347200
www.eptisa.com
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DRAWN BY : SD
DESIGNED BY : SCK/MM
APPROVED BY : KG
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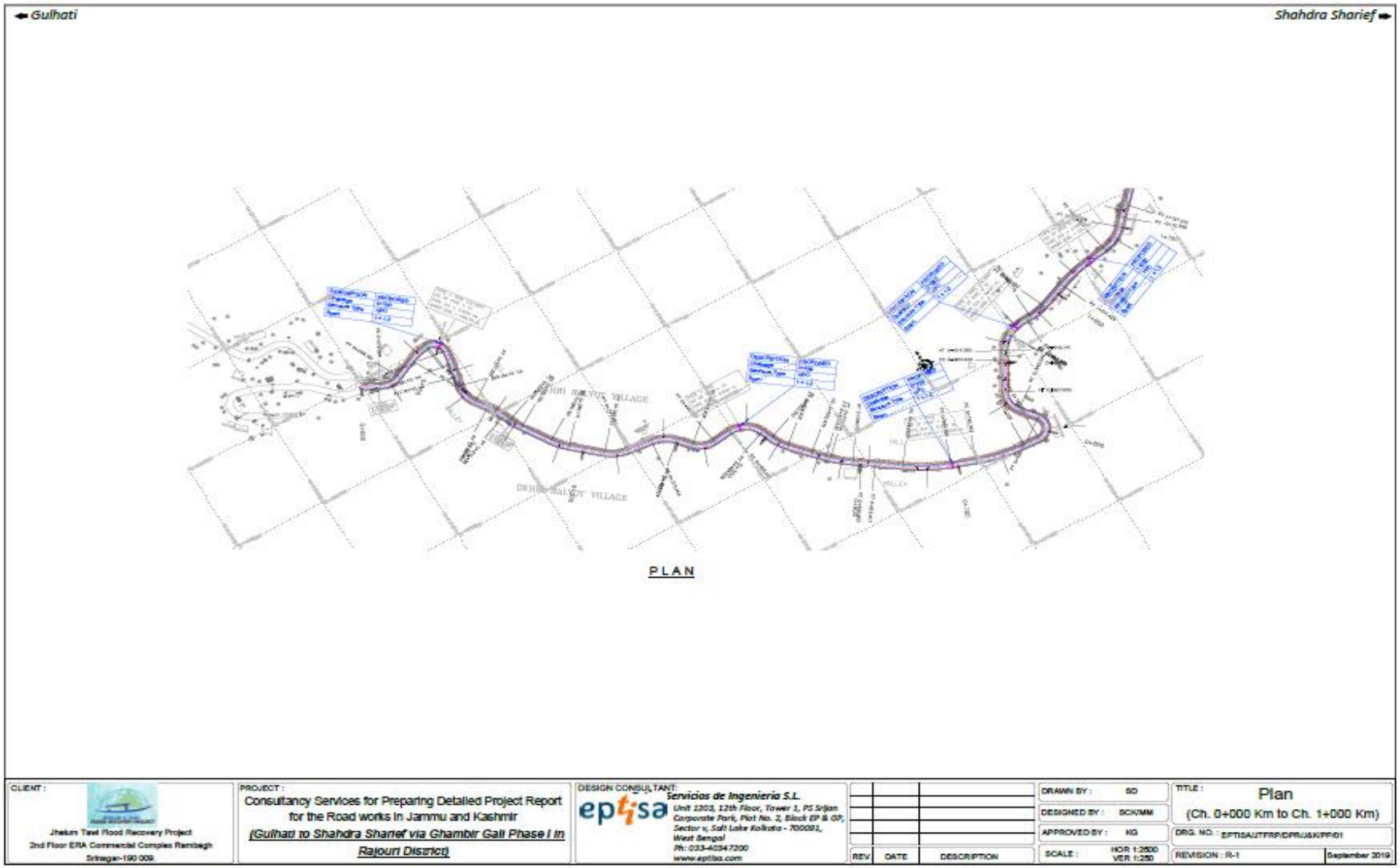
(Gulhati to Shahdra Sharief)
DRG. NO. : EPTISA/JTFRP/DPR/J&K/SP/06
REVISION : R-1
September 2019


Gulhati
Shahdra Sharief
PLAN
CLIENT :
Jhelum Tawi Flood Recovery Project
2nd Floor ERA Commercial Complex Rambagh
Srinagar-190 009
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Ph: 033-4034 7200
www.eptisa.com
REV
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APPROVED BY : KG
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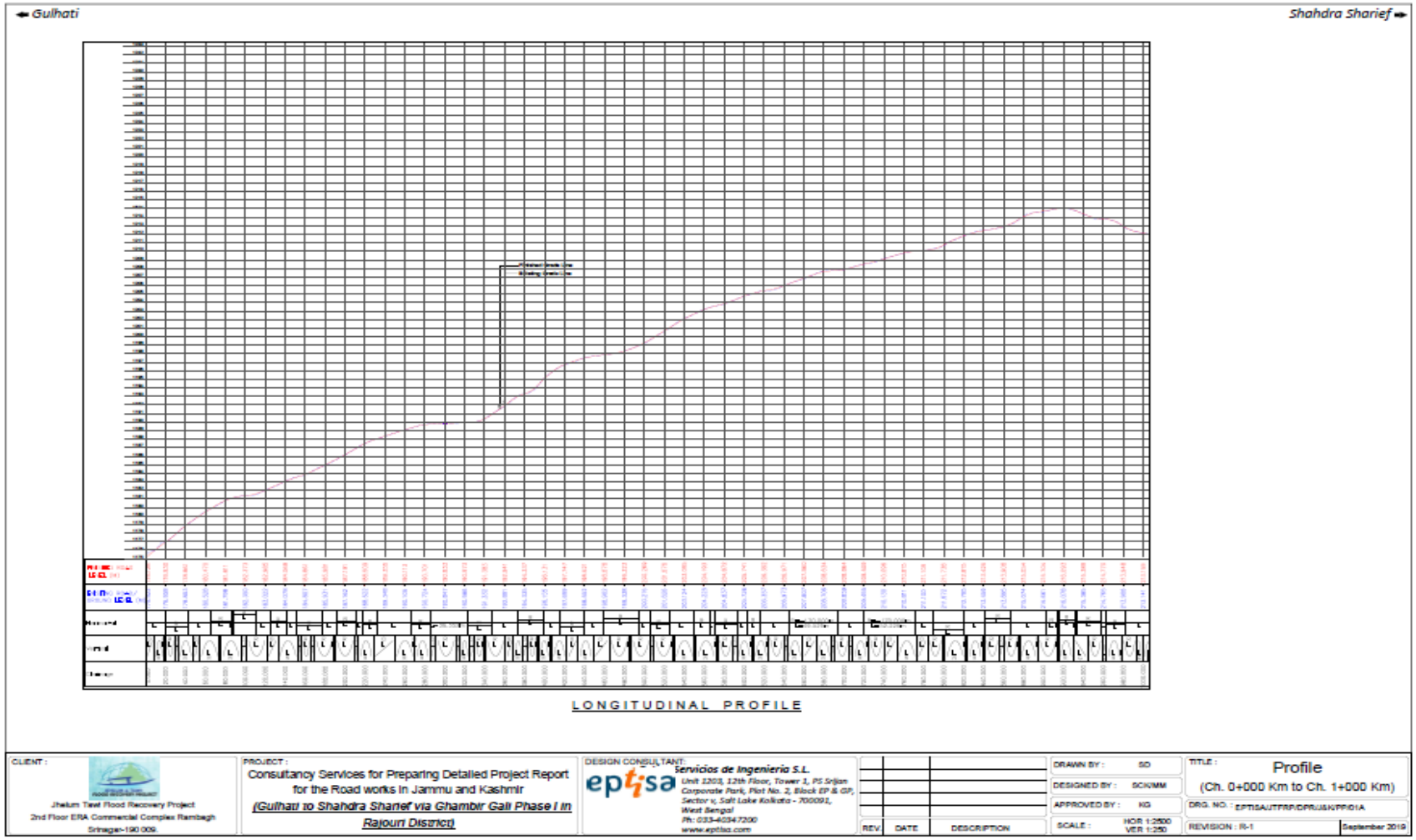
September 2019


Gulhati
Shahdra Sharief
LONGITUDINAL PROFILE
CLIENT :
Jhelum Tawi Flood Recovery Project
2nd Floor ERA Commercial Complex Rambagh
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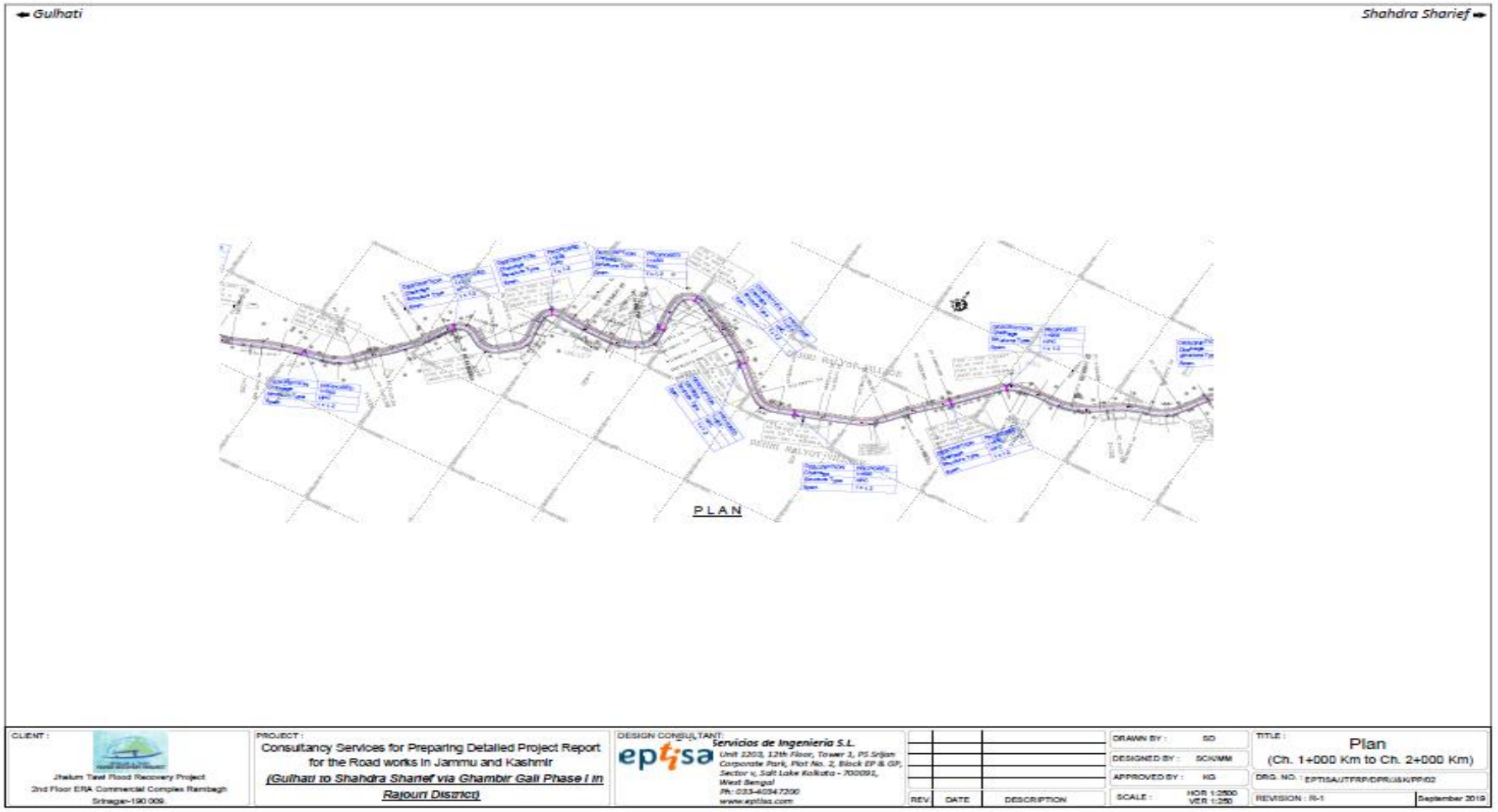
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Corporate Park, Plot No. 2, Block EP & GP,
Sector v, Salt Lake Kolkata - 700091,
West Bengal
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www.eptisa.com
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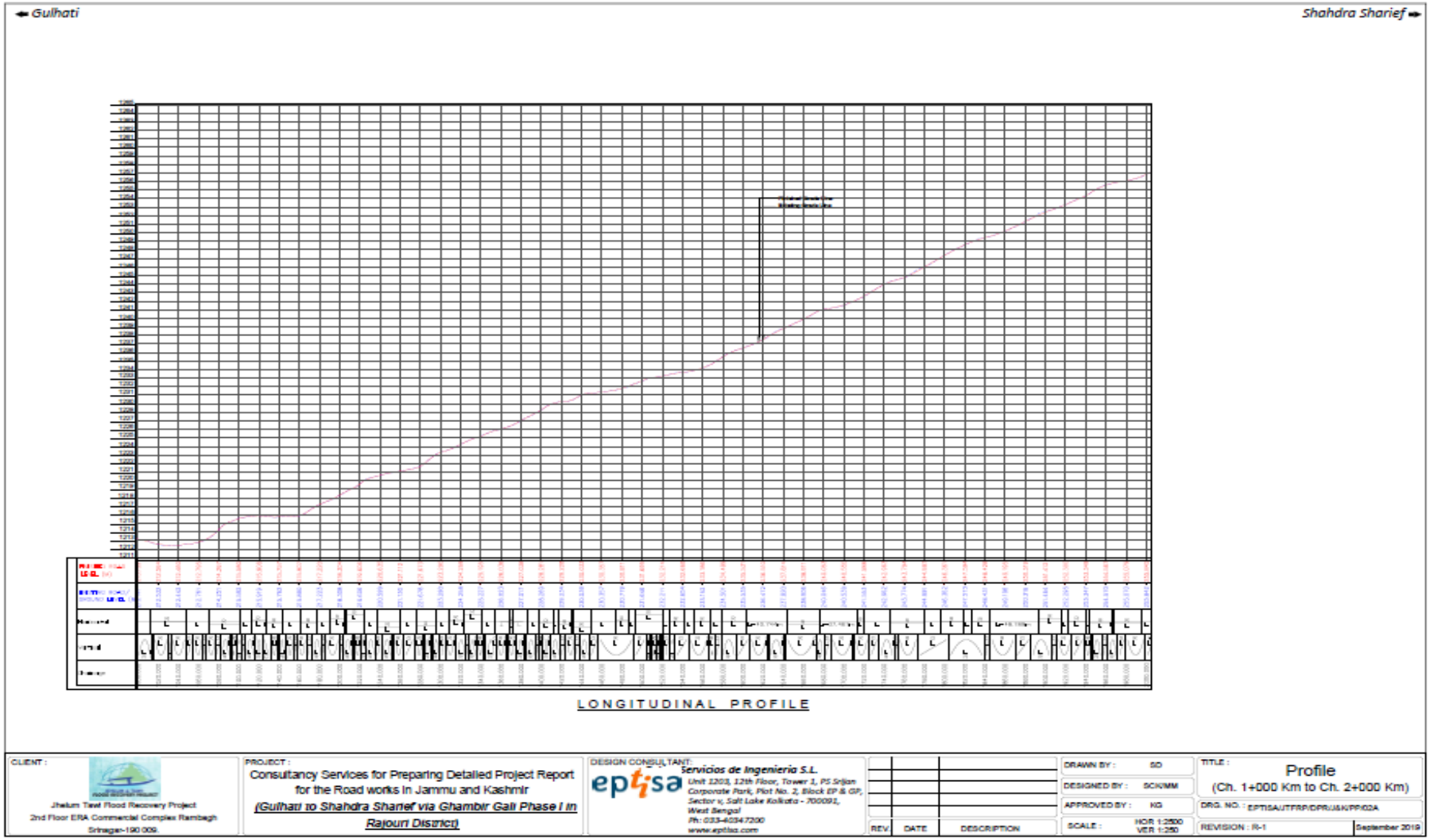
September 2019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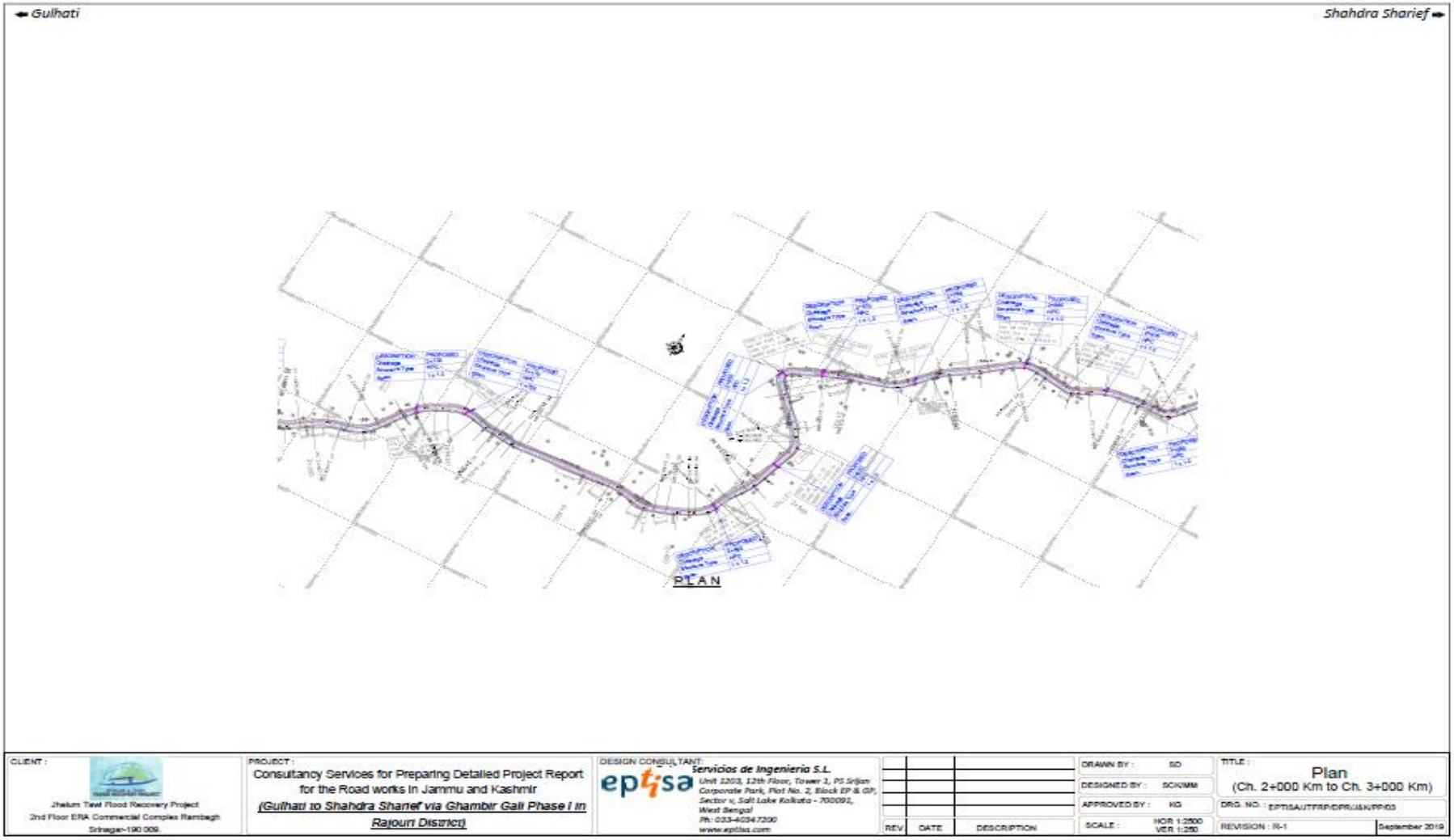
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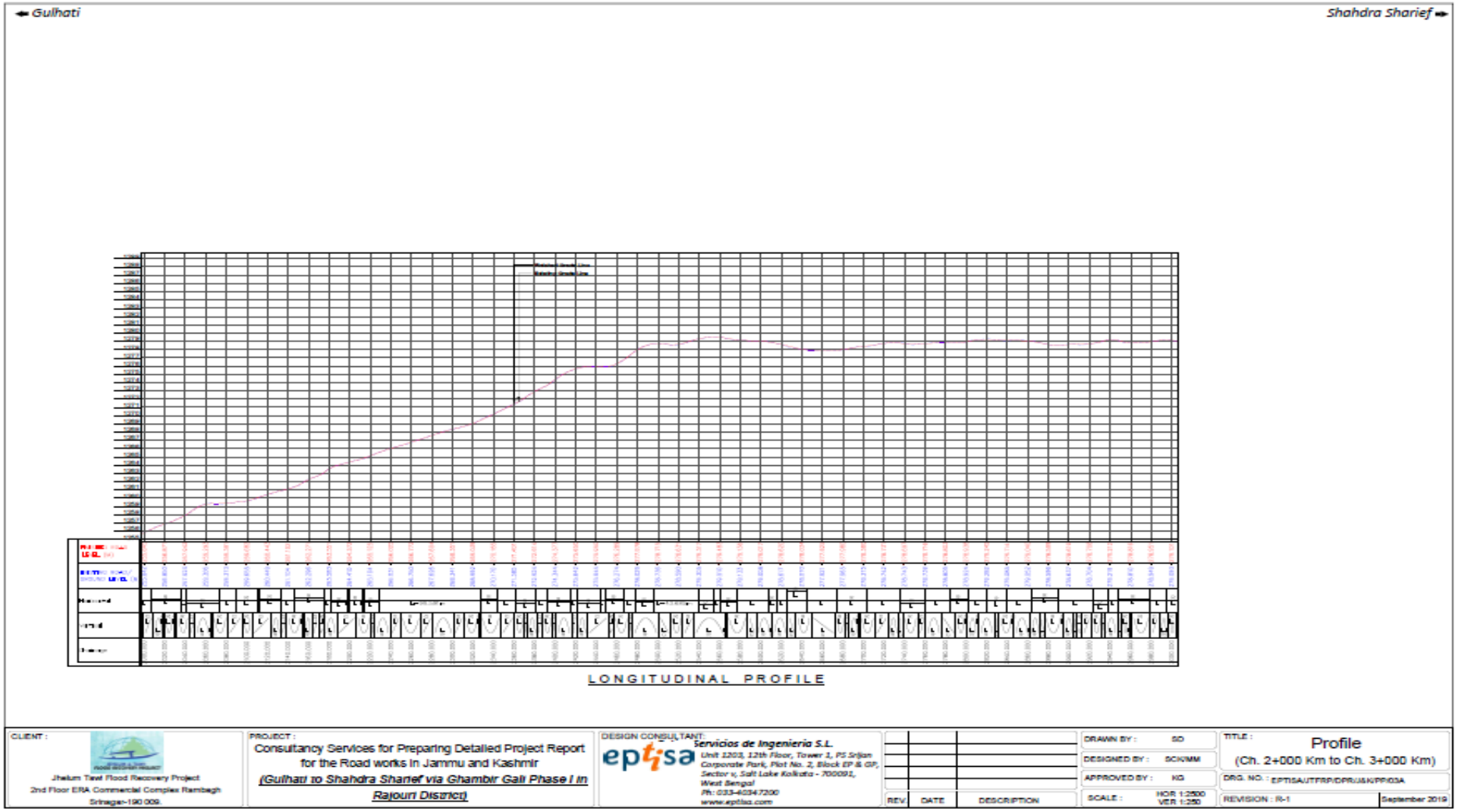
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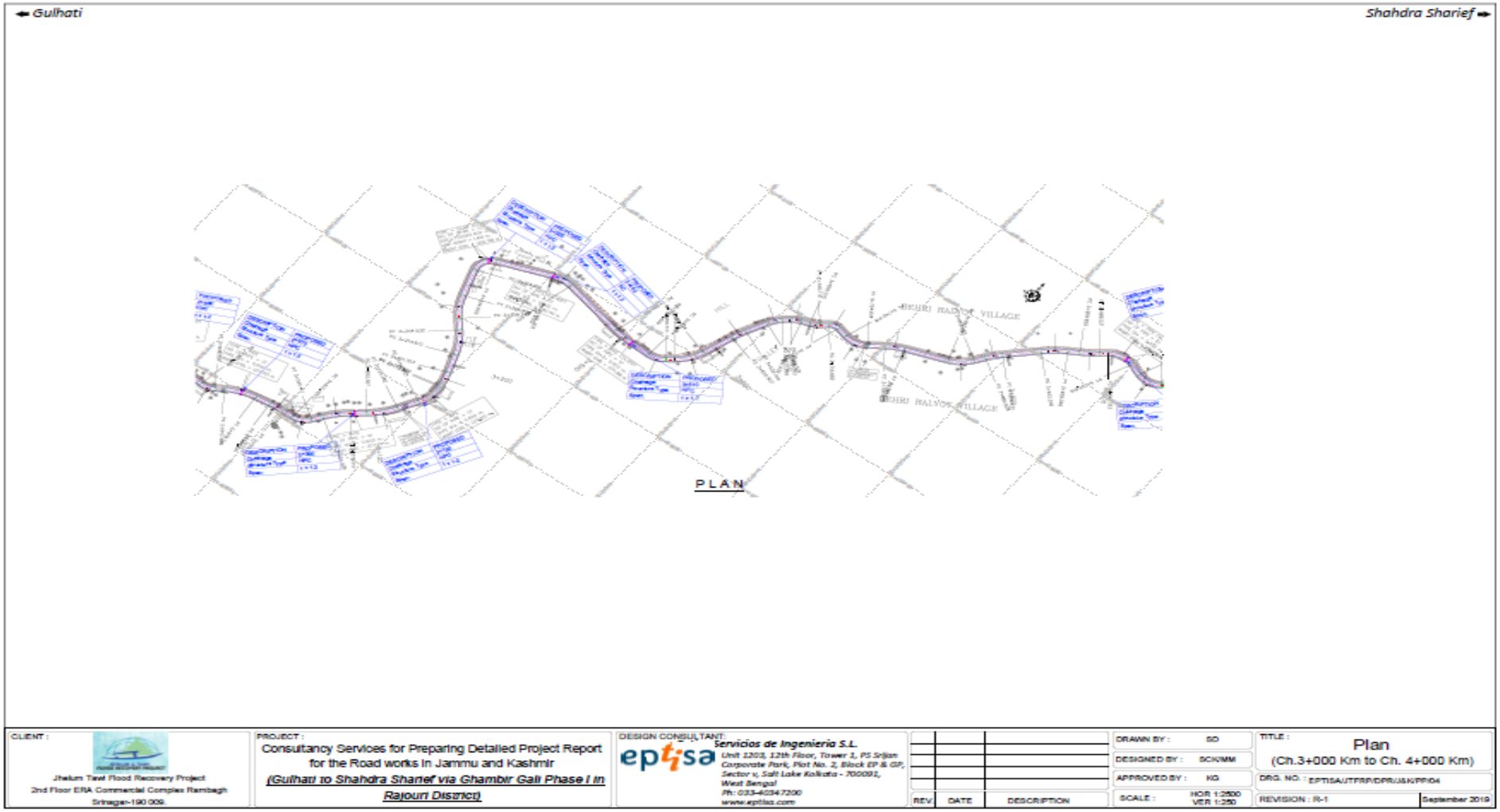
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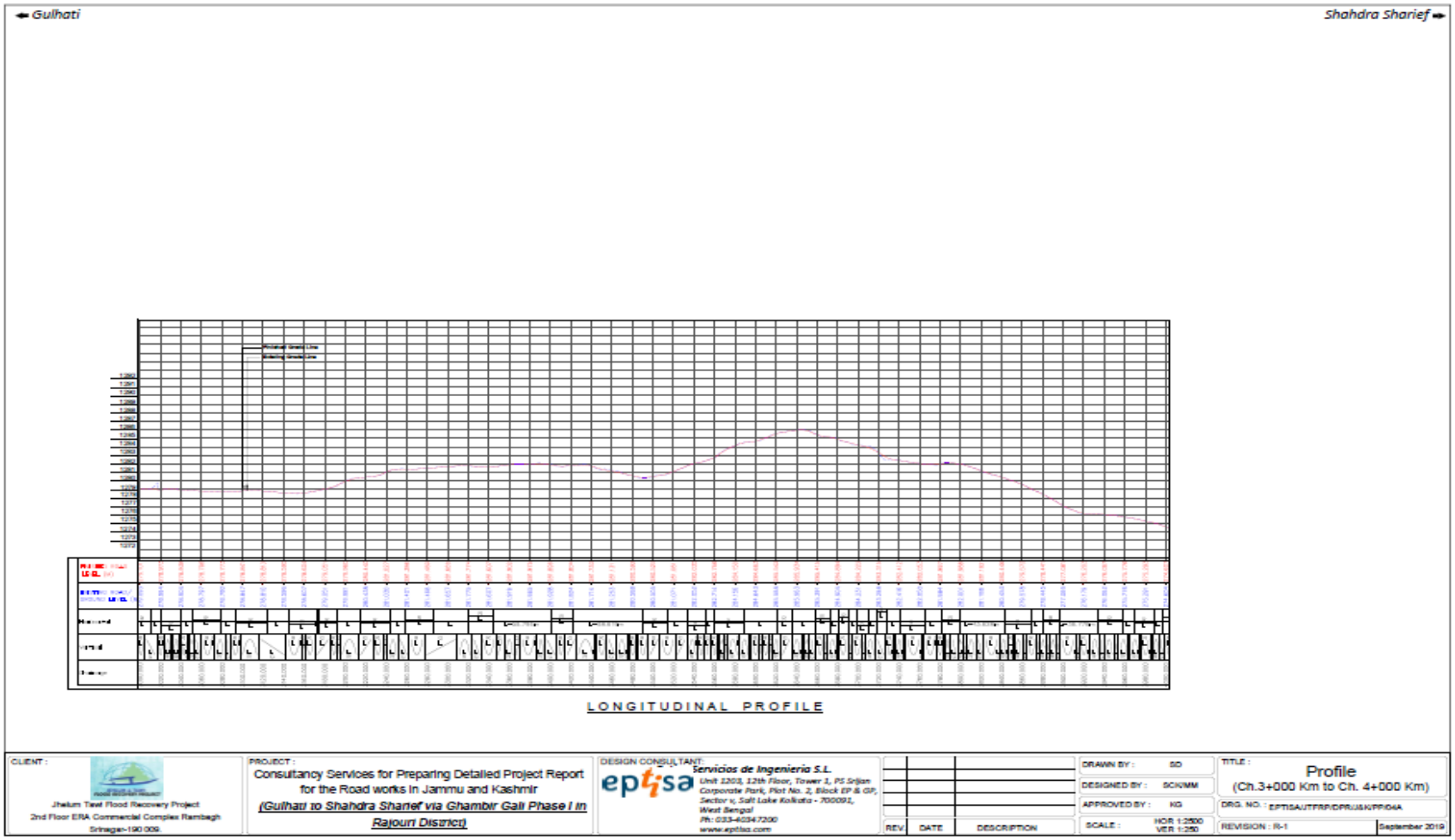
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Shahdra Sharief
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REV
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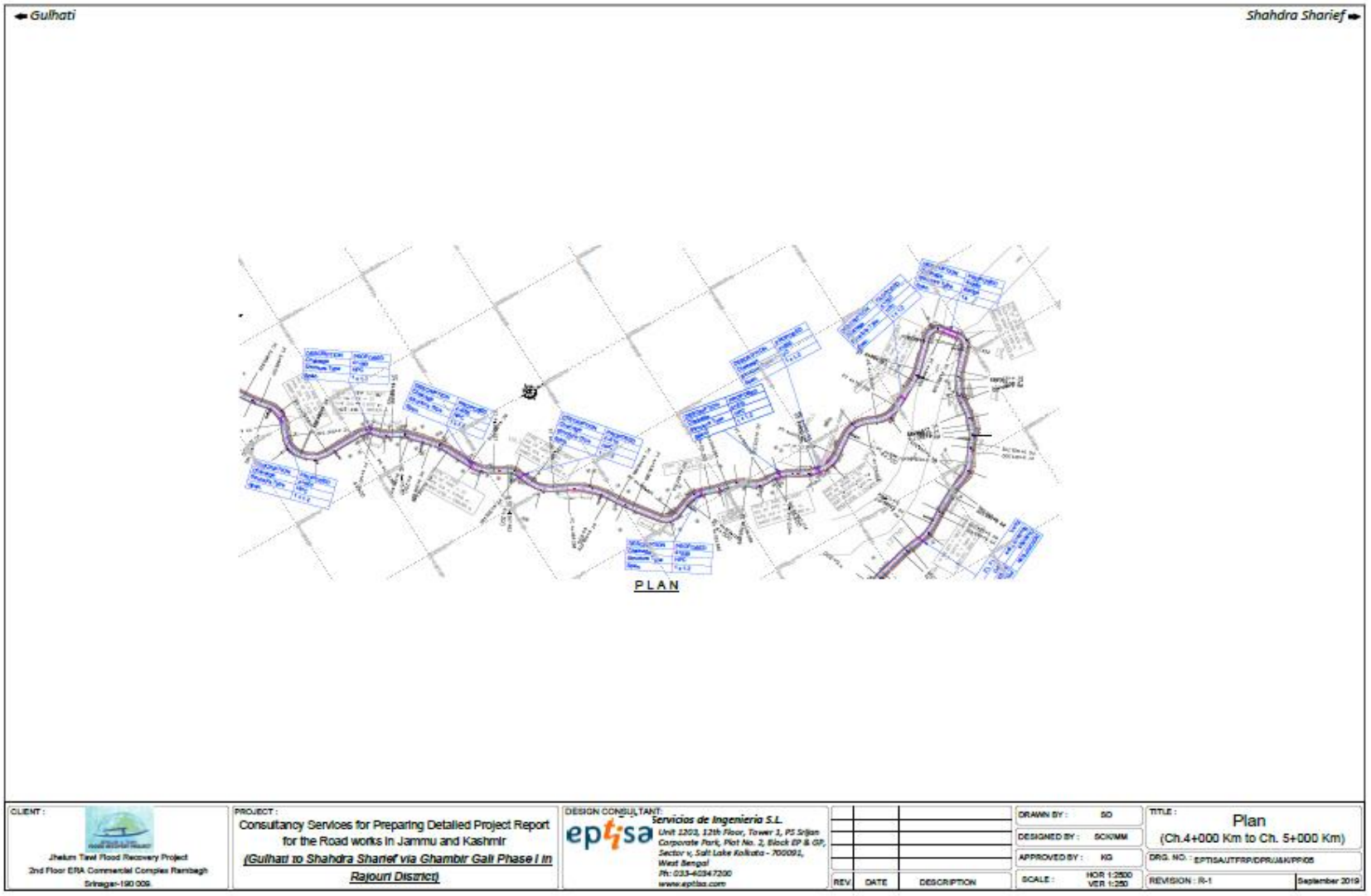
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DRAWN BY : SD
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APPROVED BY : KG
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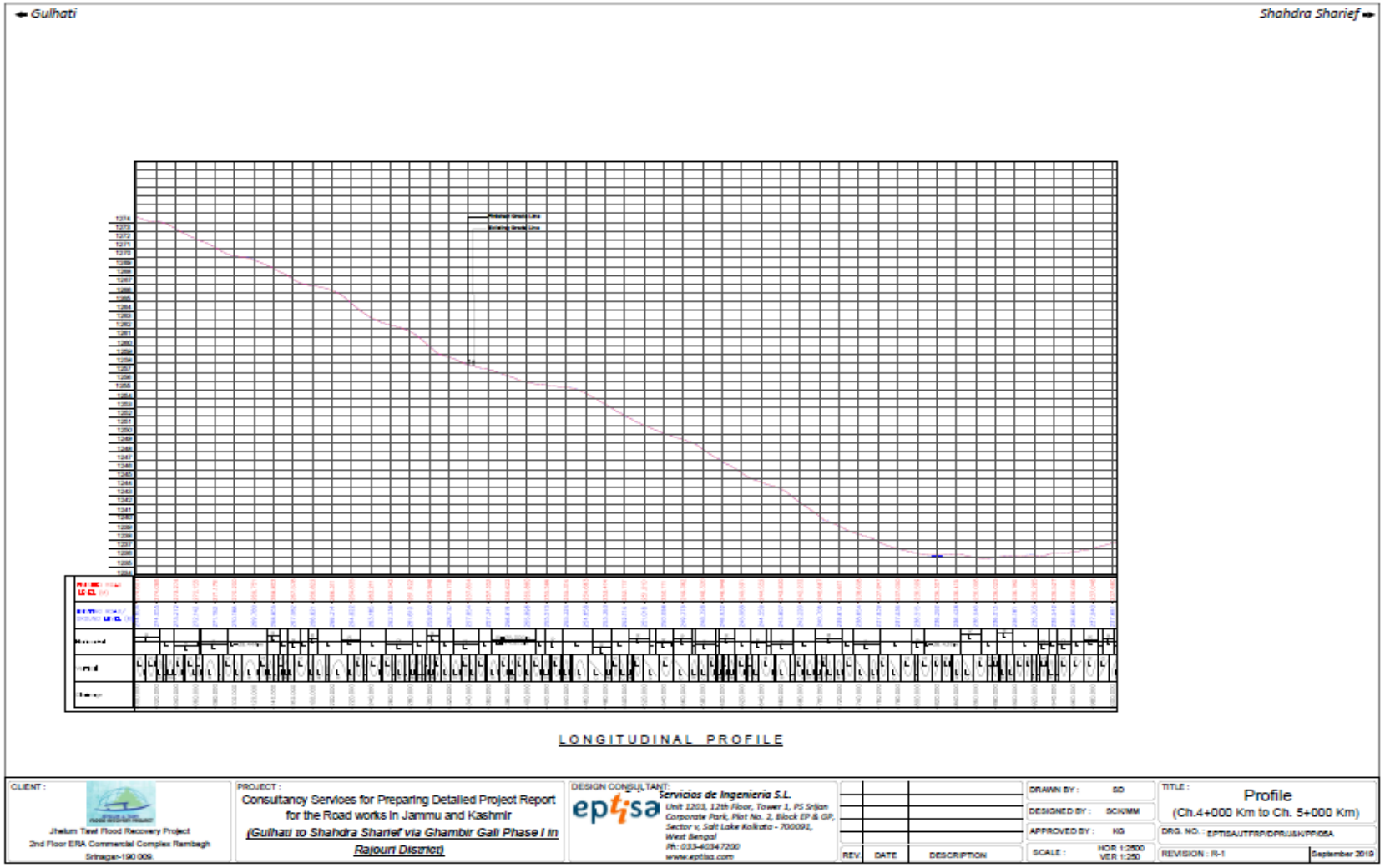
September 2019


Gulhati
Shahdra Sharief
LONGITUDINAL PROFILE
CLIENT :
Jhelum Tawi Flood Recovery Project
2nd Floor ERA Commercial Complex Rambagh
Srinagar-190 009.
PROJECT :
Consultancy Services for Preparing Detailed Project Report for the Road works in Jammu and Kashmir
(Gulhati to Shahdra Sharief via Ghambir Gali Phase I in Rajouri District)
DESIGN CONSULTANT:
Servicios de Ingenieria S.L.
Unit 1203, 12th Floor, Tower 1, PS Srijan Corporate Park, Plot No. 2, Block EP & GP, Sector v, Salt Lake Kolkata - 700091, West Bengal
Ph: 033-4034 7200
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REV
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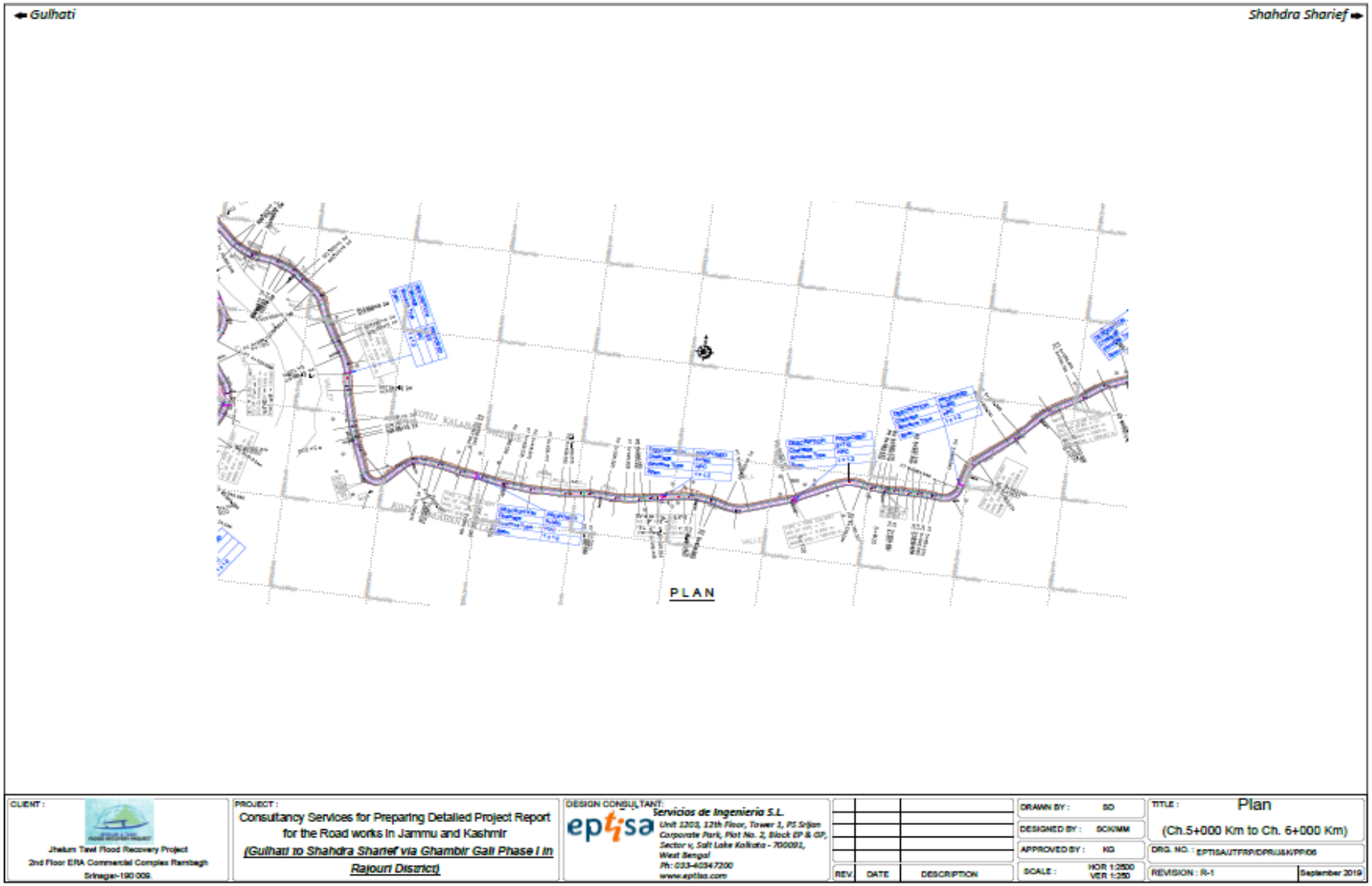
Gulhati
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PLAN
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TITLE : Plan
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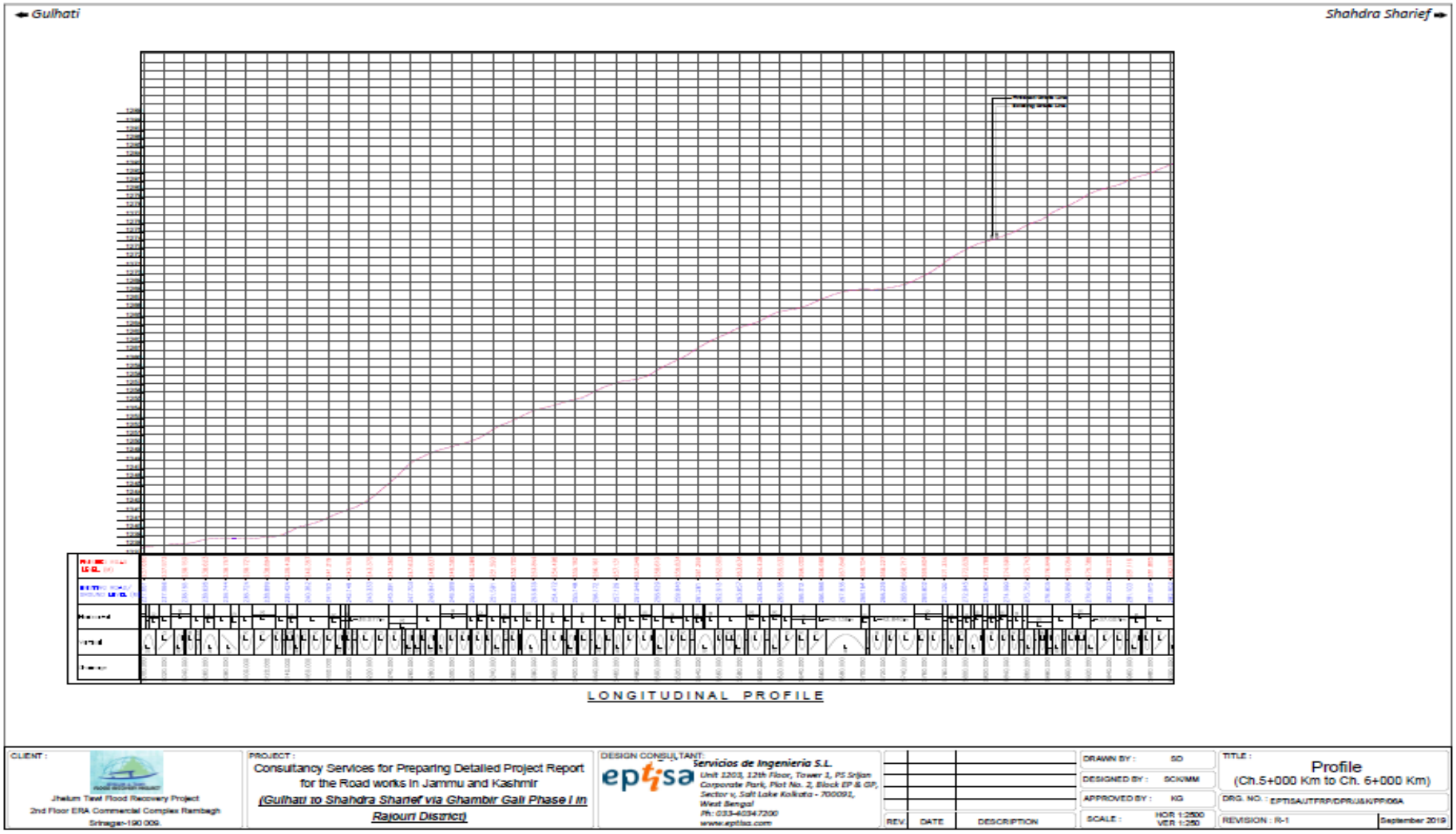
REVISION : R-1
September 2019


Gulhati
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LONGITUDINAL PROFILE
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Jhelum Tawi Flood Recovery Project
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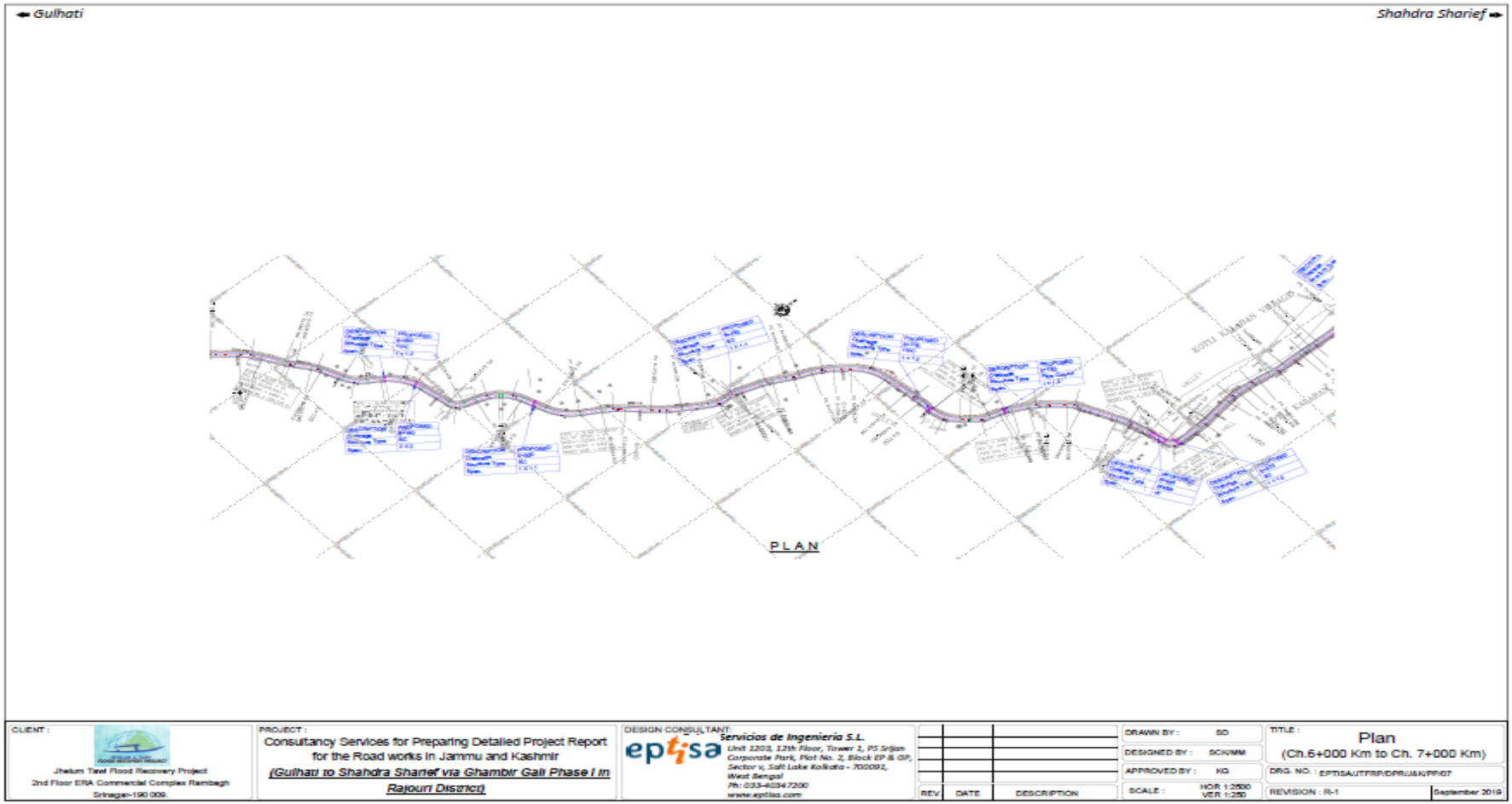
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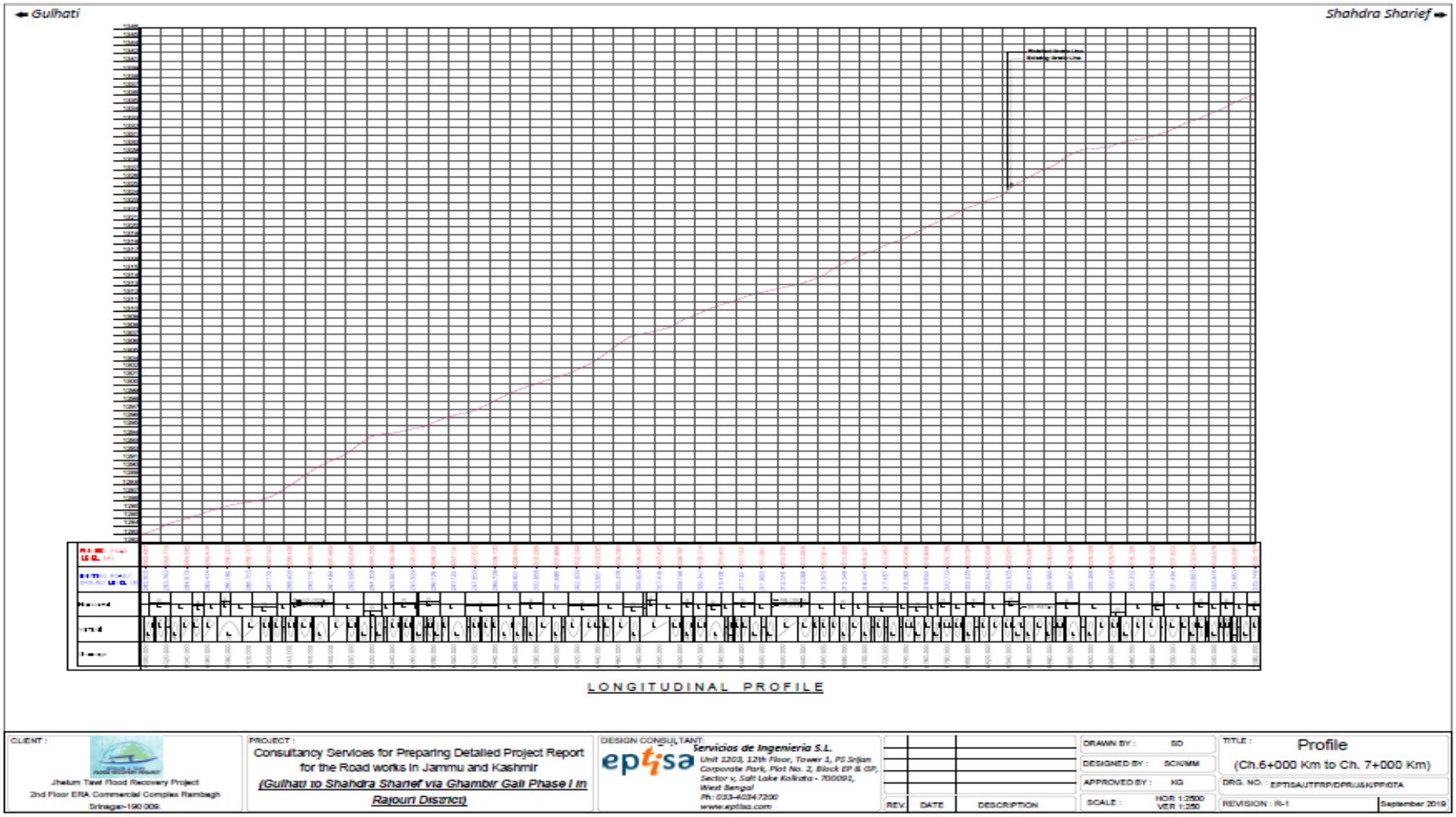
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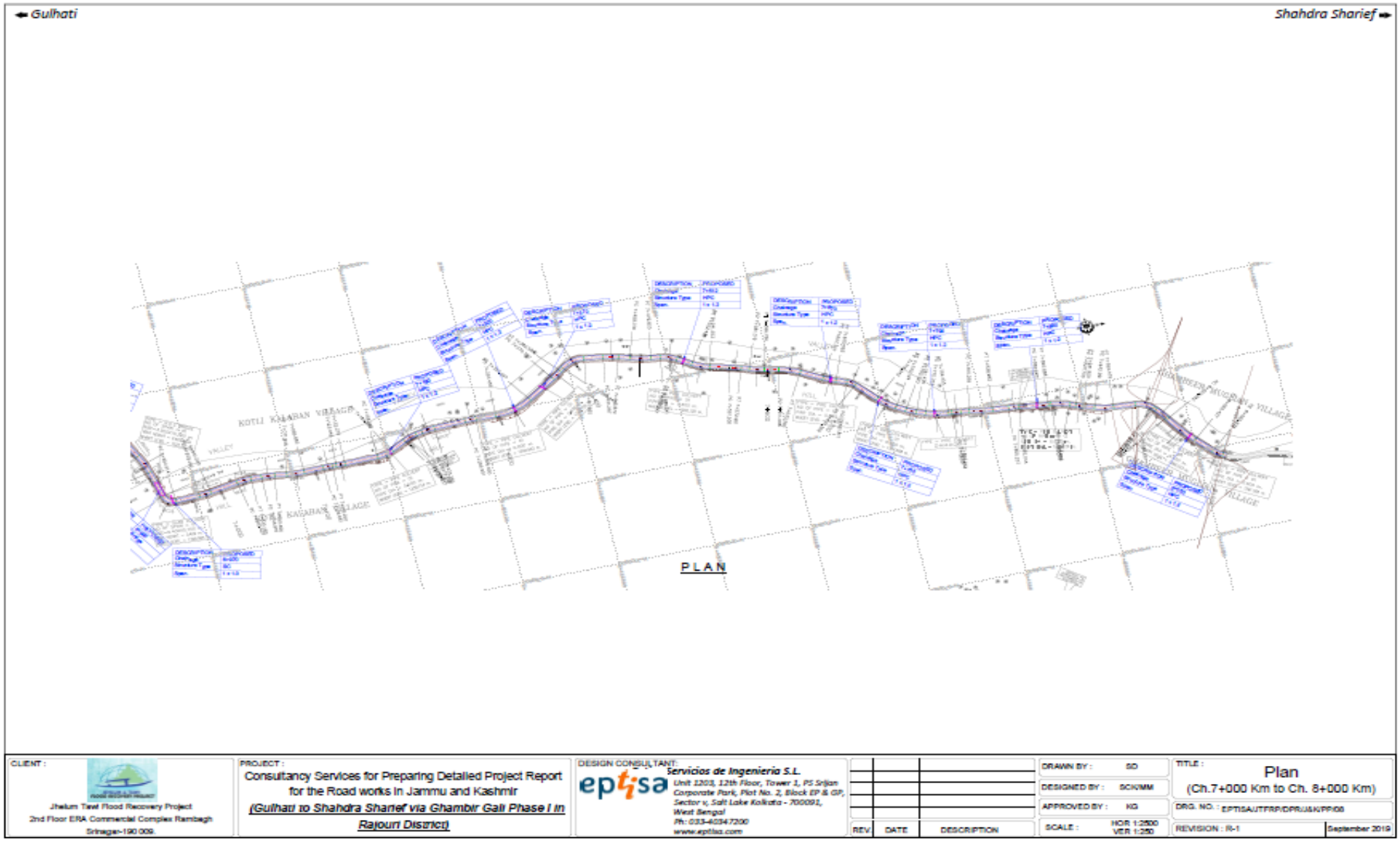
Gulhati
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KOTLI KHARAN VILLAGE
KHARAN VILLAGE
PLAN
CLIENT :
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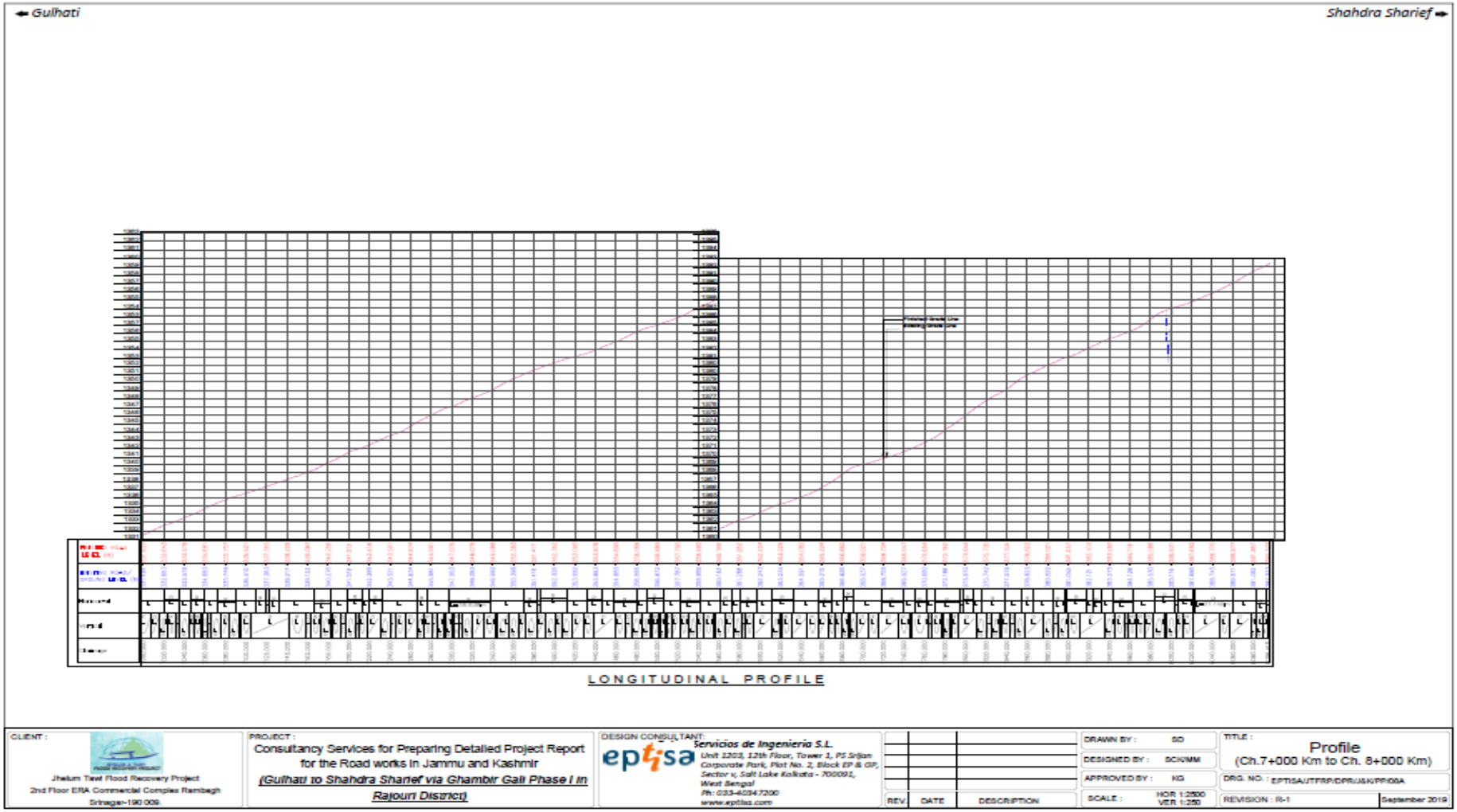
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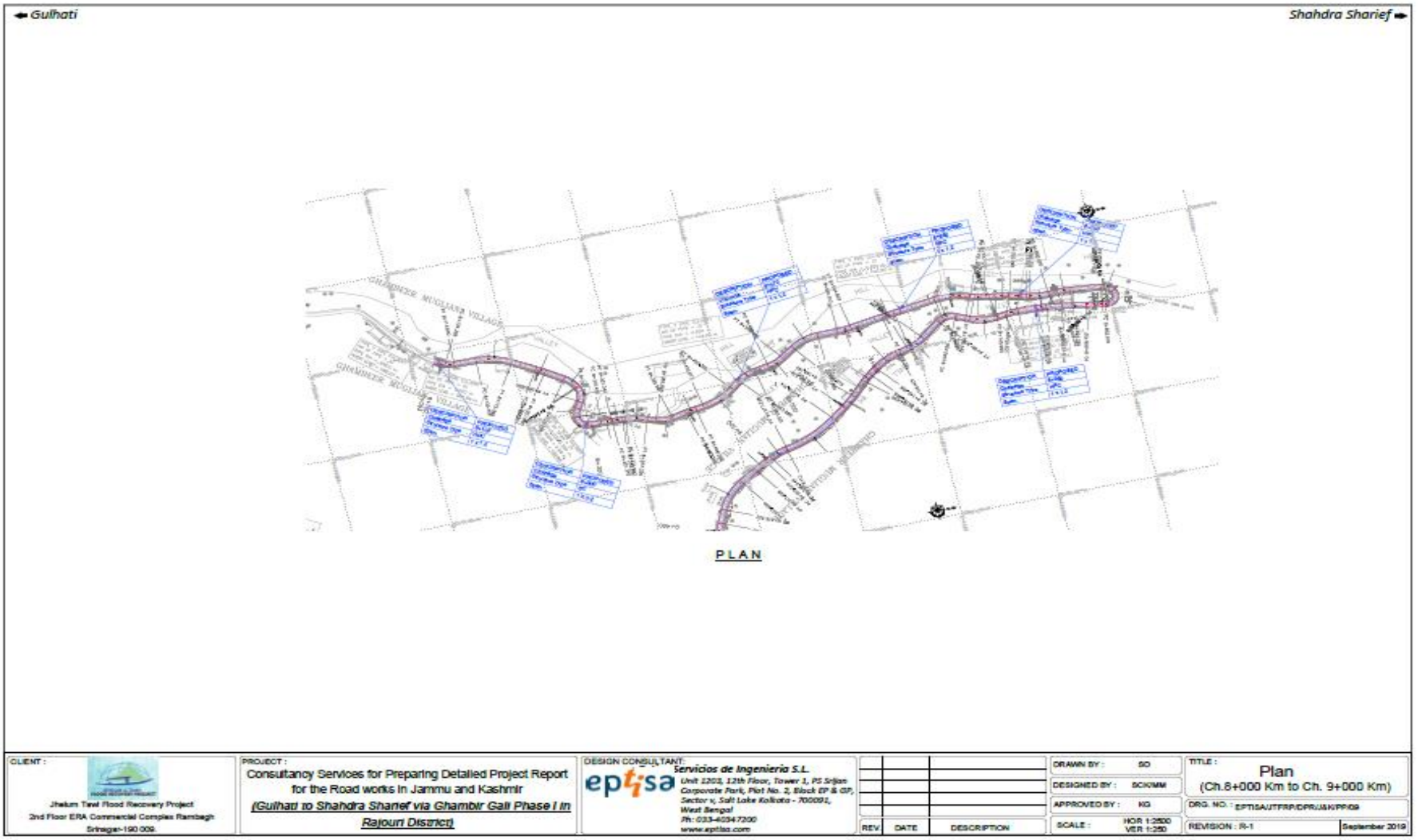
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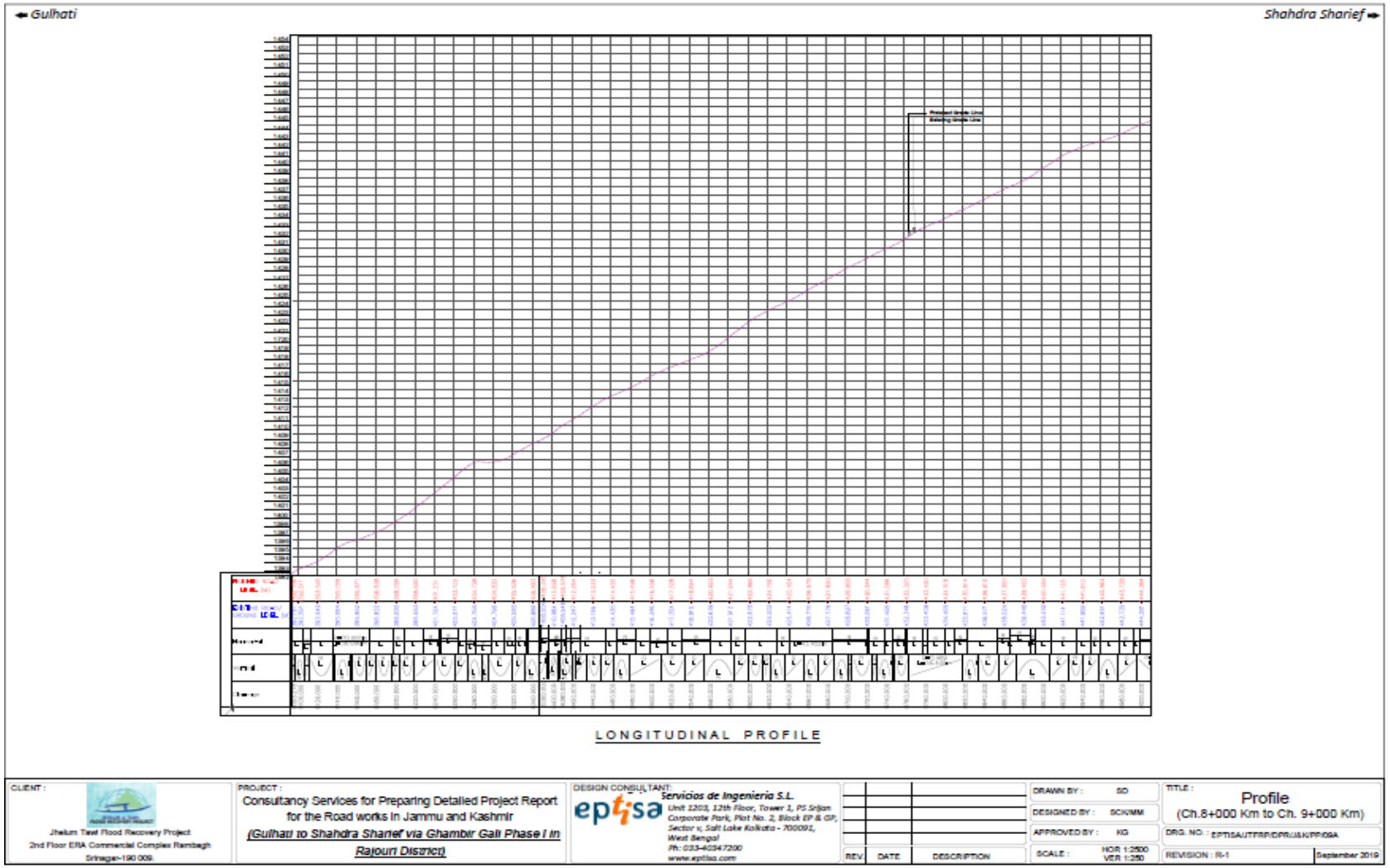
September 2019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Shahdra Sharief
LONGITUDINAL PROFILE
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Jhelum Tawi Flood Recovery Project
2nd Floor ERA Commercial Complex Rambagh
Srinagar-190 009.
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Consultancy Services for Preparing Detailed Project Report for the Road works in Jammu and Kashmir
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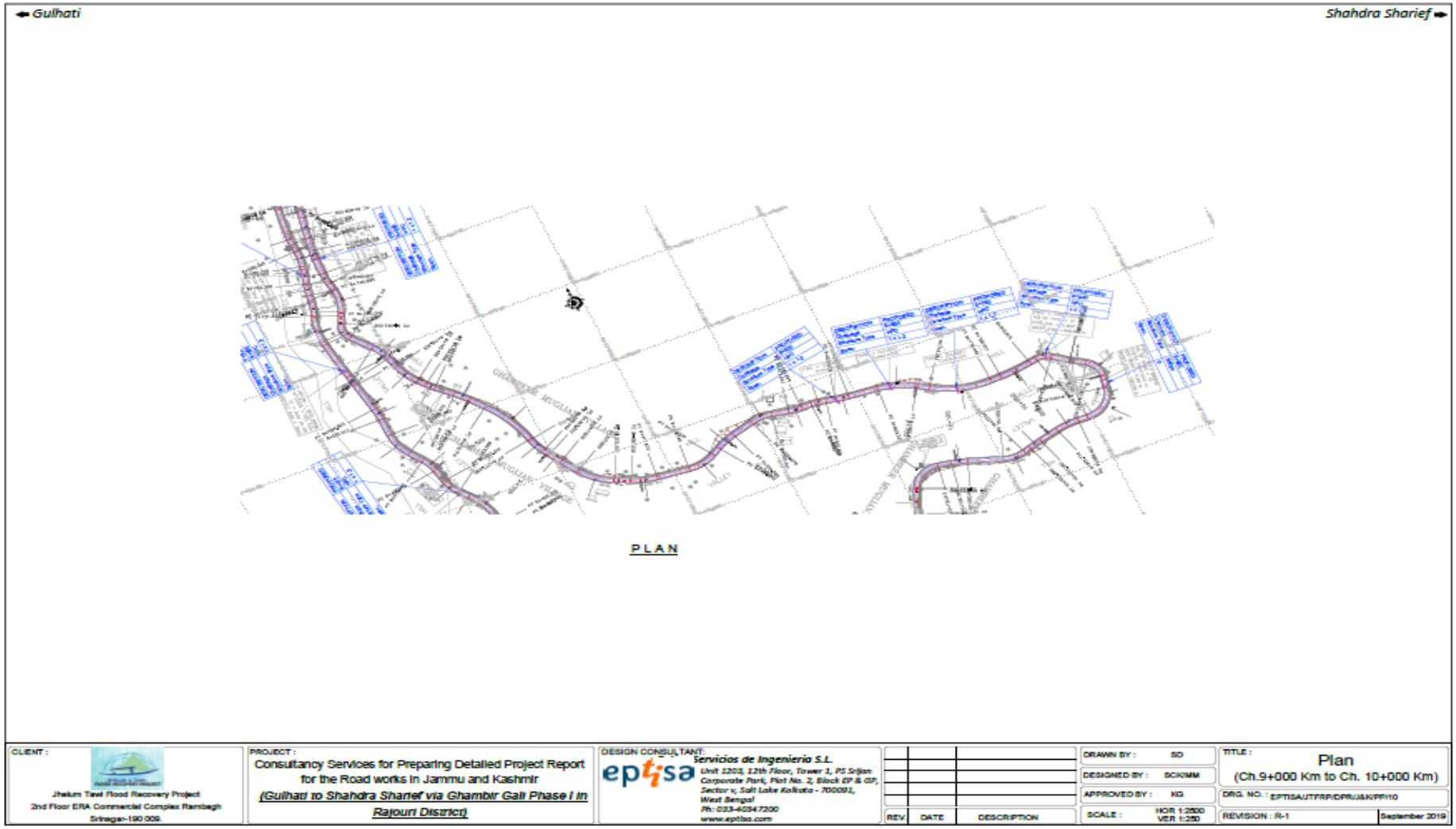
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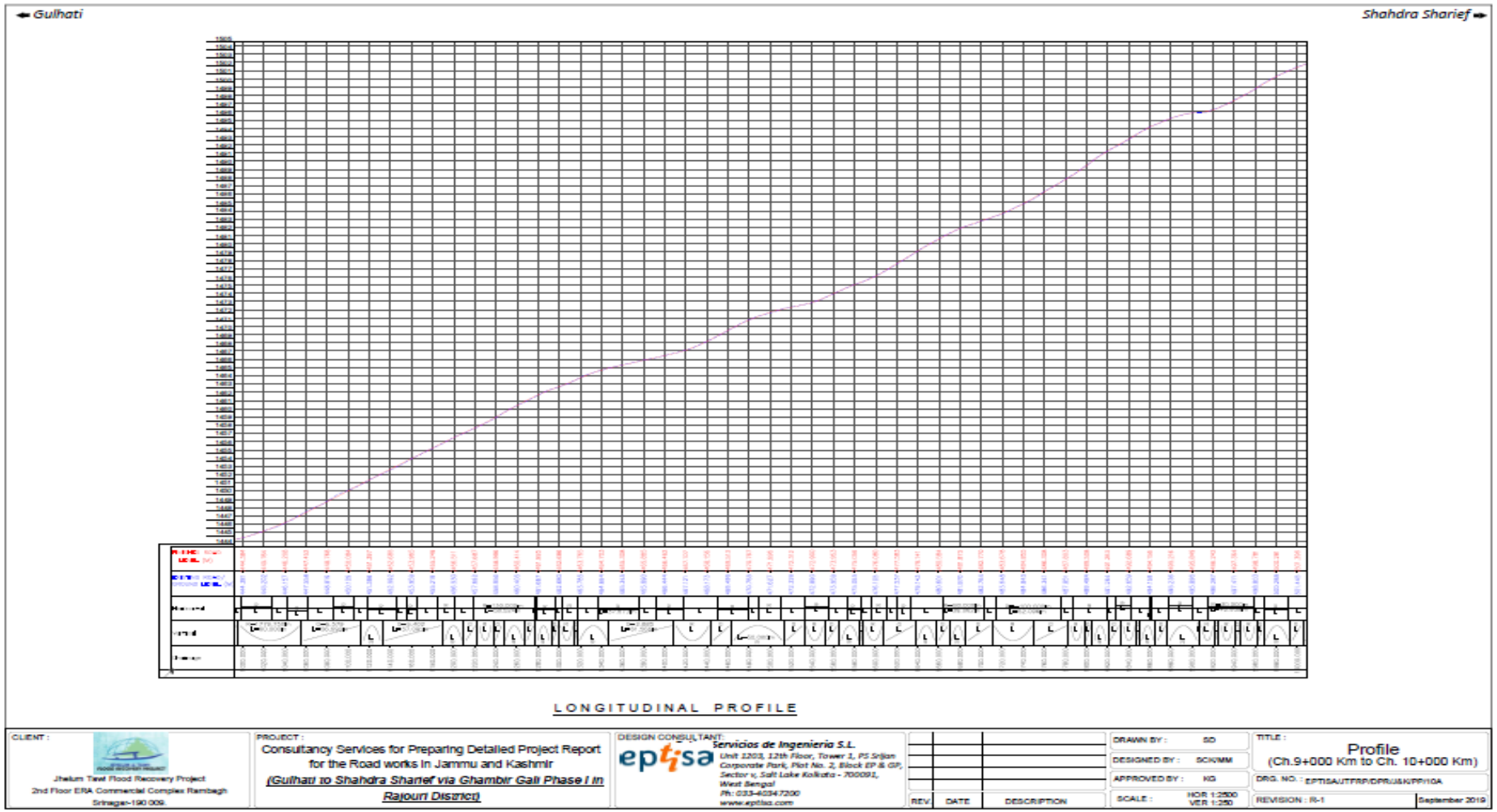
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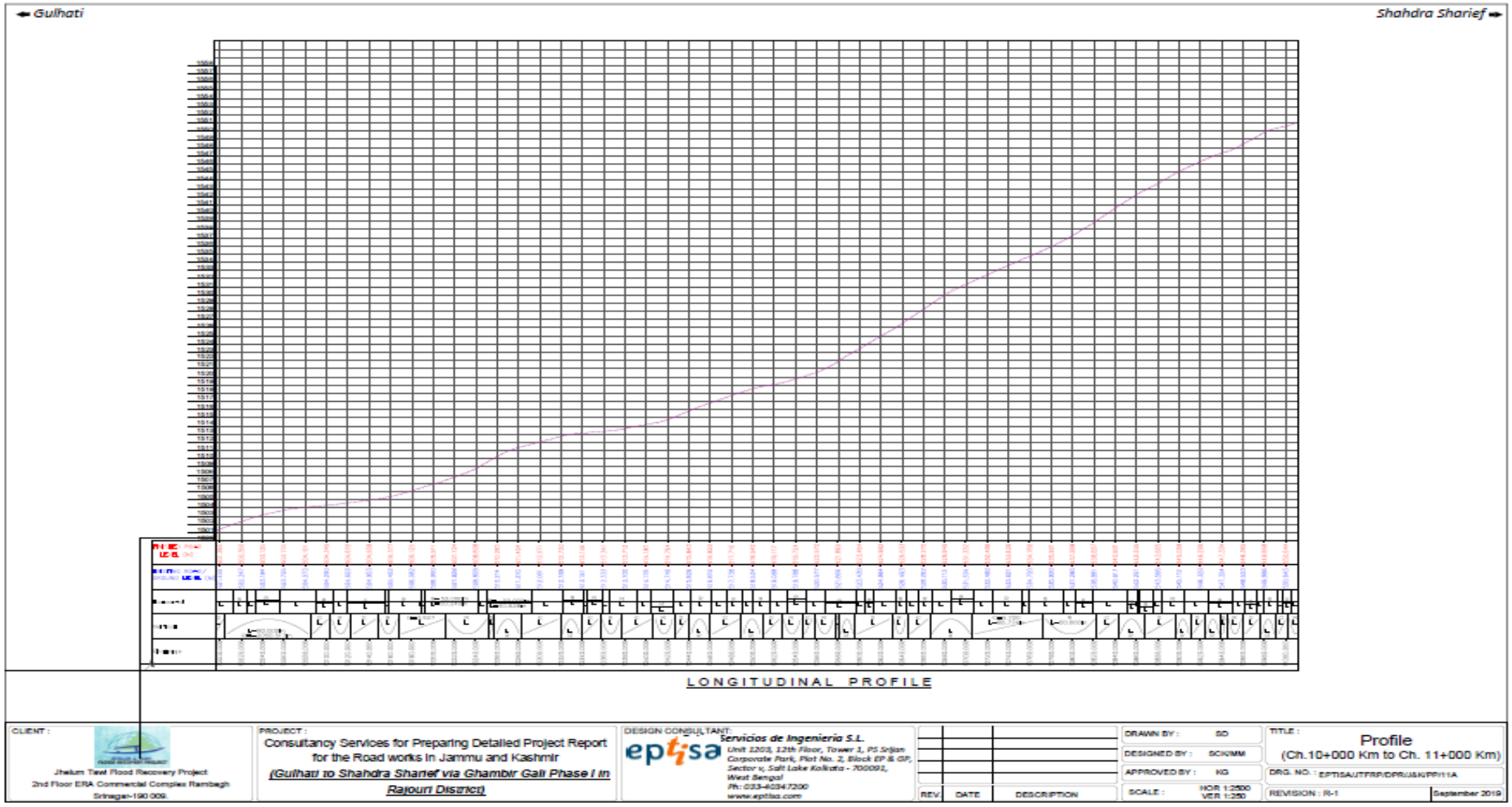
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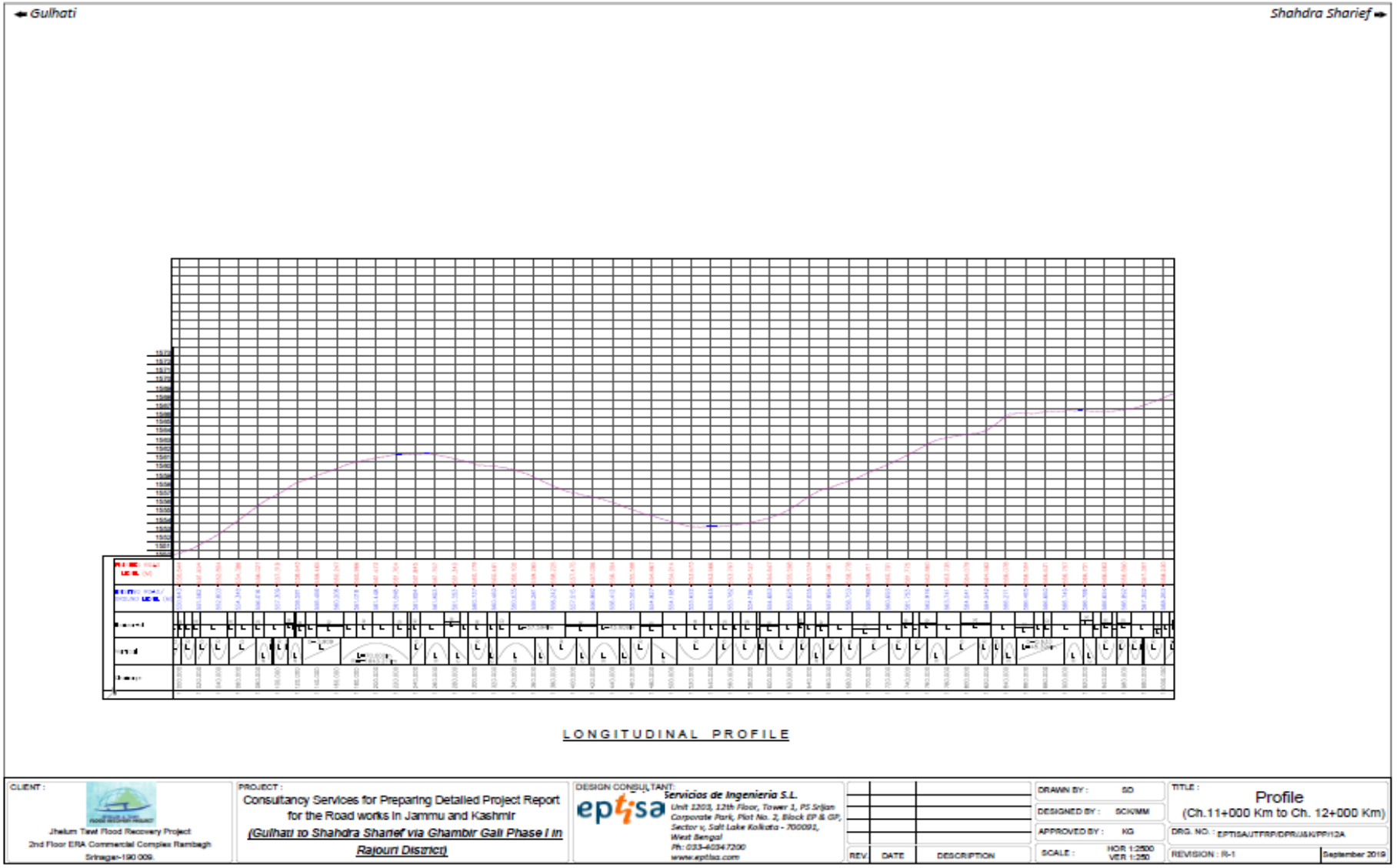
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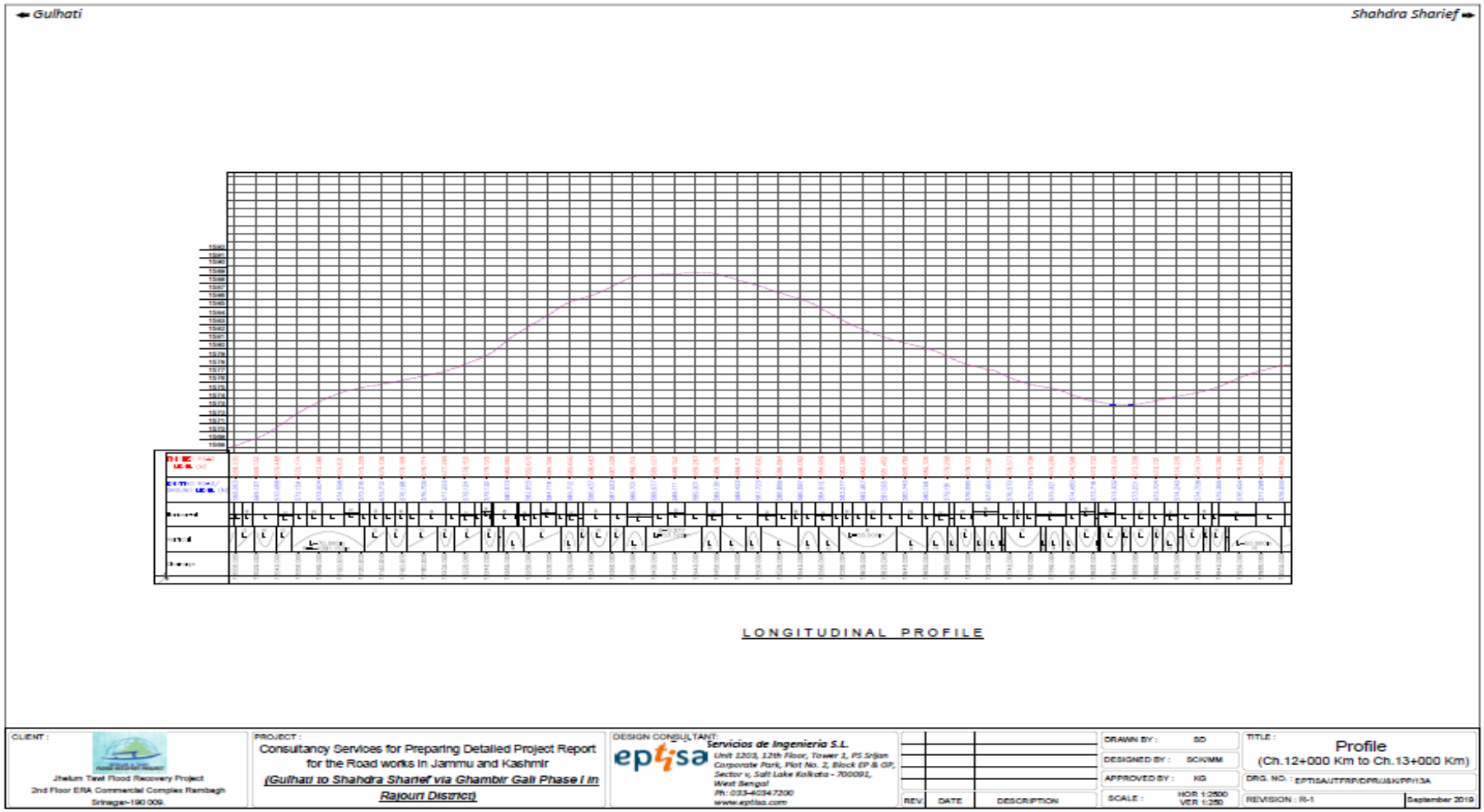
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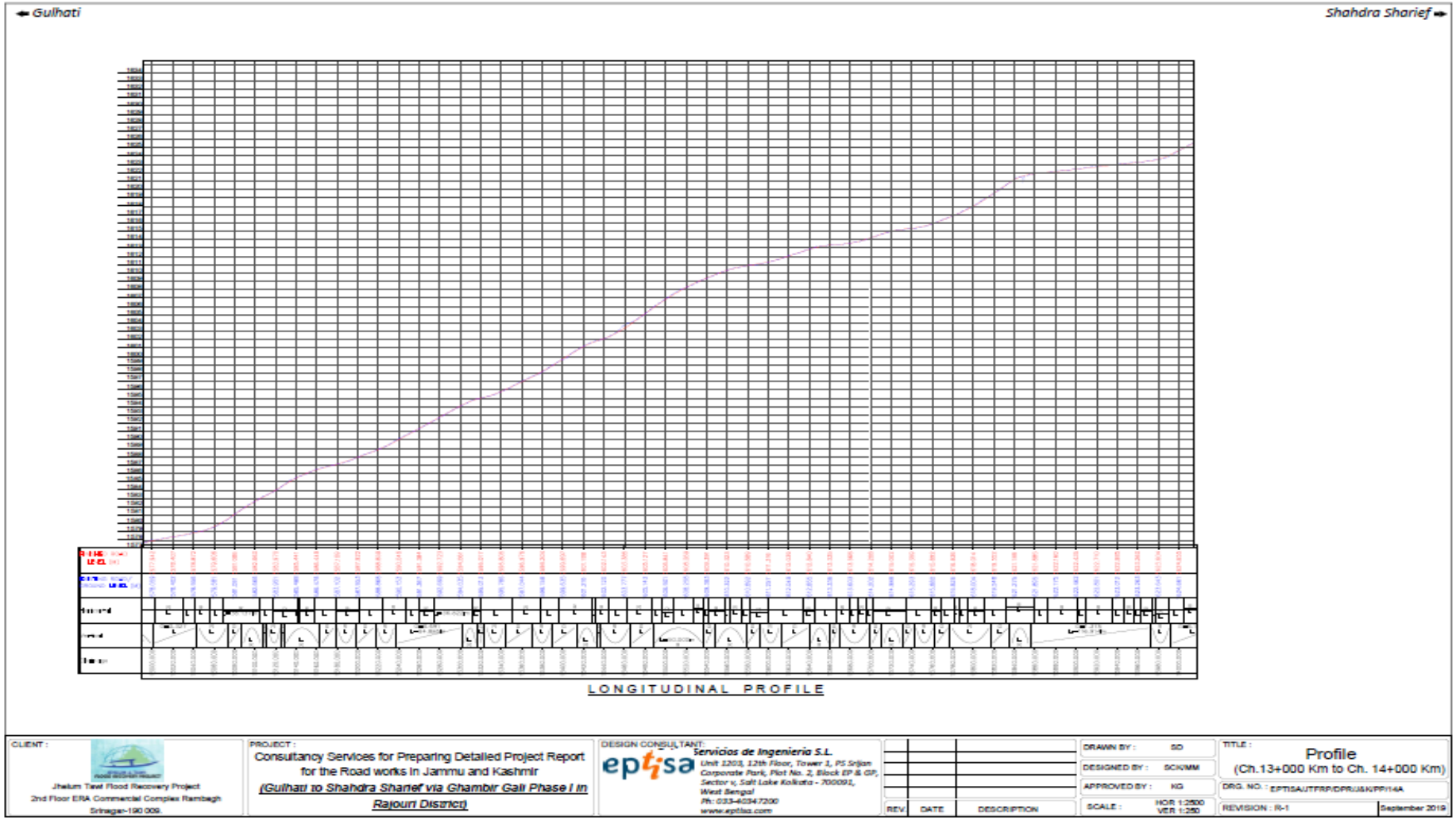
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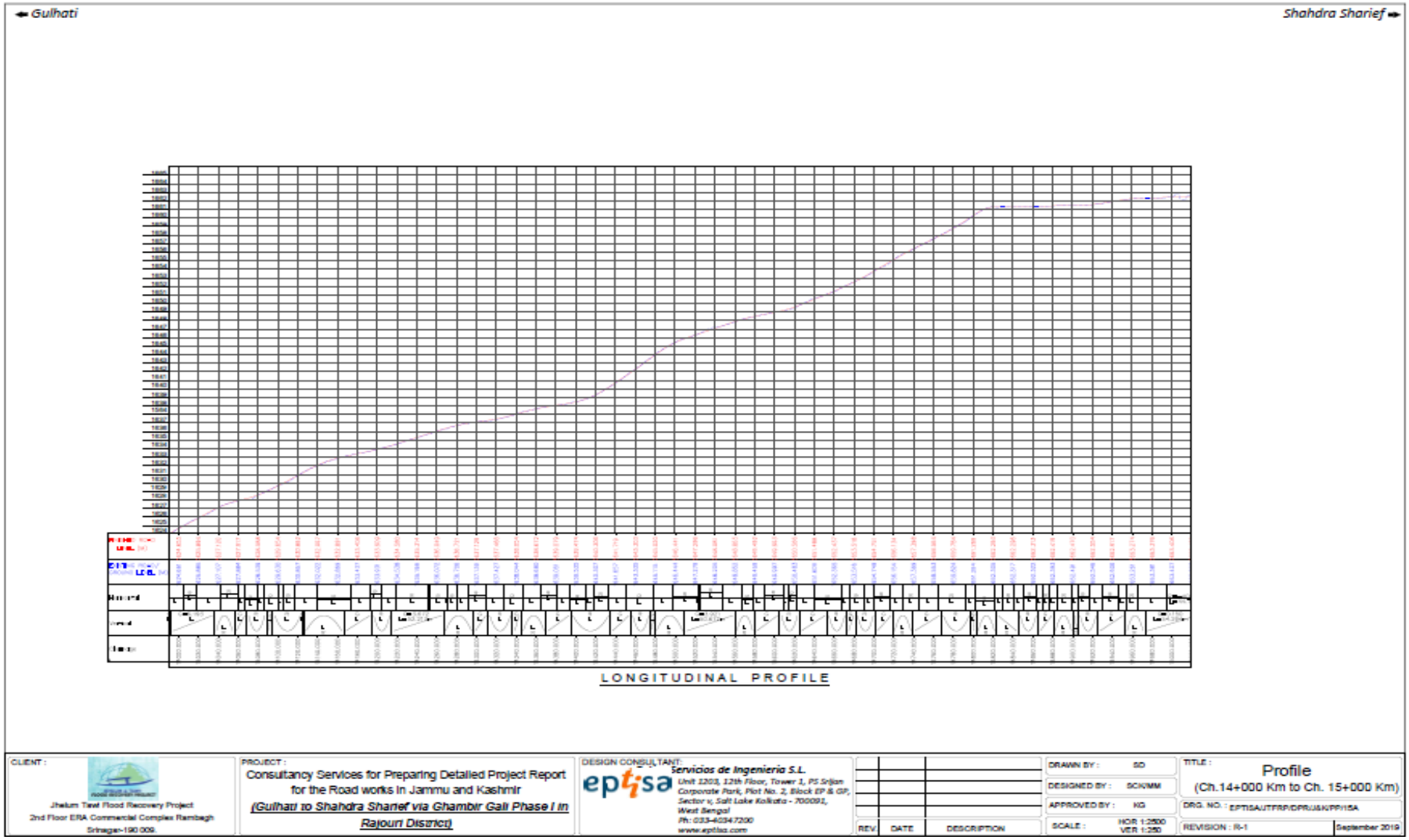
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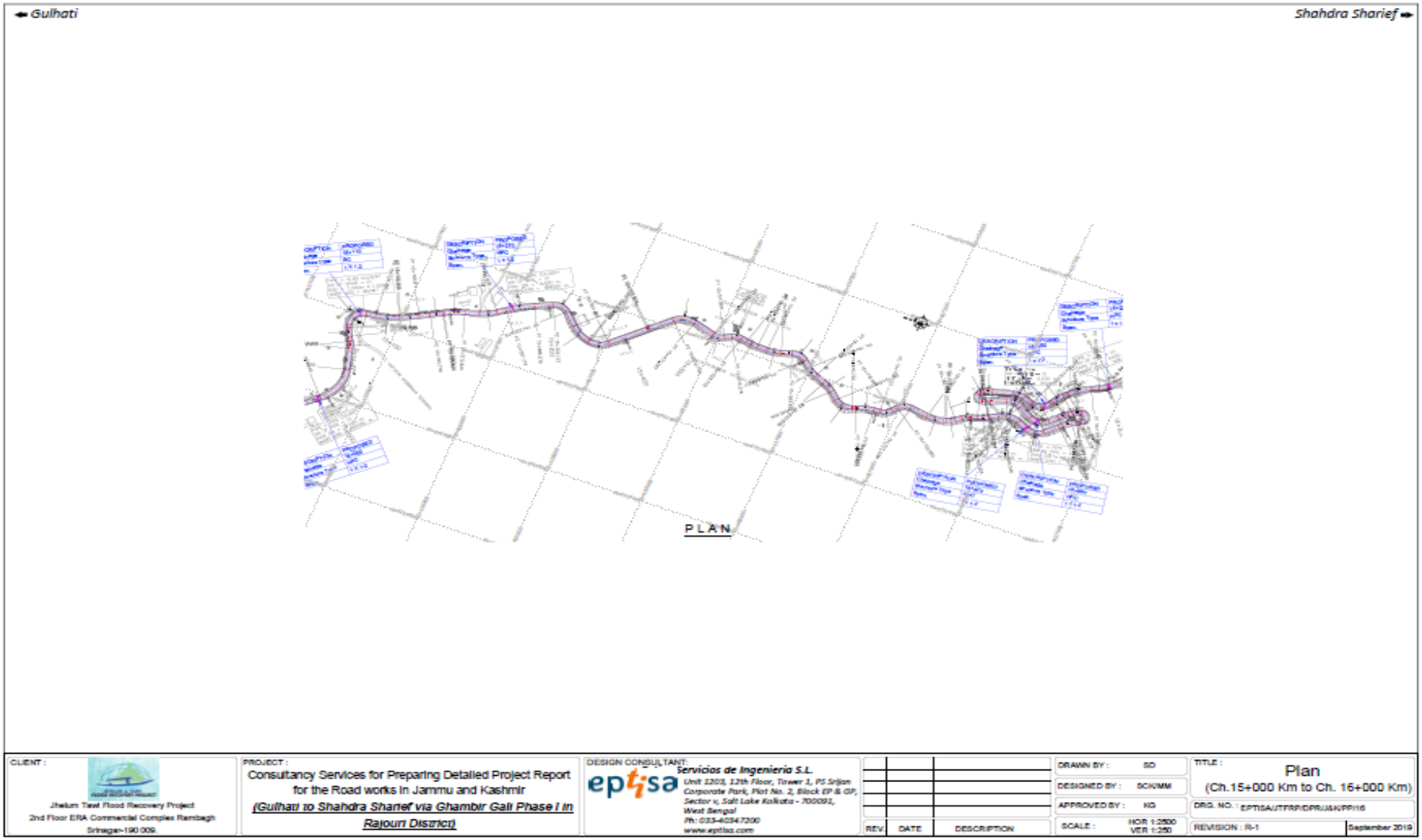
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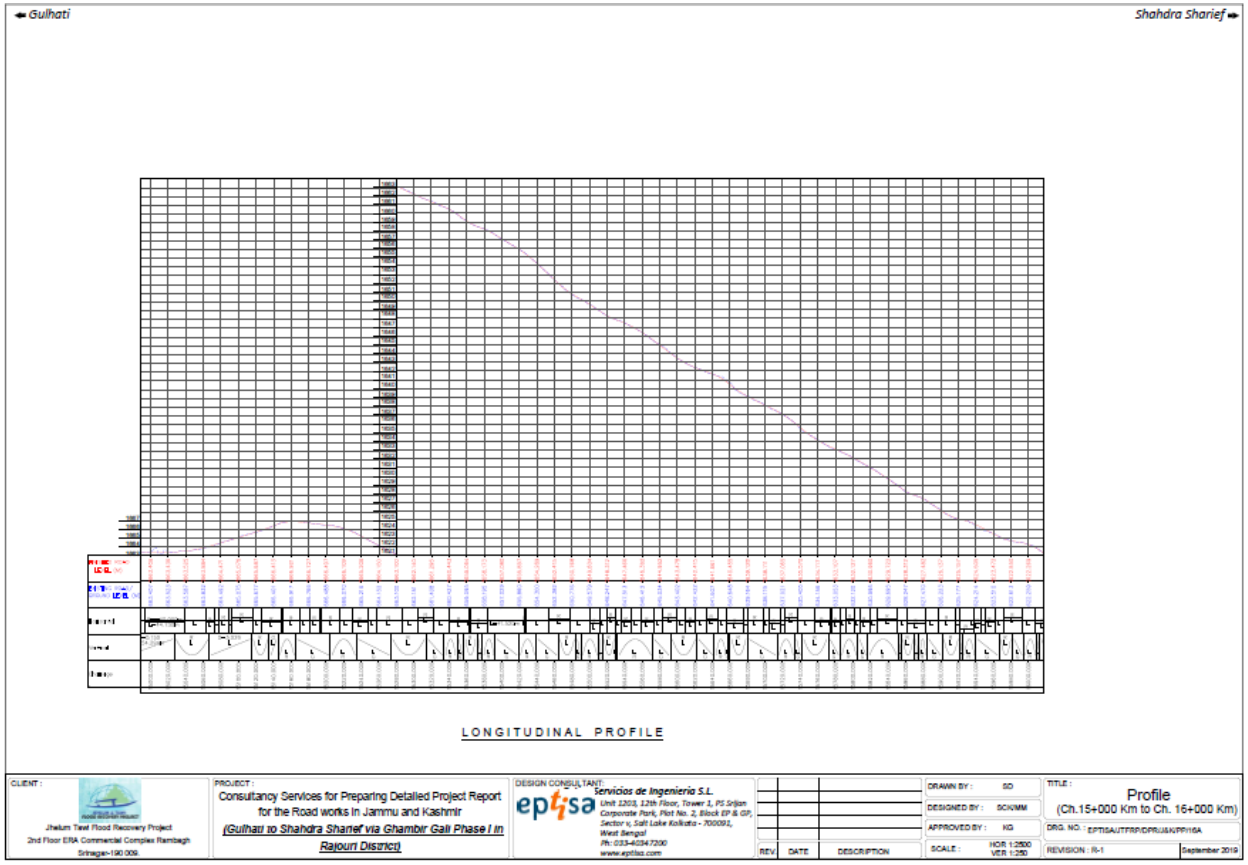
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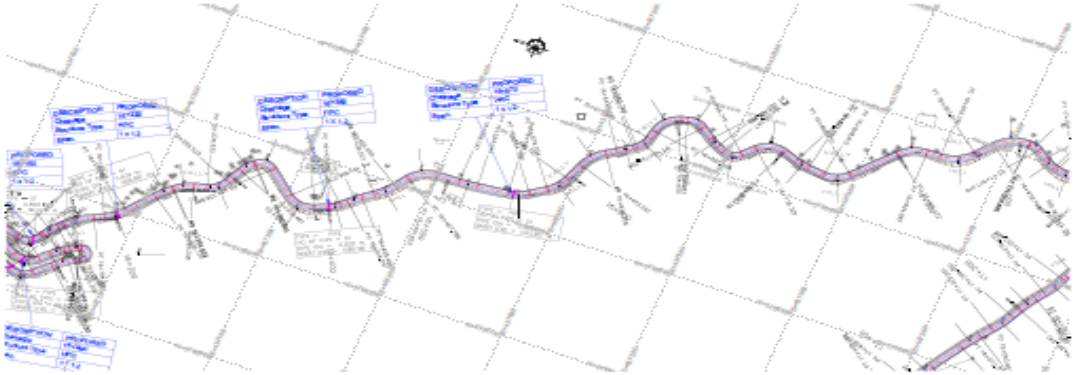
September 2019

◄ Gulhati

Shahdra Sharief ►



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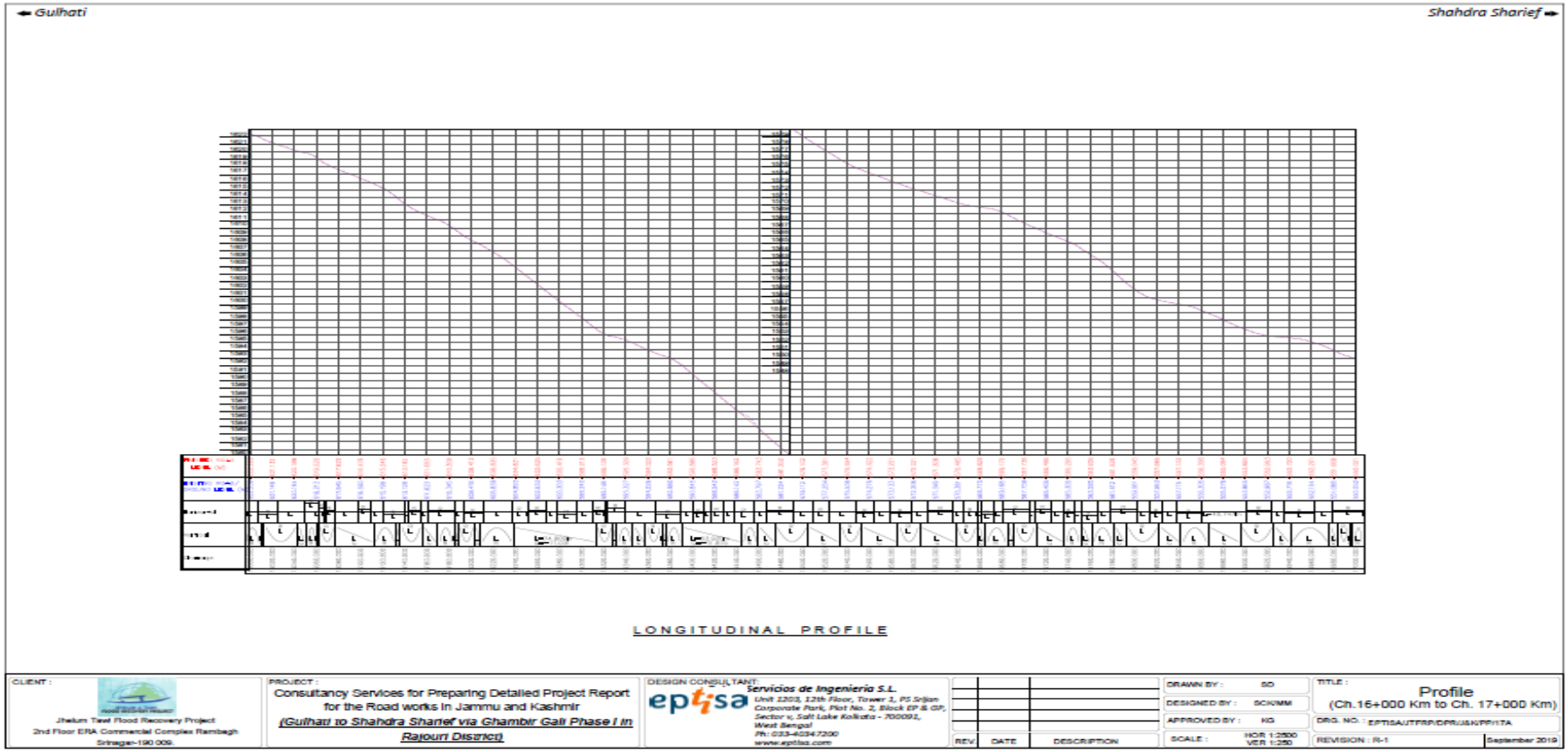
CLIENT : Jhelum Tawi Flood Recovery Project, 2nd Floor ERA Commercial Complex Rambagh Srinagar-190 009.	PROJECT : Consultancy Services for Preparing Detailed Project Report for the Road works in Jammu and Kashmir (Gulhati to Shahdra Sharief via Ghambir Gali Phase I in Rajouri District)	DESIGN CONSULTANT: eptisa Servicios de Ingenieria S.L. Unit 1203, 12th Floor, Tower 1, PS Srijan Corporate Park, Plot No. 2, Block EP & GP, Sector v, Salt Lake Kolkata - 700091, West Bengal Ph: 033-40347200 www.eptisa.com	REV. / DATE / DESCRIPTION	DRAWN BY : SD; DESIGNED BY : SCK/MM; APPROVED BY : KG; SCALE : HOR 1:2500 VER 1:250	TITLE : Plan (Ch.16+000 Km to Ch. 17+000 Km); DRG. NO. : EPTISA/JTFRP/DPR/J&K/PH17; REVISION : R-1; September 2019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LONGITUDINAL PROFILE
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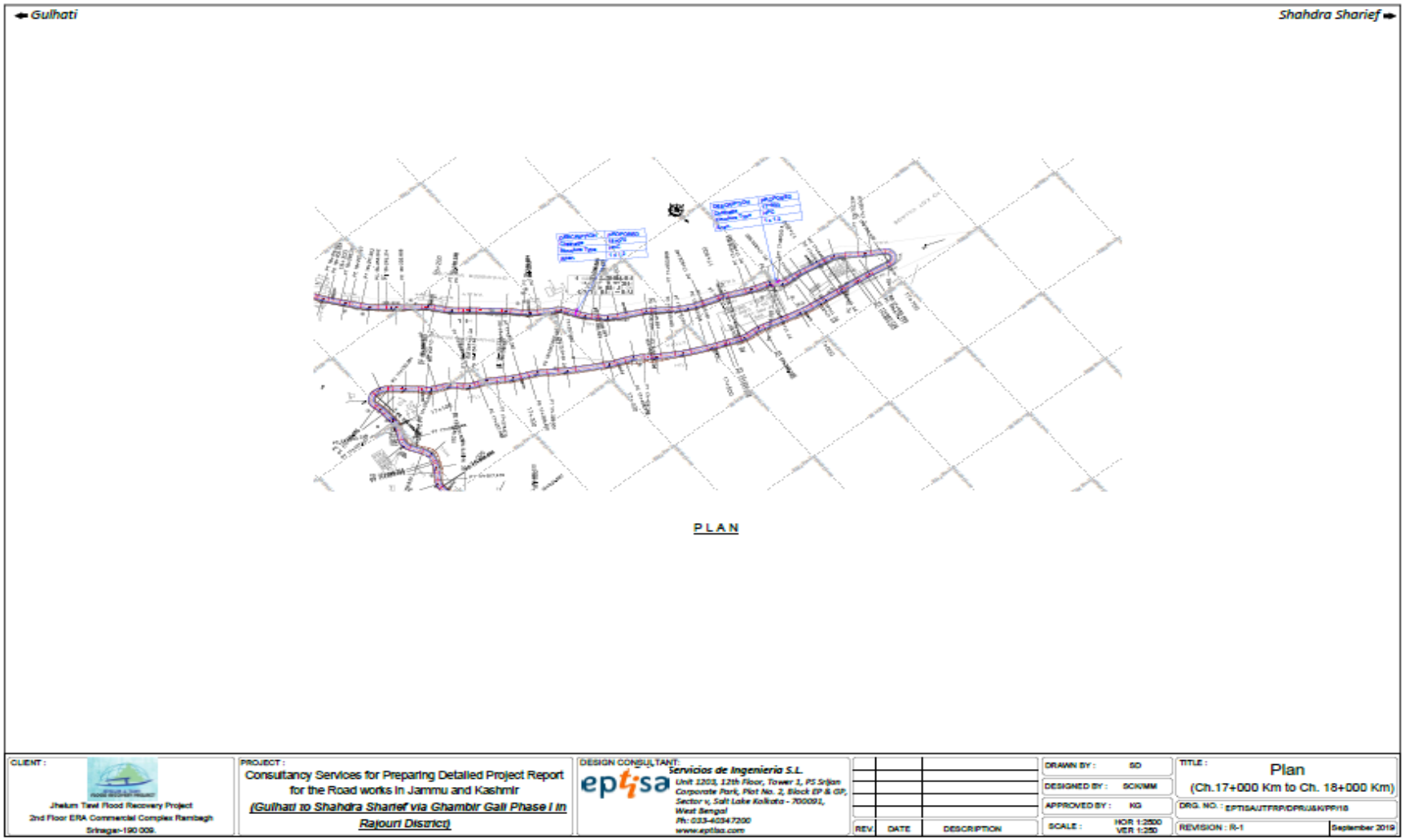
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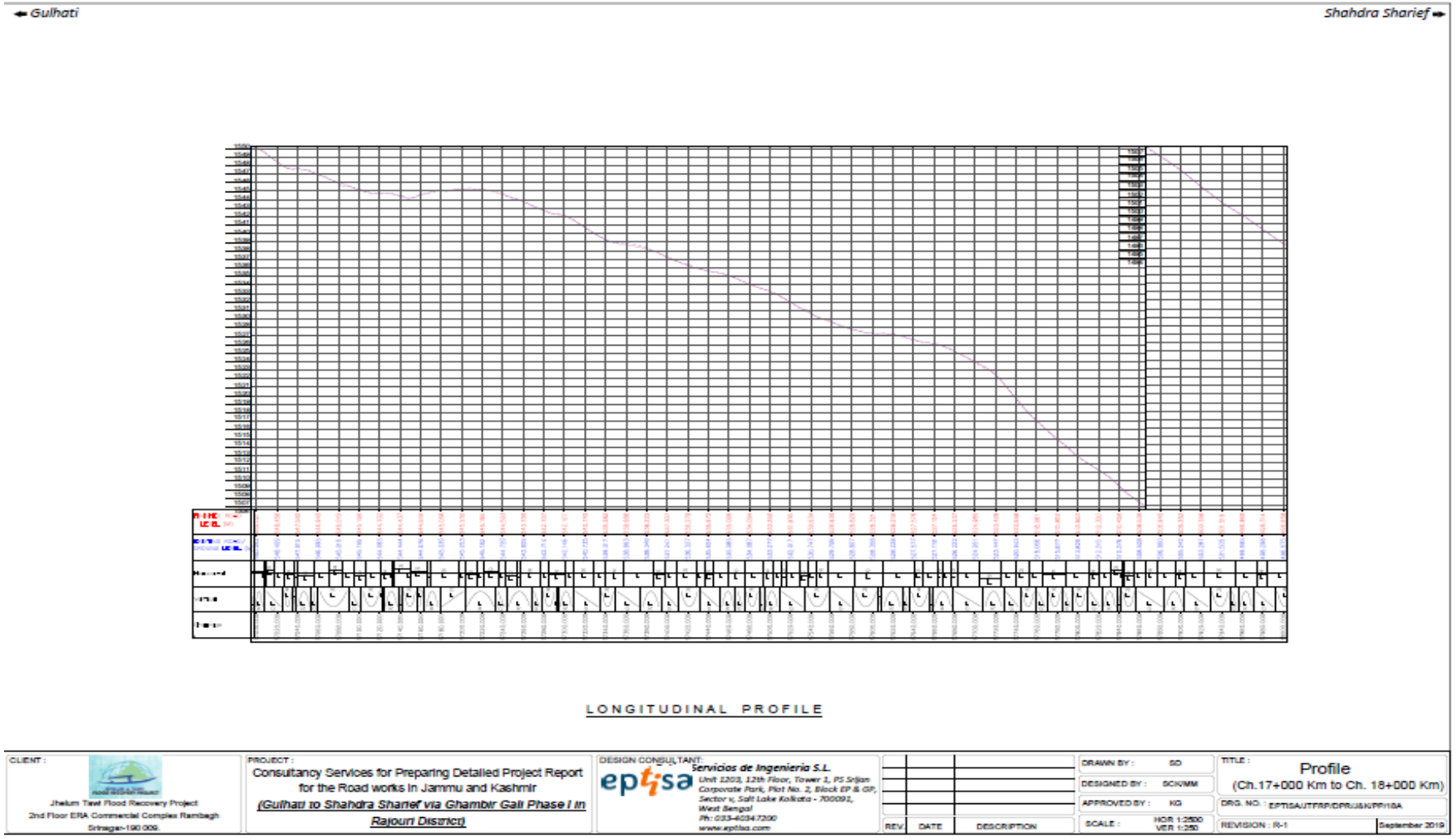
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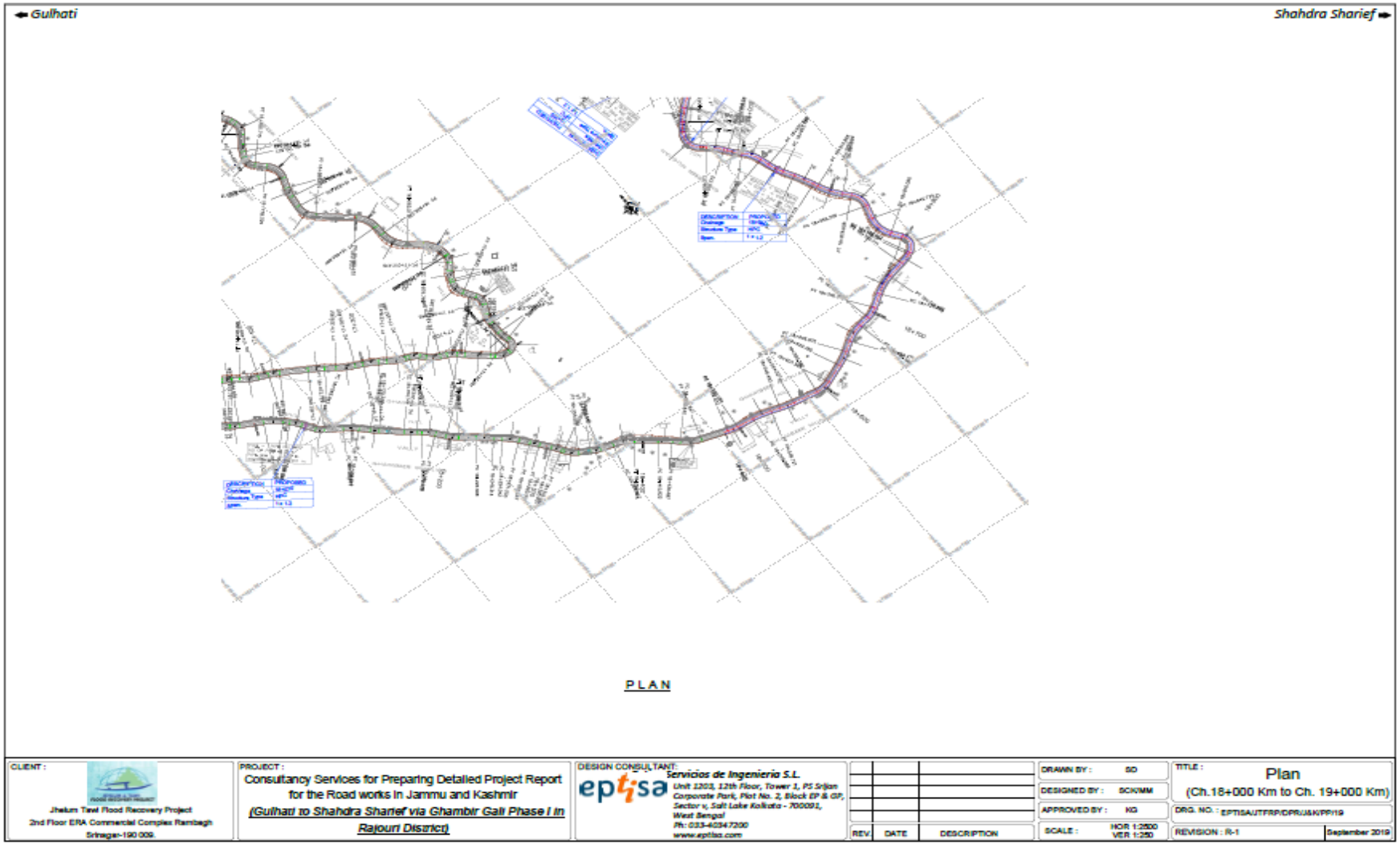
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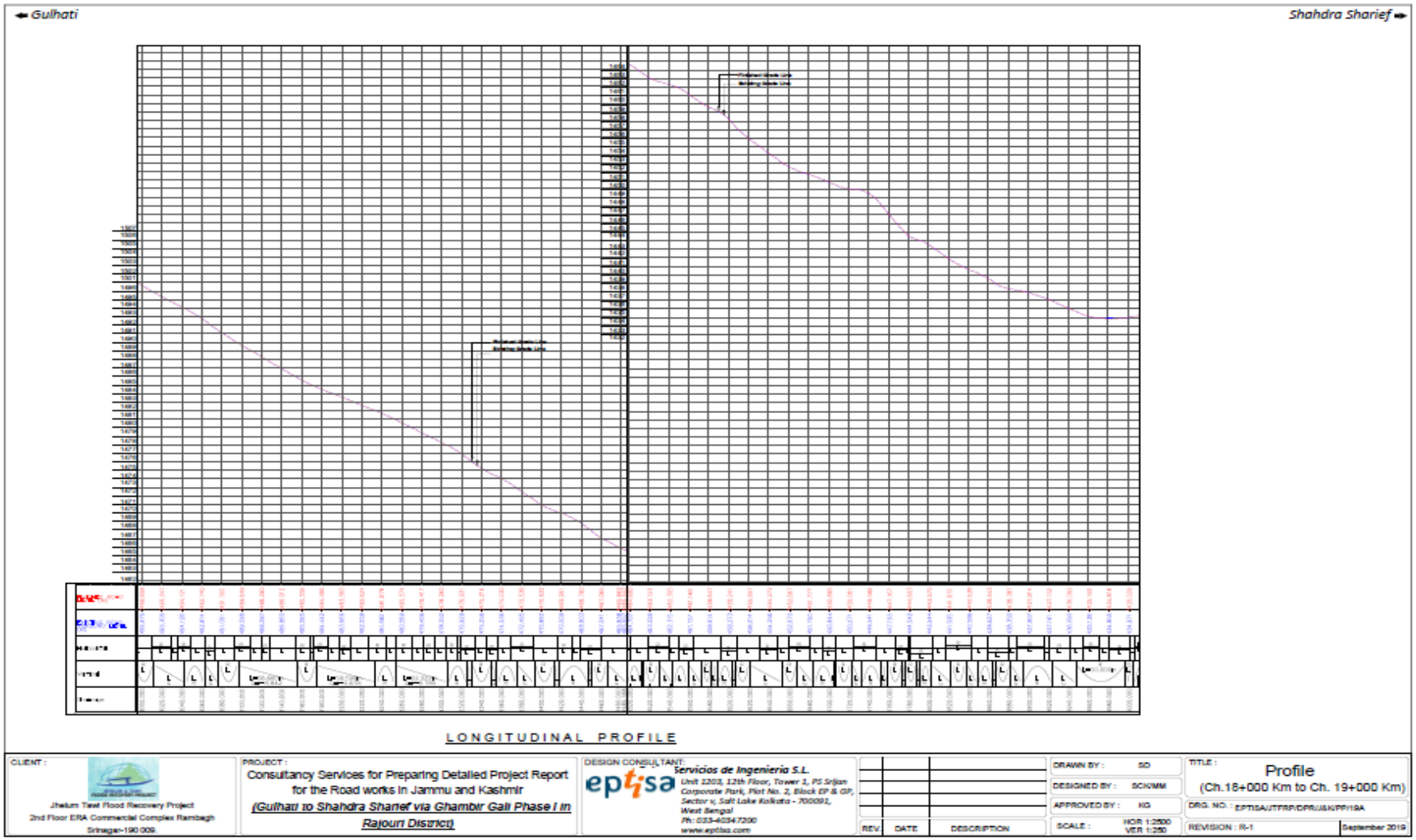
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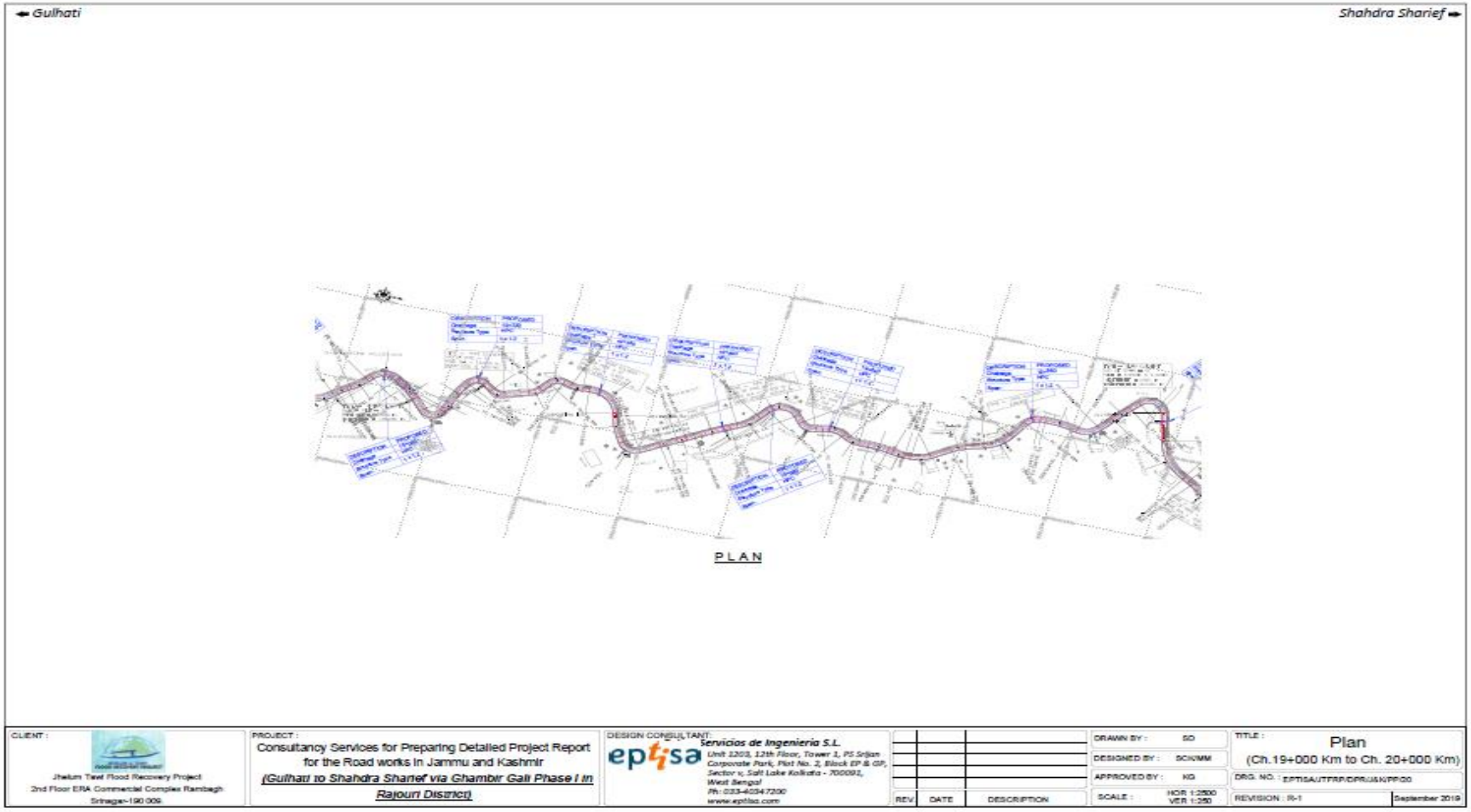
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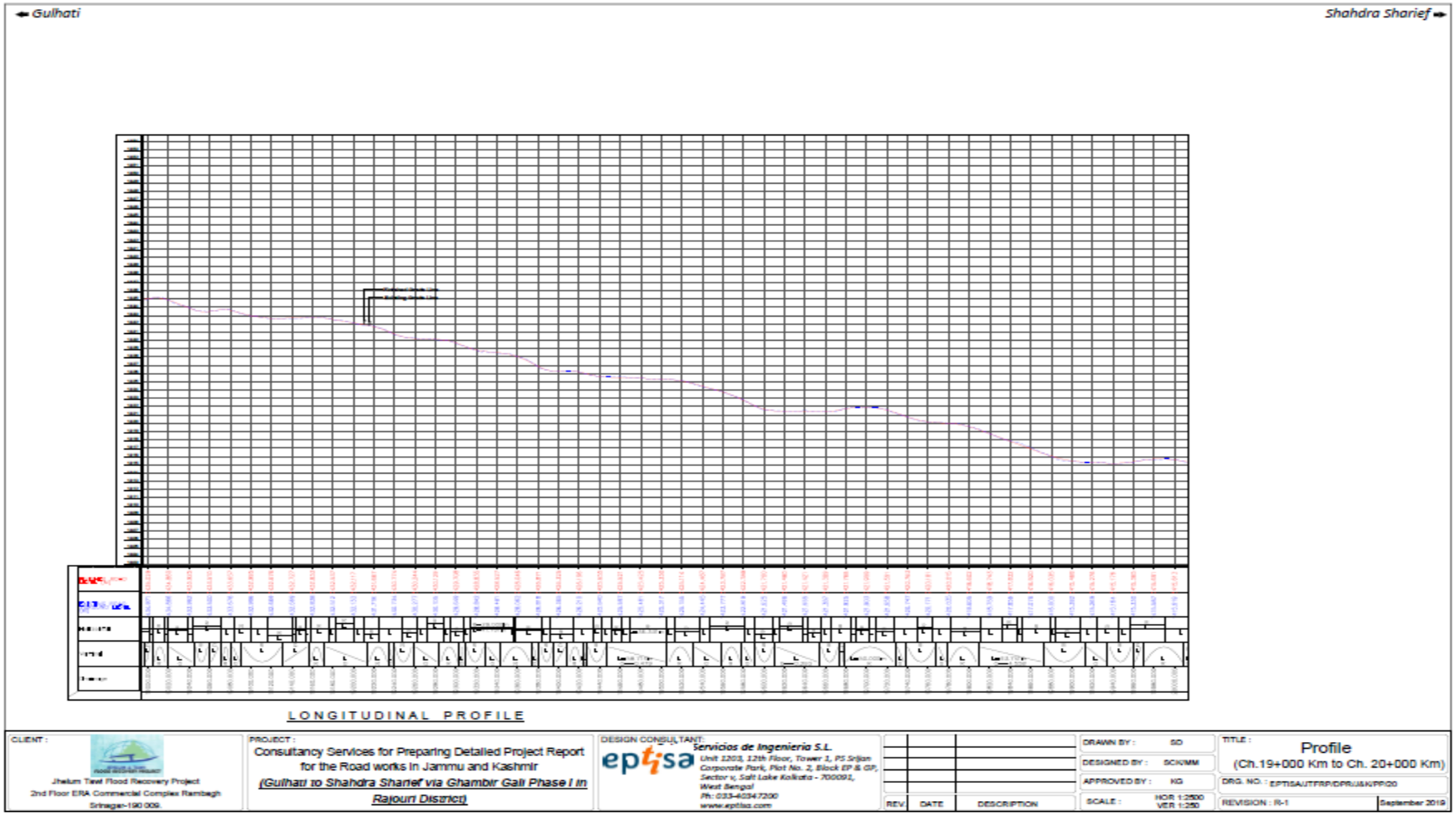
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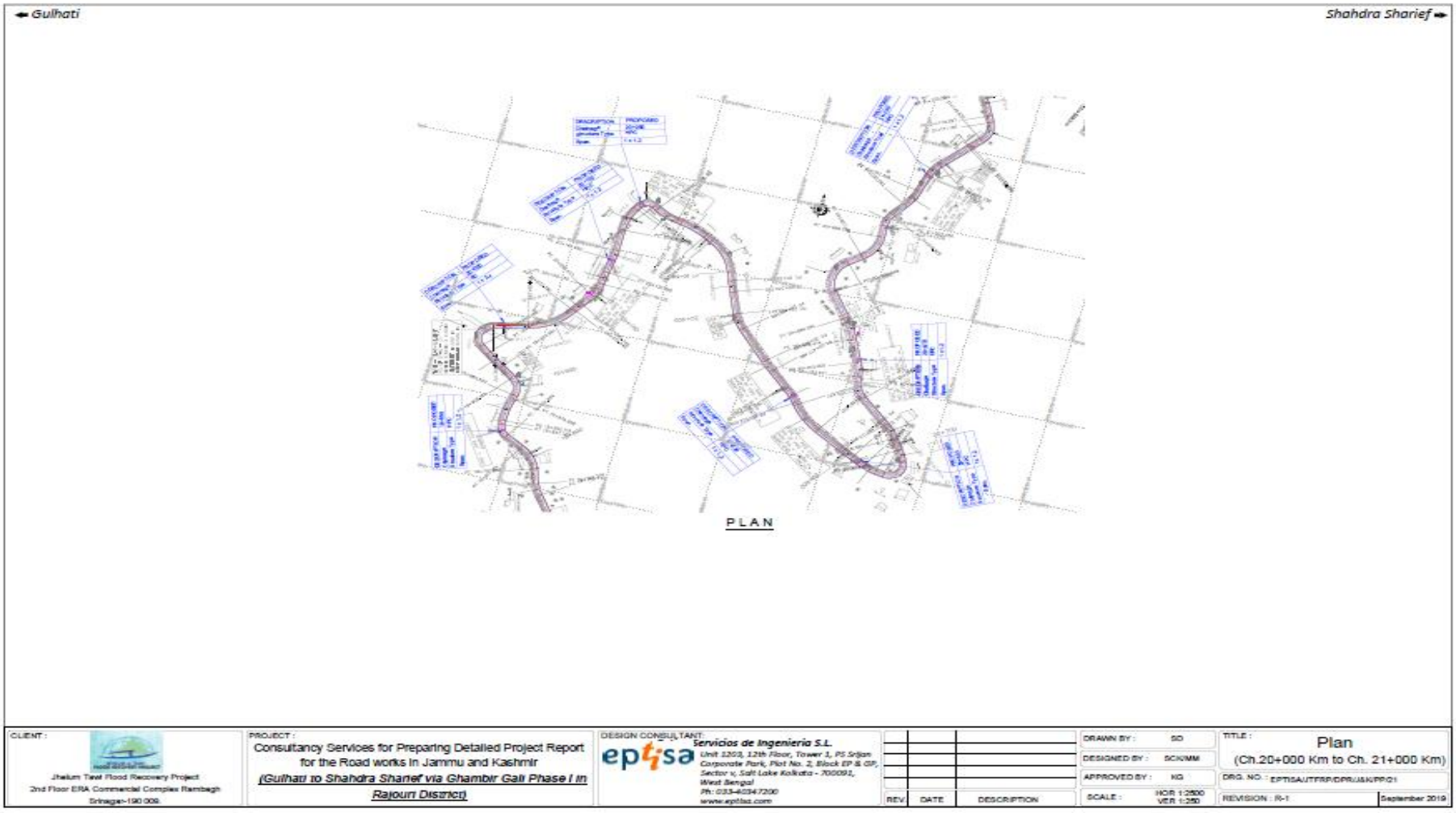
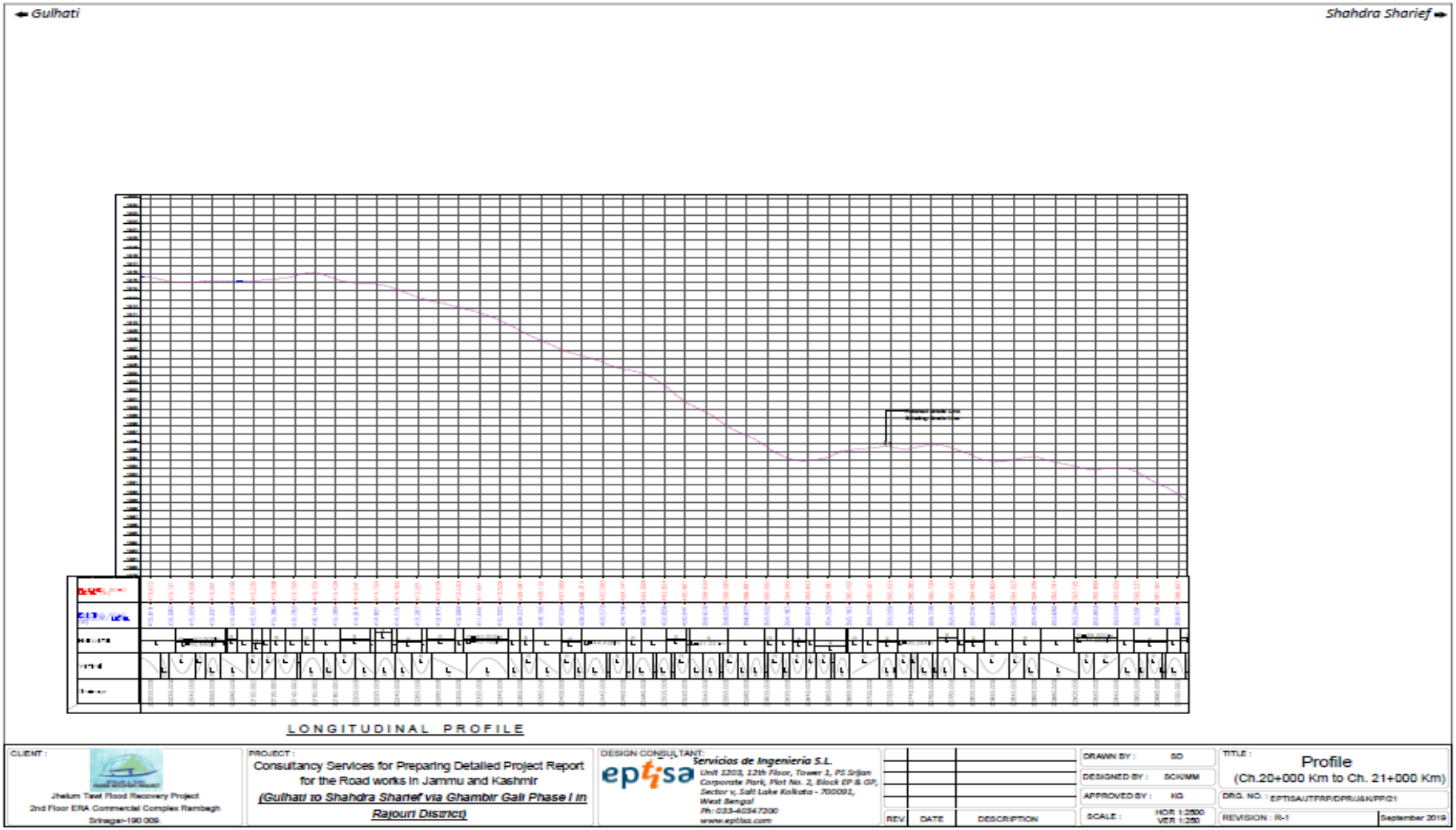
September 2019


Gulhati
Shahdra Sharief
PLAN
CLIENT :
Jhelum Tawi Flood Recovery Project
2nd Floor ERA Commercial Complex Rambagh
Srinagar-190 009.
PROJECT :
Consultancy Services for Preparing Detailed Project Report for the Road works in Jammu and Kashmir
(Gulhati to Shahdra Sharief via Ghambir Gali Phase I in Rajouri District)
DESIGN CONSULTANT :
eptisa
Servicios de Ingenieria S.L.
Unit 1203, 12th Floor, Tower 1, PS Srijan Corporate Park, Plot No. 2, Block EP & GP, Sector v, Salt Lake Kolkata - 700091, West Bengal
Ph: 033-40347200
www.eptisa.com
REV
DATE
DESCRIPTION
DRAWN BY : SD
DESIGNED BY : SCH/MM
APPROVED BY : KG
SCALE : HOR 1:2500 VER 1:250
TITLE :
Plan
(Ch.20+000 Km to Ch. 21+000 Km)
DRG. NO. : EPTISAJUTFRP/DPR/J&K/PRO1
REVISION : R-1
September 2019


Gulhati
Shahdra Sharief
LONGITUDINAL PROFILE
CLIENT :
Jhelum Tawi Flood Recovery Project
2nd Floor ERA Commercial Complex Rambagh
Srinagar-190 009.
PROJECT :
Consultancy Services for Preparing Detailed Project Report for the Road works in Jammu and Kashmir
(Gulhati to Shahdra Sharief via Ghambir Gali Phase I in Rajouri District)
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Ph: 033-4034 7200
www.eptisa.com
REV.
DATE
DESCRIPTION
DRAWN BY : SD
DESIGNED BY : SCK/MM
APPROVED BY : KG
SCALE : HOR 1:2500 VER 1:250
TITLE :
Profile
(Ch.20+000 Km to Ch. 21+000 Km)
DRG. NO. : EPTISA/JTFRP/DPR/J&K/PP/21
REVISION : R-1
September 2019

Annexure 8: Photographs of the Road

	
Project starts from Poonch- Rajouri Road	Water supply pipeline near the corridor at 0.000 Km LHS
	
Start of project road (Gulhati-Shahdra Sharief) at Ch 0.000 Km	**P**assenger Shelter and damaged road surface at Ch 0.050 Km
	
Road getting damaged due to water flowing into the Corridor at Ch 2.500 Km RHS	Agricultural activities along the project road

	
Primary Health Centre at Ch 8.100 Km LHS Gambhir Mughalan	Primary Health Centre at Ch 8.100 Km LHS Gambhir Mughalan
	
Junction of PMGSY road (left) in the project road at Ch 8.800 Km	Road condition is good at Ch 11.000 Km
	
Village Gambhir Mughalan at Ch 15.100 Km	WBM road and sharp curve at Ch 16.000 Km

	
At Chainage 18.200 Km	Village-Barot
	
Trees close to the Corridor Ch 22.600 Km	At Ch 24.200 Km
	
Small trees close to the Corridor at Ch 24.600 Km	End Point at Ch 32.900 km, ShadraSherief

Annexure 9 : Public Consultation (5.12.18 and 15.7.19,)

List of consulted participants and their signatures

Public Consultation Attendance Sheet

Date: 17/7/2019

Name of the Road: Gulhatti to Shadra Shariff

Name of Village: Gulati

Sr. No	Name of person	Contact No	Signature	Remarks
1.	Feeds Majeed	8825004956		
2	Mohd. Aslam	9596627484		
3	Mohd Rafi	7889592884		
4	[illegible]	9797698294		
5	Zafer Iqbal	9682141185		
6	Mohd Nazir	7051315186		
7	Zahoor Sulaiman			
8	Mohd Mudasir			
9	Abdul Majeed	9797411406		
10	Abdul Qayoom	8083730856		
11	Mudasir			
12	Ishtiaq			
13	Maroof Ahmed			
14	Manzoor Ahmed			
15	Mohd Kabir		9629365966	
16	Mohd Zahid			
17	Mohd Zahir			
18	Jamshed Ahmed			
19	Makhter Ahmed			
20	Mohd Younis			

Public Consultation Attendance Sheet

Date: 17/7/2019

Name of the Road Gulhotti to Shadra Sharif

Name of Village Ghambir Mughlan. Baharote Gali

Sr. No	Name of person	Contact No	Signature	Remarks
1.	Khalid Hussain Mughal.	705134l6l4	[illegible]	
2	Jangir Iqbal.	9858400372	Jangir Iqbal.	
3	Irshad. Ahmed.	6005241592	ArsHAD.	
4	Anwar-Anjum	9107381107	Anjum	
5	Mohd. Farooq.	7051055937	M.Farooq.	
6	Mohd Tariq.	8493049367	Mohd Tariq,	
7	Mohd Farooq.	9797301068	[illegible]	
8	Mohd. Farooq.	8492055221	Mohd. Farooq.	
9	Mohd. Shareef.	7051750914	M Shareef	
10	Maneer Hussain	9055628843	Maneer Hussain	
11	Mohd. Hameef	7051350293	M. hameef.	
12	Mohd. Asif	7051369471	M. Asif.	
13	Zaoruddin Hussain	8082058572	[illegible]	
14	Tanira Parween.	—	Tanira Parveen	
15	Khadam Hussain	8899194944	Khadam [illegible]	
16	Shamaid Akhter	—	Shamid	
17	Meer Hussain	—	Meer Hussain	
18	Shaheen. Akhter	7051367858.	Shaheen.	
19	Abdul. Rehman.	9596922903.		SarPanch
20	Mukhtar Hussain			
21	Abdul. Rashid	8899308560	Ab. Rashid.	

Public Consultation Attendance Sheet

Date: 5/12/2018

Name of Village Kotli

Name of the Road Gulharth to Shadra Sharif via Ghaundir Gali Dhuc-I

Sr. No	Name of person	Contact No	Signature	Remarks
1	Kamran Khan	9622115765		
2	Mohd Maqbood	9622907103		
3	Ashfaq Khan	9797435565		
4	Faiz Mohd	9086898785		
5	Mohd Irfan	8803800156		
6	Mohd Shakeel	9596827065		
7	Mohd Kabir	9797880302		
8	Ali Jan Khan	9149746343		
9	Salim Ahmed	8803495995		

Photographs of Public Meeting

At Gulahati Village

Primary Health Centre- Gambhir Muglan

Gambhir Muglan