

**National Mission for Clean Ganga (NMCG)  
Ministry of Water Resources, River  
Development & Ganga Rejuvenation,  
Govt. of India**

**The development of sewage treatment  
plant and associated infrastructure under  
Hybrid Annuity based PPP mode at  
Varanasi in the State of Uttar Pradesh**

**(LoA File Number: Rd-63014/1/2017/PPP/NMCG)**

**Monthly Progress Report  
of  
Project Engineer**

**November - 2022**



**Executing Agency**

**Uttar Pradesh Jal  
Nigam,  
Varanasi - 221 005**



**Funding Agency**

**National Mission for  
Clean Ganga  
MoWR, River  
Development & Ganga  
Rejuvenation,  
New Delhi - 110002**



**Project Engineer**

**Mahindra Consulting  
Engineers Limited  
Mahindra Towers, No.  
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Tamil Nadu, India**



**Concessionaire**

**Varanasi STP Project  
Private Limited  
6<sup>th</sup> Floor, Plot No. 19,  
Film City, Sector 16 A,  
Gautam Buddha Nagar,  
Noida,  
Uttar Pradesh - 201 301**

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## MONTHLY PROGRESS REPORT

### 1.0. INTRODUCTION

The GoI, recognizing that long-term rejuvenation of the river Ganga 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 GoI approved the flagship Namami Gange programme for cleaning, rejuvenation, and protection of the river Ganga. In January 2016, the GoI 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 GoI in achieving its aim of effective abatement of pollution in the river Ganga. The Ganga 2016 Order applies to all states in the catchment of the river Ganga basin, including Uttar Pradesh. The Ganga 2016 Order revised the legal status of NMCG (which was initially constituted as a registered society under the Societies Registration Act, 1860) to an authority constituted under the Environment (Protection) Act, 1986 and designated NMCG as the nodal agency for the implementation of the Ganga 2016 Order.

Rapidly increasing population, rising standards of living and exponential growth of industrialisation and urbanisation have exposed water resources, in general, and rivers to various forms of degradation. The mighty Ganga is no exception. The deterioration in the water quality impacts the people immediately. Ganga, in some stretches, particularly during lean seasons has become unfit even for bathing. The threat of global climate change, the effect of glacial melt on Ganga flow and the impacts of infrastructural projects in the upper reaches of the river, raise issues that need a comprehensive response.

In the Ganga basin approximately 12,000 million litres per day (MLD) sewage is generated, for which presently there is a treatment capacity of only around 4,000 MLD. Approximately 3000 MLD of sewage is discharged into the mainstream of the river Ganga from the Class I & II towns located along the banks, against which treatment capacity of about 1000 MLD has been created till date.

The Uttar Pradesh Jal Nigam (Jal Nigam) is a statutory body constituted under the Uttar Pradesh Water Supply and Sewerage Act, 1975, and has the power to develop, maintain and regulate water supply and sewerage works in Uttar Pradesh. With a view to implement the Namami Gange programme and the Ganga 2016 Order, the Jal Nigam, in association with the NMCG, has decided to undertake the development of an STP with a proposed capacity of 50 MLD along with other Facilities and Associated Infrastructure at Varanasi on a PPP basis, through a hybrid annuity model. While the Jal Nigam will be the principal executing agency and bidding authority for the Project, NMCG will be responsible for making payments to the Concessionaire.

The objectives that NMCG and the UP Jal Nigam wish to achieve through the Project is mentioned in **Figure 1**.

Intercept raw sewage flowing into the river Ganga and divert the raw sewage to the Varanasi STP;

Treatment of the raw sewage at the Varanasi STP;

Implement viable technologies and international best practices for development, operation and maintenance of the Varanasi STP and other facilities and

Demonstrate large scale private sector participation and mobilisation of private sector investment to further the national aim of rejuvenation of the river Ganga.

**Figure 1: Objectives of NMCG and UP JAL NIGAM**

Government of India has approved the Namami Gange program as an integrated approach for effective abatement of pollution in river Ganga. As part of this and to ensure that no untreated domestic sewage flow into the river Ganga, various interventions are planned such as Interception & Diversion works and development & operation of Sewage Treatment Plants (STPs). Considering various development models in practice for the construction, operation and maintenance of Sewage Treatment Plants, Government of India has approved the Hybrid Annuity based Public Private Partnership (PPP) mode as one of the options for the development & operation of STPs. Under this model, private investor/developer will design, build, finance, operate and transfer the asset (STP) to the Project Executing Agency/Jal Nigam/Jal Sansthan / Urban Local body at the end of the Concession Period (say 15 years). 40% of the Capital cost will be paid to the developer during construction of the STP. Balance 60% along with Operation & Maintenance (O&M) cost will be paid over the Concession Period on achievement of key performance indicators as per the contract. Entire cost of development and operation of the STPs will be 100% funded by the Government of India as central sector scheme. It is also envisaged to explore the possibility of recycle/ reuse of the treated wastewater for non-potable purpose.

NMCG & UPJN appointed M/s. Mahindra Consulting Engineers Limited, Chennai as Project Engineer for this project through tendering process. Letter of Award is issued dated 5<sup>th</sup> January 2018 and agreement signed between the parties on 16<sup>th</sup> February 2018.

## **1.1. Project components**

### **1.1.1. New construction units**

- Inlet structure
- Grit chambers & Parshall flume
- SBR tanks
- Chlorine contact tank
- Overhead treated water tank
- Air blower room
- Belt filter press building
- Chlorination building

- Electrical building and control room
- Admin building, laboratory room
- Transformer yard, internal roads & drainage
- Treated water pump house
- Treated effluent disposal line
- Bund wall
- Staff quarters with 25KLD OHT
- Approach road

**1.1.2. Rehabilitation works**

- Rehabilitation of Main Pumping Station (MPS)
- Construction of Weir
- Strengthening & Pipe protection of Rising main
- Construction of Control room
- Rerouting the raising main near Samne Ghat

**1.2. Executing agency**

- Uttar Pradesh Jal Nigam (UPJN)

**1.3. Implementation agency**

- Uttar Pradesh Jal Nigam (UPJN)

**1.4. Consulting services**

- **Project Engineer**
  - Mahindra Consulting Engineers Ltd, Chennai

**1.5. Concessionaire**

- Varanasi STP Project Private Limited

**2.0. STATUS OF PROJECT**

<b>STATUS</b>	<b>: OPERATION AND MAINTENANCE STAGE</b>
Concessionaire Contract Agreement No.	: SUBIN-DL DL80840374672746341531P
Name of the Concessionaire	: Varanasi STP Project Pvt. Ltd.
Commencement date	: 19 <sup>th</sup> February 2018
Completion date (as per contract)	: 18 <sup>th</sup> November 2019
Commercial Operation Date (COD)	: 30 <sup>th</sup> November 2021
O& M Commencement date	: 1 <sup>st</sup> December 2021

O&M completion date (As per contract) : 30<sup>th</sup> November 2036

Commercial Operation Date (COD) was announced by UPJN as per letter no. 2406/Namami Gange/292 dated 30<sup>th</sup> December 2021 based on the undertaking provided by the Concessionaire to complete the remaining pending works on or before 31<sup>st</sup> January 2022 and in case of failure, then the annuity and O&M payment shall be withheld until the completion of all works. Accordingly, O&M period starts from 1<sup>st</sup> December 2021.

### **2.1. Status of this month**

Plant has been shut down due to flood near MPS& Irrigation department work on the rising main area

### **3.0. O&M personnel**

VSPPL has deployed following O&M personnel for carrying out the obligations during Operation and Maintenance period.

**3.1. O &M personnel – MPS &STP**

Position	No. of O&M staff deployed									Remarks
	MPS				STP				Total	
	General shift	Shift 1	Shift 2	Shift 3	General shift	Shift 1	Shift 2	Shift 3		
Projects Manager					1				1	
Engineer-Operation					2				2	
Chemist					1				1	
Engineer-Electrical					1				1	
Executive-Operation		1	1	1		1	1	1	6	
Executive-Mechanical					1				1	
Executive-Electrical	1				1				2	
Senior-Technician	1				1				2	
Supervisor					1				1	
Horticulture In charge					1				1	08.00 Hrs. to 18.00 Hrs.
Horticulture					3				3	08.00 Hrs. to 18.00 Hrs.
Housekeeper	1	1	1	1	1	2	2	2	11	
Driver					1				1	
Tractor Driver (Sludge unit)						1	1		2	
Guard	2				4				6	Day 1, Night 1 for MPS & Day 2, Night 2 for STP
<b>Total</b>									<b>41</b>	



**3.2. O & M personnel details**

S.no.	Designation	Name of Employee	Contact no.	ID Proof (Aadhaar No.)
1	Projects Manager	Arvind Kumar Srivastava	9981829975	749053658959
2	Engineer-Operation	Umakant	9068611609	476258741370
3	Executive-Operation/electrical	Siddharth Sinha	8292547670	650276237789
4	Engineer-Electrical	Javed Ahmad Ansari	9140301050	807432990304
5	Asst. Chemist	Avanish Kumar Srivastav	8543960511	740676855764
6	Executive-Mechanical/operation	Sanjay Prasad	8707525703	239864940488
7	Executive-Electrical	Rakesh Gupta	8433053644	749802436574
8	Executive-Operation	Sanjay Yadav	8858460117	357961658068
9	Executive-Mechanical	Devendra Kumar Yadav	9795116989	865308171365
10	Executive-Electrical	Deepak Kumar	9695423741	580550119520
11	Executive-operation/electrical	Pritesh Singh	7400089083	666821224640
12	Senior-Technician	Raju Kumar Chauhan	9646688728	278575928253
13	Senior-Technician	Ram Parvesh	9335342644	609960423981
14	Executive-Operation	Prashant Singh	7000089083	666821224640
15	Supervisor	Subhash Yadav	9415807558	677818900707
16	Executive-Operation	Rajesh Yadav	9670488468	201126311116
17	Executive-Operation	Vikas Yadav	9305815842	544638745451
18	Helper	Sanjay Yadav	9129461011	322833624635
19	Horticulture Incharge	Kripal Singh	9818811775	599263267279
20	Horticulture	Ajay Yadav		251098493906
21	Horticulture	Pramod Yadav		953545698981
22	Horticulture	Lal Chandra Ram	7233844210	
23	Housekeeper	Prashant Sharma		799988837048
24	Housekeeper	Sonu Kumar	8543986694	235568756907
25	Housekeeper	Raj Kumar		644290326829
26	Housekeeper	Dheeraj	9696888263	
27	Housekeeper (MPS)	Chandan		409091475879
28	Housekeeper (MPS)	Sonu		833435558604
29	Housekeeper (MPS)	Rohan		910206407416
30	Housekeeper (MPS)	Raj Kumar		802564256349
31	Housekeeper (MPS)	Gulab		326430928670
32	Housekeeper (MPS)	Vishal Kumar		

S.no.	Designation	Name of Employee	Contact no.	ID Proof (Aadhaar No.)
33	Tractor Driver (Sludge unit)-1	Mukesh Yadav		273021796561
34	Tractor Driver (Sludge unit)-2	Ram Raj Verma		994848742943
35	Tractor Driver (Sludge unit)-3	Subhas Yadav		427884522912
36	Guard STP(VSPPL)	Ghanshyam Gupta	8922012262	547014137846
37	Guard STP(VSPPL)	Sanjay Kumar Singh	8317041774	607044250192
38	Guard STP(VSPPL)	Anil Kumar Vishwakarma	8840401503	346736124236
39	Guard STP(VSPPL)	Ainuddin	8423713153	375435303153
40	Guard MPS(VSPPL)	Ashok Jaiswal	8957646235	698234359797
41	Guard MPS(VSPPL)	Kanhaiya Lal		473873961078

**4.0. Calibration status:**

**4.1. Calibration status of instruments and measuring equipments**

S. no.	Instrument / Meter	Make	Location where the instrument / meter is fixed	Calibration date	Calibration validity	Calibration done by	Calibration certificate reference number
	<b>STP</b>						
1	COD & BOD Analyser	WTW (XYLEM)	Outlet & Inlet	10-May-22	9-May-23	N.S. TRADING	Nil
2	Chlorine Analyser	WTW (XYLEM)	CCT	Not Available		Not Available	To be calibrated
3	DO Analyser	WTW (XYLEM)	SBR Basin 1,2,3&4	10-May-22	9-May-23	N.S. TRADING	Nil
4	TSS Analyser	WTW (XYLEM)	Inlet & Outlet	10-May-22	9-May-23	N.S. TRADING	Nil
5	pH Analyser	WTW (XYLEM)	Inlet	Not Available		Not Available	To be calibrated
6	Total Phosphorous	WTW (XYLEM)	Inlet	Not Available		Not Available	To be calibrated
7	Total Nitrogen	WTW	Inlet	Not		Not	To be

**Development of 50 MLD sewage treatment plant and associated infrastructure on PPP basic at Ramana, Varanasi**

S. no.	Instrument / Meter	Make	Location where the instrument / meter is fixed	Calibration date	Calibration validity	Calibration done by	Calibration certificate reference number
		(XYLEM)		Available		Available	calibrated
8	pH Analyser	M/s Forbes Marshall	CCT	Not Available		Not Available	To be calibrated
9	Phosphorous Analyser	M/s Forbes Marshall	CCT	Not Available		Not Available	To be calibrated
10	Clamp on flow meter	M/s Fuji Electric	Outlet	8-Jun-22	9-Jun-23	VGIPL	VGIPL/F/N/01/22-06
11	Ultrasonic Flow Meter	M/s Siemens	Inlet	8-Jun-22	9-Jun-23	VGIPL	VGIPL/F/N/02/22-06
12	Flow Meter SAS Line	M/s Krohne Marshall	SBR Basin 1,2,3&4	8-Jun-22	9-Jun-23	VGIPL	VGIPL/F/N/03/22-06
13	Flow Meter (Filtrate Pump)	M/s Krohne Marshall	Sludge Building	8-Jun-22	9-Jun-23	VGIPL	VGIPL/F/N/04/22-06
	<b>MPS</b>						
1	Electromagnetic Flow Meter	M/s Krohne Marshall	MPS Outlet Line	8-Jun-22	9-Jun-23	VGIPL	VGIPL/F/N/05/22-06
2	Level Transmitter	M/s Siemens	MPS Wet well	NA			To be calibrated
3	Level Switch	M/s Siemens	MPS Wet well	NA		NA	To be calibrated
4	Pressure Gauge	M/s Gauges Bourdon India Pvt., Ltd.,	MPS Drywell	NA		NA	To be calibrated
5	Pressure Transmitter	M/s Gauges Bourdon India Pvt., Ltd.,	MPS Drywell	NA		NA	To be calibrated

#### 4.2. Calibration status of laboratory instruments details

Sl. No.	Instrument Name	Make	Location	Calibration Date	Calibration Validity	Calibration Done by	Calibration Certificate no.
1	BOD Incubator	MSIW	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL/07471F
2	HOT Air Oven	MSIW	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL/07470F
3	Weighing balance	Wensor	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL/07472F
4	Digital RPM Meter	Remi	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL/220426.1.2
5	COD Reactor	MSIW	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL / 220426.1.10
6	Analytical Balance	Wensae	Laboratory	NA	NA	NA	Not available at Laboratory
7	Muffle Furnace	MSIW	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL/07474F
8	Conductivity /TDS Meter	Labman	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL / 220426.1.3
9	Turbidity Meter	Lutron	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL / 220426.1.7
10	Turbidity Meter	EI	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL/ 220426.1.3
11	Digital pH Meter	Utech	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL/ 220426.1.9
12	Incubator	MSIW	Laboratory	26-04-2022	25-04-2023	AACPL	AACPL/07475F

#### 5.0. O&M Monitoring

During O&M period the following activities are being monitored on a continuous basis and the status of each activity during this month is provided below.

- Availability
- Influent Standards and Discharge Standards
- Disposal of STP By-Products and the Treated Effluent
- Power consumption

#### 5.1. Availability

All the facilities and the Associated infrastructure to be available at 100% level during all period of O&M except the scheduled maintenance period. During scheduled maintenance period the availability of Facilities and Associated infrastructure should not be less than 95%.

### 5.2. Flow measurement details

Flow measurement details provided by the Concessionaire based on flowmeter readings (online monitoring) for both MPS, STP inlet, outlet, and overflow at Assi nalla weir is provided in **Annexure A & B**. The below tables provide the date during which the guaranteed availability is not met by the Concessionaire based on the data acquired.

**Note:** - The flow meter yet to be installed at Assi nalla for measuring the overflow at the Weir. Hence no data available as on date.

### 5.3. Main pumping station

DATE	Cumulative flow at MPS pump outlet	Cumulative overflow on the weir at Assi Nalla	Whether non-availability liquidated damage is applicable based on cumulative flow pumped (if cumulative pumped flow is less than 50 MLD and overflow occurs at weir then yes otherwise no)	Hours for which the Associated Infrastructure were not Available		Reason
	IN ML	IN ML		Hrs.	Min	
Not applicable for this month						

### 5.4. Sewage treatment plant

DATE	Cumulative flow at STP Plant Inlet	Whether non-availability liquidated damage is applicable based on cumulative flow pumped (if cumulative received flow is less than 50 MLD and overflow occurs at weir then yes otherwise no)	Hours for which the facilities were not Available		Reason for non-availability
	IN ML		Hrs.	Min	
Not applicable for this month					

**5.5. Scheduled Maintenance**

Concessionaire has submitted the scheduled maintenance and hence availability should be always 100% during this month

Maintenance works did not take place according to the plan submitted by Concessionaire. However, the maintenance work has been carried out by the Concessionaire is given in **Annexure C**

**5.6. Details of notices issued by the Executing Agency (UPJN) towards Non-Availability**

Date of issue of notice	Reason for notice	Remedial action taken by VSSPL	Date of remedial action taken by VSPPL
Not issued for this month			

**5.7. Maintenance and Repair of the Facilities and the Associated Infrastructure**

Date	VSPPL letter ref.	Details of Maintenance and Repair	Reason
Not provided by VSPPL for this month			

**5.8. Non-Availability liquidated damages**

Applicable non availability liquidated damage for this month is provided below:

Parameter	Value	
	All the period other than scheduled maintenance period	During scheduled maintenance period
<b>Associated infrastructure – MPS</b>		
Guaranteed Availability	100%	95%
Hours in the month for which the Facilities and/or the Associated Infrastructure was not Available (A1)	-	-
Number of days (B1)	30	NA
Non availability (C1) = {A1/(B1*24)} *100	-	-
LD for nonadherence in INR for associated infrastructures = C1 x 30000	-	-
<b>STP</b>		
Sewage treatment plant		
Guaranteed Availability	100%	95%
Hours in the month for which the Facilities and/or the Associated Infrastructure was not Available (A2)	-	-
Number of days (B2)	30	NA
Non availability (C2) = {A2/(B2*24)} *100	-	-

Parameter	Value	
	All the period other than scheduled maintenance period	During scheduled maintenance period
LD for nonadherence in INR for associated infrastructures = C2 x 30000	-	-
Total LD for nonadherence = C1 + C2	-	

**Note:** Not applicable for this month

### 5.9. Influent & Effluent (Discharge) standards

#### 5.9.1. Influent standards

Influent standard tested through i) the daily average of real time values of respective online instruments/analyzers ii) Daily lab test report through 24-hour composite sampling iii) At least one sample tested through National Accredited Board for testing and calibration Laboratory (NABL) recognized by CPCB/SPCB as submitted by the Concessionaire is provided in **Annexure D**

**Note:** - The daily average of real time values of respective online instruments/analyzers reports are not submitted in a format shared by UPJN/PE and sample tested through National Accredited Board for testing and calibration Laboratory (NABL) recognized by CPCB/SPCB are not submitted by the Concessionaire. Hence the comparison of daily average real time value vs lab test report through 24-hour composite sampling of raw sewage (influent) is not made.

Date	Online Analyser values						24-hour composite sampling values						Remarks
	Acceptable Range						Acceptable Range						
	≤ 8.5	≥ 80 & ≤ 230	≤ 450	≤ 500	≤ 45	≤ 7	≤ 8.5	≥ 80 & ≤ 230	≤ 450	≤ 500	≤ 45	≤ 7	
	Mg/L						Mg/L						
	pH	BOD	COD	TSS	TKN	TP	pH	BOD	COD	TSS	TKN	TP	

It's clearly stated based on the available lab test report the influent parameters did not exceed the limit specified in the Concession agreement and hence there is no exemption on the treated effluent parameters due to high concentration of raw sewage.

#### 5.9.2. Treated effluent standards

Treated effluent standard tested through i) the daily average of real time values of respective online instruments/analyzers ii) Daily lab test report through 24-hour composite sampling iii) At least one sample tested through National Accredited Board for testing and calibration Laboratory (NABL) recognized by CPCB/SPCB as submitted by the Concessionaire is provided in **Annexure D**

**Note:** - The daily average of real time values of respective online instruments/analyzers are not submitted in a format shared by UPJN/PE and sample tested through National Accredited Board for testing and calibration Laboratory (NABL) recognized by CPCB/SPCB are not submitted by the Concessionaire. Hence the comparison of daily average real time value vs lab test report through 24-hour composite sampling of Treated Effluent is not made. This is because the Concessionaire did not submit the Online Analyzer Reports as per the format shared by PE/UPJN.

Date	Online Analyser values							24-hour composite sampling values							Remarks
Acceptable range	≤10	≤10	≤10	≤5	≤50	≤2	<100	BOD	TSS	TN	NH4-N	COD	TP	Fecal Coliform	
	<u>Mg/L</u>						MPN / 100 mL	<u>Mg/L</u>						MPN / 100 mL	
	BOD	TSS	TN	NH4-N	COD	TP	Fecal Coliform	BOD	TSS	TN	NH4-N	COD	TP	Fecal Coliform	

**5.9.3. Digested sludge**

The sludge generated along with outlet concentration and fecal coliform during this month provided in **Annexure E**. The below table provides the details of nonadherence of KPI

Date	Quantum of digested sludge in Cum	Outlet Concentration of dewatered sludge	Fecal coliform	Remarks
		More than 20% solids	Less than 20,00,000 Most Probable Number per gram of total dry solids (20,00,000 MPN / GTS).	
<b>Not Applicable for this month</b>				

**5.10. Details of notices issued by the Executing Agency (UPJN) towards Noncompliance of KPI**

Date of issue of notice	Reason for notice	Remedial action taken by VSSPL	Date of remedial action taken by VSPPL
Not issued for this month			



### 5.11. Performance Liquidated Damages

The treated effluent parameters are more than the limit specified in the KPI and the liquid damages for nonadherence of KPI is given below: -

Sl. No.	Parameters	Non-adherence days	Liquidated damages per day in INR	Total liquidated damages for this month in INR
1	BOD	7	10000	70000
2	TSS	2	5000	10000
3	TN	2	7000	14000
4	NH4-N	1	7000	7000
5	COD	1	5000	5000
6	TP	2	7000	14000
7	Fecal Coliform	0	10000	0
	<b>Total Amount</b>			<b>120000</b>

The details of applicable liquidated damages for digester sludge given below:

Sl. No.	Parameters	Non-adherence days	Liquidated damages per day in INR	Total liquidated damages for this month in INR
1	Outlet Concentration of dewatered sludge	-	3000	-
2	Fecal coliform limit	-	3000	-
	<b>Total Amount</b>			<b>-</b>

**Note:** Not applicable for this month.

### 5.12. Details of reports/compliance submitted to government authority by VSPPL

**Not provided / Reported by VSPPL**

### 5.13. Disposal of STP By-Products and the Treated Effluent

The executing agency, UPJN identified the waste disposal site at the following co-ordinates which is located within 10 km radius of the STP

#### 5.13.1. Disposal of Treated Effluent

Northing - 25°12'53.5"N  
Easting - 82°59'52.7"E

**5.13.2. Disposal of Residual Grit and Screenings**

The Residual Grit and the Screenings are being disposed by the Concessionaire only at the waste disposal site identified by UPJN.

Northing - 25°14'29.6"N

Easting - 83°00'17.5"E

Total area: To be finalized

**5.13.3. Disposal of Digested Sludge**

Details of digested sludge produced by the Concessionaire and its disposal is given below:

Description	Quantity in Cum			Remarks
	Till last month	During this month	Total till date	
Digested sludge produced	5499.80	-	5499.80	
Digested sludge disposed at the waste disposal site	5499.80	-	5499.80	
Digested sludge sold by the concessionaire		-	-	
Revenue generated through selling of digested sludge in Rs		-	-	
Revenue shared to UPJN @50%		-	-	

Agency name to whom the digested sludge is being sold – Not Applicable

**5.13.4. Disposal of treated effluent**

Description	Value in ML			Remarks
	Till last month	During this month	Total till date	
Treated effluent	12724.16	456.03	13180.19	
Treated effluent disposed in the River Ganga / irrigation area	12724.16	456.03	13180.19	
Treated effluent sold by the concessionaire		-	-	
Revenue generated through selling of treated effluent in Rs		-	-	
Revenue shared to UPJN @50%		-	-	

Agency name to whom the treated effluent is being sold – Not Applicable

**5.14. Power consumption**

Guaranteed energy consumption quoted by the Concessionaire during bidding stage is given below:

<b>BOD Range in Mg/L</b>	<b>Flow upto 40 MLD</b>	<b>Flow &gt;40 MLD and upto 45 MLD</b>	<b>Flow &gt;45 MLD and upto 50 MLD</b>	<b>Flow &gt;50 MLD</b>
Less than 130	118	122	124	124
130 to 160	130	134	136	136
160 to 190	142	146	148	148
190 to 230	158	162	164	164
>230	158	162	164	165
Average guaranteed energy consumption (C)	145			

Total limit of energy consumption as per guarantee provided by the Concessionaire

BOD range in Mg/L	Flow up to 40 MLD	Number of days occurred for this month	Cumulative flow for this month in MLD	Total energy consumption as per guarantee	Flow >40 MLD and up to 45 MLD	Number of days occurred for this month	Cumulative flow for this month in MLD	Total energy consumption as per guarantee	Flow >45 MLD and up to 50 MLD	Number of days occurred for this month	Cumulative flow for this month in MLD	Total energy consumption as per guarantee	Flow >50 MLD	Number of days occurred for this month	Cumulative flow for this month in MLD	Total energy consumption as per guarantee
				<b>A</b>				<b>B</b>				<b>C</b>				<b>D</b>
Less than 130	118	1	38.75	4572.5	122	0	0	0	124	0	0	0	124	7	364.19	45159.56
130 to 160	130	0	0	0	134	0	0	0	136	0	0	0	136	1	53.09	7220.24
160 to 190	142	0	0	0	146	0	0	0	148	0	0	0	148	0	0	0
190 to 230	158	0	0	0	162	0	0	0	164	0	0	0	164	0	0	0
>230	158	0	0	0	162	0	0	0	164	0	0	0	165	0	0	0
<b>Total</b>		1	38.75	4572.5			0	0			0	0		8	417.28	52379.8
<b>Overall Total Guaranteed energy consumption (A+B+C+D)</b>																<b>56952.30</b>
<b>Overall Total Flow for the month in ML</b>																<b>456.03</b>

<b>Description</b>	<b>STP</b>	<b>Associated infrastructure - MPS</b>
Total guaranteed energy consumption for the month in KWH (A)	56952.3	NA - Actual to be paid
Number of units consumed during this month (through grid power) (B)	113520	53090
Number of units consumed through DG adjusted units during this month (C)	88.20	0
Total number of units consumed during this month (B+C) = D	113608	53090
Whether power consumption liquidated damage is applicable or not (D is less than A – No, D is greater than A – yes)	No	NA
Grid power unit rate in Rs- E	8.30	8.3
Applicable Grid consumption after deducting DG consumption (Minimum of B-C, A-C) = F	113431.8	53090
Power charges towards grid power $E \times F = G$	941483.94	440647
Fuel consumption as per DG manufacturer for the consumed units in litre – H	59.40	0
Fuel price per litre in Rs – I	89.90	89.9
Total DG set power consumption charges $H \times I = J$	5340.06	0
Total power consumption charges – $G + J = K$ in Rs	946824	440647
Power Liquidated damages – (as per calculation) =L in Rs	0	-
Power charges to be paid to the Concessionaire in Rs = K-L	946824	440647

### 5.15. Tools and spare parts availability status

The inventory of tools and spare parts is given below

Sl. No.	Name of Tools and Spare parts	Unit	Total numbers envisaged as inventory	Available till last month	Purchased during this month	Utilised during this month	Remaining available	Remarks
1	L Key Set	Set	4	4			4	
2	Wire Cutting Pliers	nos.	3	3			3	
3	Nose Pliers	nos.	7	7			7	
4	Combination pliers	nos.	6	6			6	
5	Temperature Gun	nos.	1	1			1	
6	Multi Meter	nos.	4	4			4	
7	Digital Clamp Meter	nos.	2	2			2	
8	Screwdriver Set	nos.	1	1			1	
9	Insulation Tester(500v)	nos.	2	2			2	
10	Emery Paper	Mtrs	1	5	1	2	4	
11	Thread Seal Tape	nos.	15	4	1	2	3	
12	PVC Tape	nos.	30	34	0	15	19	
13	Wire Stripper	nos.	4	4			4	
14	Pipe Wrench (450 mm)	nos.	1	1			1	
15	Pipe Wrench ( 250 mm)	nos.	1	1			1	
16	Adjustable Spanner(12 Inch)	nos.	2	2			2	
17	Adjustable Spanner(10 Inch)	nos.	1	1			1	
18	Screwdriver (Big)	nos.	6	6			6	
19	Screwdriver (Small)	nos.	2	2			2	
20	Hammer	nos.	3	3			3	
21	Taplon Hammer	nos.	1	1			1	
22	Hexa Frame	nos.	1	1			1	
23	Grease Gun(Small)	nos.	1	1			1	
24	Vaccum Cleaner (Blower)	nos.	1	1			1	
25	Ring Spanners (6-41 mm)	nos.	19	19			19	
26	D- Spanner(6-41 mm)	nos.	39	39			39	
27	Chisel	nos.	2	2			2	
28	Rope Sealing	nos.	2	2			2	
29	Hexa Frame	nos.	1	1			1	
30	Right angle	nos.	2	2			2	
31	Drill Bit(8MM)	nos.	1	1			1	
32	Grander (AG-4)	nos.	1	1			1	
33	O- Ring(5 mm)	nos.	2	2			2	
34	Cutting wheel (AG-4)	Pkt	2	2			2	
35	Barricading Tape	Pkt	1	1			1	
36	Baffing Wheel	Pkt	4	1	4	4	1	

**Development of 50 MLD sewage treatment plant and associated infrastructure on PPP basic at Ramana, Varanasi**

Sl. No.	Name of Tools and Spare parts	Unit	Total numbers envisaged as inventory	Available till last month	Purchased during this month	Utilised during this month	Remaining available	Remarks
37	Leather Gloves	Pkt	1	4	1	2	3	
38	Grinding Wheel ( AG-4 )	Pkt	5	2	2	3	1	
39	Welding Rod ( MS )	Pkt	1	2	2	2	2	
40	Welding Rod ( SS )	Pkt	1	2	1	2	1	
41	PVC Gloves	Pkt	1	3	2	2	3	
42	Valve(Half Inch)	nos	2	2			2	
43	Lifting Belt(5 Ton)	nos.	24	24			24	
44	D-cycle(3-4 Ton)	nos.	4	4			4	
45	Rope Pulli	nos.	2	2			2	
46	Rope ( Rassa )	Mtr	25	25			25	
47	Ratchet Set ( Taparia )(8- 32 mm)	set	1	1			1	
48	Grease	Kg	5	15	10	15	10	
49	Oil Cuppy	nos.	2	2			2	
50	Ratchet Handle	nos.	1	1			1	
51	Ratchet Spanner(5,7,6 mm)	nos.	3	3			3	
52	Pressure Jack(hydraulic)(5 Ton)	nos.	1	1			1	
53	Welding Machine	nos.	1	1			1	
54	Grinder Machine	nos.	1	1			1	
55	Drill Machine	nos.	1	1			1	
56	Lifting belt(5 ton)	nos.	2	2			2	
57	O-ring(5mm)	nos.	1	1	4	4	1	
58	PVC Gloves	Pkt.	1	5	1	1	5	
59	Sim Cutter	nos.	1	1			1	
60	Chain Block (6mtrs,2ton)	nos.	1	1			1	
61	Dial Gauge	nos.	2	2			2	
62	Hand trolley	nos.	2	2			2	
63	Tractor with trolley	nos.	1	1			1	
64	Magger (Multirange LT,HT)	nos.	1	1			1	
65	Toolbox	nos.	2	2			2	
66	concrete drill bit(20mm)	nos.	1	1			1	
67	concrete drill bit(6.5mm)	nos.	2	2			2	
68	Fasner (20mm )	nos.	5	5			5	
69	Annabond	nos.	4	4			4	
70	D-cycle(3 ton)	nos.	2	2			2	
71	D-cycle(2 ton)	nos.	2	2			2	
72	D-cycle(1 ton)	nos.	4	4			4	
73	Digital multimeter	nos.	3	3			3	
74	Extension Board	nos.	4	4			4	
75	Torch	nos.	3	3			3	
76	Tool Bag	nos.	6	6			6	
77	Cable tie	Pkt	1	1			1	

**Development of 50 MLD sewage treatment plant and associated infrastructure on PPP basic at Ramana, Varanasi**

Sl. No.	Name of Tools and Spare parts	Unit	Total numbers envisaged as inventory	Available till last month	Purchased during this month	Utilised during this month	Remaining available	Remarks
78	Vernier caliper	nos.	1	1			1	
79	Round file	nos.	1	1			1	
80	Half Round file	nos.	1	1			1	
81	Grease gun	nos.	2	2			2	
82	feeler Gauge	nos.	1	1			1	
83	Circlip Pliers (Inside and outside)	nos.	2	2			2	
84	Allen Key (17mm)	nos.	2	2			2	
85	Allen Key (14mm)	nos.	2	2			2	
86	Allen Key (12mm)	nos.	2	2			2	
87	Allen Key (11mm)	nos.	2	2			2	
88	Allen Key (5mm)	nos.	2	2			2	
89	Hand Blower	nos.	1	1			1	
90	Printer& Scanner	nos.	1	1			1	
91	Laptop	nos.	1	2			2	
92	Computer System	nos.	1	1			1	

**5.16. Spares Details At 50 MLD STP Plant Ramna Varanasi**

Sl. No	Name of Tools and Spare parts	Unit	Total numbers envisaged as inventory	Available till last month	Purchased during this month	Utilized during this month	Remaining available	Remarks
1	RAS Pump - Kishore make - 10HP, 7.5KW	Nos	2	2			2	
2	SAS Pump - Kishore make - 15HP, 11KW	Nos	2	2			2	
3	KGVØ100mm - Bray Controls	Nos	1	1			1	
4	KGVØ 250mm - Bray Controls	Nos	3	3			3	
5	Ball Valve Ø25mm - Bray Controls	Nos	1	1			1	
6	Ball Valve Ø40mm - Bray Controls	Nos	9	9			9	
7	Ball Valve Ø50mm CF8M Body - Bray Controls	Nos	5	5			5	
8	Ball Valve Ø65mm - Bray Controls	Nos	1	1			1	
9	Ball Valve Ø100mm - Bray Controls	Nos	6	6			6	



Sl. No	Name of Tools and Spare parts	Unit	Total numbers envisaged as inventory	Available till last month	Purchased during this month	Utilized during this month	Remaining available	Remarks
10	Check Valve/NRV Ø50mm - Indian Valve Pvt. Ltd	Nos	5	5			5	
11	Check Valve/NRV Ø65mm - Indian Valve Pvt. Ltd	Nos	1	1			1	
12	Check Valve/NRV Ø100mm - Indian Valve Pvt. Ltd	Nos	2	2			2	
13	Gate Valve/ Sluice Valve Ø100mm - Indian Valve Pvt. Ltd	Nos	2	2			2	
14	Gate Valve/ Sluice Valve Ø125mm - Indian Valve Pvt. Ltd	Nos	2	2			2	

**5.17. Chemicals, Dangerous Goods and Hazardous Materials storage details**

**Status as on 30.11.2022 and Sufficient up to 31.12.2022**

Sl. No.	Description	Unit	Storage availability till last month	Purchase during this month	Utilized during this month	Remaining available	Remark
1	Chlorine	Kg	4498		704	3794	
2	Poly Electrolyte	Kg	218		0	218	
3	Calcium Chloride	gm	434		1	433	
4	Ammonium Chloride	gm	527		8	519	
5	Ferric Chloride	gm	352		4	348	
6	Di-Sodium Hydrogen Orthophosphate	gm	332		4	328	
7	Potassium Dihydrogen Orthophosphate	gm	380		4	376	
8	DI -Potassium hydrogen	gm	275		5	270	

**Development of 50 MLD sewage treatment plant and associated infrastructure on PPP basic at Ramana, Varanasi**

Sl. No.	Description	Unit	Storage availability till last month	Purchase during this month	Utilized during this month	Remaining available	Remark
	Orthophosphate						
9	Potassium Chloride	gm	450		10	440	
10	Manganous sulphate	gm	498		47	451	
11	Sodium hydroxide	gm	980		38	942	
12	Potassium dichromate	gm	225		5	220	
13	Silica gel	gm	390		2	388	
14	Starch	gm	280		4	276	
15	Ethanol	ml	700		56	644	
16	Sodium azid	gm	60		6	54	
17	Mercurous Sulphate	gm	204		7	197	
18	Ammonium ferrous sulphate	gm	480		19	461	
19	Sodium thiosulfate	gm	450		10	440	
20	Mac Conkey Borth	gm	450		28	422	
21	Sulfuric acid	ltr.	11.4		1	10	
22	Filter paper (MLLS+TSS)	pkt	2		1	1	
23	Silver sulphate	gm	35		2	33	
24	Magnesium sulphate	gm	800		76	724	
25	Feroin indicator	ml	100		5	95	
26	Ammonia	vial	120		12	108	
27	Phosphate	vial	120		12	108	
28	Potassium iodide	gm	269		7	262	

**6.0. PROJECT ENGINEER ACTIVITIES**

Activities carried out as per TOR				
Clause as per TOR	Scope	Period: February 2018 to November 2022		
		Undertaken till previous month - October 2022	Undertaken during this month November 2022	Expected for next month December 2022
4.1 (i)	Review, analysis, and qualifying assessment of field investigations carried out and reported by the Concessionaire in respect of topographical surveys, hydraulic & hydrologic data verification, sub-surface investigation including laboratory testing and reports of geologists wherever applicable, investigation of construction material including lab testing.	Yes	NA	NA
4.1 (ii)	Review, analysis and qualifying assessment of design memorandums, specifications and construction drawings prepared and submitted by the concessionaire.	Yes	NA	NA
4.1 (iii)	Conduct kicks off meetings			
4.1 (iv)	Review of the submissions of the Concessionaire such as <ul style="list-style-type: none"> <li>a. Work schedule</li> <li>b. Detailed survey report</li> <li>c. Basic engineering</li> <li>d. Detailed design and drawings for                             <ul style="list-style-type: none"> <li>i) Civil works                                     <ul style="list-style-type: none"> <li>1. Geo-tech reports</li> <li>2. Lab testing reports</li> <li>3. Third Party Inspection report</li> </ul> </li> </ul> </li> </ul>	Yes	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	ii) Mechanical & Electrical Works iii) Automation & Instrumentation works iv) Any other allied works e. QA/QC plans f. Safety plan			
4.1 (v)	Review of the drawings and documents	Yes	NA	NA
4.1 (vi)	Identification of milestones & verifications		NA	NA
4.1 (vii)	To Assist NMCG for getting statutory permissions		NA	NA
4.1 (ix)	Review, inspection, supervision, and monitoring of construction works conducting tests on completion of construction and issuing completion / provisional certificate	Yes	NA	NA
4.1 (x)	Review, inspection, and monitoring of O&M	NA	Yes	NA
4.1 (xi)	Determining, as required under the Concession Agreement, the costs of any works or services and/or their reasonableness	NA	NA	NA
4.1 (xii)	Determining, as required under the Concession Agreement, the period, or any extension thereof, for performing any duty or obligation	NA	NA	NA
4.1 (xiii)	Determining the events of default and guidance on consequent termination notices and payment as detailed in clauses 16.1 to 16.5 of the Concession Agreement	NA	NA	NA
4.1 (xiv)	Determine deficiencies in the commissioning & trial runs;	NA	Yes	

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	prepare the final acceptance document for acceptance of commissioning & trial runs. Prepare & Issue Commercial Operation certificate through Uttar Pradesh Jal Nigam			
4.1 (xv)	Any other matter which is not specified in ((vi), (vii), or (viii) above and which creates an obligation or liability on the Employer / NMCG beyond the provisions of the Concession Agreement	NA	NA	NA
4.1 (xvi)	The Project Engineer shall submit regular periodic reports, as specified in the Concession Agreement to Uttar Pradesh Jal Nigam & NMCG, in respect of its duties & functions under the Concession Agreement	Monthly progress report	Monthly progress report	NA
4.1 (xvii)	The Project Engineer shall aid and advise the Employer on any proposal for variation under Article 20 of the Concession Agreement	NA	NA	NA
4.1 xviii)	Assisting the Parties in resolution of Disputes	NA	NA	NA
4.1 (xix)	Assisting the employer in the fulfilment of Hand back requirements as detailed in clause 19.3 of the Concession Agreement		NA	NA
4.1 (xx)	Undertaking all other duties and functions in accordance with this agreement	As mentioned above	As mentioned above	NA
4.2	The Project Engineer shall discharge its duties in an efficient manner, consistent with the highest standards of	Yes	Yes	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	professionalism & Good Industry Practice			
4.3(i)	The Project Engineer must function in a manner to assist & equip the employer to ascertain that the Concessionaire shall operate and maintain the Facilities and the Associated Infrastructure in a manner that: Is in compliance with the Technical Specifications, Applicable Laws, Applicable Permits and Good Industry Practice. Results in the Facilities and the Associated Infrastructure achieving the KPIs as detailed in schedule 10 of the Concession Agreement & certify within 7 days the KPI adherence Report as per clause 8.12 of the Concession Agreement:	Yes	Yes	NA
4.3(ii)	Ensures that the Varanasi STP are capable of treating Sewage up to the Design Capacity on a daily basis;	Yes	Yes	NA
4.3(iii)	Ensures efficient treatment of Sewage & handling and disposal of STP By- Products and the Treated Effluent	NA	NA	NA
4.3(iv)	STPs are safe and reliable, subject to normal wear and tear of the Facilities and the Associated Infrastructure;	NA	NA	NA
4.3(v)	Is following the technology license agreement executed by the Concessionaire for the technology, processes, know-how and systems used or incorporated into the Facilities and/or the Associated Infrastructure	Yes	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
4.3(vi)	Maintains the safety and security of personnel, material, and property at the Site, in accordance with the approved EHS Plan, Applicable Laws and Applicable Permits.	Yes	NA	NA
4.3(vii)	Ensures that all waste materials and hazardous substances are stored and/or disposed in accordance with the EHS Plan, Applicable Laws, and Applicable Permits.	Yes	NA	NA
4.4	Overall, The Project Engineer shall assist the Uttar Pradesh Jal Nigam in supervising the construction, rehabilitation, operation & maintenance of the Facilities and the Associated Infrastructure and shall work closely with the Uttar Pradesh Jal Nigam and NMCG to monitor compliance with the KPIs.	Yes	Yes	NA
5.1	During the Development Period, the Project Engineer shall undertake a detailed review of the basic engineering Designs, furnished by the Concessionaire along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and Sewage Flow Analysis. The Project Engineer shall complete such review and send its comments / observations to the NMCG / Name of the Employer (i.e., State Institution) and the Concessionaire within 10 (ten) days of receipt of such Drawings. Such comments shall specify the conformity or otherwise of such	Yes	Yes	NA

Activities carried out as per TOR				
Clause as per TOR	Scope	Period: February 2018 to November 2022		
		Undertaken till previous month - October 2022	Undertaken during this month November 2022	Expected for next month December 2022
	Drawings with the Scope of the Project and Specifications and Standards			
5.2	The Project Engineer shall review and assist the (Name of the Employer) in approval of the submissions by the concessionaire relating to the “ <b>design and Construction Plan</b> ” to confirm to the scope as per <b>Schedule 1</b> of the Concession Agreement.	Yes	Yes	NA
5.3	The basic engineering drawings in the above case shall mean the designs and documents to be submitted by the Concessionaire & approved by the Uttar Pradesh Jal Nigam as a Condition Precedent & shall include but not limited to: <ul style="list-style-type: none"> <li>a) Conduct kicks off meeting, scrutiny of contractor’s submittals</li> <li>b) Process description, process calculations and hydraulic calculations.</li> <li>c) List of design codes and standards.</li> <li>d) Master drawing schedule.</li> <li>e) Drainage design.</li> <li>f) STP Facilities layout.</li> <li>g) Process flow diagram.</li> <li>h) Hydraulic flow diagram.</li> <li>i) Mass balance diagram.</li> </ul>	Yes	NA	NA



<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	j) Process and instrumentation diagram. k) Single line diagram. l) Electrical load list; and m) General arrangement diagrams of all units of facilities and associated infrastructure			
5.4	The project engineer shall review any modified Drawings or supporting documents sent to it by the Concessionaire and furnish its comments within 10 (ten) days of receiving such drawings or documents.	Yes	NA	NA
5.5	The project engineer shall review the detailed design, construction methodology, quality assurance procedures and the procurement, engineering and construction time schedule sent to it by the Concessionaire and furnish its comments within 10 (ten) days of receipt thereof.	Yes	NA	NA
5.6	Upon reference by the NMCG/Uttar Pradesh Jal Nigam, the Project Engineer shall review and comment on the EPC Contract or any other contract for construction, operation, and maintenance of the Project, and furnish its comments within 10 (ten) days from receipt of such reference from the NMCG/Uttar Pradesh Jal Nigam.	NA	NA	NA
6.1	In respect of the designs drawing & documents received by the project engineer for its review and comments during the	Yes	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	construction period, the provisions of paragraph 4 shall also apply, mutatis mutandis			
6.2	The Project Engineer shall review, and assist the Uttar Pradesh Jal Nigam in reviewing the submissions by the concessionaire, the Construction plan as defined in clause 7.3 of the Concession Agreement including Phase 1 and Phase II drawings, as well as the 'As Built' drawings on completion and EHS plans as defined in clause 7.4 of the Concession Agreement	Yes	NA	NA
6.3	The Project Engineer shall assist the Uttar Pradesh Jal Nigam submit their comments on effectiveness or otherwise of the Work plan submitted for meeting the specified payment milestones and completion of the work on or before the scheduled construction completion date	Yes	NA	NA
6.4	The Project Engineer shall review the submissions by the Concessionaire as per Schedule 1 of the Concession Agreement, and assist Uttar Pradesh Jal Nigam in assessing the effectiveness them	Yes	NA	NA
6.5	The Project Engineer shall review the monthly progress report furnished by the Concessionaire and send its comments thereon to the NMCG / Uttar Pradesh Jal Nigam and the Concessionaire within 7 (seven) days of receipt of	Yes	Yes	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	such report			
6.6	The Project Engineer shall inspect the Construction Works and the Project as & when necessary and submit a report of such inspection (the “Inspection Report”), preferably after receipt of the monthly progress report from the Concessionaire, but before the 20th (twentieth) day of each month in any case. The report shall contain, an overview of the status, progress, quality, and safety of construction, including the work methodology adopted, the materials used and their sources, and conformity of Construction Works with the Scope of the Project and the Specifications and Standards. In a separate section of the Inspection Report, the Project Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in the construction of the Project. The Project Engineer shall send a copy of its Inspection Report to the NMCG/UPJN & the Concessionaire within 3 (three) days of the inspection	Yes	NA	NA
6.7	However serious lapses, defects and/or deficiencies shall be reported to the Uttar Pradesh Jal Nigam/NMCG immediately without waiting for the monthly progress submissions as mentioned in the previous paragraph	Yes	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
6.8	For determining that the Construction Works conform to Specifications and Standards, the Project Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests on a sample basis, to be specified by the Project Engineer in accordance with approved norms/Good Industry Practice for quality assurance. The Project Engineer shall issue necessary directions to the Concessionaire for ensuring that the tests are conducted in a fair and efficient manner, and shall monitor and review the results thereof	Yes	NA	NA
6.9	The timing of tests referred to in Paragraph 6.8, and the criteria for acceptance/ rejection of their results shall be determined by the Project Engineer in accordance with the norms /rules and Good Industry Practice. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Concessionaire for its own quality assurance in accordance with Good Industry Practice	Yes	NA	NA
6.10	If the Concessionaire carries out any remedial works for removal or rectification of any defects or deficiencies, the Project Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests to determine that such remedial works have brought the Construction Works into	Yes	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	conformity with the Specifications and Standards, and the provisions of this Paragraph 5 shall apply to such tests			
6.11	If the Concessionaire fails to achieve any of the Project Milestones, the Project Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Project Engineer identifies that completion of the Project is not feasible within the time specified in the Concession Agreement, it shall require the Concessionaire to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which COD shall be achieved. Upon receipt of a report from the Concessionaire, the Project Engineer shall review the same and send its comments to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire forthwith.	Yes	NA	NA
6.12	If at any time during the construction period, the Project Engineer determines that the Concessionaire has not made adequate arrangements for the safety of workers and common public in the zone of construction or that any work is being carried out in a manner that threatens the safety of the workers and the common public, it shall make a recommendation to the NMCG/ Uttar Pradesh Jal Nigam forthwith, identifying the whole or part of the Construction	NA	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	Works that should be suspended for ensuring safety in respect thereof.			
6.13	In the event that the Concessionaire carries out any remedial measures to secure the safety of suspended works and common public, it may, by notice in writing, require the Project Engineer to inspect such works, and within 3 (three) days of receiving such notice, the Project Engineer shall inspect the suspended works and make a report to the NMCG/ Uttar Pradesh Jal Nigam forthwith, recommending whether or not such suspension may be revoked by the NMCG/ Uttar Pradesh Jal Nigam.	NA	NA	NA
6.14	If suspension of Construction Works is for reasons not attributable to the Concessionaire, the Project Engineer shall determine the extension of dates set forth in the project completion schedule, to which the Concessionaire is reasonably entitled, and shall notify the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire of the same	NA	NA	NA
6.15	Upon reference from the NMCG/ Uttar Pradesh Jal Nigam, the Project Engineer shall make a fair and reasonable assessment of the costs of providing information, works and services and certify the reasonableness of such costs for payment by the NMCG/ Uttar Pradesh Jal Nigam to the	NA	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	Concessionaire			
6.16	The Project Engineer shall aid and advise the Concessionaire in preparing the Operation & Maintenance Manual	NA	Yes	NA
6.17	Upon reference from the NMCG/ Uttar Pradesh Jal Nigam the Project Engineer shall undertake the assessment of cost of civil works, as per applicable schedule of rates, for the reduction of Scope of work if any as per Article 20.	NA	NA	NA
6.18	The Project Engineer shall review the construction progress as per payment milestones proposed by the concessionaire and provide necessary recommendation/s to Uttar Pradesh Jal Nigam for issuance of 'Milestone Construction Certificates'	Yes	Yes	NA
6.19	The Project Engineer shall support the employer in ensuring that the provisions specified in Clause 7, of the Concession Agreement including those for liquidated damages and Bonus, are being complied with.	Yes	Yes	NA
6.20	On completion of construction and at behest of Employer, the Project Engineer may review the work done as per 'as built' drawings and identify defects and suggest changes as per clause 7.13(v) of the Concession Agreement	NA	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
6.21	Similarly, the Project Engineer may inspect the trial process and may point out the defects and cause changes or retrieval of the process as per clause 7.14(d) of the Concession Agreement	NA	Yes	NA
7.1	In respect of the Designs, Drawings, and Documents received by the Project Engineer for its review and comments during the Operation Period, the provisions of Paragraph 4 shall apply, mutatis mutandis	NA	NA	NA
7.2	The Project Engineer shall review the O&M Manual (Clause 8.2) and the Scheduled Maintenance Programme submitted by the concessionaire and provide its recommendations on the same, including suggestions for change, if any. The O&M Manual shall cover: a) O&M Procedures. b) O&M Plan. c) Provision of Spare Parts. d) Sampling and Testing Methodologies. e) Storage and control of Inventory. f) Arrangements for data security and Integrity. g) Procedures for recording and disposal of complaints. h) Operational Contingencies Plans. i) Human Resources Plans.	NA	Yes	NA



<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	j) EHS Plans. k) Emergency procedures. l) Management of Assets Plans. And m) Annual Scheduled Maintenance programme.			
7.3	The Project Engineer shall review the annual Maintenance Program furnished by the Concessionaire and send its comments thereon to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire within 10 (ten) days of receipt of the Maintenance Program	NA	NA	NA
7.4	The Project Engineer shall review the reports generated from online monitoring systems to assess adherence to KPIs and submit the monthly KPI Adherence Report to Uttar Pradesh Jal Nigam	NA	Yes	NA
7.5	The Project Engineer shall verify the daily reports submitted by the concessionaire regarding the volume of sewage and its quality re influent standards and monitor and record the same on regular basis	NA	Yes	NA
7.6	The Project Engineer shall monitor, review, and advise the Uttar Pradesh Jal Nigam on the reports submitted by the concessionaire as per clause 8.8(b)(iii) (A) to (G) of the Concession Agreement	NA	Yes	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
7.7	The Project Engineer shall regularly verify the report submitted by the concessionaire on the tests conducted at the Inlet Point, the Outlet Point or at any other point at the Varanasi STP for the Digested Sludge. Separately, the Project Engineer shall also have the right to take random samples of the incoming Sewage, the Digested Sludge, and the Treated Effluent at any time during the O&M Period to test compliance with the Influent Standards & the Discharge Standards.	NA	Yes	NA
7.8	The Project Engineer shall review the monthly status report furnished by the Concessionaire (as required under clause 812(c)) of the Concession Agreement) and send its comments thereon to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire within 7 (seven) days of receipt of such report	NA	NA	NA
7.9	The Project Engineer shall inspect the Project once every month, preferably after receipt of the monthly status report from the Concessionaire, but before the 20th (twentieth) day of each month in any case and make out an O&M Inspection Report setting forth an overview of the status, quality and safety of O&M including its conformity with the Maintenance Requirements and Safety Requirements. In a separate	NA	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	section of the O&M Inspection Report, the Project Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in O&M of the Project. The Project Engineer shall send a copy of its O&M Inspection Report to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire within 7 (seven) days of the inspection			
7.10	The Project Engineer may inspect the project more than once in a month, if any lapses, defects, or deficiencies require such inspections.	NA	NA	NA
7.11	The Project Engineer shall in its O&M Inspection Report specify the tests, if any, that the Concessionaire shall carry out, or cause to be carried out, for the purpose of determining that the project is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests & the remedial measures, if any, taken by the Concessionaire in this behalf.	NA	NA	NA
7.12	The Project Engineer shall determine if any delay has occurred in completion of repair or remedial works in accordance with the Concession Agreement, and shall also determine the Damages, if any, payable by the Concessionaire to the NMCG/ Uttar Pradesh Jal Nigam for such delay.	NA	Yes	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
7.13	The Project Engineer shall monitor and review the curing of defects and deficiencies by the Concessionaire.	NA	NA	NA
7.14	If the Concessionaire notifies the Project Engineer of any modifications that it proposes to make to the project, the Project Engineer shall review the same and send its comments to the NMCG/ Uttar Pradesh Jal Nigam and the Concessionaire within 15 (fifteen) days of receiving the proposal.	NA	NA	NA
7.15	The Project Engineer shall undertake sewage flow sampling, as and when required by the NMCG/ Uttar Pradesh Jal Nigam, under and in accordance with the provisions of this agreement	NA	Yes	NA
7.16	The Project Engineer shall review and report to the employer on all the reports (Daily, Monthly, Quarterly and Annual), including monthly Environmental Monitoring Reports as detailed in Schedule 11(Part G) of the Concession Agreement.	NA	NA	NA
7.17	The Project Engineer shall provide necessary training/capacity building to the operators/ technicians of the STP, as and when required, to address the gap in skill sets of the manpower deployed by the Concessionaire	NA	Yes	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
9.1	The Project Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Concession Agreement	NA	NA	NA
9.2	The Project Engineer shall determine the period, or any extension thereof, that is required to be determined by it under the Concession Agreement	NA	NA	NA
10.1	When called upon by either Party in the event of any Dispute, the Project Engineer shall mediate and assist the Parties in arriving at an amicable settlement	NA	NA	NA
10.2	In the event of any disagreement between the Parties regarding the meaning, scope, and nature of Good Industry Practice, as set forth in any provision of the Concession Agreement, the Project Engineer shall specify such meaning, scope, and nature by issuing a reasoned written statement relying on good industry practice and authentic literature	NA	NA	NA
11.0	As and when requested by NMCG/ Uttar Pradesh Jal Nigam, the Project Engineer shall provide its opinion and assessment on the events related to Emergency, Change in Law, Force Majeure, Minor or total Casualties, Variation, and unforeseen Site conditions etc.	Yes	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
12.1	The Project Engineer shall notify its programme of inspection to the NMCG/ Uttar Pradesh Jal Nigam and to the Concessionaire, who may, in their discretion, depute their respective representatives to be present during the inspection.	Yes	NA	NA
12.2	A copy of all communications, comments, instructions, Drawings or Documents sent by the Project Engineer to the Concessionaire pursuant to this TOR, and a copy of all the test results with comments of the Project Engineer thereon shall be furnished to the NMCG/ Uttar Pradesh Jal Nigam forthwith.	Yes	NA	NA
12.3	The Project Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.	Yes	NA	NA
12.4	Upon completion of its assignment hereunder, the Project Engineer shall duly classify and list all Drawings, Documents, results of tests and other relevant records, and hand them over to the NMCG/ Uttar Pradesh Jal Nigam or such other person as the NMCG/ Uttar Pradesh Jal Nigam may specify and obtain written receipt thereof. Two copies of the said documents shall also be furnished in their editable digital format or in such other medium or manner as may be	Yes	NA	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	acceptable to the NMCG/Uttar Pradesh Jal Nigam			
12.5	Wherever no period has been specified for delivery of services by the Project Engineer, the Project Engineer shall act with the efficiency and urgency necessary for discharging its functions in accordance with Good Industry Practice.	Yes	Yes	NA
12.6	Project Engineers shall be expected to fully comply with all the provisions of the “Terms of Reference”, and shall be fully responsible for supervising the Design, Construction and maintenance and operation of the Facility in accordance with the provisions of the Concession Agreement and other schedules. Any failure of the Project Engineer in notifying to the Employer and the Concessionaire on non-compliance of the provisions of the Concession Agreement and other schedules by the Concessionaire, non-adherence to the provision of this ToR and non-adherence to the time schedule prescribed under this ToR shall amount to non-performance.	Yes	Yes	NA
12.7	The project Engineer shall develop & maintain a project website and with the approval of NMCG/UPJN post from time to time, information (textual and Audio- Visual) on project progress on a continuous basis. On completion of services as per this RFP document, the website with all	Yes	Yes	NA

<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	necessary technical information shall be handed over to UPJN.			
14.1	Uttar Pradesh Jal Nigam may review with the Project Engineer, any or all the documents and advice forming part of the Consultancy, in meetings and conferences which will be held at the office of the Uttar Pradesh Jal Nigam / NMCG. Uttar Pradesh Jal Nigam / NMCG may, in its discretion, require the Project Engineer to participate in extended meetings and/ or work from the offices of Uttar Pradesh Jal Nigam /NMCG and the Project Engineer shall, on a best endeavor basis and without unreasonable delay, provide such services at the offices of the Uttar Pradesh Jal Nigam/NMCG.	Yes	Yes	NA
15.1	The Project Engineer may prepare Issue Papers highlighting issues that could become critical for the timely completion of the Project and that require attention from Uttar Pradesh Jal Nigam/NMCG. The Project Engineer shall report to UPJN for routine activities and deliverables. All major and critical issues shall be reported to NMCG and UPJN simultaneously.	Yes	Yes	NA
15.2	The Project Engineer will make a presentation on the inception report for discussion with the Uttar Pradesh Jal Nigam / NMCG at a meeting. This will be a working	Yes	Yes	NA



<b>Activities carried out as per TOR</b>				
<b>Clause as per TOR</b>	<b>Scope</b>	<b>Period: February 2018 to November 2022</b>		
		<b>Undertaken till previous month - October 2022</b>	<b>Undertaken during this month November 2022</b>	<b>Expected for next month December 2022</b>
	document. Regular communication with Uttar Pradesh Jal Nigam / NMCG is required in addition to all key communications. This may take the form of telephone/teleconferencing, emails, and occasional meetings.			
15.3	The Deliverables will be submitted as per schedule provided in this RFP	Yes	Yes	NA

# PHOTOGRAPHS

Overall site



Admin Building



Air blower, HT, PMCC room & DG Shed area



CCT



Receiving Chamber, MPS



OHT



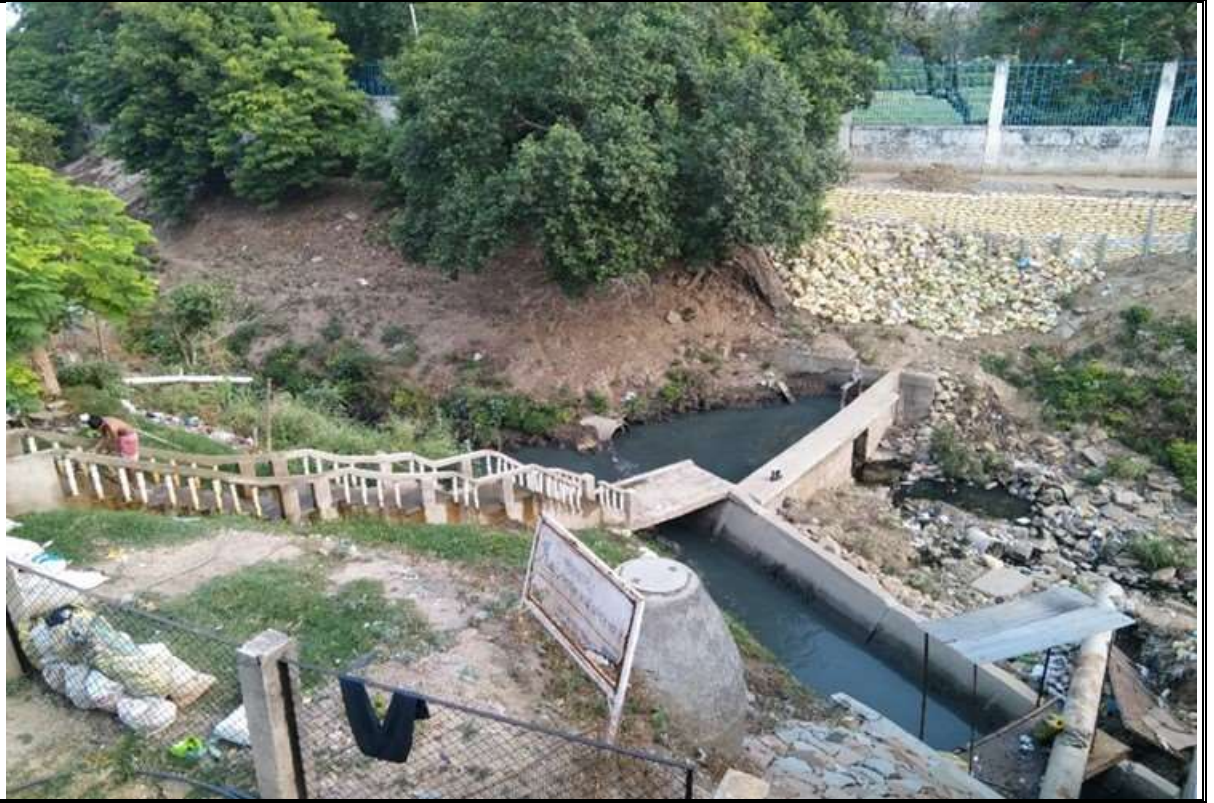
Staff Qtrs – Type 2



Staff Qtrs – Type 1



Interceptor of Assi Nala



# **FLOW MEASUREMENT & POWER CONSUMPTION DETAILS AT MPS**



**Annexure A - Flow measurement & power consumption details at MPS**

DATE	TOTALIZER FLOW				POWER CONSUMPTION				POWER FACTOR	REMARK
	INITIAL	FINAL	IN M3	IN ML	INITIAL (MWH)	FINAL (MWH)	TOTAL	IN KWH		
1-11-22	0	0.00	0.00	0.00	2172.62	2172.76	0.14	140	0.99	Plant was not running due to level of water increases of ASSi nala
2-11-22	0	0.00	0.00	0.00	2172.76	2172.89	0.13	130	0.99	
3-11-22	0	0.00	0.00	0.00	2172.89	2173.05	0.16	160	0.98	
4-11-22	0	0.00	0.00	0.00	2173.05	2175.08	2.03	2030	0.98	
5-11-22	22198982.20	22249697.56	50715.36	50.72	2175.08	2180.59	5.51	5510	0.99	
6-11-22	22249697.56	22301639.33	51941.77	51.94	2180.59	2186.54	5.95	5950	0.99	
7-11-22	22301639.33	22352506.69	50867.36	50.87	2186.54	2191.90	5.36	5360	0.98	
8-11-22	22352506.69	22404085.18	51578.49	51.58	2191.90	2197.62	5.72	5720	0.98	
9-11-22	22404085.18	22456304.90	52219.72	52.22	2197.62	2203.21	5.59	5590	0.99	
10-11-22	22456304.90	22506526.99	50222.09	50.22	2203.21	2208.54	5.33	5330	0.98	
11-11-22	22506526.99	22557490.37	50963.38	50.96	2208.54	2213.87	5.33	5330	0.98	
12-11-22	22557490.37	22609247.63	51757.26	51.76	2213.87	2219.59	5.72	5720	0.99	
13-11-22	22609247.63	22643237.11	33989.48	33.99	2219.59	2223.23	3.64	3640	0.98	All pumping is stopped due to Irrigation department erection work flapper gate at Nakkhi Nala
14-11-22	22643237.11	22643237.11	0.00	0.00	2223.23	2223.38	0.15	150	0.99	
15-11-22	0.00	0.00	0.00	0.00	2223.38	2223.53	0.15	150	0.98	
16-11-22	0.00	0.00	0.00	0.00	2223.53	2223.67	0.14	140	0.98	
17-11-22	0.00	0.00	0.00	0.00	2223.67	2223.82	0.15	150	0.98	
18-11-22	0.00	0.00	0.00	0.00	2223.82	2223.97	0.15	150	0.97	
19-11-22	0.00	0.00	0.00	0.00	2223.97	2224.12	0.15	150	0.99	

DATE	TOTALIZER FLOW				POWER CONSUMPTION				POWER FACTOR	REMARK	
	INITIAL	FINAL	IN M3	IN ML	INITIAL (MWH)	FINAL (MWH)	TOTAL	IN KWH			
20-11-22	0.00	0.00	0.00	0.00	2224.12	2224.28	0.16	160	0.99	UPJN Letter Ref no: Camp / Bhagwanpur / 01, Dated:29-11- 2022	
21-11-22	0.00	0.00	0.00	0.00	2224.28	2224.42	0.14	140	0.98		
22-11-22	0.00	0.00	0.00	0.00	2224.42	2224.57	0.15	150	0.98		
23-11-22	0.00	0.00	0.00	0.00	2224.57	2224.71	0.14	140	0.98		
24-11-22	0.00	0.00	0.00	0.00	2224.71	2224.85	0.14	140	0.97		
25-11-22	0.00	0.00	0.00	0.00	2224.85	2225.00	0.15	150	0.98		
26-11-22	0.00	0.00	0.00	0.00	2225.00	2225.14	0.14	140	0.99		
27-11-22	0.00	0.00	0.00	0.00	2225.14	2225.29	0.15	150	0.98		
28-11-22	0.00	0.00	0.00	0.00	2225.29	2225.43	0.14	140	0.98		
29-11-22	0.00	0.00	0.00	0.00	2225.43	2225.57	0.14	140			
30-11-22	0.00	0.00	0.00	0.00	2225.57	2225.71	0.14	140			
<b>Total</b>			<b>444254.91</b>	<b>444.25</b>			<b>53.09</b>	<b>53090</b>	<b>27.52</b>		

**Note: - Plant has been shut down due to flood near MPS& Irrigation department work on the rising main area**

## **ANNEXURE - B**

# **FLOW MEASUREMENT & POWER CONSUMPTION DETAILS AT STP**

**Annexure B - Flow measurement & power consumption details at STP**

Dated	TOTALIZER FLOW				POWER CONSUMPTION				POWER FACTOR	REMARK
	INITIAL	FINAL	IN M3	IN ML	INITIAL (MWH)	FINAL (MWH)	TOTAL	IN KWH		
1-11-22	0	0	0.00	0.00	3054.78	3056.66	1.88	1880	0.99	Plant was not running due to level of water increases of Assi nala
2-11-22	0	0	0.00	0.00	3056.66	3058.63	1.97	1970	0.99	
3-11-22	0	0	0.00	0.00	3058.63	3060.49	1.86	1860	0.98	
4-11-22	0	0	0.00	0.00	3060.49	3062.51	2.02	2020	0.98	
5-11-22	17327	69433	52106.00	52.11	3062.51	3066.69	4.18	4180	0.99	
6-11-22	69433	122309	52876.00	52.88	3066.69	3071.83	5.14	5140	0.99	
7-11-22	122309	173396	51087.00	51.09	3071.83	3077.45	5.62	5620	0.98	
8-11-22	173396	225743	52347.00	52.35	3077.45	3083.35	5.90	5900	0.98	
9-11-22	225743	278951	53208.35	53.21	3083.35	3089.10	5.75	5750	0.97	
10-11-22	278951	330232	51280.65	51.28	3089.10	3094.34	5.24	5240	0.98	
11-11-22	330232	381497	51265.00	51.27	3094.34	3099.84	5.50	5500	0.98	
12-11-22	381497	434584	53087.00	53.09	3099.84	3105.67	5.83	5830	0.99	
13-11-22	434584	473337	38753.00	38.75	3105.67	3111.12	5.45	5450	0.98	
14-11-22	473337	473337	0.00	0.00	3111.12	3114.54	3.42	3420	0.99	
15-11-22	0	0	0.00	0.00	3114.54	3117.94	3.40	3400	0.98	
16-11-22	0	0	0.00	0.00	3117.94	3120.88	2.94	2940	0.98	
17-11-22	0	0	0.00	0.00	3120.88	3124.25	3.37	3370	0.98	
18-11-22	0	0	0.00	0.00	3124.25	3127.69	3.44	3440	0.98	
19-11-22	0	0	0.00	0.00	3127.69	3131.11	3.42	3420	0.99	
20-11-22	0	0	0.00	0.00	3131.11	3134.51	3.40	3400	0.98	
21-11-22	0	0	0.00	0.00	3134.51	3137.95	3.44	3440	0.98	
22-11-22	0	0	0.00	0.00	3137.95	3141.36	3.41	3410	0.97	
23-11-22	0	0	0.00	0.00	3141.36	3144.81	3.45	3450	0.98	
24-11-22	0	0	0.00	0.00	3144.81	3148.23	3.42	3420	0.98	

All pumping is stopped due to Irrigation department erection work flapper gate at Nakkhi Nala

UPJN Letter Ref no: Camp/Bhagwanpur/01, dated: 29-11- 2022

Dated	TOTALIZER FLOW				POWER CONSUMPTION				POWER FACTOR	REMARK
	INITIAL	FINAL	IN M3	IN ML	INITIAL (MWH)	FINAL (MWH)	TOTAL	IN KWH		
25-11-22	0	0	0.00	0.00	3148.23	3151.69	3.46	3460	0.98	
26-11-22	0	0	0.00	0.00	3151.69	3155.04	3.35	3350	0.99	
27-11-22	0	0	0.00	0.00	3155.04	3158.37	3.33	3330	0.98	
28-11-22	0	0	0.00	0.00	3158.37	3161.67	3.30	3300	0.97	
29-11-22	0	0	0.00	0.00	3161.67	3165.00	3.33	3330	0.98	
30-11-22	0	0	0.00	0.00	3165.00	3168.30	3.30	3300		
<b>Total</b>			<b>456010.00</b>	<b>456.01</b>			<b>113.52</b>	<b>113520</b>		

**Note: - Plant has been shut down due to flood near MPS& Irrigation department work on the rising main area**

# **ANNEXURE - C MAINTENANCE WORK AT MPS & STP**

**Annexure C - Unscheduled maintenance work at MPS & STP**

<b>Sl. No.</b>	<b>Location</b>	<b>Date</b>	<b>Remark</b>
	<b>MPS</b>		
1	There was no maintenance for this month.		
	<b>STP</b>		
1	There was no maintenance for this month.		

# **ANNEXURE - D INFLUENT & TREATED EFFLUENT STANDARD TEST REPORT**



**Annexure D - Influent & Treated effluent standard test report**

Date	Location of STP with design discharge in MLD	Sewage received in STP on sampling date in MLD	Influent						Effluent									Reasons/Remark for less quantity of sewage received in STP
			pH	TSS in mg/L	COD in mg/L	BOD in mg/L	TKN in mg/L	TP in mg/L	pH	TSS in mg/L	COD in mg/L	BOD in mg/L	NH4N in mg/L	TN in mg/L	TP in mg/L	Residual Chlorine PPM	Fecal Coliform Effluent <100MPN/100 ml)	
1	2	3	4a	4b	4c	4d	4E	4F	5a	5b	5c	5d	5E	5F	5G	5e	5I	7
1- Nov -22	50.00																	Plant was not running due to level of water increases of Assi nala
2- Nov -22	50.00																	
3- Nov -22	50.00																	
4- Nov -22	50.00																	
5- Nov -22	50.00																	
6- Nov -22	50.00																	
7- Nov -22	50.00	50.86	7.38	340	184	120	20.6	5.8	7.70	12	56	30	7.0	11.2	3.2	7.0		
8- Nov -22	50.00	51.58	7.21	263	248	125	18.6	5.4	7.59	12	40	24	3.4	10.4	3.4	3.4		
9- Nov -22	50.00	52.22	7.14	316	280	110	17.4	4.9	7.54	9	32	19	3.9	5.8	1.4	3.9		
10- Nov -22	50.00	50.22	7.21	223	240	120	18.9	5.8	7.64	9	36	22	4.1	5.7	1.4	4.1		
11- Nov -22	50.00	50.96	7.19	296	320	125	17.8	5.8	7.67	10	40	24	1.5	4.3	1.5	1.5	90	
12- Nov -22	50.00	51.76	7.50	300	332	130	19.5	5.7	7.49	9	44	15	3.9	5.5	1.4	3.9	80	
13- Nov -22	50.00	33.99	7.15	290	288	125	18.5	5.4	7.56	9	32	24	4.5	5.2	1.3	4.5		
14- Nov -22	50.00																	

**Development of 50 MLD sewage treatment plant and associated infrastructure on PPP basic at Ramana, Varanasi**

Date	Location of STP with design discharge in MLD	Sewage received in STP on sampling date in MLD	Influent						Effluent									Reasons/Remark for less quantity of sewage received in STP
			pH	TSS in mg/L	COD in mg/L	BOD in mg/L	TKN in mg/L	TP in mg/L	pH	TSS in mg/L	COD in mg/L	BOD in mg/L	NH4N in mg/L	TN in mg/L	TP in mg/L	Residual Chlorine <sub>PDM</sub>	Fecal Coliform Effluent <100MPN/100 ml)	
1	2	3	4a	4b	4c	4d	4E	4F	5a	5b	5c	5d	5E	5F	5G	5e	5I	7
15- Nov -22	50.00																	
16- Nov -22	50.00																	
17- Nov -22	50.00																	
18- Nov -22	50.00																	
19- Nov -22	50.00																	
20- Nov -22	50.00																	<p>All pumping is stopped due to Irrigation department erection work flapper gate at Nakkhi Nala</p> <p>UPJN Letter Ref no: Camp / Bhagwanpur /01, Dated: 29-11-2022</p>

**Development of 50 MLD sewage treatment plant and associated infrastructure on PPP basic at Ramana, Varanasi**

Date	Location of STP with design discharge in MLD	Sewage received in STP on sampling date in MLD	Influent						Effluent									Reasons/Remark for less quantity of sewage received in STP
			pH	TSS in mg/L	COD in mg/L	BOD in mg/L	TKN in mg/L	TP in mg/L	pH	TSS in mg/L	COD in mg/L	BOD in mg/L	NH4N in mg/L	TN in mg/L	TP in mg/L	Residual Chlorine PPM	Fecal Coliform Effluent <100MPN/100 ml)	
1	2	3	4a	4b	4c	4d	4E	4F	5a	5b	5c	5d	5E	5F	5G	5e	5I	7
21- Nov -22	50.00																	
22- Nov -22	50.00																	
23- Nov -22	50.00																	
24- Nov -22	50.00																	
25- Nov -22	50.00																	
26- Nov -22	50.00																	
27- Nov -22	50.00																	
28- Nov -22	50.00																	
29- Nov -22	50.00																	
30- Nov -22	50.00																	

**Note: - Plant has been shut down due to flood near MPS& Irrigation department work on the rising main area**

# **ANNEXURE - E**

## **THE SLUDGE GENERATED ALONG WITH OUTLET CONCENTRATION AND FECAL COLIFORM**

**Annexure E - The sludge generated along with outlet concentration and Fecal coliform**

Date	Sludge Trolley	Sludge in m3 (1 trolley=2.7m3)	Sludge Concentration (%)	Fecal Coliform	Remark
1- Nov -22	0	0	0	0	
2- Nov -22	0	0	0	0	
3- Nov -22	0	0	0	0	
4- Nov -22	0	0	0	0	
5- Nov -22	0	0	0	0	
6- Nov -22	0	0	0	0	
7- Nov -22	0	0	0	0	
8- Nov -22	0	0	0	0	
9- Nov -22	0	0	0	0	
10- Nov -22	0	0	0	0	
11- Nov -22	0	0	0	0	
12- Nov -22	0	0	0	0	
13- Nov -22	0	0	0	0	
14- Nov -22	0	0	0	0	
15- Nov -22	0	0	0	0	
16- Nov -22	0	0	0	0	
17- Nov -22	0	0	0	0	
18- Nov -22	0	0	0	0	
19- Nov -22	0	0	0	0	
20- Nov -22	0	0	0	0	
21- Nov -22	0	0	0	0	
22- Nov -22	0	0	0	0	
23- Nov -22	0	0	0	0	
24- Nov -22	0	0	0	0	
25- Nov -22	0	0	0	0	
26- Nov -22	0	0	0	0	
27- Nov -22	0	0	0	0	
28- Nov -22	0	0	0	0	
29- Nov -22	0	0	0	0	
30- Nov -22	0	0	0	0	
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

**Note:** Plant has been shut down due to flood near MPS& Irrigation department work on the rising main area