

Contractor Specific Environmental and Social Impact Assessment (ESIA) Report

**DEVELOPMENT OF SEWAGE TREATMENT PLANTS AT AGRA, UTTAR PRADESH
ON HYBRID ANNUITY MODE OF PUBLIC PRIVATE PARTNERSHIP**

**Agra Waste Water Management Private Ltd (AWWMPL)
VISHVARAJ ENVIRONMENT PRIVATE LTD**

Prepared by - PRAKRITI CARE CONSULTANCY SERVICES

Table of Contents

1	Introduction	24
1.1	Background of the Project	24
1.2	Objective and Scope of the Study.....	25
1.3	Approach and Methodology for ESIA	26
1.3.1	Reconnaissance of Project Area	27
1.3.2	Information Review	27
1.3.3	Mapping of Sensitive Receptors.....	27
1.3.4	Baseline Primary Surveys	27
1.3.5	Legal Requirements and IFC-PS	27
1.3.6	Environmental & Social Impact Assessment	28
1.3.7	Environmental and Social Management Plan	28
1.4	Organization of the Report	28
2	Project Description	30
2.1	Project Location	30
2.2	Sewerage Zones of Agra City	31
2.2.1	Overview of sewerage zones of Agra.....	31
2.2.2	Zone wise Population projections for Agra City.....	33
2.3	Existing Sewerage Facility in the project city.....	34
2.4	Necessity of this Project	35
2.5	Proposed Project Activities.....	35
2.6	Process Description.....	41
2.7	Disposal of Treated Effluent.....	45
2.8	Disposal of Sludge.....	46
2.9	Project Phasing and Schedule.....	47
2.10	Project Cost.....	47
2.11	Operation and Maintenance of the New Infrastructure.....	47
3	Legal and Other Requirements	49
3.1	E&S Legal Requirements for Sewerage Facility.....	49
3.1.1	Applicable Environmental Regulations.....	49
3.1.2	Applicable Social Framework Regulations.....	52
3.1.3	Applicable Occupational, Health & Safety Regulations.....	53
3.2	World Bank Environmental and Social Safeguard Policies	54
3.3	Lender's Environmental & Social Safeguard Standards.....	55
3.4	Project Categorization	57
4	Baseline Environmental and Social Status	60
4.1	Approach for Baseline Studies	60
4.1.1	Site Visit.....	60
4.1.2	Identifying Environmental and Social Sensitive Receptors.....	60
4.1.3	Environmental and Social profile of project sites.....	61
4.2	Baseline Environment	66
4.2.1	Topography.....	66

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

4.2.2	Geology.....	66
4.2.3	Rainfall.....	66
4.2.4	Temperature	67
4.2.5	Wind Speed	68
4.3	Physical Resources.....	69
4.3.1	Air Environment	69
4.3.2	Ambient Noise Level.....	69
4.3.3	Soils	70
4.3.4	Water Environment	71
4.3.5	Drainage.....	77
4.4	Natural Hazards	77
4.5	Ecological Resources.....	79
4.6	Other Eco-Sensitive area within 10km.....	79
4.7	Land use profile of the project locations.....	80
4.8	Archaeological Sites.....	82
4.9	Economic Development.....	83
4.10	Social and Cultural Resources.....	83
4.11	Public Consultation	86
5	Environmental and Social Impact Identification and Assessment	88
5.1	Methodology of Impact Assessment	88
5.1.1	Impact Identification	88
5.1.2	Impact Classification.....	88
5.2	Positive Impacts.....	89
5.3	Areas of No Significant Impact.....	89
5.3.1	Physical Cultural Resources.....	89
5.3.2	Scheduled/Tribal Areas	90
5.3.3	Protected Areas/ Forests.....	90
5.4	Project Activities	90
5.4.1	Construction Phase	90
5.4.2	Operation and Maintenance Phase.....	90
5.5	Impacts during Construction Phase	90
5.5.1	Views cape Impacts.....	90
5.5.2	Impact on land	91
5.5.3	Ambient Air Quality.....	91
5.5.4	Noise Pollution	92
5.5.5	Surface Water Pollution	93
5.5.6	Ground water.....	93
5.5.7	Loss of flora and Fauna.....	94
5.5.8	Social and Livelihood Impact.....	94
5.5.9	Occupational Health and Safety	95
5.5.10	Community Health and Safety.....	95
5.5.11	Gender Based Violence.....	96
5.5.12	Labour Influx.....	96
5.5.13	Impact on Traffic.....	97
5.6	Impacts During Operation and Maintenance Phase.....	97
5.6.1	Water environment.....	97
5.6.2	Noise Pollution	98
5.6.3	Air Pollution and Odours.....	98
5.6.4	Impacts due to Leakages and Overflows.....	98
5.6.5	Solid waste disposal.....	99
5.6.6	Occupational Health and Safety Impacts.....	99
5.6.7	Chance of accidents & injuries.....	101
5.6.8	Community Impacts.....	101

5.7	Summary of E&S Impacts.....	102
6	Environmental and Social Management Plan	104
6.1	Methodology of Developing ESMP.....	104
6.2	Institutional Arrangement for Implementation of ESMP.....	104
6.2.1	Implementation of ESMP	104
6.2.2	Reporting and Monitoring.....	105
6.3	ESMP for proposed component under sewerage project.....	105
6.3.1	During Pre-Construction, Construction and O&M Phase.....	105
6.3.2	Social Impact Assessment/Mitigation measures.....	106
6.4	Environmental & Social Monitoring Plan.....	140
6.4.1	ESMP Monitoring	140
6.4.2	Environmental Quality Monitoring	140
6.4.3	Environmental and social Budget.....	143
6.5	Stakeholder Engagement and Information Disclosure.....	145
6.5.1	Context of Stakeholder Engagement	145
6.6	Grievance Redress Mechanism.....	145
6.6.1	Institutional Arrangement for Grievance Redressal.....	145
6.6.2	Receipt & Recording of Grievance	146
6.6.3	Review and Investigation of Grievances	147
6.6.4	Gender Assessment and Development.....	147
6.6.5	Gender Based Violence	148
6.7	Conclusion.....	149

Revision Record: C-ESA

Organizer	Checker	Approver	Final Approval	Revision
M/s Vishvaraj Environment Pvt. Ltd	UPJN(R)	NMCG	World Bank	First Draft Submitted on 29.05.2023
			World Bank (Comments received on 13.10.2023)	First Revision Submitted on 15.01.2024
			World Bank (Comments received on 17.09.2024)	Second Revision Submitted on 23.10.2024

List of Annexes

Annexure 1:	Layout Maps (100MLD,31MLD,35MLD and 2DSTPs)
Annexure 2:	Implementation Schedule
Annexure 3:	Environmental Monitoring Test Report
Annexure 4:	Land NOC with handing over of STPs land to Concessionaire
Annexure 5:	Land NOC Status-Forest Diversion Land
Annexure 6:	Supreme Court Order on Tree Cutting in 100MLD STP
Annexure 7:	Supreme Court Order to allow STPs in TTZ zone (2019)
Annexure 8:	11KVA line shifting in 100MLD campus
Annexure 9:	NOC from Defense for Trenchless work near Khairati Tola MPS
Annexure 10:	Vishvaraj OHSE Certificate
Annexure 11:	Land NOC for Solid Waste Disposal
Annexure 12:	CTE NOC for 100LD,31MLD and 35MLD STPs
Annexure 13:	Roles & Responsibilities of site staff in ESHS implementation under Project
Annexure 14:	Contractor's ESHS Plan (sub-contractor control and selection)
Annexure 15:	Emergency Response Plan
Annexure 16:	Camp facilities
Annexure 17:	Safety Rules-Work at Height
Annexure 18:	Safety Rules-Excavation
Annexure 19:	Safety Rules-Confined Space Work
Annexure 20:	Work Permit System
Annexure 21:	Traffic Management
Annexure 22:	Railway Permission
Annexure 23:	Grievance Redressal System displayed at STP sites
Annexure 24:	Wastewater Analysis of Drains to be tapped under project
Annexure 25:	Fund transfer letter to forest dept for afforestation work

List of Tables

Table 1: Environmental & Social Profile of Proposed sites	61
Table 2: Ambient Air Quality Monitoring Result	69
Table 3: Noise Level Monitoring Results	69
Table 4: Soil Quality Sampling Result (ESDDR)	70
Table 5: Soil Quality Sampling Result (100MLD STP)	71
Table 6: Surface Water Monitoring	72
Table 7: Surface Water Monitoring Yamuna (Upstream/Downstream at Dhandupur & Artoni)	72
Table 8: Ground Water Monitoring (ESDDR Phase).....	74
Table 9: Ground Water Monitoring (Year 2023)	76
Table 10: Land Use Profile of Project Location.....	81
Table 11: Public Consultation Detail.....	86
Table 12: ESMP for Pre-Construction, Construction and O&M Phase.....	108
Table 13: Environmental Monitoring Plan.....	140
Table 14: Environmental Monitoring Cost	144

List of Figures

Figure 1: Location of Agra in India	30
Figure 2: Regional Setting of Agra City.....	31
Figure 3: Agra Municipal Sewerage Zones	33
Figure 4: Existing Sewerage Facility	34
Figure 5: Proposed Location of STPs,DSTPs and Rising main alignment under Project.....	37
Figure 6: Components of C-Tech SBR System	42
Figure 7: Process Flow Diagram (100MLD) STP	43
Figure 8: Process Flow Diagram (35MLD) STP	44
Figure 9: Process Flow Diagram (31MLD) STP	44
Figure 10: Process Flow Diagram (1.13MLD) DSTP	45
Figure 11: Sensitive Project Feature with 10km radius.....	61
Figure 12: Geomorphology Map Agra.....	66
Figure 13: Variation in Rainfall	67
Figure14: Temperature Variation	67
Figure 15: Variation in Wind Speed.....	69
Figure 16: Wind Direction in Project Area.....	69
Figure 17: Natural Hazard Map of UP.....	78
Figure 18: Eco Sensitive Boundary and Sur Sarovar Bird Sanctuary.....	80
Figure 19: Population Distribution in Agra City.....	83
Figure 20: Literacy Rate.....	84
Figure 21: Worker Distribution & Category.....	84
Figure 22: SC & ST %.....	85

Abbreviations

CPCB	---	Central Pollution Control board
C-ESA	---	Contractor Specific Environment & Social Impact Assessment
CPR	---	Common Property Resource
CSTP	---	Centralized Sewage Treatment Plant
CTE	---	Consent to establish
CTO	---	Consent to Operate
DM	---	District Magistrate
DoE	---	Department of Environment
DPR	---	Detailed Project Report
DSTP	---	Decentralized Sewage Treatment Plant
EAs	---	Executing Agencies
EMP	---	Environmental Management Plan
EPA	---	Environment (Protection) Act
ESMF	---	Environmental and Social Management Framework
ESAMP	---	Environmental & Social Assessment and Management Plan
GAAP	---	Governance and Accountability Action Plan
GoI	---	Government of India
ha.	---	Hectare
I&D	---	Interception & Diversion
INTACH	---	Indian National Trust for Art and Culture Heritage
IPS	---	Intermediate Pumping Station
BMTPC	---	Building Materials and Technology Promotion Council
CGWB	---	Central Ground Water Board
ADA	---	Agra Development Authority
MLD	---	Million Liter per Day
MoEF&CC	---	Ministry of Environment, Forests and Climate Change
MPS	---	Main Pumping Station
MSK	---	Medvedev–Sponheuer–Karnik scale
NCR	---	National Capital Region
ESDDR	---	Environmental and Social Due Diligence Report
NGRBA	---	National Ganga River Basin Authority
NH	---	National Highways
NMCG	---	National Mission for Clean Ganga
NOC	---	No Objection Certificate
O&M	---	Operation & Maintenance
OP	---	Operational Policy
PAFs	---	Project Affected Families
RFCTLARR	---	Right to Fair Compensation and Transparency In Land acquisition and Rehabilitation & Resettlement
SC	---	Scheduled Caste
SEIAA	---	State Level Environment Impact Assessment Authority
SPCB	---	State Pollution Control Board
SMCG	---	State Mission for Clean Ganga
SPS	---	Sewage Pumping Station

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

ST	---	Scheduled Tribe
STP	---	Sewage Treatment Plant
ToR	---	Terms of Reference
TTZ	---	Taj Trapezium Zone
ULBs	---	Urban Local Bodies
UPJN	---	Uttar Pradesh Jal Nigam
UPPCB	---	Uttar Pradesh Pollution Control Board
WB	---	World Bank
YPCU	---	Yamuna Pollution Control Unit
HAM	---	Hybrid Annuity Model
NGT	---	National Green Tribunal
EHS	---	Environment Health and Safety
UPJN	---	Uttar Pradesh Jal Nigam
QHSE	---	Quality Health Safety and Environment
IFC	---	International Finance Corporation
PS	---	Performance Standard

Executive Summary

1. Background

Namami Gange, launched in 2014 by the Government of India, aims to address pollution, conservation, and rejuvenation of the Ganga River. Ganga 1 projects covered five basin states, focusing on the main stem, while Ganga 2 projects extend efforts to polluted tributaries. The World Bank acknowledges Ganga's pollution stems from inadequate infrastructure and weak local utilities. The GoI secured World Bank loan assistance for Mission Clean Ganga activities, including institutional development, operational support, and projects in wastewater treatment, industrial pollution control, solid waste management, and riverfront development.

To abate pollution and conserve Ganga's tributaries, the National Mission for Clean Ganga (NMCG) and Uttar Pradesh Jal Nigam (UPJN) propose **DEVELOPING SEWAGE TREATMENT PLANTS IN AGRA, UTTAR PRADESH ON A HYBRID ANNUITY MODE OF PUBLIC PRIVATE PARTNERSHIP**. The initiative aligns with the principles of the Environmental and Social Management Framework (ESMF) of the National Ganga River Basin Authority (NGRBA). The project requires an updated Environment and Social Impact Assessment (ESIA) report, based on the Environmental and Social Due Diligence Report (ESDDR) and Environment Management Plan (EMP), in compliance with the Concessionaire Agreement. The safeguard documents adhere to World Bank Group Safeguard Policies, IFC Performance Standards, ESMF (2020)¹, Concessionaire Agreement, Applicable Laws, Permits, and Good Industry Practices.

2. Project Description

Agra, a historic town in the Indo-Gangetic plain of India, is located at latitude 27°11'18.40"N and longitude 78°0'31.05"E in the state of Uttar Pradesh. Situated about 200 km from New Delhi, the capital of India, Agra holds rich cultural significance with an ancient heritage. Positioned along the Yamuna River at an average elevation of 171 meters above sea level, the city spans an area of 4027 sq. km. and has a population of 15.85 lakhs. The major drainage is formed by the River Yamuna, flowing from the north to the southeast, entering the city's northern boundary and taking a U-shape as it traverses through the heart of Agra.

Existing Sewerage Facility

Agra's drainage scheme has evolved over the years, starting with its first plan in 1917, followed by revisions in 1945 and 1965. The Agra Sewerage Master Plan of 2008, developed by UPJN, envisions the city's drainage infrastructure until 2050. New projects or upgradation has been considered where existing condition or capacities are not sufficient for present & future demand. With 90 drains in Agra, discharging 286.85 MLD into the Yamuna River, efforts focus on intercepting and upgrading 29 drains, while 61 drains remain untapped. Of these, 38 drains with a total capacity of 6.40 MLD are under state-funded projects, and the remaining 23 drains (11.6 MLD) are proposed for interception under the ongoing I&D Sewerage scheme. A network of 572.34 km sewer lines spans various Sewerage Zones, with 26 sewage pumping stations, excluding those in the Cantonment area, South Zone 1, and South Zone III. Nine sewage treatment plants (STPs) with a total capacity of 220.75 MLD operate in Agra,

¹ Environment and Social Management Framework (2020)

https://nmcg.nic.in/writereaddata/fileupload/7_Environmental%20and%20Social%20Management%20Framework.pdf

managed by M/s VA Tech WABAGH under a 10-year O&M contract awarded by SMCG in 2019.

Necessity of this Project

Due to the absence of a sewerage system in various parts of Agra, wastewater is currently discharged into open drains that ultimately flow into the Yamuna River, causing a surge in pollution levels. This has become a significant concern for the Government and the National Green Tribunal (N.G.T.). To address this issue and prevent untreated wastewater from reaching the Yamuna River, there is a crucial initiative to tap major drains and establish treatment facilities for proper sewage treatment. Agra stands apart from other Indian cities as it lacks a centralized sewer system for the collection, transportation, treatment, and disposal of domestic and institutional wastewater. The rapid population growth and expansion of habitation areas have led to blockages and reduced flow in various sections of the existing sewer network, causing inadequacies in Sewage Treatment Plants (STPs). The untreated disposal of sewerage poses a critical problem, with most wastewater, including that from unsewered areas, being directly discharged into drains, creating an unhygienic environment. Additionally, industrial and slaughterhouse effluents are released into drains without treatment. To alleviate the pollution burden on major drains in Agra, there is a pressing need for the renovation and strengthening of the existing sewerage network. This will ensure proper treatment of wastewater before its discharge into the Yamuna River, which eventually merges with the Ganga River downstream near the Prayagraj district in Uttar Pradesh.

Project Component

For a comprehensive understanding of the project components, please refer to **Section 2.5 in Chapter 2 and Fig-5**. Meanwhile, a brief overview of the project components is provided below.

1. **I&D Work-** I&D Works of 23 drains is proposed connecting to the nearest manhole of existing/proposed gravity network through covered diversion drain.
 - ✓ **Sewerage Network of 4.18Km.**
 - ✓ **Rising Main work of 9.35Km.**
2. **Construction of three MPS and one lift station.**
3. **Construction of ten DSTPs-** Ten decentralized STPs has been proposed with the installed capacity of 11.6MLD to tap and treat small drains in its vicinity. The DSTPs will be based on SBR/ MBBR technology. Out of total 10 DSTPs, 7 number of DSTPs are proposed on Forest land (proposal is at GoI for NOC-refer **Annexure 5**) and 3 DSTPs are proposed on Nagar Nigam land.
4. **Construction of 3 STPs** - It is proposed to construct 3 STPs with installed capacity of 166 MLD. All 3 STPs are proposed within the existing STP campus. All three STPs are based on SBR technology and in 100MLD STP biogas will be generated. As per scope of work, an outlet gas pipeline will be provided from gas storage unit till the battery limits of the Compressed Bio Gas (CBG) facility/ bottling plant. The process of purification, compression and bottling is not in the scope of concessionaire, which may be carried out by IOCL or any other suitable agency identified by UPJN/NMCG.
5. **Manholes** – 70 number of Brick masonry / RCC rectangular manholes.
6. **Online Monitoring System** – OCEMS is proposed at LS, MPS, EPS, STP and I&D.
7. **Project Timeline-** Project Construction duration 24 months from effective date (05.04.2023) and the project completion date is 04.04.2025. Design & drawing of 3 STPs are approved and proposed land is handed over to concessionaire. Design & drawing of 10 DSTPs is in process of

approval. Operation & Maintenance period is for 15 yrs. Costing of project is as follows:

Item	Cost
CAPEX	Rs. 374.99 Cr
OPEX	Rs. 207.85 Cr
TOTAL COST	Rs. 582.85 Cr

3. Legal and Other Requirements

- The project adheres to key legal requirements for environmental and social aspects, including the Environmental Protection Act, 1986, and the Environmental and Social Management Framework for Namami Gange Programme. It aligns with IFC Performance Standards (PS 1, PS 2, PS 3, PS 4, PS 6, PS 7, and PS 8). Additionally, it follows World Bank Operational Policies, including Environmental Assessment (OP 4.01), a comprehensive umbrella policy for Namami Gange infrastructure projects. The World Bank's Environmental, Health, and Safety Guidelines for Water and Sanitation are also applicable, offering guidance throughout the project phases.
- The applicable compliance with the regulatory requirements to the project are as follows:
 - ✓ The project does not require any environmental clearance.
 - ✓ The project area falls in the Taj Trapezium which is Declared Ecologically Sensitive Areas (ESAs) under "The Environment (Protection) Act (EPA), 1986". But Ecofriendly project like STP is allowed with permission from State pollution control board as per latest Supreme Court Order dated 6th December 2019.
 - ✓ It involves felling of 704 number of trees in notified ESAs area for which permission is obtained from Supreme Court.
 - ✓ This project involves diversion of 0.97 ha of forest land which are notified forest under "The India Forest Act-1927" and the application is at GoI for approval.
 - ✓ Application filing is under process for getting permission from **Central Ground Water Board** for use of water for construction purposes.
 - ✓ Labour license is required to be obtained before construction-**Labour license already obtained.**

5. Project Categorization

The Environmental & Social Management Framework (ESMF) categorizes projects as High, Moderate, or Low Risk, considering factors such as type, location, sensitivity, and scale. The classification is determined by the potential environmental and social risks, impacts, and the Borrower's capacity to manage them. **Chapter 5** of the ESIA Report provides a detailed assessment of the project's environmental and social impacts. Based on the assessment, it is identified that:

- The proposed STPs and DSTPs in Agra fall within the Taj Trapezium Zone (TTZ), recognized as Ecologically Sensitive Areas (ESAs) by the Ministry of Environment & Forests since 1989. Although ESAs are regulated under the Environment (Protection) Act 1986, eco-friendly projects, including STPs, are permitted with approval from the State pollution control board, as stated in a Supreme Court Order dated 6th December 2019 (**refer Annexure 7**). The distances of project components from Taj mahal are more than 1km away (refer Chap-3 google map).
- CTE NOC is already in place for 100MLD, 31MLD, 35MLD (**refer Annexure 12**). For DSTPs, CTE

NOC will be obtained upon the transfer of land to the concessionaire.

- There is no land acquisition envisaged or involved in the project. The identified land for STPs and pumping stations belongs to UPJN(R). The identified sites are free from any form of encroachments.
- Approximately 0.97 hectares of forest land is needed for 7 DSTPs in the northern and eastern zones of Agra's sewerage plan. **The proposal awaits approval from the Government of India (refer Annexure 5).** The remaining 3 DSTPs are planned on Municipal land, free from encroachments. Peelipokhar DSTP's land has been transferred to the concessionaire, and the approval process for the remaining two is underway. **Design and drawing approval for all 10 DSTPs is currently in progress.**
- Amongst three proposed STPs, 100 MLD STP at Dhandupura **involves trees cutting of 704 nos. for which permission has been obtained from the Supreme Court.** Alternate site has been identified for afforestation of 7500 saplings. (refer Annexure 6). UPJN has decided to transfer this afforestation work to Forest department due to their expertise in this field (refer Annex-25).
- Based on the project activities and its location, the project is not expected to result in any irreversible or unprecedented impacts. The limited impacts likely to be on environment are suggested to be mitigated by way of project specific Environmental Management Plan.
- Project will not have any adverse impact on the tribal population, no tribal area has been reported in sub project region. No livelihood loss is envisaged under project. The project will not have any adverse impact on vulnerable and Scheduled Caste community for laying mains. Since all the DSTPs are proposed in the forest land, no diversion structure is required. Most of the project site is at a distance from the settlement. As per the consultations conducted, the participants expressed their relief and satisfaction that the open drains will be channelized and treated.

Although the project falls within the Taj Trapezium Zone (TTZ), designated as Ecologically Sensitive Areas (ESAs), all necessary permissions and NOCs have been obtained. Moreover, as project components are situated more than 1km away from the Taj Mahal, construction activities are unlikely to impact the heritage site due to prevailing wind directions. Environmental and social risks have been evaluated, and negative impacts are expected to be limited, site-specific, and reversible, with effective mitigation measures in place. During the operation phase, impacts are minimal and will be managed through the adoption of modern emission control devices. Overall, the sewerage project is anticipated to have a positive long-term impact by addressing pollution in the Yamuna River. Taking all factors into account, the project is classified as "**Moderate risk**", emphasizing its significance in addressing critical environmental challenges while mitigating site-specific impacts through outlined mitigation measures (refer to Table 12).

6. Baseline Analysis

Baseline studies were conducted in the Agra city area, identifying environmental and social sensitive receptors through site visits and secondary data review. The concessionaire's environmental monitoring data at the project site serves as baseline information.

Agra is strategically located on the western bank of the Yamuna River in Uttar Pradesh, accessible via

National Highway (NH-2) and situated approximately 200 km from Delhi. Geographically positioned at 27°12' North latitude and 78°12' East longitude, Agra converges three distinct geo-physical regions: the plains of Uttar Pradesh, the plateau of Madhya Pradesh, and the desert of Rajasthan. The city is at the crossroads of the culturally rich areas of Braj, Bundelkhand, Rajputana, and Western UP.

The Agra district covers 4027 sq. km. in the Indo-Gangetic plain, with approximately 80% dominated by Quaternary alluvium. Vindhyan rocks (Bhander sandstone) are exposed in the western and southwestern areas. The region features a two-tier aquifer system with granular zones of alluvial sands and gravels, having Transmissivity (T) ranging from 25 to 1205 m²/day and permeability (K) values between 17.25 and 18.22 m/day.

Meteorology

Agra experiences a rainy season lasting 5.5 months, from May 9 to October 23, with the highest rainfall in July, averaging 6.6 inches. The weather during this wet period is oppressive and partly cloudy, while the dry season, spanning the rest of the year, is characterized by mostly clear skies and consistent heat. Throughout the year, temperatures range from 47°F to 105°F, rarely falling below 41°F or exceeding 111°F. Agra also undergoes significant variations in wind speed, with the windiest months occurring from March 1 to August 19, peaking in June with an average speed of 8.4 miles per hour. Conversely, the calmer period extends for 6.5 months, from August 19 to March 1, with November being the least windy month, registering an average speed of 5.0 miles per hour.

Physical Resources

Air quality monitoring in the study area indicates that PM_{2.5} and PM₁₀ levels exceed CPCB limits, while other parameters are within limits. Ambient noise levels are within the prescribed limit for a commercial zone.

Agra's soil is predominantly loose, sandy, and calcareous, situated in the Indo-Gangetic plain with the Yamuna River flowing through. The area is characterized by Quaternary alluvium—mixtures of gravel, sand, silt, and clay. Some underground rocks are present in the west and southwest. The topsoil is coarse sand with a small clay fraction, and the subsoil is sandy throughout, slightly alkaline to saline in nature. Saline soils appear brown, while alkaline soils are grey and sticky. The topography is mainly flat, and soil testing at proposed STP and MPS locations indicates minimal changes in characteristics over the past three years, with slight variations in certain parameters.

Agra is classified as an overexploited zone for groundwater, with levels ranging from 2.19 to 46.58 meters below ground level. Comparing the ESDDR phase groundwater test report with recent results for the 100MLD STP, there is an improvement in groundwater quality over the past three years, with increased turbidity and sulfate but drastic decreases in total hardness, TDS, chloride, and alkalinity, indicating reduced salinity. Despite being in an overexploited zone, during construction, measures will be taken to prevent groundwater misuse. The project will adhere to CTE norms, requiring NOC from the State Ground Water Department, which is currently in process for 3 STP locations. Monitoring test reports are provided in **Annexure-3**.

Natural Hazards

Seismology –According to the Building Materials and Technology Promotion Council (BMTPC) Earthquake Hazard Map of Uttar Pradesh, Agra falls in Moderate damage risk seismic zone III and corresponds to MSK intensity VII. In consideration to this, due measures should be incorporated in designing of water/waste-water retaining structures. (viz. Sewage lifting station or wastewater treatment plants, as per provision of code).

Cyclones – The study area lies in the High Damage Risk Zone B (47 m/s) according to the BMTPC Wind and Cyclone Hazard Map.

Floods – The study area is located in an area liable to floods according to the BMTPC Flood Hazard Map and design drawing of all structures are prepared considering the HFL level (verified with CWC data refer Chapter-4; Section-4.4; Figure-17).

Flora and Fauna

Approximately 0.97 hectares of forest area in the district will be affected for the construction of DSTPs. The forest area predominantly features Acacia species, including Acacia nilotica (Babul) and Acacia catechu (Kikar). The UP Jal Nigam (YPCU) has applied for diversion of these forest lands under The Forest (Conservation), 1980, to the Ministry of Environment, Forests and Climate Change (MoEF&CC) for approval at the national level. Once approved, these lands can be used for DSTP establishment.

The proposed 100 MLD STP within the existing campus of the 78 MLD STP at Dhandupura, Agra, involves cutting 704 trees, authorized by the Supreme Court under the condition of planting and maintaining 7500 saplings. A designated area of 6.82 hectares in Tehsil Kheragadh, Village Vidhau, has been identified for afforestation, with Rs 1.18 crore deposited for compensatory plantation and maintenance for 10 years.

The Soor Sarovar Bird Sanctuary, located 5.24 km west of the project site, spans 800 hectares. The Eco-sensitive zone, demarcated as 1 km from the sanctuary's boundary, was established through Gazette of India no. 3319 on October 10, 2019, exempting it from obtaining NOC from the State Board of Wildlife.

Land Use Profile of project location -For more detailed information, please refer to **Chapter 4, Section 4.7**

Sl no.	Type of proposed sewerage facility	Land use
A STPs		
1.	Proposed 100 MLD adjacent to 78 MLD Dhandupura	5.11 ha open land available within existing STP under UPJN
2.	Proposed 31 MLD Jaganpur adjacent to existing 14 MLD Jaganpur	4.13 ha. open land is available with UPJN within existing Jaganpur STP.
3.	Proposed 35 MLD Peelakhar at existing 10MLD STP @ Peelakhar	15.06 ha land is available with UPJN within existing Peelakhar STP.
B Decentralized STPs		
1.	1.6 MLD STP for K KNagar Drain	Open Forest Land located towards ending of the settlement zone of the city.
2.	0.02 MLD STP for KailashMandir	
3.	2.35 MLD STP for Wyepur Drain	
4.	0.35 MLD STP for Artoni Drain	
5.	3.0 MLD STP for Gailana and Transport Nagar	
6.	0.30 MLD STP for Jalma Drain.	
7.	1.13 MLD STP for Mau Nala I & II Drains	
8.	1.1 MLD STP for Dharwale Baba I, II & Islam Nagar Drains	Open land of Agra Nagar Nigam.
9.	0.25 MLD STP for Peeli Pokhar Drain	

10.	1.5 MLD STP for Moti Mahal (I-VIII) & Indira Memorial Bridge Drains	
C	Proposed Main Pumping Stations (MPS)	
1.	Northern Zone – MPS (Burhi ka Nagla)	Open land available within existing MPS/STP
2.	Central Zone- MPS (Khairati Tola)	
3.	Eastern Zone -MPS ()Peelakhar	
D	Rising Main 9.35 km	
1.	MPS Burhi ka Nagla (3.2 Km)	Proposed along the Road within ROW. Row of the road is varying from 15-25 m
2.	MPS Peelakhar (150 m.)	Proposed along the Road within ROW. Row of the road is 15m.
3.	MPS Khairati Tola (5.5 km)	Proposed along the Road within ROW. Row of the road is varying from 16-30 m
4.	Mau Nala I Lift Station (500m)	Along the earthen road
E	Sewerage Line	
1.	Sewer Line work from tapped drain to DSTPs –total length 2550 meter (2.5 km)	The sewer line of total 2500 meter is proposed along the road.

Archaeological Sites

Agra, renowned for the Taj Mahal and other historic structures, falls within the Taj Trapezium Zone (TTZ), covering districts like Agra, Firozabad, Mathura, Hathras, Etah, and Bharatpur in Rajasthan. The TTZ safeguards 40 monuments, including Taj Mahal, Agra Fort, and Fatehpur Sikri. The proposed sub-project, situated in the TTZ, is part of a designated area of 10,400 sq. km. around the Taj Mahal, created to shield the monument from pollution. Within this zone, three ASI-protected monuments are present, but none of the project components falls within the regulatory zone (300 m) of ASI structures, eliminating the need for prior permission as of now.

Economic Development

Primarily the Economy of the Agra district is agriculture based while the economy base of Agra city is Small Scale Industries, Commerce and Trade. Major crops are Wheat, Paddy, Bajra, Mustard, Potato etc. About 40% of the total economy of Agra depend on industry (Directly or Indirectly). Over 7200 Small Scale Industrial Units are spread all over the district. Agra city is famous for the Leather Goods, Handicrafts, Zari Zardozi, Marble and Stone carving inlay work. Agra is also famous for sweets (PETHA) and Snacks (DALMOTH AND GAJAK).

Social and Cultural Resources

Agra city is governed by Municipal Corporation which comes under Agra Metropolitan region of Uttar Pradesh State, India and the city has population of 15.85 lakhs and its other urban/metropolitan area population includes total 17.74 lakhs of which 9.39 lakhs are males and 8.20 lakhs are females.. The project area falls within Agra tehsil, coexisting with the Agra metropolitan region and 33 adjacent villages.

Hindus constitute 80.68 percent of the population, followed by Muslims at 15.37 percent. Agra features approximately 252 notified slums, housing 30 percent of the population, and around 96 thousand households with electricity and tap water connections within the Municipal Corporation area.

The sex ratio in Agra is 875 females per thousand males, with a literacy rate of 73.11 percent. The city's total workers are 5.16 lakhs (32.59% of the population), with the majority in the other sector (86.29%), followed by household industry workers (8.31%). SC and ST population in Agra city, as per Census 2011, is 3,76,371, with the ST community constituting 0.38 percent of the total population.

Located on the western bank of the Yamuna River, Agra is a historic city renowned for landmarks such as the Taj Mahal, Agra Fort, and Fatehpur Sikri, all UNESCO Sites. Agra holds significance as a major center for political, economic, commercial, and cultural activities, attracting tourists globally.

Gender Based Violence

The potential for gender-based violence (GBV) resulting from the influx of migrant labor will be mitigated through comprehensive measures. These include mandatory, repeated training for the workforce on proper conduct toward local communities, particularly women, and raising awareness about national laws that criminalize sexual harassment and GBV, supported by prominently display of informational posters. A Worker Code of Conduct will be incorporated into employment contracts, with strict penalties for violations, including termination. Additionally, transport allowances will be provided, enabling workers to spend their time off away from the host community, reducing the risk of inappropriate behavior and facilitating regular visits to family.

7. Public Consultation

The project is in preparatory phase i.e. effective date is declared in April 2023. Public consultations during the preparation of C-ESIA involved engaging the technical team and EHS officer of the concessionaire to discuss project intricacies, design and drawing approval status, land NOC, and required regulatory permissions under environmental and social aspects. Communities were consulted at DSTP locations near close settlements, and consultations were conducted at the MPS site with households residing within the existing STP campus where new construction is planned, with no observed impact according to the layout plan.

The local community embraced the initiative of major Nala Tapping and on-site treatment facilities, expressing happiness about improved sanitation in the city and addressing pollution in the River Yamuna. In this initial project phase, primary objectives of public consultation included gauging project acceptance, understanding impressions of nearby settlements, and discussing potential inconveniences during construction. Other objectives encompassed assessing the existing local socio-economic status and identifying local sensitive receptors. Based on site visits and public consultations, the proposed project is anticipated to benefit Agra city by capturing, treating, and discharging untreated wastewater into the River Yamuna, with provisions for irrigation withdrawal.

8. Environment & Social Impact Assessment

The project anticipates temporary environmental and social impacts, addressable through safeguard measures outlined in the ESAMP and vigilant monitoring during implementation. Despite minimal construction-related disruptions and traffic inconveniences, the sewerage treatment schemes in Agra aim to tap and treat wastewater, benefiting the city by preventing the untreated discharge into the Yamuna River. While awaiting land NOC for 7 DSTPs on forest diversion land and design drawing approvals for all 10 DSTPs, the project is considered under '**Moderate risk.**' Land for 3 STPs/MPS is encroachment-free, handed over to the concessionaire, and holds CTE NOC from the Pollution Control Board for 3 STPs. Otherwise, the major outcomes of the environmental and social assessment suggest:

- The proposed sub-project is situated within the Taj Trapezium Zone (TTZ), an Ecologically

Sensitive Area covering 10,400 sq. km. around the Taj Mahal, aimed at safeguarding the monument from pollution. The Supreme Court, in its order dated December 6, 2019 (**refer Annexure -7**), emphasized the consideration of pending environmental clearances necessary for essential amenities within TTZ.

- There are 3 ASI protected monuments - Mehtab Bagh, Humayun Mosque and Gyarah Sidi near the Kachhpura village. None of project STPs and DSTPs falling within the regulatory zone of 300 meters of ARCHAEOLOGICAL SURVEY OF INDIA, NEW DELHI, THE 16TH JUNE 1992 Gazette Notification. Therefore, no prior permission is required under this notification for project implementation.
- The Sewerage and STP Scheme at Agra (Artoni DSTP) is located at a distance of 5.26 km towards East to Sur Sarovar Bird Sanctuary. The Eco-Sensitive Zone has been demarcated to be 1 km from boundary of sanctuary through the Gazette of India; No. 3319, New Delhi, Thursday, October 10, 2019. Hence it is exempted from obtaining NoC from State Board for Wildlife.
- The proposed STPs and DSTPs under the project in Agra city is falling under TTZ zone. However, ecofriendly projects (like STP etc.) are allowed with permission from State pollution control board as per latest Supreme Court Order dated 6th December 2019 (**Annexure 7**). The CTE **NOC is obtained for 3STPs (refer Annexure-12). The CTE NOC will be processed for DSTPs once land will be handed over to concessionaire.**
- About 0.97 hectare of forest land is required for 7 DSTPs in different area of the city (northern and eastern zone of sewerage plan of Agra), for which prior permission under "The Forest (Conservation) Act, 1980 are required for diversion of forest area for installation of DSTP from the Regional Office of MoEF&CC, Lucknow. **The proposal is at Gol for approval. (refer Annexure-5)**
- The land identified for establishment of 100 MLD STP Dhandupura is available within existing STP which involves tree cutting of 704 trees under TTZ regulated area. **Tree cutting permission has been obtained from Supreme Court (refer Annexure 6). And tree cutting has been completed.** In lieu of this, 7500 samplings will be planted and UPJN has chosen to give this job to the Forest Department because their expertise in this field.
- The site visit and discussion with technical team on the layout of proposed STPs, DSTPs/MPS and alignment of network of approx. 12km reiterates that the project will not adversely affect the livelihood.
- The project will not have any adverse impact on the tribal population.
- The project anticipates temporary impacts on water and air quality, traffic flow, safety, and public infrastructure due to the proposed 12 km pipelaying, including trenchless work. These impacts, such as potential hazards to health, traffic disruptions, and safety risks, will be effectively mitigated by outlined measures presented in **Chapter 6; Table-12** of this report. Additionally, the Contractor's submitted Environmental, Safety, and Health System (ESHS) plan, including Traffic Management, Excavation Safety Rules, Confined Space Work Safety Rules, and Work-to-Permit System (**Annexures 21, 18, 19, and 20**), will contribute to minimizing these impacts.
- The Concessionaire will develop a Sludge Management Plan during the O&M phase. Currently, designated land at the Kuberpur landfill site is allocated by UPJN Rural for construction waste disposal (refer Annexure-11). An existing MoU between Nagar Nigam and UPJN covers the

disposal of sludge and wastes at the “KUBERPUR” landfill site for existing STPs, and this arrangement may be extended for the new project. Additionally, the Concessionaire has included provisions for sludge storage within the STP layout.

- The project will not have any adverse impact on vulnerable and Scheduled Caste community for laying mains. Since all the DSTPs are proposed in the forest land, no diversion structure is required. The project site is mostly situated away from settlements, ensuring minimal disturbance. Community consultations have indicated relief and satisfaction among participants, acknowledging the positive impact of channelizing and treating open drains.

Analysis of Alternatives

- Site location Alternatives- No alternate sites were considered for the project as the Concessionaire is mandated to implement it within the pre-existing premises and land allocated for 3 STPs and associated MPS as part of the project bidding process. The 10 DSTPs (11.6 MLD) are strategically located near the Yamuna River bank, ranging from 200m to 1000m, on the outskirts of the city. This aligns with Ministry of Environment, Forests, and Climate Change guidelines, ensuring there are no National Parks/Sanctuaries within a 10 km radius of the proposed project site.
- Technology Alternatives- Comparative statement of different STP technology such as Conventional Activated Sludge, Process (ASP), Extended Aeration (EA), Sequencing, Batch Reactor (SBR), Cyclic Activated Sludge (CAS), Membrane Bio Reactor (MBR) and Trickling Filter along with the corresponding environmental and social impacts are analyzed. Based on analysis, it has been objectively established that Sewage treatment plant based on sequential batch reactor (SBR) as selected for the proposed project activity is a proven technology and has specific advantages compared to other conventional sewage treatment technologies. The DSTPs are also based on Conventional/SBR/MBBR/MBR type prefabricated units with minimal civil works.
- Sewer Pipeline Route Alternatives- The proposed work for laying of sewer line and rising main is only 12km approx., will be carried out in the existing RoW; hence, no alignment route will be required. As a result, the scope for analyzing the alternative alignment/site for sewer line is very limited.

Positive Impact

The project is expected to benefit the city, as the wastewater that currently generated, flows untreated into the River Yamuna will be tapped, treated at designated STPs and treated effluent will be used in STP campus and irrigation purpose. The excess will be allowed to flow into the Yamuna River following NGT discharge standards. Here are some key positive impacts of the project:

- Improved Sanitation Infrastructure: The project aims to enhance sanitation infrastructure in Agra by establishing an efficient sewerage system. This will cater to the growing population, preventing untreated wastewater discharge, reducing waterborne diseases, and improving overall hygiene.
- Environmental Protection: The sewerage project will contribute in Environment protection by efficiently treating and managing wastewater, preventing its direct release into water sources. This initiative will reduce water pollution, safeguarding rivers, lakes, and groundwater, thereby preserving the local ecosystem and enhancing water resource quality.
- Health and Hygiene Benefits: Access to proper sanitation facilities is crucial for public health.

The proposed project will improve the health and hygiene conditions for the residents of Agra by reducing the potential for the spread of waterborne diseases. Proper disposal of wastewater and effective sewage treatment will minimize the contamination of water sources and improve the overall public health in the area.

- **Tourism and Cultural Heritage:** The sewerage project in Agra, home to UNESCO World Heritage Sites like the Taj Mahal, aims to preserve cultural treasures. Enhancing sanitation infrastructure and preventing pollution will maintain a clean environment, elevate the visitor experience, and safeguard the city's cultural heritage.
- **Economic Development:** The enhanced sanitation infrastructure will bring positive economic impacts, creating jobs during construction and operation phases. Improved public health and hygiene will boost productivity, lower healthcare costs, and elevate residents' quality of life, fostering overall socio-economic development in the city.
- This project will help in considerably reducing pollution load on Yamuna River which will lead to restoration of aquatic ecology and flourishing of aquatic flora & fauna.

General Impact

Environmental and social impacts during construction and operation phases are identified with suggested brief mitigations. For more details, refer to **Chapter 6, Table-12**.

Construction Phase Impacts with mitigation measures

Air Emission

- **Impacts** - Dust, Particulate matter, Gases (SO_x, NO_x, SO₂, CO) from construction and vehicle emissions.
- **Mitigation Measures** - Provision of 3m height barricading, watering stockpiles, especially in dry and windy conditions and Construction equipment compliance with pollution norms, covered truck transportation, and regular air monitoring.

Contamination of Water Resources

- **Impacts** - Disposal of construction waste in nearby water bodies.
- **Mitigation Measures** - Proper barricading, waste disposal at designated sites, stockpiling control, and erosion prevention.

Domestic Waste Impact

- **Impacts** - Generation from labor camps, site/store offices during construction.
- **Mitigation Measures** - Waste segregation, municipal disposal, and provision of sanitation facilities.

Chance Find

- **Mitigation Measures** - The construction contractors will strictly adhere to all rules prescribed by the Government/ASI, following established protocols during excavation work. This commitment is essential to ensure the timely recognition of any chance find.

Noise Generation

- **Impacts** - Construction activities, vehicle movement, drilling.
- **Mitigation Measures** - Equipment compliance, noise barriers, PPE provision and regular noise monitoring.

Traffic Issues in pipelaying work

- **Impacts** - Traffic congestion

- Mitigation Measures – Traffic management plan, night work in congested areas and adherence to diversion plan.

Health and Safety Impacts

- Mitigation Measures – ESHS plan adherence, emergency contact display, hospital tie-ups, quarterly health check-ups and PPE provisions. For labor safety, local worker engagement should be preferred with proper labor camp, insurance.

Gender Based Violence

- Mitigation Measures – Awareness or orientation of labor on this issue, display of related posters on site, Establishing Grievance Redressal Mechanism, Code of Conduct, ICC committee formation and reporting.

Labour Influx Challenges

- Mitigation Measures – Sensitization, awareness on labor laws, worker codes of conduct and detailed record-keeping

Impacts on Street Vendors/Access Challenges for local communities

- Mitigation Measures – Pre informing authorities, traffic routing, temporary backfilling and timely restoration while pipe laying and shifting vendors with advance notices and public consultation.

Operation & Maintenance Phase Impacts with mitigation measures**Sludge generation and disposal**

- Impacts – Contamination during O&M phase
- Mitigation Measures – Designated sludge storage area to be demarcated and precautions against seepage should be ensured.

Air Impact

- Mitigation Measures - Green belt development, periodic air monitoring, and machine maintenance

Water and Environment

- Mitigation Measures - Online monitoring, sewer line checks, sludge testing, and compliance reporting.

Noise and Vibration

- Mitigation Measures - Regular machine maintenance, seasonal noise monitoring, and proper handling.

Land Environment Impact

- Mitigation Measures - Treatment, monitoring, and disposal of solid waste and sludge at designated sites.

Health and Safety

- Mitigation Measures - Adequate venting during cleaning, labor training, PPE provision, and supervision.

Stringent adherence to these mitigation measures will help minimize environmental and safety

impacts during both the construction and operation phases of the project.

9. Environmental and Social Management Plan

Project specific ESMP (Environmental and Social Management Plan) tailored for the project has been devised to implement mitigation measures aligning with Applicable Laws and IFC Performance Standards (PS) - PS 1, PS 2, PS 3, PS 4, PS 6, P 7, and PS 8. Considering the location and infrastructure setting, this approved plan will serve as a practical guide for project staff, technical teams, environmental and social experts, and EHS officers to implement effective measures during both construction and O&M phases. Copies will be accessible at all project site offices.

ESMP Budget

The total cost for implementing measures outlined in Environmental Management Plan and Environmental Monitoring Programme is as follows: -

Particulars	Cost in INR
EMP cost in Construction and Operation phase	2,19,00,000
ESMP Monitoring cost	4,08,60,340
Unidentified impacts (like public awareness on emergency response plan and grievance mechanism etc.)	20,00,000
TOTAL	6,47,60,340
Six Crore Forty Seven Lakh Sixty Thousand Three Hundred Forty only	

Apart from this, **ESMP budget also involve Rs.1.18 Cr submitted to forest department in lieu of 704 Trees cutting**. Forest diversion land for construction of DSTPs will also involve some cost and it will be part of ESMP budget.

Institutional Arrangement

The Concessionaire has the prime responsibility to implement the ESMP during all phases of the project. Concessionaire in their ESHS plan has mentioned the Roles & Responsibilities of site staff in ESHS implementation under project (refer **Annexure 13**). The ESMP will be applicable to all Contractors and Sub- Contractors including labour contractors and their workers working in the project during all phases. Concessionaire has also outlined the selection, evaluation and control of sub-contractor in ESHS plan (refer **Annexure 14**).

“EHS officer” at project level from concessionaire side will ensure the compliance of the ESMP which will also be monitored by Corporate QHSE Head and EHS Head of M/s Vishvaraj Environment Private Ltd. (Vishvaraj Environment Private Ltd has a certified Integrated Management System (IMS) as per ISO 45001:2018 and ISO 14001: 2015. They are having EHS management system developed at the corporate level and is extended to all projects in India). Apart from EHS officer, one environment expert and one social expert will be mobilized and it is under process. OHSE Policy is enclosed in **Annexure 10**.

Engineers of YPCU and UPJN(R) have secondary responsibility for implementation of ESMP and will coordinate the day-to-day work and monitor the ESMP compliance activities with the support from their headquarter. Currently one Environmental Safeguard Official, one wild life expert & one Social safeguard official is placed at SMCG and functioning as a focal point for environment and social safeguards.

Management Actions

Based on the project and associated activities, and E&S impacts identified for the project (which includes environmental, occupational health and safety, community health and safety and social), management measures have been recommended covering all phases of the project. An E&S monitoring plan for construction phase and operation & maintenance phase of the project has also been developed. Refer **Chapter 6** for detailed set of actions recommended for management of all identified adverse impacts.

Grievance Redress Mechanism

The ESMP provides the structure and process to be followed by the project for redressing project related grievance through a Grievance Redress Mechanism (GRM). The GRM is a platform to provide the affected communities a credible and effective channel of communication and allow them to communicate their grievances/concerns which they believe to be caused by the project activities.

Currently, NMCG has one GRM officer, who addresses all queries registered on the Centralized Public Grievance Redress and Monitoring System (CP GRAM) portal of NMCG. The GRM officer is supported by one social expert who helps to coordinate with all the state the SMCGs.

At SMCG level, reporting of grievances are being monitored by Environmental and Social experts. All Executing Agencies have a GRM mechanism for each project site. The project manager and deputy project managers are in-charge of these GRMs. To facilitate the registration of grievances, a register is kept at every site. Grievance received by the field team over phone or whatsapp is also entered in same register. The site team works on the grievance and try to solve this in best possible manner. Its status is discussed in monthly review meeting. In case the site team is unable to resolve the raised concern, the concern is brought up to the Senior Management of EA. The Grievance Redressal system is displayed at STP site refer **Annexure-23**. During discussion with Project team, it was reported that all project related grievances will be tried to resolve at site with the help of implementing agency. A dedicated team under the supervision of the Project Manager will be working for recording the grievances. The name and contact information of Grievance Redressal Officers (GROs) would be displayed at the project/construction site, labour camps, in communities where construction activities will be carried out.

10. Conclusion

In assessing environmental and social risks, the sewerage project foresees limited, site-specific, and largely reversible impacts, mitigated by adopting modern emission control devices. Considering all aspects, the project is classified as "**Moderate risk**", emphasizing its significance in addressing critical environmental challenges while mitigating site-specific impacts through outlined mitigation measures (refer Table 12). Involving treatment plants and a main pumping station without land acquisition, the project avoids income loss or household relocation but necessitates 704 tree cuttings and 0.97 ha of forest land diversion. In lieu of the felling of 704 trees, a compensatory measure involves planting 7500 saplings under barbed fence, in designated 6.6ha of land and funding of 1.18 Cr. is secured for this work with 10-year Operation and Maintenance (O&M) period. UPJN has opted to transfer this task to the Forest Department due to their specialized expertise in this domain (refer **Annex-25** in this regard). The forest land diversion does not entail tree cutting, land development, or disruption to the natural habitat. The ESAMP adheres to NGRBA guidelines, categorizing identified impacts during Construction and Operation as temporary with outlined mitigation plans. The environmental management plan proposes suitable measures for concerns identified in the environmental and social analysis. An established institutional mechanism oversees project progress throughout construction, implementation, and operation phases.

1 Introduction

1.1 Background of the Project

The Gol, recognizing that long-term rejuvenation of the river Ganga and its tributaries will have significant social and economic benefits on the lives of the 500 million people living along its basin, has identified cleaning of the river Ganga as one of its priorities. For this purpose, in May 2015, the Gol approved the flagship Namami Gange programme for cleaning, rejuvenation, and protection of the river Ganga and its tributaries. In January 2016, the Gol approved a hybrid annuity model to implement STP projects under the Namami Gange programme on a PPP basis.

Subsequently, the MoWR issued the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016 (**Ganga 2016 Order**) to constitute various authorities to assist the Gol in achieving its aim of effective abatement of pollution in the river Ganga. The Ganga 2016 Order designated NMCG as the nodal agency for implementation of the Ganga 2016 Order.

The World Bank recognizes that the pollution in River Ganga is primarily a result of inadequate infrastructure and the weak capacity of local water and wastewater utilities in the basin. The Government of India (Gol) has received loan assistance from the World Bank for the Mission Clean Ganga related activities under NGRBA Program (later which is included as one of the components of the Namami Gange Programme) at the level of institutional development, operational and implementation support and in four sectors, namely, wastewater collection and treatment, industrial pollution control, solid waste management and riverfront development.

The Ganga 1 projects were mostly on the main-stem of river Ganga which covered the 5 basin States i.e. Bihar, Jharkhand, Uttar Pradesh, West Bengal and Uttarakhand. The Ganga 2 projects are in continuation to the Ganga 1 projects and sub-project which are similar in nature. The focus of NMCG has also included from Ganga main-stem to the polluted stretches of the tributaries of river Ganga.

Accordingly, to facilitate abatement of pollution and conservation of the tributaries of river Ganga by adopting a river basin approach for comprehensive planning and management, National Mission for Clean Ganga (NMCG) under the Ministry of Water Resources, River Development & Ganga Rejuvenation, along with the Uttar Pradesh Jal Nigam (UPJN) has proposed to undertake the PPP Design and Transaction Support for the development of Sewage Treatment Plant (STP), Decentralized STPs (DSTPs) & associated infrastructure in Agra, Uttar Pradesh to stop the flow of untreated sewage in river Yamuna, following the principles of ESMF of NGRBA.

In compliance with the Concessionaire Agreement, for all the project facilities an updated Environment and Social Impact Assessment (ESIA) report based on the Environmental and Social Due Diligence Report (ESDDR) and Environment Management Plan (EMP) are needed as safeguard document. ESDDR has been prepared by the UP Jal Nigam and which has been also provided to the Concessionaire along with the RFP and Addendum No. 1 to the tender documents. The safeguard documents have been developed in accordance with the World Bank Group Safeguard Policies and Performance Standards, the ESMF (2020)², Concessionaire Agreement, Applicable Laws, Applicable Permits and Good Industry

² Environment and Social Management Framework (2020)

https://nmcg.nic.in/writereaddata/fileupload/7_Environmental%20and%20Social%20Management%20Framework.pdf

Practices.

1.2 Objective and Scope of the Study

The NMCG has adopted a comprehensive Environmental and Social Management Framework (ESMF) for management of possible Environment and Social (E&S) issues to meet the overall requirement of sustainable development. The said ESMF (revised in year 2020 to provide an overview of the Ganga basin profile including major tributaries) provides for detailed assessment of such issues for planning mitigative measures and Plans for proper management of E&S issues through ESIA and project specific ESMP. Accordingly, ESIA studies for instant project of construction of Sewerage Treatment Plant and Decentralized Sewerage Treatment Plants (DSTPs) along with associated infrastructure at Agra town has been carried out to identify likely E&S impacts and their mitigation measures to protect or enhance the quality of the environment and social settings within the STPs and DSTPs project influence area in accordance with the national and international policy frameworks and safeguards for environmental and social compliance (as per IFC Performance Standards 2012; IFC General EHS Guidelines (2007) including Industry Sector Guidelines for wastewater treatment plant; and applicable national and international laws, regulations, standards pertaining to environment, health, safety, social and labour in India) that includes:

- Anticipate and avoid risks and impacts.
- Where total avoidance is not possible, minimize or reduce them to acceptable levels.
- Once risks and impacts have been minimized or reduced, mitigate.
- Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.

The prime objectives of the ESIA study includes:

- To collect required primary data through necessary field investigations and surveys to assess likely/identified E&S risks and impacts.
- To undertake stakeholder analysis and public consultation.
- To identify suitable measures for the disposal of various waste/unserviceable materials generated due to the project such as construction and demolition (C&D) waste, soil and other recyclable/reusable materials.
- To plan suitable mitigation measures for significant E&S risks& impacts following mitigation hierarchy.
- To ensure systematic and effective execution of the updated environmental and social (E&S) commitments (as reflected in the revised Management plan) relevant to the construction phase of the Project, future operations and potential future developments.

This C-ESIA has been prepared considering the latest variation with the ESDDR/DPR as per approved design (BEP of the proposed infrastructures). The brief scope of ESIA study includes:

- Preparation of environmental and socio-economical profile of the project influence area through primary and secondary information (comprising demographic, socioeconomic, physical, biological and ecological environmental features, etc).

- Based on the sewer route alignment and field visits, develop an inventory of impacts of both temporary and permanent structures, if any, trees and other environmental sensitive receptors such as schools, religious places and other common property resources and any other issues, which may be affected, while construction of STPs/DSTPs and associated infrastructure and during operation & maintenance.
- Identification of various other issues such as disposal of excess excavated earth, waste, disposal/ reuse of old pumps, valves & other equipment, dismantling/disposal of damaged sewer line or any abandoned structure (if any), etc.
- Assessment of the health and safety impacts of implementation of STPs/DSTs, both during construction and operation phase of the project.
- For all the impacts/ issues identified above, recommend elimination or mitigation/management measures to be implemented by the project implementation unit and the construction contractors, in line with the Environmental and Social Management Framework (ESMF) of NMCG.
- Study & inclusion of measures and plans mitigating temporary/ permanent impacts to the structures and communities along the sewer route alignment as well as STPs/DSTPs site and prepare site specific ESMP to mitigate environmental & social impacts, RAP (if there are resettlement/ rehabilitation issues) and/or Tribal Development Plan (if there are significant population of tribal people likely to get affected).
- Identify various regulatory clearances that may be required for the project, such as tree cutting/regulatory zone work permissions, “no objections” from state /national highway authorities, railways, utility agencies, etc.
- Formulation of a monitoring plan with reference to ESMP and others conditional NOCs/permission received under projects.
- Development of Grievance Redressal Mechanism (GRM) in accordance with the ESMF to address and resolve the project related grievances including the existing Grievance Redressal System of UP, Jal Nigam.
- Conduct public consultations with the communities for information dissemination and their feedback for the proposed project and to understand the impacts anticipated by the communities and also to explain measures proposed under project to implement to mitigate such impacts.
- Finalize the Contractor Specific ESIA based on approved BEP (Basic Engineering Package) for implementation at both construction and O&M phase incorporating comments received from NMCG/World Bank.

1.3 Approach and Methodology

The C-ESIA study was carried out based on desk review of the ESDDR report prepared during DPR stage, contract documents, discussion on variations in project from DPR to actually approved components/ design/locations, field assessments, environmental monitoring and public consultations with the community who are likely to be benefited from the project.

1.3.1 Reconnaissance of Project Area

A reconnaissance visit to the proposed STPs/DSTPs/MPS sites with Network (especially rising main, crossings & trenchless work locations) was conducted during month of April – May 2023 along with AWWMPL team.

The purpose of the reconnaissance was to:

- Understand the fabric of the project area.
- To enlist all required NOCs/regulatory permissions as the project is in initial phase.
- Identify the presence of encroachers or squatters on the lands designated for the project.

Discussions were also conducted with the Project Head and the EHS Head to understand the project components, status of NOCs/regulatory permission, status of the project activities and availability of project specific studies/ documents.

1.3.2 Information Review

The following items were reviewed for preparation of this Report:

- Project DPR and Environmental and Social Due Diligence report.
- Approved BEP of the project.
- Project design and description of project flow.
- Finalized map of project components.
- Construction approach and methodology.
- Project-specific ESHS Plan.

In addition to the above-mentioned items, secondary literature review was carried out in order to better understand the project area. These included archaeological sites, hospitals, religious places (temples/ mosques/ churches etc.), schools/ colleges, water bodies, gardens etc.

1.3.3 Mapping of Sensitive Receptors

The environmental and social (E&S) receptors sensitive to project development were identified and spatially represented by creating data. Secondary data for mapping activities was sourced from recognized, publicly available databases.

1.3.4 Baseline Primary Surveys

The baseline primary survey was conducted in April – May 2023 involved:

- Verification of data layers mapped using secondary data
- Baseline environmental quality monitoring
- Public consultation at proposed site.

1.3.5 Legal Requirements and IFC-PS

As part of the review of environmental and social risks, impacts and magnitude for the proposed component assigned for study, it is envisaged that the impacts on are few in number, site- specific,

largely reversible, and readily addressed through mitigation measures. The national regulations on environment, health, safety and social that are applicable to the project during pre-construction, construction, operation & maintenance (O&M) phases, as well as key regulations that do not apply to the project were identified. The compliance requirements of each regulation by the Company (such as obtaining approvals, submitting monitoring reports, and storage of materials in a particular manner etc.) were further identified. The process followed during land allocation for the project and its compliance to legal requirements were also recorded.

1.3.6 Environmental & Social Impact Assessment

The impact assessment involved the prediction and evaluation of impacts from the proposed project in different phases i.e., construction and operation phases of the Project and included consideration of mitigation measures towards the same. Based on the Environmental & Social sensitive receptors present in the study area and activities during different phases of the project (pre-construction, construction, operation, decommissioning), impacts have been identified. The results of baseline primary surveys were used as input to identify impacts. Impact assessment also involved risk assessment covering hazard identification, consequence analysis and risk reduction measures and recommendations.

1.3.7 Environmental and Social Management Plan

Based on the impacts identified for the project and associated activities, Environmental & Social Management Plan has been developed for the assigned work. ESMP includes suggested mitigation measure, roles and responsibilities for implementation.

1.4 Organization of the Report

The ESIA Report is organized into the following Chapters:

- **Executive Summary** provides a brief summary of the entire Contractor Specific environmental & Social Impact Assessment Report(C-ESIA).
- **Chapter 1** provides a brief background about the project, specifying the need to undertake the C-ESIA study, reference framework for the assignment and approach adopted for undertaking the C-ESIA.
- **Chapter 2** gives details about the project location, describes the existing scenario of sewerage infrastructure within the project area, need of the proposed project, various components and process flows of the project.
- **Chapter 3** outlines the application of Indian legal requirements on environment, health and safety and social aspects of the project. It also establishes the applicability of the World Bank policies under project with compliance status and various clearances/approvals required for project implementation.
- **Chapter 4** presents findings of the baseline studies conducted in the project influence area and secondary information collected to understand the existing environmental and social conditions. A summary of the public consultations and the approach adopted are also provided.

- **Chapter 5** presents Environmental & Social impacts identified across the project lifecycle.
- **Chapter 6** presents the set of mitigation and management measures to be taken during project implementation to avoid, reduce and mitigate for adverse environmental & social impacts, monitoring and implementation arrangement with EMP budget.

The report is supported by **24 Annexures** that are referenced in the respective chapters.

2 Project Description

2.1 Project Location

Agra is a historic town situated in the Indo-Genetic Plains of northern India. The town is geographically located on latitude 27°11'18.40"N, longitude 78° 0'31.05"E in State of Uttar Pradesh. The city of ancient culture and empire of various historic events is located at a distance of about 200 kms. from New Delhi, the capital of India. The city of Agra is built along the river bank of Yamuna at an average elevation of 171 meter above the sea level. The total area of the town is 4027 sq. km. with a population of 15.85 lakhs. Agra city is governed by Municipal Corporation which comes under Agra Metropolitan region of Uttar Pradesh. Agra city was built by Sikandar Lodhi in 1506 AD. Agra was the capital of Mughal Empire from 1526 to 1658 . Even today Agra is a renowned tourist destination due to Mughal buildings like Taj Mahal, Red Fort , Fatehpur Sikri etc. These three buildings are included in the list of UNESCO World Heritage Sites .

The city also falls in the center of the four-culture areas- Braj, Bundelkhand, Rajputana and Western U.P. Both these factors have played significant roles in shaping the life and history of the city.

The Agra city is located on the west of Uttar Pradesh. The sub-project area falls in Agra tehsil of Agra district. The project tehsil exists with Agra metropolitan regions (it includes Agra Municipal Corporation, Cantonment area, Dayal bagh Nagar Palika, Swamibagh Nagar Palika and Azizpur, Patholi, Deoretha, Kalwari, Dehtora, Artauni, Nainana Jat, Dhanauli, Rohta, Kaulakha, Nainana-Brahman census towns) and other adjoining 33 villages.

The city is well connected by road as well as by rail with several important cities including Delhi, Mumbai, Kolkata, Lucknow, Bareilly, Jaipur, Jhansi and Aligarh. It is also an important junction of the Central, Western and Northern railways of broad-gauge line. It is also connected with Delhi, Kolkata, Patna, Lucknow and Varanasi by air.

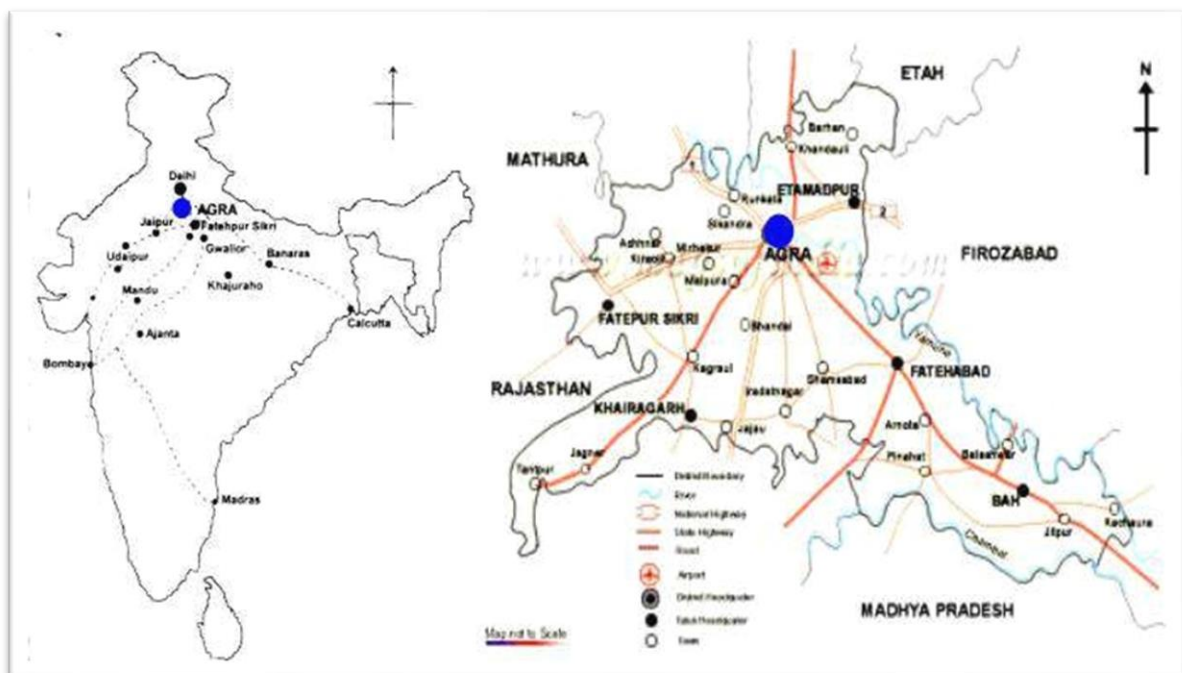


Figure 1: Location of Agra in India



Figure 2: Regional Setting of Agra City

2.2 Sewerage Zones of Agra City

2.2.1 Overview of sewerage Zones of Agra

According to information available from the UP Jal Nigam, Agra city is divided into 9 Sewerage Zones; i.e., Central Zone, Northern Zone, Western Zone, Eastern Zone, TajGanj Zone, Southern Zone I, Southern Zone II, South Zone III and the Cantonment Zone as mentioned below:

1. **East Zone** - It covers full area of Trans Yamuna. The existing sewerage infrastructure in the zone consists of YAP-I interception & diversion work through two IPS (IPS Naraich, IPS Etmad-ud-daula), one MPS (MPS Peelakhar) and a STP (**10MLD at Peelakhar**).
2. **North Zone** - This zone lies to the north of CIS area above NH-2 bypass. At present water from Burhi ka Nagla nala is tapped & diverted by MPS to **2.25 MLD STP at Buri ka Nagla**. Manoharpur, Anurag nagar, Amar Vihar-I,II drains are tapped and diverted to **14 MLD STP at Jaganpur**.
3. **West Zone** - This zone lies on the west of CIS area, surrounded by central railway line and Fatehpur Sikri railway line. Almost all water comes to central zone by nala and existing Mantola trunk sewer. This zone has two IPS, one MPS and two STP's viz. **40 MLD at Bichpuri & 36 MLD STP at Sadarban**. 40 MLD STP is maintained by U.P. Jal Nigam while 36 MLD STP is maintained by ADA.
4. **Central Zone**- This zone houses main city area of CIS Zone. It is highly dense & fully urbanized. Many areas are saturated in development. This zone is sewered and includes catchments of IPS

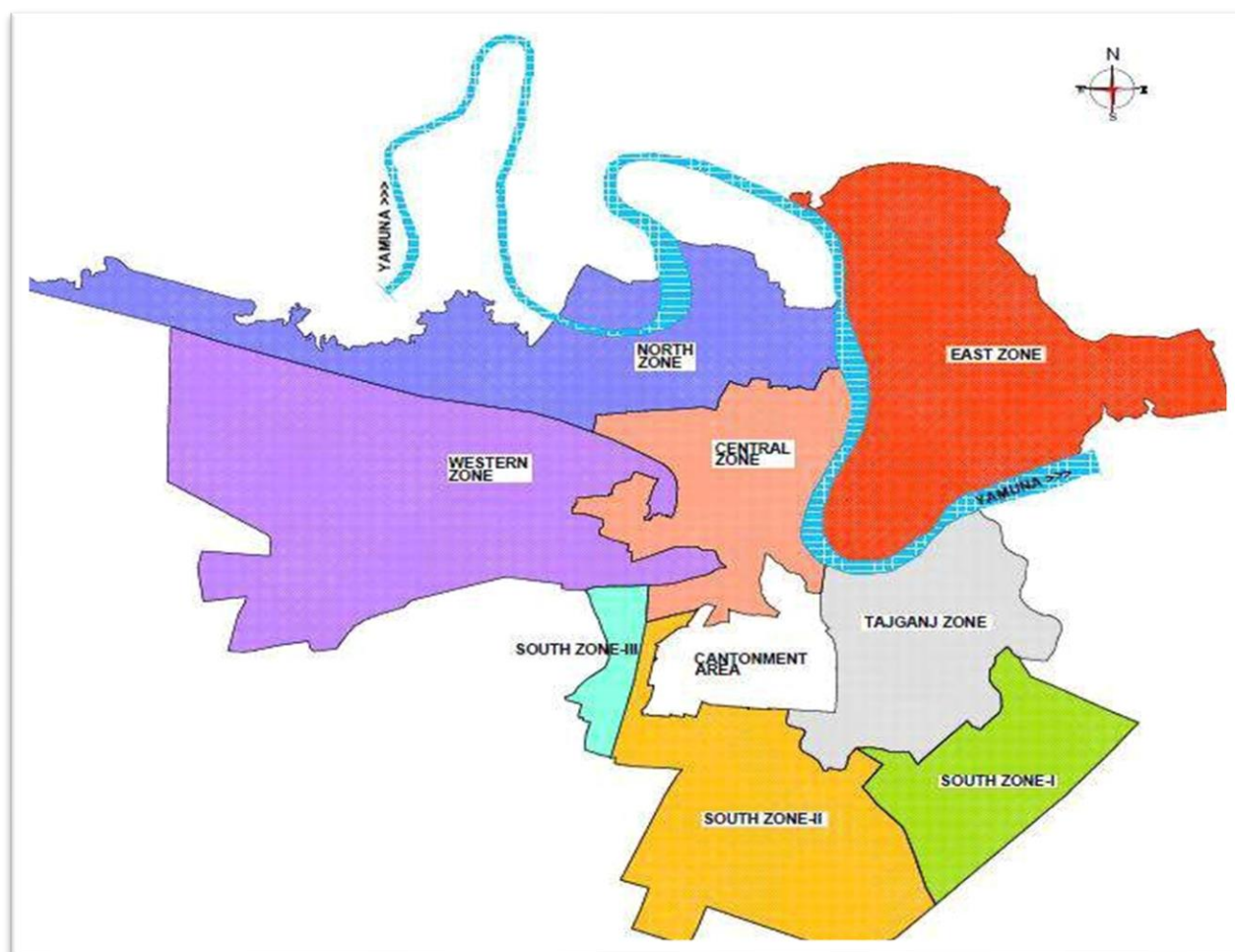
Rajwah, IPS Balkeshwar, IPS Sub Balkeshwar, IPS Water Works, IPS Bhairon, IPS Khoja and MPS Khairati tola. At present flows from IPS Rajwah & IPS Balkeshwar are diverted to Water Works nala and from IPS Water Works to MPS Khairati tola.

Part of the flow from existing sewer system is lifted to Yamuna Kinara Trunk Sewer at Sub Balkeshwar IPS where it is connected with the Water Works nala and finally pumped to existing MPS Khairati Tola.

IPS Bhairon intercepts flows of Paliwal and Belanganj nalas divert them to Bhairon nala by conveyance mains and are then diverted to MPS Khairati Tola. IPS Khoja intercepts Khoja nala and directs to MPS Khairati Tola

MPS Khairati Tola takes flows from Water Works, Bhairon, and Khoja IPSs, Mantolanala and Mantola sewer, Baluganj nala and Yamuna Kinara trunk sewer to **78 MLD STP at Dhandhupura**. At present water from West zone, South zone 1, cantonment, Tajganj & part of North zone also join Central zone.

5. **Cantonment Zone** - This Zone has only one catchment and lies on the lower side of central zone with Tajganj Zone on the Eastern side. At present no sewers or I&D works exist in this zone; zone drains to Mantolanala and Dholikar sewer and finally to MPS at Khairati Tola and then to STP at Dhandupura.
6. **Tajganj Zone** - This area covers southeast part of CIS Zone surrounding the historical monuments Taj Mahal. Many development works are under taken in this zone under Taj Trapezium Zone (TTZ) program. Presently there is no sewerage system in this zone and flows of this zone are drained by Taj East nala and Taj West nala to Yamuna River. Part of the flow reaches MPS at Khairati Tola. But under TTZ scheme, sewers are being laid and wastewater flow is taken care of by four catchments, three IPSs and one MPS. Whole of the flow is taken care by the TTZ scheme and is covered under 78 MLD STP at Dhandupura.
7. **South Zone I** - This Zone covers the urban settlement to the south-west of CIS area surrounded by central railway line & Fatehpur Sikri railway line and includes the area of Shahganj, airport, surrounding area of airport etc. and substantial area of more recent development. This zone also includes two census towns named Azizpur & Dhandauli having high density. At present no sewer system exists in this zone & wastewater is disposed to nala, which mostly reach to Mantolanala. But water from villages reaches Khari River.
8. **South Zone II** - This zone lies south of CIS area outside of Agra Nagar Nigam boundary. This zone comprises mostly of villages coming in the projected horizons. At present no sewer system exists in this zone & partly flow reaches central zone & partly Khari River. This zone is divided by two catchments (Nainakijat & Fatehabad). The area is currently undeveloped but is expected to develop steadily. There are no sewers in this zone.
9. **South Zone III** - This zone lies in the neighboring area South Zone-II and Cantonment. This Zone comprises of areas like BarahKhamba, Sauhalla, Ajeet nagar, Naripura and Mustaffa.



Source: DPR Agra Sewerage Scheme (I&D Works)-Dec 2019

Figure 3: Agra Municipal: Sewerage Zones

2.2.2 Zone Wise Population projections for Agra City

The population projections are summarized as below considering 2020 as the base year; 2035 as the intermediate year and 2050 as the ultimate year in line with DPR under preparation for sewerage works: U.P. Jal Nigam has conducted a population projection for the scheme based on latest available census data i.e., Census 2011. Considering the importance of tourism in the city, floating population of Agra has also been added in the total population after 2011.

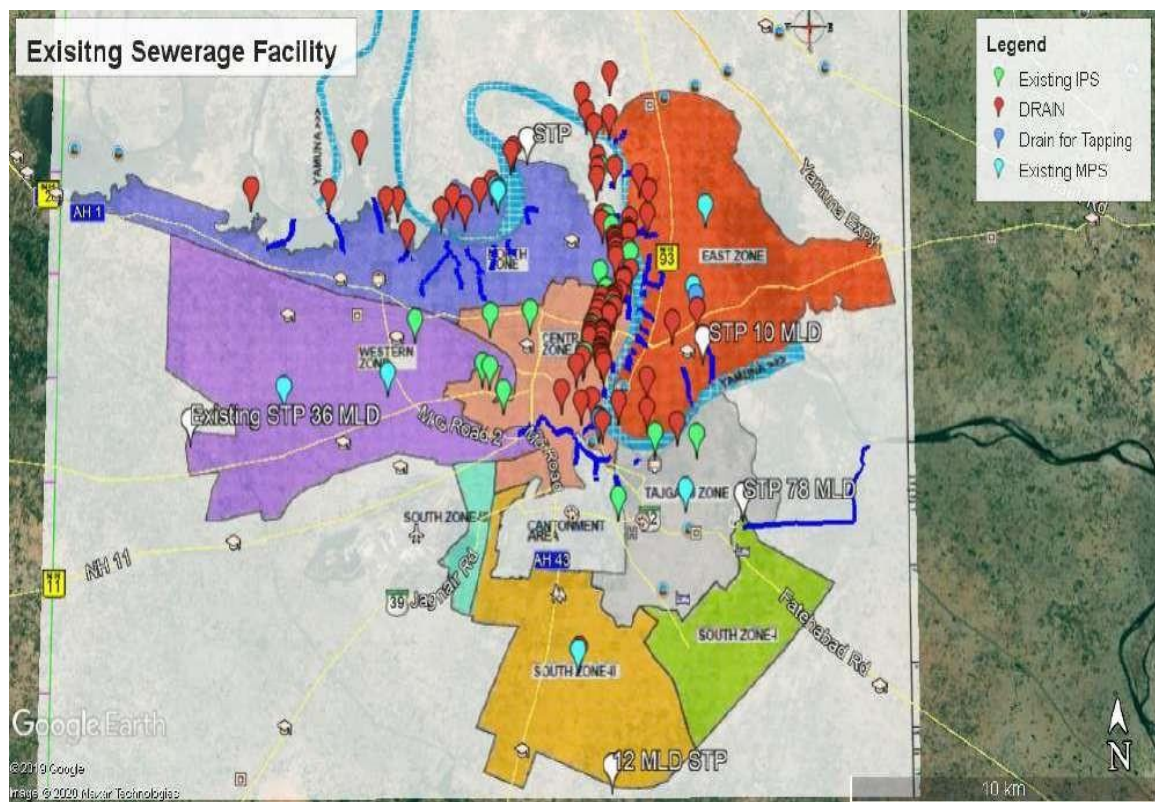
S. No	Zone No.	Population			
		2011	2020	2035	2050
1	Eastern Zone	170735	302589	428996	608276
2	Central Zone	557192	638890	906796	1285161
3	Northern Zone	176200	340017	482060	683463
4	Western Zone	395227	487304	744546	1022862
5	Tajganj Zone	200842	205567	251436	413173
6	Southern Zone-III	86759	106971	151655	215004
7	Southern Zone-II	149420	184231	261187	370288
8	Southern Zone-I	37423	46142	65416	92741
9	Cantonment Zone	71053	66574	94383	133808
Total		1844851	2378285	3386475	4824776

2.3 Existing sewerage facility in the project city

With reference to drainage scheme of the Agra city, first drainage scheme for Agra was prepared in 1917, followed by a revision on the scheme in 1945 & 1965. Agra Sewerage Master Plan was prepared in 2008 by UPJN. This report was prepared for a design horizon of 2050 and included the whole area of Agra. New projects or upgradation has been considered where existing condition or capacities are not sufficient for present & future demand. There is total 90 drains in Agra comprising of discharge of 286.85 MLD and falling in Yamuna River. Out of which 29 drains are partially intercepted (cumulative discharge of 269 MLD have been tapped under previous schemes) and remaining 61 drains are untapped (cumulative discharge of approximately 18 MLD are untapped and are falling into River Yamuna with flows ranging between 0.001 MLD to 1.91 MLD). Out of 61 drains, the work for 38 drains having total capacity of 6.40 MLD has been tendered out under State fund. Remaining 23 drains having total discharge of 11.6 MLD are proposed to be tapped and treated under the present project of I&D Sewerage scheme of Agra.

A total of 572.34 km Sewer lines are laid in different Sewerage Zone. The existing wastewater system consists of 26 Sewage pumping Stations out of which two sewage pumping station are constructed by UP Avas & Vikas Parishad for its colonies. Out of total Sewerage zone, Cantonment area, South Zone 1 and South Zone III has not any SPS. Except, cantonment Area, South Zone I & III, the other sewerage zones have STP. Currently there are 9 STPs with the installed capacity of 220.75 MLD and their O&M has been awarded to M/s VA Tech WABAGH, Chennai for 10 years by SMCG vide letter no. 067/358/SMCG-UP/(PC) dated 14.06.2019.

Figure 4: Existing Sewerage facilities of Agra



2.4 Necessity of this Project

Due to non-availability of sewerage system in various parts of Agra, the waste water is being discharged into open drains which ultimately discharge into river Yamuna, resulting the increase in pollution level of the holy river, which is main concern of the Government and N.G.T. Hence to prevent these drains discharging waste water directly without any treatment in Yamuna River, the major Drain tapping and providing treatment facility to clean the sewerage water is considered to clean the River Yamuna. Agra city unlike other Indian cities does not have a centralized sewer system for collection, transportation, treatment and disposal of domestic and institutional wastewater. Due to tremendous population growth and increased areas of habitation, different sections of existing sewers network are partially and/or fully choked, carries reduced flow and the STPs are not receiving designed flow. The untreated sewerage disposal is a critical area; most of the waste water of town and from un-sewered areas is discharged directly into the drains creating unhygienic environment. Likewise, the effluents of industries, effluent of different slaughter houses are also discharged directly into the drains without any treatment. In order to reduce pollution load of major drains of Agra, the existing sewerage network necessities renovation and strengthening, so that the wastewater would be treated before its discharge to River Yamuna, which finally joins with the Ganga River at downstream near Prayagraj district of Uttar Pradesh.

2.5 Proposed Project Activities

Under Namami Gange Program, following works are proposed:

1. I&D Work

- ✓ I&D Works of 23 drains is proposed connecting to the nearest manhole of existing/proposed gravity network through covered diversion drain.
- ✓ **Sewerage Network of 4.18Km.**

Sl.No	Sewer Network	Pipe line details
1	Package I (Northern and Tajganj Zone)	200mm dia – 780 m 250 mm dia – 50 m 1400 mm dia – 30 m
2	Package II (Eastern Zone)	200 mm dia – 720 m 1400 mm dia – 440 m
3	Package III (Dhandupur)	Gravity sewer in trenchless method 1800 mm MS pipe – 600 m
4	Effluent disposal channel	1600 mm dia – 1560

- ✓ **Rising Main work of 9.35Km.**

Sl.No	Name of Rising Main	Diameter (mm)	Length (m)
1	MPS Burhi ka Nagla (Package I-Northern and Tajganj Zone)	800 (DI)	3200
2	MPS Peelakhar (Package II-Eastern Zone)	800	150

3	MPS Khairati Tola (Package III-Dhandupur)	1400 (PSC pipe)	5500
4	Mau Nala I Lift Station (Package I)	100 (DI)	500

2. Construction of three MPS

Sl.no	Name of Sewage Pumping Stations	Capacity 2035 (MLD)
1	Northern Zone - MPS Burhi ka Nagla	69.8
2	Eastern Zone -MPS Peelakhar	78.8
3	Central Zone - MPS Khairati Tola	225

- 3. Construction of ten DSTPs-** Ten decentralized STPs has been proposed with the installed capacity of 11.6MLD to tap and treat small drains in its vicinity. The DSTPs will be based on SBR/ MBBR technology. Out of total 10 DSTPs,7 number of DSTPs are proposed on Forest land (proposal is at National level for NOC) and 3 DSTPs are proposed on Nagar Nigam land.

S.No.	Decentralised Treatment Plants (package treatment/ conventional treatment)	Land Area (sqm)	Sewerage Zone
1	1.6 MLD STP for K K Nagar Drain & Kamyeni Hospital Drain	1500	North Zone
2	0.02 MLD STP for Kailash Mandir	490	
4	2.35 MLD STP for Wyepur Drain	2100	
5	0.35 MLD STP for Artoni Drain	490	
6	3.0 MLD STP for Gailana and Transport Nagar	2700	
7	0.30 MLD STP for Jalma Drain	490	Central Zone
8	1.13 MLD STP for Mau Nala I & II Drains	1010	Eastern Zone TRANS Area
8	1.1 MLD STP for Dharwale Baba I,II & Islam Nagar Drains	1000	
9	0.25 MLD STP for Peeli Pokhar Drain	490	
10	1.5 MLD STP for Moti Mahal (I-VIII) & Indira Memorial Bridge Drains	1330	

- 4. Construction of 3 STPs -** Three sewage treatment plants (STPs) with a combined capacity of 166 MLD are planned, considering the population projection up to 2035. All three centralized STPs will be constructed within the existing STP campus, utilizing the available space mentioned below.

S.no.	Location	Capacity (MLD)	Available Land Area (sqm)	Sewerage Zone
1	Peelakhar	35	150500	Eastern Zone
2	Jaganpur	31	41300	Northern Zone
3	Dhandupura	100	51100	Central Zone

- 5. Manholes –** 70 number of Brick masonry / RCC rectangular manholes

- 6. Online Monitoring System –** OCEMs is proposed at LS, MPS, EPS, STP and I&D

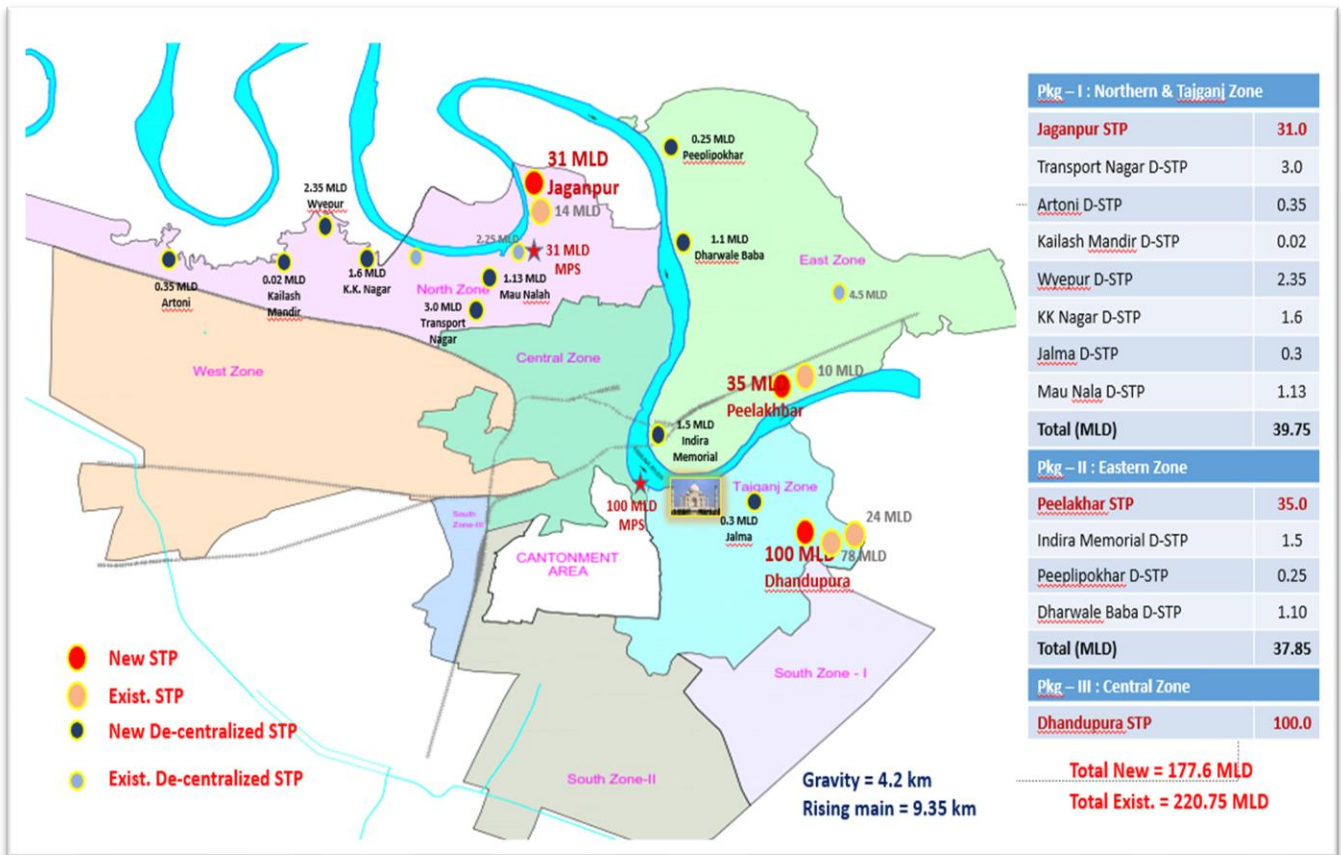
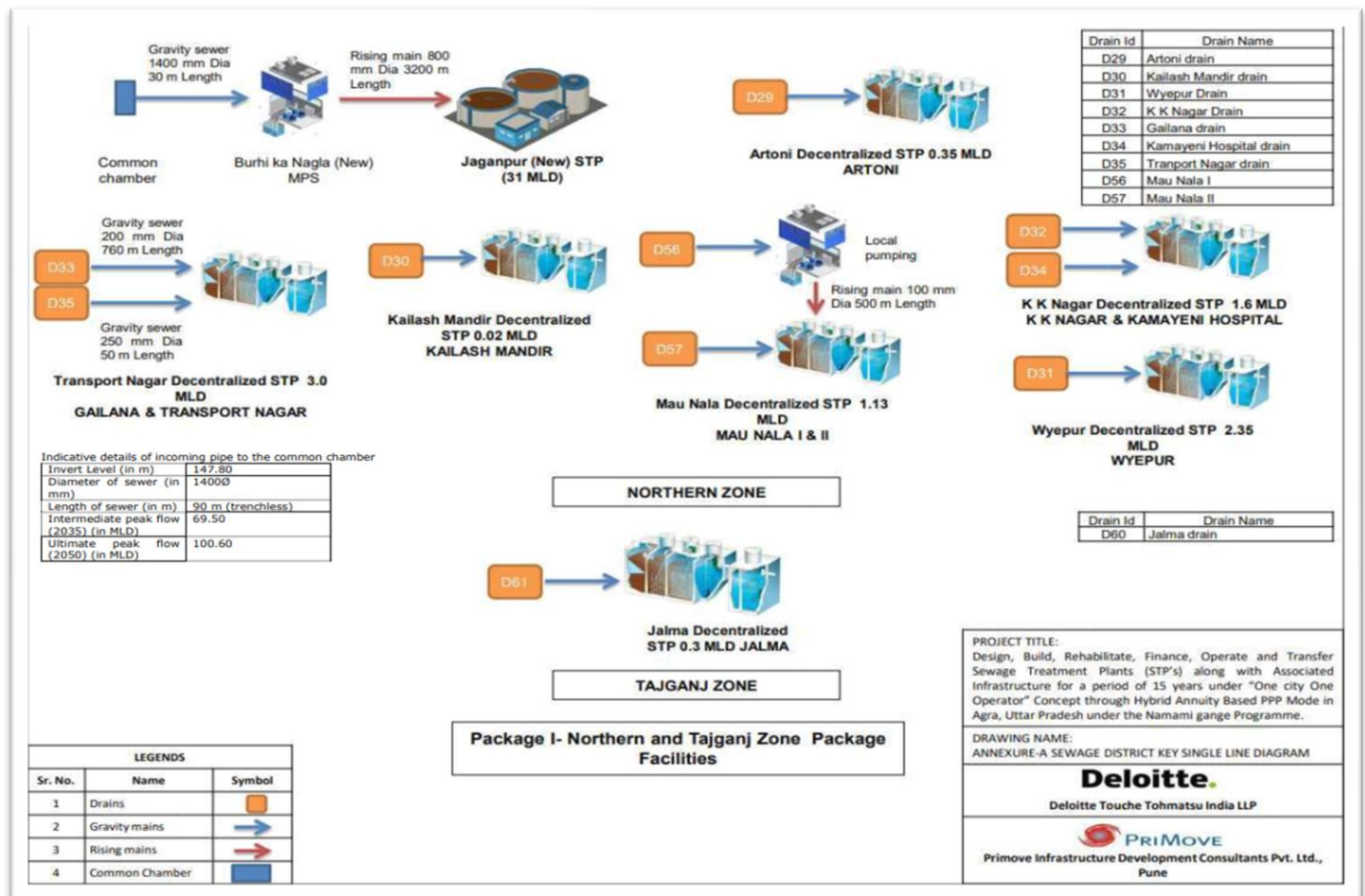


Figure 5: Proposed Locations of STPs, DSTPs and Rising main alignment under the Project

7. Details of Package wise facilities are as follows:

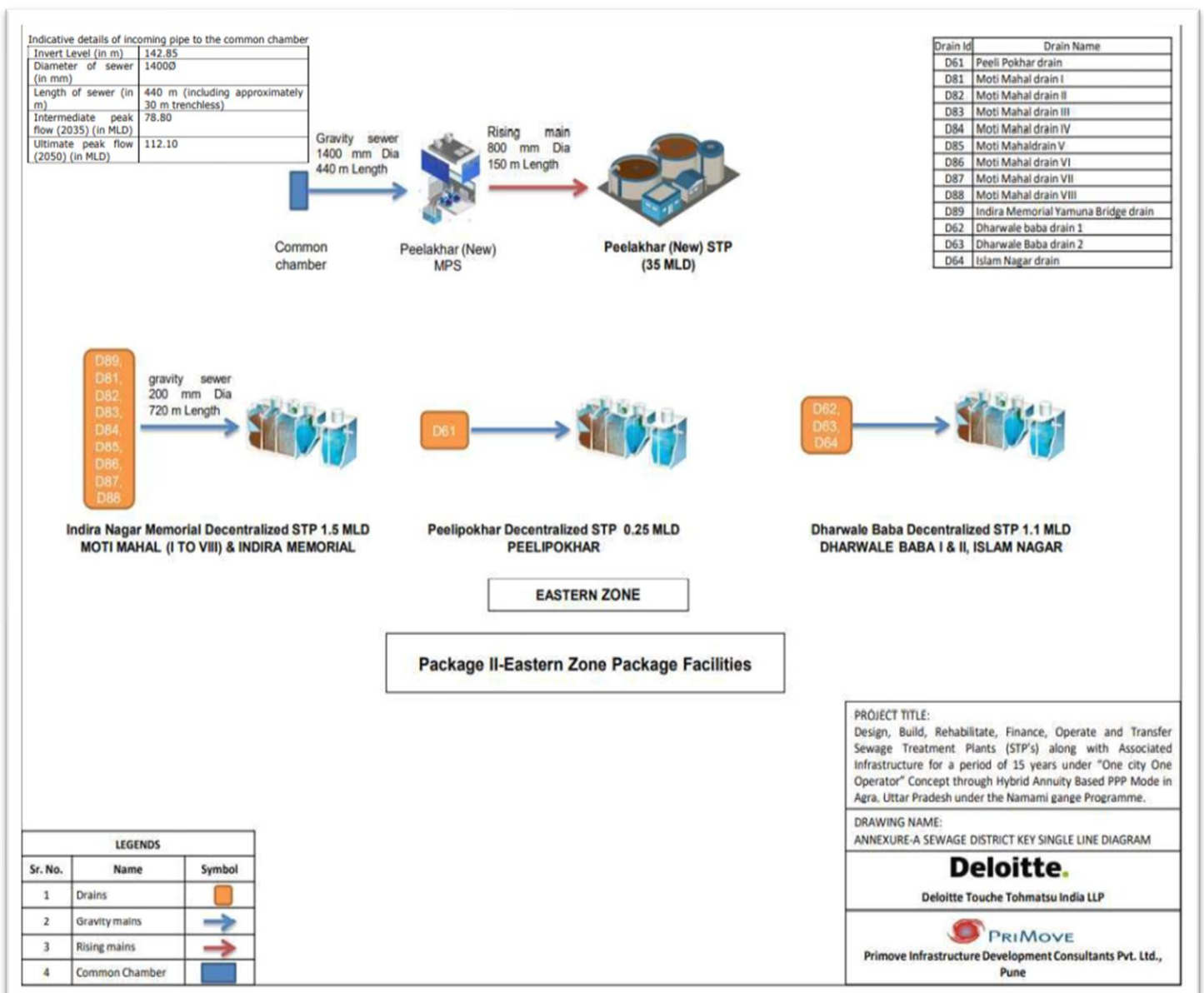
Northern and Tajganj Zone Package-I Facilities:

- Jaganpur (New) STP 31 MLD and Nagla Burhi MPS 69.8MLD
- Artoni Decentralized STP 0.35 MLD
- K K Nagar Decentralized STP 1.6 MLD
- Kailash Mandir Decentralized STP 0.02 MLD
- Transport Nagar Decentralized STP 3 MLD
- Wyepur Decentralized STP 2.35 MLD
- Jalma Decentralized STP 0.30 MLD
- Mau Nala Decentralized STP 1.13 MLD
- Rising Main 3.2KM
- Rising Main & Gravity Sewer for DSTPs – 1.42KM, conveyance channel of treated effluent and Online Monitoring System.



Eastern Zone Package-II Facilities:

- Peelakhar (New) STP 35 MLD along with MPS 78.8 MLD at same campus.
- Indira Nagar Memorial Decentralized STP 1.5 MLD.
- Peelipokhar Decentralized 0.25 MLD.
- Dharwale Baba Decentralized STP 1.1 MLD.
- Rising Main – 0.15KM
- Gravity Sewer – 0.44KM
- Gravity Sewer for DSTPs – 1.76KM, conveyance channel of treated effluent and Online Monitoring System.

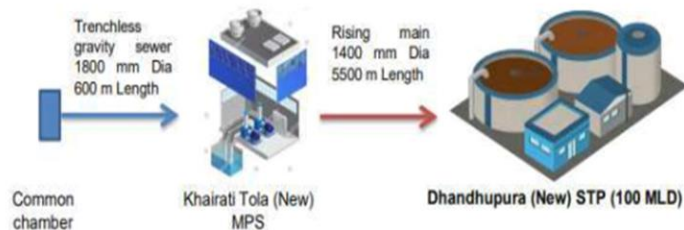


Dhandhupura (New) Package-III Facilities:

- 100 MLD New STP
- MPS - Khairati Tola - 225.00 MLD
- Gravity Sewer (Common Chamber to MPS) – 0.6KM
- Rising Main – 5.5KM,
- Effluent disposal line – 1.56KM, conveyance channel of treated effluent,Online Monitoring System.

Indicative details of incoming pipe to the common chamber

Invert Level (in m)	148.10
Diameter of sewer (in mm)	1800Ø
Length of sewer (in m)	600 m (trenchless)
Intermediate peak flow (2035) (in MLD)	225
Ultimate peak flow (2050) (in MLD)	287.40



CENTRAL ZONE

Package III- Dhandhupura (New) Package Facilities

PROJECT TITLE:

Design, Build, Rehabilitate, Finance, Operate and Transfer Sewage Treatment Plants (STP's) along with Associated Infrastructure for a period of 15 years under "One city One Operator" Concept through Hybrid Annuity Based PPP Mode in Agra, Uttar Pradesh under the Namami gange Programme.

DRAWING NAME:

ANNEXURE-A SEWAGE DISTRICT KEY SINGLE LINE DIAGRAM

Deloitte.

Deloitte Touche Tohmatsu India LLP

PRIMOVE

Primove Infrastructure Development Consultants Pvt. Ltd.,
Pune

LEGENDS		
Sr. No.	Name	Symbol
1	Drains	Orange square
2	Gravity mains	Blue arrow
3	Rising mains	Red arrow
4	Common Chamber	Blue square

2.6 Process Description

Site Condition

The STP and the treatment schemes has been designed considering the following climatic and topographical data.

Sl.no.	Parameters	Details
1	Ambient Temperature	45°C
2	Design Sewage Temperature	25°C
3	Relative humidity	80%
4	Altitude of the site	170m
5	Ground Water Table	EL 149.35m
6	Natural Ground Level (NGL) at site	31MLD and 35MLD STP- Varies from 153.5m to 155.5m 100MLD STP-Varies from 165.2m to 165.7m
7	Finished Ground Level (FGL) at site	31MLD and 35MLD STP -155.1m 100MLD STP-165.5m
8	Highest Flood Level (HFL)	154.92m

The proposed Sewage Treatment Facility of Capacity 100 MLD at Dhandhupura comprises of the following Unit Processes: -

S. No.	Treatment Stage	Components
1.	Preliminary Treatment/ Main Pumping Station	Inlet Chamber
		Fine Screen channel
		Grit chamber
2.	Primary Treatment	Lamella Tube Clarifier
3.	Biological Treatment	C-Tech SBR technology
4.	Disinfection for Disposal	Chlorination System
5.	Sludge treatment	Sludge Thickening
		Anaerobic Sludge Digestion
		Dewatering System
		Struvite Recovery System
		Sludge Drying Beds
6.	Gas recovery system	Gas Holder
		Gas Flare

Raw sewage after primary treatment (Fine Screens, Grit Chambers & Lamella Clarifier) is taken to C-Tech Basins by gravity. C-Tech is a Cyclic Activated Sludge process technology which is the latest and 4th generation of Sequential Batch Reactor (SBR) process. The C-Tech system specifically refers to the use of variable volume treatment in combination with a biological SELECTOR and OXYGEN UPTAKE RATE (OUR) control, which is operated in a fed-batch reactor mode. The Cyclic Activated Sludge process technology represents a certain technical development of a process philosophy over conventional SBR technology. The incorporation of a multi cell biological Selector in the front – end of the System distinguishes it from all other technologies (Generic SBRs). The raw sewage enters the Selector Zone, where anoxic-mix conditions are maintained. Also, a part of the treated effluent along with activated sludge from the Aeration Zone is recycled here using Return Activated Sludge (RAS) Pump. As the microorganisms meet high BOD and low DO condition in the Selector Zone, natural selection of predominantly floc-forming microorganisms takes place. This is very effective in containing all of the known low F/M bulking microorganisms, which eliminates problems of sludge bulking and sludge foaming. This process ensures excellent settling characteristics of the biological sludge. Also, due to the anoxic / anaerobic conditions in the Selector Zone, De-nitrification and Phosphorous removal occurs.



Figure 6: Component of C-Tech SBR System

There are Six operating C-Tech basins in the plant. These C-Tech basins work in sequence and the influent flow is distributed using Automatic Gates provided at the Inlet Chamber of C-Tech basins. The C-Tech basins are equipped with air blowers, diffusers, Return Activated Sludge (RAS) pumps, Surplus Activated Sludge (SAS) pumps, Decanters, Auto valves, Programmable Logic Controller (PLC) etc. All cycles will be automatically controlled using PLC.

The complete biological treatment is divided into Cycles with each Cycle is of 2-4 hrs. (3 hrs. in present case) duration, during which all treatment steps take place. A basic Cycle comprises of the following phases which take place independently in sequence to constitute a Cycle and then gets repeated:

- Fill / Aeration (F/A)
- Settling (S)
- Decanting (D)

Excess sludge at a consistency level of approx. 0.8% - 1 % will be pumped intermittently from SAS pump to the Sludge Sump. The sludge from Sludge Sump is taken for dewatering and finally for its ultimate disposal. Process Flow Diagram is given below:

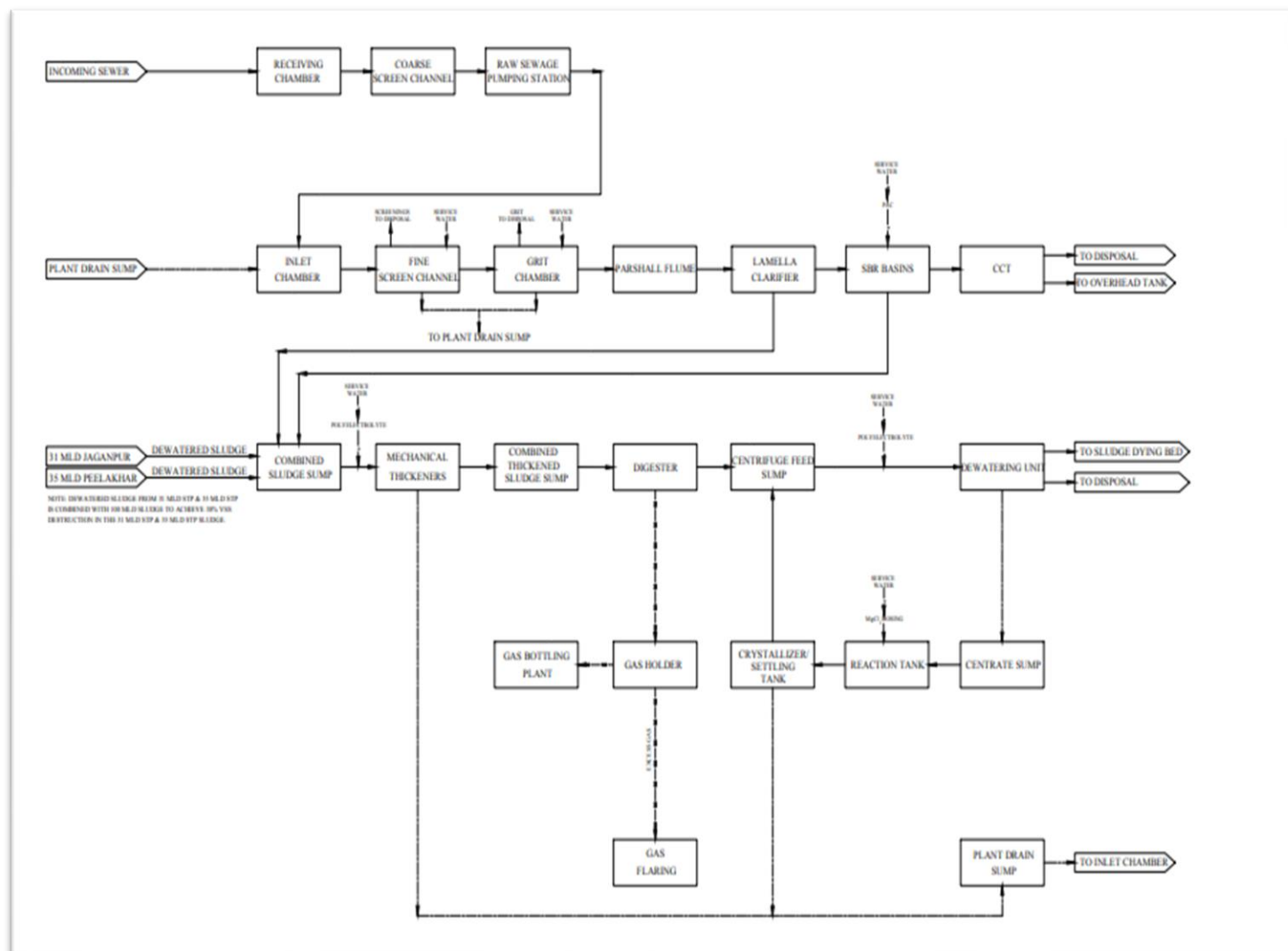


Figure 7: Process Flow Diagram (100 mld STP)

In Agra Sewerage Project, provision of Biogas generation has been proposed at Dhandupura STP of 100 MLD capacity. The biogas generation and harnessing potential will be maximized and the minimum quantity of biogas to be generated shall be 70 m³ of biogas per MLD of incoming sewage. As per scope of work, system is designed in such a way to generate and handle maximum biogas and to minimize emission of greenhouse gases. The gas storage system will be equipped with storage capacity of at least 50% of the total daily gas production. An outlet gas pipeline will be provided from gas storage unit till the battery limits of the Compressed Bio Gas (CBG) facility/ bottling plant. The process of purification, compression and bottling is not in the scope of concessionaire, which may be carried out by Indian Oil Corporation Limited (IOCL), or any other suitable agency identified by NMCG/UP Jal Nigam. Biogas produced through the process of anaerobic decomposition will be purified by IOCL to remove hydrogen sulphide (H₂S), carbon dioxide (CO₂), water vapor and compressed to produce CBG.

The decentralized STPs are having capacity ranges from 0.02 to 1.6 MLD, where arrangement for energy generation will be not so significant. Digestion reduces the total mass of solids, destroys pathogens, and makes it easier to dewater or dry the sludge. Digested sludge is inoffensive, having the appearance and characteristics of a rich soil.

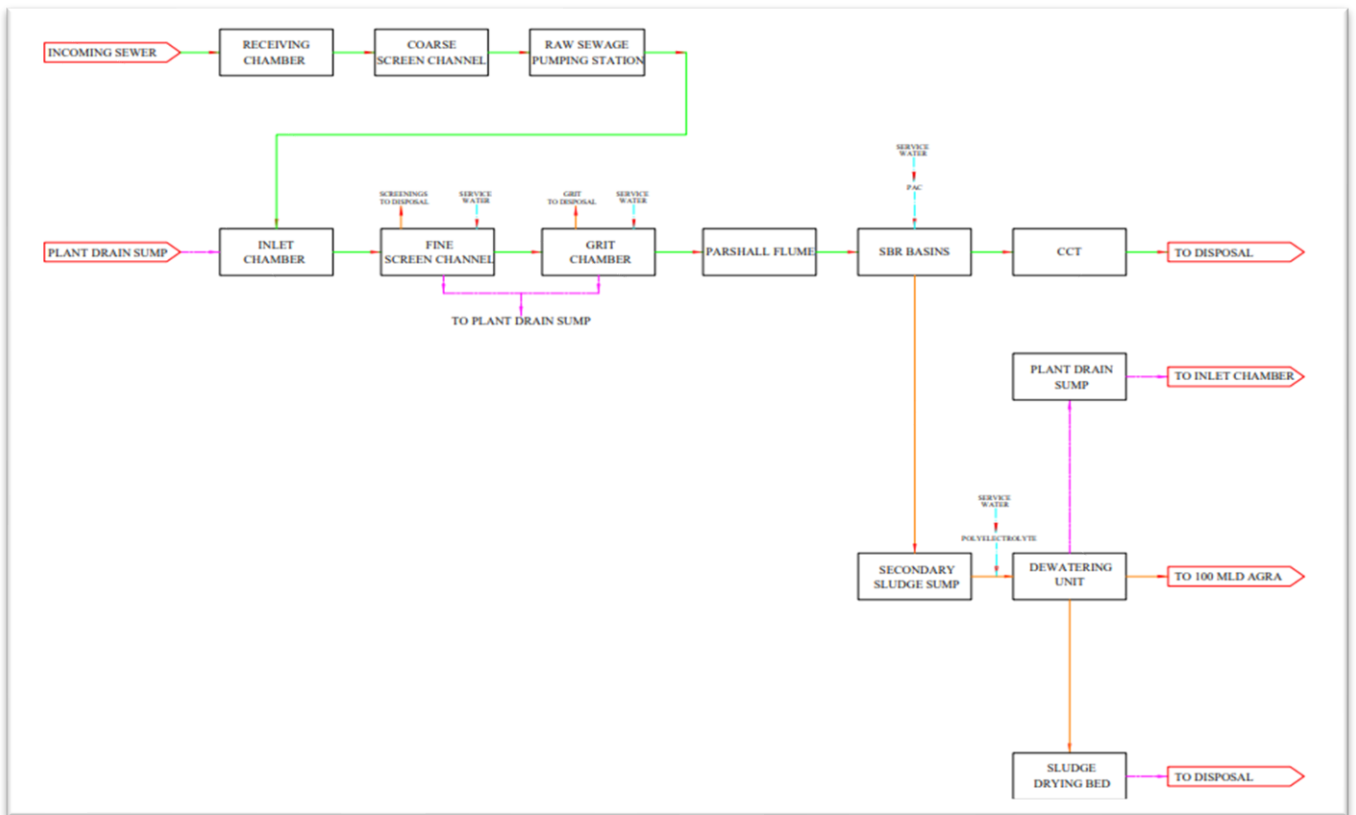


Figure 8: Process Flow Diagram (35 mld STP)

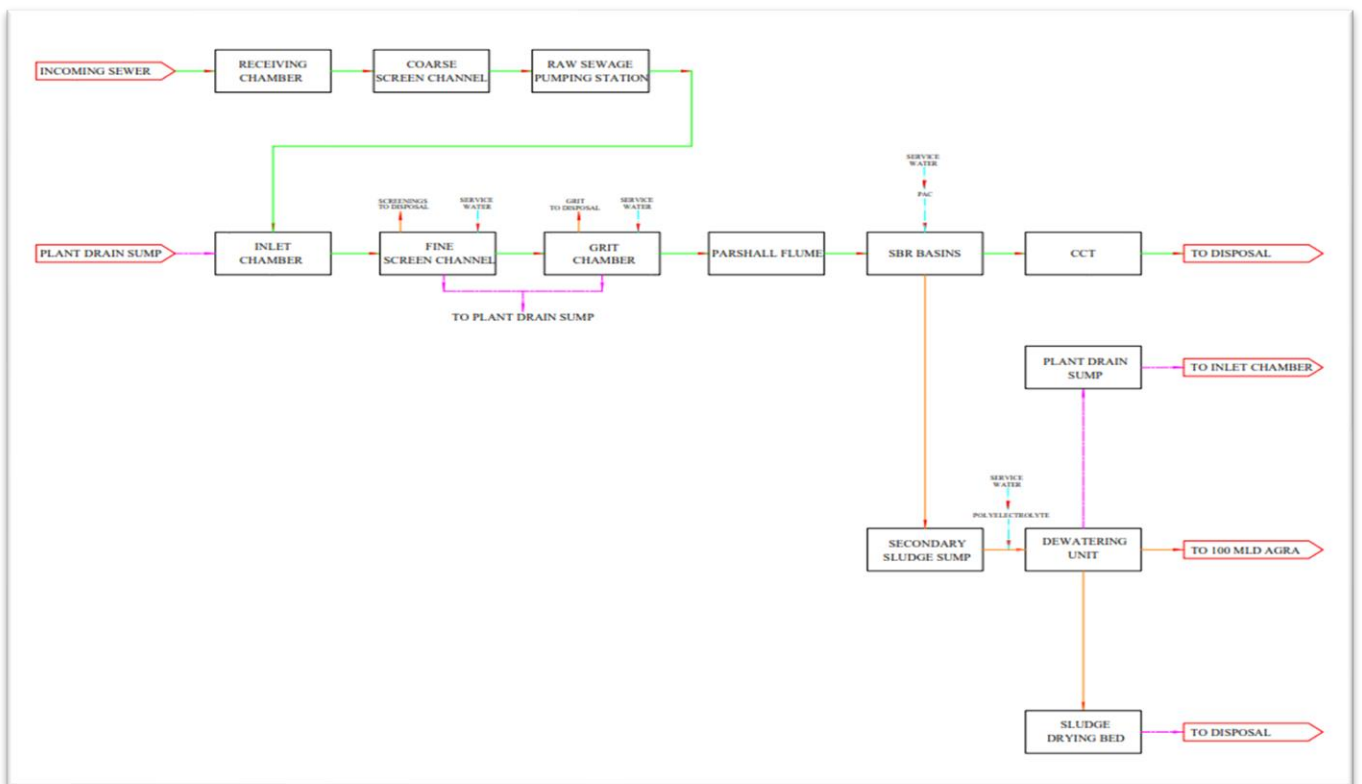


Figure 9: Process Flow Diagram (31 mld STP)

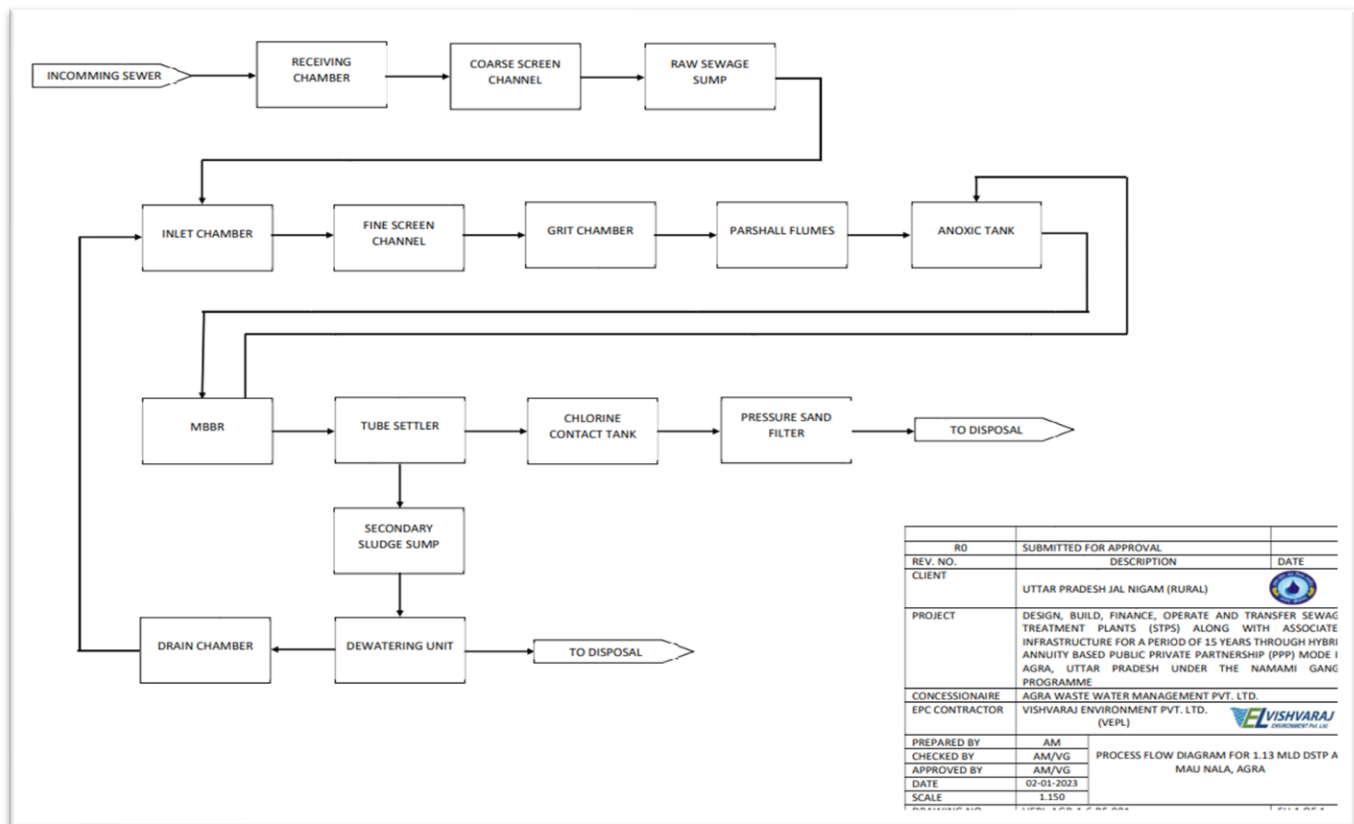


Figure 10: Process Flow Diagram (1.13 mld DSTP at Mau Nala)

2.7 Disposal of Treated Effluent

- 100 MLD STP @ DHANDUPURA - The treated effluent of this STP will be discharged in the OPEN EFFLUENT DISPOSAL CHANNEL of existing 78 MLD STP. There is a meeting point where discharged effluent from 78 MLD & 24 MLD meet & it is further taken to river Yamuna through a conduit. From this meeting point, a new effluent disposal conduit of 1600mm Diameter & 1.56 km length will be constructed. Currently water is withdrawn from OPEN CHANNEL by farmers for farming & this practice will continue in future as well.
- 35MLD @ PEELAKHAR - The treated effluent from this PEELAKHAR (new) STP will be disposed up to the river including the provision for withdrawal arrangement for reuse of treated effluent such as irrigation purpose.
- 31 MLD @ JAGANPUR - The 2MLD OF TREATED EFFLUENT FROM Jaganpur (new) STP will be discharged at specified point inside the campus to enable off take by RADHA SOAMI SATSANG SABHA. Balanced treated effluent from this STP will be disposed up to the river including the provision for withdrawal arrangement for reuse of treated effluent such as irrigation purpose
- 10 no. of DSTPS - In case of DSTPs, treated effluent will be discharged in the same drain which will ultimately meet the river, Yamuna. Locations of all 10 DSTPs (11.6 MLD) are proposed near by the Yamuna River bank (Within a range of 200 m to 1000m from River bank). Since all DSTPS are proposed on the outskirts of city & close to the RIVER bank, it will avoid any further contamination after treatment of the drain.

Under the project component, total 177 MLD water is proposed for Sewerage treatment. The treated

effluent of STPs and DSTPs will be used preferably for irrigation purposes and during the rainy season it will be discharged into the river Yamuna. During discussion with technical team, alternatives of reuse of treated water was suggested like inhouse use (landscaping and washing), use by Municipal Corporation for Water Sprinkling on road and Watering of Plants at City Road Divider & Highway Road Divider. All proposed STPs and DSTPs is designed with the outfall based on latest NGT discharge standard.

Parameter	Design Value (Outlet)
pH	5.5-9.0
Biochemical Oxygen Demand (BOD ₅)@20c, mg/L	≤10
Total Suspended Solids (TSS), mg/L	≤20
Chemical Oxygen Demand (COD) mg/L	≤50
Total Nitrogen (as N), mg/L	≤10
Total Phosphorus (as P), mg/L	≤1
Faecal Coliform MPN/100 ml	≤230

2.8 Disposal of Sludge

Faecal Sludge: With view of economic considerations related to distance and transport, addition of Faecal sludge has been taken into consideration at all nearby proposed STPS to maximize catchment, and provide suitable management.

In the proposed STPs of total 166 MLD (STPS) and 11.6 MLD (Decentralized STPs), the provision of Sludge thickener/ filter press has been included. After dewatering the sludge, the sludge weight shall be reduced upto 40-20%. The dried sludge will be used as manure, soil conditioner, fertilizer in the agricultural field. As per the design of the STP, the generated sludge shall be digested first and only after digestion, it will be handed over to local farmers for agriculture purpose. As the provision of bio digester is only at Dhandupura STP, the dewatered sludge from 31 MLD STP at Jaganpur and 35 MLD STP at Peelakhar will be added to the dewatered sludge of 100 MLD STP at Dhandupura.

A sludge management plan will be developed before initiation of O&M phase. This will include the process of handing over of sludge to the farmers and disposal arrangement of the remaining sludge.

As per existing practice, the surplus sludge is disposed to Municipal Corporation's authorized dumping site at Kuberpur located at 5 km from existing STPs. MoU between UP Jal Nigam (implementing agency) & Municipal corporation Agra has been done for dumping of extra sludge and garbage from the STP sites to authorized Solid Waste Dump site of Agra (**refer Annexure 11**). This engineered Kuberpur landfill site is currently handling waste generated from the municipal area of Agra City and is spread over an area of 75 Acres and had obtained Environmental Clearance from State Environmental Impact Assessment Committee, Uttar Pradesh. The designed life of this engineered landfill site is for 25 years.

The same will be followed for the upcoming STPs and the land is already earmarked for the safe storage of sludge before its disposal.

Treated Sludge Characteristics

S. No.	Parameter	Criteria
1.	Outlet Concentration of Dewatered Sludge	More than 20% Solids
2.	Volatile Suspended Solids	Least 38% of reduction
3.	Faecal Coliform Limit	≤ 1000 MPN/gm dry Solids

2.9 Project Phasing and Schedule

Project Construction duration 24 months from effective date (05.04.2023) and the project completion date is 04.04.2025. Design & drawing of 3 STPs are approved and proposed land is handed over to concessionaire. Design & drawing of 10 DSTPs is in process of approval. The detail Project Schedule is attached in **Annexure-2**.

2.10 Project Cost

For the project of Design, Build, Finance, Operate and Transfer Sewage Treatment Plants (STPs) along with Associated infrastructure for a period of 15 yrs through Hybrid Annuity Based PPP mode in Agra, Uttar Pradesh under Namami Gange Program. The cost detail is as follows.

Item	Cost
CAPEX	Rs. 374.99 Cr
OPEX	Rs. 207.85 Cr
TOTAL COST	Rs. 582.85 Cr

2.11 Operation and Maintenance of the New Infrastructure

The Operation and Maintenance of new infrastructure developed under Agra Sewerage Scheme will continue for 15 yrs. The brief of work as per CA is mentioned below: -

- 1. Commencement and Duration –** The period of the Operation and Maintenance of the facilities shall commence on and from the Commercial Operation Date (COD) and shall continue for 15 yrs.
- 2. Operation & Maintenance Manual-** The concessionaire shall prepare detailed O&M manual for the facilities based on the Proposed Technology/ies of the Agra STP and in accordance with the Technical Specifications, the ESHS Documents, Applicable Laws and Applicable permits. The O&M manual shall specify the operations procedures (separately for each). The concessionaire shall provide a copy of each proposed subcontractor, along with details of the relevant subcontractor, to the Jal Nigam for its approval, which should set out the precise scope of work to be subcontracted to each subcontractor and should be consistent with the terms of this Concession Agreement. Within 15 days of receipt of a draft Subcontract under Clause 8.3(b), the Jal Nigam shall notify the concessionaire of its approval or rejection (along with reasons) of the subcontractor. Approval on subcontractor shall be subject to the following conditions –(i) Subcontractor must possess the requisite skill, expertise and capability to perform the relevant obligations of the concessionaire during the O&M period, (ii) the subcontract is on terms consistent with the Concession Agreement, (iii) Monitoring and supervision of the performance of any work or services of subcontractor will be the responsibility of concessionaire. If Jal Nigam does not notify approval/rejection of any subcontractor of the concessionaire within 15 days, then such subcontract will be deemed to be approved by the Jal Nigam. The concessionaire shall arrange for all equipment, machinery,

tools and other resources required to undertake the O&M and shall take all reasonable measures to ensure that the transportation of any of the concessionaire's or the subcontract's personnel or equipment, to or from the site, does not interfere with local traffic in the vicinity of the site. The concessionaire shall develop and implement a safety and surveillance programme for the facilities and for handling and disposal of the STP By-Products and the Treated Effluent and adopt appropriate measures and safeguards for security of the environment, life and property at the relevant site.

3. **Design Capacity Utilization** – During each day of O&M period, the concessionaire shall ensure that each Agra STP can accept, treat, and process sewage up to the design capacity.
4. **Testing**- The sewage and treated effluent will be tested at the relevant Inlet point and the relevant outlet point from NABL accredited lab, respectively in accordance with the Clause 8.10 and the Technical Specifications. Characteristics of incoming sewage will also be tested at the Maintenance Programme at least 1 month before the Scheduled Commercial Operation Date and for subsequent year of the O&M period. The scheduled Maintenance Programme should be submitted at least 1 month prior to the beginning of the relevant year.
5. **Influent Standards and Discharge Standards**- The concessionaire is required to receive, treat, and dispose all sewage delivered to Agra STPs, If, however the sewage is beyond the influent standards as set out in Schedule 9 (KPIs), then the concessionaire shall be required to treat such sewage but will not be liable for any Performance Liquidated Damages if the treated effluent and /or the digested sludge fails to meet the discharge standards. This is also applicable in case of the volume of the sewage being more than the Design capacity of the relevant capacity of the Agra STP. In this case, the concessionaire shall not be bound by the Guaranteed Energy Consumption limits and the payment of power charges shall be as per the actuals. The concessionaire shall, at its cost and expense, be required to transfer the residuals Grit and the Screenings to the relevant waste disposal site and shall make adequate transportation arrangements for this purpose. It should not be disposed at any other place on or about the site or in river Yamuna. Disposal must be in accordance with all applicable laws.
6. **Disposal of digested Sludge**- It is required to set up and maintain a sludge handling facility at the relevant site, where digested sludge can be dried up during O&M period. The concessionaire shall subject to compliance with Applicable Laws and Applicable Permits, be free to sell the Digested Sludge, at such price and to such persons as it may deem fit or dispose at the waste disposal sites. Proper records will be maintained for such sale. The concessionaire will ensure the proper disposal of digested sludge.
7. **Disposal of treated effluent**- Treated effluent will be disposed in compliance with applicable laws and applicable permits.
8. **O&M Personnel**- Within 7 days from the end of each month, the concessionaire shall be required to provide the monthly progress report for each facility in compliance with KPIs.

3 Legal and Other Requirements

The Environment & Social legal requirements applicable to the project at the national, state, and local level covering various components through the lifecycle of the project have been identified in the **Section 3.1**. Similarly, the World Bank Environment & Social operational policy applicable to project is identified in **Section 3.2**. International Finance Corporation (IFC) Performance Standards applicable to project is mentioned in **Section 3.3**. Project Categorization is covered in **Section 3.4**.

3.1 E&S Legal Requirements for Sewerage Infrastructure Facility

The Government of India has laid down various policy guidelines, regulations, acts and legislations pertaining to sustenance and protection of environment and its various components. The policy, legal and regulatory requirements that are relevant to the environmental and social aspects of the proposed project shall comply with the policy, legal and regulatory requirements of the Government of India (GoI,) respective State Governments, World Bank's safeguard policies and IFC Performance Standards on Social and Environmental Sustainability, 2012 along with IFC General EHS Guidelines (2007), Industry Sector Guidelines: Water and Sanitation, (10 December 2007). The following are the key regulations in India applicable for various development Projects.

3.1.1 Applicable Environmental Regulations

Sl.no	Relevant applicable Act & Rules	Objective	Type of activity involved in project	Applicability (Yes/No)	Responsible Agency/Authority	Compliance Status
1.	Environment Protection Act, 1986	This is an umbrella Act to protect and improve overall environment. All environmental related act and regulation come under this.	All construction & operational related activities where disturbance to natural environment occurs. All Environmental act notifications are under this act.	Yes	MOEF& CC, SPCB, CPCB	The project is envisaged to generate dusts, fumes, gaseous emissions, noise pollution during both construction and operation of the project. Thus, as per regulatory requirement, these potential pollution sources shall require to be maintained within emissions and discharge norms set out by SPCB and accordingly report is required to be submitted.
2.	EIA Notification 14th Sep-2006 & amendments thereafter	To ensure and regulate the all new development work which is listed in EIA Schedule	The proposed project activity like establishment of STP, laying of Sewerage line, I&D work are not listed in EIA schedule.	No	MOEF & CC, SEAA, GOI	
3.	The Air (Prevention and Control of Pollution) Act, 1981	To control air Pollution by controlling mission of air pollutants as per the prescribed standards.	Consent to establish (CTE) and consent to operate (CTO) is required from SPCB under section 21 of Air (Prevention and control of Pollution) Act 1981.	Yes	State Pollution Control Board Uttar Pradesh	CTE NOC is obtained from SPCB for 3 STPs. For 10 DSTPs, CTE NOC will be processed once land is handed over to concessionaire. Refer Annexure-12 for CTE NOC.

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

4.	The Water (Prevention And Control Of Pollution) Act, 1974	To control water Pollution by controlling discharge of pollutants as per the prescribed standards.	Consent to establish (CTE) and Consent to operate (CTO) is required from SPCB under section 25 of this Act.	Yes	State Pollution Control Board Uttar Pradesh	Pollution Under Control (PUC) certificate of all vehicles engaged under project will be maintained. Ambient Air monitoring of all construction sites will be conducted on quarterly basis from NABL accredited lab.
5.	The Noise Pollution (Regulation and Control) Rules, 2000 & amendments.	The standards for noise for day and night have been promulgated by the MoEF & CC for various activities	This act will be applicable for all Construction equipment deployed at worksite and in operation.	Yes	State Pollution Control Board Uttar Pradesh	Fitness certificate of equipment is to be checked regularly for validity. Noise monitoring at construction sites will be ensured as per environmental monitoring plan. (Ambient noise monitoring on quarterly basis from NABL lab will be conducted).
6.	Ancient Monuments and Archaeological Sites and Remains Act, 1958	Conservation of cultural and historical remains of India	No any new construction of STP, MPS, DSTPs are located near to regulated zone of any ASI structure. No construction activity within 300 meters of regulated zone of Notified ASI structure.	No	Archaeological Dept. Govt. of India, Indian Heritage Society and Indian Art and Culture Heritage (INTACH).	The construction contractors will strictly adhere to all rules prescribed by the Government/ASI, following established protocols during excavation work. This commitment is essential to ensure the timely recognition of any chance find.
7.	Public Liability and Insurance Act, 1991	To provide public insurance liability for the purpose or providing immediate relief to the persons affected by accident occurring while handling any hazardous substances	Contractor needs to stock hazardous material like diesel, Bitumen, Emulsions, etc.	Yes	State Pollution control Board	It will be ensured under project.
8.	The Forest (Conservation) Act, 1980	To regulate the non-forest activity and conservation of Forest of India	Prior permission is required for around 0.97 ha. of protected forest land area which will be impacted in establishment of 7 DSTPs locations under the project.	Yes	State Forest Department & GOIMOEF & CC	Process of taking permission is under progress. Proposal has been sent to GoI for approval.
9.	Wild Life (Protection) Act, 1972	To protect wildlife through National Parks and Sanctuaries	Soor Sarovar Bird Sanctuary is located at a distance of 5.24 km towards west of Atrani DSTP. Final ESZ notification has been Gazette by GoI which extend up to 1 km on all side from the boundary of wildlife Sanctuary. Therefore, NoC from Standing Committee for	No	Chief Wild Life Warden, conservator of Forest GoI	

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

			State Board for Wildlife is not required.			
10.	Right to fair compensation and Transparency in land acquisition, Rehabilitation and resettlement Act, 2013	Sets out rules for acquisition/ purchase of land by government	No Private land acquisition/ purchase is proposed under this project.	No	Revenue Department, State Government	All land parcel proposed under project is Govt land.
11.	UP Negotiation (Mutual Consent) Policy, 2015			No		
12.	Solid Waste Management Rules, 2016	To manage collection, transportation, Segregation, Treatment, and disposal of solid wastes (Other than Hazardous waste, plastic Waste, BIO Medical waste)	Applicable for Waste generated from the camp, offices, STP plants	Yes	SPCB, CPCB	Wastes generated from site offices and camp site will be handed over to door-to-door collection ULB vehicles which is finally disposed at Municipal Corporation Disposal site. The proposed project is envisaged to generate different categories of non-hazardous wastes such as packaging waste, metal scrap, solid wastes mainly plastics, cardboards, miscellaneous grits screened at MPS and STPs/DSTPs both during construction and operational phase. As per regulatory requirement these wastes have to be segregated and stored as per three specified streams and disposed through approved vendors of State Pollution Control Board. As of now, Agra Nagar Nigam has given the permission to dispose the construction wastes at Agra Landfill site at Kuberpur. During O&M phase, sludge disposal will be ensured as per direction in light of CTO NOC. (Annexure-11)
13.	Construction and Demolition Waste Management Rules, 2016	To manage collection, transportation, Segregation, and disposal of waste arising of Construction and demolition activities	Applicable in construction & demolition activity involved in STP, MPS and Rising main works	Yes	SPCB, CPCB	Letter has been issued by Agra Nagar Nigam for disposal of these wastes at Kuberpur landfill site. Refer Annexure-11
14.	Hazardous and other Wastes (Management and Transboundary)	To manage, store, transport hazardous and other waste	Applicable in case of using chlorine tonner in disinfection process of treated water in STP; Storage, shipping and handling of chlorine, waste oil etc.	Yes	SPCB, CPCB	Storage of used oil from DG sets in HDPE drums in isolated covered facility/paved area with proper signage will be ensured. Conditions of CTE is ensured to be followed. Road tar (hazardous

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

	Movement) Rules, 2016 Bio Medical Waste Rule 2016					substance) will be generated during road cutting operation in laying of sewer lane. This bitumen is used for back filling. SPCB guideline will be followed. In O&M period, as per approved manual and CTO NOC related activities will be carried out.
15.	Plastic Waste Managemen t Rules,2016	To manage and safe segregation, reuse of the plastic waste arriving from the Proposed STP, MPSS	Applicable in case of using of plastic trash bag and sheet (not less than 50m micron thickness); handling and disposal of plastic trash from the STP, MPS to authorized vendor.	Yes	SPCB, CPCB	Disposal will be done as per CTE NOC.
16.	TTZ area approval under TTZ (Prevention and Control) Authority under Environment (Protection) Act, 1986	To prevent pollution and regulate the TTZ area.	Applicable for 100 MLD STP to be constructed near to existing Dhandupura STP. Tree felling for construction of Dhandupura DSTP is required. About 704 trees will be removed, which is located in the TTZ area, therefore trees felling permission is required from TTZ authority and from Supreme Court of India.	Yes	Supreme Court of India, TTZ, GOI	Tree cutting permission is obtained from Supreme Court. Refer Annexure-6

3.1.2 Applicable Social Framework Regulations

This section includes the National policies and Acts as detailed under:

Uttar Pradesh Negotiation (Mutual Consent) Policy, 2015

Government of Uttar Pradesh issued UP Negotiation (Mutual Consent) Policy, 2015 with an objective of reducing the time and effort in procuring land through formal purchase process. Land purchase policy is applicable for State departments, autonomous bodies, development authorities, industrial authorities, different departments and PPP projects. Projects must be approved by the Land Price and Valuation Approval Committee (LPVA). In this Policy, written consent of all the concerned land owners on a prescribed format is obtained. Circle rates, cost of land, date of signing the format is recorded.

73rd Constitution Amendment Act, 1992

The Act enables participation of Panchayat level institutions in decision-making by broadening the village level functions, supporting implementation of development schemes. The Act provides for involvement of the PRIs especially, the Gram Sabha/ Panchayat during project preparation and implementation.

3.1.3 Applicable Occupational, Health & Safety Regulations with other regulations applicable to construction sites.

Construction stage generally involves equity, safety and public health issues. The construction agencies therefore will be required to comply with laws of the land, which include the following:

- Workmen's Compensation Act 1923 (the Act provides for compensation in case of injury by accident arising out of and during the course of employment);
- Payment of Gratuity Act, 1972 (gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years);
- Employees PF and Miscellaneous Provision Act 1952 (the Act provides for monthly contributions by the employer plus workers);
- Maternity Benefit Act, 1951 (the Act provides for leave and some other benefits to women employees in case of confinement or miscarriage, etc.);
- Contract Labor (Regulation and Abolition) Act, 1970 (the Act provides for certain welfare measures to be provided by the contractor to contract labour);
- Minimum Wages Act, 1948 (the employer is supposed to pay not less than the Minimum Wages fixed by the Government as per provisions of the Act);
- Payment of Wages Act, 1936 (it lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers);
- Equal Remuneration Act, 1979 (the Act provides for payment of equal wages for work of equal nature to Male and Female workers and not for making discrimination against Female employees);
- Payment of Bonus Act, 1965 (the Act provides for payments of annual bonus subject to a minimum of 83.3% of wages and maximum of 20% of wages);
- Industrial Disputes Act, 1947 (the Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment);
- Industrial Employment (Standing Orders) Act; 1946 (the Act provides for laying down rules governing the conditions of employment);
- Trade Unions Act, 1926 (the Act lays down the procedure for registration of trade unions of workers and employers. The trade unions registered under the Act have been given certain immunities from civil and criminal liabilities);
- Child Labour (Prohibition and Regulation) Act, 1986 (the Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of child labour is prohibited in Building and Construction Industry);
- Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979 (the inter-state migrant workers, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, travelling expenses from home to the establishment and back, etc.);
- The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act,

1996 and the Cess Act of 1996 (all the establishments who carry on any building or other construction work and employs 10 or more workers are covered under this Act; the employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodation for Workers near the workplace, etc.);

- The Factories Act, 1948 (the Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours and rendering information-regarding accidents or dangerous occurrences to designated authorities);
- Hazardous Wastes (Management and Handling) Rules, 1989 (the Rules govern handling, movement and disposal of hazardous waste);
- Manufacture, Storage and Import of Hazardous Chemicals Rules 1989, amended 1994 and 2000 (the Rules provide indicative criteria for hazardous chemicals and require occupiers to identify major accident hazards and prepare on-site and off-site emergency plans).
- Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 (The regulation consolidates the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies).
- Central Motor Vehicles Act 1988 (An Act that regulates all aspects of road transport vehicles. It also seeks to consolidate and amend the law relating to motor vehicles. The Act provides in detail the legislative provisions regarding licensing of drivers/conductors, registration of motor vehicles, control of motor vehicles through permits, special provisions relating to state transport undertakings, traffic regulation, insurance, liability, offences and penalties, etc).
- The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (An Act to provide protection against sexual harassment of women at workplace and for the prevention and redressal of complaints of sexual harassment and for matters connected therewith or incidental thereto).

3.2 World Bank Environment and Social Safeguard Policies

As the Project is seeking financing from the World Bank and therefore the Bank's Operational Policies pertain to environmental and social safeguards are also applicable to this Project. The Operational Policies of World Bank applicable to the project under Namami Gange programme are as follows:

S. No.	Bank Safeguard Policies	Subject Category	Applicable (Yes / No)	Reason for Applicability
1	OP 4.01	Environmental Assessment	Yes	It is Umbrella Policy, applicable for all infrastructure projects under Namami Gange Programme. Environment and Social Due Diligence (ESDD) for projects under PPP/Hybrid Annuity Mode has been done. As per Concessionaire Agreement (CA), this detailed ESAMP report is prepared after approval of detailed design.

2	OP 4.36	Forestry	Yes	Applicable to protect forest and wild life impacted due to project. In this project, Forest diversion of around 0.97-hectares is required for construction of 7 DSTPs and the approval process is under progress. State has sent the proposal to Gol for approval. 704 Trees cutting is proposed under project for which permission is obtained from Supreme Court. All necessary steps in lieu of cutting has been initiated. This includes identification of 6.82 hectare of land, plantation of 7500 saplings and fund of Rs 1.18 Cr for 10yrs maintenance of these saplings under barbed fence.
3	OP 4.04	Natural Habitats	No	Applicable to protect natural habitats including forest and wild life impacted due to project. In Agra, No impact / diversion of protected Area (like NP, WLS etc.) is envisaged.
4	OP 4.12	Involuntary Resettlement	No	Applicable in case of Private Land Purchase to minimize / avoid resettlement wherever feasible. No relocation of property is envisaged under the project. All the proposed land parcel is Govt land.
5	OP 4.10	Indigenous people	No	To protect the dignity, right and cultural uniqueness of tribes & indigenous people impacted for the project. No tribal population is impacted for the proposed project.

Furthermore, the World Bank's Environmental, Health, and Safety (EHS) Guidelines for Water and Sanitation is also applicable for the proposed project. This will provide guidance on EHS issues; principally occur during the construction, operation and maintenance phases, of the sewage collection through a system of pipes, pumps, and other associated infrastructure (sewerage) to a centralized storage and/or treatment system.

3.3 Lenders' Environmental and Social Safeguard Standards

As per IFC's Sustainability Framework, 2012, all investments and advisory clients whose projects go through IFC's initial credit review process after January 1, 2012 is required to comply with IFC's Environmental and Social Performance Standards for managing their environmental and social risks. IFC's Performance Standards offer a framework for understanding and managing environmental and social risks for high profile, complex, international or potentially high impact project. The IFC Performance Standards help IFC and its clients manage and improve their environmental and social performance through an outcomes-based approach and also provide a solid base from which clients may increase the sustainability of their business operations. IFC's Performance Standards sets out the policy objectives, scope, risk management and principles for eight key Environmental and Social Sustainability areas: a) Risk Management, b) Labour, c) Resource Efficiency, d) Community, e) Land

Resettlement, f) Biodiversity, g) Indigenous People, and h) Cultural Heritage.

IFC General EHS Guidelines (2007) and Industry Sector Guidelines: Water and Sanitation, (10 December 2007)- The IFC Environmental, Health and Safety Guidelines for Water and Sanitation is a technical reference document with general and industry- specific examples of Good International Industry Practice (GIIP). This document contains relevant information pertaining to the operation and maintenance of (i) potable water treatment and distribution systems, and (ii) collection of sewage in centralized systems, such as piped sewer collection networks or decentralized systems, and treatment of collected sewage at centralized facilities.

Based on the review of Project facility and the corresponding operational details, the following IFC Performance Standards (2012) is found to be applicable to the Project in the current scenario:

S. No.	IFC-PS	Applicable (Yes / No)	Reason for Applicability
1	PS 1 Assessment and Management of Environmental and Social Risks and Impacts	Yes	Considering the proposed project activity being implementation and operation of public utility development project (sewage treatment plant and linked sewerage infrastructure) it is essential to have a defined mechanism towards assessment and management of associated environmental and social risks and impacts. Thus, ensuring compliance with PS 1 will be applicable for the Project.
2	PS 2 Labour and Working Conditions	Yes	Considering the proposed project activity involving construction and operation & maintenance of the Sewerage Treatment Plant and the linked sewerage infrastructure, the Concessionaire and OM contractor deputed thereunder will be deploying own and subcontracted workforce at the project site during construction and operation of the project. Wherein the labour and working conditions needs to be ensured by the Concessionaire. Thus, ensuring compliance with PS 2 will be applicable for the Project.
3	PS 3 Resource Efficiency and Pollution Prevention	Yes	The proposed project activity involves overall environmental improvement context through renovation and capacity addition of the municipal sewerage treatment plant and the linked sewerage infrastructure to reduce release of untreated sewage to river Yamuna to ensure effective abatement of pollution and conservation of the river Ganga and its tributaries. Therefore, no permanent and adverse environmental impact is envisaged due to implementation of the project activity. However, being the developmental project temporary environmental pollution is envisaged during construction and operation of the sewage treatment plant and the associated auxiliary systems. Thus, ensuring compliance with PS 3 will be applicable for the Project.

4	PS 4 Community Health, Safety and Security	Yes	Both construction and operational phase of the project may involve surrounding community health, safety and security context related to fugitive emissions, faecal coliform contamination, pathogen exposure, odour nuisance, accidental chlorine gas leakage from chlorine tonner storage and risks posed by its security arrangements. Thus, ensuring compliance with PS 4 will be applicable for the project activity
5	PS 5 Land Acquisition and Involuntary Resettlement	No	Applicable in case of Private Land Purchase to minimize / avoid resettlement wherever feasible. No relocation of property is envisaged under the project.
6	PS 6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	No	No adverse impact on the local biodiversity is envisaged under project. Instead of 704 trees being felled at the STP site, a compensatory afforestation initiative will be undertaken. A total of 7,500 saplings will be planted, for which suitable land has already been identified and demarcated.
7	PS 7 Indigenous Peoples	No	The project area does not fall under Schedule V and VI areas as defined by the Indian Constitution.
8	PS 8 Cultural Heritage	Yes	No any new construction of STP, MPS, DSTPs are located near to regulated zone of any ASI structure. No construction activity within 300 meters of regulated zone of Notified ASI structure. The construction contractors will strictly adhere to all rules prescribed by the Government/ASI, following established protocols during excavation work. This commitment is essential to ensure the timely recognition of any chance find.

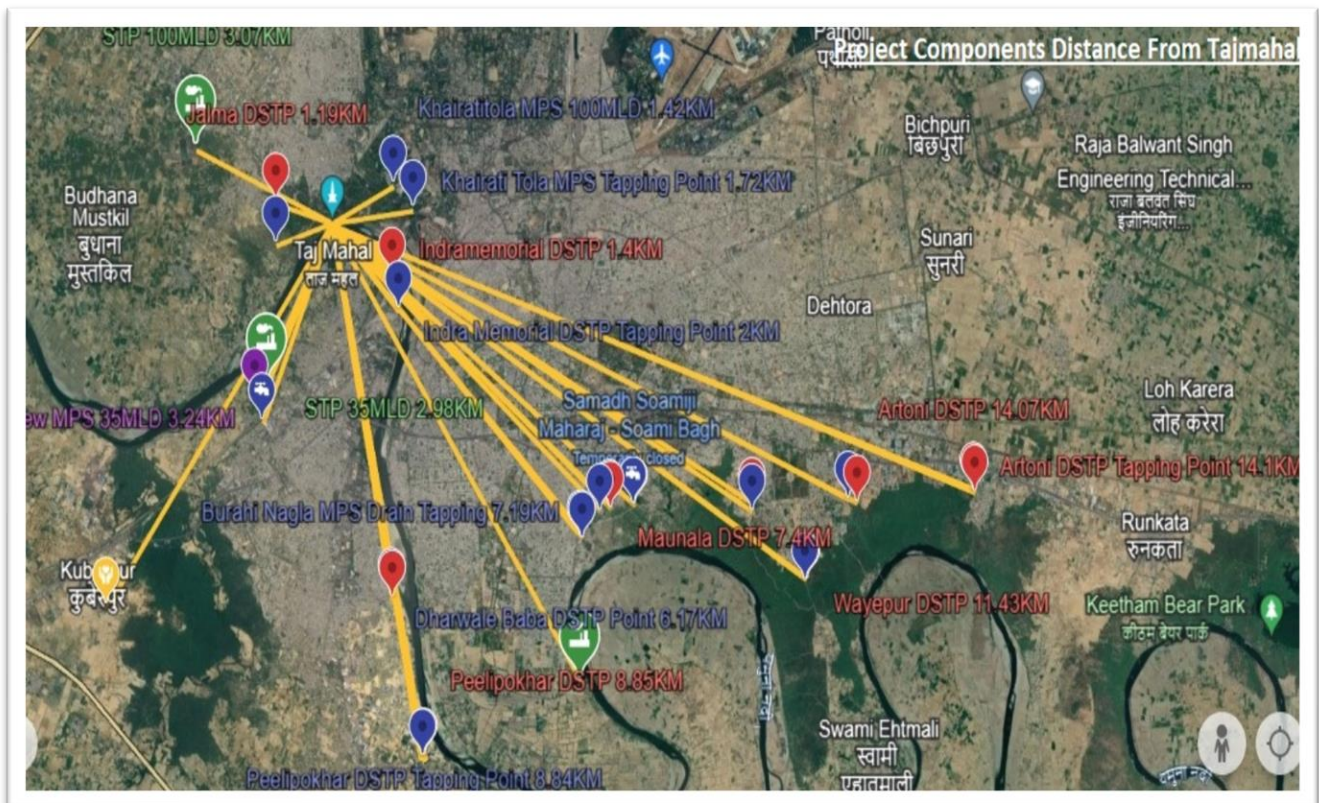
3.4 Project Categorization

The Environmental & Social Management Framework (ESMF) classifies projects as High Risk, Moderate Risk or Low Risk based on the type, location, sensitivity and scale of the Project, the nature and magnitude of the potential E&S risks and impacts, the capacity and commitment of the Borrower to manage such risks and impacts and other relevant areas. A detailed assessment on environmental and social impacts of the project is presented in **Chapter 5** of the ESIA Report. Based on the assessment, it is identified that:

- There is no land acquisition envisaged or involved in the project. The identified land for STPs and pumping stations belongs to UPJN(R). The identified sites are free from any form of encroachments.
- Around 0.97 hectare of forest land is required for 7 DSTPs in different location of the city (northern and eastern zone of sewerage plan of Agra). **The proposal has been sent to Gol for approval.** The remaining 3DSTPs are proposed on Municipal land. All proposed land parcel is free from any form of encroachments but not handed over to concessionaire. **Design &**

drawing of all 10 DSTPs is under process of approval.

- The proposed STPs and DSTPs under the project in Agra city falls under Taj Trapezium Zone (TTZ). The distances of components from the **Taj Mahal** are outlined below. TTZ is an Ecologically Sensitive Areas (ESAs) identified and notified by the Indian Ministry of Environment & Forests (MoEF) since 1989. Notifications declaring areas as ESAs are issued under the Environment (Protection) Act 1986. However, eco-friendly projects (like STP etc.) are allowed with permission from State pollution control board as per latest Supreme Court Order dated 6th December 2019 (**refer Annexure-7**). CTE NOC is obtained for 3 STPs (100MLD,31MLD,35MLD). For DSTPs, CTE NOC will be obtained once land is handed over to concessionaire. (**refer Annexure-12 for CTE NOC of STPs**). The distances of project components from Taj mahal are shown below and they are all more than 1km away from the Taj mahal.



- Amongst three proposed STPs, 100 MLD STP at Dhandupura involves trees cutting of 704 nos. for which permission has been obtained from the Supreme Court and tree cutting has been completed. Alternate site has been identified for afforestation of 7500saplings.
- Based on the project activities and its location, the project is not expected to result in any irreversible or unprecedented impacts.
- The limited impacts likely to be on environment are suggested to be mitigated by way of project specific Environmental Management Plan.
- Project will not have any adverse impact on the tribal population, no tribal area has been reported in sub project region. No livelihood loss is envisaged under project.
- The project will not have any adverse impact on vulnerable and Scheduled Caste community

for laying mains. Since all the DSTPs are proposed in the forest land, no diversion structure is required. Most of the project site is at a distance from the settlement. As per the consultations conducted, the participants expressed their relief and satisfaction that the open drains will be channelized and treated.

Although the project falls within the Taj Trapezium Zone (TTZ), designated as Ecologically Sensitive Areas (ESAs), all necessary permissions and NOCs have been obtained. Moreover, as project components are situated more than 1km away from the Taj Mahal, construction activities are unlikely to impact the heritage site due to prevailing wind directions. Environmental and social risks have been evaluated, and negative impacts are expected to be limited, site-specific, and reversible, with effective mitigation measures in place. During the operation phase, impacts are minimal and will be managed through the adoption of modern emission control devices. Overall, the sewerage project is anticipated to have a positive long-term impact by addressing pollution in the Yamuna River. Taking all factors into account, the project is classified as "**Moderate risk**", emphasizing its significance in addressing critical environmental challenges while mitigating site-specific impacts through outlined mitigation measures (refer to Table 12).

However, to facilitate the project, it requires the cutting of 704 trees and a forest land diversion of 0.97 hectares. In response, a compensatory measure has been meticulously planned, involving the planting of 7500 saplings under a barbed fence within a designated 6.6-hectare area. Adequate funding of 1.18 Crores has been secured for this initiative, which will be executed with a 10-year Operation and Maintenance (O&M) period. UPJN has opted to transfer this task to the Forest Department due to their specialized expertise in this domain (refer **Annex-25**). It's crucial to note that the forest land diversion is structured in a manner that does not involve tree cutting, land development, or disruption to the natural habitat.

4 Baseline Environmental and Social Status

4.1 Approach for Baseline Studies

The Environmental and Social Management Framework (ESMF of NGRBA 2011, revised in March 2020 for the proposed river pollution mitigation project under NGRBP, is developed with the purpose to facilitate the management of environmental and social issues of all investment projects proposed by the NGRBA/Namami Gange at the very beginning of project planning and implementation and act as a common guideline to prepare project specific ESIA and ESMP by project implementing agencies) is followed to identify and assess the environment and social impacts (both positive and negative) of the proposed projects, its scope of work and related activities planned for the successful completion of this project. The baseline studies were carried out with site visit of the study area and mapping of sensitive receptor through both site visit and review of secondary data. Data of environmental monitoring conducted at project site by contractor is used as baseline data. This section describes the environmental and social baseline condition prevailing in the study area.

4.1.1 Site Visit

A field visit was conducted to the study area for understanding the site context, validating the sensitive receptors identified through the desktop review, reviewing the baseline environmental monitoring already conducted, and holding stakeholder consultations. A brief description of the activities carried out is presented below:

- a) Opening meeting with contractor representatives – Discussions were conducted with representatives of M/s Vishwaraj team to understand the project timelines, project operations, components siting, material handling and process flows, waste management practices etc.
- b) Verification of data layers – The sensitive receptors in the study area mapped during the desk-based exercise were verified on site through visual inspection during transect walks. During the site visit, local E&S sensitive receptors were also identified in addition to those identified through desktop review.
- c) Public Consultations – The site visit was carried out to interact with neighboring communities of the proposed STPs/DSTPs. Community was appraised on the development of the STPs/DSTPs its benefits in management of pollution in the river Yamuna.

4.1.2 Identifying Environmental and Social Sensitive Receptors

Identified sensitive receptors in the study area during site visit and desktop review are undertaken for mapping exercise include: Settlements/Water bodies/drains/Archaeological sites/Tribal/Scheduled Areas/Highways/Airports/Railway station/National parks/Wildlife Sanctuaries/Reserved or Protected Forest/Ecological sensitive areas/Groundwater Development/Socio-economic analysis/Cropping patterns/Meteorology.

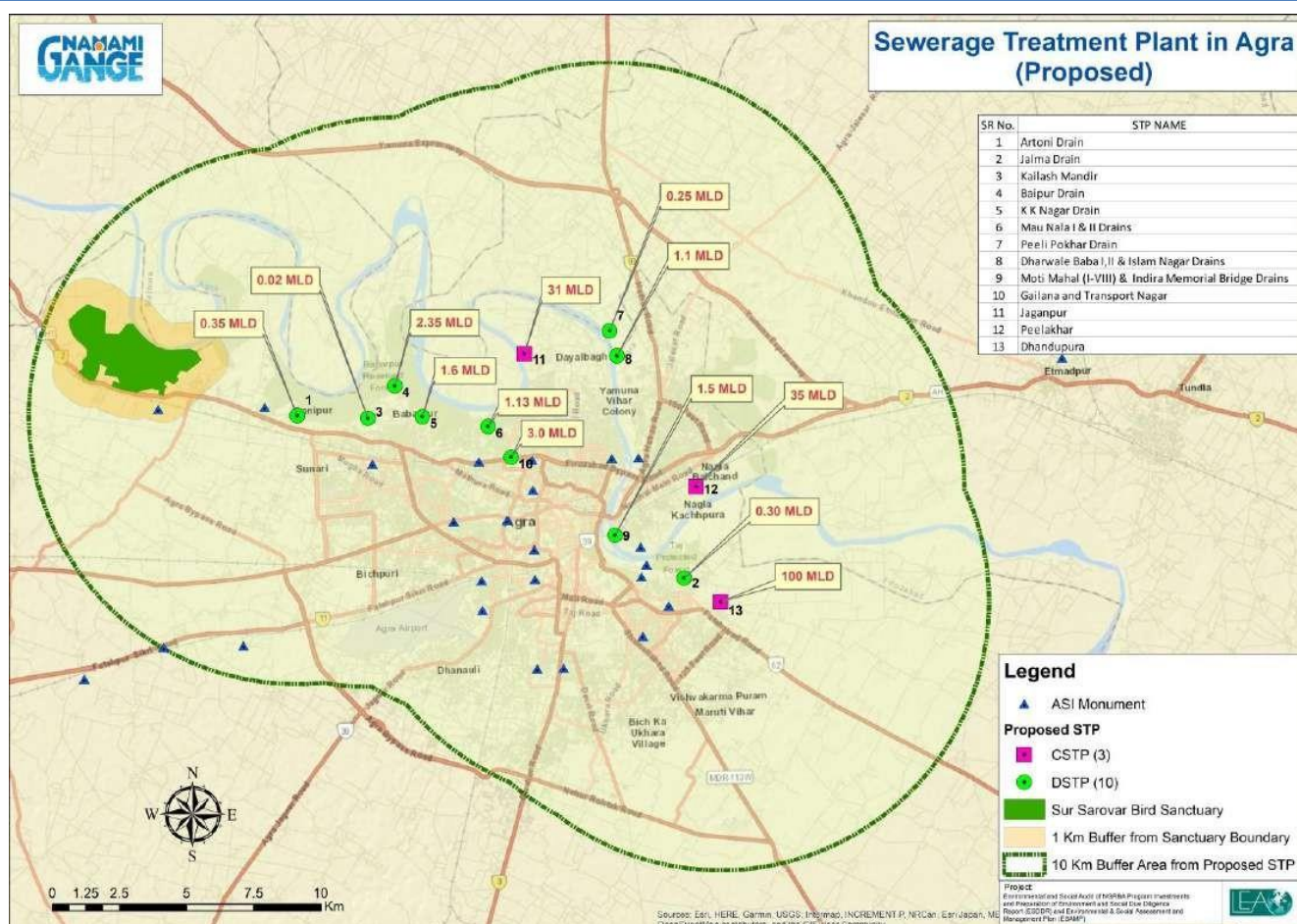


Figure 11: Sensitive Project Feature within 10 km Buffer area of the Project site

4.1.3 Environmental and Social profile of project sites

Environmental and Social features of the proposed project sites are detailed below in **Table-1**

S.No	Component	Social features	Environmental features
1.	100 MLD STP @ Dhandupura MPS @ Khairati Tola	1. Its Govt Land. 2. NOC received & Land already handed over to the contractor (Refer Annexure- 4). 3. Its encroachment free land. 4. The proposed site for STP & MPS is inside the existing STP & MPS respectively. Existing approach road will be used.	STP 1. The STP is proposed inside the campus of existing 78MLD STP which is under O&M by WABAGH. 2. The proposed STP is falling under TTZ regulated zone. However, eco-friendly projects (like STP etc) are allowed with permission from State pollution control board as per latest Supreme Court Order dated 6th December 2019 (Refer Annexure- 7). CTE NOC is obtained from State Pollution Control Board. (Refer Annexure- 12). 3. The current approach road to the campus will be used during construction phase. Later on separate approach road will be developed on the other side. 4. Agricultural land is available in nearby area and no major settlement has been observed in vicinity. 5. Total 704 number of tree felling is required at this site for which permission is obtained and process is under progress. Refer Annexure-6 for Tree cutting permission. 6. Electrical line of 11KVA is passing through the STP site. The process to shift this line along the boundary wall has been initiated. (Refer Annexure- 8 for details)

			7. Four number of sludge drying bed is proposed. 8. Treated effluent to be disposed upto river including provision for withdrawal arrangement for reuse of treated effluent such as for irrigation purpose following CPCB guideline. MPS 9. Defence permission is received for 600m trenchless pipelaying work to connect the existing common chamber near Agra Red Fort to Kahirati tola MPS. (Refer Annexure- 9) 10. An old structure is needed to be demolish for constructing new MPS.
--	--	--	--

Site photographs



CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

2.	35 MLD STP @ Peelakhar & MPS	1. Its Govt Land. 2. Land is handed over to the contractor (Refer Annexure- 4). 3. Its encroachment free land. 4. The proposed site for STP & MPS is inside the existing STP. 5. Existing approach road will be used.	1. The STP with MPS is proposed inside the campus of existing 10MLD STP which is under O&M by WABAGH. 2. CTE NOC is obtained from State Pollution Control Board. (Refer Annexure-12). 3. The current approach road of the campus will be used during construction phase. 4. No major settlement has been observed in vicinity. 5. Disposal of treated effluent upto river of 500m distance including provision for withdrawal arrangement for reuse of treated effluent such as for irrigation purpose following CPCB guideline. 6. Railway crossing permission is received. (refer Annexure-22)
----	---	--	---

Site photographs



3.	31MLD STP @Jaganpur with MPS at Nagla Burhi	STP 1. Its Govt land and inside the existing STP campus. 2. Land is already handed over to the contractor (Refer Annexure-4). 3. Its encroachment free land. 4. Existing approach road will be used during construction phase. MPS 1. Its Govt Land & inside the existing STP campus. 2. During visit, few structure were observed inside the campus which is not falling in layout of MPS and alignment of approach road. 3. A new entry gate will be set up by breaking the existing STPs boundry. This gate will connect the proposed MPS to the 20 ft wide pucca approach road.	1. The STP is proposed in campus of existing 14MLD STP which is under O&M by WABAGH. 2. CTE NOC is obtained from State Pollution Control Board. (Refer Annexure-12). 3. Existing approach road of the STP campus will be used. 4. No major settlement has been observed in vicinity. 5. Treated effluent of 2MLD will be discharged at a specified point inside the campus to enable offtake by Radha Swami Satsang Sabha. Balanced treated effluent will be disposed upto river including provision for withdrawal arrangement for reuse of treated effluent such as irrigation purpose. 6. MPS will be constructed in existing campus of 2.25MLD STP at Nagla Burhi. Approach road upto campus is available but existing entry to the STP will not be used. A separate entry point with approach road to MPS will be set up.
----	--	---	--

Site photographs

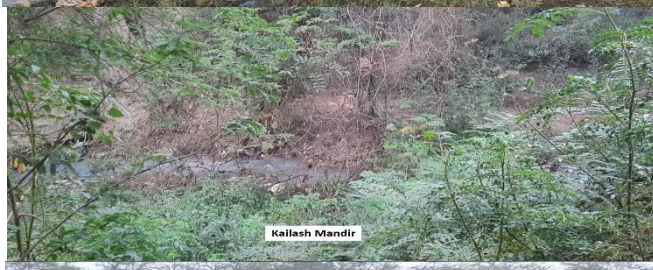


DSTPs under Eastern zone Package (CTE will be obtained once land is handed over to the concessionaire)

4. **DSTP at Indiranagar Memorial (1.50MLD)**
 1. Proposed to tap 9 number of nallas-Motimahal 1-8 and Indiramemorial Yamuna bridge nalla.
 2. Railway crossing permission is obtained. (Annexure-22)
 3. Location finalized but land is not demarcated.
 4. Land is free from encroachment and Govt. land. (Annexure-4.)
 5. No tree cutting required and no major habitation in vicinity.
 6. Approach road is good.
5. **DSTP at Peelipokhar (0.25MLD)**
 1. Proposed to tap one nalla i.e peelipokhar nalla.
 3. Location finalized but land is not demarcated.
 4. It's a Govt land. (Annexure-4.)
 5. During visit, no encroachment is observed at allocated land.
 5. No tree cutting required and no major habitation in vicinity.
 6. Approach road is good.
6. **DSTP at Dharwale Baba (1.10MLD)**
 1. Proposed to tap Nalla1 consisting Dharwalebaba 1 & Islamnagar and Nalla2 consisting Dharwalebaba2.
 2. It's a Govt land and NOC is under process. (Annexure-4.)
 3. Exact location not finalized.
 4. During visit, no encroachment is observed at proposed site.
 5. No tree cutting required and no major habitation in vicinity.
 6. Approach road is good.



DSTPs under Northern and Tajganj zone (CTE will be obtained once land is handed over to the concessionaire)

7.	DSTP at Jalma (0.30MLD) 1.Area identified.It is a forest Land for which NOC is under process. 2. Identified land is encroachment free. 3. It will tap Jalma nalla.	 
8.	DSTP at Artoni (0.35MLD) 1.Area identified.It is a forest Land for which NOC is under process. 2. Identified land is encroachment free. 3. It will tap Atoni nalla.	
9.	DSTP at Kailash Mandir (0.02MLD) 1.Area identified.It is a forest Land for which NOC is under process. 2. Identified land is encroachment free. 3. It will tap Kailash Madir nalla.	
10.	DSTP at Wyepur (2.35MLD) 1.Area identified.It is a forest Land for which NOC is under process. 2. Identified land is encroachment free. 3. It will tap Wayepur nalla.	
11.	DSTP at KK Nagar (1.60MLD) 1.Area identified.It is a forest Land for which NOC is under process. 2. Identified land is encroachment free. 3. It will tap KK Nagar ad Kamyeni hospital nalla.	 
12.	DSTP at Mau nalla facility (1.13MLD) 1.Area identified.It is a forest Land for which NOC is under process. 2. Identified land is encroachment free. 3. It will tap Mau nalla1 and Mau nalla2.	 
13.	DSTP at Transport Nagar (3MLD) 1.Area identified.It is a forest Land for which NOC is under process. 2. Identified land is encroachment free. 3. It will tap Gailana and Transport nagar nalla.	

4.2 Baseline Environment

4.2.1 Topography

Agra city is situated on the western bank of river Yamuna in the State of Uttar Pradesh and can be accessed by the National Highway (NH- 2) and is about 200 kms. from Delhi. Agra is geographically located at 27°12' North latitude and 78°12' East longitude. It has an extremely strategic location at the confluence of three distinct geo-physical regions namely the plains of Uttar Pradesh, the plateau of Madhya Pradesh and the desert of Rajasthan. The city also falls within the center of the four culture rich areas of Braj, Bundelkhand, Rajputana and Western UP.

4.2.2 Geology

The Agra district encompasses an area of 4027 Sq. Km. in Indo-Gangetic plain and its major part (about 80%) is occupied by Quaternary alluvium. However, Vindhyan rocks (Bhander sandstone) are exposed only in the western and southwestern parts of the area. The granular zones consisting mainly of alluvial sands and gravels forming the two-tier aquifer system in the area. These aquifers have Transmissivity (T) varying from 25 to 1205 m² /day whereas permeability (K) values range between 17.25 and 18.22 m/day.

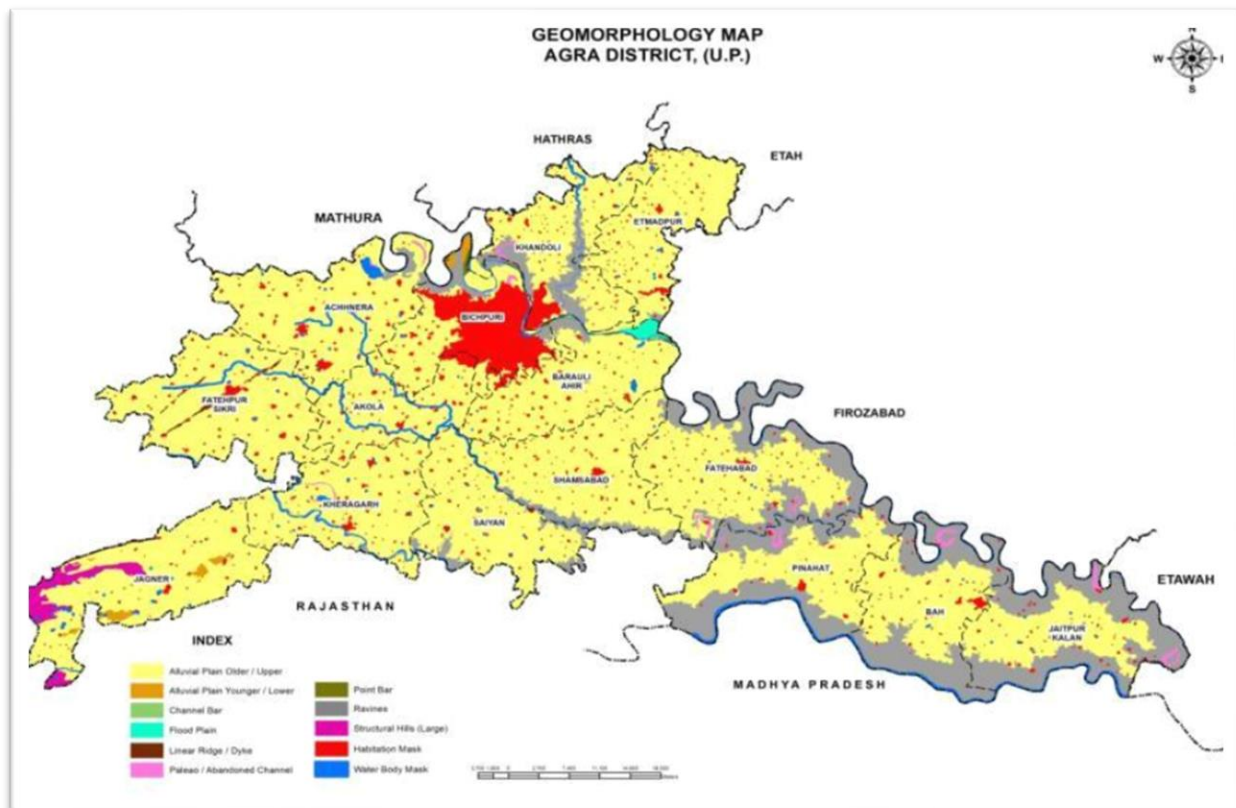


Figure 12: Geomorphology Map, Agra

4.2.3 Rainfall

The rainy period of the year lasts for 5.5 months, from May 9 to October 23, with a sliding 31-day rainfall of at least 0.5 inches. The month with the most rain in Agra is July, with an average rainfall of 6.6 inches.

The rainless period of the year lasts for 6.5 months, from October 23 to May 9. The month with the least rain in Agra is November, with an average rainfall of 0.2 inches.

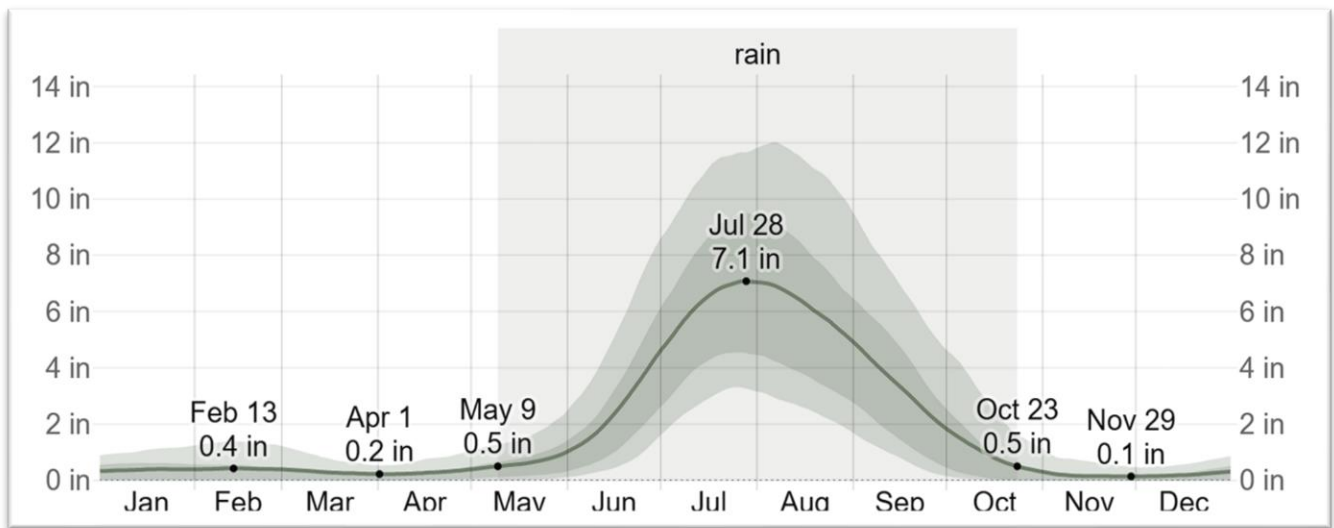


Figure 13: Variation in Rainfall in Project Area

4.2.4 Temperature

In Agra, the wet season is oppressive and partly cloudy, the dry season is mostly clear, and it is hot year round. Over the course of the year, the temperature typically varies from 47°F to 105°F and is rarely below 41°F or above 111°F.

The hot season lasts for 2.6 months, from April 13 to July 1, with an average daily high temperature above 98°F. The hottest month of the year in Agra is June, with an average high of 102°F and low of 85°F. The cool season lasts for 2.1 months, from December 7 to February 12, with an average daily high temperature below 76°F. The coldest month of the year in Agra is January, with an average low of 47°F and high of 70°F.

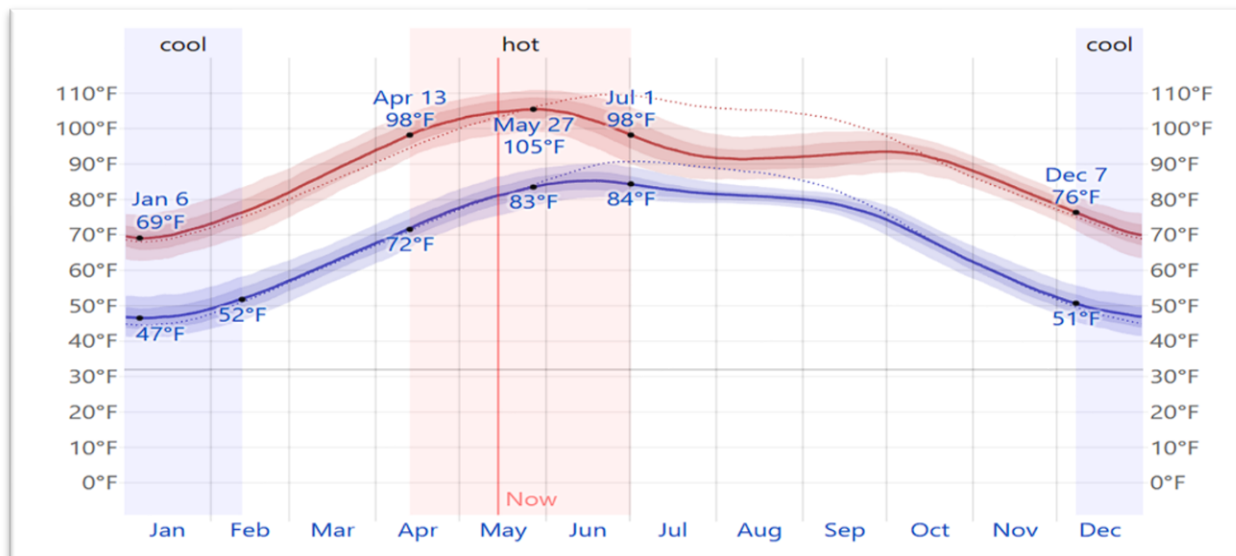


Figure 14: Temperature Variation in Project Area

4.2.5 Wind Speed

The average hourly wind speed in Agra experiences significant seasonal variation over the course of the year. The windier part of the year lasts for 5.5 months, from March 1 to August 19, with average wind speeds of more than 6.7 miles per hour. The windiest month of the year in Agra is June, with an average hourly wind speed of 8.4 miles per hour. The calmer time of year lasts for 6.5 months, from August 19 to March 1. The calmest month of the year in Agra is November, with an average hourly wind speed of 5.0 miles per hour.

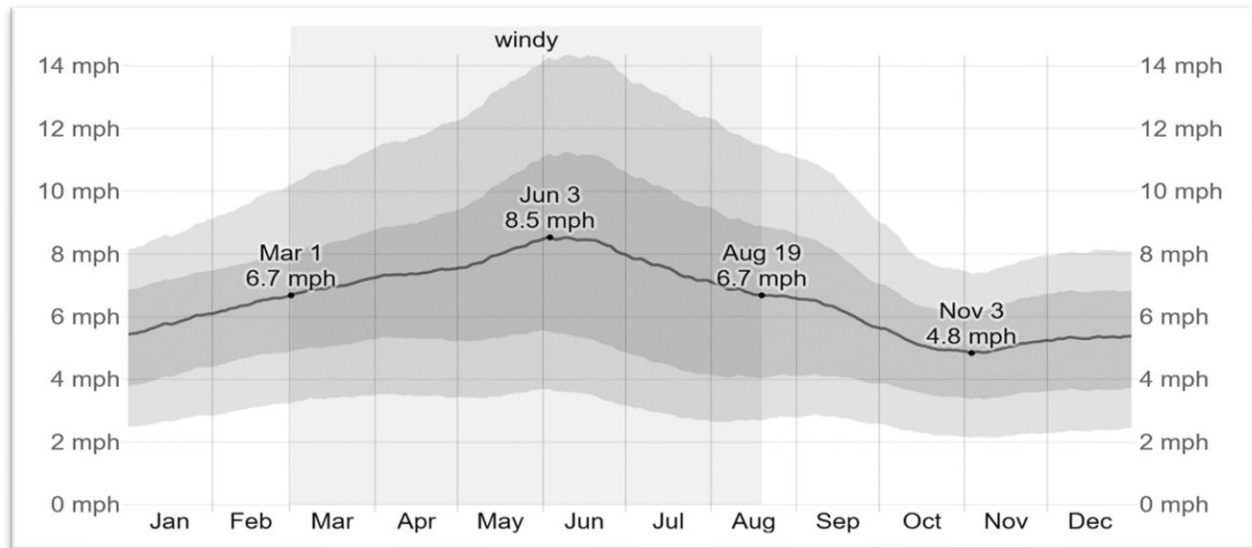


Figure 15: Variation in Wind Speed in Project Area

The wind is most often from the west for 3.5 months, from April 2 to July 19 and for 1.6 months, from August 17 to October 5, with a peak percentage of 54% on May 24. The wind is most often from the east for 4.1 weeks, from July 19 to August 17, with a peak percentage of 38% on July 29. The wind is most often from the north for 5.9 months, from October 5 to April 2, with a peak percentage of 42% on January 1.

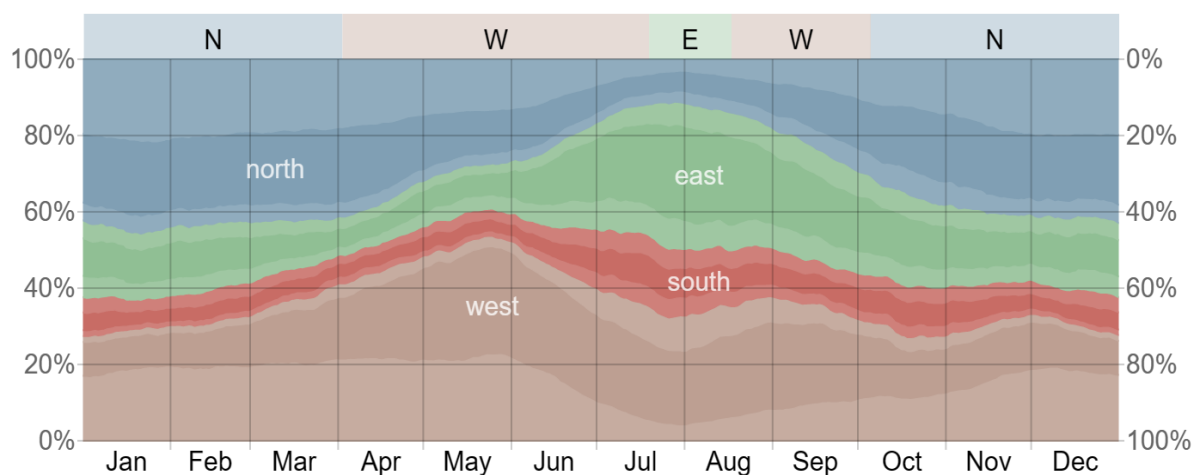


Figure 16: Wind direction in Project Area

4.3 Physical Resources

4.3.1 Air Environment

On-site 24hrs. Ambient air quality monitoring has been carried out in month of Dec, 2022 through NABL accredited Environmental Monitoring Agency at proposed location of all 3 STPs and 2 MPS.

Table 2: Ambient Air Quality Monitoring Result

Parameters	CPCB	Result				
	Standard (24 hours)	Khairati Tola (MPS)	Dhandupura (STP)	Jaganpur (STP)	Peelakhar (STP)	Budi Nagla (MPS)
PM ₁₀ µg/m ³	100	116	126	104	110	122
PM _{2.5} µg/m ³	60	72	84	68	76	74
SO ₂ µg/m ³	80	19	17	20	22	23.8
NO _x µg/m ³	80	27	30	34	35	36
CO mg/m ³	For 8hrs-2 and 4hrs-1	0.52	0.55	0.56	0.5	0.58

Analysis of Monitoring Results

The Ambient Air Quality monitoring report reveals that the concentrations of the PM_{2.5} and PM₁₀ levels exceeded the prescribed limit of CPCB at all locations while the other parameters are within prescribed limit. Detailed Air Monitoring Lab reports are attached as **Annexure-3**. However, necessary precautionary measures shall be taken during construction to avoid degradation of air quality, activities like vehicular movement, handing of concrete material, borrow earth etc., may have dust addition in the air. (Refer ESMP Table-12)

4.3.2 Ambient Noise Level

The main objective of the noise level monitoring is to assess the background noise levels in different zones viz. industrial, commercial, residential, and silence zones in and around the proposed project site. However, all the Proposed DSTPs and STPs are located in out skirt of the city, majorly on scrub land of forest, the noise monitoring locations are taken as representative samples under proposed Agra Sewerage Project. The monitoring was done for 24 hrs. at locations mentioned in **Table 3**. The monitoring results of day and night shows that it is within CPCB's prescribed limit. Monitoring reports are attached in **Annexure-3**.

Table 3: Noise Level Monitoring Results

Monitoring location	Equivalent Noise Level, Leq (Day*)	Equivalent Noise Level, Leq (Night**)	Test Method
	dB (A)	dB (A)	
Khairati tola (MPS)	56.2	38.7	IS 9989 : 1981 (RA 2008)
Dhandupura (STP)	58.7	40.2	
Jaganpur (STP)	51.7	37.6	

Peelakhar (STP)	61.5	41.2	
Budi Nagla (MPS)	63.7	43.8	
Limit for Commercial Zone as per the Noise Pollution (Regulation and Control) Rules, 2000	65	55	

Note: -*Day time means from 6.00 a.m. to 10.00 p.m.

** Night time means from 10.00 p.m. to 6.00 a.m.

4.3.3 Soils

Agra's soil is predominantly loose, sandy, and calcareous, situated in the Indo-Gangetic plain with the Yamuna River flowing through it. The region features Quaternary alluvium, a mix of gravel, sand, silt, and clay. The study area, part of the Indo-Gangetic alluvium, comprises recent unconsolidated fluvial formations, including sand, silt, clay, grit (kankar), and occasional gravel beds. Underground rocks of quartzite and sandstone from the Vindhyan series are found in the west and southwest. The top soil is coarse, angular sand with a small clay fraction, and the sub-soil is consistently sandy. The slightly alkaline to saline nature of sand and silt is observable, with brown color indicating saline soil and grey, sticky characteristics for alkaline soil. The topography is predominantly flat.

Overall idea of soil characteristics can be assessed from the secondary source of data i.e testing conducted during preparation of ESDDR report for this project from NABL accredited lab. The analysis results shows that range of pH of soil is moderately alkaline in nature. Soil sample 1(DSTP Artoni) has reflected more nitrogen and organic matter than sample 2 (STP Dhandupura), showing more fertility. In soil testing report heavy metal are recorded as slightly high, but within common range³ of soil. The nature of sampling site is basically waste land or open dump area within the existing STPs; therefore, these ranges are high. Iron in soil is considered a plant micronutrient; it is necessary for the formation of chlorophyll and functions in some of the enzymes of the plant's respiratory system. The higher concentration of Ca and Mg has reflected in high pH.

Table 4: Soil Quality Sampling Results of Proposed DSTP, CSTP locations

S. No.	Parameters Physical Characteristics	Units	Results DSTP Artoni	Results STP Dhandupur a	Test Method
1	Colour		Brown	Brown	STRL/STP/SOIL/01
2	Textural class		Sandy Clay	Sandy Clay	IS27720 (P-4), 1985
3	Bulk Density	gm/cm ³	1.27	1.22	IS 14765: 2000, RA
4	Water Holding Capacity	%	48.6	46.6	STRL/STP/SOIL/01
	Particle Size				
7	Sand	%	46.5	49.8	IS27720 (P-4), 1985
8	Silt	%	21.2	20.2	IS27720 (P-4), 1985
9	Clay	%	32.3	30	IS27720 (P-4), 1985
	Chemical Characteristics				
10	pH (1:2 Suspension)	-	7.98	8.14	IS: 2720 (part-26), 1987
11	Electrical Conductivity	µmhos/cm	640	122.6	IS: 14767(2000), RA
12	Organic Matter	%W/W	1.45	1.12	STRL/STP/SOIL/01
13	Exchangeable Calcium	mg/kg	4343.4	2876.5	IS 2720 (Part 24): 1976,
14	Exchangeable	mg/kg	1434.6	1434.2	IS 2720 (Part 24): 1976,
15	Copper	mg/kg	5.4	6.1	IS 2720(Part-27): 1977,

³ EPA & Oklahoma corporation commission common ranges of heavy metals in soil (Fe- 7,000- 550,000;Pb 2-200;Cu 2-200;Cr1-3000 ;Ni 5-500 mg/l)

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

16	Nickel	mg/kg	3.6	5.6	IS 2720(Part-27): 1977,
17	Chromium	mg/kg	21.2	23.2	IS 2720(Part-27): 1977,
18	Iron	mg/kg	3454.6	2878.5	IS 2720(Part-27): 1977,
19	Lead	mg/kg	7.2	7.6	IS 2720(Part-27): 1977,
20	Sulphate	mg/kg	434.3	378.6	IS 2720(Part-27): 1977,
Available Nutrients (Kg/Ha)					
21	Nitrogen (as N)	Kg/Ha	876.5	767.6	IS:10158:1982, RA 2009
22	Phosphorous	Kg/Ha	27.8	22.4	IS:10158:1982, RA 2009
23	Exchangeable	Kg/Ha	87.7	68.7	STRL/STP/SOIL/01

Source: ESDDR Report of Agra Sewerage Project.

The soil testing has been done at all the proposed STPs and MPS locations in geotechnical study. For baseline data, soil testing is conducted at 100MLD STP at Dhandupura site from ISO Certified Lab. Comparing the soil test report of 100MLD STP at Dhandupura during ESDDR phase with the recent analysis report conducted in month of May'23 reflecting slight variation in test result. Only Exchangeable Calcium and available nutrients value shows small increase reflecting that soil characteristic are not much changed in last 3 years. Monitoring reports are attached in **Annexure-3**.

Table 5: Soil Quality Sampling Results of Proposed 100MLD STP

S. No.	Parameters Physical Characteristics	Units	Results STP Dhandupur a	Test Method
1	Colour		Brown	HLPL/STP/CHEM/012
2	Textural class		Sandy Clay	IS:2720 (P-4), 1985
3	Bulk Density	gm/cm ³	1.23	IS 14765: 2000
4	Water Holding Capacity	%	47.7	HLPL/STP/CHEM/015
Particle Size				
7	Sand	%	49.7	IS:2720 (P-4), 1985
8	Slit	%	20.4	IS:2720 (P-4), 1985
9	Clay	%	29.9	IS:2720 (P-4), 1985
Chemical Characteristics				
10	pH value	-	8.01	IS: 2720 (P-26),1987
11	Electrical Conductivity	µmhos/cm	122.7	IS: 14767 2000
12	Organic Matter	%	1.47	HLPL/STP/CHEM/001
13	Exchangeable Calcium	mg/kg	2912.7	IS 2720 (Part 24): 1976,
14	Exchangeable	mg/kg	1470.7	IS 2720 (Part 24): 1976,
15	Copper	mg/kg	5.9	IS 2720(Part-27): 1977,
16	Nickel	mg/kg	5.4	IS 2720(Part-27): 1977,
17	Chromium	mg/kg	22.9	IS 2720(Part-27): 1977,
18	Iron	mg/kg	2877.1	IS 2720(Part-27): 1977,
19	Lead	mg/kg	7.4	IS 2720(Part-27): 1977,
20	Sulphate	mg/kg	377.3	IS 2720(Part-27): 1977,
Available Nutrients				
21	Nitrogen (as N)	Kg/Ha	787.6	IS:10158:1982, RA 2009
22	Phosphorous	Kg/Ha	24.1	IS:10158:1982, RA 2009
23	Exchangeable	Kg/Ha	70.1	HLPL/STP/CHEM/002

4.3.4 Water environment

Yamuna River is the biggest tributary of River Ganga. The Yamuna River originates in the Tehri Garhwal district of Uttarakhand from the Yamunotri glacier near Banderpoonch peaks (6,320 msl). Yamuna River flows through Himachal Pradesh, Uttarakhand, Haryana and reach Delhi near Palla village after traversing for about 224 km where in further downstream, Yamuna flows through the Agra city. Agra

city is built along the bank of River Yamuna. It is one major and perennial river of the region. The river enters the city on its northern boundary and takes a U-shape while crossing through the heart of the city. River Yamuna forms the major drainage of the city and it flows from North to South-East of the city.

Water Quality of River Yamuna- The three organic and bacteriological parameters DO, BOD, Total Coliform and Faecal Coliform have been studied for upstream (Kailash Ghat) and downstream (Tajmahal) stations of river Yamuna at Agra. Consecutively three years data have been studied for the assessment. All the secondary data have been sourced from the Uttar Pradesh Pollution Control Board, Agra.

Table 6: Surface Water Monitoring

Parameters	Result (April 2023)		Results (Mar 2023)		Results (Feb 2023)		Results (Jan 2023)	
	Upstream Agra (Kailashghat)	Downstream Agra (Tajmahal)	Upstream Agra (Kailashghat)	Downstream Agra (Tajmahal)	Upstream Agra (Kailashghat)	Downstream Agra (Tajmahal)	Upstream Agra (Kailashghat)	Downstream Agra (Tajmahal)
Biochemical Oxygen Demand (mg/l)	9.6	10.4	9.2	10.4	8.4	9.2	8.4	9.0
Dissolved Oxygen as O ₂ (mg/l)	7.5	6.9	7.4	6.8	7.2	6.7	7.4	6.9
Total coliform (MPN/100ml)	11000	25000	9300	32000	9300	25000	9300	32000
Faecal Coliform (MPN/100ml)	7000	17000	6800	14000	6800	13000	6800	14000

Source: UP, Pollution Control Board

The DO concentration complies with the standard of >4 mg/l almost at all stations, however the BOD data for consecutive four months show concentration much higher than what is permissible for various uses, i.e., < 3mg/l. So also, the Total coliform shows much higher values than the permissible limit prescribed by CPCB as < 500 MPN/100ml for class B & C.

Each drain wise waste water quality in terms of BOD, DO, COD, TSS, pH & Heavy metals has been presented in **Annexure-24**, however drains which will be tapped under the project has generally BOD ranges from 36-660 & COD varies between 160- 1140Mg/l.

During ESDDR preparation, monitoring of river water quality near to project site at upstream and downstream point have been tested (refer **Table 6**). River point is 3km & 1km far from project location at Dhandupura (upstream) and Artoni (Downstream) respectively.

Table 7: Surface Water Quality at Yamuna River Upstream /Downstream near to Project Site at Dhandupura & Artoni

S. No.	Parameters	Unit	IS: 2296 - 1992(Class C) Tolerance Limit	Yamuna River Downstream near to Project Site at Dhandupura	Yamuna River Upstream near to Project Site at Artoni	Test method
1	pH	-	6.5 -8.5	7.49	7.34	IS: 3025(Pt-11)1983, RA. 2002
2	Temperature	°C	-	21.2	22.6	APHA 23 rd Edn.2017-2550 B
3	D.O	mg/l	Minimum	3.2	3.9	IS 3025(Part-38): 2006.

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

			-4			
4	BOD	mg/l	30	62.5	36.7	IS 3025(Part-44):1993, RA 2009
5	Color	Hazen °C	300	<5	<5	IS: 3025 (Pt-4) 1983, RA 2017
6	Odour	-	-	Dis- Agreeable	Dis-Agreeable	IS: 3025(Pt-5)
7	TDS	mg/l	1500	1156	1050	IS 3025(Part-16): 1984, RA 2006
8	TSS	mg/l	-	26.5	34.6	IS 3025(Part-17)
9	TKN	mg/l		15.2	11.5	IS: 3025(Pt-34)1988, RA. 2003
10	Ammonical Nitrogen	mg/l		0.92	0.88	IS: 3025(Pt-34)1988, RA. 2003
11	Nitrate(as NO3)	mg/l	50	2.9	2.1	IS: 3025(Pt-34)1988, RA. 2003
12	Free Ammonia	mg/l		<0.1	<0.1	IS: 3025(Pt-34)1988, RA. 2003
13	Chlorides (as Cl)	mg/l	600	87.5	408	IS 3025(Part-32): 1988
14	Sulphates(as SO4)	mg/l	400	25.8	87.9	IS 3025(Part-24):1986, RA 2003
15	Fluoride (as F)	mg/l	1.5	0.65	0.64	APHA 21 st Ed., 4500F(D)
16	Oil & Grease	mg/l	0.1	<0.1	<0.1	IS 3025(Part-39):1991, RA 2009
17	Phenolic Compound (as C6H5OH)	mg/l	0.005	<0.001	<0.001	5530-B,C&E,APHA 23nd 2017
18.	Arsenic	mg/l	0.2	<0.1	<0.1	3110- B, APHA 23nd Ed. 2017 (AAS)
19	Mercury(as Hg)	mg/l	-	<0.001	<0.001	3110- B, APHA 23nd Ed.2017
20	Lead (as Pb)	mg/l	0.1	0.05	0.02	3110- B, APHA 23nd Ed. 2017 (AAS)
21	Cadmium (as Cd)	mg/l	0.01	0.008	0.005	3110- B, APHA 23nd Ed. 2017 (AAS)
22.	Chromium (as Cr+6)	mg/l	0.05	0.02	0.03	IS 3025(Part-52): 200
23.	Copper (as Cu)	mg/l	1.5	0.15	0.11	3110- B, APHA 23nd Ed. 2017 (AAS)
24.	Zinc (as Zn)	mg/l	15	0.68	0.64	3110- B, APHA 23nd Ed. 2017 (AAS)
25	Selenium (as Se)	mg/l	-	<0.1	<0.1	IS: 3025 (P- 56)
26.	Anionic detergents (as MBAS)	mg/l	1.0	<0.1	<0.1	Annexure K Of IS 13428
27.	Iron (as Fe)	mg/l	50	0.84	0.56	3500-Fe- B, APHA 23nd Ed. 2017
28.	Sulphide(as H2S)	mg/l	-	0.1	0.12	IS-3025 (P-29)
29.	Phosphate (as PO4)	mg/l	-	0.25	0.29	APHA 22nd Edn.2012-4500-P C

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

30.	Cyanide (as CN)	mg/l	0.05	<0.1	<0.1	4500-CN-B,C & E, APHA 23nd Ed.2017
31.	Manganese (as Mn)	mg/l			0.13	3110- B, APHA 23nd Ed.2017
32.	COD	mg/l	-	298.0	210.0	IS 3025(Part-58): 2006
33.	Total Coli form	MPN/100 ml	5000	260000	220000	IS : 1622-1981

Source: ESDDR Report of Agra Sewerage Project.

Water quality shows significantly higher level of coliform in both the samples, shows the water quality is degrading due to excreta pollution from the city area and also reflects the poor sanitation facility in the region and resultantly degrading the river water quality. BOD shows higher than permissible limit, while DO is below the minimum level standard.

During construction stage, it will be ensured that the proper sanitation facility to be provided to the workers on the labour camp/site to reduce the irregular excreta etc. Preventive measures to be taken during construction stage to reduce the water pollution nearby site are presented in EMP of the Report.

Ground Water - As per information available from Central Ground Water Authority, Agra city falls under overexploited zone. The ground water level ranges from 2.19 to 46.58 m below ground level. Onsite water quality was tested from available hand pump location at Artoni and Dhandupura during preparation of ESDDR, shows the higher level of hardness and chloride, which reflects the ground water quality is more of saline in nature. The level of ground water is under overexploited zone in Agra (as per CGWA), during construction stage, necessary measures will be taken up to avoid the misuse of ground water. As per CTE norms, the project will comply the provisions of the groundwater abstraction rules and NOC is required from State Ground Water Dept. Presently concessionaire is in process of getting NOC from Ground Water Board for 3 STPs locations.

Table 8: Ground Water Monitoring

S. No.	Parameters	Unit	Limit (IS-10500:2012)		Artoni DSTP	Dhandu pur STP	Test method
			Desirable Limit	Permissible Limit			
1	Color	Hazen	5	15	<5	<5	IS: 3025(Pt-4)
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	IS: 3025(Pt-5)
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	IS: 3025(Pt-8)
4	Turbidity	NTU	1	5	<1	<1	IS 3025(Part-10)
5	pH	-	6.5-8.5	No Relaxation	7.89	7.75	IS: 3025(Pt-11)
6	Total Hardness (as CaCO ₃)	mg/l	200	600	1000	1000	IS 3025(Part-21)
7	Iron (as Fe)	mg/l	1	No Relaxation	0.46	0.82	3500-Fe- B, APHA 23nd Ed.2017
8	Chlorides (as Cl)	mg/l	250	1000	1350	1200	IS 3025(Part-32)
9	Fluoride (as F)	mg/l	1	1.5	0.87	0.72	4500-F- (D),APHA 23 st Ed2017

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

10	TDS	mg/l	500	2000	2100	2450	IS 3025(Part-16)
11	Calcium(as Ca ²⁺)	mg/l	75	200	200	200	IS 3025(Part-40)
12	Magnesium (as Mg ²⁺)	mg/l	30	100	121.5	126	3500- Mg B, APHA 23nd Ed2017
13	Sulphate (as SO ₄)	mg/l	200	400	56.9	62.5	IS 3025(Part-24)
14	Nitrate(as NO ₃)	mg/l	45	No Relaxation	5.9	29.6	IS: 3025(Pt-34)
15	Total Chromium (asCr)	mg/l	0.05	No Relaxation	<0.01	<0.01	3110- B, APHA 23nd Ed.2017
16	Alkalinity as CaCO ₃	mg/l	200	600	640	600	IS 3025(Part-23)
17	Aluminum (as Al)	mg/l	0.03	0.2	<0.01	<0.01	IS 3025(Part-55)
18	Total Arsenic(as As)	mg/l	0.01	No Relaxation	<0.01	<0.01	3110- B, APHA 23nd Ed2017
19	Copper (as Cu)	mg/l	0.05	1.5	<0.05	<0.05	3110- B, APHA 23nd Ed2017
20	Manganese (as Mn)	mg/l	0.1	0.3	<0.01	<0.01	3110- B, APHA 23nd Ed2017
21	Zinc (as Zn)	mg/l	5	15	0.18	0.67	3110- B, APHA 23nd Ed2017
22	Ammonia (as NH ₃ -N)	mg/l	0.5	No Relaxation	<0.1	<0.1	4500-NH ₃ -B & C, APHA 23 rd ED2017
23	Anionic Detergents(as MBAS)	mg/l	0.2	1	<0.1	<0.1	Annexure K of IS-13428.
24	Boron(as B)	mg/l	0.5	1	0.12	0.19	IS: 3025(Pt-57)
25	Mineral Oil	mg/l	0.5	No Relaxation	<0.1	<0.1	IS 3025(Part-39)
26	Phenolic Compound (as C ₆ H ₅ OH)	mg/l	0.001	0.002	<0.001	<0.001	IS 3025(Part-44)
27	Cadmium (as Cd)	mg/l	0.003	No Relaxation	<0.002	<0.002	3110- B, APHA 23nd Ed2017
28	Cyanide(as CN)	mg/l	0.05	No Relaxation	<0.1	<0.1	4500- CN-B,C & E, APHA 23nd Ed2017
29	Lead	mg/l	0.01	No Relaxation	<0.01	<0.01	3110- B, APHA 23nd Ed2017
30	Mercury(as Hg)	mg/l	0.001	No Relaxation	<0.001	<0.001	3110- B, APHA 23nd Ed.2017
31	Nickel (as Ni)	mg/l	0.02	No Relaxation	<0.02	<0.02	3110- B, APHA 23nd Ed.2017

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

32	Residual FreeChlorine	mg/l	0.2	1	<0.2	<0.2	4500-Cl-B, APHA 23ndEd2017
33	Molybdenum (Mo)	mg/l	<0.05	0.07	No Relaxation	No Relaxation	3110- B, APHA 23nd Ed.2017
34	Polynuclear Aromatic Hydro Carbons	mg/l	<0.0001	0.0001	No Relaxation	No Relaxation	APHA 6440,23nd Ed.2017
35	Poly chlorinatedbiphenyl	mg/l	<0.0001	0.0005	No Relaxation	No Relaxation	APHA 6430,23nd Ed.2017
36	Total Coli form	MPN/100ml	Shall not be detectable in any 100 ml of sample		<1	<1	IS : 1622-1981
37	<u>E.Coli</u>	<u>E.coli</u> /100ml	Shall not be detectable in any 100 ml of sample		Absent	Absent	IS : 1622-1981

Source: ESDDR Report of Agra Sewerage Project.

Soil Investigation report carried out under project at proposed STP sites stated that the soil strata is comprised of both fine-grained soils (clayey soil) and coarse-grained soils (sandy soil). Highest ground water table is 148.757 EL.The highest RL of ground water table encountered during investigation is EL 148.757. However, the existing water table may rise by 1.5m to 2m in the post monsoon period in general. Ground Water testing has been conducted for 100MLD STP at Dhandupura and 31MLD STP at Jaganpura from NABL accredited Regional Level Water Analysis Laboratory of UPJN.Monitoring reports are attached in **Annexure-3**.

Table 9: Ground Water Monitoring (year 2023)

S. No.	Parameters	Unit	Limit (IS-10500:2012)		Jaganpur STP	Dhandupur STP	Test method
			Desirable Limit	Permissible Limit			
1	Color	Hazen	5	15	4	3	IS: 3025(Pt-4)
2	Odour	-	Agreeable	Agreeable	odourless	odourless	IS: 3025(Pt-5)
3	Taste	-	Agreeable	Agreeable	Sweet	Sweet	IS: 3025(Pt-8)
4	Turbidity	NTU	1	5	4.38	3.74	IS 3025(Part-10)
5	pH	-	6.5-8.5	No Relaxation	8.43	7.79	IS: 3025(Pt-11)
6	Total Hardness (as CaCO ₃)	mg/l	200	600	172	196	IS 3025(Part-21)
8	Chlorides (as Cl)	mg/l	250	1000	410	324	IS 3025(Part-32)
9	Fluoride (as F)	mg/l	1	1.5	0.62	0.69	4500-F-(D),APHA 23 st Ed2017
10	TDS	mg/l	500	2000	1060	1068	IS 3025(Part-16)
13	Sulphate (as SO ₄)	mg/l	200	400	132	128	IS 3025(Part-24)

16	Alkalinity as CaCO ₃	mg/l	200	600	290	288	IS 3025(Part-23)
36	Total Coli form	MPN/100ml	Shall not be detectable in any 100 ml of sample		Absent	Absent	APHA 23 Edition:2017
37	<u>E.Coli</u>	<u>E.coli</u> /100ml	Shall not be detectable in any 100 ml of sample		Absent	Absent	APHA 23 Edition:2017

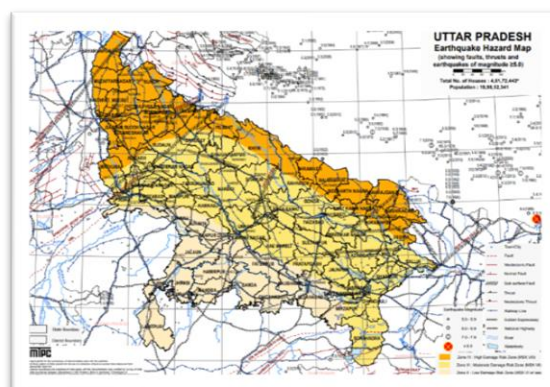
Comparing the Ground water monitoring test report of ESDDR phase with the recent test result for 100MLD STP for common parameters, the result is reflecting increase in Turbidity and Sulphate with drastic decrease in Total hardness, TDS, Chloride and Alkalinity indicating that Ground Water quality is improved in last 3 years in term of salinity.

4.3.5 Drainage

The drainage system of the area is controlled by the river Yamuna and its tributaries. All the rivers are mainly flowing in accordance with the general slope of the land surface viz. northwest to southeast, therefore it is consequent types and broadly exhibiting the 'Dendritic type' of drainage pattern. The main southern bank tributaries of the Yamuna River are Utangan or Gambhir & Khari. The Chambal River is also a very important perennial tributary of Yamuna flowing from West to East forming the southeastern boundary of the district. The Chulhai, Lohenrhi, Bisundri and Kowar are the main tributaries of Utangan river draining the rocky terrain of Jagner block in the southwestern parts of the area. The Khari Nadi is also a tributary of Utangan draining the parts of Kiraoli and Shamsabad tehsils. The Karoan is a seasonal northern bank tributary of the Yamuna draining the northeastern parts of the study area. The comparatively high lands, situated in the middle parts of the Doabs of Yamuna-Khari, Khari-Utangan and Yamuna-Chambal, are acting as the water divides. The ravenous areas along the northern bank of Chambal and along the southern bank of Yamuna under Bah tehsil has intricate network of minor rivulets and gullies through which the drainage of the surface water during monsoon periods takes place. It has been observed that discharge of Chambal River in summer is comparatively more than the Yamuna River.

4.4 Natural Hazards

Seismology –According to the Building Materials and Technology Promotion Council (BMTPC) Earthquake Hazard Map of Uttar Pradesh, Agra falls in Moderate damage risk seismic zone III and corresponds to MSK intensity VII. In consideration to this, due measures should be incorporated in designing of water/waste-water retaining structures. (viz. Sewage lifting station or wastewater treatment plants, as per provision of code).



Cyclones – The study area lies in the High Damage Risk Zone B (47 m/s) according to the BMTPC Wind and Cyclone Hazard Map.

Floods – The study area is located in an area liable to floods according to the BMTPC Flood Hazard Map. All design & drawings are prepared considering the HFL level (verified with CWC data given below).

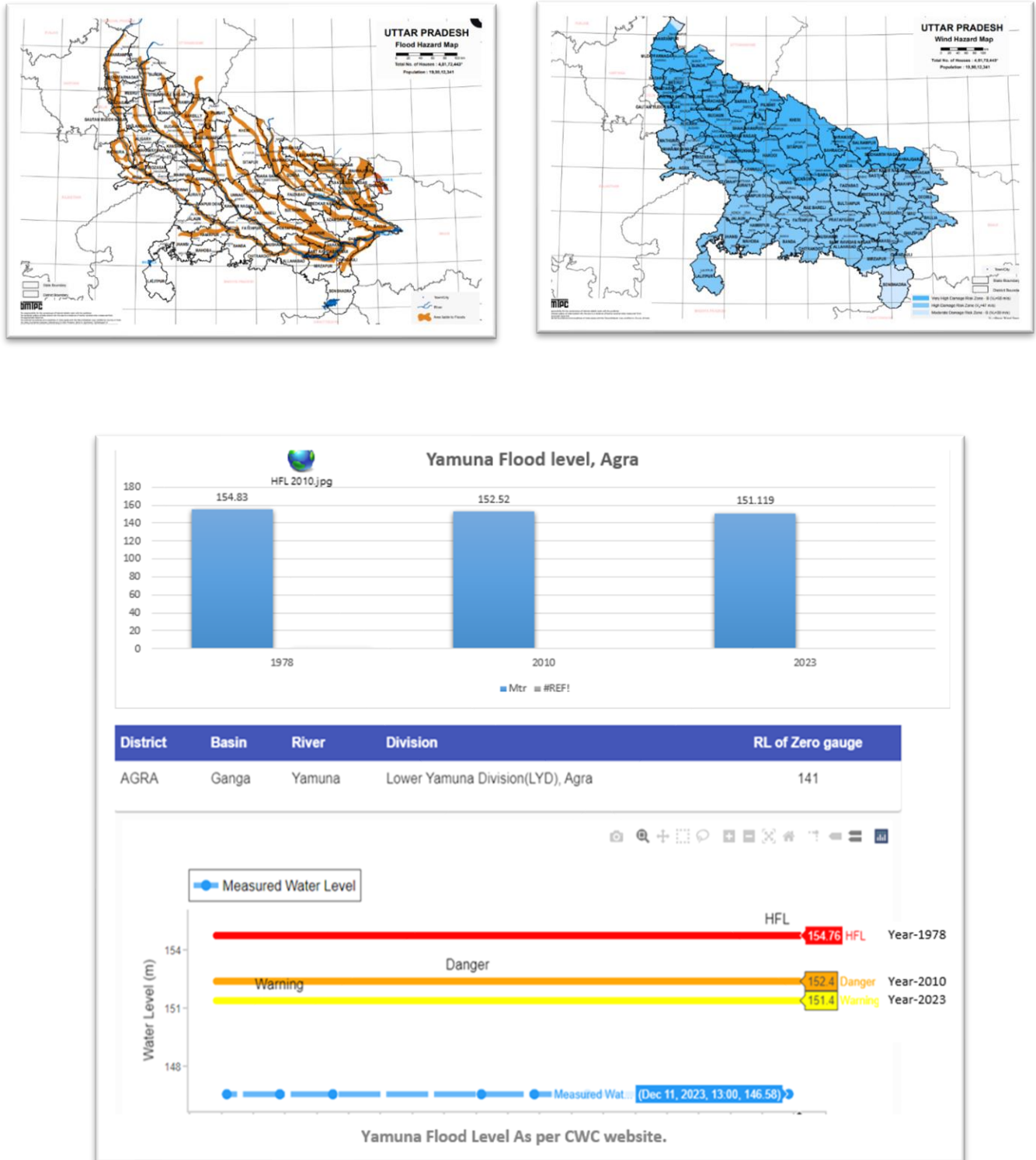


Figure 17: Natural Hazard Map of State of Uttar Pradesh

4.5 Ecological Resources

Agra District Falls in Zone 7- Gangatic Plane Biogeographic Zone and 7A- Gangatic Plane; Upper Gangatic Plane as per the Biogeographic Province Classification of India. The district covers an area of 4,041 sq.km (total Geographical Area) of which the area under forest cover i.e moderate dense forest is 63 sq.km and open forest is 272 sq.km; which is 6.73% of the geographical area.

Of the total available forest area in the district about 0.97 ha of forest area will be affected which will be utilized for construction of DSTPs. These affected forest area witnesses the extensive growth of shrubs i.e Acacia Sp. followed by scattered growth of Acacia nilotica (Babul) and Acacia catcehu (Kikar) which are dominant tree species. Other trees reports are neem, semal, Cassia sp, Siris, Sissoo sp., Chitwan, Chilbil, etc. The proposed project area, forest lands diverted for establishment of DSTPs are having mostly Acacia sp., which are naturally species reported in this climatic zone. To utilize the forest land, the UP Jal Nigam (YPCU) has applied for diversion of these forest area under The Forest (Conservation), 1980 to the Ministry of Environmental Forests and Climate Change (MoEF&CC) online forest portal. Now the application is at National level for approval. After obtaining the forest diversion approval, from the state forest department (regional office of MOEF&CC), this land can be utilized for establishment of DSTPs.

100 MLD STP is proposed to be set up within existing campus of 78 MLD STP at Dhandupura, Agra. 704 trees were identified to be cut in the proposed 100 MLD site. Accordingly, a proposal for this was moved. Taking note of the importance of the said project, the permission to cut the trees have been granted by Supreme Court subject to fulfilling the following condition "Plantation & Maintenance of 7500 saplings in lieu of cutting of 704 trees". 6.82 hectare of land has been identified for the said afforestation in lieu of 704 tree cutting at Tehsil Kheragadh, Village Vidhauhi. Also, Rs 1.18 Cr has been deposited for compensatory plantation of 7500 tree under barbed fence & its maintenance for 10 years. The tree cutting was already completed.

In CTE NOC for each STPs, one of the conditions is development of Miyawaki forests so that treated water may be used for irrigation as per GO no. 1011/81-7-2021-09(writ)/2016 dated 13.10.2021 of MOEF&CC.

4.6 Other Eco-Sensitive area within 10 km boundary from projects site

Soor Sarovar Bird Sanctuary is located within 5.24 km towards West of Project site. It is located at latitude 27°14'54.63"N, 77°50'43.69"E Longitude. The total area of the Bird Sanctuary is 800 hectare, the Eco sensitive zone has been demarcated to be 1 km from boundary of the sanctuary through Gazette of India no. 3319, New Delhi, Thursday, October 10, 2019. Hence it is exempted from obtaining NOC from State Board of Wild Life.

The Soor Sarovar Bird Sanctuary is habitat of Hog Deer (*Axis porcinus*), Hyena (*Hyaena hyaena*), Spotted deer (*Axis axis*), Porcupine (*Hystrix indica*), Jackal (*Canis aureus*), Wild Boar (*Sus scrofa*), Jungle Cat (*Felis chaus*), Mongoose, Monkey, Nilgai (*Boselaphus tragocamelus*) etc. The bird sanctuary is also rich in large number bird species such as Comb duck (*Sarkidiornis melanotos*), Spot billed duck (*Anas poecilorhyncha*), Lesser whistling teal (*Dendrocygna javanica*), Storks-painted (*Mycteria leucocephala*), Openbill (*Anastomus oscitans*), Black-necked (*Grus nigricollis*), Herons Grey (*Ardea cinerea*), Medium, Little and Cattle, Indian Shag (*Phalacrocorax fuscicollis*) etc. To ensure the necessary protection of the sanctuary MOEF & CC declares it is necessary to conserve and protect the area up to one kilometer from the boundary of the protected area of Soor Sarovar Bird sanctuary as eco sensitive

zone. Majorly the mentioned species are Schedule III for which absolute protection and highest penalties have been prescribed under WL Act 1972. During construction stage under the proposed project sensitization among worker and contractor shall be required to not to disturb any flora and fauna unnecessarily to the project. (Refer **Chapter 6; ESMP Table**).

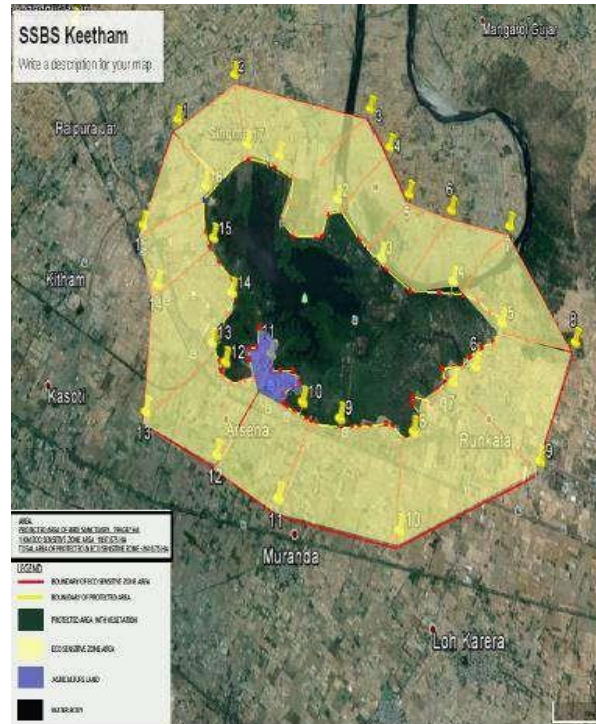


Figure 18: Eco sensitive boundary and Sur Sarovar Bird Sanctuary

The predominant flora of Agra region are Neem (*Azadirachta indica*), Peepal (*Ficus religiosa*), Bargad, Pongame oiltree, Eucalyptus, Ashoka, Babool (*Acacia Arabica*), Semal (*Bombax ceiba*), Mango, Tamrind etc, *Syzygium cumin*, *Aegle marmelos*.

4.7 Land use profile of the project locations

Predominant land use of the sub project area is majorly built up. In order to tap wastewater, drain from the major nala of Agra city before falling in the River Yamuna, DSTP locations are proposed out skirt of the city, mostly on forest area. While the other components like STPS, MPS are proposed in vicinity of existing sewerage facilities like MPS, STP. The location of STP sites and I&D structure is presented in Chapter-2 & the glimpse of site proposed for STP/DSTPs has been provided in Chapter 4. Lying work of Rising Main and Sewerage Line, which is almost planned along the available width of Road may have social impact in terms of disturbances during the construction activities. Therefore, necessary environment and social mitigation measures will be required to be implemented during construction work is detailed in ESMP table. Each sub project location wise predominant land use is presented in table below:

Table 10: Land Use profile of project location

Sl no.	Type of proposed sewerage facility	Land use	Remarks
A	STPs		
1.	Proposed 100 MLD adjacent to 78 MLD Dhandhupura	5.11 ha open land available within existing STP under UPJN	100 MLD STP is proposed at available land of existing 78 MLD STP at Dhandupura. 704 trees have been identified to be cut within the proposed site. The NOC for the same has been received in the hearing of Hon'ble Supreme Court dated 13.05.2022 in IA no. 11157/2019 (refer Annexure-6). Tree cutting has been completed and land is available for construction. 6.82ha of land has been identified for compensatory afforestation of 7500 saplings under barbed fence along with 10-year maintenance. (refer Annexure-6). Cost of Rs. 1.18 Cr has been deposited to undertake this afforestation project. (refer Annexure-6).
2.	Proposed 31 MLD Jaganpur adjacent to existing 14 MLD Jaganpur	4.13 ha. open land is available within existing STP	This open land is available with UPJN in Jaganpur STP. The open is majorly scrub. Trees available in campus will play necessary buffer for existing and proposed STP.
3.	Proposed 35 MLD Peelakhar at existing 10 MLD STP @ Peelakhar	15.06 ha land is available within existing STP	This open land is available with UPJN at Peelakhar STP. The open is majorly scrub land. Trees available in campus will play necessary buffer for existing and Proposed STP.
B	Decentralized STPs		
1.	1.6 MLD STP for K K Nagar Drain	Open Forest land	Predominant land uses of Proposed area of 0.97 ha are forest Land. These are small chunk of land proposed from 7 Decentralized STPs. The area is occupied by open scrub land. Sites for DSTPS are located towards ending of the settlement zone of the city.
2.	0.02 MLD STP for Kailash Mandir		
3.	2.35 MLD STP for Wyepur Drain		
4.	0.35 MLD STP for Artoni Drain		
5.	3.0 MLD STP for Gailana and Transport Nagar		
6.	0.30 MLD STP for Jalma Drain		
7.	1.13 MLD STP for Mau Nala I & II Drains		
8.	1.1 MLD STP for Dharwale Baba I,II & Islam Nagar Drains	Open land of Agra Nagar Nigam.	Land for both the DSTPs of Peelipokhar and Indira Memorial is open government land under jurisdiction of Agra Nagar Nigam. No Encroachment on the land is observed during site visit.
9.	0.25 MLD STP for Peeli Pokhar Drain	NOC is received for Peelipokhar.	
10.	1.5 MLD STP for Moti Mahal (I-VIII) & Indira Memorial Bridge Drains		

C	Proposed Main Pumping Stations (MPS)		
1.	Northern Zone - MPS Burhi ka Nagla	Open land available within existing MPS/STP	Nagla Burhi MPS is proposed at the existing STP,
2.	Central Zone- MPS Khairati Tola		Khairati Tola MPS is proposed at the existing MPS.
3.	Eastern Zone -MPS Peelakhar		Peelipokhar MPS is proposed at the existing Peelipokhar STP.
D	Rising Main 9.35 km		
1.	MPS Burhi ka Nagla	3.2 km	Proposed along the Road within ROW. Row of the road is varying from 15-25 m. Road is passing through city area, therefore necessary EMP implications shall be required to consider during laying work. No private land or impact on tree is anticipated. In case of non-availability of enough ROW or constraints due to tree or any structure, the laying work has been planned in center of the road.
2.	MPS Peelakhar	150 m.	Proposed along the Road within ROW. Row of the road is 15 m. Road is passing through city area, therefore necessary EMP implications shall be required to consider during laying work. No private land or impact on tree is anticipated. In case of non-availability of enough ROW or constraints due to tree or any structure, the laying work has been planned in center of the road.
3.	MPS Khairati Tola	5.5 km	Proposed along the Road within ROW. Row of the road is varying from 16-30 m. Road is passing through city area, therefore necessary EMP implications will be consider during laying work. No private land or impact on tree is anticipated. In case of non-availability of enough ROW or constraints due to tree or any structure, the laying work has been planned in center of the road.
4.	Mau Nala I Lift Station	500m	Along the earthen road
E	Sewerage Line		
1.	Sewer Line work from tapped drain to DSTPs – total length 2550 meter	2.5 km	The sewer system is designed to carry ultimate stage design peak flow. The sewer line of total 2500 meter is proposed along the road; however few areas as mentioned below was requiring approval form respective authority to lay the line. 1- Peelakhar: Total length of sewer line is 440m including 75m of trenchless for which permission is obtained from railway board. 2- Khairati Tola- Trenchless of 600RM (Appx 360m in defense for which permission granted, around 240 m on PWD land for which permission is under process.

4.8 Archaeological Sites

Agra city is famous for Taj Mahal and its other archaeological buildings. Agra is one of the prominent zone of Taj Trapezium (TTZ), which comprises an area of 10,400 sq.km covering districts of Agra, Firozabad, Mathura, Hathras, Etah, and Bharatpur district of Rajasthan. TTZ comprising 40 protected monuments including three world heritage sites i.e. Taj Mahal, Agra fort and Fatehpur Sikri. Taj Mahal is one of the Seven Wonders of the World notified in the World heritage list of the UNESCO.

Proposed sub-project is located within the Taj Trapezium Zone (TTZ) which is a trapezoid shaped, 10,400 sq. km. area around the Taj Mahal and a buffer zone designed to protect this historic monument from pollution. Within the TTZ, there are 3 ASI protected monuments- Mehtab Bagh,

Humayun Mosque and Gyarah Sidi nearby the Kachhpura village. None of project STPS, DSTPs and I&D work is falling within regulatory zone of ASI structure (300 m). Therefore, as of now no prior permission is required under ASI.

4.9 Economic Development

Primarily the Economy of the Agra district is agriculture based while the economy base of Agra city is Small Scale Industries, Commerce and Trade. Major crops are Wheat, Paddy, Bajra, Mustard, Potato etc. About 40% of the total economy of Agra depend on industry (Directly or Indirectly). Over 7200 Small Scale Industrial Units are spared all over the district. Agra city is famous for the Leather Goods, Handicrafts, Zari Zardozi, Marvel and Stone carving inlay work. Agra is also famous for sweets (PETHA) and Snaks (DALMOTH AND GAJAK). (Source: Agra.nic.in)

4.10 Social and Cultural Resources

Agra city is governed by Municipal Corporation which comes under Agra Metropolitan region of Uttar Pradesh State, India and the city has population of 15.85 lakhs and its other urban/metropolitan area population includes total 17.74 lakhs of which 9.39 lakhs are males and 8.20 lakhs are females. The sub- project area of falls in Agra tehsil of Agra district. The project tehsil exists with Agra metropolitan regions (itincludes Agra Municipal Corporation, cantonment area, Dayal bagh Nagar Palika, Swamibagh Nagar Palika and Azizpur, Patholi, Deoretha, Kalwari, Dehtora, Artauni, Nainana Jat, Dhanauli, Rohta, Kaulakha, Nainana-Brahman census towns) and other adjoining 33 villages

Demographic Data

Project tehsil population is 21.86 lakh in 2011 which was 17.53 lakh in 2001. Population of the taluka grew at an Average Annual Growth Rate (AAGR) of 2.47 percent during the period 2001 to 2011. The total urban population residing in the project taluka during 2001 was 13.74 lakh which increased to 17.74 lakh in 2011 with an AAGR of 2.91 percent, which covers almost (89%) Agra City of 15.85 lakhs population. The continuous population growth in the city has resulted in pollution pressure on River Yamuna. Thus, the project will help to reduce the pollution by minimizing the sewage outpour to the river by proposing decentralized STPs and STPs with increased capacity to cater to the ever increasing population growth.

Total population of Agra city is 15.85 lakh, which is almost 72 percent to the Tehsil population of which 8.45 lakhs are males while 7.39 lakhs are females as per Census 2011. The city population as per census 2001 and 1991 it was 12.75 and 8.91 lakhs respectively.

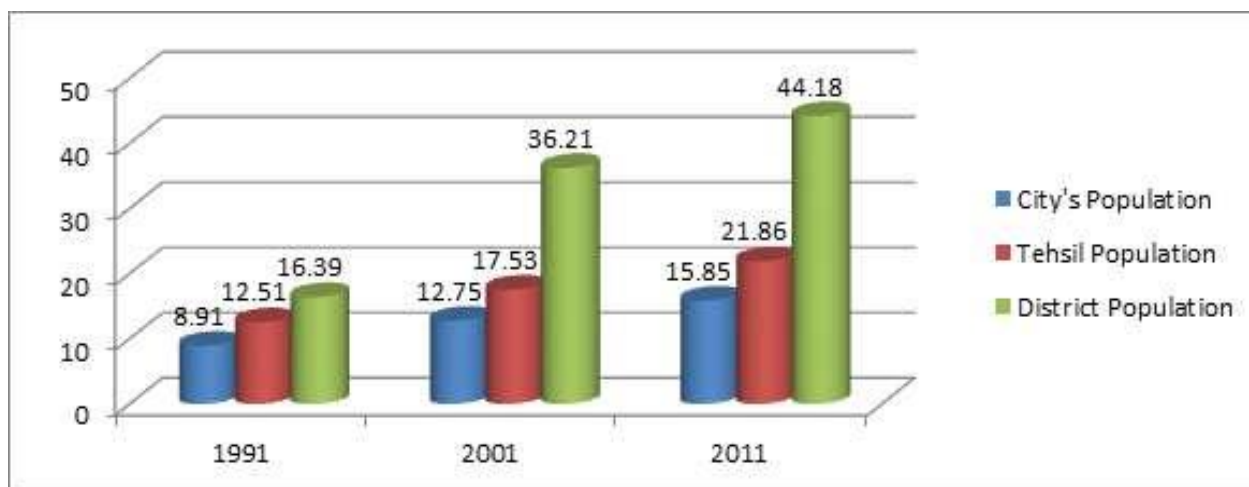


Figure 19: Population distribution Agra City

Hindus are prominent in Agra city with 80.68 percent and followed by Muslim community second most popular religion in the city with approximately 15.37 percent.

The city has approximately 252 slums (notified) with 30 percent of population to the total population and 96 thousand households (approximately) located in Agra Municipal Corporation area with electricity and tap water connection.

Literacy Rate

Project city revealed the sex ratio of 875 females per thousand males. The literacy rate of Agra city as per 2011 census is 73.11 percent, slightly higher than the Tehsil average (73.07%); this constitutes 77.81 percent male literates and 67.74 percent female literates. Both the sexratio and literacy rate in females is lower than that of the male counterpart. Thus, active implementation of Gender Based Violence (GBV) and Grievance Redressal will have a great impact in the project. This has also been incorporated in the project EMP; assurance for the same from various levels from concessionaire to PIU/SMCG/NMCG is also required. Further during discussion with team, it was informed that there is no planning of hiring female labour at construction sites.

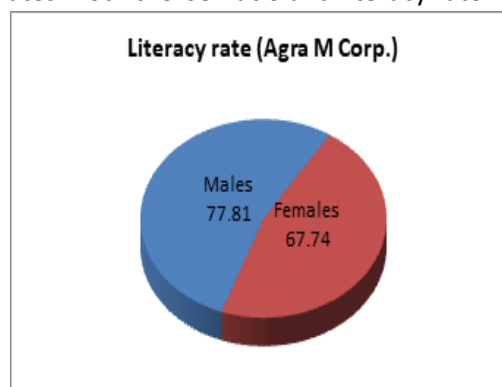
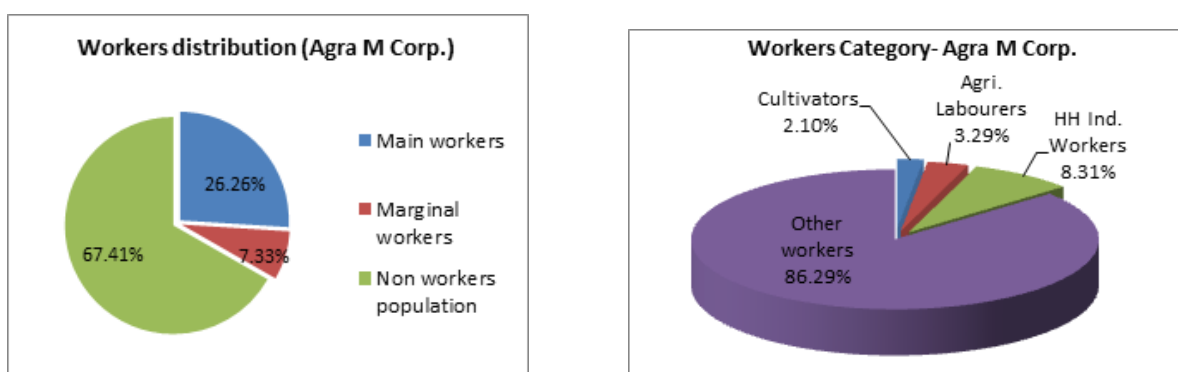


Figure 20: Literacy Rate

Occupational Pattern

The total workers in project city are 5.16 lakhs (32.59%) to the total population, in which main workers consist of 25.26 percent, marginal workers are existing 7.33 percent and non-workers contribution is 67.41 percent as per census 2011. Workers' composition for the city shows highest share of workers in other sectors⁴ (86.29 percent) followed by Household Industry workers (8.31 percent).

Figure 21: Worker Distribution and Category



⁴ Other Workers: all those workers other than cultivators or agricultural labourers or household industry workers are 'Other Workers'. The type of workers that come under this category of 'OW' include all government servants, municipal employees, teachers, factory workers, plantation workers, those engaged in trade, commerce, business, transport banking, mining, construction, political or social work, priests, entertainment artists, etc. In effect, all those workers other than cultivators or agricultural labourers or household industry workers are 'Other Workers'

Scheduled Caste and Scheduled Tribe Population

Analysis of social groups for the project city has been done on the basis of concentration of Scheduled Caste (SC) and Scheduled Tribe (ST) population in Tehsil and project city. As per census 2011, the total SC and ST population of taluka is 5.36 lakh, which shares 24.21 percent SC and only 0.30 percent ST to the total population.

As per Census 2011, SC and ST population for Agra city accounts for the figure of 3, 76,371. Of this the share of ST community is only 0.38 percent to the total population.

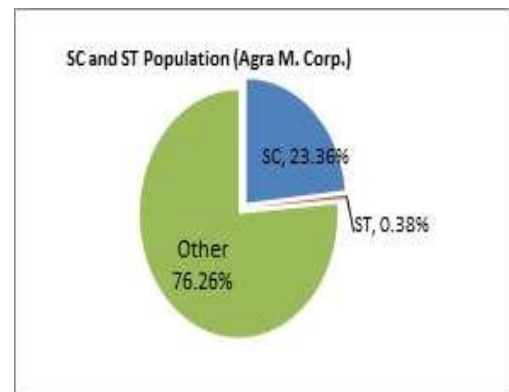


Figure 22: SC&ST %

Socio-cultural

Agra city is situated on the western bank of river Yamuna on National Highway (NH-2) and located at about 200km from Delhi capital of India. Agra is of historic importance of city, which is amply evident from the numerous historical monuments in and around the city. The city is a center of international fame with proud possession of 'Taj Mahal'. In addition to its historical importance; the city is the main centre of political, economic, commercial and cultural activities.

Agra achieved fame as the capital of the Mughal emperors and remains a major tourist destination because of its many splendid Mughal-era buildings, most notably the Taj Mahal, Agra Fort and Fatehpur Sikri, all three of which are UNESCO Sites. Agra is ranked amongst the most outstanding historic cities in the world and certainly best known tourist destinations in India.

City's planned activities

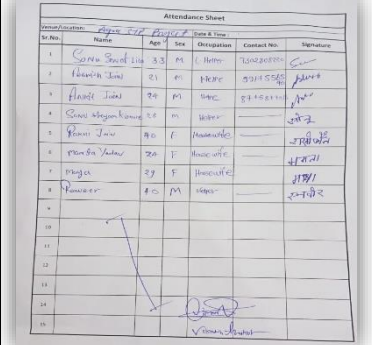
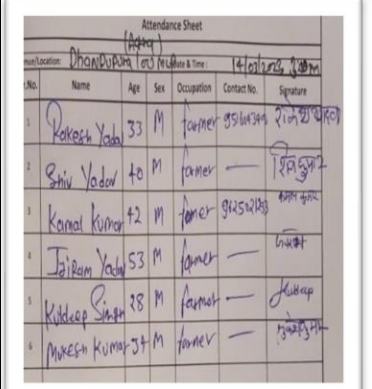
The city has divided into 90 wards and total over 2.67 lakhs of houses to which it supplies basic amenities like water and sewerage. It also authorizes to build roads within Municipal Corporation limits and impose taxes on properties coming under its jurisdiction.

4.11 Public Consultation

In the proposed project public consultations were held with the community, along with the VISHWARAJ technical team and EHS officer during site visit in month of March to May 2023.

The details of the consultation and issues discussed have been summarized in the table below with attendance sheets

Table 11: Public Consultation Details

S No.	Date /Location of Consultation	No. of Participants	Brief of discussion	Photos
1.	STP at Dhandupur and Jaganpur Area 05.03.2023	8	1.Nearby community to STP site was consulted and informed them about the upcoming sewerage project and its benefit. 2. They were also informed about the process of registering their grievances if any found during implementation of project. 3. During visit to Dhandupur STP,it was observed that local farmers are taking the dry sludge/manure from the STP. between Mar to May season everyyear.They informed that between Mar to May season,they used to take this manure on minimal rate.	  
2.	Proposed DSTP and Nala tapping at Artoni, Peelipokhar, Kailash Mandir and KK Nagar 28.04.23	8	1.Community residents have extended all support for the project. 2.They informed about the timing of heavy flow in drain. 3.Local community welcomed the initiative of major Nala Tapping and giving onsite treatment	

			facility to cater the pollution incoming in the River Yamuna. 4.Community people were enthusiastic about the project. 5.Suggestion was provided by community people to improve the aesthetics of the area through project establishment.	
3.	Rising Main (Consultation conducted at two places)	24	1.Community was made aware of the temporary inconveniences that will be rise during pipelaying work. Project team ensure that all possible mitigation measures will be taken up during implementation phase to reduce the impact and lessen down the inconvenience to locals. 2.Community was also apprised about the system of registering the grievances if any under this project. 3. Community expressed their cooperation for the project.	

5 Environmental and Social Impact Identification and Assessment

5.1 Methodology of Impact Assessment

This section identifies and assesses the potential impacts to the physical, biological and socioeconomic environment that can be expected from the proposed project components i.e., three number of Centralized STPs (100 mld, 35 mld, 31 mld), 10 number of Decentralized STPs of total 11.6mld capacity, Interception & Diversion works of 23 drains, three number of Main Pumping Station, 2.55km of sewer network and 9.35km of Rising Main. The impacts due to the Project activities have been identified and assessed. Impacts are identified and predicted based on the analysis of the information collected from the Project site (environmental and social features of the project component) and baseline information. The identification of likely impacts during construction and operation phases has been carried out based on understanding of activities and their consequent impacts on various environmental and socio-economic resources or receptors.

5.1.1 Impact Identification

For identification of Environmental & Social impacts, the following resources were referred:

- Applicable local, State, National environmental and social legal regulations
- Environmental & Social Management Framework (2020)
- World Bank Group's Environmental, Health & Safety Guidelines (WB-EHS) – General (2007), and Water and Sanitation (2007)

5.1.2 Impact Classification

The adverse impacts of project activities on environmental and social receptors in the study area have been classified based on the following attributes:

- Nature of impact – Reversible/can mitigate or Irreversible impact
- Duration of activity – Long or short term
- Extent of impact – Regional or Local impact
- Order of impact – Direct or Indirect impact

Using the above attributes, the adverse impacts have been classified as 'Low', 'Moderate' or 'High' to enable prioritization of mitigation measures as shown below.

NATURE \ EXTENT	Short Term (Duration of activity ≤ 6 months)		Long Term (Duration of activity > 6 months)	
	Regional	Local	Regional	Local
	Irreversible	Reversible	Irreversible	Reversible
Irreversible	High	Medium	Very High	High
Reversible	Medium	Low	High	Medium

The site context will determine likelihood of the impact, where this is found negligible, the impact is scaled down. The impact classification may be lowered or elevated basis the site context.

The assessment largely focusses on identifying **Direct Impacts** caused due to the project activities for

planning, preventive and mitigation measures. Addressing direct impacts would inherently break the chain of indirect impacts. Critical indirect impacts have been identified.

5.2 Positive Impacts

The project is expected to benefit the city, as currently the wastewater flows untreated into the River Yamuna will be tapped, treated at designated STPs and DSTPs. The treated effluent will be used in STP campus and irrigation purpose. The excess will be allowed to flow into the Yamuna River following NGT discharge standards. Here are some key positive impacts of the project:

- **Improved Sanitation Infrastructure:** The project will lead to the development and improvement of sanitation infrastructure in Agra to meet the demand of increased population. It will help to establish an efficient sewerage system that collects and treats wastewater, preventing its untreated discharge into water bodies or open areas. This will significantly reduce the risk of waterborne diseases and improved overall hygiene and sanitation conditions.
- **Environmental Protection:** The proposed sewerage project will contribute in Environment Protection by treating and managing wastewater efficiently. It will help in reducing water pollution by preventing untreated sewage from being directly released into rivers, lakes or groundwater sources. This will positively impact the quality of water resources and protect the local ecosystem.
- **Health and Hygiene Benefits:** Access to proper sanitation facilities is crucial for public health. The proposed project will improve the health and hygiene conditions for the residents of Agra by reducing the potential for the spread of waterborne diseases. Proper disposal of wastewater and effective sewage treatment will minimize the contamination of water sources and improve the overall public health in the area.
- **Tourism and Cultural Heritage:** Agra is home to several UNESCO World Heritage Sites, including the iconic Taj Mahal. The proposed sewerage projects will extend the positive impacts to the preservation and protection of these cultural treasures. By improving sanitation infrastructure and preventing pollution, the project will contribute in maintaining a clean and sustainable environment, enhancing the visitor experience and preserving the cultural heritage of the city.
- **Economic Development:** Improved sanitation infrastructure and a healthier environment will have positive economic impacts. This project will create employment opportunities during its construction phase and subsequent operation & maintenance. Additionally, the project's positive effect on public health and hygiene will lead to improved productivity, reduced healthcare costs and a better quality of life for the residents, contributing to overall socio-economic development in the city.
- This project will help in considerably reducing pollution load on Yamuna River which will lead to restoration of aquatic ecology and flourishing of aquatic flora & fauna.

5.3 Areas of No Significant Impact

5.3.1 Physical Cultural Resources

During the site assessment, no scheduled historical, archaeological, paleontological, or architectural sites were observed. Hence **no impacts on physical cultural resources** are anticipated from the project.

5.3.2 Scheduled/Tribal Areas

There are no Scheduled/Tribal Areas documented or notified in the study area. Hence, **there will be no impact on tribal areas due to the project.**

5.3.3 Protected Areas/ Forests

The study area does not comprise of any Reserved/Protected Forests, National parks, Wildlife sanctuaries and Ramsar sites. Hence **no impacts on protected areas/forest are anticipated from the project.**

5.4 Project Activities

5.4.1 Construction Phase

The construction phase of the project component will include the following key activities:

- Site Preparation (clearance of existing vegetation, fencing to avoid intrusion)
- Earthwork (earth moving and filling, land grading, levelling, and compaction)
- Operation of heavy vehicles/ machinery/ equipment
- Use of diesel generator sets and diesel-powered vehicles
- Labour camps and site office/control room
- Storage of construction material
- Transportation of raw material and construction spoil
- Storage of scrap, hazardous waste, and construction debris
- Maintenance of equipment/machinery

5.4.2 Operation and Maintenance Phase

The operation phase at project component will include the following key activities:

- Operation of sewage treatment plant and its components
- Operation and maintenance of chlorine dosing system
- Biogas generation
- Sludge management, treatment, and storage
- Operation and maintenance of the waste heat recovery system
- Operation of process air blowers
- Overall maintenance of the STP infrastructure
- Chemical and material storage
- Laboratory testing of raw and treated sewage
- Staff quarters
- Overall maintenance of STP/DSTP infrastructure
- Maintenance of landscape developed in campus (de-weeding, maintenance of greenbelt/buffer, maintenance of Miyawaki forest)

5.5 Impacts during Construction Phase

5.5.1 Viewscape Impacts

Construction of STPs is proposed within existing STP campus and some Decentralized STPs are proposed on outskirts of the town so viewscape impact will be limited. However, Decentralized STPs proposed in Artoni, KK Nagar and Kailash Nagar will put viewscape impact during construction period

but in positive manner as open drain will be tapped and treated. During construction phase, there will be an increase in the movement of vehicles, thus affecting the calm and serene view from the locality but the overall impact is low for this phase.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Low	<i>Impacts on viewscape will be limited to construction period only</i>

5.5.2 Impact on land

There may be some impacts on the land in the vicinity like Clearing and excavation of land temporarily disrupts the natural landscape. Vegetation, trees and topsoil removed during site preparation leads to the loss of biodiversity and potential soil erosion. In present project, proposed 100MLD STP involves 704 numbers of tree cutting was required for which necessary permission has been obtained from the Supreme Court. In lieu of 704 tree cutting, 6.82 acre of land has been allocated for compensatory afforestation and 1.18Cr has been allocated for 7500 saplings plantations and its maintenance for 10yrs.

Construction of STPs/DSTPs/MPS require a significant amount of land for their infrastructure development which lead to permanent alteration of the land's physical characteristics and land use. For the construction of DSTPs, forest diversion of 0.97 Hectare land is involved and NOC is under progress. But these impacts will be mitigated, managed and compensated through proper planning with adherence to construction best practices. Post construction, land restoration and landscaping activity is planned which will restore and rehabilitate the affected areas ensuring long term environmental sustainability.

Anticipated impact scenarios mentioned above will be short-term and will exist during construction activities only. As a result, they pose medium risk and they are reversible in nature.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Medium	<i>Although the construction will have impacts on land in vicinity and will be mitigated, managed and compensated through good management practice. During construction phase before implementation of EMP different activities trigger the impact from 'Low' to 'Medium'.</i>

5.5.3 Ambient Air Quality

The main sources of air pollution during construction will potentially be fugitive dust emissions, and exhausts from transportation vehicles and construction equipment.

The proposed activities are expected to increase the air pollution before EMP implementation:

- ✓ Fugitive dust emission generation from the various construction activities such as excavation, demolition and earthworks, storage and handling of construction wastes, movement of construction materials, compaction operation etc is expected to be high during windy condition.
- ✓ The transportation of raw materials to the site will lead to increase in vehicular emissions due to movement of trucks carrying construction material and mobilization of construction. Exhaust fumes from construction vehicles, especially diesel-powered ones, can release

pollutants such as nitrogen oxides (NOx) and particulate matter.

- ✓ The use of diesel generator sets, and construction equipment will increase the concentration of pollutants (SPM, SO₂, NO_x, CO) in the project area and immediate vicinity due to burning of fuel.
- ✓ Laying of sewer lines is mainly on main road, hence temporary impact on air quality where excavating and D.G sets operate to run digging machinery and to break the paved path would result in increase in fugitive dust.
- ✓ Further these construction activities cause temporary deterioration of the air quality which would be localized. Despite the potential short-term impacts during construction, the establishment of a sewerage treatment plant will contribute to long-term improvements in air quality. By treating wastewater and preventing its release into water bodies, the plant reduces the pollution load in the environment. This, in turn, helps to prevent the contamination of air and water resources, leading to improved overall air quality in the area. So, the potential impact on air quality is assessed to be Minor and pose medium risk and reversible in nature.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Medium	<i>During construction phase before implementation of EMP and close proximity to settlements, different activities trigger the impact from 'Low' to 'Medium'.</i>

5.5.4 Noise Pollution

The operation of construction equipment and other construction activities such as movement of materials/vehicles will increase the noise levels in the vicinity (not beyond 0.5 km) during the construction phase. The primary impact of noise level would be mainly on workers operating high noise generating machines, if appropriate control measures are not adopted.

The proposed construction activities are expected to increase the noise levels mainly due to

- ✓ Plying of transport/construction vehicles, pumping machines, use of portable generators, mechanical machinery such as cranes, riveting machines, hammering etc.
- ✓ There will be an increase in noise levels in areas situated close to the road due to movement of trucks and construction activities. Temporary impacts may especially be felt at educational facilities like schools/colleges, hospitals, cultural/religious centers including all religious institutions in the pipelaying areas.
- ✓ Increase of noise level at night may produce disturbances, causing sleeplessness in people in the vicinity of the site in case construction activity is extended into the night hours.
- ✓ Since the activities are for shorter duration hence the magnitude of impact is Moderate in nature.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Medium	<i>Due to close proximity to settlement, plying of transport vehicles and use of heavy machineries will cause the impact elevated from 'Low' to 'Medium'</i>

5.5.5 Surface Water Pollution

The potential impacts on surface water are expected as sedimentation and erosion, stormwater runoff, soil and chemical contamination during construction phase. The removal of vegetation during site clearance and levelling could loosen the soil, causing soil erosion. This loosened soil can cause siltation in the nearby water body specifically during the rainy season. Wastewater generated during construction could flow into the river body near to proposed site. Wastewater from transitmixers, construction debris may be dumped along the open *nallahs* and river. These activities could impact the overall water quality in the River and *nallahs* and could obstruct the water flow especially in the *nallahs*. If adequate arrangements are not made to ensure proper drainage of wastewater from the construction sites, such water may form stagnant pools, which might promote breeding of mosquitoes and create generally unsanitary conditions. Surface water can also be polluted through spills, leaks or improper disposal of construction materials. Mobilization of settled silt materials, runoff from stockpiled materials, and chemical contamination from fuels and lubricants during construction works can contaminate nearby water body. These potential impacts are temporary and short-term duration and can be mitigated through proper implementation of EMP.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Low	No adverse impact on surface water quality is envisaged as mitigation measures will be implemented properly and prevent any discharge in water body or irrigation system.

5.5.6 Ground water

During construction, excavation activities may be necessary to build foundations, underground structures, and pipelines. Excavation can temporarily lower the water table, leading to dewatering of the surrounding area. This dewatering process can affect groundwater levels and potentially draw contaminants into the groundwater. Contaminants can also be introduced into the groundwater through spills, leaks, or improper handling of construction materials. These contaminants may include fuels, oils, chemicals, and construction debris. But these potential impacts are temporary and short term which can be mitigated through proper implementation of EMP.

The level of ground water (ranges from 2.19 to 46.58 m below ground level) is under overexploited zone in Agra (as per CGWA), during construction stage use of ground water will be done in proper manner and necessary permission will be obtained as per CTE NOC.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Low	No adverse impact on Ground water quality is envisaged as mitigation measures will be implemented properly and prevent any discharge in water body or irrigation system. Necessary permission for groundwater extraction will be taken as per CTE norms.

5.5.7 Loss of Flora and Fauna

No natural forest area has been observed in the study area. There are no notified ecological sensitive locations, migratory paths, sanctuaries, etc. within the study area. As detailed out there are no endangered floral species in the study area.

Under proposed 100MLD STP 704 tree cutting was required for which necessary permission has been obtained from the Supreme Court. Under proposed DSTPs, 0.97 hectare of forest land diversion for construction work will take place. The proposal of forest land diversion is under process at National level. So, loss of flora is envisaged under project. However, in lieu of 704 trees cutting, 6.82 ha of land has been allocated along with Rs 1.82 Cr allocation for compensatory plantation of 7500 samplings with 10 yrs of maintenance. Also, as per CTE NOC from State Pollution Control Board, Miyawaki forest is to be developed under project.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Long Term	Medium	<i>Loss of flora will be compensated by afforestation work and precautions will be taken up to prevent the workmen or any other persons from removing and damaging any flora (plant/vegetation) and fauna (animal) including restriction of fishing in any water body and hunting of any animal.</i>

5.5.8 Social and Livelihood Impact

All the activities to be carried out during construction and operation phases will require skilled and unskilled labourers, hence creating temporary as well as permanent employment for local people. As the proposed project is located within the city limit with lot of employment opportunities, it is likely to have positive socio-cultural economic impact.

The proposed project will entail access disruption during the laying of new gravity sewer lines as observed during site visit for a shorter period as sewer line length is small. In the other areas where road width is 9m or above, the street vendors will be shifted across the road in the same vicinity which will help them in “not losing” their regular customers as well as the benefit of their location, and thus, this shifting will not have any adverse impact on their daily income. The laying of the sewer pipelines will involve an open-cut method and trenchless work with alignment either the center of road or ROW depend upon site situation, at the depth of 6m maximum. To provide access to the community and shopkeepers wooden/steel planks will be provide at site and a pipe laying work will be done in small stretch to ensure the backfilling with temporary restoration by the end of the day.

New STPs are proposed in the existing campus of STPs whereas few DSTPs are proposed near the habitation and majority is away from the habitations. So, impacts will be limited.

These impacts are short term and can be mitigated with proper implementation of ESMP.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short Term	low	<i>Through proper implementation of EMP this temporary impact will be minimized.</i>

5.5.9 Occupational Health and Safety

Construction workers are likely to have injuries and hazards as the construction works unavoidably expose workers to occupational health and safety risks. The workers are also likely to be exposed to risk of accidents and injuries resulting from accidental falls and injuries from hand tools and construction equipment. The project OHS hazards i.e., Mechanical hazards (trips/falls/tight workspace etc.), Asphyxiation hazards (suffocation, loss of senses, fainting spells etc.), Exposure to microbial/biological hazards, rodents/snakes, Personal hygiene hazards (skin, eyes, clothes, sanitation etc.) and Aggressive environmental conditions (high temperature/humidity, foul odour etc.) may impact the workers and cause some disturbances in work progress. By providing PPEs, TBTs, Mock Drills and training on safety practices with preparation of SOPs for work to permit, work at height, work in confined space and its proper implementation and monitoring may reduce the risk to a minimum.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Medium	Workers will have direct exposure continuously during construction, hence impact classification elevated to 'Medium' from 'Low'

5.5.10 Community Health and Safety

Site visit experience shows that because of its nature and scale, project like Agra Sewerage Project can be expected to have a limited interface with the local community and as a result will have minimal impact on the safety and health of local communities. During construction stage of the project, there will be an influx of workmen and labours, with some of them being from different sociocultural settings as compared to the residential settlement around site. In the case that hygienic conditions are not maintained at the project site, there may be a vector borne and other ailments in the immediate vicinity. Unless proper sensitization of neighboring communities is undertaken and appropriate safeguards are adopted, there is a possibility for increase in sexually transmitted diseases, though the possibility appears quite remote. The site clearing activities and construction activities (involving fill materials, brick and concreting work) would result in emissions of dust and noise, discharge of sanitary wastewater and potential littering from labour camps during a short phase and has a potential to contribute to additional nuisance levels for the community and households located immediately adjacent to site. However, with very few people living near the site, no significant health related impacts are expected to the communities in the area. The increase in vehicular movements as a result of plying of construction vehicles on the adjoining roads and the site access road would add to the risk of accidents in which local residents may be involved. Although there is a public concern over the potential health effects associated with the exposure to noise, odour and fugitive emissions, empirical data is insufficient to demonstrate adverse health impacts from typical STP projects. Considering good construction practices and planned embedded measures for mitigating these impacts, the overall significance of community health and safety impacts can be rated to be minor.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Medium	The impacts related to community, if not appropriately managed, could lead to agitation. Hence impact classification elevated to 'Medium' from 'Low'

5.5.11 Gender Based Violence

GBV is an umbrella term for any harmful act that is perpetrated against a person's will and that is based on socially ascribed gender differences. GBV includes acts that inflict physical, mental, sexual harm or suffering; threats of such acts; and coercion and other deprivations of liberty, whether occurring in public or in private life. The project site includes both the actual locations where civil works are conducted and also the associated areas such as the locations of workers' camps, quarries, etc. These GBV risks need to be assessed throughout the project's life by monitoring the situation, assessing the effectiveness of risk mitigation measures, and adapting them. Since a project involves construction work that will demand a constant supply of labourers, the influx of migrant workforce can be a potential risk for the host population. Technical team has informed that there is no plan for engaging female labors. Sometimes the migrant labours can impact the safety and privacy issues of the women in the surrounding locality will trigger the GBV risk. Mitigation measures with defining role and responsibilities is detailed in ESMP table which will be implemented to address the risk of gender based violence in the project and adjoining communities.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Medium	The impacts related to community, if not appropriately managed, could lead to agitation. Hence impact classification elevated to 'Medium' from 'Low'

5.5.12 Labour Influx

The construction of civil works for which, the required labour force, associated goods and services cannot be fully supplied locally for a number of reasons such as worker unavailability and lack of technical skills and capacity. In such cases, the labour force (total or partial) would be brought in from outside the project area from nearby municipal towns and villages and sometimes outside the state. The rapid migration of labour to the project area may affect the project area negatively in the terms of additional burden on public infrastructure such as local social and health services, utilities such as water and electricity, housing and social dynamics and thus impact on local communities. Other related issues could be increased risk of spread of communicable diseases, and increased rates of illicit behavior and crime. The conflict can also arise with shop owners and business entities during pipe laying work due to access disruption, in case no proper mitigation measure is put in place. The construction of the STPs and MPS will be within closed premises. Some of the adverse environmental impacts are illegal waste disposal sites, inappropriate Waste water discharges, camp related noise, access roads and land use issues. Such adverse impacts may get amplified by local-level low capacity to manage and absorb the incoming labour force, and specifically when civil works are carried out in or near vulnerable communities and in other high-risk situations.

As this impact is restricted to the construction phase, measures such as proper orientation to workers on gender and cultural sensitivity and prior information dissemination before construction starts can mitigate the impact.

Nature	Extent	Duration	Impact	Remarks
Reversible	Local	Short term	Medium	The impacts related to community, if not appropriately managed, could lead to agitation. Hence impact classification elevated to 'Medium' from 'Low'

5.5.13 Impact on Traffic

No much Sewer laying work is envisaged, but approx. 10 km of rising main work will need proper traffic management at the site. Due to the excavation work which will take place on the main roads of the city, there will be a disturbance in the traffic movement. People may suffer some inconvenience during the morning and evening peak hours. Moreover, the laying of pipelines will be done phase wise, for which suitable length of stretch will be identified to be worked upon and immediately after completion of the work in that stretch, road will be restored. Then further stretch will be taken up for laying of pipeline and subsequently restored. Temporary inconveniences caused by construction will be reduced if the project is implemented in a timely manner. Considering the implementation of mitigation measures, the residual impact disturbance/ discomfort to local people due to increase of traffic is assessed to be Negligible.

Nature	Extent	Duration	Impact
Reversible	Local	Short term	Low

5.6 Impacts During Operation and Maintenance Phase

5.6.1 Water Environment

Water resources in the project area would be the most positively benefited by the sanitation project since sewage will now be routed to the STP. Therefore, proper operation and maintenance mechanism must be followed for efficient working of the system. During maintenance work periodically flushing to remove accumulated sediments and other impurities accumulated in pipe. The environmental implication of pipe flushing is discharge of flushing water which may have high suspended solids and other contaminants. These can harm surface water. The uncontrolled discharge of domestic water into aquatic system can result in increase in microbial load, chemical contamination, oxygen depletion, turbidity and eutrophication. The probably environmental impacts related to water during operation stage may include unpredictable events such as:

- ✓ Temporary flooding of adjacent areas due to accidental leakages/bursts and also due to blockages and backloging of lines.
- ✓ Water pollution and possibility of mixing with water supply line due to leakages/ overflows from the sewer lines.
- ✓ Potential sources of impact for ground water contamination are minor oil and grease spillage, during maintenance of construction machinery, repair of pumps and compressors during operational phase.
- ✓ Impairment of receiving water quality in surface/sub-surface source due to inadequate /inefficient sewage treatment process.

These impacts can be mitigated through implementation of mitigation measures.

Nature	Extent	Duration	Impact
Reversible	Local	Long term	Medium

5.6.2 Noise Pollution

Improper handling and irregular maintenance of operating machines including pumps, generators, air diffusers, etc may lead to increased noise pollution during operation activity. Workers shall be directly prone to the exposure to excessive noise levels from operating machinery such as air compressors and pumping systems and motors. Increase in noise may also be experienced in the treatment systems where flow of water and bubbling exists.

Nature	Extent	Duration	Impact
Reversible	Local	Long term	Medium

5.6.3 Air Pollution and Odours

Air emissions from sewage treatment and anaerobic digester operations may include hydrogen sulphide, methane, volatile organic compounds, and chlorine gas used for disinfection processes. Hydrogen Sulphide will be generated from biogas generation and improper handling of sludge from the primary and secondary treatment. This could impact the ambient air quality in the immediate vicinity. The vehicular movement will be limited in the O&M phase. The project is not expected to increase traffic volumes or change other existing conditions to such a degree as to increase air pollutants emissions.

The other major contributing factor for ambient air pollution is odour. The major sources of odour include incomplete treatment of sewage and sludge and leakages from the anaerobic digestion process and chlorine gas. Odour generated from Hydrogen Sulphide gas is expected to be the most common source. Exposure of receptors to hydrogen sulphide levels above 5 PPB can lead to nuisance to workers within the project site and communities in close vicinity of project. Bio aerosol from the STPs can cause diseases if not treated properly, the release of chlorine could affect the locals if not properly regulated. In absence of proper waste management, long term impacts of odour can be anticipated.

Nature	Extent	Duration	Impact
Reversible	Local	Long term	Medium

5.6.4 Impacts due to Leakages and Overflows

Any malfunction of the STP will affect the quality of treated sewage that may be applied for various purposes such as landscaping, plant washing, provision for irrigation to nearby fields or discharge into the river.

Leaks and overflows from the sewerage system can cause contamination of soil, groundwater, and surface water. Depending on the level of groundwater, leaks in gravity mains may also allow groundwater into the sewer system, increasing the volume of wastewater requiring treatment and potentially causing flooding and treatment bypass.

Overflows and treatment bypass can also occur in case of higher hydraulic loading greater than treatment capacities. This may occur due to high flows during heavy rains, power loss, equipment malfunction or blockages in the internal plumbing system.

The overflows and leakages could also potentially cause contamination of the neighbouring fields due

to runoffs. This in turn could also potentially result in exposure of farmers and workers to pathogens, thus resulting in health impacts to the community.

The leakages and overflows if not managed scientifically could leach into the ground water, thus impacting ground water quality. In case of emergencies where operational difficulties may be experienced, the untreated /partially treated sewage would need to be bypassed directly into the freshwater bodies. This would produce adverse impacts on the water quality and aquatic flora and fauna during the period of release and for a short term afterwards.

The leakages and flow in the sewer networking system can result in soil, ground water and surface water pollution. If the ground water depth is less in the sewer, this would result in mixing of sewer water with ground water due to water seepages. Overflow condition in the sewer network occurs, when there is excess volume of waste water generated or there is blockade in sewer lane. It also happens when there is a heavy rain. The overflow in sewer line will happen when there is excess amount of wastewater generated, heavy rains, power loss, STP components malfunctioning, or blockages.

The overall environmental impact for all the above mentioned aspects are reversible in nature and local that will continue throughout the lifecycle of the STP and can be mitigated by adopting industry best practices.

Nature	Extent	Duration	Impact
Reversible	Local	Long term	Medium

5.6.5 Solid waste disposal

The solid waste i.e. sludge and solids generated at pumping station, screening chamber, cleaning of drainage and sewer collection system, etc. would be menace to the locals. If not collected it would choke the storm water network, and also can be potent disease vector. The sludge generated from the STP units during operation phase if not processed, handled properly, and would result in contamination of land, ground and surface water. Once dried, the fine dust components may be carried by wind to adjacent area. It would also generate foul smell and would cause inconvenience to the locals. These impacts are local and can be mitigated.

Nature	Extent	Duration	Impact
Reversible	Local	Long term	Medium

5.6.6 Occupational Health and Safety Impacts

The occupational health and safety impacts resulting from the O&M phase will primarily include accidents and injuries, exposure to hazardous chemicals and pathogens and exposure to natural and man-made emergencies.

Accidents and Injuries

Accidents and injuries in the STP/DSTP can be caused due to:

- Slips, trips, and falls due to wet floors and slippery walkways
- Falls into treatment tanks, clarifiers, trenches, confined spaces (manholes, pipelines, storage

tank, digesters etc.

- Splashes of hazardous chemicals and liquids
- Exposure to poisonous gases
- Cuts, pricks, abrasions, and contusions from operation of sharp tools and rotating equipment
- Strains and sprains from handling of heavy equipment, material etc.
- Electrocution from handling of energized circuits
- Burns from contact with high temperature liquids and equipment

Work at the STP/DSTP may also involve entry into confined spaces, including manholes, sewers, pipelines, storage tanks, wet wells, digesters, and pump stations. Getting trapped at confined space may also result in asphyxiation resulting from increased carbon dioxide levels.

Exposure to Hazardous Chemicals and Pathogens

Working in the Sewage Treatment Plant involves potential exposure to hazardous chemicals like strong acids, bases, chlorine, hydrogen sulphide, methane, and ammonia. Exposure sources include the chemical storage yard, chlorine generator system, anaerobic digesters, sludge bed, clarifiers, and laboratory. During operation, chemicals such as Chlorine, Aluminium hydroxide, Ferric hydroxide are used, posing risks to handlers and the environment if not treated properly. Additionally, hazardous chemicals like waste oil from D.G set maintenance require careful attention. The water may also contain heavy metals, and untreated sewage exposes workers to pathogens like viruses, bacteria, molds, fungi, and bioaerosols. Routes of exposure include hand-to-mouth contact, skin contact, and inhalation of aerosols and poisonous gases, with potential entry through cuts and abrasions.

Exposure to Operational, Natural and Man-made emergencies

The various emergency situations that could occur on-site include:

A. Operational

- Fire and explosion in the STP premises
- Leakage of Hydrogen Sulphide/ Chlorine gas
- Explosion from biogas flaring and methane release
- Collapse of sheds or structure etc.

B. Natural calamities such as earthquakes, floods, and cyclones

C. Man-made

- Bomb threat or criminal attack
- Riots & Public violence
- floods

The various emergencies will have an impact to workers' health and could potentially impact the neighboring community as well. All workers, and visitors would be exposed to these hazards based on the various situations. These impacts can be managed and mitigated by adoption of industry best practices and employing cost effective mechanisms.

Nature	Extent	Duration	Impact
Reversible	Local	Long term	Medium

5.6.7 Chance of accidents & injuries

During the O&M phase, occupational health and safety impacts primarily include accidents, exposure to hazardous chemicals and pathogens, occupational noise, and exposure to natural and man-made emergencies. Workers in STPs/DSTPs face injury risks due to various workplace hazards like underground or elevated work areas, open trenches, slippery walkways, electrical circuits, heavy equipment, storage tanks, wet wells, digesters, and pumping stations. The generation of methane and H₂S gas from anaerobic bio-digestion poses the risk of fire and explosions. Workers dealing with sludge collection may be exposed to sewage-borne pathogens, including endotoxins. Work involving confined spaces like manholes and sewers may lead to asphyxiation if proper precautions are not taken. Training and proper PPE are crucial for activities in confined spaces. Emergencies can impact workers' health and the surrounding community, but adopting proper mitigation measures can manage these risks.

Nature	Extent	Duration	Impact
Reversible	Local	Long term	Medium

5.6.8 Community Impacts

The impacts on community may include:

- The security personnel appointed for protection of the plant could pose risks to the community due to misbehavior.
- During operation phase, inflow of persons is expected. This will result in establishment of supporting facilities and attract labour for employment. New persons coming in could have cultural differences with the resident population, potential conflicts may arise on issues related to the environment, safety, and privacy issues of the women in the surrounding villages.

The overall impacts related to community, if not appropriately managed, could lead to agitation. However, it is expected that the impact will be restricted to immediate vicinity of the project area and can be addressed through implementation of mitigation measures and management of human resources.

Nature	Extent	Duration	Impact
Reversible	Local	Long term	Medium

5.7 Summary of E&S Impacts

Nature of Impact/ Activity	Impacted EHS Component	Impact Classification
Project Development/ Planning Impacts		
1. Views cape impacts due to proximity of settlements to the project area	Local Community	low
2. Land Use Change due to setting up of STPs/DSTPs/MPS	Local community	Medium
Pre- Construction & Construction Phase Impacts		
3. Impact on land due to various construction activities	Soil quality	Medium
4. Increase in fugitive dust emissions causing air pollution from site clearance, excavation, raw material transportation, storage of excavation spoil, use of fuel wood in labour camps	Ambient air quality, community health, worker health	Medium
5. Increase in concentrations of PM ₁₀ , PM _{2.5} , SO ₂ from burning of fuel in construction equipment, transportation vehicles and cooking in labour camps		Medium
6. Increase in ambient noise levels due to operation of construction equipment.	Worker health	Medium
7. Obstruction of flows in open nalla and deterioration of surface water quality due to soil erosion and dumping of construction waste	Surface water quality, local community	Low
8. Loss of flora and Fauna due to setting up of plant unit	Flora and Fauna	Medium
9. Soil contamination due to improper management of construction waste, spills and leaks, absence of sanitation provisions in labour camp.	Soil quality, Ground water, Local community	Medium
10. Ground water pollution due to leaching of materials and waste into the soil	Ground water Local community	Low
11. Accidents/ damages due to erosion/ sliding of vertical sides of excavated trenches while placing the pipes	Worker	Medium
12. Exposure to physical, chemical hazards, exposure to noise, working with construction equipment, fugitive dust, emergencies at site	Construction worker	Medium
13. Exposure to migrant workers, air, noise pollution, project security personnel, obstruction to community activities and accident caused in the nearby community due to construction activities	Local community	Medium
14. Traffic congestion due to network in congested area	Local community	Low

Operation and Maintenance Phase		
16. Air pollution through air emissions and odour generation from the operation of the sewage pumping station	Ambient air quality Local community	Medium
17. Leakages and overflows resulting contamination of soil, freshwater bodies, and groundwater	Surface water quality Groundwater quality Soil contamination Local community	Medium
18. Unscientific management and disposal of screened out wastes	Soil quality Groundwater quality Local community	Medium
19. Exposure to chance of accidents and injuries in sewer cleaning and work at confined space	Workers at work	Medium
20. Community Impacts resulting from use of untreated wastewater, exposure to odor, resource depletion, influx of immigrant population, misbehavior of security,	Local community	Medium

6 Environmental and Social Management Plan

6.1 Methodology of Developing ESMP

Based on the project activities during pre-construction, construction and O&M stages of the project, environmental, occupational health and safety, and community health and safety impacts have been identified in the previous Chapter.

For identification of management measures, the following resources were referred:

- World Bank Group (WBG) General EHS guidelines
- EHS Guidelines for Water and Sanitation (2007)
- IFC Performance Standards (PS) - PS 1, PS 2, PS 3, PS 4, PS 6, P 7 and PS 8

The hierarchy adopted for planning management measures is elimination, substitution, engineering control, administrative control, and personal protective equipment.

The environmental and social management plan ensures to suggest appropriate mitigation measure against the issues/ concerns identified during the environmental and social assessment study. In general, Yamuna Pollution Control Unit, an executing agency (with assistance from Concessionaire and Project Engineer) is the responsible entity for ensuring the mitigation measures as suggested in the ESMP. Further, this ESMP provides project and site-specific mitigation measures to minimize damage to the local environment and disruption to local communities. The roles and responsibilities of the involved institutes are described below.

6.2 Institutional Arrangement for Implementation of ESMP

6.2.1 Implementation of ESMP

The Concessionaire has the prime responsibility to implement the ESMP during all phases of the project. Concessionaire in their ESHS plan mentioned the Roles & Responsibilities of site staff in ESHS implementation under project (refer **Annexure 13**). The ESMP will be applicable to all Contractors and Sub- Contractors including labour contractors and their workers working in the project during all phases. Concessionaire has also outlined the selection, evaluation and control of sub-contractor in ESHS plan (refer **Annexure 14**).

“EHS officer” at project level from concessionaire side will ensure the compliance of the ESMP which will also be monitored by Corporate QHSE Head and EHS Head of M/s Vishvaraj Environment Private Ltd. (Vishvaraj Environment Private Ltd has a certified Integrated Management System (IMS) as per ISO 45001:2018 and ISO 14001: 2015. They are having EHS management system developed at the corporate level and is extended to all projects in India). Apart from EHS officer, one environment expert and one social expert is also need to be mobilized which is under process. OHSE Policy is enclosed in **Annexure-10**.

At the state level, State Ganga Committee constituted vide S.O. 3187 E dated 7th October, 2016 under Environment protection act 1986. Under the SMCG, Yamuna Pollution Control Unit (YPCU) is functioning as the Executing Agency in Agra or some western part of UP under YAP region. The I&D Sewerage and STP Scheme at Agra will also be implemented under the same structure. One Environmental Safeguard Official, one wild life expert & one Social safeguard official is placed at SMCG and functioning as a focal point for environment and social

safeguards.

Yamuna Pollution Control Unit and project staff of UP Jal Nigam, Agra division will monitor as well as ensure compliance of environmental and social safeguard measures associated with the day-to-day construction activities of the proposed project.

6.2.2 Reporting and Monitoring

Concessionaire will submit the Monthly ESMP compliance report to YPCU and SMCG. Quarterly ESMP compliance report submitted by concessionaire will be shared with NMCG and World Bank. Periodic monitoring for the ESMP compliance will be ensured by E&S personnel of YPCU/UP Jal Nigam Agra division and SMCG.

6.3 ESMP for proposed component under sewerage project

6.3.1 During Pre-Construction, Construction and O&M Phase

This section outlines the potential adverse impacts, mitigation measures, monitoring and management responsibilities during construction and operation phases of the Projects. The purpose of ESMP is to:

- Provide an institutional mechanism with well-defined roles and responsibilities for ensuring that measures identified in ESIA designed to mitigate potentially adverse impacts, are implemented.
- List all suggested mitigation measures and control technologies, safeguards identified through the ESIA process.
- Provide Project monitoring program for effective implementation of the mitigation measures and ascertain efficacy of the environmental management and risk control systems in place and
- Assist in ensuring compliance with all relevant legislations at local, state and national level for the Projects.

In order to minimize adverse impacts during different phases of project lifecycles, mitigation measures, monitoring plan and responsibilities for its implementation are given in Table 8. The responsibility for implementation of ESMP will primarily lies with the concessionaire under supervision of UP Jal Nigam.

Note: Since at some instances, details of proposed DSTPs are yet to be finalized. As of now, available information on DSTPs is as follows-

- Out of 10DSTPs, three are SBR based and seven are MBBR based technology.
- Land for the all DSTPs are almost finalized and encroachment free, however, NOC for the same is not received.
- Capacity of each DSTPs is almost final except KKNagar where minor increase in capacity may be proposed.4. Design & drawing is under approval stage.

Most of the mitigation measures require the Construction Contractors to adopt good site practice, which should be part of their normal procedures & SOP. So, there is unlikely any major cost escalation to be associated with compliance. Regardless of this, any costs of mitigation by the construction contractors are included in the budgets for the civil works and do not need to be estimated separately.

The environmental and social management plan ensures to suggest appropriate mitigation measure against the issues/ concerns identified during the environmental and social assessment study.

6.3.2 Social Impact Assessment/Mitigation measures

- (i) Livelihood impact: Sewer constructions will invariably lead to road closures which will adversely affect shops on those streets. Local traffic disturbance is anticipated due to laying work of Sewerage line (2.5 km) and rising main line (9.4 km) along the road, therefore proper Traffic Management Plan should be prepared by concessionaire for reducing traffic congestion and mitigating disturbances to public during the excavation works. The first priority is for the concessionaire to take the necessary measures to ensure that pedestrians always have access to shops, vendors etc. For mobile vendors, this may include adjusting the location of the cart etc. to a similar location in the immediate vicinity of the original location for the duration of the project. Projects should also proceed on schedule so as to minimize disruption. Additionally, clean-up of debris and clearance of blockages should commence immediately after project completion so as to remove any potential obstacles that might prevent customers from accessing businesses or other disruptions.
- (ii) The Environmental and Social Management Framework (ESMF) provides provisions for addressing permanent livelihood loss. It is confirmed that no such loss of livelihood is anticipated under this project. However, should any livelihood loss occur during construction, it will be addressed in accordance with the provisions outlined in the ESMF.
- (iii) Any temporary impacts on mobile, ambulatory, or temporary vendors will be avoided during the construction period, or they will be relocated to suitable nearby areas to enable them to continue their livelihoods without disruption.
- (iv) Sewer lines is very small in length. There would be no loss of community assets during the construction as noticed during field survey and consultation with the local people.
- (v) Land acquisition: - STPs/DSTPs is proposed on Govt. land and NOC has been received for 3STPs. Out of 10 DSTPs, seven is proposed on forest land for which NOC is under process. Balanced 3 DSTPs are proposed on Municipal land. NOC for one is received and two is under process. Civil work will commence upon obtaining the NOC from the relevant authority and formally handing over the land to the concessionaire through an official letter.

- (vi) There is no risk to the social and cultural resources of the city under this project. During working at sensitive times such as religious and cultural festivals, special care will be taken.

Table 12: ESMP for Pre-Construction, Construction and O&M Phase

Potential Impacts	Duration /Level of Risk	Mitigation Measures	Cost (Rs.)	Responsibility	
				Implementation	Monitoring and Supervision
Design Phase					
Land Acquisition Statutory clearances, Forest Land diversion, NOCs, CTE NOC, Permits, etc.	Short term/Low	a) No land acquisition is envisaged under project. b) Land parcel proposed for construction of STPs/DSTPs/MPS is on Govt land. NOC is received for STPs. c) Out of 10 DSTPs, seven is proposed on forest land for which NOC is under process. Balanced 3 DSTPs are proposed on Municipal land. NOC for one is received and two is under process. Civil work will commence upon obtaining the NOC from the relevant authority and formally handing over the land to the concessionaire through an official letter. d) All statutory clearances and necessary approvals required for Environmental and Social aspects during construction is under process and will be ensures before start of civil works. e) 0.97 hectare of forest diversion land for 7 DSTPs is under process of approval at Gol.(Annexure-5) f) Permission has been obtained from Supreme Court of India for 704 trees cutting in TTZ zone at proposed location of 100MLD STP in existing campus of Dhandupura STP. (Annexure-6) g) CTE NOC is obtained from State Pollution Control Board for 3STPs (100MLD,35MLD and 31MLD) (Annexure-12). For DSTPs, CTE NOC will be taken after handing over of land to concessionaire. h) In case of using ground water use, permission from CGWB for extraction of water will be taken up.	Part of Contract	UP Jal Nigam / SMCG / Prospective Concessionaire	NMCG / YPCU / SMCG

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Utility Relocation		a) During visit, it was observed that 11KVA line was passing through the proposed location of 100MLD STP at Dhandupura. Shifting of this line along the boundary is under process. b) List of all affected utilities will be prepared with finalization of design & drawing of all proposed components and the necessary approval will be taken prior to avoid unnecessary disruption of services during construction phase. c) Affected utilities will be relocated with prior approval of the concerned agencies before construction starts. d) Advance notice (not less than 10 working days) will be provided to affected parties, in the form of written notice. e) Grievances will be resolved through established grievance redressal cell for timely addressing of grievances, if any.	Part of Contract	Prospective Concessionaires in collaboration and approval of concerned department / UP Jal Nigam / SMCG	Concerned department / UP Jal Nigam / SMCG
Labor Camps/ Stacking yard		a) The identification of locations is under process for establishing the labour camp prior to the start of construction work. b) At the same time, finalization of raw materials stacking area is under process and the approval on same will be taken from the implementing agency prior to start of construction work. c) Hiring of local labours will be preferred in project.	Part of Contract	Concessionaire	Project Engineer /SMCG/NMCG/implementing agency

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Provision of flood risk management, effective storm water drainage		a) Around 360mm rainfall recorded in year 2018 as maximum, which is quite good. Accordingly, provision for adequate holding capacity for storage of sewage is proposed to prevent flow of untreated sewage into river. b) The height of STP is considered with HFL level of the river. c) As there is no risk of flood but all necessary provisions will be ready in case of rain water accumulation from peripheral catchment area of STPs.	Part of Contract	Concessionaire	Project Engineer /SMCG/NMCG/implementing agency
Provision for accidental leakages/ bursts, STP Breakdown		a) Proper drainage arrangements will be ensured so that the water does not stagnate on the site especially for new STPs/DSTPs and MPS building site. b) Provision of holding of untreated sewage will be done so that during the STP breakdown the untreated sewage does not flow to the river. c) Sewers designing is with adequate capacity and gravity flow velocity and regular inspection and maintenance of the sewer lines will be ensured, in case of emergency.			

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Disposal of treated waste water		a) The treated water quality will comply with the prescribed standards of the State Pollution Control Board and NGT 2019 before let out into the designated outfall as per scope of work with withdrawal arrangement for irrigation purpose. b) Provision of effective separation and controlled disposal plan of digested sludge will be prepared in sludge management plan and submitted before start of O&M phase. c) Reuse of treated water will be ensured as per Concessionaire Agreement (scope of work) and CTO NOC of both STPs/DSTPs. d) Reuse of treated water will also be looked in line of objective of SBM.2 and AMRUT.2. and its use in industries.	Part of Contract	Concessionaire	YPCU / SMCG
HAM Concessionaire has reviewed and verified the project component as per CA Scope of Work, land availability and data made available by the department and accordingly plan for design & drawing with its vetting.					

Construction Phase					
View scape impacts due to proximity of settlements to the project area	Short term/Low	a) Location of dump yards and traffic parking will be ensured to not in direct view of the settlements. b) All the construction activities will be restricted within the designated site with proper provision of storage facility for construction materials. c) Construction and municipal solid waste temporarily stored at the site will be transported to the KUBERPUR disposal facility at regular intervals. d) Sections excavated for construction activity will be barricaded with tin sheets. e) Sections excavated for pipeline route will be properly barricaded with movable barrier to avoid any risk to passer-by. f) Stacking of sections of pipeline to be done away from settlements with provision of wedges to ensure that rolling or movement of pipeline do not pose risks to nearby. g) On completion of pipe laying work, all temporary structures, surplus materials and wastes will be completely removed from the site and disposed of at a designated place.	Part of contract	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
Surface water pollution due to soil erosion, release/runoff of construction wastewater and dumping of debris	Short term/Medium	a) No construction camp will be allowed near to 100m of River line/water bodies. b) To prevent sedimentation of soil, contouring and minimizing length and steepness of slope. c) Mulching to stabilize exposed area and lining steep channel and slopes. d) Left-over excavated spoil after backfilling will be use at different site	Part of contract	Concessionaire	PE/SMCG/NMCG/ Implementing Agency (IA)

		for site levelling work. e) Construction work will be avoided near stream/water body in monsoon season to prevent any runoff in water body. f) Provision of channels, earth bunds or sand bag barriers on site will be ensured especially on rainy days in initial phase of construction to direct storm water to silt removal facilities. g) Proper barricading, bund protection will be ensured if work is proposed close to water body. h) Protection of stockpiles by plastic sheeting to ensure that they are suitably secured against the wind. i) Stockpiled areas to be bordered by berms. j) Stockpiles to be done in high areas to avoid flow in storm water run-off channels and erosion. k) Drainage systems, erosion control and silt removal facilities will be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit will be removed regularly. l) Any temporarily diverted drainage will be reinstated to its original condition when the construction work has finished or when the temporary diversion is no longer required. m) Vehicle servicing areas, vehicle wash bays and lubrication bays will, as far as practical, be located within roofed and cemented areas. The drainage in these covered areas will be connected to sewers via an oil/water interceptor. n) Any oil leakage or spillage will be contained and cleaned up immediately. Waste oil will be collected and stored for recycling or disposal as per CTE Norms of Hazardous Waste Handling. o) Storage of fuel and oil will be ensured away from any drainage channel/nalla preferably to be stored in drums mounted on a concrete paved platform. p) Any surplus wastewater from the concrete batching plant will be			
--	--	---	--	--	--

Ground water pollution due to leaching of materials and waste into the soil		treated to comply with discharge standards before it is discharged outside the project premise. q) Surface water contamination from storage and handling of chemicals will be prevented by designating the storage area with proper boundary. a) Waste materials will be ensured not to be thrown into excavated areas. b) Hazardous wastes will also be properly disposed as per CTE conditions to prevent any Ground Water Pollution. c) Extracting ground water for construction work, prior permission from the CGWB will be taken.			
---	--	--	--	--	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

1. Increase in fugitive dust emissions causing air pollution from site clearance, excavation, raw material and transportation, storage of excavation spoil, use of fuel wood in labour camps 2. Increase in concentrations of PM10, PM2.5, SO2 and NOx from burning of fuel in construction equipment and transportation vehicles and cooking in labour camps.	Short term/Medium	a) While digging for sewer line and sewer piping, dust prevention measures like water sprinkling, shade cloth will be installed to attenuate dust. (Water sprinkling is ensured to be twice specially in dry and windy period) b) Hard barricading will be provided at sewerage network laying areas in the major roads of the town. c) At the stocking yard, loading and unloading area will be temporarily fenced with green shade cloth at construction site/material stacking area to prevent air pollution in nearby areas. Height will be minimized from which fill materials are unloaded during site backfilling as far as possible. Where possible, this should be below the height of the barricading around the Project site boundary. d) GI sheet about 3m height/Shade Cloth with help of Scaffolds 3 meters high as per availability will be installed all along the construction site to prevent the surrounding areas from dust nuisance. e) All the D.G Sets will be installed with appropriate stack height for proper dispersion of gaseous complying with the Uttar Pradesh SPCB norms. Ensure that the oil used should be lead free and use of low sulphur diesel. f) The vehicles carrying construction materials will be properly covered to prevent dust falling from vehicles during plying. g) All the vehicles used for transport of construction material and used for construction activities will have Valid PUC certificate. Periodical maintenance / inspection will be carried out on Vehicles/ Equipment/ Machineries as per schedule in order to ensure proper working conditions and to render exhaust emissions, inoffensive. h) Quarterly ambient Air Quality monitoring except monsoon season, at the active construction site will be carried out with the help of NABL approve laboratory, downwind of the project site. i) No waste will be burnt on or around the Project site. j) Minimize movement of construction vehicles and enforce a speed	Water sprinkling on excavated area twice a day (STP+DSTP+MPS) and dust mitigation in network of 12km approx., for 2yrs. INR 20,00,000 (Lumpsum cost) Dust control at 3STP/10DSTPs/ 2MPS sites (Lump sum Cost of shade cloth 130 Rs/m2 for 3 meters height and 120 meters length. With 4-time replacement in two years @200000) INR 30,00,000 (Lumpsum cost) Top cover for dumper truck involved in transportation work. INR 10,00,000 (Lumpsum cost)	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
--	-------------------	--	---	----------------	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

		limit around the construction site. k) During construction, the approach road will be regularly maintained to keep it clean, free from mud and slurry. The approach road will be properly shaped and compacted by rolling to an even and uniform surface to receive pavement. l) Appropriate PPEs (Mask) will be provided to worker/labourer handling the fine dust and construction material.	Air pollution mitigation INR 10,00,000 (Lumpsum cost)		
--	--	---	---	--	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Increase in ambient noise levels due to operation of construction equipment and vehicles	Short term/Medium	a) Periodic preventive maintenance of construction equipment for optimum engine performance will be ensured. b) D.G set including vehicle and construction machinery will be provided with acoustic enclosures and thickly padded to prevent vibration. c) Day time work is allowed (10 A.M to 6.00 P.M) in area near sensitive receptors if not congested/high traffic. If work needs to be undertaken outside these hours, it should be limited to activities that do not lead to exceedance of the noise criteria at nearby sensitive receptors. d) Installation of mufflers will be ensured on engine exhausts and compressor components. To reduce the noise level the period of time for using the machine will be reduced. e) Care must be taken that no employee be exposed to a noise level greater than 85 dB(A) for duration of more than 8 hours per day without hearing protection. No worker will be exposed to a peak sound pressure level of more than 140 dB(A) without using ear protective measures. f) Health Check-up (from empanelled hospital) once in 6 months basis will be scheduled on site where medical hearing check is ensured on workers exposed to high noise level. g) Signages no honking will be ensured to the construction site and driver must be oriented on that especially during work near to sensitive receptors. h) In TBT, Drivers and workers will be trained on noise management. i) Noise barriers will be installed on-site requirement. Noise levels through handheld meter will be conducted during construction work near to sensitive receptors i.e hospitals and schools. j) Ambient Noise monitoring of construction site is scheduled on quarterly basis except monsoon season by NABL accredited lab.	Sound barriers will be used wherever required. (DSTPs sites required more attention) INR 20,00,000 (Lumpsum cost)	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
--	-------------------	--	---	----------------	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Impact on land- Soil contamination due to improper sanitation, spills of hazardous waste and other waste and improper management of wastewater	Short term/Me dium	a) To prevent soil, land pollution, all loading and unloading area, storage of hazardous chemicals, identified area used for storage of sludge will be paved. b) To prevent land pollution due to road tar (hazardous substance) which is generated during road cutting operation for laying sewer line is used for backfilling and the left-over soil will be disposed to designated place at Kuberpur, landfill site. c) Disposal of hazardous waste will be done as per CTE Norms. Construction workers will be provided with toilets with septic tank and soak pit and covered bathing areas in labour camp ensuring their privacy and hygiene. Construction sites will also have the provision of toilet facility. d) Domestic waste from site offices/labor camp will be stored in different colour bins and handed over to door-to-door collection ULB vehicle. e) Care to be taken to store fuel and oil (if required) at a place away from any drainage channel/nalla preferably to be stored in drums mounted on a concrete paved platform with slope draining to a container if any spillage occurs.	Part of contract	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
--	--------------------------	---	------------------	----------------	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Exposure to migrant workers, air and noise pollution, project security personnel, obstruction to community activities and accidents caused in the nearby community due to construction activities	Short term/Medium	a) Location of construction camp is not preferred near to water stream, residential areas and / or any sensitive land uses like schools, hospitals, etc. As the new STPs are proposed in existing STP campus, have sufficient space within the campus and not near the densely populated area, so labour camp may be planned in STP campus as of now. Final decision will be taken upon this. b) All relevant provisions of the Factories Act, 1948 and the other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 for construction and maintenance of labour camp will be followed. (refer Annexure-16 for Camp facilities) c) While during construction phase, local labour will be preferred for construction activities. There is no plan of engaging female labours. Labours from other places will also be engaged on requirement basis for skilled/semi-skilled jobs. d) Adequate facilities will be provisioned to the workers and labourers such as properly constructed and well-ventilated labour camps, clean and hygienic sanitation facilities, cooking areas etc. to minimize the health-related impacts. e) All temporary accommodation will be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing. f) The sewage system for the camp will be planned. Adequate health care will be provided for the work force. g) All labour's identity card (Adhar card/voter id/driving licenses etc.) issued from competent authority will be checked by EHS officer to ensure that no child labour is hired under project. Health condition also to be checked before engaging workforce in the site. h) Worker's centric GRM and a committee at project site as First tier of redressal of grievances will be constituted to manage the workers grievances, if any. i) Orientation training on safety requirements, Code of Conduct, and other working conditions will be provided.	Labour Camp cost (3 labour camp @Rs.1200000/- one camp for 2yrs) INR 36,00,000 (Lumpsum) NOC is required for Tube well from CGWB. (Cost for T/W @Rs100000/-) T/W cost for STPs/DSTPs INR 13,00,000 (Lumpsum)	Concessionaire	Project Engineer /SMCG/NMCG/implementing agency
---	-------------------	--	--	----------------	---

		j) Awareness about local tradition and culture among outside migrant will be created with encouraging respect for the same. k) Awareness programme about sexually transmitted diseases among the migrant workers, labourers and for community around project site will be conducted by EHS officer of the site. l) Proper disposal of wastes generated from the camp and construction activity will be provisioned to maintain general hygiene in the area. Concessionaire has also submitted the detailed EHS plan "Environment Social Health and Safety Management Plan" for this project. m) To avoid the issues of migrant workers and conflict with locals following steps will be adopted: - Communication to local community, shops and vendors prior to the start of the construction. - Labours would be provided training on local culture and traditions through daily tool box talk. - Local Community to be made aware of the grievance mechanism and provide access to the local community and labourers to the grievance redressal mechanism for the project. <u>Health and safety</u> n) In order to have emergency care at construction site and avoid any mis-happening, tie-up with nearest hospital is under process for emergency health care services. On any health issues at site, the workers will get the treatment in normal circumstances as well any emergency. o) An Initial Health screening along with screening at regular interval (in every 6 months) will be provided for all workers and staff during construction and operation phases p) Biomedical waste emanated from the construction site will be handed over to tie up hospital. q) Provisions of First Aid services will be ensured at site. (refer Annexure-15 for details on First Aid Box)			
--	--	---	--	--	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

		r) All provision such as separate toilet for male and female, proper sanitation, bio toilet will be provided at construction camp and construction sites as per BOCW act & Factory Act 1948.			
--	--	---	--	--	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Resource consumption such as water and fuel causing depletion	Short term/Low	a) Procurement of sand, aggregates and soil will be done from authorized quarries and borrow areas. b) Preventive maintenance of construction equipment will be followed to ensure proper engine performance and optimum level of fuel consumption. c) Optimization of running hours of the equipment and machinery will be done through proper planning of the activities to be carried out. d) Air nozzles on hose pipes will be used for water spraying during curing and plugging of leaking pipe will be taken care in case of any leakages. e) Ensure that water taps are in closed position while not in use. f) Monitor usage of water and ensure optimization of usage for various activities. g) Workers will also be oriented on the aspects of resource conservation. Special focus will be given on wood burning for cooking or in winter period.	Part of contract	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
Biodiversity conservation (Flora and Fauna)	Long term/Low	a) Top soil of the excavated area shall be stored and used for green belt development. The 15 cm top soil is suggested to be stored at designated location within the site. It will be stabilized using seeding and mulching as preventive measures and will be used for landscaping/gardening at STPs/DSTPs site as an environmental enhancing measure. b) As per condition of Supreme Court, compensatory planting of 7500 saplings will be done in lieu of 704 trees cutting. Rs 1.18 Cr fund has been allocated for sapling plantation and its 10yrs maintenance. c) All the activities will be restricted to the premises only to avoid and reduce the impact on biodiversity.	Part of contract	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Gender Based Violence, Gender Assessment & Development and Grievance Redressal	Short term/Low	a) There is no plan of engaging female labours in construction. b) Orientation of project staff, sub-contractor and other stakeholders regarding Gender Sensitive issues and Gender development indicators will be conducted through TBT. c) Gender sensitive IEC (Information, Education and Communication) material will be developed and displayed at site. <u>Gender Based Violence</u> d) Mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women. e) Informing workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted. f) A Worker Code of Conduct will be introduced as part of the employment contract and including sanctions for non-compliance (e.g., termination). g) There will be mandate rule to cooperate with law enforcement agencies in investigating complaints about gender-based violence. h) ICC committees constituted at EA, SPMG and NMCG level will be addressing GBV and GRM related grievances. i) IEC material will be developed and displayed at construction sites related to policy against Sexual harassment at workplace. j) A Grievance Register will be maintained in Project offices and at each Construction site followed by the Status of GBV Complaints -Total cases, Resolved, Pending, and Type of action taken. <u>Grievance Redressal</u> k) A grievance Register will be maintained and monitored at each of the construction site. l) Contact details of designated Grievance Redressal Officer (GRO) will be displayed at each construction site.	Part of contract	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
--	----------------	--	------------------	----------------	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Environment and Social Health and Safety (ESHS) Plan for project and Community Health and Safety	Short term/Medium	The Concessionaire has prepared a “Environment Social Health and Safety Plan” and is approved. This plan includes method statements for working methods and safety arrangements. Measures will be implemented to reduce the likelihood and consequence of the following hazards: falling from height, entanglement with machinery, tripping over permanent obstacles or temporary obstructions; slipping on greasy oily walkways, falling objects, contact with dangerous substances, electric shock, variable weather conditions, lifting excessive weights. This plan also includes traffic management plan. Proposed mitigation measures to be implemented at site: A. Occupational health and Safety a) A Permit to Enter system will be established to ensure that only authorized persons gain entry to the site (refer Annexure-20). b) All persons working on site will be provided information about risks on Site and arrangements will be made for workers to discuss health and safety with the Contractor; MOCK drills will be conducted on regular basis to train the labour and staff for work in confined space, work at height and firefighting. c) All workers will be properly informed, consulted and trained on health and safety issues. d) Personal Protective Equipment (PPE) shall be worn at all times on the Site which will be ensured by EHS officer. Before starting work all the appropriate safety equipment and the first-aid kit will be assembled and checked as being in working order. e) All lifting equipment and cranes will be tested and inspected regularly. f) All scaffolding will be erected and inspected in conformity with the Factories Act and the appropriate records being maintained at site. g) Safety hoops or cages will be provided for ladders with a height in excess of two meters. h) Provision of appropriate safety barriers with hazard warning signs	Safety hazards to workers and residents. INR 17,00,000 (Lumpsum cost) Health Hazards precautions INR 10,00,000 (Lumpsum cost) OHS INR 50,00,000 (Lumpsum cost)	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
--	-------------------	--	--	----------------	--

		will be ensured, attached around all exposed openings and excavations when the work is in progress i) Daily toolbox talk (TBT) with workforce will be conducted by EHS officer at each of the on-going construction sites before starting the work to aware the workforce about the kind of job and associated risk with preventive measures. j) Weekly Trainings on different aspects of the environment, social, health and safety will be organised including H&S risks and mitigation measures (including indirect workers) at site. k) During first time engagement, each of the labourers (whether skilled and un-skilled) will be oriented/inducted through training on Occupational health and safety. l) All workers, suppliers and subcontractors engaged under projects will be made familiar with the EHS implementation under project and comply with the requirements and specifications of this ESMP. m) Each of the labourers engaged at the sites will be provided with PPEs and its use during the work will be ensured at work sites. List of PPEs according to work is listed in EHS Plan. Few is mentioned below: a. Safety shoes, hard hat/helmet, and hand gloves with grip facility to all workers. b. Nose masks for those working in dusty area. c. Earplugs for those working in high noise areas. d. Nitrile rubber gloves to those engaged in painting activities. e. Face shield for those engaged in welding. n) Reporting of incidents and accidents including near miss will be done by EHS personnel and maintained at site. o) First aid kit will be available at each construction site with all materials listed in EHS plan submitted by concessionaire like f. Readily available first aid units including an adequate supply of sterilized dressing materials and appliances as per the Factories Rules in each work zone. g. Availability of suitable transport at all times to take injured or sick persons to the nearest hospitals.			
--	--	---	--	--	--

		p) Tie-up with Pathak Hospital is done for health checkup and emergency case. (refer Annexure-15 for Emergency Response Plan) q) Health check-up camp will be scheduled once in 6months accordance with the listing of tests mentioned in EHS plan of concessionaire. r) EHS officer and site supervisor will be oriented on Emergency Preparedness and Response Plan included in EHS plan. B. Community Health and Safety a) The project sites will be properly fenced prior to the commencement of construction activities, to restrict public access. STPs areas are already fenced, new fencing will be required for DSTPs. b) Advance information to community will be provided with distribution of pamphlets before starting of the work through public consultation to reduce the impact on community during construction. c) Barriers will be provided to protect the public from exposure to hazards associated with the construction activities d) Proper barricading will be provided at sewerage network laying areas in the major roads of the town to avoid incidents and accidents impact on community. e) Work on the Sensitive location sites to be done with local consultation and to avoiding peak and working hours. f) Wooden and steel planks to be provided especially near hospitals/schools/at narrow lanes of the town to avoid the public disruption during sewer network laying activities. g) Erect warning signs/ tapes and temporary barriers and/or danger tape, marking flags, lights and flagmen around the exposed construction works to be ensures warning the public and traffic flow of the inherent dangers.			
--	--	--	--	--	--

		h) Proper signage will be displayed at all construction site. i) Road safety awareness building for residents living along the transportation route will be conducted. C. Construction sites, Labour Camp and labour management a) Labour safety laws, rules and regulation mitigation measures will be followed as per act. b) The emergency contact details will be displayed at construction site. c) Handling of equipment and materials will be supervised and will be adequately instructed. d) Adequate safety precautions such as helmets, safety shoes, gloves, dust masks, gumboots, etc. will be provided to workers and inventory is to be maintained at site. e) Screening, surveillance and treatment of workers, through the provision of medical facilities will be ensured. f) Health awareness and education initiatives among workers will be conducted through TBT. g) Avoiding collection of stagnant water in construction site/labour camp areas to prevent water borne diseases. h) Labourers from other place residing at labour camp will be oriented on rule and regulations for interaction with nearby community/shops. i) Ensuring the Work permit system will be strictly followed, inspection of the high-risk work areas requiring permit and closure of the permit to the followed upon as mentioned in EHS plan.			
--	--	--	--	--	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Stakeholder Engagement	Short term/Low	a) Continuous engagement/ communication with the local communities will be done and maintain the record for the same. b) Prior information on starting of the work of the particular site, local communities will be informed through door-to-door campaign and with distribution of pamphlet wherever it is required. c) Through Grievance redress mechanism regular feedback and satisfaction will be taken up. d) Various Community awareness program will be held to provide information about GRM and GBV.	Lumpsum cost under training and awareness. INR 3,00,000 (Lumpsum cost)	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
Traffic congestion	Temporaray/Low	a) There is approx. 12km of sewer line proposed under project including rising main, so less impact of traffic congestion is envisaged in project. b) Advance information will be shared for disclosure/traffic diversion if required. c) Alternate traffic routing if required to be adopted, will be done in consultation with concerned traffic police authorities. Accordingly, plan will be sketched out and share with nearby community. d) Warning ribbons, poly sheets and other unsafe measures will be provided in the narrow lanes and the road restoration will be done immediately same day after sewer network laying. e) All hard barricades will be with warning lights to avoid incident/accident f) Traffic management plan will be prepared in detail accordance with EHS plan as per site condition before start of pipe laying. (refer Annexure-21 for Traffic Management Plan outline of EHS) g) During course of work, if required, traffic route diversion plan will be worked out with concern authority.	Part of contract	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Accidents/ damages due to erosion/ sliding of vertical sides of excavated trenches while places the pipes	Short term/Low	a) In this project maximum depth of 6m is proposed for pipe laying. Before start of work at higher depth, necessary PPEs and required precaution will be ensured. b) Trenches 1.2 meters or deeper will be shored or sloped back to the angle of repose. Any excavation in unstable ground will be provisioned with shoring or sloping. The excavation will be maintained by Shoring trench sides by placing sheeting, timber shores, trench jacks, bracing, piles, or other materials. (refer Annexure-18 for Safety Rules in Excavation) c) Exposed surface ensured to be resurfaced and stabilized by making the sloping sides of trench to the angle of repose at which the soil will remain safely at rest. d) Excavated soil (spoils) and other materials will be kept at least 1.5m from trench edges. e) Location of underground utilities will be identified and known before digging. f) Other sources will be identified that might affect trench stability especially nearby drain. g) Test for atmospheric hazards such as low oxygen, hazardous fumes and toxic gases will be measured when > 4 feet deep pipelaying is proposed. (refer Annexure-19 for Safety Rules in Confined Space Work) h) Each excavation will be inspected daily by the site supervisor, or more often if conditions change rapidly. If there is evidence of cave-In solvency or slides, all work in the excavation will be ceased until the necessary precautions have been taken to safeguard employees. i) Work to permit system will be developed as mentioned in EHS plan for such type of work and approved by concerned authority before start of work. (refer Annexure-20 for Work Permit System)	Part of contract	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
---	-------------------	--	------------------	----------------	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Temporary loss of livelihood	Short term/Low	a) There may be temporary impact on permanent shops/ kiosks which may have the issues of accessibility during network laying. However, this issue will be resolved by ○ Pedestrians always have access to shops, vendors etc. ○ Laying network will be in the centre of road avoiding any access issue ○ Wherever network is to be laid on one side of the road, it will be laid in small stretches and providing steel or wooden planks over the excavated area and the temporary restoration will be ensured by end of the day. b) The street vendors (on carts or sitting on roads) wherever needed, will be shifted to the other side of road without affecting their livelihood. Sewer laying work in the market areas will be done either on market off day or in night time with prior permission. c) Steps will be taken to ensure project runs on schedule so as to minimize disruption. d) Additionally, clean-up of debris and clearance of blockages will be commenced immediately after Project completion so as to remove any potential obstacles that might prevent customers from accessing businesses or other disruptions. e) Proper barricading with signages will be provided for pipe laying work along with traffic diversion plan for congested area/area where big dia pipes are proposed to be laid, if not possible to give access in narrow lane.	Part of Contract	Concessionaire	Project Engineer /SMCG/NMCG/impl ementing agency
Protection near to historical Monuments	Short term/low	a) No construction is envisaged near to regulatory zone of ASI Monuments; however, during construction it will be ensure that no disturbance activity to be undertaken near to sensitive zones. b) Precautionary Signage will be provided. c) Sensitization among worker will be undertaken for awareness about significance of monuments and penalties prescribed under Ancient	Part of Contract	Concessionaire	NMCG / YPCU / SMCG

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Chance Find		Monuments and Archaeological Sites and Remains Rules 1959 and Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act 2010. The construction contractors will strictly adhere to all rules prescribed by the Government/ASI, following established protocols during excavation work. This commitment is essential to ensure the timely recognition of any chance find.			
Operation and Maintenance Phase					
Air Environment and Odour	Short term/ low	a) Cover emission points (e.g., aeration basins, clarifiers, sludge thickeners, tanks, and channels), and vent emissions to control systems (e.g., compost beds, bio- filters, chemical scrubbers, etc.) as needed to reduce odours and otherwise meet applicable national requirements. b) Where necessary, consider alternate aeration technologies or process configurations to reduce volatilization. c) Low Sulphur content diesel will be used in DG sets. d) Ambient Air Monitoring will be conducted twice in a year from NABL lab. e) Green area will be developed along the boundary of the plant to check the odour. f) As per CTE conditions, MIYAWAKI forest is required to be developed under project.	Part of contract	Concessionaire	SMCG/NMCG/implementing agency

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Soil contamination and groundwater pollution due to spillages and unscientific management of various types of waste	Long term/medium	a) Disposal of all hazardous waste will be as per CTO conditions through authorized TSDF. In case of contamination, scrape off and collect the soil contaminated by hazardous materials in a separate drum and dispose to authorized TSDF. b) Hazardous waste will be stored in secured rooms with secondary containment in compliance with the Hazardous Waste Management Rules. c) Waste oil will be stored in separate container and dispose through authorized recyclers. d) Quantity of solids generated will be minimized by the water treatment process through optimizing coagulation processes. e) Where feasible, treated spent sludge will be reuse as manure for landscaping and by local farmers. f) Monitoring of soil (once in a year) and groundwater (twice in a year) will be conducted from NABL lab. g) Monthly monitoring of sewer line and manholes for visible leakages/ overflows will be done during Pre and post monsoon and fortnightly monitoring will be done during monsoon seasons. h) Repair operation for the damaged portion of sewer line will be done within 12 hrs of complaint. i) De-siltation of blocked sewers/ manholes with sewage pumping machines will be done every pre monsoon period or as and when required and collected debris will be disposed of to designated place. j) The agency will maintain log book and record of all the grey area where frequent overflow/ sewer leakage happens. It will result in time saving and smooth functioning of the STP and Sewage system. k) Wastes at STP/MPS site will be collected in a trolley or paved area to avoid leaching and further contamination.	Part of contract	Concessionaire	SMCG/NMCG/implementing agency
---	------------------	--	------------------	----------------	-------------------------------

Leakages and overflows resulting contamination of soil, freshwater bodies, and groundwater	long term/ Low	<u>Reject streams</u> a) Filter backwash will be recycled into the process if possible. b) Treatment and disposal of reject streams will be done in compliance with national and local requirements. <u>Leakage and overflows</u> a) Routine inspection and maintenance program will be scheduled as per following details: ○ Development of an inventory of system components ○ Regular cleaning of grit chambers and sewer lines to remove grease, grit, and other debris. ○ Inspection of the condition of sanitary sewer structures and identifying areas that need repair or maintenance. ○ Monitoring of sewer flow to identify potential inflows and outflows. b) Repairs will be prioritized and conducted based on the nature and severity of the problem. c) Bypass of the treatment system will be minimized by using separate storm water and wastewater systems and providing capacity sufficient to treat peak flows. d) Sufficient hydraulic capacity will be ensured to accommodate peak flows and adequate slope in gravity mains to prevent buildup of solids and hydrogen sulfide generation. e) Pumps and motors will be equipped with a backup power supply to ensure uninterrupted operation during power outages, and conduct regular maintenance to minimize service interruptions. f) Faecal sludge and septage discharging at storage and treatment facilities will be facilitated so that untreated septage is not discharged to the environment.	Part of contract	Concessionaire	SMCG/NMCG/ implementing agency
--	-------------------	---	------------------	----------------	--------------------------------

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Exposure to various occupational health and safety impacts including Physical hazards/ Biological hazards/ Chemical hazards/ Noise & vibration	Long term/ medium	A. <u>Accidents and Injuries</u> a) Railing is proposed to be installed around all process tanks and pits. Use of a lifeline and personal flotation device (PFD) will be made compulsory when workers are inside the railing. Rescue buoys and throw bags will be readily available. b) Confined spaces permit that is consistent with applicable national requirements and internationally accepted standards will be implemented. c) Valves to process tanks will be locked to prevent accidental flooding during maintenance. d) Fire and explosion prevention measures will be implemented at site in accordance with the UP State Govt Fire Fighting Rules & Regulations. e) On job training for the workers will be carried out. f) Work permit system will be followed. g) PPEs will be provided and its use by workers will be encouraged. B. <u>Hazardous chemicals</u> a) Training and Orientation of operators handling chlorine will be carried out for its safe handling practices and emergency response procedures i.e., run towards safety equipment installed at site for this purpose (safety shower, eye wash station) and call emergency number. b) Appropriate personal protective equipment (including, for example, self-contained breathing apparatus) will be provided and along with training for its proper use and maintenance. c) Escape plans for areas where there might be a chlorine emission will be prepared. d) Safety showers and eye wash stations will be installed near the Chlorine station and other areas where hazardous chemicals are stored or used. e) Analysis of raw wastewater will be conducted to identify hazardous constituents.	Part of contract	Concessionaire	SMCG/NMCG/ implementing agency
--	-------------------	--	------------------	----------------	--------------------------------

		f) Enclosed processing areas and equipment will be ventilated, such as pump stations, prior to maintenance. g) Gas detection equipment will be used at site while working in a wastewater facility. h) Air quality monitoring will be conducted as per monitoring plan in work areas for hazardous conditions (e.g. explosive atmosphere, oxygen deficiency). i) Engineering controls will be installed to limit worker exposure, for example collection and treatment of off-gases from air stripping. j) Personnel will be rotated among the various treatment plant operations to reduce inhalation of air-stripped chemicals, aerosols, and other potentially hazardous materials. C. Chlorine system safety a) Alarm and safety systems will be installed, including automatic shutoff valves, that are automatically activated when a chlorine release is detected. b) Containment and scrubber systems will be installed to capture and neutralize chlorine leak if occur. c) Chlorine will be stored away from all sources of organic chemicals, and it will be protected from sunlight, moisture, and high temperatures. d) Sodium hypochlorite will be stored in cool, dry, and dark conditions for not more than one month in a corrosion-resistant container. e) Ammonia storage and feed areas will be isolated from chlorine and hypochlorite storage and feed areas to avoid any incident. f) Chlorination chemicals storage will be minimum at site while maintaining a sufficient inventory to cover intermittent disruptions in supply. g) A prevention program will be developed and implemented. It will include identification of potential hazards with its prevention, written operating procedures, training, maintenance, and accident investigation procedures.			
--	--	---	--	--	--

		Emergency response plan will be developed and implemented as a part of O&M manual. D. <u>Pathogens</u> a) On the job training program for workers will be conducted on safe handling, and personal hygiene practices to minimize exposure to pathogens and vectors with Use vacuum trucks or tugs for removal of fecal sludge instead of manual methods. b) Personal protective clothing and equipment to prevent contact with wastewater will be provided (e.g., rubber gloves, aprons, boots, etc.). c) Areas will be demarcated for workers to shower and change clothes before leaving workplace and they will be oriented for proper washing of workclothes. d) Workers at wastewater facilities will be trained for regular hand washing and its benefit. e) Worker immunization (e.g. for Hepatitis B and tetanus) and health monitoring program will be developed, including regular physical examinations. f) Aerosol formation and distribution will be reduced by, adopting following measures, for example by: ○ Planting trees around the aeration basin to shield the area from wind and to capture the droplets and particles ○ Using diffused aeration rather than mechanical aeration and using finer bubbles for aeration ○ Reducing aeration rate, if possible ○ Use of floating covers on the mixed liquor of the aeration basin ○ Suppression of droplets just above the surface, (e.g., by installing a screen or mesh above the basin) ○ Collection of droplets (e.g., by sedimentation, scrubber, electrostatic precipitator, or fabric filter)			
--	--	---	--	--	--

		○ Use of submerged effluent collector (such as pipes with orifices) rather than weirs g) Good housekeeping will be maintained in sewage processing and storage areas. h) Individuals with asthma, diabetes, or suppressed immune systems will be avoided to work at wastewater treatment facilities, especially composting facility because of their greater risk of infection. i) Use of drip irrigation with treated wastewater will be considered, which minimizes worker exposure and the amount of water needed. Use of spray irrigation of treated wastewater will be avoided, if possible. j) Personal protective equipment will be provided to all field workers, such as rubber gloves and waterproof shoes. E. <u>Operational noise</u> a) Adequate PPE (ear-plugs and earmuffs) will be provided to personnel. b) Periodic maintenance of the high noise generating equipment will be conducted. c) Noise insulating materials will be used in identified high noise area. <u>Other precautions</u> a) Access to safe drinking water and sanitation will be provided (including hand washing) facilities b) Health monitoring of workers will be conducted, including regular physical examinations.			
--	--	--	--	--	--

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Community Impacts	Long term/Medium	a) Grievance register will be maintained at site for record of grievances if any to nearby community. b) Healthy relationship will be maintained with nearby community through CSR activities.	Part of contract	Concessionaire	SMCG/NMCG/implementing agency
General Environment Health and Safety	Long term/Medium	a) Boundary wall will be constructed at all the proposed infrastructure sites. b) During cleaning/ maintenance operation, the sewer line will be adequately vented to ensure that no toxic or hazardous gases are present in the line. c) Gases present in the sewer line will be analyzed for hazardous/toxic gases before commencing cleaning operation. d) Cleaning maintenance work will be carried out as per the safety guide lines prescribed by CPHEEO and 2013 Act of labor laws. Ensure that no manual scavenging will be involved in the cleaning process. In unavoidable situation, due process of cleaning will be followed strictly. e) Worker codes of conduct will be developed with respect to engagement with local residents, child labor, non-discrimination, harassment of co-workers including women and those belonging to SC and STs and other minority social groups. f) PPE kit will be made available for maintenance workers. g) Follow safety and Emergency Preparedness plan for O&M. h) WBG EHS Guidelines on Water and Sanitation to prevent minimize, and control exposure to potentially toxic emissions, pathogens and vectors will be followed.	Part of contract	Concessionaire	SMCG/NMCG/implementing agency
Natural resource consumption causing depletion	Long term/Medium	A. Measures for water efficiency a) Any leakage in pipelines will be monitored and plugged. Water taps and valves will be kept in closed position while not in use.			

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

		b) Treated effluent will be used for landscaping, plant cleaning, flushing etc. where to reduce freshwater consumption. c) Workers and all relevant personnel will be trained on resource conservation aspect, its process and its benefit. B. <u>Measures for energy efficiency</u> a) Preventive maintenance of all equipment and machinery including pumps, air compressors and motors will be conducted to ensure optimum level of energy consumption. b) Energy efficient lighting systems will be used. c) Monitoring of energy consumption across various equipment and treatment stage will be done through use of energy meters. d) Fuel efficient equipment will be used for cleaning of roads and storm water drains. e) Running hours of the equipment and machinery will be optimized through proper planning of activities. f) Hot water systems will be insulated to prevent loss of heat.			
Total EMP Cost (in Rs)			2,19,00,000/-		

6.4 Environmental & Social Monitoring Plan

6.4.1 ESMP Monitoring

The ESMP provides prevention and mitigation measures to be undertaken to reduce the environmental and social impacts due to project activities. Monitoring parameters and mechanism of monitoring are also provided.

During construction, monthly ESMP compliance monitoring to be conducted and reporting to EA/SMCG will be ensured. Whereas Quarterly monitoring of implementation of the ESMP will be conducted with Environmental monitoring (ambient air, ambient noise, groundwater) at construction site except monsoon season. During operation and maintenance phase of the project, implementation of the ESMP will be monitored on a half yearly basis.

6.4.2 Environmental Quality Monitoring

To ascertain effectiveness of implementation of mitigation measures recommended in the ESMP and to comply with legal requirements, environmental quality monitoring would be conducted. The ambient air quality, ambient noise and ground water quality is required to be monitored. It is observed that before start of construction phase, the monitoring has been conducted at the 5 locations (3STPs+2MPS) and compared with the standard of permissible limit.

- Apart from Environmental monitoring others aspects required to be monitored is:
- CTE NOC condition and submission of its compliance report to State Pollution Control Board,
- Accidents/fatalities/near miss and its reporting,
- Fire extinguisher inspection etc.

Monitoring plan is given below. Compliance of CTE NOC conditions will be submitted in Quarterly ESMP compliance report.

Table 13: Environmental Monitoring Plan

Environmental Component	Stage	Parameters	Locations	Total No. of Samples	Frequency	Standards /Methods	Implementation Agency
Environmental Monitoring Plan							
Air quality	Construction	PM10 µg /m3, PM2.5 µg/m3, SO2, NOX, CO	3 STPs+10 DSTPs+2 MPS+ 2 Network sites	102 Samples	Once in every season (except monsoon)	National Ambient Air Quality Standards, CPCB	Contractor through approved monitoring agency/Lab (NABL/ MoEF&CC accredit Laboratory)
	Operation		3 STPs+10 DSTPs+2 MPS	450 Samples	Twice in every year (pre & post monsoon) for 15 years		
Noise levels	Construction	Leq dB (A) (Day and	3 STPs+10 DSTPs+2 MPS+ 2	102 Samples	Daily through handheld noise meter And Once in every season	National Ambient Air	Contractor through approved monitoring agency/Lab (NABL/ MOEF&CC

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Environmental Component	Stage	Parameters	Locations	Total No. of Samples	Frequency	Standards /Methods	Implementation Agency
Environmental Monitoring Plan							
		Night) Average and Peak values	Network sites		(except monsoon)	Quality Standards with respect to Noise Standards, CPCB	accredit Laboratory)
	Operation		3 STPs+10 DSTPs+2 MPS	450 Samples	Twice in every year (pre & post monsoon) for 15 years		
Water Quality (Surface and Groundwater)	Construction	Ground Water Parameter as per IS:10500 (2012) and surface water parameters	3 STPs+10 DSTPs+2 MPS	450 Samples	Once in every season (except monsoon)	As per CPCB/NGT Standards for treated effluent discharge and IS:10500 (2012) for ground water	Contractor though approved monitoring agency/Lab (NABL/ MoEF&CC accredit Laboratory)
	Operation	(Surface Water Quality of the nearest drains (outfall) as per CPCB guideline for discharge of treated effluents in Inland water bodies	3 STPs+10 DSTPs+2 MPS 3 STPs+10 DSTPs	450 Samples of Ground water. 2340 effluent outfall tests.	Ground water will be tested twice in a year (Pre and post monsoon) for 15 years Discharge effluent will be tested on monthly basis for 15 yrs.		
Soil	Construction	Physical Parameter: Texture, Grain Size, Gravel, Sand, Silt, Clay; Chemical Parameter: pH, Conductivity, Calcium, Magnesium, Sodium, Nitrogen, Absorption Ratio	3 STPs+10 DSTPs+2 MPS	225 Samples	Once in every year for 15 yrs. (Except monsoon)	Soil test method by Ministry of Agriculture	Contractor though approved monitoring agency/Lab (NABL and MoEF&CC accredit Laboratory)
	Operation	pH, salinity, NH4 +, total P, heavy metals, oil & grease Sludge Test	3 STPs+10 DSTPs+2 MPS 3 STPs+10 DSTPs	450 Samples	Twice in a year (except monsoon) for 15 years Twice a year for 15 yrs		
Bioassay Test	Operation		The location and number of samples shall be determined as per the Client's directions. This test will be conducted following the issuance of a variation order, as per Article 20.2 of the Concession Agreement (CA). The associated costs shall be reimbursed to the Concessionaire based on the actual prevailing rates for testing and sample locations, as finalized or required by the Client, on a quarterly basis.				
Other Monitoring aspects (construction phase)							
Health & Safety Monitoring	Minor accidents/near miss/fatalities				Record in accident register and reporting will be in ESMP compliance report		Contractor -EHS officer
Fire Extinguisher	Validity period				Inventory to be maintained and reporting to be ensured.		Contractor -EHS officer

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Environmental Component	Stage	Parameters	Locations	Total No. of Samples	Frequency	Standards /Methods	Implementation Agency
Environmental Monitoring Plan							
Monitoring points of Consent to Establish (CTE) NOC received from UP State Pollution Control Board							
Specific Conditions of CTE NOC							
The treated effluent will be used for irrigation purpose by local farmers and unused treated will be discharged in Yamuna river.							Contractor
The STP should be established in such a manner that it does not adversely affect the environment.							Contractor
The S.T.P shall comply with the provisions of notification dt. 07-10-2016 of Ministry of Water Resources, River Development and Ganga Conservation, GOI.							Contractor
The project shall ensure the installation and maintenance of the Sewage Treatment Plant (STP). The project should ensure the operation of the STP in such a manner that it confirm the standards laid down under the E.P. Rule 1986 as amended.							Contractor
The project will comply the provisions of Ground water abstraction rules and will get NOC form State Ground Water Department if required.							Contractor is in process of taking NOC for 3 T/W.
The project will install the requisite OCEMS system/Web camera and will ensure the continuous and unintermitted data supply from the OCEMS to the CPCB/UPPCB server.							Contractor
This Consent to Establish (CTE) order shall automatically become invalid on issuance of Closure Order by C.P.C.B / UPPCB and further on Revoking of Closure order, the Consent order shall become valid.							
The project shall abide by orders/ directions issued by Hon'b1e Supreme Court Hon'ble High Court, Hon'b1e National Green Tribunal, TTZ Authority, Central Pollution Control Board and U.P. Pollution Control Board for protection and safe guard of environment from time to time.							Contractor
The STP must upgrade/operate properly to achieve Fecal Coliform Norms in accordance with EP rule.							Contractor
The project shall comply with various provisions of Air (Prevention and Control of Pollution) Act 1981 as amended, Water (Prevention and Control of Pollution) Act 1974 as amended and all other applicable rules notified under E.P. Act 1986 and the various orders issued by the MOEF&CC, CPCB and SPCB in time to time.							Contractor
The STP shall comply with the provisions of Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016.							Contractor
The STP shall comply with the provisions of Solid and other Waste Management Rules, 2016.							Contractor
The STP shall ensure to develop Miyawaki forest so that treated water may be used for irrigation as per the GO no. 1011/81-7-2021-09(writ)/2016 dated 13.10.2021 of Dept. of Environment, forest and climate change.							Contractor through department
A Bank Guarantee of Rs. 10.0 Lac (Rs. Ten lacs only) shall be submitted within 30 days.							Contractor through department.
General Conditions of CTE NOC							
For any change in above mentioned parameters, it will be mandatory to obtain Consent to Establish again. No further expansion or modification in the plant shall be carried out without prior approval of U.P. Pollution Control Board.							Department with support from Contractor
You are directed to furnish the progress of Establishment of plant and machinery, green belt, Effluent Treatment Plant and Air pollution control devices, by 10th day of completion of subsequent quarter in the Board.							Contractor
Copy of the work order/purchase order, regarding instruction and supply of proposed Effluent Treatment Plant/Sewerage Treatment Plant /Air Pollution control System shall be submitted by the industry till 14/03/2028 to the Board.							Contractor through concerned EE.

Environmental Component	Stage	Parameters	Locations	Total No. of Samples	Frequency	Standards /Methods	Implementation Agency
Environmental Monitoring Plan							
Industry will not start its operation, unless CTO is obtained under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and control of Pollution) Act, 1981 from the Board.							Contractor through concerned EE.
It is mandatory to submit Air and Water consent Application, complete in all respect, four months before start of operation, to the U.P. Pollution Control Board.							Contractor
Legal action under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 may be initiated against the industry With out any prior information, in case of non-compliance of above conditions.							Department

6.4.3 Environmental and Social Budget

The cost of environmental budget for the various environmental management measures proposed in the ESMP and the cost of the Environmental Monitoring is given in **Table -12 and 14**. There are several other environmental issues that have been addressed as part of good engineering practices, the costs for which have been accounted in the Engineering Cost. Various environmental aspects covered/will be covered under engineering costs are listed below:

- ✓ Proper drainage arrangements to prevent water stagnation/ flooding in STP sites.
- ✓ Appropriate siting, and enclosing within building to reduce noise and odors nuisance to surrounding area.
- ✓ Alternate traffic re-routing.
- ✓ Ensuring storage of excavated soil material on the higher lying areas.
- ✓ Flushing and desilting of sewers at necessary locations.
- ✓ Excavation, cutting and filling operations.
- ✓ Safety hazards to workers and residents.
- ✓ Solid Waste Management.
- ✓ Site management.
- ✓ Noise monitoring of DG sets if any used during construction phase.

Table 14: Environmental Monitoring Cost

Item	Location	Season	Year	Total no. of samples	Unit cost (INR)	Total cost (INR)
Environmental Monitoring during Construction Stage						
Air Quality Monitoring (3 STPs+10 DSTPs+2 MPS+ 2 Network sites)	17	3	2	102	7000	714000
Noise/Vibration (3 STPs+10 DSTPs+2 MPS+ 2 Network sites)	17	3	2	102	2500	255000
Water Sample (Ground Water-3 STPs+10 DSTPs+2 MPS)	15	3	2	90	7000	630000
Soil (3 STPs+10 DSTPs+2 MPS)	15	1	2	30	5000	150000
Travel and Transportation of Monitoring team (Lump sum cost)						400000
Sub-Total:						2149000
Environmental Monitoring during Operation Stage						
Air Quality Monitoring (3 STPs+10 DSTPs+2 MPS)	15	2	15	450	7000	3150000
Noise/Vibration (3 STPs+10 DSTPs+2 MPS)	15	2	15	450	2500	1125000
Water Sample (Ground Water-3 STPs+10 DSTPs+2 MPS)	15	2	15	450	7000	3150000
Outfall Point- 3STPs + 10 DSTPs)	13	12 (monthly)	15	2340	9000	11340
Soil (3 STPs+10 DSTPs+2 MPS)	15	1	15	225	5000	1125000
Sludge test						300000
Bioassay test (quarterly basis)						1000000
Travel and Transportation of Monitoring team (Lump sum Amount)						500000
Sub-Total:						38711340
Total for Environmental Monitoring						4,08,60,340

The total cost for implementing measures outlined in Environmental Management Plan and Environmental Monitoring Programme is as follows: -

Particulars	Cost in INR
EMP cost in Construction and Operation phase	2,19,00,000
ESMP Monitoring cost	4,08,60,340
Unidentified impacts (like public awareness on emergency response plan and grievance mechanism etc.)	20,00,000
TOTAL	6,47,60,340
Six Crore Forty Seven Lakh Sixty Thousand Three Hundred Forty only	

Apart from this, ESMP budget also involve Rs.1.18 Cr submitted to forest department for 704 Trees cutting. Forest diversion land for construction of DSTPs will also involve some cost will be part of ESMP budget.

6.5 Stakeholder Engagement and Information Disclosure

6.5.1 Context of Stakeholder Engagement

Stakeholder engagement is an ongoing process that may involve, in varying degrees, the following elements spanning the entire life of a project:

- Disclosure and Dissemination of Information
- Consultation and Participation
- Grievance Mechanism
- Ongoing Reporting to Affected Communities

The World Bank defines stakeholder as a 'person, group, or organization that has a direct or indirect stake in a project/organization because it can affect or be affected by the Project/organization's actions, objectives, and policies.

6.6 Grievance Redress Mechanism

GRM is considered as a tool for measuring efficiency and effectiveness of the Project as it provides important feedback on the Project management. Efforts will be taken to create public awareness about this grievance mechanism. Will also inform the Project stakeholders including labourers about GRM availability for registering their grievances and feedback. This will be done through **Placing display board at STPs/DSTPs/MPS/Network site containing name and contact detail of GRC members/Grievance Redressal Officer, movable barricade in pipe laying having contact number of site supervisor, public consultations with locals and TBT will be used as sharing information on GRM.** Anonymous complaints (those related to the scope of GRC) would only be entertained if the Grievance Redressal Committee observes that it has some essence then aggrieved will be consulted in the process. No personal response will be provided for such grievances. Also, if insufficient information is provided and further investigation cannot proceed, such grievances can be closed without the possibility of resolution. However, any complaint related to the immediate safety of residents/labor will be taken care of.

The proposed Project will have grievance redress mechanism (GRM) will not hinder the legal process of grievance resolution route that the aggrieved may wish to adopt. This GRM will be adopted as mentioned below:

6.6.1 Institutional Arrangement for Grievance Redressal

National Mission for Clean Ganga (NMCG) under the Ministry of Water Resources, River Development & Ganga Rejuvenation has set an objective to ensure effective abatement of pollution and conservation of the river Ganga by adopting a river basin approach for comprehensive planning and management. Under the flagship Program of Namami Gange, several sewerage projects have been taken up along the bank of river Ganga and its tributaries. Under these projects, Grievance Redressal Mechanism (GRM) is proposed to establish. In 14th Implementation Mission meeting at NMCG Office Delhi, a detail discussion was held and a common approach to solve the grievances was finalized which is detailed below: -

- ✓ On receipt of complaints and suggestions from different stakeholders & citizens, a plan of action will be devised accordingly.
- ✓ Time-bound reply will be provided to the complainant after doing a root causes analysis (RCA)

of the incoming complaint as per rules & regulations of the Government and project scope.

- ✓ Co-ordination with Implementing Agencies, SPMG and the Government Department -UD&HD for effective redressal of the complaints.

Currently, NMCG has one GRM officer, who addresses all queries registered on the Centralized Public Grievance Redress and Monitoring System (CP GRAM) portal of NMCG. The GRM officer is supported by one social expert who helps to coordinate with all the state the SMCGs.

At SMCG level, reporting of grievances are being monitored by Environmental and Social experts. All Executing Agencies have a GRM mechanism for each project site. The project manager and deputy project managers are in-charge of these GRMs. To facilitate the registration of grievances, a register is kept at every site. Grievance received by the field team over phone or whatsapp is also entered in same register. The site team works on the grievance and try to solve this in best possible manner. Its status is discussed in monthly review meeting. In case the site team is unable to resolve the raised concern, the concern is brought up to the Senior Management of EA. The Grievance Redressal system is displayed at STP site refer **Annexure-23**. During discussion with Project team, it was reported that all project related grievances will be tried to resolve at site with the help of implementing agency. A dedicated team under the supervision of the Project Manager will be working for recording the grievances. The name and contact information of Grievance Redressal Officers (GROs) would be displayed at the project/construction site, labour camps, in communities where construction activities will be carried out.

6.6.2 Receipt & Recording of Grievance

The aggrieved members can communicate their grievances related to the Project through the formal and informal avenues listed below.

- Oral complaints communicated through remote-access methods such as phone calls on the contact number displayed at site or can use contact no. of Grievance Redressal Officer or toll-free number or face to face to the Officer during group or individual public consultation meetings (Project site has to maintain a grievance redressal register to keep the record of grievances received at local level or forwarded complain from higher level).
- Written complaints communicated through remote-access methods such as written complaint in wooden box, email or face-to-face, wherein individuals or a group submit their grievances to the site-in-charge and Grievance Redressal Officer/Implementing agency (grievances received through this mode will also be forwarded to Project site and recorded in site grievance register).

All grievances received through oral or written format will be recorded in World Bank prescribed format given below: -

Grievance Redress Mechanism															
Format for recording grievances at investment level															
Sl. No.	Name of the investment	District	Unique ID	Date of receipt	Name of the aggrieved person (if agreed by the aggrieved person)	Details of the complaint	Action taken	Date of action taken	Whether resolved/ Date	if not, reason thereof	Whether escalated	If yes, to whom	Date of escalation	Number of court cases	Number of court case resolved
												(i) SMCG			
												(ii) NMCG			
1															
2															
3															
4															
5															
6															
7															

Reporting Format for SMCG															
Sl. No.	Districts	Total Number of grievances received	Type of grievances received							# of grievances resolved	# of cases escalated	# of Cases escalated to		Total # of court cases	# of court cases resolved
			Land Acquisition/ Purchase related	Noise and dust / environmental	Damage to personal property	Damage to communal property	Damage to Public property	Labour issues	Others			SMCG	NMCG		
1															
2															
3															

6.6.3 Review and Investigation of Grievances

Where the grievances that are found to be within the scope of the Project, the details will be reviewed. Relevant Project documents and records will to be reviewed. There may be a need for discussion with the aggrieved community members/ complainant for better understanding of the nature of the grievance and to discuss resolution options. Site visits and meetings with complainants will be conducted by the social expert of SMCG/GRO (if any forwarded at such level) for redressing grievances resulting from a physical incident. Proceedings of the site visit will be documented.

The Project should take full responsibility for investigating the details of grievances coming through its grievance mechanism, at no cost to the communities. All grievances received through oral or written format will be recorded in World Bank prescribed format and the compliance status/resolving status of those grievances will be shared separately to the Social Expert of NMCG through SMCG and must be the part of ESMP monthly/quarterly compliance report.

6.6.4 Gender Assessment and Development

According to ESMF, the objective of Gender Assessment and Development is to analyze gender issues during the preparation stage of sub projects, design interventions and primary data collection. The gender analysis will be carried out based on findings from gender specific queries and requirements during data collection and community consultation process. The quantitative and qualitative analysis will include sex disaggregated data, issues related to gender disparity, needs, constraints, priorities and understanding of gender based inequitable risks, benefits and opportunities as well as gender relevant indicators.

A gender assessment to assess potential risks linked to GBV and, a review of existing surveys and research available at the national level was carried out, which outlines the key drivers and risks of gender-based violence in the project location.

Recent statistics show that crime against women increased by 15.3% from the previous year in 2021. According to the NCRB report, the number of crimes against women grew from 56.5% in 2020 to **64.5%** in 2021, (incidents per 1 lakh population). The maximum cases of crimes against women were lodged in Uttar Pradesh (**56,083**).

Other indicators were also considered to understand the gender representation in the State. Indicators like women's empowerment and autonomy, including employment and earnings, decision-making, ownership of assets, gender role attitudes, and domestic violence.

As per National Family Health Survey (NFHS-4) 2015-16: Uttar Pradesh, Only 25 per cent of women (age group 15-49) were employed as against 79 % of men in the same age group. Among employed women, 66 per cent earned cash, including 11 per cent whose earnings were in both cash and kind and 27 per cent who were not paid at all. 88% of employed men earned in cash and only 10 per cent were not paid at all. 55% of women had a bank account that they used themselves. Of these, 73 % had 12 or more years of schooling. 28% of all women knew of a microcredit programme and only 2 % had ever taken a loan from one. 33% of all women owned a house and 26 % owned land, either by themselves or with someone else.

In case of gender-based violence, among women (age group 15-49), 33 % had experienced physical violence and 6%, sexual violence. Among those who were currently or previously married, 37 % had been physically or sexually assaulted by their spouses, 14 % reported emotional violence, and a mere 2% had been violent towards their spouses. Only 15 % of women who were physically or sexually assaulted, sought help. Nearly four-fifths (77 per cent) of women neither sought help nor told anyone about the violence.

6.6.5 Gender Based Violence (GBV)

GBV is an umbrella term for any harmful act that is perpetrated against a person's will and that is based on socially ascribed gender differences. GBV includes acts that inflict physical, mental, sexual harm or suffering; threats of such acts; and coercion and other deprivations of liberty, whether occurring in public or in private life. The Project site includes both the actual locations where civil works are conducted and also the associated areas such as the locations of workers' camps, quarries, etc. These GBV risks need to be assessed throughout the Project's life by monitoring the situation, assessing the effectiveness of risk mitigation measures and adapting them.

Since a Project involves construction work that will demand a constant supply of labourers, the influx of migrant workforce can be a potential risk for the host population. The influx of labour force can lead to the risk of Gender-Based Violence.

The interventions will be at three levels, that of SMCG, EA and the Contractor. The World Bank team organized a workshop in line with requirements of the GBV Taskforce of the World Bank (2017). The emerging discussions also referred to the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redress) Act, 2013 and subsequently, constitution and functionality of Vishakha Committees. Further, the Bank team conducted an extensive mapping exercise of service providers in the state to strengthen the referral system for a potential victim. The Bank team put forth the context and internal risk assessment based on review of project documents and estimates of labour influx and scale of on-going construction.

According to guidelines of ESMF on GBV prevention, following actions will be taken up to address the risk of gender-based violence in the Project and adjoining communities: -

- ✓ Display of GBV relating posters and signages at Projects site and office.

- ✓ Mandatory and repeated training and awareness raising for the workforce (will be incorporated in tool box talk) 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 offence which is prosecuted.
- ✓ Introducing a Worker Code of Conduct as part of the employment contract and including sanctions for non-compliance (e.g., termination)
- ✓ Contractors adopting a policy to cooperate with law enforcement agencies in investigating complaints about gender-based violence.
- ✓ Additional measures will aim to reduce incentives to engage with the local community by providing workers with the opportunity to spend their time off away from the host community, where feasible with a small transport allowance, ideally allowing workers to regularly return for brief visits to their families, spouses, and friends, or to visit nearby urban centers that provide a variety of legal social opportunities. For workers who need to travel further it may be attractive to forego weekends off in exchange for longer breaks that would allow for such home leave travel.

There is a prescribed format provided for reporting GBV on monthly/quarterly basis consisting of all indicators required to be followed at site for preventing GBV and shared separately to social expert of NMCG through SMCG and must be part of monthly/quarterly ESMP compliance report.

6.7 Conclusion

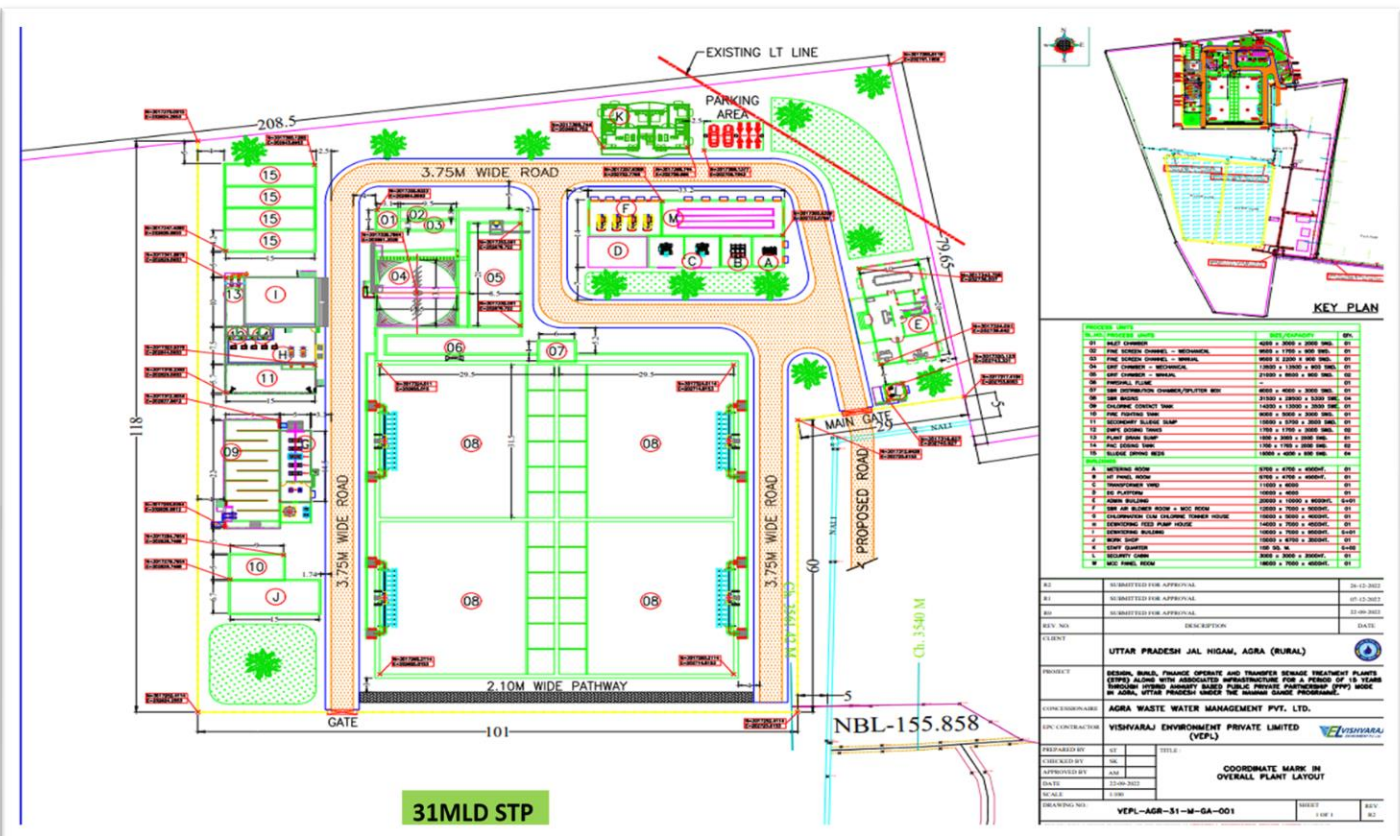
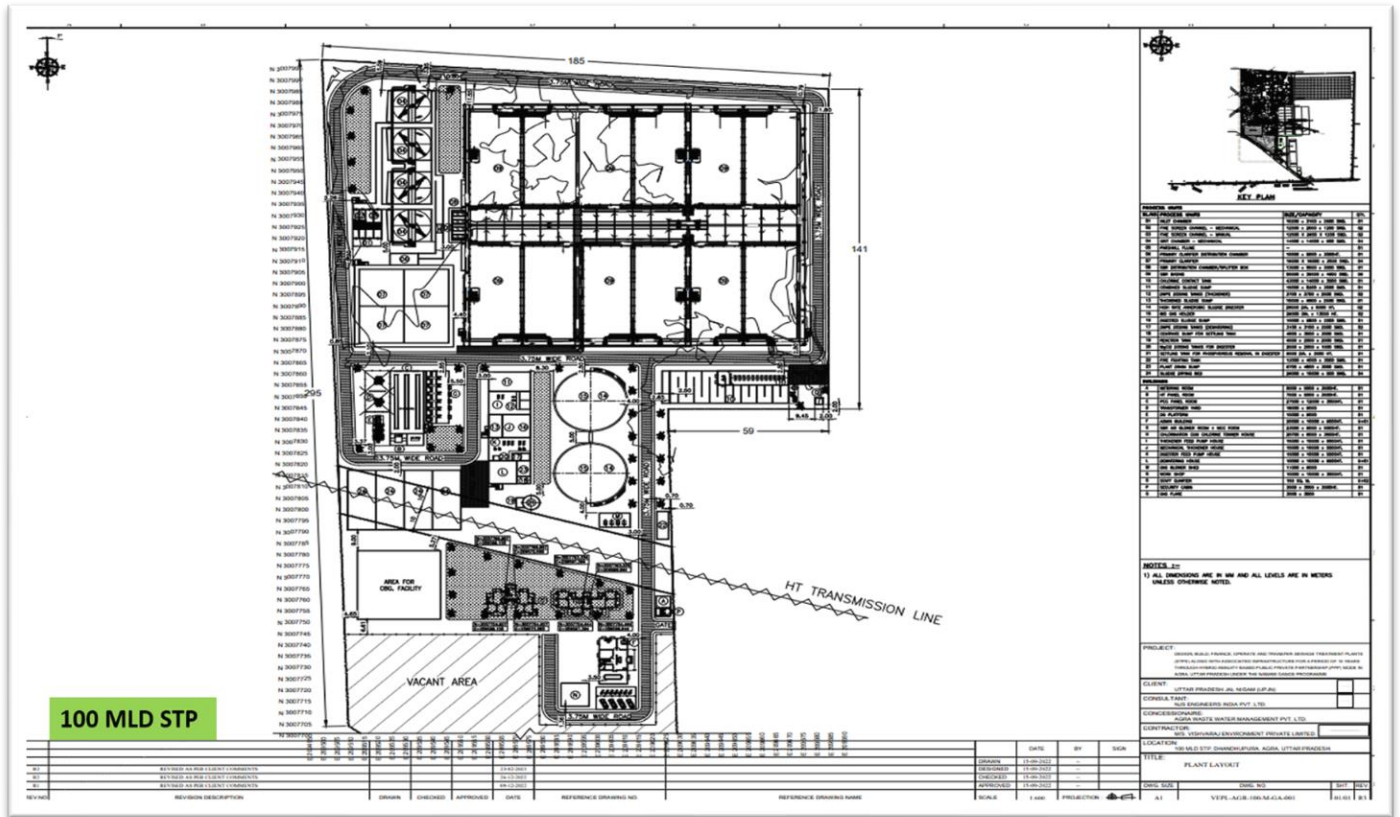
In a comprehensive evaluation of environmental and social risks, the Agra sewerage project foresees limited, site-specific, and largely reversible impacts, skillfully managed through the integration of modern emission control devices. The project assumes critical significance in addressing pollution in the Yamuna River, actively contributing to the Clean Ganga Mission, in addition to delivering social and economic benefits. The initiative, featuring the establishment of treatment plants and a main pumping station without the need for land acquisition, effectively mitigates potential issues such as income loss or household relocation.

However, to advance the project, it necessitates the cutting of 704 trees and a forest land diversion of 0.97 hectares. In response, a meticulous compensatory measure has been devised, involving the planting of 7500 saplings under a barbed fence within a designated 6.6-hectare area. Adequate funding of 1.18 Crores has been secured for this initiative, executed with a 10-year Operation and Maintenance (O&M) period. UPJN has opted to transfer this task to the Forest Department due to their specialized expertise in this domain. It is crucial to highlight that the forest land diversion is intricately structured to avoid tree cutting, land development, or disruption to the natural habitat. The Environmental and Social Action and Management Plan (ESAMP) meticulously adheres to the guidelines set by the National Ganga River Basin Authority (NGRBA). Impacts identified during the Construction and Operation phases are acknowledged as temporary, with detailed mitigation plans outlined to promptly address any concerns.

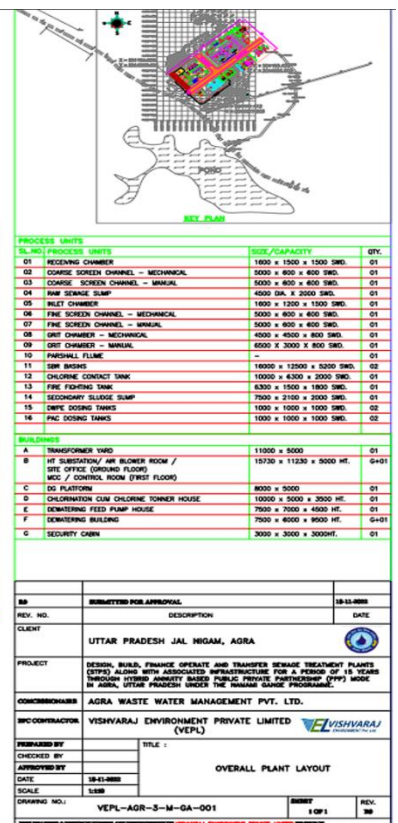
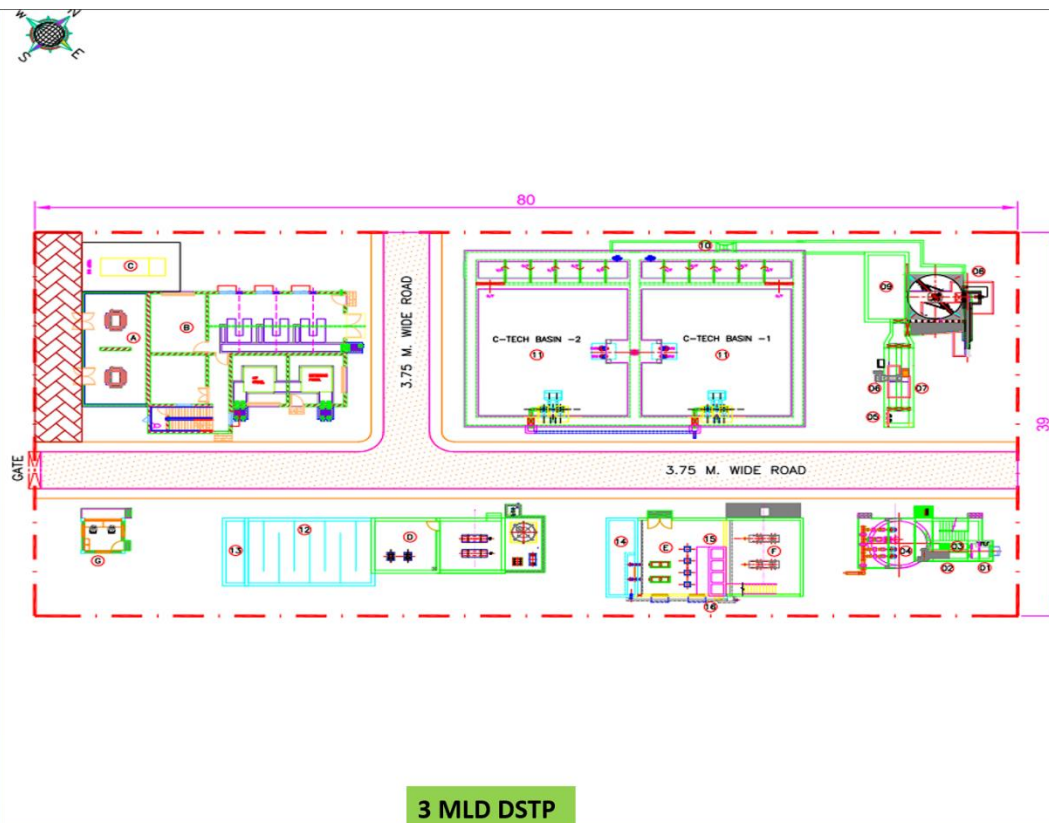
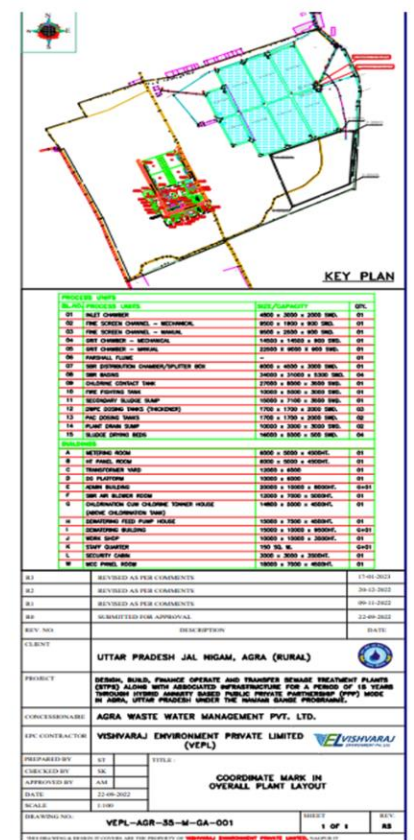
The pollution in the Yamuna River, recognized as a contributing factor to the degradation of the **Taj Mahal**, further underscores the project's significance in preserving our cultural heritage. Considering all aspects, the project is classified as "**Moderate risk**", emphasizing its significance in addressing critical environmental challenges while mitigating site-specific impacts through outlined mitigation measures (refer Table 12).

ANNEXURES

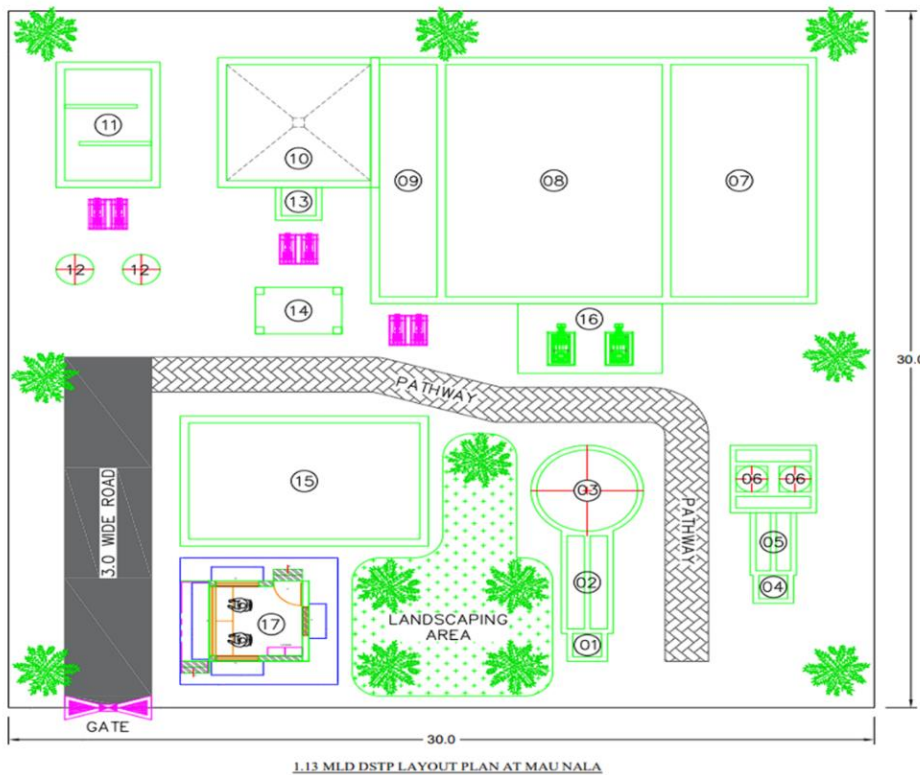
ANNEX-01
Layout Maps



CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

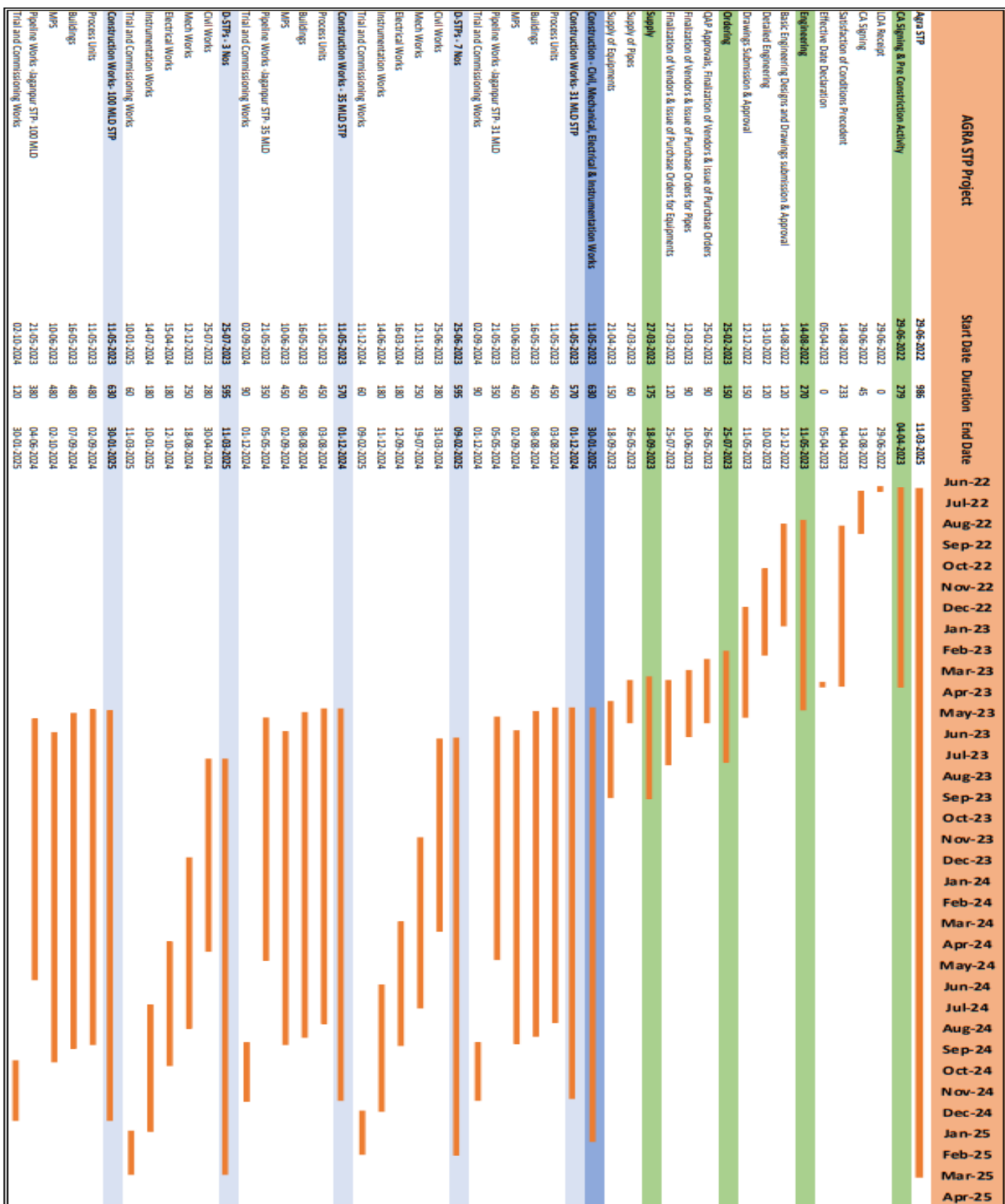


CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT



ANNEX-02

Implementation Schedule



ANNEX-03

Environmental Monitoring Test Report

Newcon Consultants & Laboratories
An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
Recognized by MOEFCC

Website : www.newconlab.in

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT Page No. 1 of 1

TEST REPORT No. NCL/ED-041/19/12/22 DATE OF REPORT : 24/12/2022

Name and Address of Customer : M/S VISHVARAJ ENVIRONMENT PVT. LTD.
AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM
AGRA 282006

SAMPLING DETAIL

Analysis Start Date : 19/12/2022 Analysis End Date : 24/12/2022
Date of Sampling : 16/12/2022 Sampling Done By : NCL
Time of Sampling : 10:00 To 10:00 Sampling Location : Kheratola
Sampling Protocol : IS-5182 (Part-5) Sample ID No. : NCL/ED-041/19/12/22
Sampling Flow Rate for : 0.5 LPM Sampling Flow Rate of SPM : 1.20 m³/min
Gases : (Average)
Sampling Duration : 24 Hrs. Sampling Machine Placed at : 1.7 mtr
Equipments Used : Respirable Dust Sampler (PM10)+Fine Particulate Sampler (PM2.5) With Gaseous Attachment
Height (from ground)

PHYSICAL OBSERVATIONS

Ambient Temperature : 24°C Wind Direction : East To West
Weather Conditions : Clear

TEST RESULT

S.No.	Test Parameters	Units	Test Method	Results	Specification As per CPCB
1	Particulate Matters (Size Less Than 10µm) (PM10)	µg/m ³	IS-5182 (Part 23)	116.0	For 24 Hrs=100
2	Particulate Matters (Size Less Than 2.5µm) (PM2.5)	µg/m ³	Grav.Method	72.0	For 24 Hrs=60
3	Sulphur Dioxide (SO ₂)	µg/m ³	IS-5182 (Part 2)	19.0	For 24 Hrs=80
4	Carbon Monoxide (CO)	mg/m ³	IS-5182 (Part 10)	0.52	For 08 Hrs=02 For 1 Hrs=04
5	Nitrogen Dioxide (NO ₂)	µg/m ³	IS-5182 (Part 6)	27.0	For 24 Hrs=50

End of Report

ED-041/19/12/22-1

Checked by : Manoj Kumar Yadav
Section Incharge

FOR NEWCON CONSULTANTS & LABORATORIES
Authorized Signatory : Dr. Ramesh Chandra Tripathi
Quality Head

1. The test report refers only to the particular sample/s submitted for testing and testing results.
2. Endorsement of the same is neither inferred nor implied.
3. Laboratory shall maintain the confidentiality of all information related to the samples & test reports.
4. Complaints about this report should be communicated within 10 days of the issue date of this report.
5. The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction.

NOTE : 1. The Results reported above pertains to the Tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoiced value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
Mobile : 9810430345, 9205501788 | Website : www.newconlab.in
E-mail : newconlab@gmail.com, newconlabfinance@gmail.com

Newcon Consultants & Laboratories
An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
Recognized by MOEFCC

Website : www.newconlab.in

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT Page No. 1 of 1

TEST REPORT No. NCL/ED-042/19/12/22 DATE OF REPORT : 24/12/2022

Name and Address of Customer : M/S VISHVARAJ ENVIRONMENT PVT. LTD.
AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM
AGRA 282006

SAMPLING DETAIL

Analysis Start Date : 19/12/2022 Analysis End Date : 24/12/2022
Date of Sampling : 16/12/2022 Sampling Done By : NCL
Time of Sampling : 10:30 To 10:30 Sampling Location : Dhandhupura
Sampling Protocol : IS-5182 (Part-5) Sample ID No. : NCL/ED-042/19/12/22
Sampling Flow Rate for : 0.5 LPM Sampling Flow Rate of SPM : 1.25 m³/min
Gases : (Average)
Sampling Duration : 24 Hrs. Sampling Machine Placed at : 1.7 mtr
Equipments Used : Respirable Dust Sampler (PM10)+Fine Particulate Sampler (PM2.5) With Gaseous Attachment
Height (from ground)

PHYSICAL OBSERVATIONS

Ambient Temperature : 24°C Wind Direction : East To West
Weather Conditions : Clear

TEST RESULT

S.No.	Test Parameters	Units	Test Method	Results	Specification As per CPCB
1	Particulate Matters (Size Less Than 10µm) (PM10)	µg/m ³	IS-5182 (Part 23)	126.0	For 24 Hrs=100
2	Particulate Matters (Size Less Than 2.5µm) (PM2.5)	µg/m ³	Grav.Method	84.0	For 24 Hrs=60
3	Sulphur Dioxide (SO ₂)	µg/m ³	IS-5182 (Part 2)	17.0	For 24 Hrs=80
4	Carbon Monoxide (CO)	mg/m ³	IS-5182 (Part 10)	0.55	For 08 Hrs=02 For 1 Hrs=04
5	Nitrogen Dioxide (NO ₂)	µg/m ³	IS-5182 (Part 6)	30.0	For 24 Hrs=50

End of Report

ED-042/19/12/22-1

Checked by : Manoj Kumar Yadav
Section Incharge

FOR NEWCON CONSULTANTS & LABORATORIES
Authorized Signatory : Dr. Ramesh Chandra Tripathi
Quality Head

1. The test report refers only to the particular sample/s submitted for testing and testing results.
2. Endorsement of the same is neither inferred nor implied.
3. Laboratory shall maintain the confidentiality of all information related to the samples & test reports.
4. Complaints about this report should be communicated within 10 days of the issue date of this report.
5. The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction.

NOTE : 1. The Results reported above pertains to the Tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoiced value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
Mobile : 9810430345, 9205501788 | Website : www.newconlab.in
E-mail : newconlab@gmail.com, newconlabfinance@gmail.com

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT



Newcon Consultants & Laboratories

An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
Recognized by MOEFCC



Website : www.newconlab.in

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Page No.: 1 of 1

TEST REPORT No. NCL/ED-043/19/12/22	DATE OF REPORT : 24/12/2022
Name and Address of Customer	M/S VISHVARAJ ENVIRONMENT PVT. LTD. AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM AGRA 282005

SAMPLING DETAIL

Analysis Start Date : 19/12/2022 Analysis End Date : 24/12/2022
Date of Sampling : 15/12/2022 Sampling Done By : NCL
Time of Sampling : 10:30 To 10:30 Sampling Location : Jaganpur
Sampling Protocol : IS-5182 (Part-5) Sample ID No. : NCL/ED-043/19/12/22
Sampling Flow Rate for : 0.5 LPM Sampling Flow Rate of SPM : 1.21 m³/min
Gases (Average)
Sampling Duration : 24 Hrs. Sampling Machine Placed at : 1.7 mtr
Height (from ground)
Equipments Used : Respirable Dust Sampler (PM10)+Fine Particulate Sampler (PM2.5) With Gaseous Attachment

PHYSICAL OBSERVATIONS

Ambient Temperature : 24°C Wind Direction : East To West
Weather Conditions : Clear

TEST RESULT

S.No.	Test Parameters	Units	Test Method	Results	Specification As per CPCB
1	Particulate Matters (Size Less Than 10µm) (PM10)	µg/m ³	IS-5182 (Part 23)	104.0	For 24 Hrs=100
2	Particulate Matters (Size Less Than 2.5µm) (PM2.5)	µg/m ³	Grav.Method	69.0	For 24 Hrs=60
3	Sulphur Dioxide (SO ₂)	µg/m ³	IS-5182 (Part 2)	20.0	For 24 Hrs=80
4	Carbon Monoxide (CO)	mg/m ³	IS-5182 (Part 10)	0.56	For 08 Hrs=02 For 1 Hrs=04
5	Nitrogen Dioxide (NO ₂)	µg/m ³	IS-5182 (Part 6)	34.0	For 24 Hrs=80

End of Report

D-043/19/12/22-1



Checked by
Manoj Kumar Yadav
Section Incharge



FOR NEWCON CONSULTANTS & LABORATORIES

Authorized Signatory
Dr. Ramesh Chandra Tripathi
Quality Head

The test report refers only to the particular sample/s submitted for testing and analysis. Endorsement of the same is neither inferred nor implied. Laboratory shall maintain the confidentiality of all information related to the samples and test reports. Complaints about this report should be communicated within 10 days of the issue date of this report. The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction.
NOTE : 1. The Results reported above pertain to the tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoice value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
Mobile : 9810430345, 9205501788 | Website : www.newconlab.in
E-mail : newconlab@gmail.com, newconlabfinance@gmail.com



Newcon Consultants & Laboratories

An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
Recognized by MOEFCC



Website : www.newconlab.in

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Page No.: 1 of 1

TEST REPORT No. NCL/ED-044/19/12/22	DATE OF REPORT : 24/12/2022
Name and Address of Customer	M/S VISHVARAJ ENVIRONMENT PVT. LTD. AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM AGRA 282005

SAMPLING DETAIL

Analysis Start Date : 19/12/2022 Analysis End Date : 24/12/2022
Date of Sampling : 15/12/2022 Sampling Done By : NCL
Time of Sampling : 10:15 To 10:15 Sampling Location : Peethakhar
Sampling Protocol : IS-5182 (Part-5) Sample ID No. : NCL/ED-044/19/12/22
Sampling Flow Rate for : 0.5 LPM Sampling Flow Rate of SPM : 1.18 m³/min
Gases (Average)
Sampling Duration : 24 Hrs. Sampling Machine Placed at : 1.7 mtr
Height (from ground)
Equipments Used : Respirable Dust Sampler (PM10)+Fine Particulate Sampler (PM2.5) With Gaseous Attachment

PHYSICAL OBSERVATIONS

Ambient Temperature : 24°C Wind Direction : East To West
Weather Conditions : Clear

TEST RESULT

S.No.	Test Parameters	Units	Test Method	Results	Specification As per CPCB
1	Particulate Matters (Size Less Than 10µm) (PM10)	µg/m ³	IS-5182 (Part 23)	110.0	For 24 Hrs=100
2	Particulate Matters (Size Less Than 2.5µm) (PM2.5)	µg/m ³	Grav.Method	76.0	For 24 Hrs=60
3	Sulphur Dioxide (SO ₂)	µg/m ³	IS-5182 (Part 2)	22.0	For 24 Hrs=80
4	Carbon Monoxide (CO)	mg/m ³	IS-5182 (Part 10)	0.5	For 08 Hrs=02 For 1 Hrs=04
5	Nitrogen Dioxide (NO ₂)	µg/m ³	IS-5182 (Part 6)	35.0	For 24 Hrs=80

End of Report

ID-044/19/12/22-1



Checked by
Manoj Kumar Yadav
Section Incharge



FOR NEWCON CONSULTANTS & LABORATORIES

Authorized Signatory
Dr. Ramesh Chandra Tripathi
Quality Head

The test report refers only to the particular sample/s submitted for testing and analysis. Endorsement of the same is neither inferred nor implied. Laboratory shall maintain the confidentiality of all information related to the samples and test reports. Complaints about this report should be communicated within 10 days of the issue date of this report. The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction.
NOTE : 1. The Results reported above pertain to the tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoice value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
Mobile : 9810430345, 9205501788 | Website : www.newconlab.in
E-mail : newconlab@gmail.com, newconlabfinance@gmail.com

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT



Newcon Consultants & Laboratories
An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
 NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
 Recognised by MOEFCC



Website : www.newconlab.in

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Page No.: 1 of 1

TEST REPORT No. NCL/ED-045/19/12/22		DATE OF REPORT : 24/12/2022	
Name and Address of Customer		M/S VISHVARAJ ENVIRONMENT PVT. LTD. AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM AGRA 282006	

SAMPLING DETAIL

Analysis Start Date : 19/12/2022
 Date of Sampling : 19/12/2022
 Time of Sampling : 11:15 To 11:10
 Sampling Protocol : IS:5182 (Part-5)

Sampling Flow Rate for : 0.5 LPM
 Gases :
 Sampling Duration : 24 Hrs.
 Equipments Used : Respirable Dust Sampler (PM10)+Fine Particulate Sampler (PM2.5) With Gaseous Attachment

Ambient Temperature : 24°C
 Weather Conditions : Clear

PHYSICAL OBSERVATIONS

Analysis End Date : 24/12/2022
 Sampling Done By : NCL
 Sampling Location : Budi Nagia

Sample ID No. : NCL/ED-045/19/12/22
 Sampling Flow Rate of SPM : 1.24 m³/min (Average)
 Sampling Machine Placed at : 1.7 mtr Height (from ground)

Wind Direction : East To West

TEST RESULT

S.No.	Test Parameters	Units	Test Method	Results	Specification As per CPCB
1	Particulate Matters (Size Less Than 10µm) (PM10)	µgm³	IS:5182 (Part 23)	122.0	For 24 Hrs=100
2	Particulate Matters (Size Less Than 2.5µm) (PM2.5)	µgm³	Grav.Method	74.0	For 24 Hrs=60
3	Sulphur Dioxide (SO2)	µgm³	IS:5182 (Part 2)	23.8	For 24 Hrs=80
4	Carbon Monoxide (CO)	mgm³	IS:5182 (Part 10)	0.58	For 08 Hrs=02 For 1 Hrs=04
5	Nitrogen Dioxide (NO2)	µgm³	IS:5182 (Part 6)	36.0	For 24 Hrs=80

End of Report

ED-045/19/12/22-1



Checked By
Manoj Kumar Yadav
Section Incharge



FOR NEWCON CONSULTANTS & LABORATORIES

Dr. Ramesh Chandra Tripathi
 Authorized Signatory
 Dr. Ramesh Chandra Tripathi
 Quality Head

1. The test report refers only to the particular sample/s submitted for testing and analysis.
 2. Endorsement of the same is neither inferred nor implied.
 3. Laboratory shall maintain the confidentiality of all information related to the sample and test reports.
 4. Complaints about this report should be communicated within 10 days of the issue date of this report.
 5. The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction.
 NOTE : 1. The Results reported above pertains to the Tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoice value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
 Mobile : 9810430345, 9205501788 | Website : www.newconlab.in
 E-mail : newconlab@gmail.com, newconlabfinance@gmail.com



Newcon Consultants & Laboratories
An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
 NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
 Recognised by MOEFCC



Website : www.newconlab.in

NOISE MONITORING ANALYSIS REPORT

Page No.: 1 of 1

TEST REPORT No. NCL/ED-046/19/12/22		DATE OF REPORT : 24/12/2022	
Name and Address of Customer		M/S VISHVARAJ ENVIRONMENT PVT. LTD. AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM AGRA 282006	

SAMPLING DETAIL

Analysis Start Date : 19/12/2022
 Date of Sampling : 16/12/2022
 Time of Sampling : 12:10

Sampling Location : Kherattola
 Sampling Protocol : NCL/IRV STP 20
 Ambient Temperature : -

SAMPLING DETAIL

Analysis End Date : 20/12/2022
 Sampling Done By : NCL
 Equipments Used : SL-4010

Sample ID No. : NCL/ED-046/19/12/22
 Sample Duration : 24 Hrs.
 Sampling Flow Rate : -

TEST RESULT

S.No.	Test Parameter	Units	Test Method	Results	Specification As per CPCB
Day Time Noise Level					
1	Average Noise Level	dB(A)	NCL/IRV/STP 20	56.0	-
2	L Max	dB(A)	NCL/IRV/STP 20	60.2	-
3	L Min	dB(A)	NCL/IRV/STP 20	52.5	-
4	Day Leq	dB(A)	NCL/IRV/STP 20	56.2	65.0 Max
Night Time Noise Level					
5	Average Noise Level	dB(A)	NCL/IRV/STP 20	38.5	-
6	L Max	dB(A)	NCL/IRV/STP 20	42.8	-
7	L Min	dB(A)	NCL/IRV/STP 20	31.0	-
8	Night Leq	dB(A)	NCL/IRV/STP 20	38.7	55.0 Max

End of Report

Remarks : >day time reduced between 6:00AM To 10:00PM.
 >night time reduced between 10:00PM To 06:00AM.

ED-046/19/12/22-1



Checked By
Manoj Kumar Yadav
Section Incharge



FOR NEWCON CONSULTANTS & LABORATORIES

Dr. Ramesh Chandra Tripathi
 Authorized Signatory
 Dr. Ramesh Chandra Tripathi
 Quality Head

1. The test report refers only to the particular sample/s submitted for testing and analysis.
 2. Endorsement of the same is neither inferred nor implied.
 3. Laboratory shall maintain the confidentiality of all information related to the sample and test reports.
 4. Complaints about this report should be communicated within 10 days of the issue date of this report.
 5. The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction.
 NOTE : 1. The Results reported above pertains to the Tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoice value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
 Mobile : 9810430345, 9205501788 | Website : www.newconlab.in
 E-mail : newconlab@gmail.com, newconlabfinance@gmail.com



Newcon Consultants & Laboratories

An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
Recognized by MOEFCC



Website : www.newconlab.in

NOISE MONITORING ANALYSIS REPORT

Page No.: 1 of 1

TEST REPORT No. NCL/ED-047/19/12/22	DATE OF REPORT : 24/12/2022
Name and Address of Customer	M/S VISHVARAJ ENVIRONMENT PVT. LTD. AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM AGRA 282006

SAMPLING DETAIL

Analysis Start Date : 19/12/2022	Analysis End Date : 20/12/2022
Date of Sampling : 16/12/2022	Sampling Done By : NCL
Time of Sampling : 12:50	Equipments Used : SL-4010
Sampling Location : Dhandhupura	Sample ID No. : NCL/ED-047/19/12/22
Sampling Protocol : NCL/IR/ STP 20	Sample Duration : 24 Hrs.
Ambient Temperature : -	Sampling Flow Rate : -

TEST RESULT

S.No	Test Parameter	Units	Test Method	Results	Specification As Per CPCB
Day Time Noise Level					
1	Average Noise Level	dB(A)	NCL/IR/STP 20	58.5	-
2	L Max	dB(A)	NCL/IR/STP 20	62.4	-
3	L Min	dB(A)	NCL/IR/STP 20	52.4	-
4	Day Leq	dB(A)	NCL/IR/STP 20	58.7	65.0 Max
Night Time Noise Level					
5	Average Noise Level	dB(A)	NCL/IR/STP 20	40.0	-
6	L Max	dB(A)	NCL/IR/STP 20	47.2	-
7	L Min	dB(A)	NCL/IR/STP 20	35.6	-
8	Night Leq	dB(A)	NCL/IR/STP 20	40.2	55.0 Max

End of Report

Remarks : >Day time reckoned between 6:00AM To 10:00PM.
>Night time reckoned between 10:00PM To 06:00AM.

ED-047/19/12/22-1



Checked by
Manoj Kumar Yadav
Section Incharge



FOR NEWCON CONSULTANTS & LABORATORIES

Authorized Signatory
Dr. Ramesh Chandra Tripathi
Quality Head

- The test report refers only to the particular sample/s submitted for testing and analysis.
 - Endorsement of the same is neither inferred nor implied.
 - Laboratory shall maintain the confidentiality of all information related to the samples & test reports.
 - Complaints about this report should be communicated within 10 days of the issue date of this report.
 - The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction.
- NOTE : 1. The Results reported above pertains to the Tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoiced value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
Website : www.newconlab.in



Newcon Consultants & Laboratories

An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
Recognized by MOEFCC



Website : www.newconlab.in

NOISE MONITORING ANALYSIS REPORT

Page No.: 1 of 1

TEST REPORT No. NCL/ED-048/19/12/22	DATE OF REPORT : 24/12/2022
Name and Address of Customer	M/S VISHVARAJ ENVIRONMENT PVT. LTD. AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM AGRA 282006

SAMPLING DETAIL

Analysis Start Date : 19/12/2022	Analysis End Date : 20/12/2022
Date of Sampling : 15/12/2022	Sampling Done By : NCL
Time of Sampling : 12:50	Equipments Used : SL-4010
Sampling Location : Jaganpura	Sample ID No. : NCL/ED-048/19/12/22
Sampling Protocol : NCL/IR/ STP 20	Sample Duration : 24 Hrs.
Ambient Temperature : -	Sampling Flow Rate : -

TEST RESULT

S.No	Test Parameter	Units	Test Method	Results	Specification As Per CPCB
Day Time Noise Level					
1	Average Noise Level	dB(A)	NCL/IR/STP 20	51.5	-
2	L Max	dB(A)	NCL/IR/STP 20	60.1	-
3	L Min	dB(A)	NCL/IR/STP 20	46.8	-
4	Day Leq	dB(A)	NCL/IR/STP 20	51.7	65.0 Max
Night Time Noise Level					
5	Average Noise Level	dB(A)	NCL/IR/STP 20	37.4	-
6	L Max	dB(A)	NCL/IR/STP 20	43.7	-
7	L Min	dB(A)	NCL/IR/STP 20	31.5	-
8	Night Leq	dB(A)	NCL/IR/STP 20	37.6	55.0 Max

End of Report

Remarks : >Day time reckoned between 6:00AM To 10:00PM.
>Night time reckoned between 10:00PM To 06:00AM.

D-048/19/12/22-1



Checked by
Manoj Kumar Yadav
Section Incharge



FOR NEWCON CONSULTANTS & LABORATORIES

Authorized Signatory
Dr. Ramesh Chandra Tripathi
Quality Head

- The test report refers only to the particular sample/s submitted for testing and analysis.
 - Endorsement of the same is neither inferred nor implied.
 - Laboratory shall maintain the confidentiality of all information related to the samples & test reports.
 - Complaints about this report should be communicated within 10 days of the issue date of this report.
 - The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction.
- NOTE : 1. The Results reported above pertains to the Tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoiced value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
Mobile : 9810430345, 9205501788 | Website : www.newconlab.in
E-mail : newconlab@gmail.com, newconlabfinance@gmail.com

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT



Newcon Consultants & Laboratories

An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
Recognized by MOEFCC



Website : www.newconlab.in

NOISE MONITORING ANALYSIS REPORT

Page No.: 1 of 1

TEST REPORT No. NCL/ED-049/19/12/22	DATE OF REPORT : 24/12/2022
Name and Address of Customer	M/S VISHVARAJ ENVIRONMENT PVT. LTD. AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM AGRA 282006

SAMPLING DETAIL

Analysis Start Date : 19/12/2022	Analysis End Date : 24/12/2022
Date of Sampling : 15/12/2022	Sampling Done By : NCL
Time of Sampling : 01:15 PM	Equipments Used : SL-4010
Sampling Location : Peelakhari	Sample ID No. : NCL/ED-049/19/12/22
Sampling Protocol : NCL/AIR/ STP 20	Sample Duration : 24 Hrs.
Ambient Temperature : -	Sampling Flow Rate : -

TEST RESULT

S.No.	Test Parameter	Units	Test Method	Results	Specification As Per CPCB
Day Time Noise Level					
1	Average Noise Level	dB(A)	NCL/AIR/STP 20	61.3	-
2	L Max	dB(A)	NCL/AIR/STP 20	62.5	-
3	L Min	dB(A)	NCL/AIR/STP 20	59.5	-
4	Day Leq	dB(A)	NCL/AIR/STP 20	61.50	65.0 Max
Night Time Noise Level					
5	Average Noise Level	dB(A)	NCL/AIR/STP 20	41.0	-
6	L Max	dB(A)	NCL/AIR/STP 20	42.8	-
7	L Min	dB(A)	NCL/AIR/STP 20	39.5	-
8	Night Leq	dB(A)	NCL/AIR/STP 20	41.20	55.0 Max

End of Report

Remarks : >Day time reckoned between 6:00AM To 10:00PM.
>Night time reckoned between 10:00PM To 06:00AM.

1049/19/12/22-1



Checked by
Manoj Kumar Yadav
Section Incharge



FOR NEWCON CONSULTANTS & LABORATORIES

Authorized Signatory
Dr. Ramesh Chandra Tripathi
Quality Head

The test report refers only to the particular sample/s submitted for testing and is not valid for other samples. Endorsement of the same is neither inferred nor implied. Laboratory shall maintain the confidentiality of all information related to the samples & test reports. Complaints about this report should be communicated within 10 days of the issue date of this report. The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction. NOTE : 1. The Results reported above pertain to the Tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoiced value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
Mobile : 9810430345, 9205501788 | Website : www.newconlab.in
E-mail : newconlab@gmail.com, newconlabfinance@gmail.com



Newcon Consultants & Laboratories

An ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory
NABL ISO/IEC 17025 : 2017 (Testing, Cert. No. TC-5526) Accredited Laboratory
Recognized by MOEFCC



Website : www.newconlab.in

NOISE MONITORING ANALYSIS REPORT

Page No.: 1 of 1

TEST REPORT No. NCL/ED-050/19/12/22	DATE OF REPORT : 24/12/2022
Name and Address of Customer	M/S VISHVARAJ ENVIRONMENT PVT. LTD. AWW-AGRA UP JAL NIGAM, 100 MLD STP DHANDHUPURA, NR. SHILPA GRAM AGRA 282006

SAMPLING DETAIL

Analysis Start Date : 19/12/2022	Analysis End Date : 24/12/2022
Date of Sampling : 16/12/2022	Sampling Done By : NCL
Time of Sampling : 01:30 PM	Equipments Used : SL-4010
Sampling Location : Budi Nagla	Sample ID No. : NCL/ED-050/19/12/22
Sampling Protocol : NCL/AIR/ STP 20	Sample Duration : 24 Hrs.
Ambient Temperature : -	Sampling Flow Rate : -

TEST RESULT

S.No.	Test Parameter	Units	Test Method	Results	Specification As Per CPCB
Day Time Noise Level					
1	Average Noise Level	dB(A)	NCL/AIR/STP 20	63.5	-
2	L Max	dB(A)	NCL/AIR/STP 20	69.2	-
3	L Min	dB(A)	NCL/AIR/STP 20	59.8	-
4	Day Leq	dB(A)	NCL/AIR/STP 20	63.70	65.0 Max
Night Time Noise Level					
5	Average Noise Level	dB(A)	NCL/AIR/STP 20	43.6	-
6	L Max	dB(A)	NCL/AIR/STP 20	45.0	-
7	L Min	dB(A)	NCL/AIR/STP 20	42.6	-
8	Night Leq	dB(A)	NCL/AIR/STP 20	43.80	55.0 Max

End of Report

Remarks : >Day time reckoned between 6:00AM To 10:00PM.
>Night time reckoned between 10:00PM To 06:00AM.

1050/19/12/22-1



Checked by
Manoj Kumar Yadav
Section Incharge



FOR NEWCON CONSULTANTS & LABORATORIES

Authorized Signatory
Dr. Ramesh Chandra Tripathi
Quality Head

The test report refers only to the particular sample/s submitted for testing and is not valid for other samples. Endorsement of the same is neither inferred nor implied. Laboratory shall maintain the confidentiality of all information related to the samples & test reports. Complaints about this report should be communicated within 10 days of the issue date of this report. The report is not to be produced wholly or in part without prior permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction. NOTE : 1. The Results reported above pertain to the Tested parameters only. Endorsement of the same is neither inferred nor implied. 2. All disputes subject to GHAZIABAD JURISDICTION. 3. The Report shall not be reproduced except in full without the permission of MANAGING PARTNER. 4. Our liability is limited to invoiced value only.

Laboratory : A-1/156, Sector-17, (Swadeshi Compound) Kavi Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)
Mobile : 9810430345, 9205501788 | Website : www.newconlab.in
E-mail : newconlab@gmail.com, newconlabfinance@gmail.com



Hydel Laboratories (P) Ltd

Because Quality Matters.....

Laboratory : Plot No. 2/20, Sec - 2, Rajender Nagar,
Sahibabad, Ghaziabad - 201005 (U.P.)
(0120-4125559, 9910830469, 8057569912)
info.hydelaboratories@gmail.com

Govt. Approved & ISO:9001:2015, ISO:14001:2015, ISO:45001:2018 Certified Laboratory

TEST REPORT

Issued To: - Agra Waste Water Management Pvt Ltd 100 MLD STP Dhandhupura Agra U.P. (HAM Agra Projects)	Report No.: - HLPL99-230518-04
Description: - Soil	Reporting Date: - 25.05.2023
Latter Ref. No.: - AWWMPL/22-23/M/012	Sample Received Date: - 18.05.2023
	Analysis Start Date: - 18.05.2023
	Analysis End Date: - 25.05.2023
Project: - Design, build, finance, operate and transfer sewage treatment plant (STPs) along with associated infrastructure for a period of 15 years under hybrid annuity-based PPP mode in Agra, Uttar Pradesh, under Namami Gange programme.	Page No.: - 01 of 01

Results

S. No.	Parameter	Unit	Results	Test Method
1	Colour	-	Brown	HLPL/STP/CHEM/012
2	Textural Class	-	Sandy Clay	IS:2720 (P-4) 1985
3	Bulk Density	gm/cm ³	1.23	IS: 14765:2000
4	Water Holding Capacity	%	47.7	HLPL/STP/CHEM/015
Particle Size				
5	Sand	%	49.7	IS:2720 (P-4) 1985
6	Silt	%	20.4	IS:2720 (P-4) 1985
7	Clay	%	29.9	IS:2720 (P-4) 1985
Chemical Characteristics				
8	pH value	-	8.01	IS:2720 (P-26) 1987
9	Electrical Conductivity	µmhos/cm	122.7	IS:14767 2000
10	Organic Matter	%	1.47	HLPL/STP/CHEM/001
11	Exchangeable Calcium	mg/kg	2912.7	IS:2720 (P-24) 1976
12	Exchangeable	mg/kg	1470.7	IS:2720 (P-24) 1976
13	Copper	mg/kg	5.9	IS:2720 (P-27) 1977
14	Nickel	mg/kg	5.4	IS:2720 (P-27) 1977
15	Chromium	mg/kg	22.9	IS:2720 (P-27) 1977
16	Iron	mg/kg	2877.1	IS:2720 (P-27) 1977
17	Lead	mg/kg	7.4	IS:2720 (P-27) 1977
18	Sulphate	mg/kg	377.3	IS:2720 (P-27) 1977
Available Nutrients				
19	Nitrogen (as N)	kg/ha	787.6	IS:10158 1982 RA 2009
20	Phosphorus	kg/ha	24.1	IS:10158 1982 RA 2009
21	Exchangeable	kg/ha	70.1	HLPL/STP/CHEM/002

End of Report

For Hydel Laboratories Pvt. Ltd

Verified By

Authorised Signatory

Authorised Signatory

Authorised Signatory

Authorised Signatory

Note:- • The result indicated only refer to the tested samples and listed parameters and do not endorse any product.

• Total liability of the laboratory is limited to the invoiced amount.

• This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory.

• Samples received shall be destroyed after four weeks from the date of issue of the certificate unless specified otherwise.

• This certificate shall not be used in any advertising media or as evidence in the Court of Law without prior written consent of the laboratory.

Office : 3/1- B, Sec - 2, Rajender Nagar, Sahibabad, Ghaziabad - 201005 (U.P.)

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Test Report
Regional Level Water Analysis Laboratory
Address : 4/4 Sanjay Palace U.P. Jal Nigam, Agra, 282002

Report No: 135 Issue Date: 24/05/2023 Page No: 1-2
Contact Person: Sanjay Upman Address: UPIN Agra Mob: 9762093634

Office Name and Address: 4/4, Sanjay Palace, U.P. Jal Nigam Agra
Ref Letter No & Date:

Basic details of sample

District: Agra Block: Block
Gram Panchayat: Gram Panchayat
Habitat: Location: S.T.P. (S.T.P.)
Water Source: Sumnerable Sample No: S.T.P. (S.T.P.)
Quantity of Sample: 1 liter Date of Collection: 17/05/2023
Receiving Date: 17/05/2023 S. Collector: S. Collector
Sample Depositor: P.M. V.P.C.U. U.P. Jal Nigam (Sanjay Upman) Sampling Method: As per IS 3025 Part 1: 1986
Analysis Start Date: 18/05/2023 Analysis Completion Date: 23/05/2023

Technical Data of Analysis

Analyzed parameters (Unit of Measurement)	Observed Value	Specified Values as per BIS	Ref. Method of Analysis
1 pH	8.43	6.5-8.5	IS 3025 (Part 11):2022 (Electrometric method)
2 Turbidity (NTU)	4.30	1	IS 3025 (Part 10):1984 (Nephelometric method)
3 TDS (mg/L)	1060	500	IS 3025 (Part 16):1984 (Gravimetric method)
4 Fluoride (mg/L)	0.62	1.5	APHA 23rd Edition 4500-F Method C (Electrode method) 2017
5 Total Hardness (mg/L)	172	200	IS 3025 (Part 21):2009 (EDTA Method)

Analysis Report
Regional Level Water Analysis Laboratory
Address : 4/4 Sanjay Palace U.P. Jal Nigam, Agra, 282002

Report No: 136 Issue Date: 24/05/2023 Page No: 1-2
Contact Person: Sanjay Upman Address: UPIN Agra Mob: 9762093634

Office Name and Address: 4/4, Sanjay Palace, U.P. Jal Nigam Agra
Ref Letter No & Date:

Basic details of sample

District: Agra Block: Block
Gram Panchayat: Gram Panchayat
Habitat: Location: S.T.P. (S.T.P.)
Water Source: Sumnerable Sample No: S.T.P. (S.T.P.)
Quantity of Sample: 1 liter Date of Collection: 17/05/2023
Receiving Date: 17/05/2023 S. Collector: S. Collector
Sample Depositor: P.M. V.P.C.U. U.P. Jal Nigam (Sanjay Upman) Sampling Method: As per IS 3025 Part 1: 1986
Analysis Start Date: 18/05/2023 Analysis Completion Date: 23/05/2023

Technical Data of Analysis

Analyzed parameters (Unit of Measurement)	Observed Value	Specified Values as per BIS	Ref. Method of Analysis
1 pH	8.43	6.5-8.5	IS 3025 (Part 11):2022 (Electrometric method)
2 Turbidity (NTU)	4.30	1	IS 3025 (Part 10):1984 (Nephelometric method)
3 TDS (mg/L)	1060	500	IS 3025 (Part 16):1984 (Gravimetric method)
4 Fluoride (mg/L)	0.62	1.5	APHA 23rd Edition 4500-F Method C (Electrode method) 2017
5 Total Hardness (mg/L)	172	200	IS 3025 (Part 21):2009 (EDTA Method)

Analysis Report
Regional Level Water Analysis Laboratory
Address : 4/4 Sanjay Palace U.P. Jal Nigam, Agra, 282002

Report No: 137 Issue Date: 24/05/2023 Page No: 1-2
Contact Person: Sanjay Upman Address: UPIN Agra Mob: 9762093634

Office Name and Address: 4/4, Sanjay Palace, U.P. Jal Nigam Agra
Ref Letter No & Date:

Basic details of sample

District: Agra Block: Block
Gram Panchayat: Gram Panchayat
Habitat: Location: S.T.P. (S.T.P.)
Water Source: Sumnerable Sample No: S.T.P. (S.T.P.)
Quantity of Sample: 1 liter Date of Collection: 17/05/2023
Receiving Date: 17/05/2023 S. Collector: S. Collector
Sample Depositor: P.M. V.P.C.U. U.P. Jal Nigam (Sanjay Upman) Sampling Method: As per IS 3025 Part 1: 1986
Analysis Start Date: 18/05/2023 Analysis Completion Date: 23/05/2023

Technical Data of Analysis

Analyzed parameters (Unit of Measurement)	Observed Value	Specified Values as per BIS	Ref. Method of Analysis
1 pH	8.43	6.5-8.5	IS 3025 (Part 11):2022 (Electrometric method)
2 Turbidity (NTU)	4.30	1	IS 3025 (Part 10):1984 (Nephelometric method)
3 TDS (mg/L)	1060	500	IS 3025 (Part 16):1984 (Gravimetric method)
4 Fluoride (mg/L)	0.62	1.5	APHA 23rd Edition 4500-F Method C (Electrode method) 2017
5 Total Hardness (mg/L)	172	200	IS 3025 (Part 21):2009 (EDTA Method)

Test Report
Regional Level Water Analysis Laboratory
Address : 4/4 Sanjay Palace U.P. Jal Nigam, Agra, 282002

Report No: 134 Issue Date: 24/05/2023 Page No: 1-2
Contact Person: Sanjay Upman Address: UPIN Agra Mob: 9762093634

Office Name and Address: 4/4, Sanjay Palace, U.P. Jal Nigam Agra
Ref Letter No & Date:

Basic details of sample

District: Agra Block: Block
Gram Panchayat: Gram Panchayat
Habitat: Location: S.T.P. (S.T.P.)
Water Source: Sumnerable Sample No: S.T.P. (S.T.P.)
Quantity of Sample: 1 liter Date of Collection: 17/05/2023
Receiving Date: 17/05/2023 S. Collector: S. Collector
Sample Depositor: P.M. V.P.C.U. U.P. Jal Nigam (Sanjay Upman) Sampling Method: As per IS 3025 Part 1: 1986
Analysis Start Date: 18/05/2023 Analysis Completion Date: 23/05/2023

Technical Data of Analysis

Analyzed parameters (Unit of Measurement)	Observed Value	Specified Values as per BIS	Ref. Method of Analysis
1 pH	7.79	6.5-8.5	IS 3025 (Part 11):2022 (Electrometric method)
2 Turbidity (NTU)	3.74	1	IS 3025 (Part 10):1984 (Nephelometric method)
3 TDS (mg/L)	1068	500	IS 3025 (Part 16):1984 (Gravimetric method)
4 Fluoride (mg/L)	0.63	1.5	APHA 23rd Edition 4500-F Method C (Electrode method) 2017
5 Total Hardness (mg/L)	196	200	IS 3025 (Part 21):2009 (EDTA Method)

Analysis Report
Regional Level Water Analysis Laboratory
Address : 4/4 Sanjay Palace U.P. Jal Nigam, Agra, 282002

Report No: 135 Issue Date: 24/05/2023 Page No: 1-2
Contact Person: Sanjay Upman Address: UPIN Agra Mob: 9762093634

Office Name and Address: 4/4, Sanjay Palace, U.P. Jal Nigam Agra
Ref Letter No & Date:

Basic details of sample

District: Agra Block: Block
Gram Panchayat: Gram Panchayat
Habitat: Location: S.T.P. (S.T.P.)
Water Source: Sumnerable Sample No: S.T.P. (S.T.P.)
Quantity of Sample: 1 liter Date of Collection: 17/05/2023
Receiving Date: 17/05/2023 S. Collector: S. Collector
Sample Depositor: P.M. V.P.C.U. U.P. Jal Nigam (Sanjay Upman) Sampling Method: As per IS 3025 Part 1: 1986
Analysis Start Date: 18/05/2023 Analysis Completion Date: 23/05/2023

Technical Data of Analysis

Analyzed parameters (Unit of Measurement)	Observed Value	Specified Values as per BIS	Ref. Method of Analysis
1 pH	7.79	6.5-8.5	IS 3025 (Part 11):2022 (Electrometric method)
2 Turbidity (NTU)	3.74	1	IS 3025 (Part 10):1984 (Nephelometric method)
3 TDS (mg/L)	1068	500	IS 3025 (Part 16):1984 (Gravimetric method)
4 Fluoride (mg/L)	0.63	1.5	APHA 23rd Edition 4500-F Method C (Electrode method) 2017
5 Total Hardness (mg/L)	196	200	IS 3025 (Part 21):2009 (EDTA Method)

Analysis Report
Regional Level Water Analysis Laboratory
Address : 4/4 Sanjay Palace U.P. Jal Nigam, Agra, 282002

Report No: 136 Issue Date: 24/05/2023 Page No: 1-2
Contact Person: Sanjay Upman Address: UPIN Agra Mob: 9762093634

Office Name and Address: 4/4, Sanjay Palace, U.P. Jal Nigam Agra
Ref Letter No & Date:

Basic details of sample

District: Agra Block: Block
Gram Panchayat: Gram Panchayat
Habitat: Location: S.T.P. (S.T.P.)
Water Source: Sumnerable Sample No: S.T.P. (S.T.P.)
Quantity of Sample: 1 liter Date of Collection: 17/05/2023
Receiving Date: 17/05/2023 S. Collector: S. Collector
Sample Depositor: P.M. V.P.C.U. U.P. Jal Nigam (Sanjay Upman) Sampling Method: As per IS 3025 Part 1: 1986
Analysis Start Date: 18/05/2023 Analysis Completion Date: 23/05/2023

Technical Data of Analysis

Analyzed parameters (Unit of Measurement)	Observed Value	Specified Values as per BIS	Ref. Method of Analysis
1 pH	7.79	6.5-8.5	IS 3025 (Part 11):2022 (Electrometric method)
2 Turbidity (NTU)	3.74	1	IS 3025 (Part 10):1984 (Nephelometric method)
3 TDS (mg/L)	1068	500	IS 3025 (Part 16):1984 (Gravimetric method)
4 Fluoride (mg/L)	0.63	1.5	APHA 23rd Edition 4500-F Method C (Electrode method) 2017
5 Total Hardness (mg/L)	196	200	IS 3025 (Part 21):2009 (EDTA Method)

ANNEX-04

Land NOC Detail
(3 number of STPs)

Email I.D. - xcirdeagraupjn@gmail.com



कार्यालय अधीक्षण अभियन्ता, मण्डल कार्यालय,
उत्तर प्रदेश जल निगम, (ग्रामीण), आगरा।

पत्रांक :- 588 / नमामि गंगे / 372 दिनांक :- 12.10.2022

सेवा में,

मै0 आगरा वेस्टवाटर मैनेजमेन्ट प्रा0 लि0,
116A, 11th फ्लोर, गेकर्स चेंबर IV A,
220, नरीमन पॉइन्ट, मुम्बई-400021

विषय- नमामि गंगे कार्यक्रमान्तर्गत स्वीकृत परियोजना "आगरा सीवरेज योजना (आई. एण्ड डी. वर्क)" 15 वर्षों के संचालन एवं रखरखाव सहित के निर्माण कार्य कराने के सम्बन्ध में।

महोदय,

उपरोक्त विषय के सम्बन्ध में अवगत कराना है कि आगरा सीवरेज योजना (आई. एण्ड डी. वर्क) 03 नग एसटीपी निर्माण एवं तत्सम्बन्धी कार्यों हेतु निम्नानुसार भूमि उपलब्ध है जिस पर कार्य करने की अनुमति दी जाती है।

क्र.सं.	एसटीपी की क्षमता एवं स्थल	जहाँ भूमि उपलब्ध है	उपलब्ध भूमि का क्षेत्रफल
1	31 एम.एल.डी. जगनपुर	पूर्व निर्मित 14 एम.एल.डी. एसटीपी जगनपुर परिसर में रिक्त भूमि	4.13 है.
2	35 एम.एल.डी. पीलाखार	पूर्व निर्मित 10 एम.एल.डी. एसटीपी पीलाखार परिसर में रिक्त भूमि	15.06 है.
3	100 एम.एल.डी. धांधूपुरा	पूर्व निर्मित 78 एम.एल.डी. एसटीपी धांधूपुरा परिसर में रिक्त भूमि	5.11 है.

भवदीय

(प्रदीप कुमार)
अधीक्षण अभियन्ता

प्र0सं0 एवं दिनांक उपरोक्तानुसार।

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. डॉ0 प्रवीन कुमार, निदेशक (टी-111), एन0एम0सी0जी0, नई दिल्ली।
2. मुख्य अभियन्ता (आगरा क्षेत्र), उ.प्र. जल निगम (ग्रामीण), आगरा।
3. परियोजना प्रबन्धक, यमुना प्रदूषण नियंत्रण इकाई, उ.प्र. जल निगम (ग्रामीण), आगरा।
4. अधिशासी अभियन्ता, खण्ड कार्यालय (वि0/यां0), उ.प्र. जल निगम (ग्रामीण), आगरा।

अधीक्षण अभियन्ता

Land NOC (3 number of DSTPs- Indira Memorial, Islam Nagar and Peelipokhar)

 **कार्यालय परियोजना प्रबन्धक,**
यमुना प्रदूषण नियन्त्रण इकाई, उ०प्र० जल निगम (ग्रामीण)
वाटर वर्क्स पौराहा, जीवनी मण्डी रोड, आगरा - 202 004

पत्रांक : 18 / गामा गंगे आगरा / 06 दिनांक : 29/01/2023

सेवा में,
नगर अनुकूल,
नगर निगम,
आगरा।

विषय- नमामि गंगे कार्यक्रमांतर्गत प्रस्तावित DSTP निर्माण हेतु भूमि उपलब्ध कराने के संबंध में।

महोदय,

कृपया इस कार्यालय के पत्रांक-626/नमामि गंगे आगरा/27, दिनांक 31.08.2022 एवं 683/नमामि गंगे आगरा/37, दिनांक 24.09.2022 का संदर्भ ग्रहण करने का कष्ट करे जिससे सम्बन्ध में अज्ञात रहता है कि नमामि गंगे कार्यक्रमवर्तित आगरा सीवरेज योजना (आई एण्ड डी एण्ड एसटीपी वर्क्स) में यमुना नदी में ड्रिप रवे 23 मीटर अपटेंड वाली को टैप करने एवं वर्ष 2023 तक के अधिकतम ऑक्सीजन काव के संशोधन हेतु रु० 842.25 करोड़ का अनुमान स्वीकृत किया गया था। जिसमें 15 वर्ष का संचालन एवं रखरखाव भी सम्मिलित है। उक्त रवे द्वारा उत्पन्न हुई गंभीर गंदे कार्यक्रमांतर्गत प्रस्तावित DSTP के निर्माण हेतु भूमि उपलब्ध कराने का अनुरोध किया गया है।

अतः आगे पुनः अनुरोध है कि 02 मी. DSTP इकाई हरित मैमोरियल 1.50 MLD (0.135 हे० भूमि आवश्यक) और इस्लाम नगर 1.10 MLD (0.955 हे० भूमि आवश्यक) हेतु, आगरा नगर में भूमि उपलब्ध कराने हेतु सम्बंधित को निर्देशित करने का कष्ट करे जिससे कि M.O. NGT से आचार्यद्वारा एवं भारत सरकार को नमामि गंगे योजना के अन्तर्गत कार्य को लागू कर पूर्ण किया जा सके।

12-9-22

परदीप
(निदेशक आगरा जिला)
परियोजना प्रबन्धक

पुनः एवं दिनांक उपरोक्तानुसार।

प्रतिनिधि निम्नलिखित को सूचना एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. जिलाधिकारी, आगरा।
2. अधीक्षण अभियन्ता, मण्डल कार्यालय, उ०प्र० जल निगम (ग्रामीण), आगरा।
3. श्री पन्डित, परियोजना अभियन्ता/श्री हरीश खीर, सहपाक परियोजना अभियन्ता को इस निर्देश को साथ ही नगर अनुकूल, नगर निगम, आगरा से सम्बंधित सम्पूर्ण कर आचार्यद्वारा कार्यवाही कराने निर्दिष्ट करें।

परियोजना प्रबन्धक

 **कार्यालय परियोजना प्रबन्धक,**
यमुना प्रदूषण नियन्त्रण इकाई, उ०प्र० जल निगम (ग्रामीण)
वाटर वर्क्स पौराहा, जीवनी मण्डी रोड, आगरा - 202 004

पत्रांक : 94 / गामा गंगे आगरा / 94 दिनांक : 10/04/2023

सेवा में,
निदेशक,
आगरा वेस्ट वाटर मैनेजमेंट प्रा० लि०,
116 ए. 11th फ्लोर मेजर वैम्बर Vi A, 220,
नरीमन पॉइन्ट, मुम्बई-400021

विषय- नमामि गंगे कार्यक्रमांतर्गत "आगरा सीवरेज स्कीम (आई एण्ड डी एण्ड एसटीपी वर्क्स) 15 वर्षों के संचालन एवं रख-रखाव सहित कार्यों में डी०एस०टी०पी०, पीलीपोखर की भूमि के संबंध में।

महोदय,

उपरोक्त विषयक अवगत कराना है कि नमामि गंगे कार्यक्रमांतर्गत "आगरा सीवरेज स्कीम (आई एण्ड डी एण्ड एसटीपी वर्क्स) 15 वर्षों के संचालन एवं रखरखाव सहित कार्यों का Concession Agreement दिनांक 25.08.2022 को गठित हो चुका है जिसमें प्रभावी कार्य प्रारम्भ करने का दिनांक 05.04.2023 है। परियोजना से सम्बंधित डी०एस०टी०पी०, पीलीपोखर की भूमि निर्माण कार्य हेतु दी जाती है। भूमि के अमिलेख संलग्न है।

संलग्नक-उपरोक्तानुसार।

भवदीय
Ravi Prasad Singh
(रविन्द्र प्रताप सिंह)
परियोजना प्रबन्धक

पुनः एवं दिनांक उपरोक्तानुसार।

प्रतिनिधि निम्नलिखित को सूचना एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. अधीक्षण अभियन्ता, मण्डल कार्यालय, उ०प्र० जल निगम (ग्रामीण), आगरा।
2. अधिशासी अभियन्ता, खण्ड कार्यालय (वि०/यौ०), उ०प्र० जल निगम (ग्रामीण), आगरा।
3. निदेशक, मै० एन०जे०एस० इन्जीनियर्स, इण्डिया प्रा०लि०, 208, 2 फ्लोर, 12 गगनदीप बिल्डिंग, राजेन्द्र प्लेस, नई दिल्ली-110008।

परियोजना प्रबन्धक

SITE INSPECTION REPORT NOT BELOW THE RANK OF DCF

(For the forest land to be diverted under FCA)

A proposal has been received by this office from UP Jal Nigam Agra for Diversion (under FCA-1980) of 0.9024 hac. of Reserved forest land for non-forestry purpose. The Project envisage the use of forest land for Construction of DSTP for District Agra (U.P.)

The site inspection of the land involved in the proposal has been done by me on dt. 15.06.2000

On inspection of the site, it is found that the land required by the user agency is a Reserved Forest (RF) measuring—0.9024 hac. measuring—

The requirement of forest land as proposed by the user agency in Col. 2 of part-I is unavoidable and is barest minimum required for the project.

Whether any rare / endangered / unique species of flora and fauna in the area. If so, the details thereof - NIL

Whether any protected archaeological/heritage site/defence establishment or any other important monument is located in the area. if so, the details thereof with NOC from competent authority, if required.-NIL

(a) The user agency has not violated the provisions of forest (Conservation) Act, 1980 and no work has been started without proper sanction. — ✓

(b) It has been found that the user agency has violated the Forest (conservation) act, 1980 provisions. X

A detail report as per para 1.9 of chapter-1, para C of Handbook of forest (Conservation) Act, 1980 is attached. (NA)

✓
Recommended for acceptance of the proposal.

Place: Agra

A. K. Singh
Divisional Director
Social Forestry Division,
Agra

N.8. x. State the purpose for which the forest land is proposed to be diverted.

xx. out of (a) and (b) tick the option which is applicable and cross the option which is not applicable.

As per letter number- 2-2/2000-FC dated 16-10-2000 from Ministry of Environment & Forests, Government of India for proposal involving less than 40 hectare of forest land, the site inspection report from OCF is required and for proposal involving more than 40 hectare of forest land site inspection report from the Conservator of Forests is required

ANNEX-6

Tree Cutting Approval by Supreme Court at 100 MLD STP



pmypcuagra@gmail.com

फोन नं : 09473942644.

कार्यालय परियोजना प्रबन्धक,
यमुना प्रदूषण नियन्त्रण इकाई, उ०प्र० जल निगम (ग्रामीण)
 वाटर वर्क्स चौराहा, जीयनी मण्डी रोड, आगरा - 282 004

पत्रांक 17 / नमामि गंगे आगरा / 05 दिनांक 09-1-2023
 सेवा में,

प्रभागीय निदेशक,
 सामाजिक वानिकी प्रभाग,
 आगरा।

विषय:- 78 एम०एल०डी० एस०टी०पी० घांघूपुरा में खाली जगह में लगाये गए वृक्षों की कटान के संबंध में।

संदर्भ:- आपके पत्रांक 3471/22-1/ आगरा दिनांक 7 जनवरी 2023

महोदय,

संदर्भित पत्र के संबंध में अवगत कराना है कि, बिन्दु संख्या (4) में उल्लिखित वृक्षों की कटान की अवधि दिनांक 31.03.2023 तक की गयी है, जो कि कार्य की महत्ता को देखते हुए अधिक है। अतः आपसे अनुरोध है कि वृक्ष पातन की प्रक्रिया को शीघ्र अतिशीघ्र कराने का कष्ट करें। जिससे कि भारत सरकार की अतिमहत्वपूर्ण एवं महत्वकांक्षी नमामि गंगे योजना के कार्यों को समय से प्रारम्भ किया जा सके तथा मा० सर्वोच्च न्यायालय के आदेशों का पालन किया जा सके।

भवदीय,

(रविन्द्र प्रताप सिंह)
 परियोजना प्रबन्धक

पू.सं. एवं दिनांक उपरोक्तानुसार।

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. अधीक्षण अभियन्ता, मण्डल कार्यालय, उ.प्र. जल निगम (ग्रामीण), आगरा।
2. प्रभागीय लौगिंग प्रबन्धक, उ.प्र० वन निगम, इटावा।
3. श्री चन्द्रहास, परियोजना अभियन्ता को इस निर्देश के साथ कि प्रभागीय लौगिंग प्रबन्धक, उ०प्र० वन निगम, इटावा से सम्पर्क कर वृक्ष पातन की प्रक्रिया को शीघ्र पूर्ण कराना सुनिश्चित करें।

परियोजना प्रबन्धक

Email I.D. - xcircleagroup@gmail.com



कार्यालय अधीक्षण अभियन्ता, मण्डल कार्यालय, उत्तर प्रदेश जल निगम, (ग्रामीण), आगरा।

पत्रांक :- 420 / नमामि गंगे / 262 दिनांक :- 25-07-2022

सेवा में,

मुख्य अभियन्ता (गंगा),
उ०प्र० जल निगम (ग्रामीण),
6, राणा प्रताप मार्ग, लखनऊ।

विषय:- प्रतिपूरक बनीकरण हेतु रु० 1.18 करोड़ अवमुक्त करने के सम्बन्ध में।

महोदय,

उपरोक्त विषयक अवगत कराना है कि नमामि गंगे कार्यक्रमान्तर्गत आगरा सीवरेज योजना (आई० एण्ड डी० एण्ड एसटीपी राकसी) के अन्तर्गत 100 एम.एल.डी. एसटीपी के निर्माण हेतु, 78 एम०एल०डी० एसटीपी कैम्पस में प्रस्तावित भूमि पर लगे 704 वृक्षों के पातन एवं प्रतिपूरक बनीकरण हेतु वन विभाग द्वारा रु० 1.18 करोड़ का प्राक्कलन उपलब्ध कराया गया था, जिस हेतु राष्ट्रीय स्वच्छ गंगा मिशन, नई दिल्ली के पत्रांक Pr-11013/5/2018-O/O Dir (T-II) NMCG दिनांक 23.10.2020 द्वारा स्वीकृति प्रदान की गयी थी। जिला प्रशासन द्वारा प्रतिपूरक बनीकरण हेतु 6.82 हे० भूमि पूर्व में ही आरक्षित की जा चुकी है।

दिनांक 13.05.2022 को मा० उच्चतम न्यायालय में 704 वृक्षों के पातन की अनुमति हेतु योजित आई०ए० 11157/2019 पर हुई सुनवाई में अनुमति भी प्रदान की जा चुकी है। अतः आपसे अनुरोध है कि रु० 1.18 करोड़ निम्नलिखित विवरण के अनुसार निर्गत कराने का कष्ट करें, जिससे वृक्षों के पातन एवं प्रतिपूरक बनीकरण हेतु अग्रतर कार्यवाही की जा सके।

नाम - अधीक्षण अभियन्ता, मण्डल कार्यालय, उ०प्र० जल निगम (ग्रामीण), आगरा।
बैंक - बैंक ऑफ बड़ौदा कैलाशपुरी, आगरा।
बैंक खाता सं० - 46960100006319
आई.एफ.सी.कोड - BARB0KAILAS

संतम्भक:-उपरोक्तानुसार।

भवदीय

(अन्तर्कोश शर्मा)
अधीक्षण अभियन्ता

प्र०सं० एवं दिनांक उपरोक्तानुसार।

- प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
1. मुख्य अभियन्ता (आ०शे०), उ०प्र० जल निगम (ग्रामीण), आगरा।
 2. परियोजना प्रबन्धक, यमुना प्रदूषण नियंत्रण इकाई, उ०प्र० जल निगम (ग्रामीण), आगरा।

अधीक्षण अभियन्ता



कार्यालय तहसीलदार, खेरागढ़ (आगरा) OFFICE OF THE TEHSILDAR, KHERAGARH (AGRA)

पत्र संख्या ५३३

/ख०/लि०

दिनांक: 21 जनवरी, 2023

कार्यालय आदेश

परियोजना प्रबंधक, यमुना प्रदूषण नियंत्रण इकाई, उ०प्र० जल निगम (ग्रामीण), आगरा के पत्र संख्या 941/नमामि गंगे आगरा/93 दिनांक 19.12.2022 जो अपर जिलाधिकारी (प्रशासन) महोदय, आगरा को सम्बोधित है, के क्रम में नमामि गंगे कार्यक्रमान्तर्गत 100 एम०एस०डी० एस०टी०पी० निर्माण हेतु प्रतिपूरक स्वीकरण के लिए टी०टी०जेड० क्षेत्र में ग्राम बिधौली के गाटा संख्या 3क रकबा 31.90 है० (बंजर भूमि) में पूर्व से आरक्षित 6.82 है० की सीमा चिन्हित कराकर हस्तान्तरित कराने हेतु दिनांक 24.01.2023 से कार्य समाप्ति तक निम्नलिखित राजस्व टीम गठित की जाती है:-

1. श्री अभिवेक कुमार, नायब तहसीलदार, खेरागढ़।
2. श्री रमेश कुमार, लेखपाल
3. श्री किशन साह, लेखपाल
4. श्री दीपक राम, लेखपाल
5. श्री अमर प्रताप सिंह, लेखपाल

उपरोक्त गठित राजस्व टीम जल निगम के सक्षम अधिकारी/कर्मचारीगण की उपस्थिति में दिनांक 24.01.2023 से कार्य की समाप्ति तक भूमि की सीमा चिन्हित कराकर उ०प्र० जल निगम को हस्तान्तरित कराया जाना सुनिश्चित करेगी तथा कृत कार्यवाही की आख्या अधोहस्ताक्षरी के समक्ष प्रस्तुत करेगी।

संलग्नक- यथोक्त

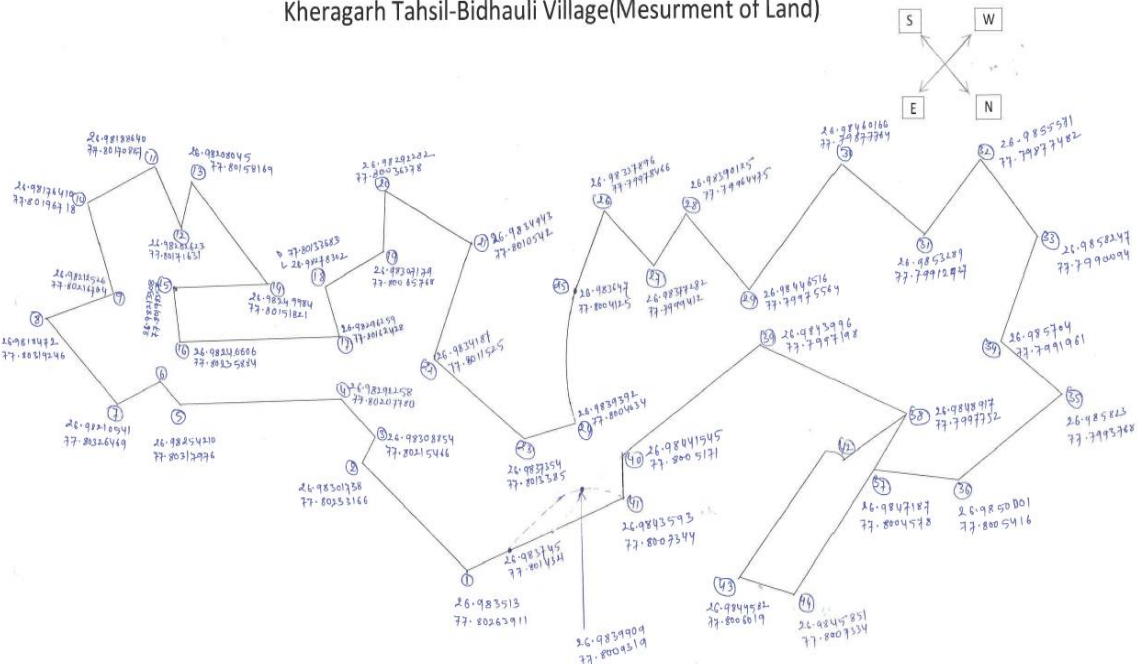
संख्या व दिनांक तद
प्रतिस्ति-
प्रतिस्ति-

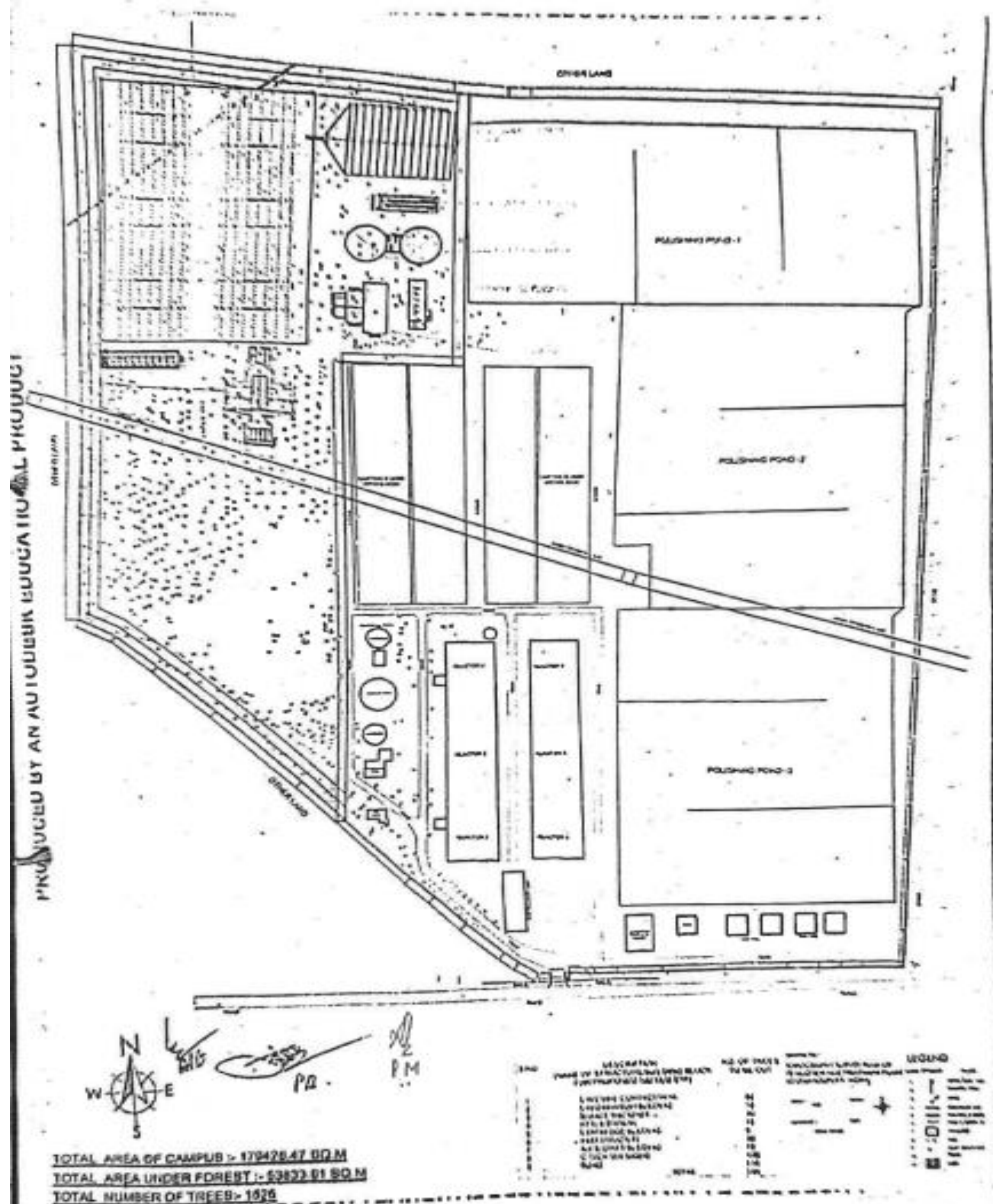
1. उप जिलाधिकारी महोदय, आगरा की सेवा में सूचनाई प्रेषित।
2. परियोजना प्रबंधक महोदय, यमुना प्रदूषण इकाई, उ०प्र० जल निगम (ग्रामीण), आगरा को इस आशय से कि निम्न दिनांक 24.01.2023 से कार्य की समाप्ति तक अपने विभागीय सक्षम अधिकारी एवं कर्मचारीगण को नामित कर मौके पर भेजने हेतु निर्देशित करने का कष्ट करें।
3. प्रभागीय निदेशक महोदय, सामाजिक वानिकी प्रभाग, आगरा को आवश्यक कार्यवाही हेतु प्रेषित।
4. नायब तहसीलदार, खेरागढ़ को आवश्यक कार्यवाही हेतु प्रेषित।

(प्रदीप कुमार सिंह)
तहसीलदार, खेरागढ़
01/ आगरा।

(प्रदीप कुमार सिंह)
तहसीलदार, खेरागढ़
01/ आगरा।

Kheragarh Tahsil-Bidhau Village (Mesurment of Land)





ITEM NO.1

COURT NO.0

SECTION PIL-W

S U P R E M E C O U R T O F I N D I A
R E C O R D O F P R O C E E D I N G S

Writ Petition(s)(Civil) No(s).13301/1004

025610

M.C. NENTA

Petitioner(s)

VERSUS

UNION OF INDIA & ORS.

Respondent(s)

(IN RE: TAJ TRAPEZIUM ZONE:

(1) IA NOS.577/2017, 20441 AND 20444/2021 AND 8180/2022
(APPLNS. FOR PERMISSION REGARDING CUTTING OF TREES, PERMISSION TO
FILE ADDL. AFFIDAVIT, EXEMPTION FROM FILING O.T. AND MODIFICATION
OF ORDER DATED 08.12.2021 ON BEHALF OF PUBLIC WORKS DEPTT.; STATE
OF U.P.)

(2) REPORT NO. 1 of 2022 SUBMITTED BY CENTRAL EMPOWERED COMMITTEE
IN W.P. (C) NO. 13381/1984

Date : 13-05-2022 These matters were called on for hearing today.

CORAM :

HON'BLE MR. JUSTICE L. NAGESWARA RAO
HON'BLE MR. JUSTICE A.S. BOPANNA

Certified to be true Copy
Assistant Registrar (Judl.)
21/05/2022
Supreme Court of India

For the parties :

Mr. A.D.N. Rao, Sr. Adv (A.C.)
Mr. Vijay Panjwani, Sr. Adv

Mr. Tushar Mehta, SG
Ms. Aishwarya Bhati, ASG.
Ms. Archana Pathak Dave, Adv.
Ms. Suhasini Sen, Adv.
Mr. S. S. Rebello, Adv.
Ms. Kanu Agrawal, Adv.
Mr. G.S. Makker, AOR.

Ms. Aishwarya Bhati, Ld. ASG
Mr. R. Balasubramanian, Sr. Adv.
Ms. Ruchi Kohli, Adv. Adv.
Mr. Adit Khorana, Adv.
Mr. Amrith Kumar, AOR
Mr. M.K. Maroria, AOR
Mr. G.S. Makker, AOR

Ms. Aishwarya Bhati, Ld. ASG
Mr. Rajeev Kumar Dubey, Adv

[Signature]
Power

I.A.No.118708 of 2018:

Adjourned.

I.A.No.132820 of 2020:

CEC may examine and submit a report.

I.A.No.11157 of 2019:

As the request made by the Project Manager, Yamuna Pollution Control Board is covered by Report No.21 which was filed by CEC in 2020, permission for felling/cutting of 784 trees for setting up of 2nd sewerage at Dhandupur, Agra, the permission is granted, subject to the conditions mentioned in the Report.

I.A. stands allowed, accordingly.

I.A.No.155500 of 2021:

CEC to examine and submit a report.

I.A.Nos.94794-94795 of 2019:

Adjourned.


(B.Parvathi)
Court Master


(Anand Prakash)
Assistant Registrar

ANNEX-7

Supreme Court Order on TTZ Area regarding development of Eco-friendly, Sustainable projects.

Supreme Court - Daily Orders

M.C. Mehta vs Union Of India on 6 December, 2019

IN THE SUPREME COURT OF INDIA
CIVIL ORIGINAL JURISDICTION

INTERLOCUTORY APPLICATION NO. 103908 OF 2019

IN

WRIT PETITION (CIVIL) NO. 13381 OF 1984

M.C. MEHTA

.....PETITIONER

VERSUS

UNION OF INDIA & OTHERS

.....RESPONDENT(S)

WITH

INTERLOCUTORY APPLICATION NOS. 87792 AND 105655 OF 2019

IN

WRIT PETITION (CIVIL) NO. 13381 OF 1984

AND

12/28/2019

M.C. Mehta vs Union Of India on 6 December, 2019

INTERLOCUTORY APPLICATION NOS. 87790 AND 105652 OF 2019

IN

WRIT PETITION (CIVIL) NO. 13381 OF 1984

ORDER

I.A. NO. 103908 OF 2019 :

This Interlocutory Application has been moved by the State of Signature Not Verified Uttar Pradesh seeking clarification of this Court's order of 22 March 2018 Digitally signed by RACHNA Date: 2019.12.06 18:06:51 IST Reason:

directing Status Quo. We have heard Ms. Aishwarya Bhati, Additional Advocate General and Mr. M.C. Mehta, the petitioner in person. We have also perused our earlier Orders and the affidavit filed by the Commissioner, Agra Division and Chairman, Taj Trapezium Zone Pollution (Prevention and Control) Authority, Agra.

2. On 08 December 2017, this Court identified an urgent public interest in preparing a future oriented comprehensive Vision Plan to preserve the Taj and its environs, being the Taj Trapezium Zone (for short, "TTZ") which is spread over six districts of Uttar Pradesh and one district (Bharatpur) in Rajasthan. Directions were issued to undertake such exercise with consultation of all stake holders as well as experts in heritage (both cultural and historical), environment, wildlife and pollution prevention. Consultation with civil society was also mandated, including with Mr. M.C. Mehta who has dedicated numerous decades to protecting the Taj.

3. Thereafter on 22 March 2018, learned counsel for Uttar Pradesh submitted that a vision document was likely to be prepared in consultation with the School of Planning and Architecture and that a Project Committee had been constituted for such purpose. This information was directed to be conveyed to Mr. Mehta along with the terms of reference of the Committee so that he could suggest requisite modifications and solutions.

12/28/2019

M.C. Mehta vs Union Of India on 6 December, 2019

4. Since learned counsel for Uttar Pradesh informed that a first draft of the vision document would take approximately four months, this Court directed that "Until then, there will be a status quo in the Taj Trapezium Zone (TTZ)."

5. While seeking clarification of the above reproduced status quo order, it has been stated by the State of U.P. that the first draft of the vision document prepared by the School of Planning and Architecture, New Delhi was filed with the Registry on 24 July 2018. Thereafter, the matter was heard on 13 February 2019 when the State Government was allowed to give its suggestions within four weeks, which were so submitted on 03 April 2019. It has been further explained to us how various authorities are facing difficulties in deciding such environmental clearances, causing hardship to both the State Government and the public.

6. Learned Counsel for Uttar Pradesh thus submits that in view of compliance of the 'conditional' status quo order, the State Government and other statutory authorities may now be permitted to grant environmental clearances which are necessary for providing essential public facilities including drinking water supply, sewerage treatment plant, drainage system, solid waste disposal, Common Effluent Treatment Plant, Bio Medical Waste Treatment Facility, and Waste to Energy Plants etc.

7. In light of the aforementioned amenities being crucial for securing basic living conditions of TTZ's residents, we are of the opinion that there need not be any impediment for granting necessary clearances for the same. We are conscious of the fact that citizens have a fundamental right to such essential amenities; and how counterintuitively, not allowing construction of such basic infrastructure can itself create new polluting waste and threaten the environment.

8. As regards permission for establishing nonpolluting industrial units, it appears to us that only those small, micro and macro level industries which are both nonpolluting and ecofriendly and which have necessary clearances from all statutory authorities as well as concurrence of the Central Empowerment Committee and NEERI, can be setup within the notified industrial area.

9. We, thus, clarify that since the interim order dated 22 nd March 2018 directing maintenance of status quo was passed to ensure timely submission of the Vision Plan by the State of U.P. and the said direction already stands complied with, there shall be no impediment for the authorities to consider

12/06/2019

M.C. Mehta vs Union Of India on 6 December, 2019

pending environmental clearances which are necessary to secure essential amenities within TTZ. Simultaneously, the State and other statutory authorities are free to consider requests for relocating ecofriendly nonpolluting industrial units, subject to them meticulously complying with environmental laws and all norms/conditions laid down by this Court (including those in the main judgment of 30 th December 1996). Concurrence with the Central Empowerment Committee and opinion of NEERI shall also be necessary before according such permission.

10. There shall, however, be an embargo on granting clearances to and/or shifting of any heavy industry until a final decision is taken on the vision document. The interlocutory application is accordingly disposed in above terms.

I.A. NOS. 87790, 87792, 105655 & 105652 OF 2019 :

11. In view of the order passed by us separately in IA No. 103908 of 2019, the instant interlocutory applications are disposed with a direction that let appropriate decisions be taken on the applicant industries' applications strictly as per law and prescribed norms within six weeks.

..... CJI.
(S. A. BOBDE) J.
(B.R. GAVAI) J.

(SURYA KANT)

NEW DELHI
DATED : 06.12.2019

ITEM NO.1501
(For orders)

COURT NO.1

SECTION PIL-W

S U P R E M E C O U R T O F I N D I A

<https://indiankanoon.org/doc/195738123/>

12/06/2019

M.C. Mehta vs Union Of India on 6 December, 2019

RECORD OF PROCEEDINGS

IA 87790/2019,87792/2019,103908/2019,105652/2019,105655/2019, in Writ Petition(s)(Civil) No(s). 13381/1984 M.C. MEHTA Petitioner(s) VERSUS UNION OF INDIA & ORS. Respondent(s) ([HEARD BY : HON. THE CHIEF JUSTICE, HON. B.R. GAVAI AND HON. SURYA KANT, JJ.] IA No. 87792/2019 - APPROPRIATE ORDERS/DIRECTIONS IA No. 103908/2019 - CLARIFICATION/DIRECTION IA No. 105652/2019 - EXEMPTION FROM FILING O.T. IA No. 105655/2019 - EXEMPTION FROM FILING O.T. IA No. 87790/2019 - INTERVENTION/IMPLEADMENT) Date : 06-12-2019 These matters were called on for pronouncement of judgment today.

Counsel for the parties :

Mr. M.C. Mehta, In Person (NP) Mr. A.D.N. Rao, Adv.

Ms. Aiswarya Bhati, Sr. Adv. Mr. Rajeev Kufnar Dubey, Adv. Mr. Kamendra Mishra, Adv. Mr. Praveen Swarup, Adv. Mr. Vijay Panjawani, Adv. Mr. G.S. Makker, Adv.

Order in the aforementioned applications was pronounced.

I.A. No. 103908/2019 I.A. No. 103908/2019 is disposed of in terms of the signed order.

I.A. No. 87790, 87792, 105655 & 105652/2019 In view of the order passed in IA No. 103908/2019, the instant applications are disposed of with a direction that let appropriate decisions be taken on the applicant industries' applications strictly as per law and prescribed norms within six weeks.

[CHARANJEET KAUR]
A.R. -CUM-P.S.

[INDU KUMARI POKHRIYAL]
ASSTT. REGISTRAR

<https://indiankanoon.org/doc/195738123/>

ANNEX- 8

11 KVA line shifting

 **कार्यालय परियोजना प्रबन्धक,**
यमुना प्रदूषण नियन्त्रण इकाई, उ०प्र० जल निगम (ग्रामीण)
वाटर वर्क्स चौराहा, जीवनी मण्डी रोड, आगरा - 282 004

पत्रांक: 15 / ममामि गंगे आगरा / 04 दिनांक: 01/01/2023

सेवा में,
महाप्रबन्धक,
एच०टी० डिजीजन,
नो टोरेन्ट पावर लि०,
तृतीय एवं चतुर्थ तल "फोर्बुन प्लाजा",
प्लॉट नं० ई-4, ताज नगरी फेस-2, सेक्टर-ई,
फतेहबाद रोड, आगरा।

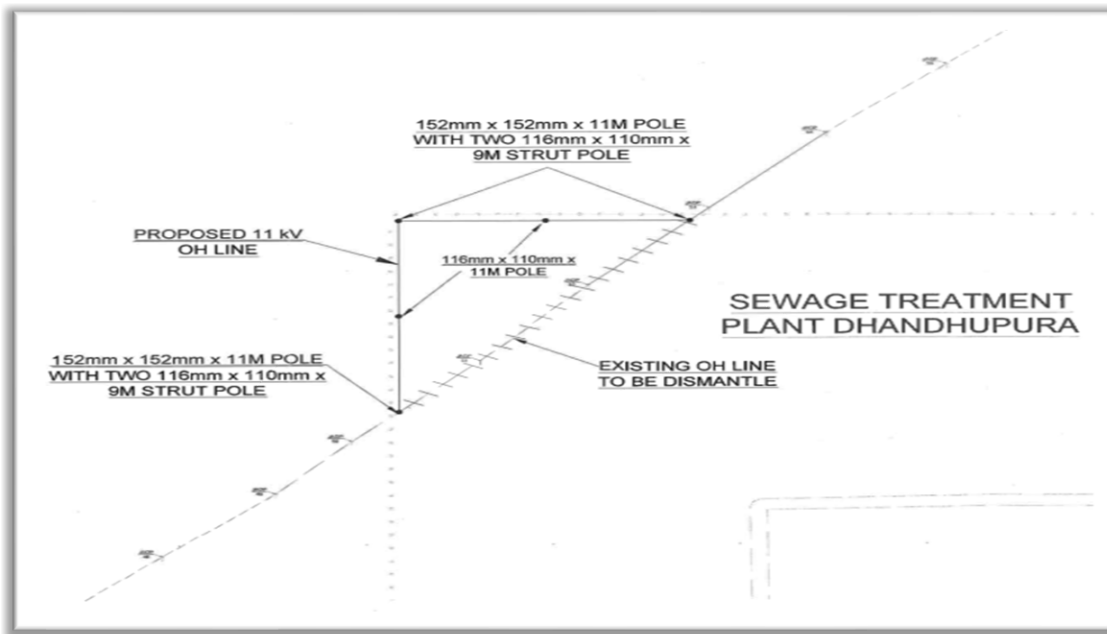
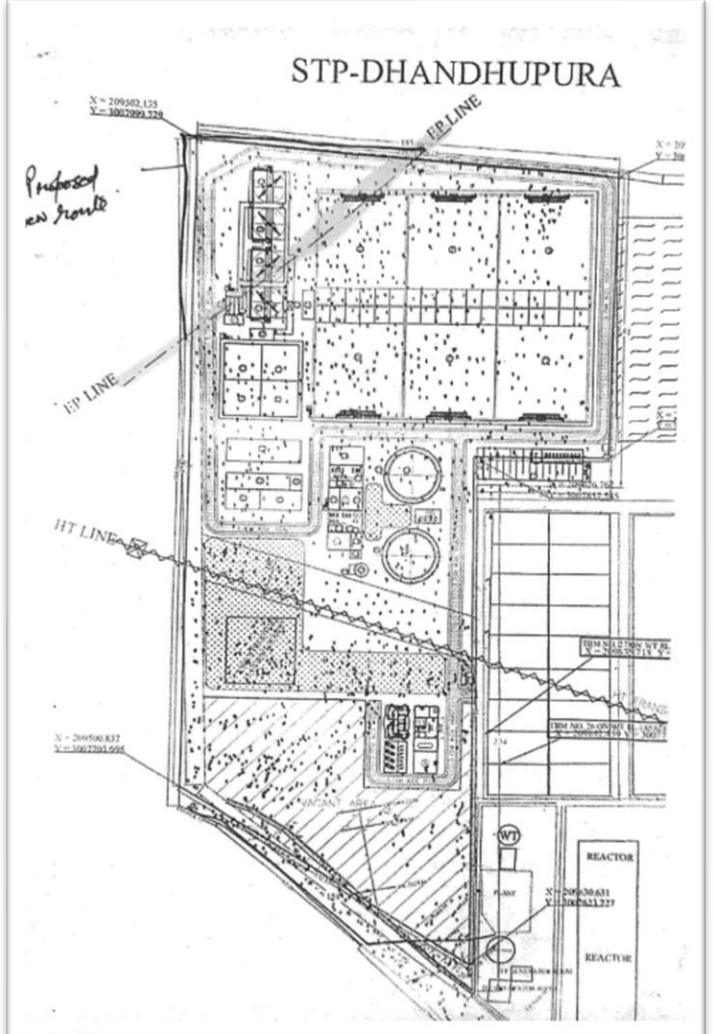
विषय:- आगरा सीवरेज योजना (आई० एण्ड डी० एण्ड एस्टीपी वर्क्स) के अन्तर्गत 78 एम.एल.डी. एस्टीपी कैम्पस बांधपुरा में 100 एम.एल.डी. एस्टीपी निर्माण हेतु प्रस्तावित भूमि के ऊपर से जाने वाली विद्युत लाइन शिफ्ट कराने के सम्बन्ध में।

महोदय,
उपरोक्त विषयक अवगत कराना है कि आगरा सीवरेज योजना (आई० एण्ड डी० एण्ड एस्टीपी वर्क्स) के अन्तर्गत 78 एम.एल.डी. एस्टीपी कैम्पस में प्रस्तावित 100 एम.एल.डी. एस्टीपी निर्माण किया जाना है। प्रस्तावित स्थल के ऊपर से आपकी 11 के.वी.ए. की विद्युत लाइन गुजर रही है, जिसके कारण कार्य करते समय दुर्घटना/जंगहाति हो सकती है उक्त विद्युत लाइन को वाउण्ड्री वॉल के साथ-साथ शिफ्ट किये जाने हेतु इस कार्यालय के पत्रांक-818/नमामि गंगे आगरा/52 दिनांक 18.10.2022 के द्वारा अनुरोध किया गया था। जबकि आपके द्वारा उक्त लाइन शिफ्टिंग वाउण्ड्री वॉल से काफी दूर रखते हुए का प्राक्कलन इस कार्यालय को दिनांक 10.11.2022 को प्रस्तुत किया गया है। संयुक्त सर्वे के दौरान मौके पर भी वाउण्ड्री वॉल के साथ साथ ही लाइन शिफ्टिंग का प्रस्ताव प्रस्तुत करने हेतु कहा गया था। जो कि वर्तमान तक अप्रस्त है। अतः आपसे अनुरोध है उक्त विद्युत लाइन को वाउण्ड्री वॉल के साथ साथ शिफ्ट करने का प्राक्कलन करते हुए संशोधित प्राक्कलन इस कार्यालय को अविलम्ब उपलब्ध कराने का कष्ट करें। जिससे मा० एन०जी०टी० से आस्थापित व भारत सरकार की अतिमहत्वपूर्ण योजना को ससमय पूर्ण कराने हेतु आवश्यक कार्यवाही की जा सके।
संनमक:- उपरोक्तानुसार।

 भवदीय
प्रियोजना प्रबन्धक

पु.सं. एवं दिनांक उपरोक्तानुसार।
प्रतिलिपि निम्नलिखित को सूचनाार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
1. अधीक्षण अभियन्ता, मण्डल कार्यालय, उ०प्र० जल निगम (ग्रामीण), आगरा।
2. अधिशासी अभियन्ता, खण्ड कार्यालय (वि०/या०), उ०प्र० जल निगम (ग्रामीण), आगरा।
3. सम्बन्धित परियोजना अभियन्ता/सहायक परियोजना अभियन्ता।
4. आगरा वेस्टवाटर मैनेजमेन्ट प्रा० लि०, 116ए, 11 फ्लोर मेकर चेम्बर, 6ए, 220, नरीमन पॉइंट, मुम्बई 400021।

 प्रियोजना प्रबन्धक



ANNEX-9

NOC from Ministry of Defense for laying sewer lines from common chamber to Khairati Tola MPS through cantonment area through Trenchless.

No 13020/03/2022/D(Lands)
Government of India
Ministry of Defence

Sena Bhawan, New Delhi
Date 19th April, 2023

To

1. The Chief of the Army Staff
New Delhi
2. The Director General Defence Estates
New Delhi

Subject: **Grant of Working Permission to UP Jal Nigam for use of defence land for laying of sewer line & construction of chambers/manholes which is part of Agra Sewerage Scheme under Namami Gange Programme.**

Sir,

Reference Application ID No 141120220481 received from UP Jal Nigam through NOC Portal.

2 I am directed to convey the sanction of the President of India for grant of Working Permission to UP Jal Nigam on 1208.04 Sqm of defence land comprising GLR Survey Nos. 441 and 443-1 (A-1) at Agra Cantonment for laying sewer line and construction of chambers/manholes on licence basis.

3. The said Working Permission is subject to the following terms and conditions:-

(i). The exact location of land for which Working Permission is given, will be determined/fixed after physical demarcation and measurement of land, which will be undertaken during the B.O.O., to be convened by AHQ/LMA. This exercise should be completed prior to handing over of land for purpose of commencement of work for laying sewer line and construction of chambers/manholes.

(ii). The licence will be given initially for a period of 10 years w.e.f. the date of handing/taking over of land with provisions for renewal every 10 years up to a maximum of 30 years on adherence to the terms and conditions of the agreement/licence deed on payment of annual licence fee @ Rs 1/- per Sqm per annum i.e. as per GOI, MOD letter No. 11015/2/2012/D(Lands) dated 02.02.2016. Accordingly, Indenting Agency (IA) will pay licence fee @ Rs 1208/- per annum (i.e. Rs 323/- to Cantt Board Agra and Rs 885/- to DEO, Agra) for an area measuring 1208.04 Sqm sought by them.

[Signature] 19.04.2023

(iii). A refundable security deposit @ Rs 14,94,950/- (i.e. Rs. 3,99,762/- to Cantt. Board Agra and Rs. 10,95,188/- to DEO, Agra) is payable by UP Jal Nigam i.e. IA to MoD.

(iv). The refund of security money will be made by the CEO/DEO on completion of work and site clearance by the Indenting Agency to the satisfaction of the concerned Cantt. Board/DEO/LMA.

(v). There will be no alienation of land and title and management of defence land will continue to be with Defence authorities throughout the duration of the licence.

(vi). UP Jal Nigam shall have only Right of Way (RoW) on proposed defence land through which the sewer line and chambers/manholes will pass and the ownership of the land would remain with the MoD/GOI. UP Jal Nigam will be permitted only to lay proposed sewer line and construct chambers/manholes at its own cost. The same will be maintained by UP Jal Nigam.

(vii). The defence land shall be used only for the purpose for which the licence is given.

(viii). Indenting Agency shall permit the defence authorities and their representatives to visit the site of project at any time to View and Inspect the state and condition of the project for the review of security concerns of adjoining defence land, if any.

(ix). Indenting Agency will maintain the proposed sewer line and chambers/ manholes from time to time till the lifespan of the said sewer line and chambers/manholes at their own expense. The repair and maintenance of footpath and OFC etc. will be undertaken by Indenting Agency. In liaison with Cantt. Board/DEO/LMA, whose all expenses, along with that of road/track/land, involved will be borne by Indenting Authority.

(x). All safety & security measures, as directed by the Station Commander shall be followed by the Indenting Agency while executing the project and during future maintenance.

(xi). UP Jal Nigam i.e. Indenting Agency shall not mortgage/sell the subject land to anyone whomsoever.

(xii). In case project land is required at any stage by defence authorities for any project/utilization, the licence shall cease with three months notice by Principal Director Defence Estates Central Command, Lucknow.

[Signature] 19.04.2023

(xiii). In case of non-compliance of any license conditions, claim by third party or damage etc. security will be forfeited by the concerned Cantt. Board/DEO either in full or in part so as to indemnify the Ministry of Defence against any loss, claim or damage and the forfeited security amount will be credited in the Cantt. Board Funds/Consolidated Funds of India.

(xiv). The Indenting Agency will not change the alignment of the said sewer line and chambers/manholes in future without the permission of the MoD Further the overground will remain available for use by MOD.

(xv). Normal movement and safety of traffic is to be ensured by Indenting Agency during laying of sewer line and construction of chambers/manholes by providing caution boards, diversion boards and safety caution ribbons etc.

(xvi). Proper demarcation of the sewer line and chambers/manholes will be done on the ground in the defence area for Identification and safety of the same.

(xvii). All laws, bye-laws and rules applicable to defence land will be applicable and implemented accordingly..

(xviii). In case of any difference or dispute, it shall be resolved through Arbitration under the specific order of the Principal Director Defence Estates, Central Command Lucknow whose decision shall be binding on the parties.

(xix). Any tree coming in the way, during digging and laying of the sewer line and chambers/manholes shall be removed only after prior permissions of and payment to the concerned DEO, as assessed by the DEO.

(xx). The Working Permission is accorded strictly as per the issues jointly agreed to by the representative of UP Jal Nigam and the DEO/LMA in the MoU to be entered into for this purpose. This shall be binding on both parties.

(xxi). In case of breach of terms regarding MoU, Principal Director, Defence Estates Central Command, Lucknow will have the rights to terminate the license by giving three months notice without any liability of cost of the project on Defence authorities.

(xxii). In case license is terminated due to breach of MoU or due to the end of term being reached, no liability of cost of construction on ibid land may be charged to Defence authorities.

(xxiii). All the terms and conditions mentioned in MoD policy letter No.11015/2/2012/D(Lands) dated 02.02.2016 read with policy letter dated 21.10.2020 as amended from time to time will be strictly adhered.

[Signature] 19.04.2023

4. The license deed shall be executed between DEO, Agra/Cantonment Board Agra/LMA and UP Jal Nigam as per schedule provided in CLAR, 2021.

5. This Issues with the concurrence of MOD (Finance) Vide their ID No. 21(02)/2015/fin/Works-I dated 06.04.2023.

Yours faithfully,
[Signature] 19.04.2023
(R.S. Yadav)

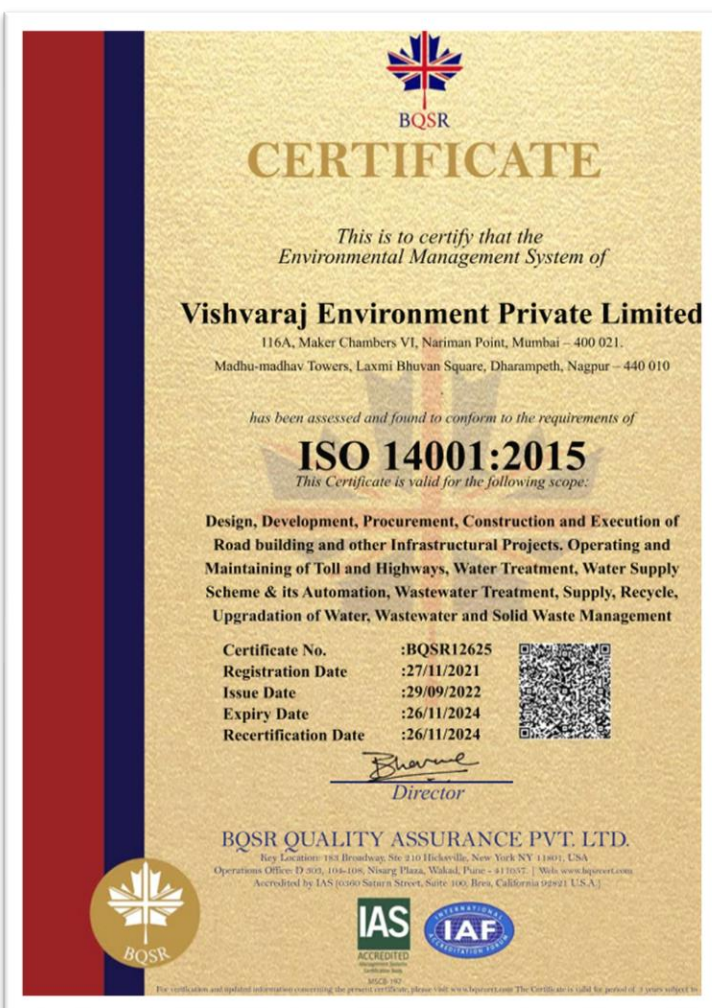
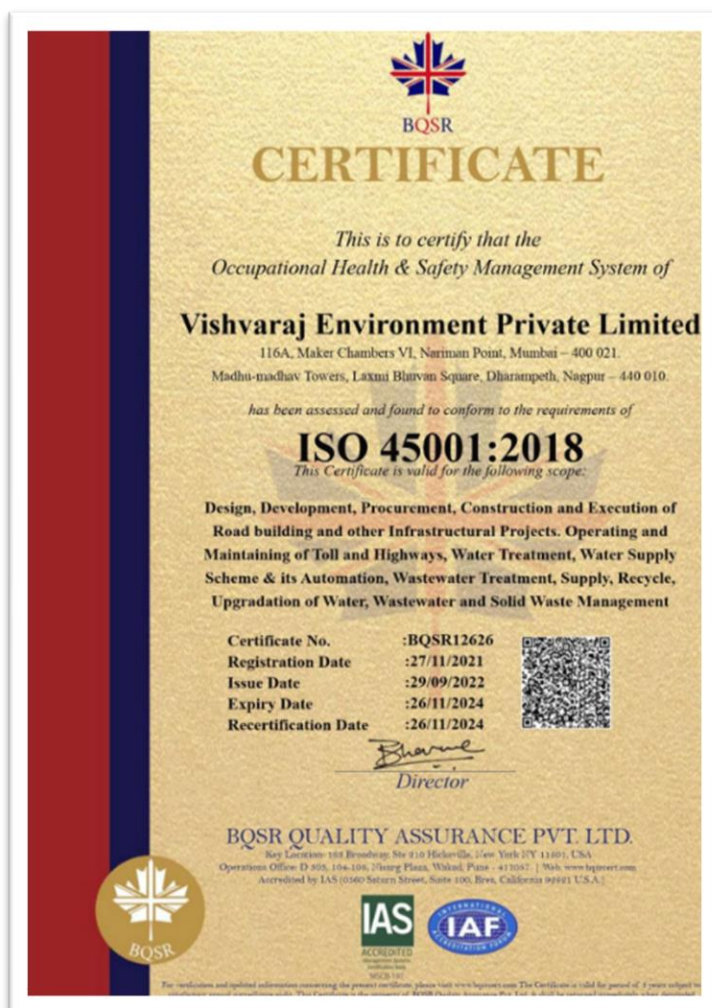
Under Secretary to the Govt of India

Copy to.

1. MoD(Fin/W-I) 'B' Block Tyag Raj Marg Defence HQ Zone, New Delhi.
2. CGDA, Palam Road, Delhi Cantt - 110010.
3. DGADS, L-II Block, Brassey Avenue, New Delhi-110011.
4. DADS Central Command, Lucknow.
5. PCDA Central Command, Lucknow.
6. LW (Central), QMG's Branch.
7. D (Lands)/MoD.
8. Principal Director, Defence Estates, Central Command, Lucknow.
9. DEO, Agra Circle.
10. CEO, Cantt. Board Agra.
11. UP Jal Nigam.

ANNEX-10

Vishvaraj Environment Private Ltd OHSE Certificate



ANNEX-11

Solid Waste Disposal Land

कार्यालय: नगर निगम, आगरा।

पत्रांक :- 1300/डी0/ए0एन0ए0/2023

दिनांक :- 31.03.2023

परियोजना प्रबंधक,
यमुना प्रदूषण नियंत्रण इकाई,
उ0प्र0 जल निगम, आगरा।

विषय :- नमामि गंगे कार्यकमान्तर्गत आगरा में सीवरेज स्कीम (आई0 एण्ड डी0 एण्ड एस0टी0पी0 वर्क्स) के निर्माण कायों को कराते समय सरप्लस मिट्टी, अपशिष्ट व अन्य के डिस्पोजल हेतु उचित स्थल उपलब्ध कराने के सम्बन्ध में।

महोदय,

कृपया उपर्युक्त विषयक अपने कार्यालय के पत्र संख्या 170/नमामि गंगे आगरा/70 दिनांक 15.03.2023 का संदर्भ ग्रहण करने का कष्ट करें, जिसके माध्यम से नमामि गंगे कार्यक्रम के अंतर्गत आगरा में सीवरेज स्कीम के निर्माण कायों को कराते समय सरप्लस मिट्टी, अपशिष्ट एवं अन्य के डिस्पोजल हेतु उचित स्थल उपलब्ध कराने का अनुरोध किया गया है। उक्त के क्रम में अवगत कराना है कि सरप्लस मिट्टी एवं अन्य का डिस्पोजल कुबेरपुर तैडफिल साइट पर ड्रेट दू एनर्जी संयंत्र की स्थापना हेतु उपलब्ध स्थल पर भूमि भरण हेतु उत्तर प्रदेश जल निगम द्वारा अपने हर्जो-खर्चों पर किया जा सकता है।

अग्रिम कार्यवाही हेतु प्रेषित है।

प्रतिनिधि :-

1. जिलाधिकारी महोदय, आगरा को सादर संज्ञानार्थ।
2. नगर आयुक्त महोदय, आगरा नगर निगम को सादर सूचनाार्थ।
3. पर्यावरण अभियन्ता आवश्यक कार्यवाही हेतु।

अपर नगर आयुक्त
नगर निगम आगरा

अपर नगर आयुक्त
नगर निगम आगरा

Sh. Chandrashekhar (16)

PM

कार्यालय नगर आयुक्त, नगर निगम, आगरा

पत्रांक :- 1300/डी0/ए0एन0ए0/2023

दिनांक :- 31.03.2023

परियोजना प्रबंधक,
यमुना प्रदूषण नियंत्रण इकाई,
उ0प्र0 जल निगम, आगरा।

विषय :- नमामि गंगे कार्यकमान्तर्गत आगरा में सीवरेज स्कीम (आई0 एण्ड डी0 एण्ड एस0टी0पी0 वर्क्स) के निर्माण कायों को कराते समय सरप्लस मिट्टी, अपशिष्ट व अन्य के डिस्पोजल हेतु उचित स्थल उपलब्ध कराये जाने के सम्बन्ध में।

महोदय,

उपरोक्त विषयक स्वकीय कार्यालय पत्रांक 170/नमामि गंगे आगरा/70 दिनांक 15.03.2023 का संदर्भ ग्रहण करें। उक्त पत्र के माध्यम से अवगत कराया गया है कि नमामि गंगे कार्यकमान्तर्गत आगरा सीवरेज स्कीम (आई0 एण्ड डी0 एण्ड एस0टी0पी0 वर्क्स) (HAM Mode) में 03 नग एस0टी0पी0, 10 नग डी0एस0टी0पी0 एवं सम्बन्धित प्रस्तावित कायों को कराया जाना प्रस्तावित है तथा जिसका त्रिपक्षीय अनुबंध का गठन 25.08.2022 को हो चुका है तथा निर्माण के पूर्व की गतिविधियां (सर्वेक्षण मृत परीक्षण सामग्री टेस्टिंग एवं विभिन्न विभागों की अनापत्तियां आदि) प्रारम्भ कर दी गयी है। अनुबन्ध के अन्तर्गत प्रस्तावित कायों को कराने हेतु आवश्यक मिट्टी खुदाई की जायेगी। खुदाई व अन्य कार्य के उपरान्त अतिरिक्त मिट्टी अपशिष्ट व अन्य के डिस्पोजल हेतु उचित स्थान उपलब्ध कराये जाने का अनुरोध किया गया है।

उक्त के क्रम में नगर निगम के विभिन्न विभागों के अधिकारियों से मिट्टी भराव हेतु स्थल की जानकारी चाही गयी, जिसमें पशु चिकित्सा एवं कल्याण अधिकारी द्वारा अवगत कराया गया है कि नगर निगम, आगरा की आधुनिक पशुवधशाला में खुली भूमि पर मिट्टी भराव की आवश्यकता है।

अतः उपरोक्त के क्रम में आपको सूचित किया जाता है कि उपरोक्त कार्य से निकली मिट्टी अपशिष्ट व अन्य का डिस्पोजल नगर निगम, आगरा में कार्यरत पशु चिकित्सा एवं कल्याण अधिकारी (मो0नं0 7300740689) से सम्पर्क स्थापित कर नगर निगम, आगरा के छलेसर कुबेरपुर स्थित आधुनिक पशुवधशाला में खुली भूमि कराया जाना सुनिश्चित करें।

(सुरेन्द्र प्रसाद यादव)
अपर नगर आयुक्त

प्रतिनिधि :-

1. नगर आयुक्त महोदय को अवलोकनार्थ।
2. पशु चिकित्सा एवं कल्याण अधिकारी को आवश्यक कार्यवाही हेतु।

(सुरेन्द्र प्रसाद यादव)
अपर नगर आयुक्त

ANNEX-12

CTE NOC (100 MLD STP)



UTTAR PRADESH POLLUTION CONTROL BOARD
Building, No TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226010
Phone:0522-2720828,2720831, Fax:0522-2720764, Email: info@uppcb.com, Website: www.uppcb.com

Validity Period :15/03/2023 To 14/03/2028

Ref No. - 165136/UPPCB/Agra(UPPCBRO)/CTE/AGRA/2022 Dated:- 03/04/2023

To,
Shri RAVINDRA PRATAP SINGH
M/s 100 MLD STP
VILL- DHANDHUPURA AGRA,AGRA,282001
AGRA

Sub : Consent to Establish for New Unit/Expansion/Diversification under the provisions of Water (Prevention and control of pollution) Act, 1974 as amended and Air (Prevention and control of Pollution) Act, 1981 as amended.

Please refer to your Application Form No.- 17884251 dated - 19/09/2022. After examining the application with respect to pollution angle, Consent to Establish (CTE) is granted subject to the compliance of following conditions :

1. Consent to Establish is being issued for following specific details :

A- Site along with geo-coordinates :

B- Main Raw Material :

Main Raw Material Details		
Name of Raw Material	Raw Material Unit Name	Raw Material Quantity
RAW SEWAGE	Kilo Liters/Day	100000

C- Product with capacity :

Product Detail	
Name of Product	Product Quantity
TREATED EFFLUENT	100

D- By-Product if any with capacity :

By Product Detail			
Name of By Product	Unit Name	Licence Product Capacity	Install Product Capacity
RAW SEWAGE	Kilo Liters/Day		100

2. Water Requirement (in KLD) and its Source :

Source of Water Details		
Source Type	Name of Source	Quantity (KL/D)
Nalla		100000.0

3. Quantity of effluent (In KLD) :

Effluent Details	
Source Consumption	Quantity (KL/D)

4. Fuel used in the equipment/machinery Name and Quantity (per day) :

Fuel Consumption Details		
Fuel	Consumption(tpd/kld)	Use

- For any change in above mentioned parameters, it will be mandatory to obtain Consent to Establish again. No further expansion or modification in the plant shall be carried out without prior approval of U.P. Pollution Control Board.
- For any change in above mentioned parameters, it will be mandatory to obtain Consent to Establish again. No further expansion or modification in the plant shall be carried out without prior approval of U.P. Pollution Control Board.
- You are directed to furnish the progress of Establishment of plant and machinery, green belt, Effluent Treatment Plant and Air pollution control devices, by 10th day of completion of subsequent quarter in the Board.
- Copy of the work order/purchase order, regarding instruction and supply of proposed Effluent Treatment Plant/Sewerage Treatment Plant /Air Pollution control System shall be submitted by the industry till 14/03/2028 to the Board.
- Industry will not start its operation, unless CTO is obtained under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and control of Pollution) Act, 1981 from the Board.
- It is mandatory to submit Air and Water consent Application, complete in all respect, four months before start of operation, to the U.P. Pollution Control Board.
- Legal action under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 may be initiated against the industry With out any prior information, in case of non compliance of above conditions.

Specific Conditions:

- This CTE is issued for construction of 100 MLD Sewage Treatment Plant (STP) based on Sequential Batch Reactor (SBR) technology proposed to establish at Dhandhupura, Agra by U.P. Jal Nigam Rural.
- The treated effluent will be used for irrigation purpose by local farmers and unused treated will be discharged in Yamuna river.
- The STP should be established in such a manner that it does not adversely affect the environment.
- The S.T.P shall comply with the provisions of notification dt. 07-10-2016 of Ministry of Water Resources, River Development and Ganga Conservation, GOI.
- The project shall ensure the installation and maintenance of the Sewage Treatment Plant (STP). The project should ensure the operation of the STP in such a manner that it confirm the standards laid down under the E.P. Rule 1986 as amended.
- The project will comply the provisions of Ground water abstraction rules and will get NOC form State Ground Water Department if required.
- The project will install the requisite OCEMS system/Web camera and will ensure the continuous and uninterrupted data supply from the OCEMS to the CPCB/UPPCB server.
- This Consent to Establish (CTE) order shall automatically become invalid on issuance of Closure Order by C.P.C.B / UPPCB and further on Revoking of Closure order, the Consent order shall become valid.
- The project shall abide by orders/ directions issued by Hon'ble Supreme Court Hon'ble High Court, Hon'ble National Green Tribunal, TTZ Authority, Central Pollution Control Board and U.P. Pollution Control Board for protection and safe guard of environment from time to time.
- The STP must upgrade/operate properly to achieve Fecal Coliform Norms in accordance with EP rules.
- The project shall comply with various provisions of Air (Prevention and Control of Pollution) Act 1981 as amended, Water (Prevention and Control of Pollution) Act 1974 as amended and all other applicable rules notified under E.P. Act 1986 and the various orders issued by the MOEF&CC, CPCB and SPCB in time to time.
- The STP shall comply with the provisions of Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016.
- The STP shall comply with the provisions of Solid and other Waste Management Rules, 2016.
- The STP shall ensure to develop Miyawaki forest so that treated water may be used for irrigation as per the GO no. 1011/81-7-2021-09(writ)/2016 dated 13.10.2021 of Deptt. of Environment, forest and climate change.
- A Bank Guarantee of Rs. 10.0 Lac (Rs. Ten lac only) shall be submitted within 30 days.

Please note that consent to Establish will be revoked, in case of, non compliance of any of the above mentioned conditions. Board reserves its right for amendment or cancellation of any of the conditions specified above. Industry is directed to submit its first compliance report regarding above mentioned specific and general conditions till 03/05/2023 in this office. Ensure to submit the regular compliance report otherwise this Consent to Establish will be revoked.

PRADEEP
SHARMA

Digitally signed by PRADEEP
SHARMA
Date: 2023.04.03 22:30:01
+05'30'

Chief Environmental Officer,
Circle-4

Dated:- 03/04/2023

Copy To -

Regional Officer, U.P. Pollution Control Board, Agra

PRADEEP
SHARMA

Digitally signed by PRADEEP
SHARMA
Date: 2023.04.03 22:30:46
+05'30'

Chief Environmental Officer,
Circle-4

CTE NOC (31 MLD STP)



UTTAR PRADESH POLLUTION CONTROL BOARD
Building, No TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226010
Phone:0522-2720828,2720831, Fax:0522-2729764, Email: info@uppcb.com, Website: www.uppcb.com

Validity Period :14/03/2023 To 13/03/2028

Ref No. - 165432/UPPCB/Agra(UPPCBRO)/CTE/AGRA/2022 Dated:- 03/04/2023

To ,
Shri RAVINDRA PRATAP SINGH
M/s 31 MLD STP
JAGANPUR AGRA,AGRA,282005
AGRA

Sub : Consent to Establish for New Unit/Expansion/Diversification under the provisions of Water (Prevention and control of pollution) Act, 1974 as amended and Air (Prevention and control of Pollution) Act, 1981 as amended.

Please refer to your Application Form No.- 17917423 dated - 21/09/2022. After examining the application with respect to pollution angle, Consent to Establish (CTE) is granted subject to the compliance of following conditions :

1. Consent to Establish is being issued for following specific details :

A- Site along with geo-coordinates :

B- Main Raw Material :

Main Raw Material Details		
Name of Raw Material	Raw Material Unit Name	Raw Material Quantity
Raw Sewage	Kilo Liters/Day	31000

C- Product with capacity :

Product Detail	
Name of Product	Product Quantity
Treated Effluent	31

D- By-Product if any with capacity :

By Product Detail			
Name of By Product	Unit Name	Licence Product Capacity	Install Product Capacity
Raw Sewage	Kilo Liters/Day		31000

2. Water Requirement (in KLD) and its Source :

Source of Water Details		
Source Type	Name of Source	Quantity (KL/D)

3. Quantity of effluent (In KLD) :

Effluent Details	
Source Consumption	Quantity (KL/D)

4. Fuel used in the equipment/machinery Name and Quantity (per day) :

Fuel Consumption Details		
Fuel	Consumption(tpd/kld)	Use

- For any change in above mentioned parameters, it will be mandatory to obtain Consent to Establish again. No further expansion or modification in the plant shall be carried out without prior approval of U.P. Pollution Control Board.
- For any change in above mentioned parameters, it will be mandatory to obtain Consent to Establish again. No further expansion or modification in the plant shall be carried out without prior approval of U.P. Pollution Control Board.
- You are directed to furnish the progress of Establishment of plant and machinery, green belt, Effluent Treatment Plant and Air pollution control devices, by 10th day of completion of subsequent quarter in the Board.
- Copy of the work order/purchase order, regarding instruction and supply of proposed Effluent Treatment Plant/Sewerage Treatment Plant /Air Pollution control System shall be submitted by the industry till 13/03/2028 to the Board.
- Industry will not start its operation, unless CTO is obtained under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and control of Pollution) Act, 1981 from the Board.
- It is mandatory to submit Air and Water consent Application, complete in all respect, four months before start of operation, to the U.P. Pollution Control Board.
- Legal action under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 may be initiated against the industry With out any prior information, in case of non compliance of above conditions.

Specific Conditions:

- This CTE is issued for construction of 31 MLD Sewage Treatment Plant (STP) based on Sequential Batch Reactor (SBR) technology proposed to establish at Jaganpur, Agra by U.P. Jal Nigam Rural.
- The treated effluent will be used for irrigation purpose by local farmers and Dayal Bagh Radha Swami Satsang and unused treated will be discharged in Yamuna river.
- The STP should be established in such a manner that it does not adversely affect the environment.
- The S.T.P shall comply with the provisions of notification dt. 07-10-2016 of Ministry of Water Resources, River Development and Gangs Conservation, GOI.
- The project shall ensure the installation and maintenance of the Sewage Treatment Plant (STP). The project should ensure the operation of the STP in such a manner that it confirm the standards laid down under the E.P. Rule 1986 as amended.
- The project will comply the provisions of Ground water abstraction rules and will get NOC form State Ground Water Department if required.
- The project will install the requisite OCEMS system/Web camera and will ensure the continuous and uninterrupted data supply from the OCEMS to the CPCB/UPPCB server.
- This Consent to Establish (CTE) order shall automatically become invalid on issuance of Closure Order by C.P.C.B / UPPCB and further on Revoking of Closure order, the Consent order shall become valid.
- The project shall abide by orders/ directions issued by Hon'ble Supreme Court Hon'ble High Court, Hon'ble National Green Tribunal, TTTZ Authority, Central Pollution Control Board and U.P. Pollution Control Board for protection and safe guard of environment from time to time.
- The STP must upgrade/operate properly to achieve Faecal Coliform Norms in accordance with EP rules.
- The project shall comply with various provisions of Air (Prevention and Control of Pollution) Act 1981 as amended, Water (Prevention and Control of Pollution) Act 1974 as amended and all other applicable rules notified under E.P. Act 1986 and the various orders issued by the MOEF&CC, CPCB and SPCB in time to time.
- The STP shall comply with the provisions of Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016.
- The STP shall comply with the provisions of Solid and other Waste Management Rules, 2016.
- The STP shall ensure to develop Miyawaki forest so that treated water may be used for irrigation as per the GO no. 1011/81-7-2021-09(writ)/2016 dated 13.10.2021 of Deptt. of Environment, forest and climate change.
- A Bank Guarantee of Rs. 10.0 Lac (Rs. Ten lac only) shall be submitted within 30 days.

Please note that consent to Establish will be revoked, in case of, non compliance of any of the above mentioned conditions. Board reserves its right for amendment or cancellation of any of the conditions specified above. Industry is directed to submit its first compliance report regarding above mentioned specific and general conditions till 03/05/2023 in this office. Ensure to submit the regular compliance report otherwise this Consent to Establish will be revoked.

PRADEEP
SHARMA

Digitally signed by
pradeep sharma
Date: 2023.04.03 22:41:23
+05'30'

**Chief Environmental Officer,
Circle-4**

Dated:- 03/04/2023

Copy To -

Regional Officer, U.P. Pollution Control Board, Agra

PRADEEP
SHARMA

Digitally signed by
pradeep sharma
Date: 2023.04.03 22:41:55
+05'30'

**Chief Environmental Officer,
Circle-4**

CTE NOC (35 MLD STP)



UTTAR PRADESH POLLUTION CONTROL BOARD
Building, No TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226010
Phone:0522-2720828,2720831, Fax:0522-2720764, Email: info@uppcb.com, Website: www.uppcb.com

Validity Period :15/03/2023 To 14/03/2028

Ref No. - 165162/UPPCB/Agra(UPPCBRO)/CTE/AGRA/2022 Dated:- 03/04/2023

To,
Shri RAVINDRA PRATAP SINGH
M/s 35 MLD STP
VILL- PEELAKHAR AGRA,AGRA,282006
AGRA

Sub : Consent to Establish for New Unit/Expansion/Diversification under the provisions of Water (Prevention and control of pollution) Act, 1974 as amended and Air (Prevention and control of Pollution) Act, 1981 as amended.

Please refer to your Application Form No.- 17889095 dated - 19/09/2022. After examining the application with respect to pollution angle, Consent to Establish (CTE) is granted subject to the compliance of following conditions :

1. Consent to Establish is being issued for following specific details :

A- Site along with geo-coordinates :

B- Main Raw Material :

Main Raw Material Details		
Name of Raw Material	Raw Material Unit Name	Raw Material Quantity
raw sewage	Kilo Liters/Day	35000

C- Product with capacity :

Product Detail	
Name of Product	Product Quantity
treated effluent	35

D- By-Product if any with capacity :

By Product Detail			
Name of By Product	Unit Name	Licence Product Capacity	Install Product Capacity
raw sewage	Kilo Liters/Day		35

2. Water Requirement (in KLD) and its Source :

Source of Water Details		
Source Type	Name of Source	Quantity (KL/D)

3. Quantity of effluent (in KLD) :

Effluent Details	
Source Consumption	Quantity (KL/D)

4. Fuel used in the equipment/machinery Name and Quantity (per day) :

Fuel Consumption Details		
Fuel	Consumption(tpd/kld)	Use

5. For any change in above mentioned parameters, it will be mandatory to obtain Consent to Establish again. No further expansion or modification in the plant shall be carried out without prior approval of U.P. Pollution Control Board.
- For any change in above mentioned parameters, it will be mandatory to obtain Consent to Establish again. No further expansion or modification in the plant shall be carried out without prior approval of U.P. Pollution Control Board.
2. You are directed to furnish the progress of Establishment of plant and machinery, green belt, Effluent Treatment Plant and Air pollution control devices, by 10th day of completion of subsequent quarter in the Board.
3. Copy of the work order/purchase order, regarding instruction and supply of proposed Effluent Treatment Plant/Sewerage Treatment Plant /Air Pollution control System shall be submitted by the industry till 14/03/2028 to the Board.
4. Industry will not start its operation, unless CTO is obtained under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and control of Pollution) Act, 1981 from the Board.
5. It is mandatory to submit Air and Water consent Application, complete in all respect, four months before start of operation, to the U.P. Pollution Control Board.
6. Legal action under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and control of Pollution) Act, 1981 may be initiated against the industry With out any prior information, in case of non compliance of above conditions.

Specific Conditions:

- This CTE is issued for construction of 35 MLD Sewage Treatment Plant (STP) based on Sequential Batch Reactor (SBR) technology proposed to establish at Peelakhar, Agra by U.P. Jal Nigam Rural.
- The treated effluent will be used for irrigation purpose by local farmers and unused treated will be discharged in Yamuna river.
- The STP should be established in such a manner that it does not adversely affect the environment.
- The S.T.P shall comply with the provisions of notification Dated 07-10-2016 of Ministry of Water Resources, River Development and Ganga Conservation, GOI.
- The project shall ensure the installation and maintenance of the Sewage Treatment Plant (STP). The project should ensure the operation of the STP in such a manner that it confirm the standards laid down under the E.P. Rule 1986 as amended.
- The project will comply the provisions of Ground water abstraction rules and will get NOC form State Ground Water Department if required.
- The project will install the requisite OCEMS system/Web camera and will ensure the continuous and uninterrupted data supply from the OCEMS to the CPCB/UPPCB server.
- This Consent to Establish (CTE) order shall automatically become invalid on issuance of Closure Order by C.P.C.B / UPPCB and further on Revoking of Closure order, the Consent order shall become valid.
- The project shall abide by orders/ directions issued by Hon'ble Supreme Court Hon'ble High Court, Hon'ble National Green Tribunal, T.T.Z. Authority, Central Pollution Control Board and U.P. Pollution Control Board for protection and safe guard of environment from time to time.
- The STP must upgrade/operate properly to achieve Faecal Coliform Norms in accordance with EP rules.
- The project shall comply with various provisions of Air (Prevention and Control of Pollution) Act 1981 as amended, Water (Prevention and Control of Pollution) Act 1974 as amended and all other applicable rules notified under E.P. Act 1986 and the various orders issued by the MOEF&CC, CPCB and SPCB in time to time.
- The STP shall comply with the provisions of Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016.
- The STP shall comply with the provisions of Solid and other Waste Management Rules, 2016.
- The STP shall ensure to develop Miyawaki forest so that treated water may be used for irrigation as per the GO no. 1011/81-7-2021-09(writ)/2016 dated 13.10.2021 of Deptt. of Environment, forest and climate change.
- A Bank Guarantee of Rs. 10.0 Lac (Rs. Ten lac only) shall be submitted within 30 days.

Please note that consent to Establish will be revoked, in case of, non compliance of any of the above mentioned conditions. Board reserves its right for amendment or cancellation of any of the conditions specified above. Industry is directed to submit its first compliance report regarding above mentioned specific and general conditions till 03/05/2023 in this office. Ensure to submit the regular compliance report otherwise this Consent to Establish will be revoked.

PRADEEP
SHARMA
Digitally signed by PRADEEP SHARMA
Date: 2023.04.03 22:37:28
+05'30'

**Chief Environmental Officer,
Circle-4**

Dated:- 03/04/2023

Copy To -

Regional Officer, U.P. Pollution Control Board, Agra

PRADEEP
SHARMA
Digitally signed by PRADEEP SHARMA
Date: 2023.04.03 22:38:05
+05'30'

**Chief Environmental Officer,
Circle-4**

ANNEX-13

Roles & Responsibility of site staff in ESHS implementation under project**EHS Officer:**

The EHS Officer shall guide / assist the site in charge & support to execution team in respect of prevention of personnel injuries, maintaining a safe working environment & Implementation of Legal and other requirements.

Followings are duties of EHS Officer:

- a) To maintain record of every safety meeting/training
- b) Preparation of HIRA, ERA and legal register in consultation with Project In-charge and Planning Engineer.
- c) Preparation of monthly site EHS activity planner & compliance.
- d) Ensuring every new employee is inducted.
- e) Initiate EHS Campaigns, Create Safety awareness through safety talks, meetings, displaying safety poster and slogan and safety bulletins.
- f) Ensuring compliance with State and Local applicable regulatory requirement.
- g) Prepare and implement Emergency preparedness plan and conduct mock drill. Ensure training of firefighting system/uses of firefighting equipment.
- h) To plan & organize measures for effective control of personal injuries.
- i) Develop EHS Training calendar and provide training as planned.
- j) EHS Data control
- k) To implement all EHS aspects at work place.
- l) To monitoring and ensuring work environment, especially for work performed under specific Permit to work requirement.
- m) To check & evaluate effectiveness of the actions taken to prevent personnel incidents.
- n) To check quality/condition of personal protective equipment before providing to Labours
- o) To carry out EHS inspection of work thru EHS checklist & Safety walk.
- p) Investigation of incidents & reportable Environment incidents & submit report to management and ensure preventive measure to avoid recurrence. To guide workers and execution team to eliminate unsafe physical conditions and unsafe actions of the workers and to design & conduct training / education programs to prevent incident.
- q) To organize various EHS promotional activities at site level.
- r) Conduct EHS committee meeting as per frequency mentioned in the plan.
- s) Maintain various Data & statistics related to EHS & send it to HO - EHS department in timely manner. Also, Analyze workplace injury cases.

Site Admin In-charge:

- a) Facilitate & ensure EHS induction for new comers before engaging them in any site work activity.
- b) Ensure effective access control at site for all workforces & construction vehicles.
- c) Ensure Provision of welfare facilities as per applicable statutory guidelines.

Site Plant & machinery in charge:

- a) Ensure machine and equipment operation by licensed and authorized person.
- b) Ensure all equipment & tackle complied with applicable statutory requirement.
- c) Ensure statutory requirement compliance of electrical safety.
- d) Ensure proper handling, collection & storage of hazardous waste (Used Engine Oil, Used Lead battery, used cotton cloths, grease).

Design engineer

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

- a) Shall consider those risks, which could arise during construction or in the operation of plant or equipment.
- b) Participate in to HIRA activities.

Site Engineer:

- a) Organize sites so that work is carried out to the required standard with minimum risk to men, equipment and materials.
- b) Be familiar with SOP and AWWMPL EHS manual.
- c) Participate in HIRA.
- d) Give Tool Box Talk on correct work methods to laborers.
- e) Plan and provide for good housekeeping.
- f) To keep in contact with sub-contractors on site to avoid any confusion about areas of responsibility.

Organization Chart



ANNEX-14

Contractor's ESHS Plan**Sub-contractor evaluation, selection and control**

- No workmen below 18 years and above 55 years of age shall be engaged for job.
- All workmen shall be screened before engaging them on the job. Physical fitness of the person to certain jobs like working at height or other dangerous locations to be ensured before engaging the person on work. The final decision rests with the site management to reject any person on the ground of physical fitness.
- Smoking is strictly prohibited at workplace.
- Sub-contractors shall ensure adequate supervision at workplace. They shall ensure that all persons working under them shall not create any hazard to self or to co-workers.
- Ensure regular inspections by the designer to ensure that temporary and permanent works are constructed in accordance with the design intent and maintain a register of the visits and the comments provided.
- Nobody is allowed to work without ppe's. Chinstrap of safety helmet shall be always on.
- No one is allowed to work at or more than 1.8 m height without wearing safety harness and lanyard of harness shall be anchored to firm support preferably at shoulder level.
- No one is allowed to enter into workplace and work at site without adequate foot protection.
- Usage of eye protection shall be ensured when workmen are engaged for grinding, chipping, welding and gas-cutting. For other jobs, as when EHS insists eye protection shall be used.
- All PPEs like shoes, helmet, safety harness etc. Shall be arranged before starting the job as per recommendation of she. Ppe non-compliance may attract penalty.
- All excavated pits shall be barricaded and barricade to be maintained till the backfilling is done. Safe approach shall be ensured into every excavation.
- Adequate illumination at workplace shall be ensured before starting the job at night.
- All the dangerous moving parts of the portable / fixed machinery being used shall be adequately guarded.
- Ladders being used at site shall be adequately secured at bottom and top. Ladders shall not be used as work platforms.
- Erection zones and dismantling zones shall be barricaded and a signalman to be posted to ensure that nobody stands under suspended load.
- Horseplay is completely prohibited at workplace. Running at site is completely prohibited, except in case of emergency.
- Materials shall not be thrown from heights in any case.
- Other than the electricians with red helmet no one is allowed to carry out electrical connections, repairs on electrical equipment or other jobs related thereto.

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

- Power supply shall be taken through RCCB of 30 mA sensitivity.
- Insertion of bare wires for tapping power from electrical sockets is prohibited.
- All major, minor accidents and near misses to be reported to site engineer / EHS to enable the management to take necessary steps to avoid recurrence.
- All scaffoldings / work-platforms shall be strong enough to take the expected load. The width of the working platform and fall protection arrangements shall be maintained as per recommendation of she.
- All tools and tackles shall be inspected for use. Defects to be reported immediately. No lifting tackle to be used unless it is certified by the tpi (third party inspection)
- Good housekeeping to be maintained. Passages shall not be blocked with materials. Materials like bricks shall not be stacked more than 1.5 m height.
- Debris, scrap and other materials shall be cleared from the workplace time to time and at the time of closing of work every day. Scrap bins provided at site shall be used.
- Sub-contractors shall ensure that all their workmen are following safety practices while traveling in the company's transport and staying at company's accommodations.
- Adequate fire fighting equipment shall be made available at workplace and persons are to be trained in fire fighting techniques with the co-ordination of EHS department.
- All unsafe conditions, unsafe acts reported by site supervisors and EHS personnel shall be corrected on priority basis.
- No children shall be allowed to enter the workplace.
- Female workers are not allowed to work at height and other high-risk areas.
- Other than the driver, nobody is allowed to travel in tractor / tipper / truck.
- Sub-contractors shall ensure that all the living rooms and toilets used by them in workmen colony are maintained clean and hygienic. Food and other wastes shall be disposed off suitably.

ANNEX-15

Contractor's ESHS Plan (Emergency Preparedness Plan)

Administration In-charge shall appoint First-Aider to provide first aid services with separate first aider room with all first aid facilities. The First-Aider will have knowledge and experience in handling/ treating emergencies occurring due to any of the situations like deep bleeding, snakebite, dog bite, high fever, heart attack, asthma, sunstroke, broken bones, etc. with the local health centre tie-up (Tie up as been done with Pathak Hospital for both scheduled health check-ups and emergency medical case).

Administration In-charge shall establish tie up with local agencies for means of transporting persons in the case of emergency. Administration In-charge shall circulate Contact Telephone numbers, mobile numbers and addresses to all the section heads.

Administration In-charge/First-Aider shall maintain records on first-aid treatment cases.

During an emergency or crisis, the Administration In-charge shall arrange for vehicles/ and for treatment.

Emergency preparedness:

The basic and essential features of any emergency procedure are to analyse and plan for the potential risk and preparedness. This includes:

1. Establishing and maintaining effective communications.
2. Liaison with local emergency services and health authorities.
3. Procedure:
 - First -Aid / Medical treatment
 - Communications both within and outside the company.
 - Evacuation.
 - Appointment of key personnel and specifying their duties and responsibility.
 - Review and updating.
 - The details including command levels will be provided in ERP, which is a separate procedure.

Administration In-charge gives instructions to the staff / workmen regarding the action required for the particular emergency cases like major or minor.

These plans will address foreseeable emergencies that may arise during the construction activities. Examples of activities for which plans should be prepared include amongst other things:

- (a) An Accident, Which Results in Death or Major Injury.
- (b) A Serious Fire That Threatens Life.
- (c) A Flood, Earthquake, Storm and other natural calamities That Threatens Life.
- (d) Leakage of Any Dangerous Materials or Chemicals.
- (e) Leakage / Short Circuit of any Electrical supply.
- (f) Major Engineering Failures such as:

- collapse of tunnels or structures
- Collapse of lifting appliances and transport equipment's
- major utility collapse
- unintended explosions
- subsidence causing damage to structures or services

Copies of the emergency procedures and the AWWMPL rescue organisation (reviewed without objection by the Engineer) should be displayed at each place of work and notice boards. This information should be reviewed and updated as often as is required, but at least once annually. Drills should be arranged to test the efficiency in mobilising the necessary personnel and equipment. These Drills should be carried out at least every three months.

Regular joint exercises between the Contractor's rescue teams and the Fire and Emergency Services should also be carried out for the major contracts.

Occupational Health Centre

It shall be ensured that at a construction site an occupational health centre, mobile or static is provided and maintained in good order. Services and facilities as per the scale lay down in Schedule X of BOCWR. A construction medical officer appointed in an occupational health centre possesses the qualification as laid down in Schedule XI of BOCWR.

Ambulance van and room

It shall be ensured that at a construction site of a building or other construction work that an ambulance van and room are provided at such construction site or an arrangement is made with a nearby hospital for providing such ambulance van for transportation of serious cases of accident or sickness of workers to hospital promptly and such ambulance van and room are maintained in good repair and is equipped with standard facilities specified in Schedule IV and Schedule V of BOCWR.

First-aid boxes

It shall be ensured that at a construction site one First-aid box for 100 workers provided and maintained for providing First-aid to the building workers. Every First-aid box is distinctly marked "First-aid" and is equipped with the articles specified in Schedule III of BOCWR.

Checklist Of materials for First Aid Kit at construction site.

- A leaflet providing general guidance on first aid.
- Antiseptic liquid or cream/burnol ointment.
- 20 individually wrapped sterile plasters of assorted sizes. These should be suitable for the type of work and may need to include hypoallergenic ones.
- 2 individually wrapped sterile triangular bandages.
- 6 mediums individually wrapped sterile unmedicated wound dressings.

- 2 large individually wrapped sterile unmedicated wound dressings.
- 2 sterile eye pads.
- 3 pairs of disposable gloves.
- 6 safety pins.

Additional contents

- Cleansing wipes to clean skin around a wound
- Tough-cut scissors to cut bandages or through clothing.
- Adhesive tape to hold dressings or bandages in place.

Always check the expiry date of materials kept in First Aid Kit. Above kit is only for low level injury at construction site. In case of emergency, provision to rush the hospital tie up for projects is to be ensured.



“राम कल्याण”
पाठक हॉस्पिटल
मल्टी सुपरस्पेशलिटी हॉस्पिटल

(M) 09412257790
Regd. No. UP/AGR/2015/AL/2447



To, Date : 01/04/2023

VISHVARAJ ENVIRONMENT
PVT LTD
14 , Saurabh Nagar , Jeevan Jyoti Enclave
Dayalbagh ,
Agra-282005

Sub: Agreement for the Medical Services

Dear,

With reference to the discussion for medical arrangements for your associates for medical services on the following terms:

1. The charges will be as per schedule of charges .
2. If any of the associates visit the hospital with the company ID card the OPD charges as per Annexure – 1 will be charged to the associates directly.
3. If the associates are covered under mediclaim and the **TPA (Network)** we will send all the documents directly to the TPA .
4. In case of any change in the contract arrangements written note will be send by either sides and only on agreement of both the parties the change will be applicable.
5. In case of termination of the agreement 30 days' notice shall be given from either side.
6. Pathak hospital agrees to give the associates a 10% discount on the Tariff provided in the annexure I

Thanking you,

For Pathak Hospital, Agra


 Rahul Singh
 Head Hospital-Operations
“राम कल्याण”
PATHAK HOSPITAL
 14, Saurabh Nagar - II, Jyoti Enclave
 Dayalbagh, 190 Feet Road, Agra
 Phone No. 0562-2970883

ताजमनगरी फेस-II, 100 फुट रोड, आगरा

Helpline No. 0562-2970883, • Website : www.pathakhospital.com • E-mail : infopathakhospital@gmail.com

NOT VALID FOR MEDICOLEGAL PURPOSE

ANNEX-16
Contractor's ESHS Plan (Camp facility)

Labour Welfare Measures

Latrine and Urinal Accommodation

AWWMPL shall ensure that an adequate number of toilets are made available at the work sites with the ratio being no less than one toilet for every 50 workers or part thereof. The toilets shall be located so that persons do not have to walk more than five hundred meters to use them.

The toilets shall have adequate water supply and be kept in a clean and tidy conditions at all times.

Canteen

In every workplace wherein not less than 250 workers are ordinarily employed AWWMPL shall provide an adequate canteen conforming to Section 37 of BOCWA, Rule 244 of BOCWR and as stipulated in Rule 247 of BOCWR the changes for food stuff shall be based on 'no profit no loss' basis. The price list of all items shall be conspicuously displayed in such canteen.

Drinking Water

As per Section 32 of BOCWA AWWMPL shall make in every worksite, with safe portable water arrangement to workmen will be ensured. Quality of the drinking water shall conform to the requirements of National Standards on Public Health and quarterly testing from NABL lab will be ensured.

While locating these drinking water facilities due care shall be taken so that these are easily accessible within a distance of 200m from the place of work for all workers at all location of work sites.

All such points shall be legible marked "Drinking Water" in a language understood by a majority of the workmen employed in such place and such point shall be situated within six metres of any washing places, urinals or latrines.

Labour Accommodation

AWWMPL shall provide free of charges as near as possible, temporary living accommodation to all workers conforming to provisions of Section 34 of BOCWA. These accommodations shall have separate cooking place, bathing, washing and lavatory facilities.

Heat Stress

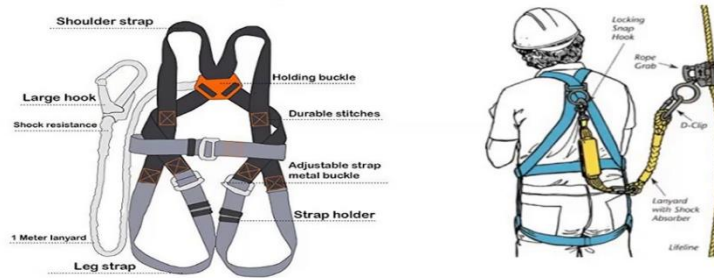
AWWMPL shall establish the necessary programs to ensure that project employees work safely in heat stress conditions. The reduction of adverse health effects can be accomplished by engineering controls, work practices, training, acclimatization, monitoring, water and electrolyte balance and the recognition and treatment of heat stress emergency.

ANNEX-17

Contractor's ESHS Plan (Safety Rules for Work at Height)

General Safety Rules for Work at Height

- Scaffold, ramps, ladders and platform shall be provided for all works to be done 1.8 m or more above the ground.
- Railing to be provided around the working platform.
- If required Toe guard will be provided. Height of toe guard will be 150mm.
- Erecting, replacing and dismantling of scaffolds, ramps and platforms shall be directed by the qualified construction supervisors and shall be erected and supervised by competent personal.
- Unauthorized person(s) shall be prohibited from entering the construction area of scaffoldings; ramps & platforms safety ropes & caution signs like "no entry" and "Danger Overhead" shall be displayed during construction.
- Scaffolds, ramps, and platform shall be kept free from grease, mud or any other material or equipment.
- Erected scaffold shall be inspected by competent supervisors weekly and the result of inspection shall be recorded on the safety tags.
- A record defining safety status of scaffold and name of person responsible for scaffolds, ramps & platforms shall be displayed.
- Wooden materials used for construction of ramps, platforms and runways shall be of good quality. Synthetic or natural fibre ropes or other similar flexible material shall not be used as guardrails.
- Safety nets shall be provided where scaffolds are not feasible or unavailable, such as when assembling pipe racks & structure, etc. In such cases worker shall always use body harness and anchor at secure point.
- All opening and ends of platforms located 1.8 m or more above the ground shall be barricaded & covered.
- All planking/ scaffolds, ramps, and platforms shall be inspected regularly every week & any damaged or unsafe portions shall be repaired or replaced immediately.
- There shall be a landing platform at every 4m interval.
- Loose material such as unused bolts, nuts, rivets, debris etc. shall not be allowed to accumulation the work platforms.
- Loose tools to be tied with rope or suitable method to avoid fall of spanner/ hammer etc.
- Lifeline will be used at the time of height work if required.
- **(Note-**Lifeline wire has traditionally been available in 1/8" and 3/16" wire diameters, with a soft but durable vinyl coating increasing the effective diameters to 7/32" and 5/16" respectively. It should be inspected on an annual basis for signs of corrosion or breakage of wire strands
- A land-based lifeline consists of a horizontal wire rope cable attached to two or more anchor points on a roof-top, crane runway, bridge or outdoor construction site, or any other elevated work area that poses a fall risk).



ANNEX-18

Contractor's ESHS Plan (Excavation)

General Precautions

It shall be ensured that

- barricading around dug up areas as per requirement will be provisioned.
- Where any construction building worker engaged in excavation is exposed to hazard of falling or sliding material or article from any bank or side of such excavation which is more than one 1.5 m above his footing, such worker is protected by adequate piling and bracing against such bank or side.
- Where banks of an excavation are undercut, adequate shoring is provided to support the material or article overhanging such bank.
- Excavated material is not stored at least 1.5 m from the edge of an open excavation or trench and banks of such excavation or trench are stripped of loose rocks and the banks of such excavation or trench are stripped of loose rocks and other materials which may slide, roll or fall upon a construction building worker working below such bank
- metal ladders and staircases or ramps are provided, as the case may be, for safe access to and egress from excavation where, the depth of such excavation exceeds 1.5 m and such ladders, staircases or ramps comply with the IS 3696 Part 1&2 and other relevant national standards.
- Trench and excavation is protected against falling of a person by suitable measures if the depth of such trench or excavation exceeds 1.5 m and such protection is an improved protection in accordance with the design and drawing of a professional engineer, where such depth exceeds 4m.
- No excavations should be proceeding in an area suspected of having live, buried oil, and gas lines unless the lines have been located and marked and a permit is granted to this effect.
- Necessary precautions at the edge of excavation to be taken where machines are in operation and also to protect entry of water in to trenches
- All excavation work shall be complied with IS3764: 1992.

Undermining Nearby Structures

- The following precautions should be taken to prevent the undermining of nearby structures;
- Make sure excavations do not affect the footings of scaffolds or the foundations of nearby structures. Walls may have very shallow foundations, which can be undermined by even small trenches.
- Decide if the structure needs temporary support before digging starts. Surveys of the foundations and the advice of a structural engineer may be needed.

Avoiding Underground Services

- The following precautions should be taken to avoid underground services;
- Look around for obvious signs of underground services, e.g. valve covers or patching of the road surface.

- Use locators to trace any services. Mark the ground accordingly.
- Make sure that the person supervising excavation work has service plans and knows how to use them.
- Everyone carrying out the work should know about safe digging practices and emergency procedures.
- Operate a "Permit to Dig" system

Warning signs and notices

- suitable warning signs or notices, required for the safety of building workers carrying out the work of an excavation, shall be displayed or erected at conspicuous places in Hindi and in a language understood by majority of such building workers at such building such excavation work.

ANNEX-19

Contractor's ESHS Plan (Confined Space)

The hazards

- The most likely hazards are as follows:
- Flammable Substances and Oxygen Enrichment;
- Toxic Gas, Fume or Vapour
- Oxygen deficiency
- The Ingress or Presence of Liquids
- Presence of Excessive

Entry Procedures

AWWMPL ensure that no work will be undertaken in Confined Spaces unless a Permit to Work, has been prepared and issued. Only persons who have been thoroughly trained, experienced and are physically fit shall be allowed to work in Confined Spaces.

Persons with any of the following medical conditions shall not be allowed to work in confined spaces:

- a history of fits, blackouts or fainting attacks,
- a history of heart disease or disorder,
- high blood pressure,
- asthma bronchitis, or shortness of breath on exertion,
- deafness
- Meniere disease or disease involving giddiness or loss of balance,
- claustrophobia or nervous or mental disorder,
- back pain or joint trouble that would limit mobility in confined spaces,
- deformity or disease of the lower limbs limiting movement.
- Chronic skin disease,
- Serious defects in eye sight or lack of sense of smell

No smoking shall be allowed in or within 2 metres of the opening to any confined space and suitable warning signs shall be positioned.

Before any confined space work commences the following equipment shall be available for use:

- Multi Gas Monitor; or other suitable gas monitoring equipment.
- Sufficient sets of Self-Contained Breathing Apparatus to enable rescue to be carried out;
- Full Body Type Harness for each worker;
- Tripod and Lifeline Hoist Rope; for work in situations where a vertical exit from the confined space is required.

- Flame-proof lighting. (Hand lamps not more than 24 volts.);
- Resuscitation Equipment;
- Ventilation Equipment
- The persons involved in the confined space working operations shall need to be thoroughly trained and certified as being competent in the use of the above detailed item of equipment.

ANNEX-20

Work Permit System

The AWWMPL shall develop a Work Permit system, which is a formal written system used to control certain types of work that are potentially hazardous. A work permit is a document, which specifies the work to be done, and the precautions to be taken. Work Permits form an essential part of safe systems of work for many construction activities. They allow work to start only after safe procedures have been defined and they provide a clear record that all foreseeable hazards have been considered. Permits to Work are usually required in high-risk areas as identified by the Risk Assessments.

A permit is needed when construction work can only be carried out if normal Safeguards are dropped or when new hazards are introduced by the work. Examples of high-risk activities include but are not limited to:

- Entry into confined spaces
- Work in close proximity to overhead power lines and telecommunication cables.
- Hot work
- To dig where underground services may be located
- Work with heavy moving machinery
- Working on electrical equipment
- Work with radioactive isotopes
- Heavy lifting operations and lifting operations closer to live power line

The permit-to-work system should be fully documented, laying down:

- How the system works;
- The jobs it is to be used for;
- The responsibilities and training of those involved; and
- How to check its operation;

A Work Permit authorisation form shall be completed with the maximum duration period not exceeding 12 hours. A copy of each Permit-to-Work shall be displayed, during its validity, in a conspicuous location in close proximity to the actual works location to which it applies.

ANNEX-21

Traffic Management

Objective

The basic objective of the following guidelines is to lay down procedures to be adopted by AWWMPL to ensure the safe and efficient movement of traffic and also to ensure the safety of workmen at construction sites.

All construction workers should be provided with high visibility jackets with reflective tapes as most of viaduct /tunnelling and station works or either above or under right-of-way.

The conspicuity of workmen at all times shall be increased so as to protect from speeding vehicular traffic.

The guiding principles to be adopted for safety in construction zone are to

- a. Warn the road user clearly and sufficiently in advance.
- b. Provide safe and clearly marked lanes for guiding road users.
- c. Provide safe and clearly marked buffer and work zones with provisions of hard barricading.
- d. Provide adequate measures that control driver behaviour through construction zones.

The AWWMPL shall ensure that all traffic management schemes shall be in accordance with the agreed schemes following consultation with the Local Traffic Police and the Metropolitan and other Authorities in charge of the area. Adequate and clear warning signs shall be displayed at appropriate distances before the commencement of the site workings. In addition, prior warning shall be given concerning the location of the approaching site entry and exit points.

All traffic signs, barriers, cones and lighting shall be kept maintained and clean at all times.

Site vehicles exiting the site shall observe caution at all times; if the vehicles are exiting directly onto the live carriageway then an identifiable Traffic Controller shall direct them.

The AWWMPL shall conduct regular inspections of the traffic management schemes in both the daytime and night time hours with the results of these inspections being recorded. The Engineer shall keep these records available for inspection.

A warning sign as given in general instruction shall be installed at all secondary road which merges with the primary

road where the construction work is in progress at sufficient distance before it merges with the primary road so as to alert the road users regarding the 'Work in Progress'.

Vehicle Control

Traffic Controllers shall be available for directing vehicles that are exiting the sites directly onto the live carriageways. Any vehicles entering the sites that are required to execute reversing manoeuvres shall do so under the strict control of a trained and designated banksman. (Banksman defined, as {reversing assistant} is the skilled person who directs the operation of a crane.)

Spoil Removal

Only well-maintained and licensed vehicles shall be allowed to be used for the removal of excavated spoil from the sites.

All drivers shall be medically fit and in possession of a valid and current driving licence.

No vehicles, which are overloaded, shall be allowed to leave the site.

Any vehicles leaving the sites carrying loads which are liable to produce airborne contaminants shall prior to leaving the site securely sheet the load over in order to effectively contain any disbursement during transportation on the public highway.

Vehicles exiting the site directly onto the live carriageway shall do so under the control of the clearly identified Traffic Controller.

Any vehicles that are required to reverse whilst on the site shall do so under the control of a trained banksman.

Any vehicles prior to leaving the site shall have their wheels washed and any loose material removed.

Any spoil that is removed from the work-sites shall be disposed of only at authorised dumping sites.

Tow away vehicle

The Contractor shall make arrangements keeping tow away van / manpower to tow away any breakdown vehicle in the traffic flow without losing any time at his cost.

Cleaning of roads

The AWWMPL shall ensure the cleanliness of roads and footpaths by deploying proper manpower for the same. The Contractor shall have to ensure proper brooming, cleaning washing of roads and footpaths on all the time throughout the entire stretch until the currency of the contract including disposal of seepage.

Specific requirement

Almost 90 percent of the road accidents are attributable to human factor and the condition of the vehicles and roads being the other. Some of the facts revealed by the studies of these accidents are as follows:

1. Young drivers in the age range 18-25 years have been increasingly involved in motor vehicle accidents.
2. Elderly drivers over 60 years are more susceptible to accidents.
3. Age is an important factor in driving through different areas. Young drivers can drive more safely in urban/built up areas: elderly drivers are safer on the highways. (This point is to be considered in selecting the driver especially for shifting the labour)
4. The inattention time gradually increases on a long drive on highways, thereby slowing the reaction time in an emergency.
5. Fatigue is more dangerous than most medical conditions. This contributes nearly 60 percent of the accidents as per W.H.O. The fatigue element was even more significant in the young age drivers (18 to 24 Years)

Proper registration of the vehicle is an important legal requirement.

A driver plying a vehicle should be at least 18 years old and must hold a valid and current driving license issued by the prescribed licensing authority.

A driver driving a vehicle of permissible weight exceeding 3.5 tonnes in the case of dumpers should be at least 21 years and must possess a valid heavy vehicle license.

All drivers shall follow all the traffic rules. Some of the important rules for drivers are as follows:

- Follow the indications given by traffic signs.
- Comply with the traffic control signals on the road.
- Stop and proceed at unmanned road junctions or those without signals and unguarded railway level crossings.
- Before driving off, the driver should go around the vehicle to ensure that no man or cattle is resting under the vehicle or nearby under its shade. No other equipment is parked nearby which may be effected due his vehicle movement.
- No one should get up or get down from a moving vehicle
- No one should sit on the sides of the panels or on the top of driver's cabin.
- Undue haste should be avoided
- Driver should shut off the engine and the cabin locked before leaving the vehicle.
- Vehicles should be loaded as per the loading capacity specified by the manufactures.

Defects of overloading:

Overloading causes more wear and tear of tires, damages road surfaces and decreases efficiency of the moving components of a vehicle. Overloading is also cause accidents due to the following

- i) Loss of control on steering
- ii) Inadequacy of brake power
- iii) Failure of components due to fatigue
- iv) Over-turn while negotiating sharp bends.
- v) Drinking and driving

Routine daily checks must carry by the drivers before starting their vehicles/ equipment. Some of the usual checkpoints are:

- Horn
- Wiper
- Emergency brakes
- All lights of the vehicle
- Steering

- Tyre condition and Pressure
- Wheel brakes
- Water in radiator

The equipment department and the Workshop should ensure the systematic maintenance routine. Ensure that drivers are conversant with the maintenance routine.

❖ Traffic Management

Main Hazards

- The movement of traffic
- Falls of materials
- Falls of persons
- Underground cables
- Overhead cables
- Excavations
- Carnage
- Manual handling
- Dust/fume
- Site clearance

The guidelines for traffic management during road construction/repairs are as below.

There are broadly two types of diversions

- New Diversion road (The project site will submit diversion drawing separately).
- Portion of existing road (The project site will submit diversion drawing separately).

A safety zone has to be provided between live traffic lanes and the working area (this includes equipment, plant, tools, excavated materials, etc.)

- Adequate barriers are provided to protect the workforce; portable vertical barriers should be considered for this. The barricades shall be provided as per the Specifications mentioned in IRC SP: 55-2001 and the type of barricading shall depend on the depth of excavation as specified therein.
- Access / egress locations for site transport are kept to a minimum.
- The site Management shall ensure that Construction Zone comprises of four Sub Zones as described as per IRC: SP: 55 -2001 hereunder:
 - Advance Warning Sub-Zone
 - Transition Sub-Zone
 - Work Sub-Zone
 - Termination Sub-Zone

Recommended length of Construction Zones as per IRC: SP: 55 – 2001

Average Approach Speed (Km/h)	Length of Advance Warning Zone (m)	Length of Approach Transition Zone (m)	Length of Working Zone (m)
50 or less	100	50	 Varies
51-80	100-300	50-100	
81-100	300-500	100-200	

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Over 100	1000	200-300	
----------	------	---------	--



Stop Sign



Give Way Sign



No Entry



One Way Sign



Straight Prohibited
or
No Entry



Vehicles Prohibited
in Both Directions



Left Turn
Prohibited



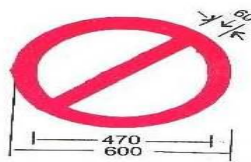
Right Turn
Prohibited



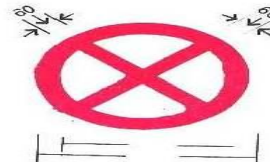
'U' Turn
Prohibited



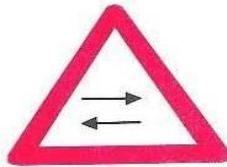
Overtaking
Prohibited



No Parking



No Stopping or
No Standing



Two Way Traffic Ahead



Men at Work



Narrow Road Ahead



Left Lane
Diverted



Right Lane
Diverted



Lane Closed
(Two Lane Road)



Lane Closed
(Three Lane Road)



Lane Closed
(Four Lane Road)



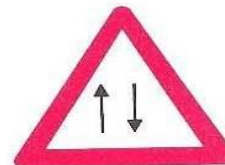
Median Closed



Diversion to Other
Carriageway



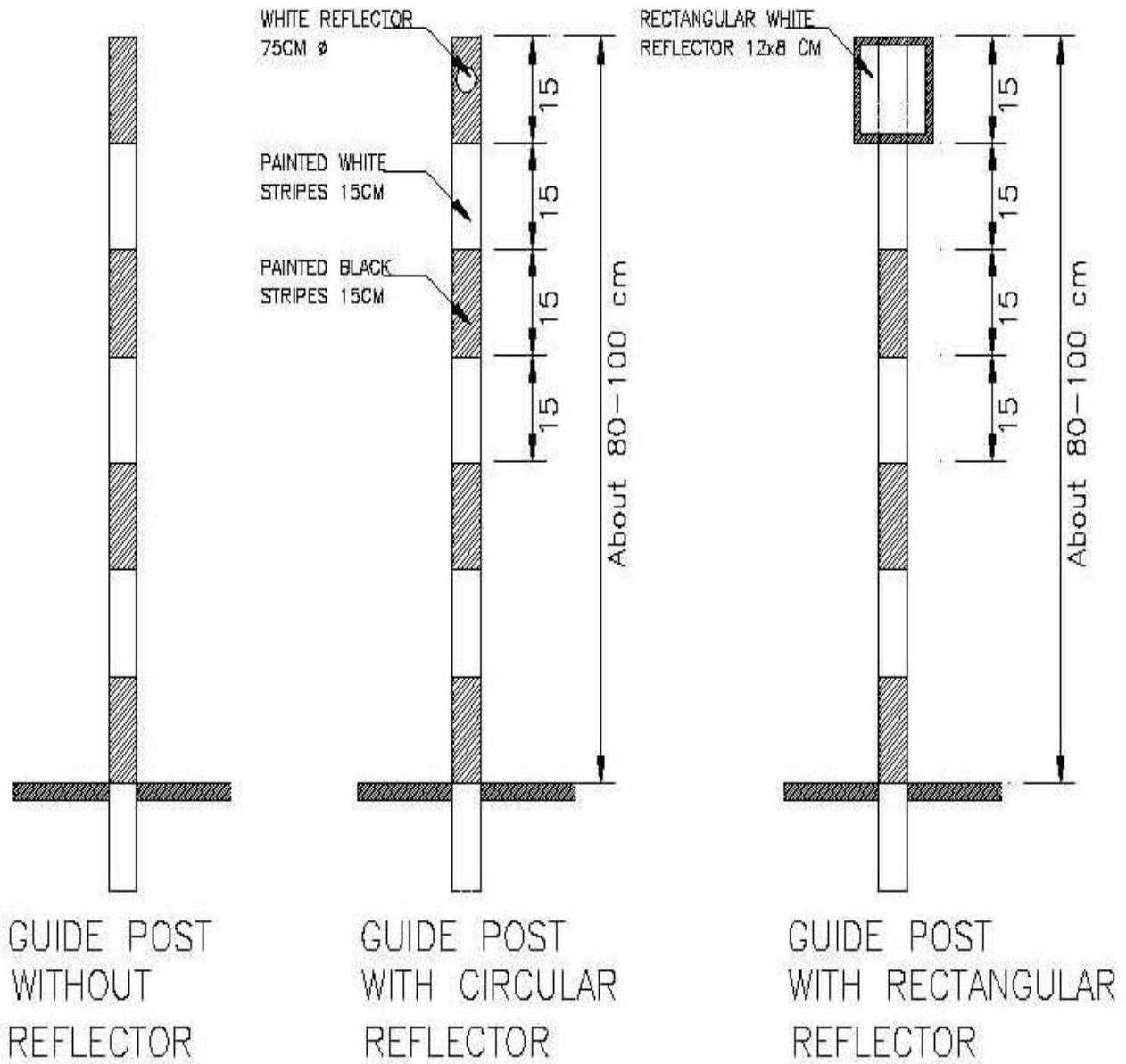
Traffic Signal
Ahead



Two Way Traffic

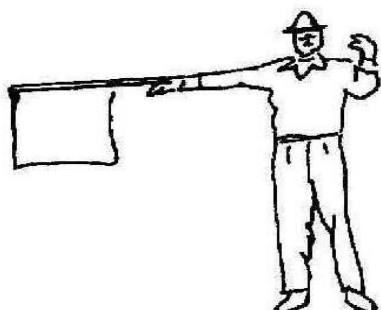


Un Even Road

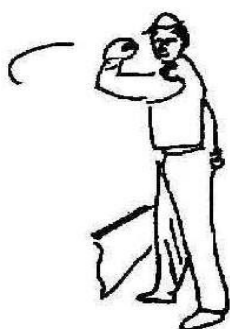


Flagmen

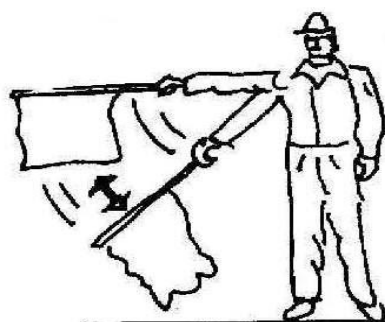
FLAG



TO STOP
TRAFFIC

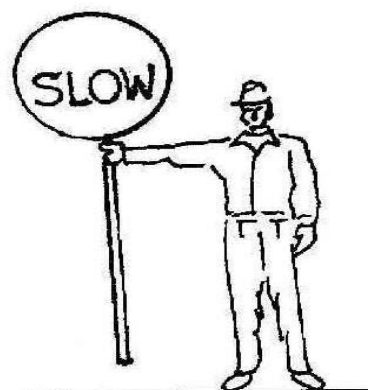
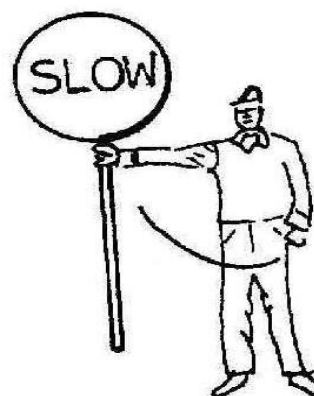


TRAFFIC
PROCEED



TO ALERT
AND SLOW
TRAFFIC

PADDLE



ANNEX-22

Railway Permission

उत्तर मध्य रेलवे



पत्रांक:- आगरा/कार्य/भूमि/वे-लीव/सामान्य

परियोजना प्रबन्धक,
यमुना प्रदूषण इकाई,
उ.प्र. जल निगम (ग्रामीण),
वाटर वर्क्स चौराहा जीवनी गण्डी रोड,
आगरा (उ.प्र.) - 282004.

विषय:- नमामि गंगे कार्यक्रमान्तर्गत आगरा सीवरेज योजना (आई. एण्ड डी. एण्ड एसटीपी वर्क्स) (HAS) में रेलवे कॉसिंग हेतु आवेदन सं. NCR-AGC-2022-WL-27 एवं NCR-AGC-2022-WL-32 की अनुमति निर्गत करने के सम्बन्ध में।

संदर्भ:- आपका पत्र सं. 177/नमामि गंगे आगरा/72 दिनांक 17.03.2023.

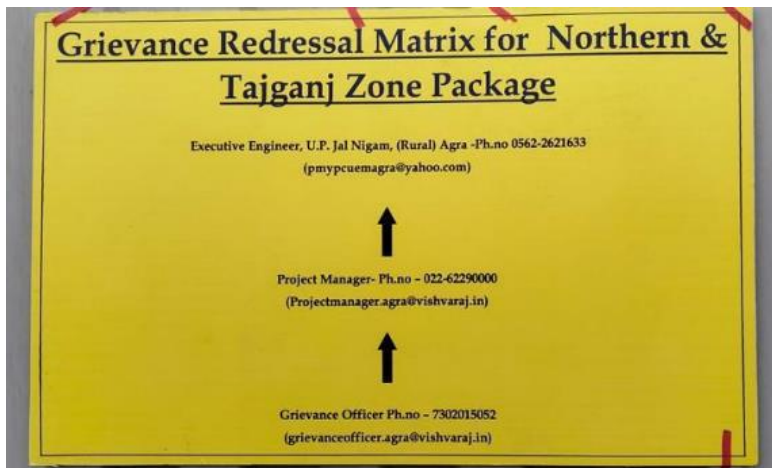
उक्त विषयक संदर्भित पत्र में अवगत कराना है कि उक्त दोनों ऑनलाइन प्रस्तावों के अनुमति पत्र (Approval letter) में वर्णित सभी शर्तें आपके द्वारा पूर्ण किये जाने पर अधोहस्ताक्षरित द्वारा अनुमति पत्र (Approval letter) ऑनलाइन हस्ताक्षर कर, ऑनलाइन कॉमेंट्स में अनुमति जारी कर दी गई है।

अतः आपको पुनः अवगत कराया जाता है कि उक्त दोनों ऑनलाइन प्रस्तावों की अनुमति ऑनलाइन जारी कर दी गई है एवं ऑनलाइन में अपलोड स्वीकृत ड्राइंग एवं वे-लीव करार के अनुसार इंजीनियर, संकेत एवं दूरसंचार और कर्षण विभाग के सुपरवाइजर के सुपरविजन में उक्त दोनों ऑनलाइन कार्य किये जायेंगे।

मण्डल इंजीनियर/मुख्यालय
उत्तर मध्य रेलवे (आगरा)
Divl. Engineer (H.Q.)
उ. म.रे., आगरा
N.C.R., AGRA

ANNEX-23

Grievance Redressal System displayed at site



ANNEX-24

Wastewater Analysis of Drains



CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT

Sl. No.	Name of STPs/ DSTPs	Parameters →	pH	TSS (mg/l)	BOD (mg/l)	COD (mg/l)	Faecal Coliform (MPN/100ml)	Iron (mg/l)	Ammonical Nitrogen (as N) (mg/l)	Copper (mg/l)	Zinc (mg/l)	Cadmium (mg/l)	Total Chromium (mg/l)	Lead (mg/l)	Nickel (mg/l)	Total Coliform (MPN/100ml)
		Name of Drains ↓														
1	Peelipokhar DSTP	Peelipokhar	7.64	52	180	560	9.4X10*3	0.73	35.6	<0.05	0.58	<0.05	<0.01	<0.05	<0.01	2.2X10*4
2	Dharwale baba DSTP	Islam Nagar	7.19	248	410	1140	4.6X10*3	3.2	40.5	0.51	1.4	<0.05	<0.01	<0.05	<0.01	9.2X10*4
3		Dharwale baba drain 1-2	7.83	157	268	730	4.8X10*4	0.21	20.9	<0.05	0.16	<0.05	<0.01	<0.05	<0.01	1.4X10*5
4	Peelakhar 35mld STP	Peelakhar 35mld drain	6.79	132	125	408	8.4X10*3	2.6	28.5	0.48	0.84	<0.05	<0.01	<0.05	<0.01	2.1X10*4
5	Indira Memorial DSTP	Indira Memorial DSTP	7.08	174	230	684	4.3X10*3	0.82	45.8	0.11	0.69	<0.05	<0.01	<0.05	<0.01	8.2X10*4
6		Motimahal drain-8	6.95	58	36	160	1.3X10*3	0.74	6.8	0.13	0.53	<0.05	<0.01	<0.05	<0.01	24.0X10*3
7		Motimahal drain-7	6.86	236	186	540	31.0X10*3	0.55	34.2	0.07	0.37	<0.05	<0.01	<0.05	<0.01	49.0X10*3
8		Motimahal drain-6	7.35	53	48	218	8.3X10*3	0.39	7.6	0.12	0.24	<0.05	<0.01	<0.05	<0.01	20.0X10*3
9		Motimahal drain-5	7.14	176	128	392	11.0X10*3	0.47	24.9	<0.05	0.19	<0.05	<0.01	<0.05	<0.01	2.4X10*4
10		Motimahal drain-4	7.24	192	164	528	13.0X10*3	0.61	30.8	0.13	0.33	<0.05	<0.01	<0.05	<0.01	1.1X10*5
11		Motimahal drain-3	7.29	69	54	210	38.0X10*3	0.61	9.6	0.08	0.046	<0.05	<0.01	<0.05	<0.01	9.4X10*4
12		Motimahal drain-2	6.87	185	80	272	17.0X10*3	0.38	16.4	0.11	0.17	<0.05	<0.01	<0.05	<0.01	3.1X10*4
13		Motimahal drain-1	7.11	157	182	612	32.0X10*3	0.51	26.5	<0.05	0.29	<0.05	<0.01	<0.05	<0.01	8.4X10*2
14	100 mld STP	Mantola drain	6.98	202	116	420	12.0X10*3	2.2	25.4	0.32	0.96	<0.05	<0.01	<0.05	<0.01	2.7X10*4
15	Jalma DSTP	Jalma drain	7.32	239	206	660	54.0X10*3	0.31	34.2	<0.05	0.45	<0.05	<0.01	<0.05	<0.01	12.0X10*4
16	Artoni DSTP	Artoni drain	6.94	325	175	590	17.0X10*3	3.2	42.8	0.26	0.91	<0.05	<0.01	<0.05	<0.01	4.3X10*4
17	Kailash Temple DSTP	Kailash temple drain	7.21	47	90	336	15.0X10*3	0.34	14.6	0.13	0.25	<0.05	<0.01	<0.05	<0.01	3.9X10*4
18	Wayepur DSTP	Wayepur drain	7.33	35	84	290	13.0X10*3	0.38	27.3	0.23	0.41	<0.05	<0.01	<0.05	<0.01	3.1X10*3
19	KK Nagar DSTP	KK nagar drain	7.17	245	130	460	43.0X10*3	0.94	32.6	<0.05	0.37	<0.05	<0.01	<0.05	<0.01	9.1X10*4
20		Kamyani Hospital-1	7.36	62	98	364	20.0X10*3	0.52	20.4	<0.05	0.19	<0.05	<0.01	<0.05	<0.01	5.5X10*4
21		Kamyani Hospital-2	7.25	139	140	472	31.0X10*3	0.35	28.6	<0.05	0.47	<0.05	<0.01	<0.05	<0.01	70.0X10*4
22	31 mld STP	Burhinagla drain P-5	7.09	131	68	248	9.4X10*3	0.57	22.5	0.14	0.42	<0.05	<0.01	<0.05	<0.01	2.2X10*4
23	Transport nagar DSTP	Transport nagar drain	7.51	48	74	290	17.0X10*3	0.43	29	<0.05	0.16	<0.05	<0.01	<0.05	<0.01	38.0X10*3
24		Gailana drain	6.99	204	122	408	24.0X10*3	0.29	16.8	<0.05	0.37	<0.05	<0.01	<0.05	<0.01	6.3X10*4
25	Mau nala DSTP	Mau nala-1	7.61	184	146	516	39.0X10*3	0.52	26.4	<0.05	0.34	<0.05	<0.01	<0.05	<0.01	84.0X10*3
26		Mau nala-2	7.28	65	110	380	22.0X10*3	0.74	38.4	0.09	0.39	<0.05	<0.01	<0.05	<0.01	4.7X10*4

CONTRACTOR SPECIFIC ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT



Newcon Consultants & Laboratories

(GOVERNMENT APPROVED TESTING LABORATORY)
As Per ISO 9001 : 2015, ISO 14001 : 2015 and ISO 22703 Laboratory

TEST REPORT

Page No. : 1 of 1

TEST REPORT No. NCL/ED-00628/11/23

Name and Address of Client:
MS. VISHVAKSHI ENROPMENT PVT. LTD.
AWA AGRA UP JAL, NSGAM, 106 MLD STP CHANDPHOL, NR. SHILPA AGRA ROAD
AGRA 281006

DATE OF REPORT 18/11/2023

SAMPLE INFORMATION

Samples Name : WASTE WATER

Analysis Start Date : 20/11/2023

Date of Sampling : 27/11/2023

Time of Sampling : 10:10 AM

Sampling Done By : P. NCL

Sampling Description : WASTE WATER

Sampling Location : 116 Park Road STP Drain

Sampling Protocol : IS : 17014 (P-1)

Packing Condition : Sealed

ANALYSIS DETAILS

Analysis Start Date : 05/12/2023

Sample ID No. : NCL/ED-00628/11/23

Sample Received Date : 20/11/2023

Environmental Condition : 25±2°C

Sample Quantity : 2 Ltr

Testing Method : P.VC CARE

TEST RESULT

S.No.	Parameter	Units	Test Method	Results
1	pH	-	APWA 234-4020 (H+)	7.84
2	Total Suspended Solids (TSS)	mg/L	APWA 234-2340 (S)	180
3	Free Chlorine Residual (mg in 100 ml)	mg/L	APWA 231-5110 (B)	180
4	Chemical Oxygen Demand (COD)	mg/L	APWA 234-5220 (B)	960
5	Facecal Coliform	MPN/100ml	APWA 234-6221	6400/100
6	fecal coliform	-	APWA 231-5110	0.75
7	Aerobic Nitrogen (as N)	mg/L	APWA 400-0 (C)	0.0
8	Chlorine (as Cl ₂)	mg/L	APWA 311-1 (B)	0.00
9	Zinc	mg/L	APWA 311-1 (B)	0.00
10	Copper (as Cu)	mg/L	APWA 400-0 (B)	0.00
11	Total Chromium	mg/L	APWA 311-1 (B)	<0.1
12	Lead	mg/L	APWA 311-1 (B)	<0.00
13	Manganese	mg/L	APWA 311-1 (B)	0.001
14	Total Cadmium	mg/L	APWA 234-5200	<0.01

End of Report

ED-00628/11/23-1


Authorized By

FOR NEWCON CONSULTANTS & LABORATORIES



Authorized

1. The report refers only to the particular sample/s submitted for testing and test parameters.
 2. Endorsement of the report is neither intended nor implied.
 3. Laboratory shall maintain the confidentiality of all information supplied to the clients (as per request).
 4. Confidentiality shall be maintained unless advised by the client in writing.
 5. The report shall be provided within 5 to 7 days without any extension of the Member's Terms. All disputes subject to Disputes Resolution.

Laboratory : J.A. NISAM, Sector-17, (Bawana) Connaught Place, Kirti Nagar Industrial Area, GHAZIABAD - 201 002 (UP)

Mobile : 9110400430, 920550-1781 **Website :** www.newconinfrs.in

E-mail : newconlab@gmail.com / newconlab@yahoo.co.in

Newcon Consultants & Laboratories

(GOVERNMENT APPROVED TESTING LABORATORIES)
 As per NWE (2003, 1998) & IS: 5500 (2006) – Certified Laboratory

TEST REPORT

Page No. 1 of 1

TEST REPORT No. NCL/ED-007/2019-123

DATE OF REPORT: 05/12/2023

Name and Address of Customer

M/S. VISHVA VINAYAK PVT. LTD.
 AWWA JALPA (P) JAL NIGAM, 100 MLD PUT CHANDIPURHA, NR. SHILPA GRAM
 AUDA, BIREN

SAMPLING DETAILS

Sample Name : WASTE WATER
 Analysis Start Date : 20/11/2023
 Analysis End Date : 22/11/2023
 Time of Sampling : 10.15 AM
 Sampling Done by : NCL
 Sampling Description : WASTE WATER
 Sampling Location : ISLAF NAGAR, Drain
 No. : 15, (TSA (P)-1)
 Sampling Protocol : Stalled
 Picking Condition : Stalled

Analysis End Date : 05/12/2023
 Sample ID No. : NCL/ED-007/2019-123
 Sample Receipt Date : 20/11/2023
 Environmental Condition : 25±2°C
 Sample Quantity : 2 LR
 Picking : PVC CANE

TEST RESULT

S.No.	Parameter	Units	Test Method	Results
1	pH		APHA 2450 (H-18)	7.18
2	Total Suspended Solids (TSS)	mg/L	APHA 2540 (2004) (B)	248
3	Bio Chemical Oxygen Demand (3 days at 20°C)	mg/L	APHA 5210 (2018) (B)	1140
4	Chemical Oxygen Demand (2 days at 125°C)	mg/L	APHA 5210 (2018) (B)	416
5	Fecal Coliform	MPN/100 mL	APHA 9220 (2018) (B)	6.5x10 ³
6	Iron ⁺⁺⁺	mg/L	APHA 3111 (B)	3.3
7	Ammoniacal Nitrogen (as N)	mg/L	APHA 4500 (B-C)	40.5
8	Copper (as Cu)	mg/L	APHA 3111 (B)	0.01
9	Zinc	mg/L	APHA 3111 (B)	1.4
10	Cadmium (as Cd)	mg/L	APHA 4500 (B)	<0.1
11	Total Chromium	mg/L	APHA 3111 (B)	<0.1
12	Lead	mg/L	APHA 3111 (B)	<0.02
13	Nickel	mg/L	APHA 3111 (B)	<0.1
14	Total Cadmium	MPN/100 mL	APHA 53rd Edition	0.24704

End of Report

ID:007/2019-123-1

Signature
 Checked by

Authorised Signature

- The test report refers only to the particular sample(s) submitted for testing and listed parameters.
- Representative of the sample is hereby certified as genuine.
- Laboratory staff who receive the non-compliance of all information related to the sample & test reports.
- The test report shall not be used without the written approval of the Newcon Consultants & Laboratories.
- The test report shall not be used without the approval or in part without the prior permission of the Managing Director. All disputes subject to Shriharad jurisdiction.

Laboratory : A-1156, Street-17, (Swasthika Compound) Karim Nagar Industrial Area, (SHAHADABAD - 201 003 (U.P.))

Mobile : 9870434343, 9266051788 | Website : newconncl.com

E-mail : newconcl@gmail.com, newconclnagar@gmail.com

 <b style="font-size: 1.2em; color: red;">Newness Consultants & Laboratories				
(GOVERNMENT APPROVED TESTING LABORATORIES) No. 002 9981, 200 0481 1481, 200 4591, 200 2031 Laboratory				
TEST REPORT				
Page No. 1 of 1				
Report Date: 05/12/2023				
TEST REPORT NO. NCL/20-058/1103				
Name and Address of Customer	MS VISWAKAR ENGINEERING PVT. LTD. ANW-AGRA UP, JAL NIGAM, 100 SUD ST CHANDRUPURA, NR. SHILPA GRAM AGRA, 202008			
SAMPLING DETAILS				
Sample Name : WASTE WATER Analysis Start Date : 28/11/2023 Date of Sampling : 27/11/2023 Time of Sampling : 10:30 AM Sampling Done by : NVL Sampling Description : WASTE WATER Sampling Location : Chhanan Basi Drain-1 Sampling Protocol : IS - 17394 (P-1) Packing Condition : Sealed	Analysis End Date : 05/12/2023 Sample ID No. : NCL/20-058/1103 Sample Transport Date : 28/11/2023 Environmental Condition : 25±2°C Sample Quantity : 2 Ltr Packing : PVC CANE			
TEST RESULT				
S. No	Parameter	Units	Test Method	Results
1	pH	mg/L	APHA 2420-4803 (H-B)	7.63
2	Total Suspended Solids (TSS)	mg/L	APHA 2540-2402 (B)	182
3	Bio Chemical Oxygen Demand (5 days at 20°C)	mg/L	APHA 2420-4810 (B)	268
4	Chemical Oxygen Demand (COD)	mg/L	APHA 2420-4822 (B)	730
5	Feecal Coliform	MPN/100ml	APHA 2420-4821	4.6x10 ¹⁴
6	Ammonia Nitrogen (as N)	mg/L	APHA 2111 (B)	0.21
7	Ammoniacal Nitrogen (as N)	mg/L	APHA 4600 (B-C)	20.9
8	Copper (as Cu)	mg/L	APHA 3111 (B)	<0.05
9	Zinc	mg/L	APHA 3111 (B)	0.16
10	Chloride (as Cl)	mg/L	APHA 4600 (B)	1.4
11	Total Chromium	mg/L	APHA 3111 (B)	<0.1
12	Lead	mg/L	APHA 3111 (B)	<0.1
13	Nickel	mg/L	APHA 3111 (B)	<0.1
14	Total Cadmium	mg/L	APHA 3111 (B)	1.6x10 ¹⁵
End of Report				
 Checked by				
The test report refers only to the particular sample/s submitted for testing and test parameters. Under no circumstances shall the laboratory be held responsible for the accuracy of the results of the test report. The report is not to be produced wholly or in part without the permission of the Managing Partner. All disputes subject to Ghaziabad Jurisdiction.				
Laboratory: A/1706, Sector 17, (Shastri Nagar) Compound, Near Nagar Industrial Area, GHAZIABAD - 201003 (U.P.) Mobile: 91 942424 123234, 91 942424 123234 E-mail: newnessncl@gmail.com, newnessncl@yahoo.com				



Newcon Consultants & Laboratories

(GOVERNMENT APPROVED TESTING LABORATORIES)
As Per ISO 9001 : 2015 (Rev.01) : 2015, ISO 45001 : 2018 Certified Laboratory

TEST REPORT No. NCLD-000281123

Name and Address of Customer:

M/S VISHVAKAR ENVIRONMENT PVT. LTD.
AWR-AGRA UP, JAL NIGAR, 102 MID, DHADESHAPURA, NR. SHILPA GRAM
AGRA 22006

DATE OF REPORT: 28/11/2023

Page No. : 1 of 1

TEST RESULT

Sample Name : WASTE WATER

Analysis Start Date : 28/11/2023

Analysis End Date : 27/11/2023

Time of Sampling : 10:30 AM

By : NCL

Sampling Location : WASTE WATER

Sampling Concession : Pila Water (35 MLD) Drain

Sampling Protocol : IS - 17914 (P-1)

Packing Condition : Sealed

Sample Quantity : 2 LWC

Packing : PVC CANE

SAMPLING DETAILS

Sample No.

Parameter

Unit

Test Method

Results

1	pH	-	APHA 2340 (4000 H-B)	6.79
2	Total Suspended Solids (TSS)	mg/L	APHA 2540 (2000 B)	155
3	Bio Chemical Oxygen Demand (BOD5 @ 20°C)	mg/L	APHA 2520 (410 B)	120
4	Chemical Oxygen Demand (COD)	mg/L	APHA 2520 (410 B)	455
5	Freeze Chloride	MPH/100ml	APHA 2321 (4021)	3.64 (NPS)
6	Hardness	mg/L	APHA 2110 (30)	286.9
7	Ammonical Nitrogen (as N)	mg/L	APHA 3510 (30)	0.48
8	Copper (as Cu)	mg/L	APHA 3111 (30)	0.48
9	Zinc	mg/L	APHA 3111 (30)	0.58
10	Cadmium (as Cd)	mg/L	APHA 4500 (30)	0.04
11	Total Chromium	mg/L	APHA 3111 (30)	<0.1
12	Lead	mg/L	APHA 3111 (30)	<0.05
13	Nickel	mg/L	APHA 3111 (30)	<0.1
14	Total Coliforms	MPN/100ml	APHA 2100 (20)	1 X 10^4

End of Report

400281123-1



Signed by _____
S. K. SINGH
 Analyst

FOR NEWCON CONSULTANTS & LABORATORIES

(NCLD) AGRA

Authorised Signatory



As per report referred only to the particular sample/s submitted for testing and total parameters advertisement of the sample is neither intended nor implied.

Advertisement shall mention the acknowledgement of all information addressed to the sample/s and report.

Advertisement shall mention the acknowledgement of all information addressed to the sample/s and report.

As per report is not to be generated without or beyond the permission of the Managing Partner. All disputes subject to Chhatisgarh Jurisdiction.

Laboratory: A/1159, Sector-17, (Shastri) Government Near Nagar Industrial Area, GHADABAD- 201 002 (U.P.)
Mobile: 9811543335, 05050517881 (AGRA) **www.newconco.in**

New Res Consultants & Laboratories

(GOVERNMENT APPROVED TESTING LABORATORIES)
AN ISO 9001 : 2015 / ISO 14001 : 2015 / ISO 45001 : 2018 CERTIFIED

TEST REPORT

Page No. 1 of 1

TEST REPORT NO. NCLED-4192/28/1123

DATE OF REPORT 09/12/2023

Name and Address of Customer

M/S VISVAKRUM ENVIRONMENT PVT. LTD.

AWR-ABRA UP JAL NIGAM, 190 MID C/P CHANDHYPOURA, NR. SHILPA GRAM
AREA 363004.

SAMPLING DETAILS

Sample Name : WASTE WATER
Analysis Start Date : 28/11/2023
Date of Sampling : 27/11/2023
Time of Sampling : 10:30 AM
Sampling Done by : NCL
Waste Water Location : WASTE WATER
Sampling Location : Indra Memorial DSTP Drain
Sampling Point : IS - TETA (P-1)
Sampling Protocol : Sewage
Packaging Condition : Sealed

Analysis End Date : 06/12/2023
Sample ID No. : NCGL-06/09/28/1123
Sample Receipt Date : 28/11/2023
Environmental Condition : 25±2°C

Sample Quantity : 2 Ltr
Filling : PVC CANE

TEST RESULT

B.No.	Parameter	Units	Test Method	Results
1	pH	-	APHA 2341 (4210-H)	7.58
2	Total Suspended Solids (TSS)	mg/L	APHA 2341 (2440-G)	174
3	Bio Chemical Oxygen Demand (5 days at 20°C)	mg/L	APHA 2341 (4210-B)	230
4	Chemical Oxygen Demand (COD)	mg/L	APHA 2341 (4020-B)	886
5	Faecal Coliform	MFCU/100 ml	APHA 2341 (4220-A)	4,34,973
6	HeteroFe	mg/L	APHA 3111 (B)	5.62
7	Aeromonas Nitrogen (as N)	mg/L	APHA 4500 (B)	45.8
8	Copper (as Cu)	mg/L	APHA 3111 (B)	2.11
9	Zinc	mg/L	APHA 3111 (B)	2.69
10	Cadmium (As Cd)	mg/L	APHA 4500 (B)	<0.05
11	Total Chromium	mg/L	APHA 3111 (B)	<0.1
12	Lead	mg/L	APHA 3111 (B)	<0.1
13	Nickel	mg/L	APHA-3111 (B)	<0.5
14	Total Coliform	MFCU/100ml	APHA 2341 Edition	8,30,704

End of Report

3-6190319-123-1

Checked by _____
Signature

The test report refers only to the particular sample(s) submitted for testing and listed parameters.

Performance of the same is neither intended nor implied.

Laboratory cannot guarantee the confidentiality of all information related to the samples & test reports.

Consent that this report should be communicated within 10 days of the issue date of the report.

This report is valid as per standard which is in part without your permission of the Managing Partner. All disputes subject to Chendikulam Jurisdiction.

Laboratory : E-1516, Sreevasthi, Thiruvallur District, Kaveri river industrial Area, CHAZHAMBAD - 201 002 (D.P)

Mobile : 9876543210, 980001781 | Website : www.newres.in

Email : newres@newres.in, newreslab@gmail.com

	Newcon Consultants & Laboratories (GOVERNMENT APPROVED TESTING LABORATORY) REG. NO. NCL/2010/04001 REG. NO. 280/4000 28th Certified Laboratory	Page No. 1 of 3		
TEST REPORT		Report No. BB120233		
TEST REFERENCE NO. NCL/AD110110103				
Name and Address of Client M/S VISHVARA ENVIRONMENT PVT. LTD. AWW-AGRA UP-JAL, NAGAM, 100 M.D. STP DHANDHUPURA, NR. DELHA GRAM AGRA, 282008	DATE OF REPORT 28/11/2023			
SAMPLING DETAILS				
Sample Name ANALYSIS: Start Date 28/11/2023 Date of Sampling 28/11/2023 Time of Sampling 10:45 AM Sampling Done By NCL Sampling Description WASTE WATER Sampling Location M. Mular & D. rain Storing Method IN : 17614 (P-1) Preserving Protocol Sealed Packaging Condition Sealed	Analysis End Date 05/12/2023 Sample ID No. NCL/AD110110103 Sample Received Date 28/11/2023 Environmental Condition 25±2°C Sample Quantity 2 Ltr Packing PVC CANE			
TEST RESULT				
S.No.	Parameter	Unit	Test Method	Results
1	pH	mg/L	APHA 232 (240-01)	6.95
2	General Dissolved Solids (TSS)	mg/L	APHA 232 (240-01)	3.35
3	Bio Chemical Oxygen Demand (5 days at 20°C)	mg/L	APHA 232 (420-01)	360
4	Chemical Oxygen Demand (COD)	mg/L	APHA 232 (420-01)	140
5	Freeze Chlorine	MPH/1000	APHA 232 (422)	13.0/1000
6	Hardness	mg/L	APHA 311 (10)	6.19
7	Aeromonas Nitrogen (as N)	mg/L	APHA 4355 (3-C)	6.8
8	Copper (as Cu)	mg/L	APHA 311 (1)	0.13
9	Zinc	mg/L	APHA 311 (1)	0.05
10	Cadmium (as Cd)	mg/L	APHA 4355 (1)	<0.05
11	Total Chromium	mg/L	APHA 311 (1)	<0.1
12	Lead	mg/L	APHA 311 (1)	<0.05
13	Nickel	mg/L	APHA 311 (1)	<0.1
14	Total Coliform	MPH/100ml	APHA 231 (10)	24.9/100
End of Report				
 Checked by		 FOR NEWCON CONSULTANTS & LABORATORIES Authorized Signatory		
DISCLAIMER: This report refers only to the particular sample/s submitted for testing and third parameters. The equipment used and the methods used are approved by the Government of India and the Ministry of Environment and Forests and the Government of Uttar Pradesh and the Government of Madhya Pradesh. The report is not to be produced without the consent of the client and the permission of the Managing Director. All disputes subject to Chartered Arbitration.				
Laboratory : A-15, 15th, Sector-17 (Newmarket) Compound, Kanpur Industrial Area, GRAZBAD - 201 002 (U.P.) Mobile : 0522-2650571/0522-2650572 E-mail : newcon@ncl.com, newconlaboratory@gmail.com				

Newborn Consultants & Laboratories

(GOVERNMENT APPROVED TESTING LABORATORIES)
As ISO 9001 : 2015, ISO 14001 : 2015, ISO 45001 : 2018 Certified Laboratory

TEST REPORT

Page No. : 1 of 1

TEST NUMBER NO. NCL-01926/11/23

DATE OF REPORT 09/12/2023

Name and Address of Customer

[MS VISWAKAR] ENVIRONMENT PVT. LTD.
AWW-A&P, JAL NAGAM, 100 MLD ST PHANDHUPURA, NR. SHOLA GRAM
ADRA, BISHNOI

SAMPLING DETAILS

Sample Name : WASTE WATER
Analysis Start Date : 2021/10/23
Date of Sampling : 2021/10/23
Sampling Location : 11:00 AM
Sampling Date by : NCL
Sampling Description : WASTE WATER
Sampling Location : Model Mahal 6 Drain
Sampling Protocol : IS - 17514 (P-3)
Preserving Condition : Sealed

Analysis End Date : 05/12/2023
Sample No. : NCL-01926/11/23
Sample Received Date : 20/11/2023
Environmental Condition : 25±0.2

Sample Quantity : 2 Ltr
Preserving : PVC BAG

TEST RESULT

Sr.No.	Parameter	Units	Test Method	Results
1	pH	-	APHA 2344-4200 (H-8)	7.30
2	Total Suspended Solids (TSS)	mg/L	APHA 2344-2340 (B)	58
3	Bio Chemical Oxygen Demand (3 days at 20°C)	mg/L	APHA 2344-2420 (B)	48
4	Chemical Oxygen Demand (COD)	mg/L	APHA 2344-4220 (B)	218
5	Freeze/Coagulant	MPN/100ml	APHA 2342-4221	8.3x10 ³
6	Iron/Ferri	mg/L	APHA 2311-2319	1.28
7	Ammoniacal Nitrogen (as N)	mg/L	APHA 4500-45-02	7.8
8	Copper (as Cu)	mg/L	APHA 3111 (B)	0.16
9	Zinc	mg/L	APHA 3111 (B)	0.34
10	Cadmium (as Cd)	mg/L	APHA 4500 (B)	<0.01
11	Total Chromium	mg/L	APHA 3111 (B)	0.21
12	Lead	mg/L	APHA 3111 (B)	0.58
13	Nitrate	mg/L	APHA 3111 (B)	<0.1
14	Total Coliforms	MPN/100ml	APHA 2344-2340	26.0x10 ³

End of Report

0-4230010-12

Original
Sealed by
Checked by

FOR NEWBORN CONSULTANTS & LABORATORIES

We request report users who to the particular signature is submitted for testing and testing reports.
Instrumentation of the facility is regularly calibrated and maintained.
Laboratory staff maintain the confidentiality of all information related to the samples, and test reports.
The report is not to be shared with the general public without the written consent of the client.
The report is not to be reused, either as a part without the permission of the Managing Partner. All disputes should be directed to the Managing Partner.

Laboratory : A-19/58, Sector-17, (Banswati) Compound Farid Nagar, Industrial Area, Ghaziabad - 201 002 (U.P.)

Mobile : 9610430434, 9250501788 | Website : www.newbornindia.in

Email : newbornindia@rediffmail.com, newbornindia@gmail.com

Newcom Consultants & Laboratories

(GOVERNMENT APPROVED TESTING LABORATORY)
As per ISO 9001 : 2015, ISO 14001 : 2015 and ISO 45001 : 2018 Certified Laboratory

TEST REPORT

Page No. 1 of 1

TEST REPORT NO. NCLCD-01728/11/23

DATE OF REPORT: 05/12/2023

Name and Address of Customer

BSE VISVESVARAYA ENGINEERING PVT. LTD.

AWWA-AGRA ULJ, ANAGAM, 100 MLD STP DHANPURUQA, NR. SHELPA GRAM
AGRA, 282006

SAMPLING DETAILS

Sample Name : WASTE WATER
Analysis Date : 28/11/2023
Date of Sampling : 25/11/2023
Sampling Time : 11:40 AM
Sampling Date By : NCL
Sampling Description : WASTE WATER
Sampling Location : Main Manhole 2 Drains
Sampling Protocol : IS - 17814 (P-1)
Packing Condition : Sealed

Analysis End Date : 05/12/2023
Sample ID : NCLCD-01728/11/23
Sample Received Date : 28/11/2023
Environmental Condition : 29.6°C

Sample Quantity : 2 Lit
Packing : PVC CANE

S.No.	Parameter	Unit	Test Method	Results
1	pH	-	APHA 23rd 4000 (H-B)	8.67
2	Total Suspended Solids (TSS)	mg/L	APHA 23rd 2540 (C)	1.85
3	Bio Chemical Oxygen Demand (5 days at 20°C)	mg/L	APHA 23rd 5110 (C)	82
4	Chemical Oxygen Demand (COD)	mg/L	APHA 23rd 5210 (C)	272
5	Fecal Coliform	MPN/100ml	APHA 23rd 4221	12 (5x10 ³)
6	Enterococci	mg/L	APHA 2311(B)	0.18
7	Aeromonas Mucosa (No)	mg/L	APHA 4020 (B)	16.4
8	Clostridia (No)	mg/L	APHA 3111 (B)	0.11
9	Zinc	mg/L	APHA 3111 (B)	0.17
10	Cadmium (As US)	mg/L	APHA 4020 (B)	-0.05
11	Total Chromium	mg/L	APHA 3111 (B)	-0.1
12	Lead	mg/L	APHA 3111 (B)	-0.05
13	Nitrate	mg/L	APHA 3111 (B)	-0.28
14	Total Coliform	MPN/100ml	APHA 23rd Edition	3.1x10 ⁴

End of Report

24/12/2023-12-1

(Signature)
Checked by

FOR NEWCOM CONSULTANTS & LABORATORIES

Authorised Signatory
(Signature)
Authorised Signatory

This report refers only to the particular samples submitted for testing and tested parameters.

Examination of the results is neither intended nor implied by the analysis for legal purposes.

Copyright shall also report should be considered as confidential. No part of the results data or report should be reproduced without the prior written approval of Newcom Consultants & Laboratories.

Laboratory : A-10156, Sector 17, (Shivaji Park) Compound, Kar Nagar, Indore (M.P.) PIN-462004-201 692 (S.P.)

Mobile : 9810430434, 9250501501, Website : www.newcomlab.in

E-mail : newcomlab@gmail.com, newcomlab@newcomlab.in

Newwon Consultants & Laboratories

(GOVERNMENT APPROVED TESTING LABORATORY)

AN ISO 9001 : 2015, ISO 14001 : 2015 & ISO 45001 : 2018 Certified Laboratory

TEST REPORT

Page No. | of 1

TEST REPORT No. NCL-ED-018/2021/103

DATE OF REPORT: 26/12/2023

Name and Address of Customer

MSH VISVAAS ENVIRONMENT PVT. LTD.

APW-AGRA UP, JAL NIGAM, 190 W.D.37 DHANDUPHURA, MR. SHILPA GRAM AGRA-281006

SAMPLING DETAILS

Sample Name : WASTE WATER
Analysis Start Date : 28/12/2023
Date of Sampling : 27/12/2023
Time of Sampling : 11:00 AM
Sampling for : NO2
Sampling Description : WASTE WATER
Sampling Location : West Market 1 Drain
Sampling Protocol : (S) - EPA (P-1)
Preserving Condition : Sealed

Analysis End Date : 30/12/2023
Sample No. : NCL-ED-018/2021/103
Sample Receipt Date : 28/12/2023
Environmental Condition : 26°C/2

Sample Quantity : 2 Lit
Packing : PVC CANE

TEST RESULT

S.No.	Parameter	Units	Test Method	Results
1	pH	-	APHA 2310-4502 (H-B)	7.11
2	Total Suspended Solids (TSS)	mg/L	APHA 2540-2310	167
3	Bio Chemical Oxygen Demand (3 days at 20°C)	mg/L	APHA 5210-4210 (B)	162
4	Chemical Oxygen Demand (COD)	mg/L	APHA 5210-4210 (B)	417
5	Hardness (Calcium)	mg/L	APHA 3100-4100	32.00/104
6	Iron (Fe)	mg/L	APHA 3110-08	0.01
7	Ammoniacal Nitrogen (as N)	mg/L	APHA 4500-05 (C)	28.5
8	Copper (Cu)	mg/L	APHA 3110-08	<0.06
9	Zinc	mg/L	APHA 3111-08	0.29
10	Calcium (as Ca)	mg/L	APHA 4500-08	<0.05
11	Total Chlorine	mg/L	APHA 3111-08	<0.1
12	Lead	mg/L	APHA 3111-08	<0.01
13	Nickel	mg/L	APHA 3111-08	<0.06
14	Total Copper	mg/L/100ml	APHA 3111-08	6.4x10 ⁴

End of Report

ED-018/2021/103-1

Checking

Checking

- The test report refers only to the particular sample/s submitted for testing and listed parameters.
- Examination of the sample is neither implied nor implied.
- Laboratory shall maintain the confidentiality of all information related to the samples & test reports.
- Wherever this report is submitted within 30 days after the date of the report.
- Report may be generated online or as a printed copy depending on the changing format. All properties subject to Statistical justification.

Laboratory : A-11/16, Sector-17, (Swasthika) Compound, Karan Nagar Industrial Area, GHAZIABAD - 201 002 (U.P.)

Mobile : 9811463004, 9209071786 | Email : newwonlabs@gmail.com

E-mail : newwonlabs@gmail.com, newwonconsultants@gmail.com

ANNEX-25

Fund transfer letter to Forest Dept for afforestation work



pmypcuagra@gmail.com

☎ मो० नं० : 09473542844.

कार्यालय परियोजना प्रबन्धक,
यमुना प्रदूषण नियन्त्रण इकाई, उ०प्र० जल निगम (ग्रामीण)
 वाटर वर्क्स चौराहा, जीवनी मण्डी रोड, आगरा - 282 004

पत्रांक 854 / नमामि गंगे आगरा / 63 दिनांक 01/11/2022
 सेवा में,

प्रमाणीय निदेशक
 सामाजिक वानिकी प्रभाग,
 आगरा।

विषय:- नमामि गंगे कार्यक्रमान्तर्गत आगरा सीवरेज योजना (आई. एण्ड डी. एण्ड एसटीपी वर्क्स) के सम्बन्ध में।

महोदय,

उपरोक्त विषयक आपके पत्रांक 1419/14-1 आगरा, दिनांक 20.09.2022 द्वारा नमामि गंगे कार्यक्रमान्तर्गत आगरा सीवरेज योजना (आई. एण्ड डी. एण्ड एसटीपी वर्क्स) के अन्तर्गत प्रस्तावित 100 एमएलडी. एसटीपी निर्माण हेतु परियोजना में प्रभावित 704 नग वृक्षों के पातन एवं 6.4 हे. गैर वन भूमि पर 7500 पौधों का रोपण एवं 10 वर्षों के अनुरक्षण की धनराशि की मांग की गयी थी, जिसके सापेक्ष रु. 1,18,00,000.00 चैक सं. 000070 के माध्यम से आपके खाता सं. 31590100016972 में स्थानान्तरित की जा रही है।

अतः आपसे अनुरोध है कि अपने स्तर से आवश्यक कार्यवाही करने का कष्ट करें।

भवदीय

(अग्रणी निह)
 परियोजना प्रबंधक

प्र०सं० एवं दिनांक उपरोक्तानुसार।

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. कार्यकारी निदेशक (परियोजनाएँ), एन.एम.सी.जी. नई दिल्ली।
2. मुख्य अभियन्ता (गंगा), उ.प्र. जल निगम (ग्रामीण), लखनऊ।
3. मुख्य अभियन्ता (आ.क्ष.), उ.प्र. जल निगम (ग्रामीण), आगरा।
4. अधीक्षण अभियन्ता, मण्डल कार्यालय, उ.प्र. जल निगम (ग्रामीण), आगरा।
5. अधिशासी अभियन्ता, खण्ड कार्यालय (वि०/या०), उ.प्र. जल निगम (ग्रामीण), आगरा।
6. आगरा वेस्टवाटर मैनेजमेन्ट प्रा० लि०, 116ए, 11 फ्लोर मेकर चेम्बर, 6ए, 220, नरीमन पॉइंट, मुम्बई 400021।

परियोजना प्रबंधक