

PROJECT INFORMATION MEMORANDUM

for

**DEVELOPMENT OF A SEWAGE TREATMENT PLANT AND ASSOCIATED
INFRASTRUCTURE
ON PPP BASIS
AT
VARANASI, UTTAR PRADESH**

MARCH 2017

1 Project Background

To facilitate the abatement of pollution of Ganga, the Uttar Pradesh Jal Nigam (UPJN), along with the National Mission for Clean Ganga (NMCG), has proposed the development of an STP of 50 MLD capacity at Ramana, Varanasi to treat the sewage received from the Interception and Diversion (I&D) network of Lanka-Nagwa and Assi Nalla.

The following sections provide existing technical information regarding the proposed Project.

2 Location

Varanasi is located in the middle Ganges valley of North India, in the eastern part of the state of Uttar Pradesh, along the left bank of the Ganges, averaging between 15 m and 21 m above the river.

3 Existing Sewerage System

The Sewage generated from the city currently falls into Ganga, either directly or indirectly through other water bodies like the Assi River. The city is only partially covered with sewerage network with approximately 30% coverage. Varanasi is divided into four sewerage districts – Districts I, II, III & IV. District I, II & III are partially sewered, whereas District IV is outside municipal limits and currently un-sewered. The city has 3 existing STPs at Bhagwanpur (9.8 MLD), DLW (12 MLD) and Dinapur (80 MLD).

The proposed Varanasi STP would be located in District III, the Assi-BHU South sewerage district. District III covers the southern part of the city area falling under the Assi-Nala catchment and the BHU campus. Assi-nala is partly intercepted but part of Sewage overflows to the river Ganga through Nagawa drain.



The BHU campus is fully sewered and pumping its Sewage to the existing STP at Bhagwanpur. Past studies undertaken by the UP Jal Nigam recommend that the Bhagwanpur STP, which was commissioned in 1988, should continue to treat the BHU Sewage until it is no longer economically viable to do so. At present approximately 10 MLD Sewage is coming to Bhagwanpur STP from BHU. It is proposed that the Sewage from BHU will be conveyed to the proposed 50 MLD Varanasi STP after decommissioning of the Bhagwanpur STP, once its useful life is over.

4 Technical information about Varanasi STP Site

The High Flood Level (HFL) of the STP Site for the proposed Varanasi STP is at +74m approximately.

5 Power Supply



The nearest source of power supply is 33 KV overhead transmission line of UPPCL sub-station DLW for the proposed STP Site.

6 Other Data

The other relevant data is provided as listed in the Table below. Please note that the designs and drawings in Annexure 1 and 2 are indicative only and the Bidders are required to undertake their own due diligence and prepare their own designs and drawings for the purpose of the Bid and the Project.

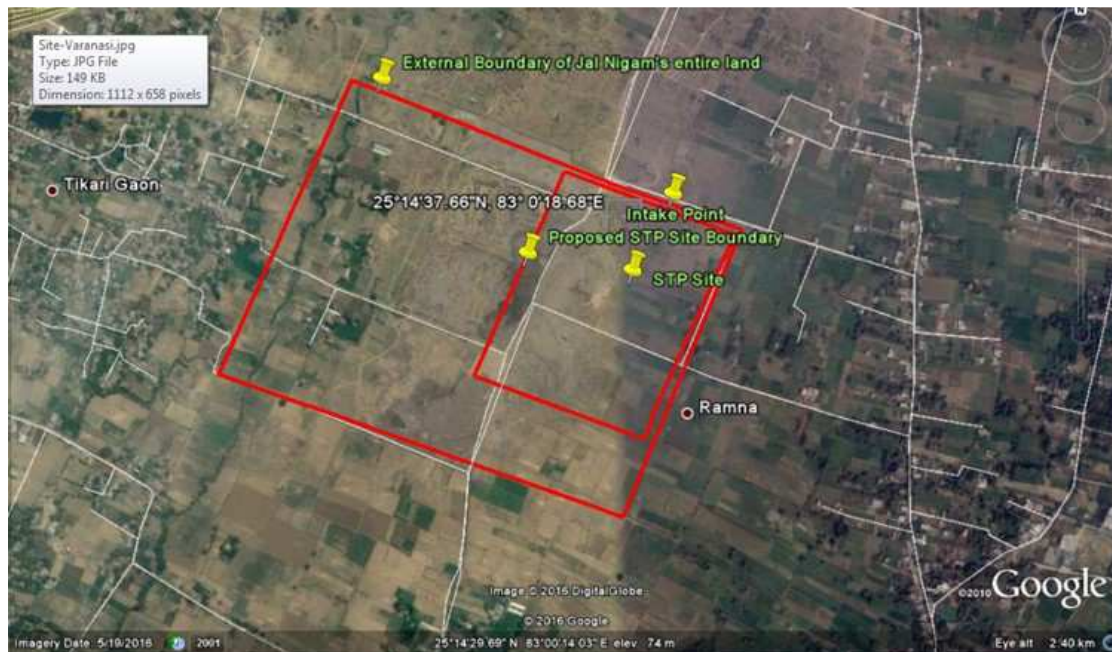
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3	Site layout & Effluent Disposal Pipeline layout	Annexure2 - Figure 2
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Annexure 1: Geotechnical report of the STP Site

	Regd No. UP74900UP2D10PTC039571 CPWD Regd No. 302/2012 (Regd) / 2012 / 1048	BSNL Regd No. 30 (II) 2000/Admn/CZ/L/1156] 4 JAL NIGAM Regd No. 379/ gen / 2007-12																																			
<h2 style="margin: 0;">GEOTECH TECHNICAL ASSOCIATES PVT. LTD.</h2> <p style="margin: 0;">[Geotechnical & Structural Testing Consultant]</p> <p style="margin: 0; font-size: x-small;"> Regd. Office : No. 7, Mahamanapuri, I.T.I. Road, BHU, Varanasi-221005 Laboratory : 15, Mahamanapuri, I.T.I. Road, BHU, Varanasi-221005 Phone : 0542-2570086, Cell : 9415268161, 9415821032 E-mail : testinglabvaranasi@gmail.com </p>																																					
<h3 style="margin: 0;">CHAPTER -VIII</h3>																																					
<h4 style="margin: 0;">8. CONCLUSION AND RECOMMENDATIONS</h4> <p style="margin: 0;">Based on soil investigation work carried out by M/s Geotech Technical Associates (P) ltd. Varanasi for the construction of 50 MLD STP at Ramana in district. Varanasi.</p> <ol style="list-style-type: none"> 1. The details of soil strata with SPT N values are shown in laboratory test result. 2. Water level was not met below the ground level in the month of June 2015. 3. The Safe bearing capacity of soil for Isolated footing are as under 																																					
<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;">Bore hole no.</th> <th style="width: 20%;">Type of footing</th> <th style="width: 20%;">Width of footing (m)</th> <th style="width: 15%;">Depth (m)</th> <th style="width: 30%;">Safe bearing capacity (t/m²)</th> </tr> </thead> <tbody> <tr><td>1</td><td>Isolated</td><td>2.5*2.5</td><td>1.5</td><td>10</td></tr> <tr><td>2</td><td>Isolated</td><td>2.5*2.5</td><td>1.5</td><td>11</td></tr> <tr><td>3</td><td>Isolated</td><td>2.5*2.5</td><td>1.5</td><td>9</td></tr> <tr><td>4</td><td>Isolated</td><td>2.5*2.5</td><td>1.5</td><td>10</td></tr> <tr><td>5</td><td>Isolated</td><td>2.5*2.5</td><td>1.5</td><td>9</td></tr> <tr><td>6</td><td>Isolated</td><td>2.5*2.5</td><td>1.5</td><td>10</td></tr> </tbody> </table>			Bore hole no.	Type of footing	Width of footing (m)	Depth (m)	Safe bearing capacity (t/m ²)	1	Isolated	2.5*2.5	1.5	10	2	Isolated	2.5*2.5	1.5	11	3	Isolated	2.5*2.5	1.5	9	4	Isolated	2.5*2.5	1.5	10	5	Isolated	2.5*2.5	1.5	9	6	Isolated	2.5*2.5	1.5	10
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<div style="text-align: right;">  Er. S. M. Saquib M. Tech. (Soil & Foundation Engg.) IIT/D Director Geotech Technical Associates Pvt. Ltd. </div>																																					

Annexure 2

Figure 1: Site location & general topography



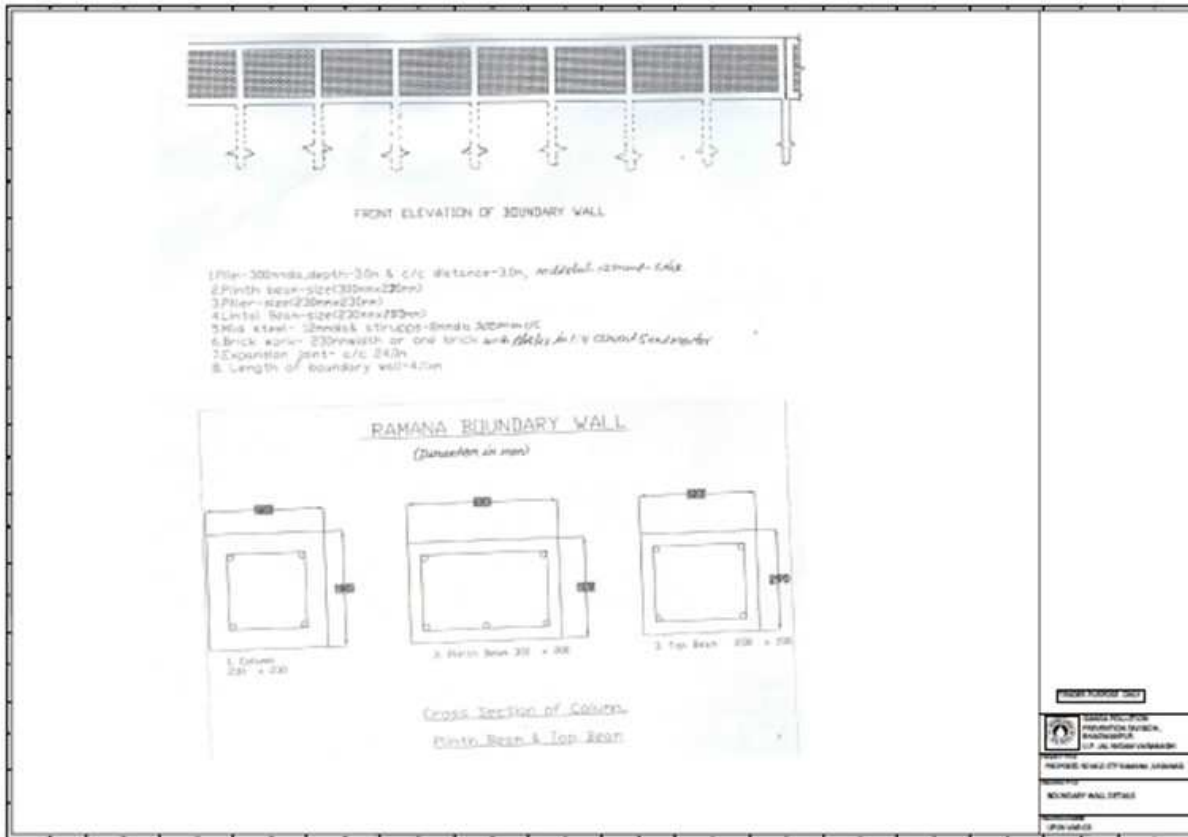
Annexure 2

Figure 2: Site layout & Effluent Disposal Pipeline layout



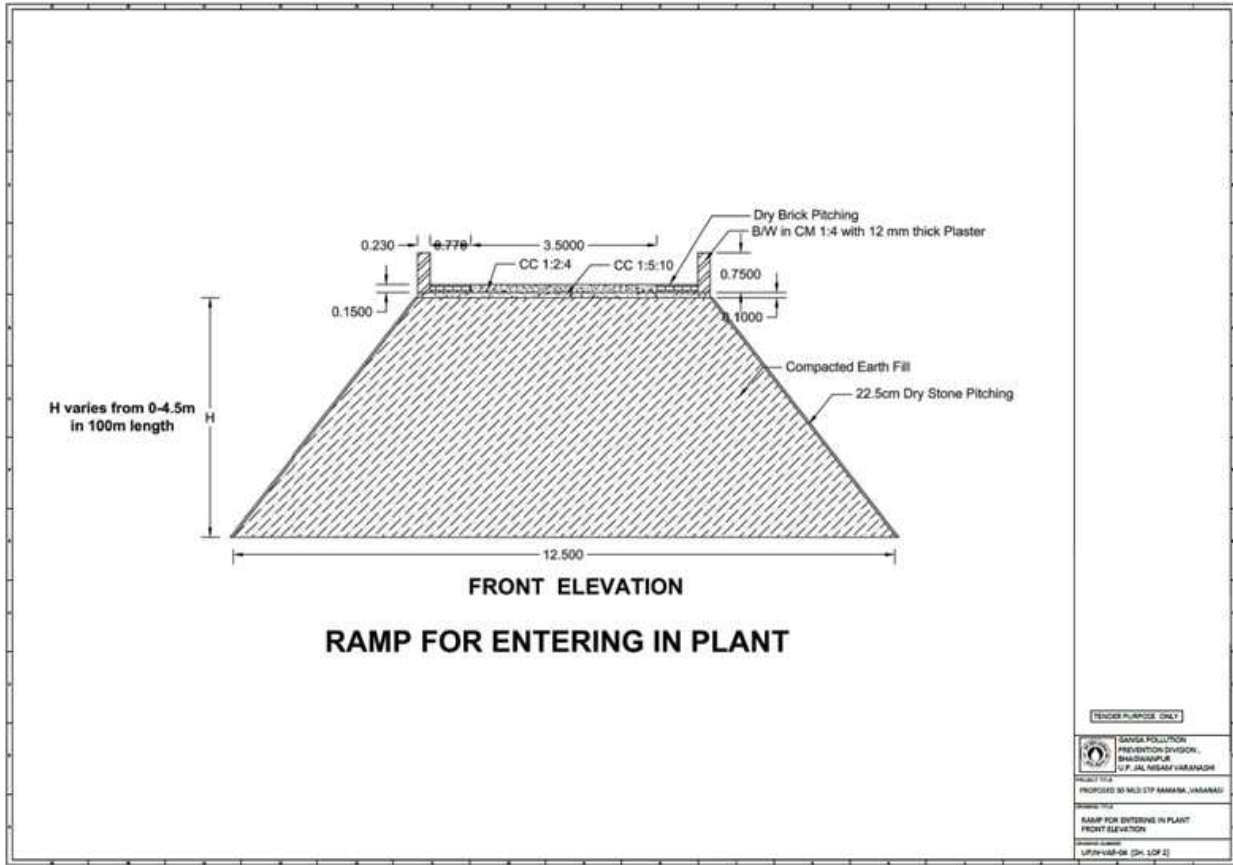
Annexure 2

Figure 3: Boundary wall design drawing

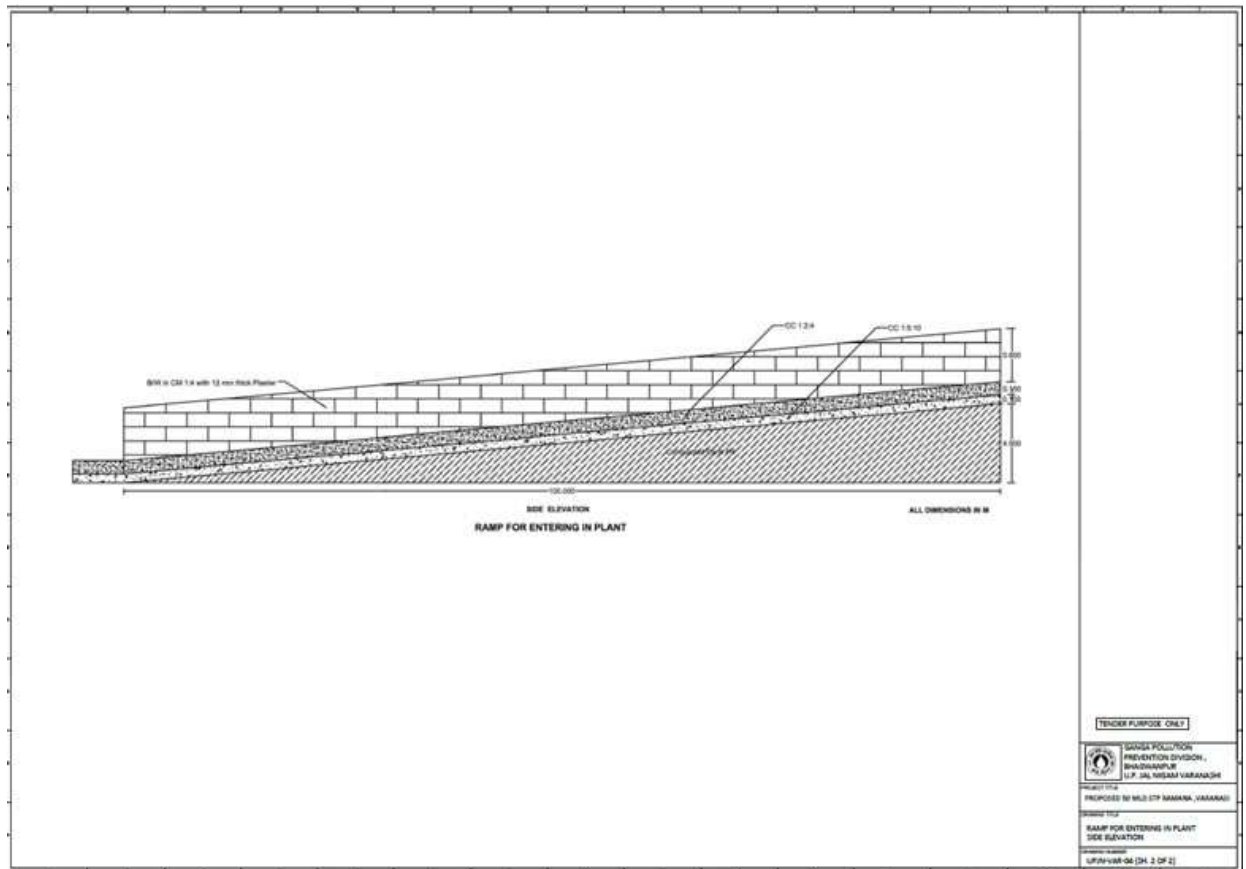


Annexure 2

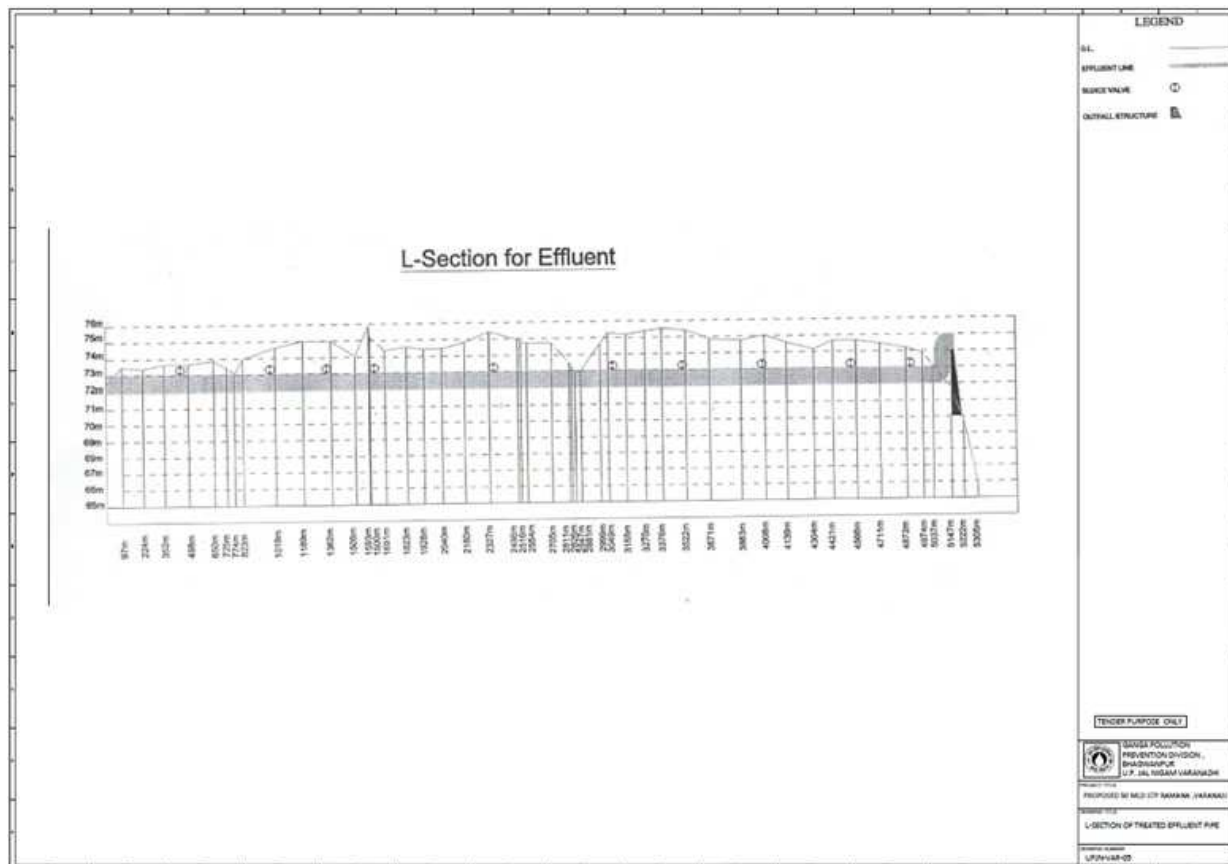
Figure 4: Ramp front view at entrance of the STP



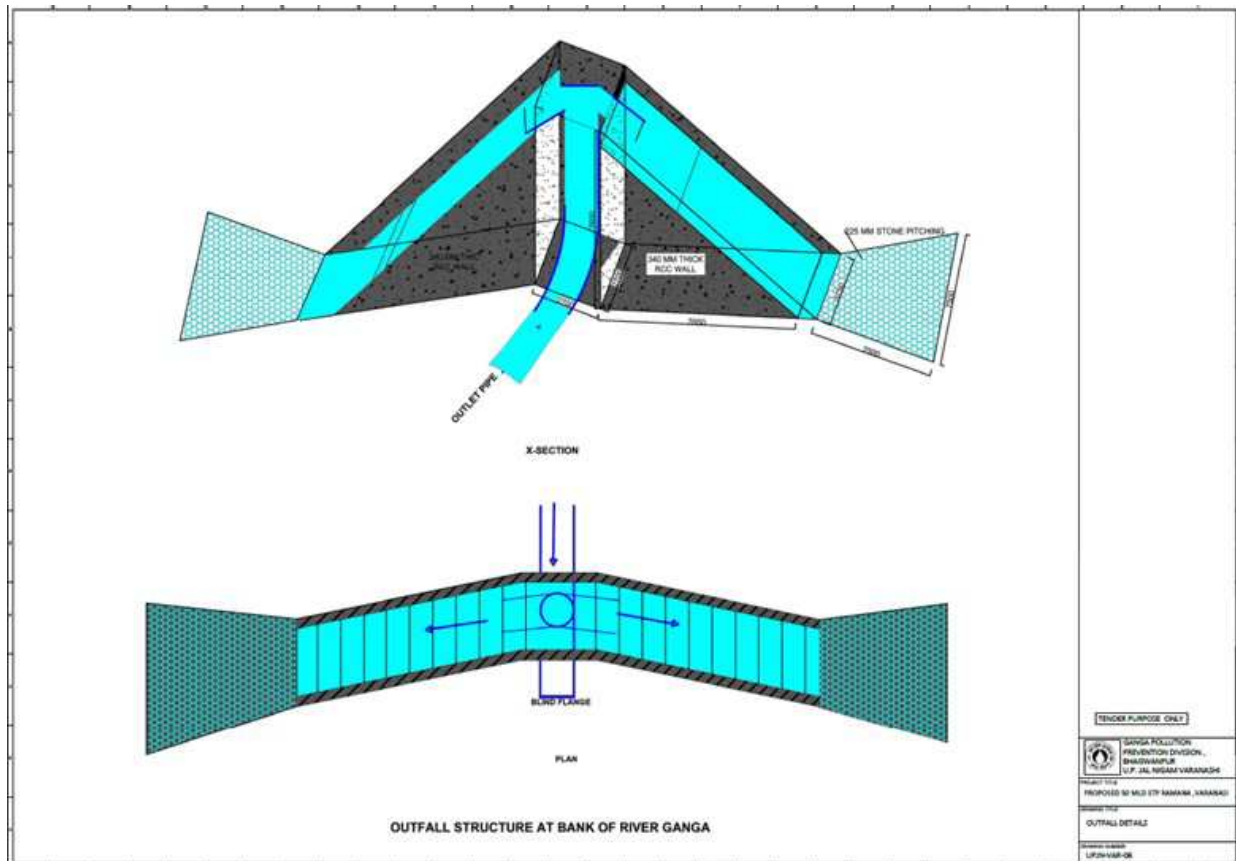
Annexure 2
Figure 5: Ramp side view at entrance of the STP



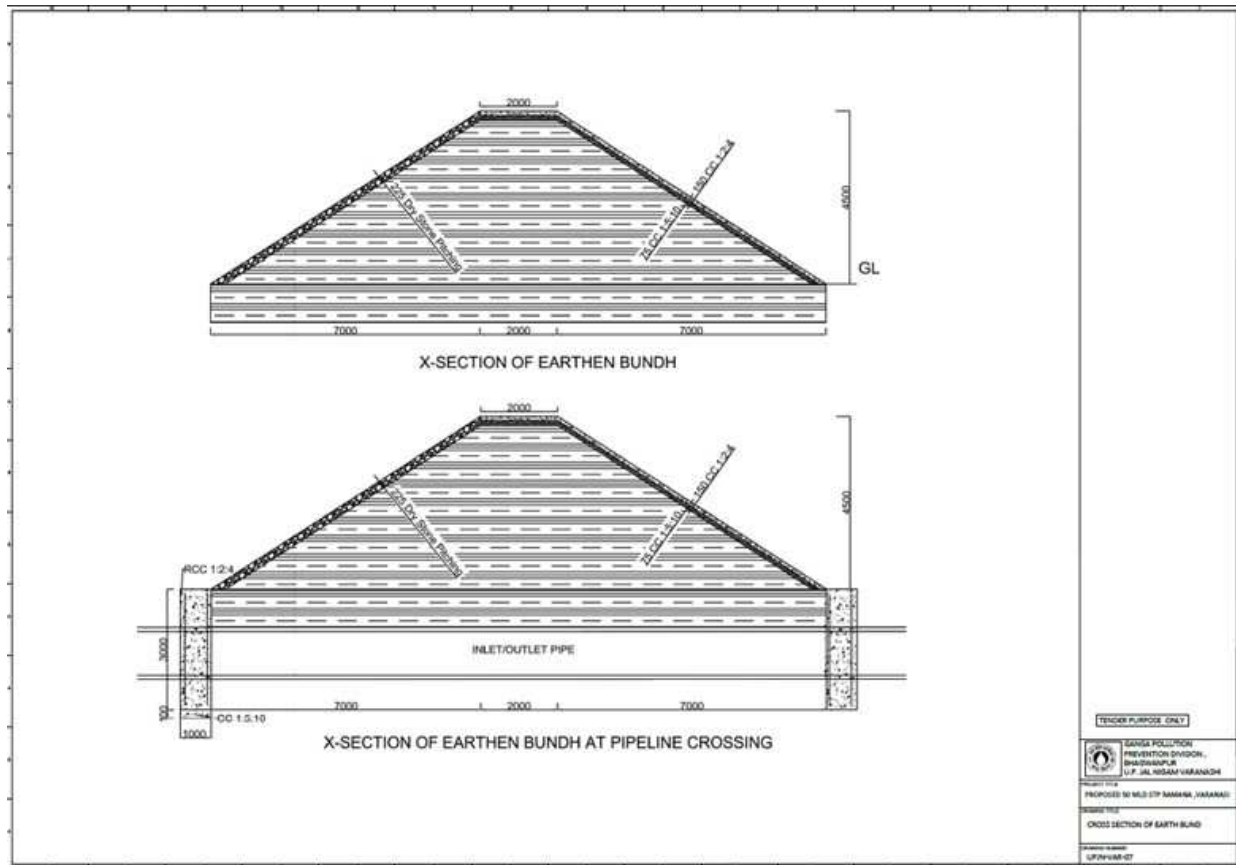
Annexure 2
Figure 6:L-Section of Treated Effluent Pipe



Annexure 2
Figure 7: Outfall structure

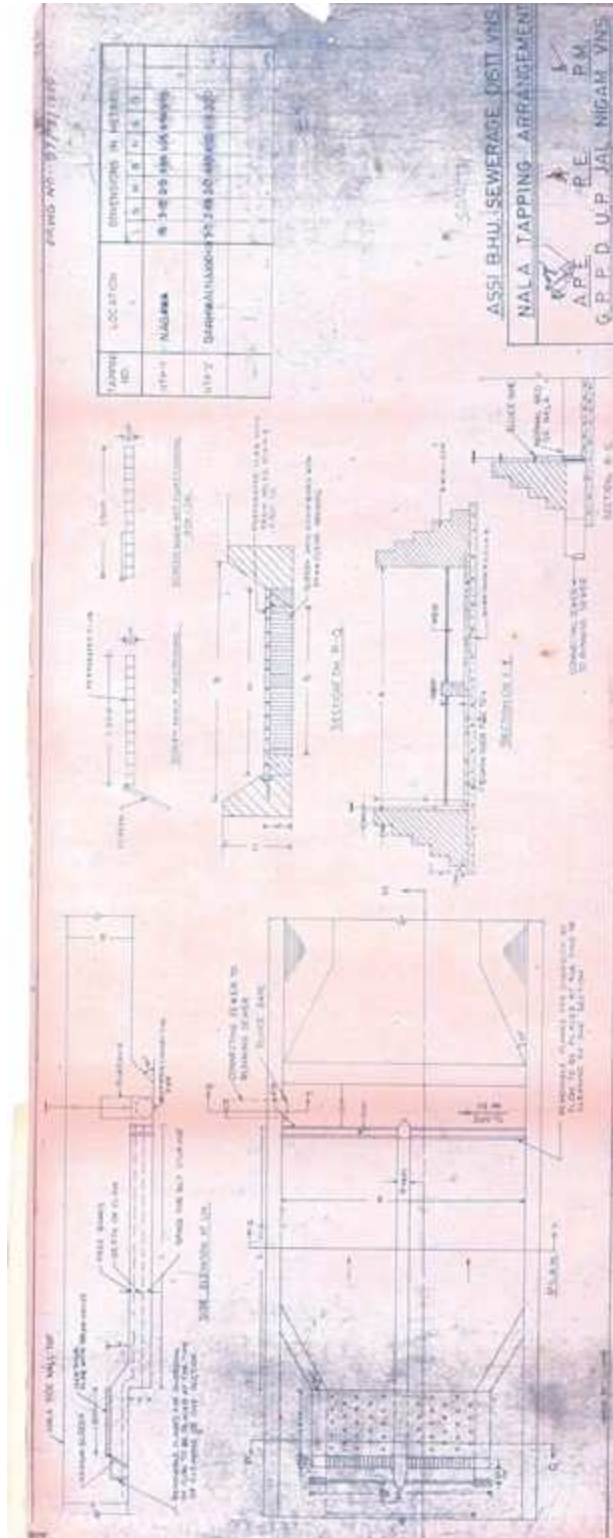


Annexure 2
Figure 8: Cross section of earth bund



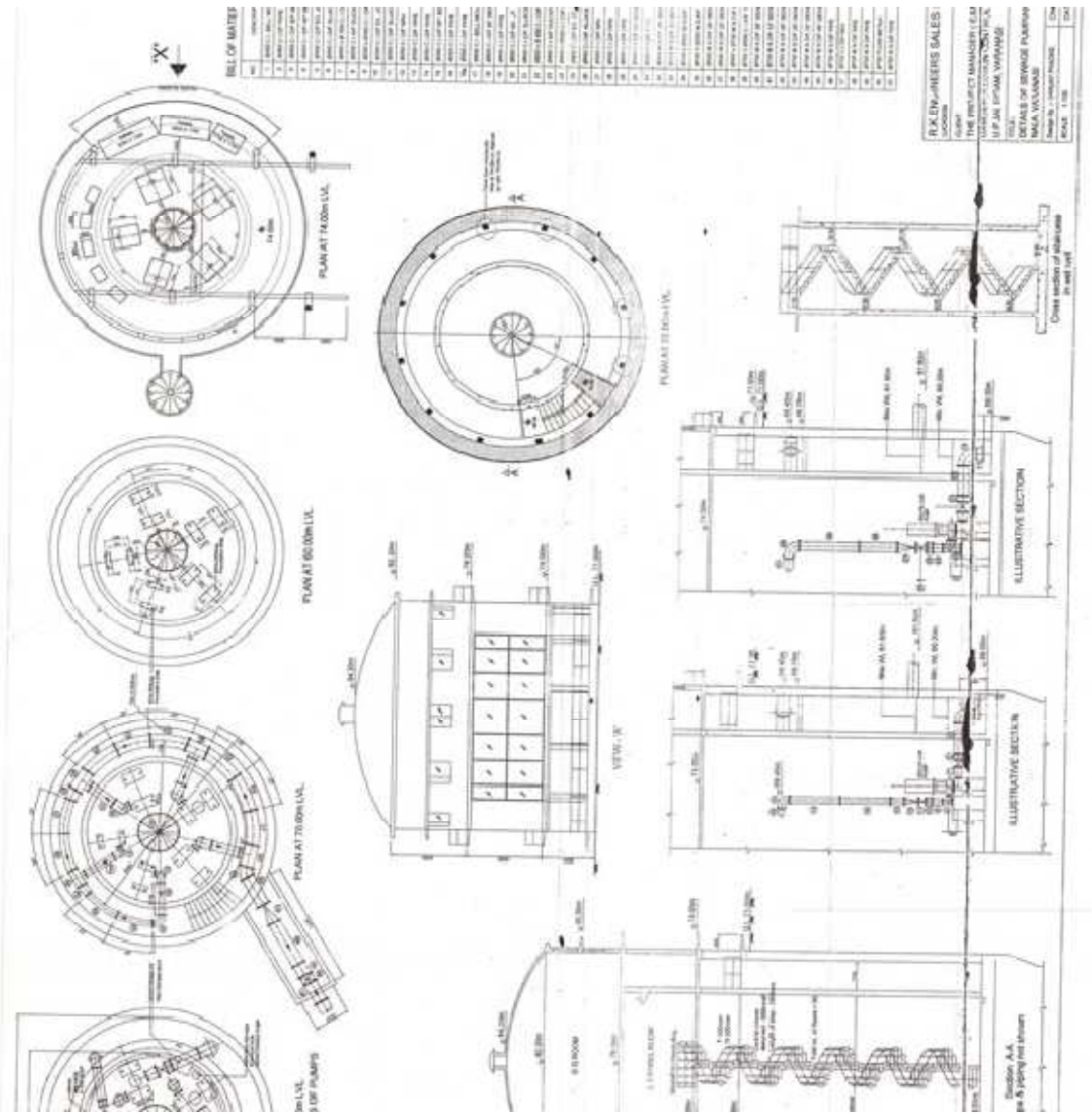
Annexure 3

Figure 1: GA drawing of Assi Nallah tapping



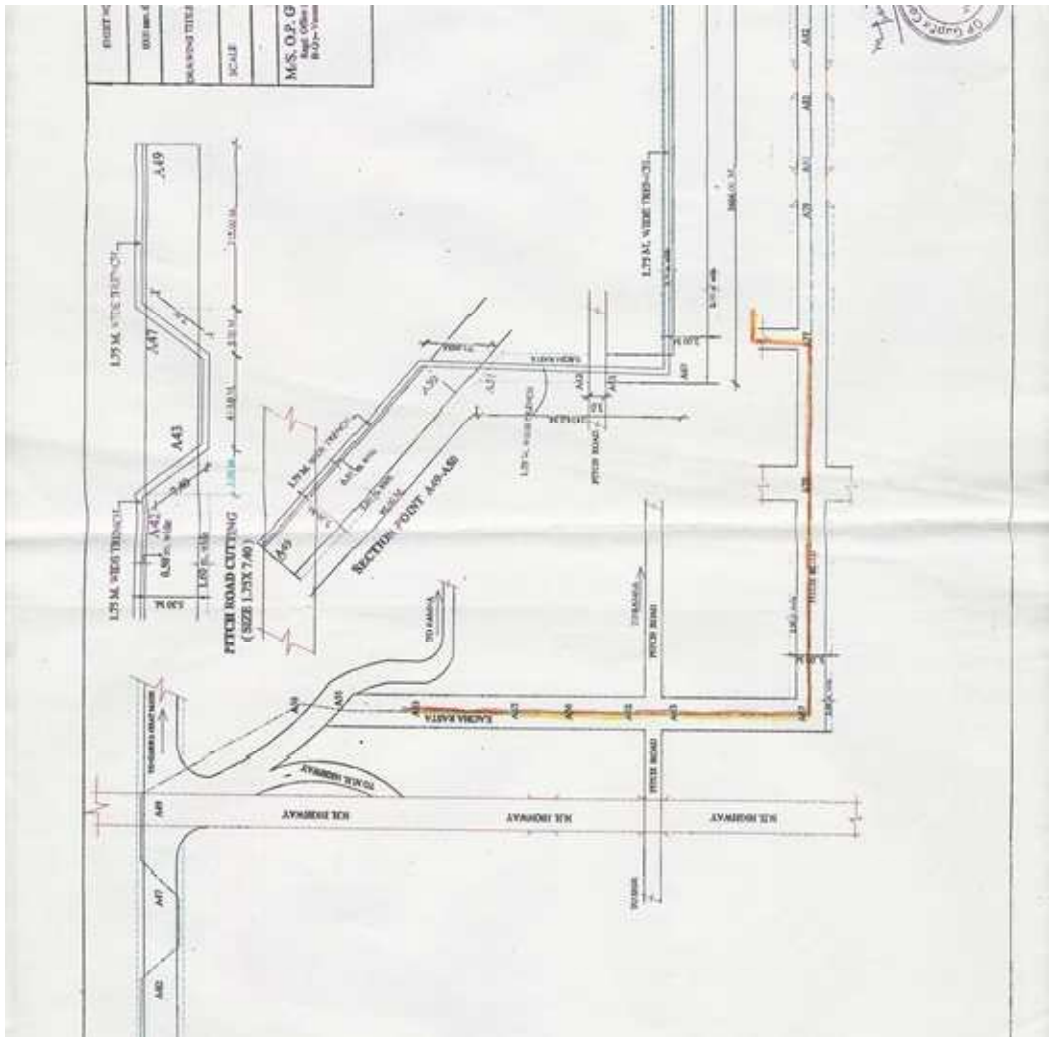
Annexure 3

Figure 2: GA drawing of existing pumping station



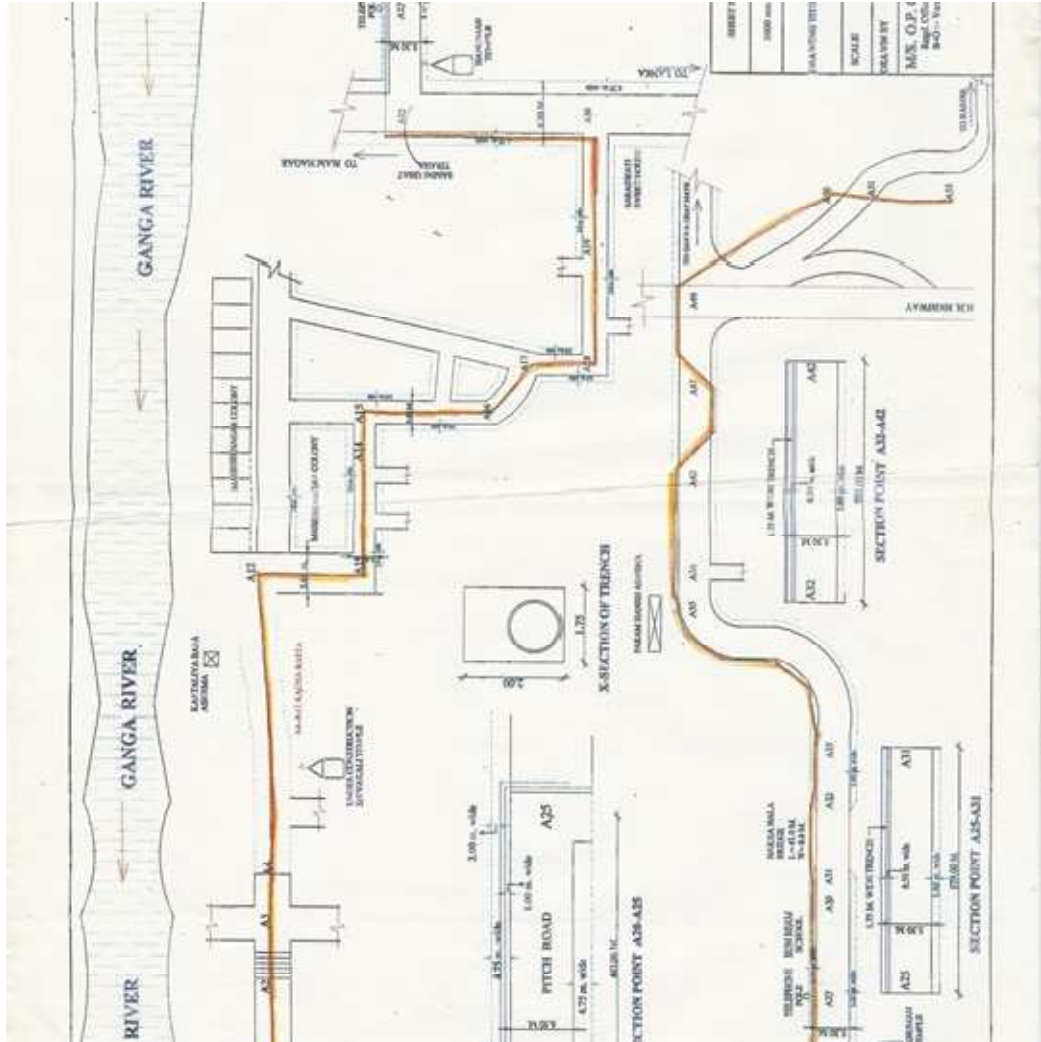
Annexure 3

Figure 3: Key plan of existing rising main_Sheet-1



Annexure 3

Figure 4: Key plan of existing rising main_Sheet-2



Annexure 4
Site Photo: STP Site



Site Photos: Route of the Effluent Disposal Pipeline



Site Photos: Route of the Effluent Disposal Pipeline



Site Photo: Treated Effluent Discharge Point



Site Photo: Existing Main Pumping Station at Assi Nallah



Site Photo: Existing Rising Main

