Jodhpur Development Authority, Jodhpur

Opposite Railway Hospital, PWD Colony, Jodhpur
Phone-0291-2656357, Fax-0291-2612086

No : EE-ROB/2020-21/407

Date : 05/02/2021

Name of Work:- Construction, Supply, Installation, Testing & Commissioning of Civil, Mechanical and Electrical works and Operation & Maintenance of 10 MLD Sewage Treatment Plant by SBR Process on Turnkey Basis at Uchiyarda in Jodhpur, Rajasthan.

and

Construction, Supply, Installation, Testing & Commissioning of Civil, Mechanical and Electrical works and Operation & Maintenance of 15 MLD Sewage Treatment Plant by SBR Process on Turnkey Basis at Vivek Vihar Yojna in Jodhpur, Rajasthan.

NIT No. :- Zone-ROB 04/2020-21 Item no. 01 and 02

The Pre-Bid meeting for the above said work was held as Scheduled in Bid Document on Dated 13.01.2021 at 3:00 PM in the Chamber of Director Engineering, JDA, Jodhpur.

The queries raised by the bidders are individually addressed as follows along with their reply:-

S. No.	Reference/ As per Tender	Queries	Reply
M/s GEO MILLER & CO. PVT. LTD. New Delhi			
10 MLD STP			
1	Section V (IB) PER23 Each channel shall be designed for a flow rate of 416 m3/hr for raw sewerage. Raw sewage pumping station - Capacity of each pump shall be 420m3/hr. Section V (IB) PER25 From main pumping station, raw sewage will be pumped to inlet chamber of Sewage Treatment Plant. Inlet chamber is to break the turbulence and distribute the flow twice no fine screen channel. Each Fine screen channel shall be designed for full flow. Both screens in channels shall be mechanically operated. After screening sewage will flow to two no grit separators in parallel. Section V PER5 Minimum free board in general shall be 300mm at peak flow for all units. The freeboard in the Unit / basin shall be 500mm (minimum) at peak flow.	Normal Practice to design MPS, Screen Chamber & Grit Chamber is for peak flow. Please Clarify whether peak flow or average flow needs to be considered. If Peak flow needs to be considered, please specify nos. of pump with capacity for Raw sewage transfer pump.	The Design of STP Plant shall be as per latest CPHEEO manual. Peak factor of 2.25 shall be considered for determining the peak flow. There shall be minimum 2 type capacity of pumps in MPS in which one pump shall working for each type and one standby for each type. The exact capacity shall be as per bidders design and as approved by EIC.

2	Layout of proposed STP at Uchiyarda (10 MLD)	7 - PARSHAL FLUME - 4.0 m Lx 1.0 m W x 1.0 m SWD + 0.5 m F.B. As per tender document Parshall Flume is not mentioned. Parshall Flume is indicated in layout. Please clarify whether to be considered or not.	Parshall Flume shall have to be considered.
3	Section V PER7 2.0 Process Requirements Item No. - 15 Post SBR Equalization Tank	As per bidder's experience there is nothing like Post SBR Equalization tank after SBR, SBR effluent is taken into CCT. Please Clarify.	CCT chamber can be considered as SBR outlet equalization tank.
4	Section V PER7 length and where to terminate this. 2.0 Process Requirements Item No. - 18 Bypass Channel	Please Specify the location of this Bypass channel with Section V PER7 length and where to terminate this.	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as per Bidders design and as approved by EIC.
5	Section V PER 7 2.0 Process Requirements Item No. -19 & 21 19.Treated water tank 21. Treated water pump house Layout of proposed STP at Uchiyarda (10 MLD)	As per the .bidder understanding and layout provided the water from CCT will be directly taken to Jojari river. Hence there is no requirement of separate Treated water tank. Please confirm. If Treated water tank and pump house need to be provided please mention the pump capacity, quantity & specs.	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith 2 Nos. of Hydrants for reuse of Water and direct discharge to the Jojari River.
6	Section V (1B) PER33 10. Treated effluent disposal and Compound Wall of Treatment Plant site & Approach Road A. Disposal of treated effluent 100% of the treated effluent will be reused as specified in the bid and instructed by the procuring entity.	As per the bidder understanding and layout provided the water from CCT will directly go to Jojari river. Hence there is no reuse. PI confirm.	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith 2 Nos. of Hydrants for reuse of Water and direct discharge to the Jojari River.
7	Section V PER 7 2.0 Process Requirements Item No. - 20 Bypass Channel	Please Specify the location of this Bypass channel with length.	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as per Bidders design and as approved by EIC.
8	Section V PER7 2.0 Process Requirements Item No. - 3 Manual Screens (coarse screening)	As per the bidder understanding we require his screen for the bypass line parallel to mechanical coarse screen at STP. If bidder understanding is correct please mention the	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as

		length of bypass channel/ pipe till termination.	per Bidders design and as approved by EIC.
9	Section V PER 7 2.1 Raw Sewage Quality Design parameter / Value for design purpose(STP) BOD 5 @ 20o C: 250 mg/l COD: 1680 mg/l TSS: 320 mg/l TKN (as N): 55 mg/l TP: 16 mg/l PH: 6-9 Flow: As per capacity mentioned above Average Flow	Please note that COD value seems to be very high for Sewerage, Please provide any lab report if available.	Design parameter / Value for design purpose(STP) BOD 5 @ 20o C: 320 mg/l COD: 650 mg/l TSS: 320 mg/l TKN (as N): 14.5 mg/l TP: 5.2 mg/l PH: 6-9 Flow: As per capacity mentioned above Average Flow Report attached. Refer annexure-1
10	Section V PER 8 2.2 Treated Sewage Quality **Characteristics of the treated sewage shall be as follows: For STP** BOD: ≤ 10 mg/l COD: ≤ 50 mg/l TSS: ≤ 10 mg/l NH4-N: ≤ 5 mg/l N Total: ≤ 1 mg/l Total Phosphorus: ≤ 2 mg/l Fecal coliform: ≤ 100 MPN/100 ml Out Flow: Outlet of 10 MLD Treated sewer flow	Please check the value of N Total, it cannot be less than NH4-N value.	Please consider N total ≤ 10 mg/l
11	Section V PER2 There is requirement of 10MLD STP plant covering 4750 Sqm area Area available: 4750 Sqm	Please clarify the exact area and dimension available for proposed STP at Uchiyarda (10 MLD STP)	Plot Area- 4750 Sqm (Dimensions – Av Width (57 m , Av Length- 84 m). Please refer annexure 2.
	Section-V PER5 Location and Capacity of STP ***Component*** / ***Zone*** / ***East*** / ***North*** / ***Approx. Area(Sqm) Available / Required***		

<table>
<tr><td></td><td><table><tr><td>Proposed 10 MLD STP</td><td>43R</td><td>73° 6'29.51"E</td><td>26°16'7.15"N</td><td>4750 Sqm</td></tr></table></td><td></td><td></td></tr>
<tr><td></td><td>Layout of proposed STP at Uchiyarda (10 MLD)
Area available - 3546 SQM
Area Required- 1200SQM</td><td></td><td></td></tr>
<tr><td>12</td><td>Section V (1B) PER26
Blowers for SBR Blowers shall be provided for SBR to supply air for biological activity.
S. No. - 1
2 (1w+1s)</td><td>Can bidder provide 3 No. of blower (2 working + 1 Standby) if required, considering huge capacity of air required.</td><td>Min. 1 No. working blower for each SBR basin required. Total 50% min. standby required.</td></tr>
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Raw Sewage Pumping Station
Raw Sewage will be received in an inlet chamber. From this inlet chamber sewage will be passed through two no mechanical coarse screen channel</td><td rowspan="3">Coarse screen is already provided in MPS and as per the bidder understanding there is no requirement of the same in STP. In layout too Coarse screen is considered only in MPS not in STP. Please Confirm.</td><td>2 Nos Mechanical Coarse screen channel required only at Main Pumping Station.</td></tr>
<tr><td>Section V (1B) PER25
Inlet chamber, Fine Screen Channels & Grit Separators of STP
From main pumping station, raw sewage will be pumped to inlet chamber of Sewage Treatment Plant. Inlet chamber is to break the turbulence and distribute the flow twice no fine screen channel.</td><td></td></tr>
<tr><td>Section V (1B) PER25
Inlet chamber, Fine Screen Channels & Grit Separators of STP
S. No. – (a) 5<table><tr><td>(a)</td><td>Coarse Screen</td><td></td></tr><tr><td>5</td><td>No of coarse screen</td><td>2</td></tr><tr><td>6</td><td>Type of screen</td><td>Bar Screen mechanically operated</td></tr><tr><td>7</td><td>Opening in coarse screen</td><td>20 mm</td></tr><tr><td>8</td><td>MOC of screen</td><td>SS 304 / 6 mm x 55mm</td></tr><tr><td>9</td><td>Operation of coarse screen</td><td>Auto with signal from differential level transmitter</td></tr></table></td><td></td></tr>
<tr><td>14</td><td>Section I ITB25,
Performance Security
6.4.2, (i) The amount of Performance Security shall be 3%, or as specified in the BDS, of the amount of the Work Order. The</td><td>We request to consider performance guarantee as per FINANCE (G&T) DEPARTMENT NOTIFICATION, Jaipur, December 18, 2020, Clause No 3, Amendment of Rule 75.</td><td>As per FINANCE (G&T) DEPARTMENT,NOTIFICATION Jaipur, December 18, 2020
The successful bidder at the time of</td></tr>
</table>

	currency of Performance Security shall be Indian Rupees, if otherwise not specified in BDS.		signing of the contract agreement, may submit option for deduction of performance security from his each running and final bill @ 3% of the amount of the bill. This shall be only valid till December 2021, thereafter if any amendment are being issued by FD, GoR, then same shall be applicable for this Performance Security clause of the work.
15	Section V PER3 5. SITC of solar plant as per guaranteed solar power generation. Solar plant has to be installed in the STP area. In case of additional space requirement, contractor will have to install the solar plant at the location as provided by Jodhpur Nagar Nigam.	Please specify if there is any minimum capacity of solar plant to be installed OR it is up to bidder whether he wants to install solar power or not.	It is upto bidder whether he wants to install solar power or not. Accordingly there shall be implication on Cost of Power Loading during O&M period in Financial Bid.
16	Section V (1A) PER14 Point No. (viii) (viii) Diversion of existing sewage and existing drainage flow with all necessary equipment's/devices and permanent arrangements.	Bidder's understanding is that it is a new STP project; hence there is no existing sewerage line and other drainage line to be diverted. Please Confirm.	Bidder shall have to take into account to connect the inlet chamber of STP from the nearest existing sewage manhole
17	Section III EQC3 and Section VII PS9 Annexure 2- Financial Bid Evaluation should be carried with sum of Capital cost + O&M cost +difference in power loading (as applicable as per Guaranteed process power and solar power generation quoted by bidder) and excluding Provisional sum (PS). **The unit cost of power shall be taken as Rs. 7.50 per unit and solar power estimation rate shall be taken as Rs. 9.00 per unit.**	Please clarify if the Solar system is installed for the total power requirement of STP then 'difference in power loading' will be negative, will it be considered in bid evaluation. In this case will amount of 'difference in power loading' further subtracted from 'Capital cost + O&M Cost'. For example; Capital cost is 15 Crores O&M Cost is 2 Crores **As per Annexure 2-** Total aggregated cost of Power Supply for 10 years- 5 Crores Total aggregated cost of Solar Power Generation for 10 years- 6 Crores Bid evaluation would be like this;	Bidders shall have to generate the Solar Power at their own cost. It is upto the bidder whether they wants to install solar power or not. Bidders shall have to generate solar power maximum upto their power requirements as no negative power charges shall be paid back to the bidder.

		15 Cr +2 Cr + (5Cr-6Cr) =16 Cr Please confirm	
18	Section V PER3 4. SITC of solar plant as per guaranteed solar power generation. Solar plant has to be installed in the STP area. In case of additional space requirement, contractor will have to install the solar plant at the location as provided by Jodhpur Nagar Nigam.	Please clarify whether power generated from Solar system will be connected to Grid? If it has to be connected to Grid, Will the amount of electricity generated reimbursed to contractor @ INR 9/unit?	Yes, Power Generated from solar system shall be connected to Grid. Bidders shall have to generate solar power maximum upto their power requirements as no negative power charges shall be paid back to the bidder.
19	General Supply of electricity	Bidder's understanding is that electricity will be provided free of cost by the authority during O&M period of 10 years. Please confirm	Please refer ITB 3.5.1 of section II BDS5 and Guaranteed Power Consumption details at Section IV BF 17 and 18.
20	Section VIB SCC41 Category A: - The Drawing has to be approved by the Engineer before manufacturing and Testing. The material has to be inspected by the Engineer or by an Inspecting agency Approved by the Engineer at the manufacturer's premise before packing and dispatching. The Inspection charges of the agency will be borne by the Employer but the contractor has to pay the inspection charges. The Contractor shall include in their next bill the inspection charges and the same will be reimbursed by the Employer from the provisional Sum.	These statements are contradictory to each other. Bidder's understanding is that all the cost of third party inspection shall be borne by Employer, however at the time of inspections it will be paid by contractor and later it will be reimbursed to contractor in next running bill. Please confirm.	Section V (1A) PER11 Para (m) and Section V (1A) PER13, 14 Para (kk) (iv) shall prevail.
	Section V (1A) PER11	(m) Third party inspection (TPI) during manufacturing, during assembling or on testing before packing and after unloading at site is required. Cost of TPI along with clients and its representatives' visits shall be borne by EPC agency.	
	Section V (1A) PER13 and 14	(kk) No additional cost will be pay to contractor (EPC) for following works. All the works mention below is inclusive in the quoted price of construction of STP. (iv) Third party inspection charges including JDA, PMC authorized representative's visit/inspection at manufacture unit and on site. Preferable mode of transportation to visit/inspect at the manufacture unit shall be by Air to minimize the total required time of	

		inspection. Facility shall be included with lodging and boarding with local transportation.	
21	General High Flood level/FGL/FSL/	Please provide high flood level/FGL/FSL for designing civil structure.	Please refer Annexure 2 for details.
22	General Bid- Submission	Considering the quantum of work including solar power system, it is requested to extend the last date of tender submission for 2 weeks from the date of issuing the pre-bid replies.	Refer Corrigendum No. 1 of this NIT.
15 MLD STP			
1	Section V (I B) PER23 Each channel shall be designed for a flow rate of 625m3/hr for raw sewerage. Raw sewage pumping station - Capacity of each pump shall be 630 m3/hr.	Normal Practice to design MPS, Screen Chamber & Grit Chamber is for peak now. Please Clarify whether peak flow needs to be considered. If peak flow needs to be considered, please specify nos. of pumps with capacity for Raw sewage transfer.	The Design of STP Plant shall be as per latest CPHEEO manual. Peak factor of 2.25 shall be considered for determining the peak flow. There shall be minimum 2 type capacity of pumps in MPS in which one pump shall working for each type and one standby for each type. The exact capacity shall be as per bidders design and as approved by EIC.
	Section V (IB) PER25 From main pumping station, raw sewage will be pumped to inlet chamber of Sewage Treatment Plant. Inlet chamber is to break the turbulence and distribute the now twice no fine screen channel. Each fine screen channel shall be designed for full now. Both screens in channels shall be mechanically operated. After screening sewage will flow to two no grit separators in parallel.		
	Section V PER4 Minimum free board in general shall be 300mm at peak flow for all units. The freeboard in the Unit / basin shall be 5OOmm (minimum) at peak flow.		
2	Layout of proposed STP at Vivek Vihar (15 MLD) 7 – Parshal Flume – 6.0 m L x 1.0 m W x 1.0 m SWD + 0.3 m F.B.	As per tender document Parshall Flume is not mentioned. Parshall Flume is indicated only in layout. Please clarify whether to be considered or not.	Parshall Flume shall have to be considered.
3	Section V PER6	As per bidder's experience there is no	CCT chamber can be considered as

	2.0 Process Requirements Item No. - 15 Post SBR Equalization Tank	requirement of equalization tank after SBR, SBR effluent is taken into CCT. Please confirm.	SBR outlet equalization tank.
4	Section V PER6 2.0 Process Requirements Item No. - 18 Bypass Channel	Please Specify the location of this Bypass channel with length and where to terminate this.	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as per Bidders design and as approved by EIC.
5	Section V PER6 2.0 Process Requirements Item No. –19 & 21 19. Treated water tank 21. Treated water pump house Layout of proposed STP at Vivek Vihar (15 MLD)	As per the bidder understanding and layout provided, treated sewage from CCT will be directly taken to Jojari river. Hence There is no requirement of separate Treated water tank. Please confirm. If Treated water tank and pump house need to be provided please mention the pump capacity, quantity & specs.	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith 2 Nos. of Hydrants for reuse of Water and direct discharge to the Jojari River.
6	Section V (1B) PER33 10. Treated effluent disposal and Compound Wall of Treatment Plant site & Approach Road A. Disposal of treated effluent 100% of the treated effluent will be reused as specified in the bid and instructed by the procuring entity	As per the bidder understanding and layout provided, the water from CCT will directly go to Jojari river. Hence there is no reuse. Please confirm.	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith 2 Nos. of Hydrants for reuse of Water and direct discharge to the Jojari River.
7	Section V PER6 2.0 Process Requirements Item No. - 20	Please Specify the location of this Bypass channel with length.	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as per Bidders design and as approved by EIC.
8	Section V PER6 2.0 Process Requirements Item No. - 3 Manual Screens (coarse screening)	As per the bidder understanding we require this screen for the bypass line parallel to mechanical coarse screen at STP. If bidder understanding is correct please mention the length of bypass channel/ pipe till termination.	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as per Bidders design and as approved by EIC.
9	Section V PER7 2.1 Raw Sewage Quality	Please note that COD value seems to be very high for sewage, Please provide any lab	Design parameter | Value for design purpose(STP)

	Design parameter / Value for design purpose(STP) BOD 5 @ 20o C — 250 mg/l COD — 1680 mg/l TSS — 320 mg/l TKN (as N) — 55 mg/l TP — 16 mg/l PH — 6-9 Flow — As per capacity mentioned above Average Flow	report is available.	BOD 5 @ 20o C — 340 mg/l COD — 620 mg/l TSS — 350 mg/l TKN (as N) — 15.3 mg/l TP — 4.9 mg/l PH — 6-9 Flow — As per capacity mentioned above Average Flow **Please refer annexure 3 for details**
10	Section V PER8 2.2 Treated Sewage Quality Characteristics of the treated sewage shall be as follows: For STP BOD — ≤ 10 mg/l COD — ≤ 50 mg/l TSS — ≤ 10 mg/l NH4-N — ≤ 5 mg/l N Total — ≤ 1 mg/l Total Phosphorus — ≤ 2 mg/l Fecal coliform — ≤ 100 MPN/100 ml Out Flow — Outlet of 15 MLD Treated sewer flow	Please check the value of N Total, it cannot be less than NH4-N.	Please consider N total ≤ 10 mg/l
11	Section V PER2 There is requirement of 15 MLD STP plant covering 15300 Sqm area Open land available : 15300 Sqm	Please note that 3 different places different area (available for STP) are mentioned, Please clarify the area and dimension available for the proposed 15 MLD STP.	Total area Available – 31317 Sqm. Please refer annexure 4 for details
	Section V PER5 Location and Capacity of STP Component — Zone — East — North — Approx. Area Available Proposed 15 MLD STP — 43R — 73° 6'29.51"E — 26° 16'7.15"N — 9500 Sqm		
	Layout of proposed STP at Vivek Vihar Area available – 31317 Sqm		
12	Section V (1B) PER26 Blowers for SBR Blowers shall be provided for SBR to supply air for biological activity.	Can bidder provide 3 No. of blower (2 working + 1 Standby) if required, considering huge capacity of air required.	Min. 1 No. working blower for each SBR basin required. Total 50% min. standby required.

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Raw sewage will be received in an inlet chamber. From this inlet chamber sewage will be passed through two no mechanical coarse screen channel</td><td rowspan="3">Coarse screen is already provided in MPS and as per the bidder understanding there is no requirement of the same in STP, in layout too Coarse screen is considered only in MPS not in STP. Please Confirm.</td><td>2 Nos Mechanical Coarse screen channel required only at Main Pumping Station.</td></tr>
<tr><td>Section V (1B) PER24/25
Inlet chamber, Fine Screen Channels & Grit Separators of STP.
From main pumping station, raw sewage will be pumped to inlet chamber of Sewage Treatment Plant. Inlet chamber is to break the turbulence and distribute the flow twice no fine screen channel</td><td></td></tr>
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Inlet chamber, Fine Screen Channels & Grit Separators of STP
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<tr><td>14</td><td>Section I ITB25,
Performance Security
6.4.2, (i) The amount of Performance Security shall be 3%, or as specified in the BDS, of the amount of the Work Order. The currency of Performance Security shall be Indian Rupees, if otherwise not specified in BDS.</td><td>We request to consider performance guarantee as per FINANCE (G&T) DEPARTMENT NOTIFICATION, Jaipur, December 18, 2020, Clause No 3, Amendment of Rule 75.</td><td>As per FINANCE (G&T) DEPARTMENT,NOTIFICATION
Jaipur, December 18, 2020
The successful bidder at the time of signing of the contract agreement, may submit option for deduction of performance security from his each running and final bill @ 3% of the amount of the bill.
This shall be only valid till December 2021, thereafter if any amendment are being issued by FD, GoR, then same shall be applicable for this Performance Security clause of the work.</td></tr>
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5. SITC of solar plant as per guaranteed solar power generation.</td><td>Please specify if there is any minimum capacity of solar plant to be installed OR it is up to bidder whether he wants to install</td><td>It is upto bidder whether he wants to install solar power or not. Accordingly there shall be</td></tr>
</table>

	Solar plant has to be installed in the STP area. In case of additional space requirement, contractor will have to install the solar plant at the location as provided by Jodhpur Nagar Nigam.	solar power or not.	implication on Cost of Power Loading during O&M period in Financial Bid.
16	Section V (1A) PER14 (viii) Diversion of existing sewage and existing drainage flow with all necessary equipment/devices and permanent arrangements.	Bidder's understanding is that, it a new STP project, hence there is no existing sewerage line and other drainage line to be diverted. Please confirm.	Bidder shall have to take into account to connect the inlet chamber from the nearest existing sewage manhole
17	Section III EQC3 and Section VII PS9 Annexure 2- Financial Bid Evaluation should be carried with sum of Capital cost + O&M cost +difference in power loading (as applicable as per Guaranteed process power and solar power generation quoted by bidder) and excluding Provisional sum (PS). **The unit cost of power shall be taken as Rs. 7.50 per unit and solar power estimation rate shall be taken as Rs. 9.00 per unit.**	Please clarify if the Solar system is installed for the total power requirement of STP then 'difference in power loading' will be negative, will it be considered in bid evaluation. In this case will amount of 'difference in power loading' further subtracted from 'Capital cost + O&M Cost'. For example; Capital cost is 15 Crore O&M Cost is 2 Crore **As per Annexure 2-** Total aggregated cost of Power Supply for 10 years- 5 Crore Total aggregated cost of Solar Power Generation for 10 years- 6 Crore Bid evaluation would be like this; 15 Cr +2 Cr + (5Cr-6Cr) =16 Cr Please confirm	Bidders shall have to generate the Solar Power at their own cost. It is upto the bidder whether they wants to install solar power or not. Bidders shall have to generate solar power maximum upto their power requirements as no negative power charges shall be paid back to the bidder.
18	Section V PER3 5. SITC of solar plant as per guaranteed solar power generation. Solar plant has to be installed in the STP area. In case of additional space requirement, contractor will have to install the solar plant at the location as provided by Jodhpur Nagar Nigam.	Please clarify whether power generated from Solar system will be connected to Grid? If it has to be connected to Grid, Will the amount of electricity generated reimbursed to contractor @ INR 9/unit ?	Yes, Power Generated from solar system shall be connected to Grid. Bidders shall have to generate solar power maximum upto their power requirements as no negative power charges shall be paid back to the bidder.
19	General Supply of electricity	Bidder's understanding is that electricity will be provided free of cost by the authority during O&M period of 10 years. Please confirm	Please refer ITB 3.5.1 of section II BDS4 and Guaranteed Power Consumption details at Section IV BF 17 and 18.
20	Section VIB SCC40	These statements are contradictory to each other. Bidder's understanding is that all the	Section V (1A) PER11 Para (m) and Section V (1A) PER13, 14 Para (kk)

	Category A: - The Drawing has to be approved by the Engineer before manufacturing and Testing. The material has to be inspected by the Engineer or by an Inspecting agency Approved by the Engineer at the manufacturer's premise before packing and dispatching. The Inspection charges of the agency will be borne by the Employer but the contractor has to pay the inspection charges. The Contractor shall include in their next bill the inspection charges and the same will be reimbursed by the Employer from the provisional Sum.	cost of third party inspection shall be borne by Employer, however at the time of inspections it will be paid by contractor and later it will be reimbursed to contractor in next running bill. Please confirm.	(iv) shall prevail.
	Section V (1A) PER11 (m) Third party inspection (TPI) during manufacturing, during assembling or on testing before packing and after unloading at site is required. Cost of TPI along with clients and its representatives' visits shall be borne by EPC agency.		
	Section V (1A) PER13 and 14 (kk) No additional cost will be pay to contractor (EPC) for following works. All the works mention below is inclusive in the quoted price of construction of STP. (iv) Third party inspection charges including JDA, PMC authorized representative's visit/inspection at manufacture unit and on site. Preferable mode of transportation to visit/inspect at the manufacture unit shall be by Air to minimize the total required time of inspection. Facility shall be included with lodging and boarding with local transportation.		
21	General High Flood level/FGL/FSL/	Please provide high flood level/FGL/FSL for designing civil structure.	Please refer annexure 4 for details
22	General Bid Submission	Considering the quantum of work including solar power system, it is requested to extend the last date of tender submission for 2 weeks from the date of issuing the pre-bid replies.	Refer Corrigendum No. 1 of this NIT.
M/s JWIL Infra Limited Mathura			
1	General Technology Selection for STP	By specifying SBR technology, the tender becomes restrictive and selective. There are only a few such companies having monopolistic pricing.	Tender Conditions shall prevail.

		We request you not to restrict the tender to only SBR rather to open the tender for different technologies envisaged in CPHEEO manual. This will open the competition for many technologically advanced players. Request you to kindly allow the same. Please consider and confirm.	
2	Clause 4.3, Experience, Section III EQC6 Construction Experience in Key Activities	Since this is a technology driven project along with O&M we request you to ask for the technology/plant based experience from the bidder also. We request you to ask Bidders to showcase technology-based plant experience wherein bidders can tie up with any Technology Provider who can showcase required reference plant of suitable capacity in India. Kindly Confirm.	Tender Conditions shall prevail.
3	Clause 4.3, Experience, Section III EQC6 Construction Experience in Key Activities	Request you to allow required Specific Construction Experience to be met by Technology provider in MoU with Bidder. This will open the competition & you will get a competitive offer for the project. Please consider and confirm.	Tender Conditions shall prevail.
4	General Clubbing 15 MLD & 10 MLD Projects in one Project.	We request you to combine both 15 & 10 MLD STP's in one project, this will attract financially sound infrastructure bidders and you will get better technologies as well as competitive pricing for this project. Kindly confirm.	Tender Conditions shall prevail.
5	Bid Evaluation Land and Power Cost	Both Land and Power cost forms substantial part of the project. Hence, Land and Power cost should be made part of the Evaluation Process so as to ensure the most Technologically as well as commercially sound bid is selected. Central and state water bodies like MCGM, NMCG makes Land and Power part of evaluation process. Please consider and confirm.	Tender Conditions shall prevail.

M/s Genius Infrastructure, Jodhpur			
10 MLD STP			
1	Clause 4.3: Construction in Key activities is Construction/O & M(for an year) for both the partners as 2.5 MLD (lead) & 1.25 MLD (lag) of aforesaid contract.	It is requested to allow "all partners combined to 5.0 MLD (as in clause 4.1: specific construction experience)" to participate if **any of them furnishes the requisite clause (completion of 5.0 MLD & above with O & M of an year) of "similar nature works" in lieu of "both partners with requisite 2.5MLD & 1.25MLD"**	Refer Corrigendum No. 2 of this NIT.
15 MLD STP			
1	Clause 4.3: Construction in Key activities is Construction/O & M (for an year) for both the partners as 3.75 MLD (lead) & 2 MLD (lag) of aforesaid contract.	It is requested to allow "all partners combined to 7.5 MLD (as in clause 4.1: specific construction experience)" to participate if **any of them furnishes the requisite clause (completion of 7.5 MLD & above with O & M of an year) of "similar nature works" in lieu of "both partners with requisite 3.75MLD & 2MLD"**	Refer Corrigendum No. 2 of this NIT.
M/s Fateh Enviro Engineers Pvt. Ltd. Balotra			
1	Page No 34 Point No.ITB 1.4.5 The Bidder / both partners of JV must be registered Contractor in "AA" class of the department / organization of any State Govt. / Central Govt. / PSU / Govt Autonomous Body / Govt. Undertaking	The Project having of turnkey basis, So not required of AA class contractor Kindly consider	Tender Conditions shall prevail.
2	Page No 44 point No.4.2 Should have experience of having successfully completed similar works during the last 5 years ending on the last day of the month previous to the one in which applications are invited should comply with any one of the following One similar work of minimum value of Rs. 13.60 Cr OR Two similar works each of minimum value of Rs. 8.5 Cr OR Three similar works each of minimum value of Rs. 6.8 Cr Similar work is defined in the note (B), as given below;	Kindly consider the capacity of the executed plant not consider the value.	Refer Corrigendum No. 2 of this NIT.
3	Page No 44 point No. 4.3 Should have successfully completed at least 1 (one) project of operation and maintenance for minimum 1 year of 5 MLD (or	Kindly consider O & M work in the Trust because the Trust is semi government body and funding by the government.	Refer Corrigendum No. 2 of this NIT.

	above) STP Plant during the last 5 years ending on the last day of the month previous to the one in which applications are invited		
4	Page No 45 point No. i The bidder shall submit copies of work orders, completion and satisfactory performance certificates in support of their experience claims. Only works of Govt. /PSU/ Autonomous bodies under government sector of any country shall be considered.	Kindly consider completion work in the Trust because the Trust is semi government body and funding by the government.	Tender Conditions shall prevail.
5	Page No 04 Salient Dates and Time	You are requested kindly extend the date (at least Two weeks) for submission of the tender.	Refer Corrigendum No. 1 of this NIT.
M/s Toshiba Water Solutions Pvt. Ltd. Gurugram			
10 MLD STP			
1	Notice Inviting Bids 4 of 362 Salient Dates and Time	We understand that bidder needs to submit bid online (on the portal) only and no hard copy submission is required as a part of bid submission. Kindly confirm.	Confirmed. Online Bid only need to be submitted. No hard copy submissions required.
2	B. Qualification Criteria: 2. Pending Litigation 42 of 362 Section III EQC4 Pending Litigation	We understand that the Litigation History required to be provided in the said clause shall with respect to contracts completed or ongoing /under execution by the bidder during last 5 years.	Only details of all Pending Litigation as on Date of Bid submission.
3	B. Qualification Criteria: 2. Pending Litigation 42 of 362 Section III EQC4 Pending Litigation NOTE: CA certificate clearly mentioning with calculation that pending litigation in total not more than 50% of Bidder's net worth.	Please note that Pending litigation is related to the Court of law for any bidder and such exhaustive details are difficult to be certified by Chartered Accountant. It is thus requested to kindly accept the self-declaration/ Affidavit by the bidder for the same. Kindly confirm.	Self Declaration sufficient. Refer Corrigendum No. 2 of this NIT.
4	3. Financial Situation	The Clause request the annual turnover of	Annual Turnover of Construction

	43 of 362 Section III EQC5 Turnover Note:.....The calculation sheet for annual turnover of similar work shall be certified by a Chartered Accountant.	similar work. We understand that the bidder shall submit the "calculation sheet for **annual turnover of Construction work"** to support the Figures presented against Turnover requirement. Kindly confirm.	work. Refer Corrigendum No. 2 of this NIT.
5	**3. Financial Situation** 43 of 362 Section III EQC5 **Working Capital** **"INR 4.25 Cr."** (Available Working Capital shall be evaluated as Current Assets + Revolving Line of Credit –Current Liabilities (including Contract Commitments and loan repayment due within one year)	Referring to the contract commitment stated in the given formula for calculating the available working capital for the subject contract, We request JoDA to accept contract commitment due for the next two months based on **"Average Monthly Invoicing during Last 6 months"** for each project as mentioned in the Form FIN – 4 Current Contract Commitments / Works in Progress. Kindly confirm.	Tender Conditions shall prevail.
6	**3. Financial Situation** 43 of 362 Section III EQC5 **Working Capital** **"INR 4.25 Cr."** (Available Working Capital shall be evaluated as Current Assets + **Revolving Line of Credit** –Current Liabilities (including Contract Commitments and loan repayment due within one year)	We understand that in the formula used in calculation of working capital as referred clause; the value of the revolving line of credit is equivalent to sanctioned limits assigned to the company by the banks for executing all projects. Kindly confirm	**Revolving line of credit** which is issued by scheduled Bank and **Bank's commitment is project specific**, assured and without any ambiguity and shall be available till final completion of project, otherwise bid shall not be considered. For revolving line of credit bank's letter should be attached. The bank issuing resolving line of credit has to be scheduled Bank as per format, otherwise it shall not be considered. Refer Tender Section III EQC 5 and Section IV BF 16
7	7 **Assured Revolving Line of Credit Facility**	We understand that certificate required in the referred format is an additional	**Revolving line of credit** which is issued by scheduled Bank and

	61 of 362 Section IV BF16	certificate for line of credit specific to the project out of the sanctioned limits. Also this certificate shall not play any role in calculating current assets for the calculation of Working capital. Moreover we also understand that Assured line of credit is required for an amount equal to 10% of Estimated Contract value. Kindly confirm.	**Bank's commitment is project specific**, assured and without any ambiguity and shall be available till final completion of project, otherwise bid shall not be considered. For revolving line of credit bank's letter should be attached. The bank issuing resolving line of credit has to be scheduled Bank as per format, otherwise it shall not be considered. Refer Tender Section III EQC 5 and Section IV BF 16
8	**4.13 Self-Declaration by Bidder: No Blacklisting** 70 of 362 Section IV BF26 We do hereby affirm that we have not been blacklisted. by any Government agency or Public Sector Undertakings, either in the bidding stage or during the execution stage of any contract. in which we participated	We would like to request JDA to kindly amend the said required Declaration so as to be evaluated "as on date" of submission of bid. The said declaration may be amended as : We do hereby affirm that we are not blacklisted / debarred as on date of bid submission by any government agency or Public Sector Undertakings. Kindly confirm	The prior action taken by any Government agency or Public Sector Undertakings on the firm should not have any implication/ effect on the date of submission of this Bid.
9	**Form FIN 3 Financial Resources – Rupees** 56 of 362 Section IV BF11 Proposed sources of financing, such as liquid assets, ... commitments, available to meet the total construction cash flow demands	The **"Construction Cash flow demand"** as mentioned in the said format is not the part of eligibility criteria. Kindly confirm which details is to be provided in the format.	Section IV BF11 is not part of eligibility criteria, but bidder need to fill the same to meet the total construction cash flow demands of the subject contract.
10	**Form FIN 4 Current Contract Commitments / Works in Progress** 57 of 362 Section IV BF12 Average Monthly Invoicing during	As per the understanding of bidder in order to calculate the "Value of Current commitment due within 1 year", the same shall be calculated as: **"Average Monthly Invoicing during Last 6 months * 2"**	Invoicing during last 6 months reflects the general past performance of the Bidder. Value of current commitments calculation has to be carried out by Bidder as per his Cash Flow and Work Program of all the Current Commitments due for next

	Last 6 months (Rupees per month)	Kindly confirm the understanding.	one year and that needs to be certified by CA clearly stating the individual components.
11	**Assured Revolving Line of Credit Facility** 61 of 362 Section IV BF16	Since banks are the financial institutions governed under the RBI provisions and are not bound to issue certificates to bidder in any predefined format and thus may propose deviations in the language of the format provided in the tender without altering the purpose of the certificate. We therefore understand that such certificate issued by the bank with minor deviations shall also be acceptable to Jodhpur Development Authority Kindly confirm.	Tender Conditions shall prevail.
12	**Power of attorney (To be prepared and Submitted as per applicable Rules on NON-JUDICIAL STAMP PAPER)** 66 of 362 Section IV BF21	Kindly Specify the **value of NON JUDICIAL STAMP PAPER** to be used for Power of attorney.	**Power of attorney (To be prepared and Submitted as per applicable Rules on NON-JUDICIAL STAMP PAPER) of Rupees 500 (Five Hundred only)**
13	**OPERATION AND MAINTENANCE CONTRACT PERIOD** 323 of 362 SECTION VI (B1) SCC48 Ten years from the commencement of O&M period which is after completion of the construction of STP Plant (24 Months) + 3 Months Trial Run of STP.	With reference to the said clause kindly confirm our understanding of the Total Contract Period of the said project: Construction Period: 24 Months + Trial Run: 3 Months + Defect Liability period: 1 year + O&M: 10 years (OR 120 Months) Kindly reconfirm.	Project completion time is 24 months inclusive of 3 Months Trial Run as per Section II BDS 3. Defect Liability Period of 12 months after expiry of 3 months period of trial run. Operation and Maintenance Period of Ten years from the commencement of O&M period which is after completion of the construction of STP Plant and 3 Months Trial Run of STP.
14	**INDEMNIFICAT ION** 328 of 362 SECTION VI (B1) SCC53	The clause details the indemnification provided by the Contractor to the Client. We understand that the contractor and its	Tender Conditions shall prevail

	The Contractor to indemnify the Department against the following:…….	officers, employees, agents and affiliates shall also be indemnified by the Employer against any and all claims of loss, damage and expense of whatever kind and nature, including all related costs and expenses incurred in connection therewith, in respect of personal injury to or death of third parties and in respect of loss of or damage to any third party to the extent that the same arises out of: 1. Any negligent act on the part of the Employer 2. Willful misconduct or breach of statutory duty on the part of the Employer 3. Any other event where indemnification has been expressly mentioned in this Conditions of Contract for Operation and Maintenance Kindly confirm	
15	**Limitation of liability**	The tender is silent on limitation of liability of contractor for this tender . We therefore understand that under contractual terms the contractor is liable up to the value of the Contract Amount awarded. Kindly confirm.	Tender Conditions shall prevail
16	**Limitation of Liability / Consequential Damages**	Except in cases of criminal negligence or wilful misconduct, We understand contractor shall not be liable to the Owner in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits of interest costs etc. Kindly confirm.	Tender Conditions shall prevail

17	**Clause 46: Liquidated Damages** 305 of 362 Section VIB SCC30 **During construction period-** The rate of L.D. per day for each day that the Completion Date is later than the Intended Completion Date will be (10% of Contract Price/ D), where D is 100 Days or 25% of the Original Contract Period whichever is more.	The Maximum amount of Liquidated Damages are not mentioned in the tender. We therefore assume that Maximum amount of Liquidated Damages shall be 10% of the Contract Value of construction works. Kindly confirm.	During Construction period, the Maximum amount of Liquidated Damages shall be 10% of the Contract Value (Contract Value excluding O&M Cost)
18	**Site under Possession of JoDA**	Kindly confirm that the site for the subject STP is under possession of JoDA and is free from any legal and physical hindrances (Including illegal encroachments) and shall be handed over to the successful contractor within the specified time line in the tender without any obligation.	Confirmed.
Electrical Queries			
1	2.0 Scope of Work 181 Section V(4B) PER105 DESIGN BASIS	Power is expected through single circuit 415 V overhead line from the Local Power Supply Company to be terminated in proposed new plant's Two Pole Structure, fuses and lightening arrestors. Power is then transmitted through cables buried underground and terminated to the indoor 415 V switch gear board located in substation. **Query:** We understand that Power supply 415V AC (01No.) up to proposed STP plant along with Billing meter shall be in client scope. Kindly confirm. Power supply 415V AC (01 No.) up to proposed STP plant shall be provided by client, so HT supply (11kV), HT cable, HT Line poles, HT board, 110V DC supply for HT switch gear, power transformer etc. are	Input Power Supply Cable till the transformer shall only be provided by the employer. All Accessories including transformer and further in scope of bidder.

		not required and not in bidder's, scope. Kindly confirm.	
2	2.0 Scope of Work 234 **Section V4B PER158** DIESEL GENERATOR SET ALONGWITH AMF & SYNCH. PANEL	Please confirm followings. DG set duty type: Prime or Standby.	DG set- Standby
3	2.0 Scope of Work 245 **Section V4B PER169** APPROVED VENDOR LIST	Any item which is not covered in approved list of makes and required during detail engineering, please allow bidder to consider reputed make for the same.	Please refer section V 4B PER 171.
4	2.0 Scope of Work 189 **Section V(4B) PER113** Switchgear Modules	Spare philosophy for motor feeders and outgoing power feeder are not defined. Kindly confirm or bidder to decide at their own.	20% spare feeders to be provided
5	Sub Section 1A- Scope of Work 96 **Section V (1A) PER20** Salient features-3	Detailed design criteria, specification vendor list for Solar system are not defined, We understand that proposed solar system shall be for lighting load inside of the building. Also bidders can consider reputed vendor for the same. Kindly confirm.	Please refer Section V (1A) PER20. Tender Conditions shall prevail.
6	Sub Section 5 – Standard Specification (Instrumentation, Automation & Control system) 267 **Section V (5) PER191** SCADA Software	Please confirm following for UPS 1. Type: Redundant / Non redundant Battery Bank: Single / Dual	Redundant UPS with Single battery bank.
7	General Query	Requirement of Spares (Mandatory and recommended) are not defined, kindly confirm the requirement for the same	20% spare feeders to be provided
8	General Query	We understand that the proposed STP plant	Confirmed.

		is in safe area (Non- hazardous). Kindly confirm the same.	
Instrumentation Queries			
1	Sub Section 5 – 260 of 362 Section V (5) PER184 13. Programmable Logic Controllers	PLC system redundancy is not defined in tender specification, so we understand that a centralized PLC system for proposed STP shall be non- redundant processor, non-redundant power Supply, non- redundant communication interface modules and non-redundant input/output (I/O) modules. Kindly confirm. PLC make is also not defined Kindly confirm.	Redundant Programmable Logic Controllers.
2	Section-V 78 of 362 Section V PER2 General requirements and scope of work	We understand that STP data to be transmitted to ICOC center at Jodhpur nagar Nigam thru GPRS and integration part and hardware required at ICOC center at Jodhpur nagar Nigam shall be in client's scope. Kindly confirm. Also confirm if data to be transmitted to any other location and any other third party integration.	Provision of data transmission from SCADA control room at STP to ICOC Center at Jodhpur Nagar Nigam is **not** required.
3	SUB SECTION 1A 89 of 362 Section V (1A) PER13 Scope of Work ii) For effective online monitoring of all units of STP,	**Query:** We understand that Online Parameters data to be transmitted to EIC thru GPRS and integration part and hardware required at EIC center shall be in client's scope. Kindly confirm.	Such provision is not required.

	Computers shall be connected and integrated through the SCADA system and should be integrated with EIC's computer system and control room.	Also provide the location of EIC center.	
4	SUB SECTION 1A 89 of 362 Section V (1A) PER13 Scope of Work Point-JJ	Detail Specification for CCTV system, cameras etc. are not provided in tender, please allow bidder to consider as per bidder's design.	As per Bidders design and as approved by EIC.
5	General	PAGA System, Fire Alarm System are not define in the tender documents. So, it is excluded from our scope of supply. Kindly confirm.	PAGA System, Fire Alarm System as per bidders design and approved by Engineer Incharge
Civil Queries			
1	V(1A) 92/362 Section V (1A) PER16 Clearance of the site	Please provide Plot plan/layout showing existing facilities in our area of work to ascertain the dismantling required. Please also mark in influent/effluent line	Please refer Annexure 2 for details
2	General	What is the HFL & NGL at site.	Please refer Annexure 2 for details
3	General	Please mention where the excavated soil to be disposed off (within site or outside), what is the distance of disposal site from the actual site.	Please refer Annexure 2 for details
4	General	Is there any old pipe line work at site?	Bidder has to take into account for connecting sewage line from nearest manhole to inlet chamber.
5	General	Please provide contour map of site.	Please refer Annexure 2 for details

6	General	Where to get construction Power and water source	For Construction Purpose contractor has to arrange water and electricity on their own.
7	General	Please provide the tie in point for connecting storm water drainage/plant drains. Please also arrange to provide specification/section/drawing of storm water drains/plant drains.	As per Bidders Design and as approved by EIC.
15 MLD STP			
1	Notice Inviting Bids 16 of 362 Salient Dates and Time	We understand that bidder needs to submit bid online (on the portal) only and no hard copy submission is required as a part of bid submission. Kindly confirm.	Confirmed. Online Bid only need to be submitted. No hard copy submissions required.
2	B. Qualification Criteria: 2. Pending Litigation 53 of 362 Section III EQC4 Pending Litigation	We understand that the Litigation History required to be provided in the said clause shall with respect to contracts completed or ongoing /under execution by the bidder during last 5 years. Kindly confirm.	Only details of all Pending Litigation as on Date of Bid submission.
3	B. Qualification Criteria: 2. Pending Litigation 53 of 362 Section III EQC4 Pending Litigation NOTE: CA certificate clearly mentioning with calculation that pending litigation in total not more than 50% of Bidder's net worth.	Please note that Pending litigation is related to the Court of law for any bidder and such exhaustive details are difficult to be certified by Chartered Accountant. It is thus requested to kindly accept the self-declaration/ Affidavit by the bidder for the same. Kindly confirm.	Self Declaration sufficient. Refer Corrigendum No. 2 of this NIT.
4	**3. Financial Situation** 54 of 362	The Clause request the annual turnover of similar work.	Annual Turnover of Construction work. Refer Corrigendum No. 2 of this NIT.

	Section III EQC5 **Turnover** Note:.....The calculation sheet for **annual turnover of similar work** shall be certified by a Chartered Accountant.	We understand that the bidder shall submit the "calculation sheet for **annual turnover of Construction work"** to support the Figures presented against Turnover requirement. Kindly confirm.	
5	**3. Financial Situation** 54 of 362 Section III EQC4 **Working Capital** **"INR 5.6 Cr."** (Available Working Capital shall be evaluated as Current Assets + Revolving Line of Credit –Current Liabilities (including Contract Commitments and loan repayment due within one year)	Referring to the contract commitment stated in the given formula for calculating the available working capital for the subject contract, We request JoDA to accept contract commitment due for the next two months based on **"Average Monthly Invoicing during Last 6 months"** for each project as mentioned in the Form FIN – 4 Current Contract Commitments / Works in Progress. Kindly confirm.	Tender Conditions shall prevail.
6	**3. Financial Situation** 54 of 362 Section III EQC4 **Working Capital** **"INR 5.6 Cr."** (Available Working Capital shall be evaluated as Current Assets + **Revolving Line of Credit** –Current Liabilities (including Contract Commitments and loan repayment due within one year)	We understand that in the formula used in calculation of working capital as referred clause; the value of the revolving line of credit is equivalent to sanctioned limits assigned to the company by the banks for executing all projects. Kindly confirm	**Revolving line of credit** which is issued by scheduled Bank and **Bank's commitment is project specific**, assured and without any ambiguity and shall be available till final completion of project, otherwise bid shall not be considered. For revolving line of credit bank's letter should be attached. The bank issuing resolving line of credit has to be scheduled Bank as per format, otherwise it shall not be considered. Refer Tender Section III EQC 5 and Section IV BF 16
7	**Assured Revolving Line of Credit Facility** 72 of 362	We understand that certificate required in the referred format is an additional certificate for line of credit specific to the	**Revolving line of credit** which is issued by scheduled Bank and **Bank's commitment is project**

	Section IV BF16	project out of the sanctioned limits. Also this certificate shall not play any role in calculating current assets for the calculation of Working capital. Moreover we also understand that Assured line of credit is required for an amount equal to 10% of Estimated Contract value. Kindly confirm.	specific, assured and without any ambiguity and shall be available till final completion of project, otherwise bid shall not be considered. For revolving line of credit bank's letter should be attached. The bank issuing resolving line of credit has to be scheduled Bank as per format, otherwise it shall not be considered. Refer Tender Section III EQC 5 and Section IV BF 16
8	**4.13 Self-Declaration by Bidder: No Blacklisting** 81 of 362 Section IV BF26 We do hereby affirm that we have not been blacklisted by any Government agency or Public Sector Undertakings, either in the bidding stage or during the execution stage of any contract in which we participated	We would like to request JoDA to kindly amend the said required Declaration so as to be evaluated "as on date" of submission of bid. The said declaration may be amended as : We do hereby affirm that we are not blacklisted / debarred as on date of bid submission by any government agency or Public Sector Undertakings. Kindly confirm	The prior action taken by any Government agency or Public Sector Undertakings on the firm should not have any implication/ effect on the date of submission of this Bid.
9	**Form FIN 3 Financial Resources – Rupees** 67 of 362 Section IV BF11 Proposed sources of financing, such as liquid assets, ... commitments, available to meet the total construction cash flow demands	The **"Construction Cash flow demand"** as mentioned in the said format is not the part of eligibility criteria. Kindly confirm which details is to be provided in the format.	Section IV BF11 is not part of eligibility criteria, but bidder need to fill the same to meet the total construction cash flow demands of the subject contract.
10	**Form FIN 4 Current Contract Commitments / Works in**	As per the understanding of bidder in order	Invoicing during last 6 months

	Progress 68 of 362 Section IV BF12 Average Monthly Invoicing during Last 6 months (Rupees per month)	to calculate the "Value of Current commitment due within 1 year" , the same shall be calculated as: **"Average Monthly Invoicing during Last 6 months * 2"** Kindly confirm the understanding.	reflects the general past performance of the Bidder. Value of current commitments calculation has to be carried out by Bidder as per his Cash Flow and Work Program of all the Current Commitments due for next one year and that needs to be certified by CA clearly stating the individual components.
11	**Assured Revolving Line of Credit Facility** 72 of 362 Section IV BF16	Since banks are the financial institutions governed under the RBI provisions and are not bound to issue certificates to bidder in any predefined format and thus may propose deviations in the language of the format provided in the tender without altering the purpose of the certificate. We therefore understand that such certificate issued by the bank with minor deviations shall also be acceptable to Jodhpur Development Authority Kindly confirm.	Tender Conditions shall prevail.
12	**Power of attorney (To be prepared and Submitted as per applicable Rules on NON-JUDICIAL STAMP PAPER)** 77 of 362 Section IV BF21	Kindly Specify the **value of NON JUDICIAL STAMP PAPER** to be used for Power of attorney.	Power of attorney :- To be prepared and Submitted as per applicable Rules on NON-JUDICIAL STAMP PAPER of Rupees 500 (Five Hundred only)
13	**OPERATION AND MAINTENANCE CONTRACT PERIOD** 332 of 362 SECTION VI (B1) SCC47 Ten years from the commencement of O&M period which is after completion of the construction of STP Plant (24 Months) + 3 Months Trial Run of STP.	With reference to the said clause kindly confirm our understanding of the Total Contract Period of the said project: Construction Period: 24 Months + Trial Run: 3 Months + Defect Liability period: 1 year +	Project completion time is 24 months inclusive of 3 Months Trial Run as per Section II BDS 2. Defect Liability Period of 12 months after expiry of 3 months period of trial run. Operation and Maintenance Period of Ten years from the commencement of O&M period which is after completion of the construction of

		O&M: 10 years (OR 120 Months) Kindly reconfirm.	STP Plant and 3 Months Trial Run of STP.
14	**INDEMNIFICATION** 337 of 362 SECTION VI (B1) SCC52 The Contractor to indemnify the Department against the following:……	The clause details the indemnification provided by the Contractor to the Client. We understand that the contractor and its officers, employees, agents and affiliates shall also be indemnified by the Employer against any and all claims of loss, damage and expense of whatever kind and nature, including all related costs and expenses incurred in connection therewith, in respect of personal injury to or death of third parties and in respect of loss of or damage to any third party to the extent that the same arises out of: 4. Any negligent act on the part of the Employer 5. Willful misconduct or breach of statutory duty on the part of the Employer 6. Any other event where indemnification has been expressly mentioned in this Conditions of Contract for Operation and Maintenance Kindly confirm	Tender Conditions shall prevail
15	**Limitation of liability**	The tender is silent on limitation of liability of contractor for this tender . We therefore understand that under contractual terms the contractor is liable up to the value of the Contract Amount awarded. Kindly confirm.	Tender Conditions shall prevail
16	**Limitation of Liability / Consequential Damages**	Except in cases of criminal negligence or wilful misconduct, We understand	Tender Conditions shall prevail

		contractor shall not be liable to the Owner in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits of interest costs etc. Kindly confirm.	
17	**Clause 46: Liquidated Damages** 315 of 362 Section VIB SCC30 **During construction period-** The rate of L.D. per day for each day that the Completion Date is later than the Intended Completion Date will be (10% of Contract Price/ D), where D is 100 Days or 25% of the Original Contract Period whichever is more.	The Maximum amount of Liquidated Damages are not mentioned in the tender. We therefore assume that Maximum amount of Liquidated Damages shall be 10% of the Contract Value of construction works. Kindly confirm.	During Construction period, the Maximum amount of Liquidated Damages shall be 10% of the Contract Value (Contract Value excluding O&M Cost)
18	**Site under Possession of JoDA**	Kindly confirm that the site for the subject STP is under possession of JoDA and is free from any legal and physical hindrances (Including illegal encroachments) and shall be handed over to the successful contractor within the specified time line in the tender without any obligation.	Confirmed
Electrical Queries			
1	2.0 Scope of Work 193 Section V4B PER106 DESIGN BASIS	Power is expected through single circuit 415 V overhead line from the Local Power Supply Company to be terminated in proposed new plant's Two Pole Structure, fuses and lightening arrestors. Power is then transmitted through cables buried underground and terminated to the indoor 415 V switch gear board located in substation. **Query:** We understand that 415V AC (01No.) up to proposed STP plant shall be in client scope.	Input Power Supply Cable till the transformer shall only be provided by the employer. All Accessories including transformer and further in scope of bidder.

		Kindly confirm. Power supply 415V AC (01 No.) up to proposed STP plant shall be provided by client, so HT supply (11kV), HT cable, HT Line poles, HT board, 110V DC supply for HT switch gear, power transformer etc. are not required and not in bidder's, scope. Kindly confirm.	
2	2.0 Scope of Work 245 Section V4B PER158 GENERATING SET	Please confirm followings. DG set duty type: Prime or Standby.	DG set- Standby
3	2.0 Scope of Work 257 Section V4B PER170 APPROVED VENDOR LIST	Any item which is not covered in approved list of makes and required during detail engineering, please allow bidder to consider reputed make for the same.	Please refer section V 4B PER 171.
4	2.0 Scope of Work 200 Section V4B PER113 Switchgear Modules	Spare philosophy for motor feeders and outgoing power feeder are not defined. Kindly confirm or bidder to decide at their own.	20% spare feeders to be provided
5	Sub Section 1A- Scope of Work 107 Section V (1A) PER20 Salient features-3	Detailed design criteria, specification vendor list for Solar system are not defined, We understand that proposed solar system shall be for lighting load inside of the building. Also bidders can consider reputed vendor for the same. Kindly confirm.	Please refer Section V (1A) PER20. Tender Conditions shall prevail.
6	Sub Section 5 – Standard Specification (Instrumentation, Automation & Control system) 278 Section V (5) PER191	Please confirm following for UPS 1. Type: Redundant / Non redundant Battery Bank: Single / Dual	Redundant UPS with Single battery bank.

	SCADA Software		
7	General Query	We understand that the proposed STP plant is in safe area (Non- hazardous). Kindly confirm the same.	Confirmed.
8	General Query	Requirement of Spares (Mandatory and recommended) are not defined, kindly confirm the requirement for the same	20% spare feeders to be provided
Instrumentation Queries			
1	Section-V 89 of 362 Section V PER2 General requirements and scope of work	We understand that STP data to be transmitted to ICOC center at Jodhpur nagar Nigam thru GPRS and integration part and hardware required at ICOC center at Jodhpur nagar Nigam shall be in client's scope. Kindly confirm. Also confirm if data to be transmitted to any other location and any other third party integration.	Provision of data transmission from SCADA control room at STP to ICOC Center at Jodhpur Nagar Nigam is **not** required.
2	SUB SECTION 1A 100 of 362 Section V (1A) PER13 Scope of Work ii) For effective online monitoring of all units of STP, Computers shall be connected and integrated through the SCADA system and should be integrated with EIC's computer system and control room.	**Query:** We understand that Online Parameters data to be transmitted to EIC thru GPRS and integration part and hardware required at EIC center shall be in client's scope. Kindly confirm. Also provide the location of EIC center	Such provision is not required.
3	SUB SECTION 1A	jj) Detail Specification for CCTV system, cameras etc. are not provided in tender,	As per Bidders design and as approved by EIC.

	100 of 362 Section V (1A) PER13 Scope of Work	please allow bidder to consider as per bidder's design.	
4	Sub Section 5 – 271 of 362 Section V (5) PER184 13. Programmable Logic Controllers	PLC system redundancy is not defined in tender specification, so we understand that a centralized PLC system for proposed STP shall be non- redundant processor, non-redundant power Supply, non- redundant communication interface modules and non-redundant input/output (I/O) modules. Kindly confirm.	Redundant Programmable Logic Controllers.
5	Section – V 283 of 362 Section V (5) PER196 List of approved vendors approved makes in addition to ruidp sor 2017 schedule a for instrumentation system	Vendor list for PLC is not defined in tender, please allow bidder to consider as per bidder's design.	As per RUIDP SOR 2017 and As per bidders design and approved by Engineer In charge.
6	General	PAGA System, Fire Alarm System are not define in the tender documents. So, it is excluded from our scope of supply. Kindly confirm.	PAGA System, Fire Alarm System as per bidders design and approved by Engineer Incharge
Civil Queries			
1	General-Tender Soil report	There is no soil report annexed in the tender. Kindly provide the soil report for bidder's reference & costing purpose. Please convey the type of foundation (Raft, combined, open or deep) to be provided.	Please refer annexure 5.Soil report Attached for reference. Also Please refer Section V (1B) PER 34 for details. In addition, for design of structures/ units, maximum SBC shall be taken as 10 T/m^2
2	Piling Works	We understand that the cost of the projects	Please refer annexure 5.Soil report

		does not include any piling works. So there shall not be any piling work at site. This is extremely important from bidder's perspective and it has significant cost implications during the detailed engineering stage. Please confirm that piling work shall not be there.	Attached for reference. Also Please refer Section V (1B) PER 34 for details. In addition, for design of structures/ units, maximum SBC shall be taken as 10 T/m^2
3	Contour survey tender report	There is no survey report annexed in the tender. Kindly provide the contour or survey drawing.	Please refer Annexure 4 for details.
4	The Contractor is advised to visit the site of STP and accordingly frame construction methodology The FGL of the plot shall be at least 0.5 m above HFL of the STP area 92/362 Section V PER5 Section – V Procuring Entity's Requirements	From the Google earth plan, the site seems to be low lying, Please convey the depth of filling work required to create FGL. Also convey the HFL of the existing site. This is very important for proper costing purpose.	Please refer Annexure 4 for details.
5	Whenever specified, either in drawings or BOQ, reinforcement steel i.e. high yield strength deformed bars shall be coated with fusion bonded epoxy coating conforming to IS: 13620. 145/362 Section V (4A) PER58 Chapter 2 Section – V (4A) Procuring	It is mentioned that all reinforcement shall be fusion bonded epoxy coated minimum 0.1 mm thk. This shall have significant cost implication and also the procurement issue. Please re-consider.	Reinforcement for Sewage Water Retaining/ Sewage Water passage structures shall only be fusion bonded epoxy coating conforming to IS:13620.
6	General	Kindly convey the source of construction Water and construction Power.	For Construction Purpose contractor has to arrange water and electricity on their own.
7	General	Kindly provide a tentative layout showing the following 1. Road network 2. Inlet Pipe arrangement and approx. invert level Outfall arrangement and approx... invert	Please refer Annexure 4 for Invert Level details. Road network as per Bidders design and as approved by EIC so that all the units of the STP plant are accessible/ connected by roads.

		level	
8	Construction of Approach Road up to length of approximate 100 m shall be in the scope of the contractor to all the STP sites including RCC Culvert on existing Nallah (if any). 98/362 Section V (1A) PER11 Section – V (1A)	Please confirm whether RCC culvert shall be required or not. Kindly convey if this is included in the Cost. Please provide the dimensions and material specification of the approach road.	Bidder can have site visit and confirm the possibility of any RCC culvert as per his proposed design of STP and accordingly consider the same in his costing.
9	General	In case Civil query no 1 is not possible then please convey the approx. Value of soil SBC to be adopted for the purpose of costing.	Please refer Annexure 5.Soil report Attached for reference. Also Please refer Section V (1B) PER 34 for details. In addition, for design of structures/ units, maximum SBC shall be taken as 10 T/m^2
10	General	Kindly provide the road section, its width, layout & its material of construction.	Please find attached Annexure 6 for road cross section details. Road network as per Bidders design and as approved by EIC so that all the units of the STP plant are accessible/ connected by roads.
11	General	Kindly provide the coating specification On the inside face of RCC in contact with liquid for tanks.	As per CPHEEO manual and as per bidders design, drawing and as approved by EIC.
12	General	Kindly provide the coating/painting specification 1. On the outer side in contact with soil. On the outer side in contact with sunlight.	As per CPHEEO manual and as per bidders design, drawing and as approved by EIC.

M/s Gharpure Engineering and Construction Pvt Ltd, Pune

10 MLD STP			
1	Section VI B- Special Condition of Contract - 44. Price Adjustment 304 of 362 No price adjustment shall be paid for Lump Sum Contract (Neither for Construction nor for O&M).	We request you to kindly consider Price Adjustment for this contract to cater the unavoidable cost.	Tender Conditions shall Prevail
2	General STP site Drawing	Kindly provide the drawing and specifications for Boundary Wall for STP.	Please refer Annexure 7 for details.
3	General STP site Drawing	Kindly provide the detailed specifications for internal Road (Concrete or Bitumen) in STP.	Please refer Annexure 6 for details
4	General Technical specifications for Design of each unit	We request you to kindly provide Technical specifications for each unit for Design purpose	Tender Conditions shall Prevail.
5	General Soil investigation report	We request you to kindly provide the Soil Investigation done by the client for Design purpose	Please refer Annexure 8.Soil report Attached for reference. Also Please refer Section V (1B) PER 34 for details. In addition, for design of structures/ units, maximum SBC shall be taken as 10 T/m^2
6	Section V (1B) - Procuring Entity's Requirement 111 of 362 OPC of 43 Grade or Sulphate Resistant Cement shall only be used.	Kindly confirm which Cement to be used for concrete works in STP. Also we request you kindly consider ACC / SHREE / ULTRATECH / JK LAKSHMI OPC of 43 Grade.	Sulphate Resistant Cement confirming to IS:12330 shall be used only for Sewage Water Retaining / Sewage Water passage structures. For rest structures, tender conditions shall prevail.
7	Section VI A- GCC - 48. Advance Payment 290 of 362 No Advance payment shall be made.	We request you to kindly consider interest free Advance Payment @ 10% for this contract to maintain the cash flow for the project.	Tender Conditions shall Prevail
8	Section V- Procuring Entity's Requirement 78 of 362 Outflow of Treated Water shall be done which will feed the existing Jojari River.	Kindly provide the distance from the proposed STP to disposal point of Treated Water in Jojari River.	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith

			2 Nos. of Hydrants for reuse of Water and direct discharge to the Jojari River. Bidder can have site visit and accordingly envisaged the distance from proposed STP to disposal point of Treated Water as per his Design.
9	Section V (1B)- Procuring Entity's Requirement 110 of 362 Contractor shall construct Approach Road from existing roads to proposed STP's site.	We request you to kindly provide the length from existing road to proposed STP site.	Bidder can have site visit and accordingly envisaged the proposed Approach road length and consider the same in his costing.
10	Section VI B- Special Condition of Contract - Clause 45 Retention 315 of 362 The proportion of payment from each payment shall be 10% of the payment amount, upto maximum of 5% of CV.	We request you to kindly consider 5% Retention upto max.of 5% of CV, & shall be return against submission of BG of the said amount.	Tender Conditions shall Prevail.
11	General Site Mix Concrete	We request you to kindly consider & allow for Site Mix Concrete, wherever RMC is not possible due to approach or very less quantity of concrete.	Tender Conditions shall Prevail
12	General Electrical	Please confirm that Power supply will be made available at one point within plant premises.	Electricity Connection and Water shall be in the scope of the bidder during construction period.
13	General Electrical	We understand that the security deposit, all statutory fees pertain to main electric connection, shall be in the employer scope. Please confirm.	The Security Deposit pertaining to Main Electric Connection of the STP Plant for the period of O & M shall be once paid by the Bidder and the same shall be reimbursed by the Department.
14	General Electrical	Please confirm that HT Power supply level at Plant. (11kv / 22kv / 33kv)	Shall be as per Final Electrical Load of the Plant.
15	General Electrical	We request you to provide single line diagram for entire electrical scope. This will guide bidders to submit their bid at same technical platform.	Shall be as per Bidders Design and approved by EIC.

16	Section V (1A) PER13 89 (gg) Providing and installation of required capacity DG set in that campus. The DG set shall be design for critical load to cater all the processes, instruments and lighting loads (critical loads) the units of STP/SPS for Critical loads at all times. The design shall be got appraised by the PMC/JDA and approved by any IIT/NIT'S concerning department. DG set shall be operated whenever power supply fails. In case, it is not required to be operated during any week, it should be compulsorily operated in one shift at least in a week to maintain it in good health under intimation to the line agency. Regular stock of diesel and consumption shall be maintained. The cost of diesel will be borne by the Contractor in accordance to the accepted logbook and standard consumption of the engine as per manufacturer's recommendation and same may be reimbursed from line agency with supporting documents as per specified above.	We request you to specify the critical load for process to select DG set capacity, so that selection can be done precisely.	Please refer Section V (1A) PER13 gg.
17	General Electrical	Please specify transformer selection criteria & working standby philosophy Please confirm.	Transformer Selection Criteria shall be as per bidders design and Prior approval of Engineer Incharge.
18	General Electrical	We request you please provide P&ID	Shall be as per Bidders Design and approved by EIC.
19	General Electrical	We request you please accept CPRI / ERDA certified vendor for electrical panels.	Tender Conditions shall prevail.
20	General Electrical	We request you please accept authorized system house vendor for HT panels.	Tender Conditions shall prevail.
21	Section V (1A) PER12 88 (t) During the trial run period of STP, the bidder shall provide all the required manpower, consumable, repair and upkeep of civil, electrical, mechanical and instrumentation work within the STP and also electricity charges during Trial run period shall be borne by the contractor.	We understand that Power charges is in Employers scope in operation and maintenance period. Please confirm.	Electricity charges during Trial run period shall be borne by the contractor and for O&M Period, it shall be borne by the Department.

22	General Electrical	We request you please provide approved make of Solar system.	Bidders shall have to design and generate the Solar Power at their own cost.
23	General Electrical	We request you please provide selection criteria & technical specification of solar system. Also confirm how much load will have to cater on solar system out of our total plant load.	Please refer cost of power during O & M Period , Section III EQC2 and EQC3
24	General Instrumentation	We request you please provide approved make of PLC & SCADA.	As per List of Makes as mentioned in RUIDP SOR 2017 and as approved by Engineer Incharge
25	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER23 Raw Sewage Pumping Station	Please confirm whether Plant By-pass is required at MPS.	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as per Bidders design and as approved by EIC.
26	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER8 & PER29 2.3-Process Guarantees-Solid content in the wet cake: not less than 22%	As per tender requirement centrifuge to be provided for dewatering, at the outlet of centrifuge we can get max upto 18-20% solids consistency. Please accept the same.	Tender Conditions shall prevail.
27	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER24 Isolation gate at inlet and outlet of screen Two for each screen channel, MOC- CI, manually operated.	Please confirm the type of Gate. (Thimble mounted or channel mounted.)	Thimble Mounted at Upstream and Open Channel at Downstream.
28	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER25 From main pumping station, raw sewage will be pumped to inlet chamber of Sewage Treatment Plant.	Please confirm whether Plant By-pass is required at STP.	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as per Bidders design and as approved by EIC.
29	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B	Please confirm the gates required are 3 or 2 Nos.	MOC-CI, 2 Nos.

	Section V (1B) PER25 (a) Coarse Screen Isolation gates : Three nos. in each screen channel. MOC- SS manually operated. One gate at inlet of Coarse screen, one gate at downstream of coarse screen, one gate at downstream of fine screen	Also reconfirm the moc of gate CI or SS. CI gate is suitable for the applications, please confirm the same.	
30	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER25 (b) Fine Screen Isolation gates : Two nos. in each screen channel. MOC- CI manually operated. No of Fine screen: 2 Nos	Please confirm the Type of gate to be provided Thimble or Open channel mounted. Also confirm the flow handling of each screen shall be 50% or 100% peak flow.	Thimble Mounted at Upstream and Open Channel at Downstream .Each Screen Channel should be designed for 100% of Peak Flow.
31	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER25 (c) Grit Separator MOC of mechanism Grit Bridge: MS epoxy painted	We suggest RCC bridge to be acceptance as it will be more rigid.	The Bridge can be MS Epoxy painted or RCC Bridge as per Bidders design and approved by EIC.
32	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER26 Isolation gates at inlet of grit separator 2 no manual, CI material	Please confirm the Type of gate to be provided Thimble or Open channel mounted.	Open Channel Gates
33	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER28 Blower for sludge holding tank:- Blower shall be provided to supply air in the sludge sump. This air will prevent septicity of sludge.	Please confirm whether Submersible mixer for aeration in sludge sump can be provided.	Tender Condition Shall Prevail.
34	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER29 Sludge Feed Pump to Centrifuge MOC: Stator: Rubber	Please confirm is Nitrite Black MOC can provided for stator of screw pump.	Tender Condition Shall Prevail.
35	Section – V (1B) Procuring Entity's Requirements/ SUB	Request to consider Counter Current flow	Shall be as per Bidder Design and as

	SECTION 1B Section V (1B) PER29 Centrifuge Flow: Co Current	also.	approved by EIC.
36	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER30 Poly Electrolyte Dosing System for Centrifuge Poly electrolyte solution shall be dosed in feed line of sludge to centrifuge for dewatering. Agitator rpm	Please confirm the RPM of agitator.	Upto 100 RPM
37	Section – V (1B) Procuring Entity's Requirements/ Sub Section 4B Section V(4B) PER84 Air blowers for Oxygenation The blowers shall be capable of developing the requirement total pressure at the rated capacity for continuous operation. The blowers shall be Tri-lobe or Twin lobe type. The speed of the blowers shall be below 1500 rpm. Section V (1B) PER26 Blowers for SBR Blowers shall be provided for SBR to supply air for biological activity. Type of blower- Twin Lobe type RPM: 1200 MAX	Please confirm the blowers should be TWIN LOBE OR TRI LOBE. Also mention the RPM of Blower 1200 rpm or 1500 rpm.	TWIN LOBE and below 1500 rpm.
38	Section – V (1B) Procuring Entity's Requirements/ Sub Section 4B Section V(4B) PER89 Disinfection System Shall include: Suitable dosing pumps As approved by the Engineer In-Charge shall be established along with proper and adequate storage of sodium hypochlorite solution shall be provided. Chlorination Room The chlorination room shall be constructed as per requirement and approved by Engineer In-Charge. As per CPHEEO manual.	Please confirm is only Hypo dosing system is to be provided or chlorination system is required for Disinfection System. Also provide detail specification for chlorination i.e chlorinator auto or manual, floor stand mounted cabinate or wall mounted, auto drum changeover, leak sensors, ventilation.	Auto Chlorination system shall be provided. Please refer Chlorination System on Section V (1B) PER 27 and PER 28
39	Section – V (1B) Procuring Entity's Requirements/ SUB	Please confirm the requirement of sludge	Sludge Thickner not Required.

<table>
<tr><td></td><td>SECTION 1B
Section V PER2
General Requirements and Scope of work
Thickener feed sump
Sludge Thickener</td><td>thickener. If Yes please provide the detail specification for Sludge thickener.</td><td></td></tr>
<tr><td>40</td><td>General
Approved Vendor List- (Mechanical Equipment's)</td><td>Please provide approved Vendor List for Mechanical Equipment's.</td><td>As per List of Makes as mentioned in RUIDP SOR 2017 and approved by EIC.</td></tr>
<tr><td>41</td><td>General
Grit Separators of STP</td><td>Please provide detail specification for Grit Separators. Also mention if by-pass is required for Grit separators.</td><td>Please refer Section V (1B) PER 25, 26. No Bypass required for Grit Chambers.</td></tr>
<tr><td>42</td><td>Section – V Procuring Entity's Requirements
7
Post SBR Equalization Tank</td><td>Post SBR Equalization Tank will not be needed for regular SBR process, So we understand that post equalization basin shall be based on vendor requirement</td><td>CCT chamber can be considered as SBR outlet equalization tank.</td></tr>
<tr><td>43</td><td>Section – V Procuring Entity's Requirements2.1 Raw Sewage Quality
7
COD-1680 mg/l</td><td>COD mentioned is very high when compared to normal Sewage parameters. Kindly confirm weather any industrial effluent is getting. Kindly confirm the value of COD once more.</td><td><table><tr><td>Design parameter</td><td>Value for design purpose(STP)</td></tr><tr><td>BOD 5 @ 20o C</td><td>320 mg/l</td></tr><tr><td>COD</td><td>650 mg/l</td></tr><tr><td>TSS</td><td>320 mg/l</td></tr><tr><td>TKN (as N)</td><td>14.5 mg/l</td></tr><tr><td>TP</td><td>5.2 mg/l</td></tr><tr><td>PH</td><td>6-9</td></tr><tr><td>Flow</td><td>As per capacity mentioned above Average Flow</td></tr></table>Report attached. Refer annexure-1</td></tr>
<tr><td>44</td><td>Section – V Procuring Entity's Requirements Inlet chamber, Fine Screen Channels & Grit Separators of STP
25
Isolation gates Three nos. in each screen channel. MOC- SS manually operated. One gate at inlet of Coarse screen, one gate at downstream of coarse screen, one gate at downstream of fine</td><td>No of screen is mentioned as 2 (1W and 1 S) but isolation gates is mentioned as three which does not suits the requirements .Kindly clarify</td><td>Isolation gates-2 Nos</td></tr>
</table>

	screen		
45	Section – V Procuring Entity's Requirements-Centrifuge 29 Capacity based on 8 hour operation	Usually centrifuge will be operated from 12 to 18 hours a day but tender specifies of 8 working hours which would lead to increase in centrifuge capacity. Kindly consider 16 hours of working for centrifuge	18 Hours operation a day
46	Section – V Procuring Entity's Requirements-poly dosing 30 dose 3 kg/ton of dry solids	Usually 1.5 to 2 kg/ton poly of dry solids is used for dosing but tender specifies for 3 kg/ton of dry solids. Kindly clarify	Tender Condition Shall Prevail
47	General Site details	Kindly provide high flood level of Jojri river, Inver level of incoming sewer near STP. For economical design of STP	Please refer Annexure 2 for details.
48	General Drawings	Kindly provide the layout map HFD for the site with the plot dimensions along with contour map for design of STP and MPS	Please refer Annexure 2 for details.
15 MLD STP			
1	Section VI A- GCC - 44. Price Adjustment 299 of 362 No price adjustment shall be paid for Lump Sum Contract (Neither for Construction nor for O&M).	We request you to kindly consider Price Adjustment for this contract to catter the unavoidable cost.	Tender Conditions shall Prevail.
2	General STP site Drawing	Kindly provide the drawing and specifications for Boundary Wall for STP.	Please refer annexure 7 for details
3	General STP site Drawing	Kindly provide the detailed specifications for internal Road (Concrete or Bitumen) in STP.	Please refer annexure 6 for details
4	General Technical specifications for Design of each unit	We request you to kindly provide Technical specifications for each unit for Design purpose.	Tender Conditions shall Prevail
5	General	We request you to kindly provide the Soil	Please refer annexure 8.Soil report

	Soil investigation report	Investigation done by the client for Design purpose	Attached for reference. Also Please refer Section V (1B) PER 34 for details. In addition, for design of structures/ units, maximum SBC shall be taken as 10 T/m^2
6	Section V (1B) - 11. General RCC 122 of 362 OPC of 43 Grade or Sulphate Resistant Cement shall only be used.	Kindly confirm which Cement to be used for concrete works in STP. Also we request you kindly consider ACC / SHREE / ULTRATECH / JK LAKSHMI OPC of 43 Grade.	Sulphate Resistant Cement confirming to IS:12330 shall be used only for Sewage Water Retaining / Sewage Water passage structures. For rest structures, tender conditions shall prevail.
7	Section VI A- GCC - 48. Advance Payment 300 of 362 No Advance payment shall be made.	We request you to kindly consider interest free Advance Payment @ 10% for this contract to maintain the cash flow for the project.	Tender Conditions shall Prevail
8	Section V - General Requirements & Scope of Work 89 of 362 Outflow of Treated Water shall be done which will feed the existing Jojari River.	Kindly provide the distance from the proposed STP to disposal point of Treated Water in Jojari River.	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith 2 Nos. of Hydrants for reuse of Water and direct discharge to the Jojari River. Bidder can have site visit and accordingly envisaged the distance from proposed STP to disposal point of Treated Water as per his Design.
9	Section V - General Requirements & Scope of Work 90 of 362 Construction of CC Approach Road from existing entry gate to proposed STP site.	We request you to kindly provide the length from existing entry gate to proposed STP site.	Bidder can have site visit and accordingly envisaged the proposed Approach road length and consider the same in his costing.
10	Section VI B- Special Condition of Contract - Clause 45 Retention 315 of 362 The proportion of payment from each payment shall be 10% of the payment amount, upto maximum of 5% of CV.	We request you to kindly consider 5% Retention upto max.of 5% of CV, & shall be return against submission of BG of the said amount.	Tender Conditions shall Prevail.
11	General	We request you to kindly consider & allow	Tender Conditions shall Prevail

	Site Mix Concrete	for Site Mix Concrete, wherever RMC is not possible due to approach or very less quantity of concrete.	
12	General Electrical	Please confirm that Power supply will be made available at one point within plant premises.	Electricity Connection and Water shall be in the scope of the bidder during construction period.
13	General Electrical	We understand that the security deposit, all statutory fees pertain to main electric connection, shall be in the employer scope. Please confirm.	The Security Deposit pertaining to Main Electric Connection of the STP Plant for the period of O & M shall be once paid by the Bidder and the same shall be reimbursed by the Department.
14	General Electrical	Please confirm that HT Power supply level at Plant. (11kv / 22kv / 33kv)	Shall be as per Final Electrical Load of the Plant
15	General Electrical	We request you to provide single line diagram for entire electrical scope. This will guide bidders to submit their bid at same technical platform.	Shall be as per Bidders Design and approved by EIC.
16	Section V (1A) PER13 100 (gg) Providing and installation of required capacity DG set in that campus. The DG set shall be design for critical load to cater all the processes, instruments and lighting loads (critical loads) the units of STP/SPS for Critical loads at all times. The design shall be got appraised by the PMC and approved by any IIT/NIT'S concerning department. DG set shall be operated whenever power supply fails. In case, it is not required to be operated during any week, it should be compulsorily operated in one shift at least in a week to maintain it in good health under intimation to the line agency. Regular stock of diesel and consumption shall be maintained. The cost of diesel will be borne by the Contractor in accordance to the accepted logbook and standard consumption of the engine as per manufacturer's recommendation and same may be reimbursed from line agency with supporting documents as per specified above.	We request you to specify the critical load for process to select DG set capacity, so that selection can be done precisely.	Please refer Section V (1A) PER13 gg.
17	General	Please specify transformer selection criteria	Transformer Selection Criteria shall

	Electrical	& working standby philosophy Please confirm.	be as per bidders design and Prior approval of Engineer Incharge.
18	General Electrical	we request you please provide P&ID	Shall be as per Bidders Design and approved by EIC.
19	General Electrical	We request you please accept CPRI / ERDA certified vendor for electrical panels.	Tender Conditions shall prevail.
20	General Electrical	We request you please accept authorized system house vendor for HT panels.	Tender Conditions shall prevail.
21	Section V (1A) PER12 99 (t) During the trial run period of STP, the bidder shall provide all the required manpower, consumable, repair and upkeep of civil, electrical, mechanical and instrumentation work within the STP and also electricity charges during Trial run period shall be borne by the contractor.	We understand that Power charges is in Employers scope in operation and maintenance period. Please confirm.	Electricity charges during Trial run period shall be borne by the contractor and for O&M Period, it shall be borne by the Department.
22	General Electrical	We request you please provide approved make of Solar system.	Bidders shall have to design & generate the Solar Power at their own cost.
23	General Electrical	We request you please provide selection criteria & technical specification of solar system. Also confirm how much load will have to cater on solar system out of our total plant load.	Please refer cost of power during O & M Period , Section III EQC2 and EQC3.
24	General Instrumentation	We request you please provide approved make of PLC & SCADA.	As per List of Makes as mentioned in RUIDP SOR 2017 and as approved by Engineer Incharge
25	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER23 Raw Sewage Pumping Station Raw sewage will be received in an inlet chamber.	Please confirm whether Plant By-pass is required at MPS.	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as per Bidders design and as approved by EIC.

26	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER24 Isolation gate at inlet and outlet of screen Two for each screen channel, MOC- CI, manually operated.	Please confirm the type of Gate. (Thimble mounted or channel mounted.)	Thimble Mounted at Upstream and Open Channel at Downstream.
27	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V PER8 & PER29 2.3 Process Guarantees Solid content in the wet cake: not less than 22% Centrifuge Solid content in cake: 20-22% w/v	As per tender centrifuge is to be provided. At the centrifuge outlet we can get 18-20% sludge consistency only. Request to accept the same.	Tender Conditions shall prevail.
28	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER25 From main pumping station, raw sewage will be pumped to inlet chamber of Sewage Treatment Plant.	Please confirm whether Plant By-pass is required at STP.	Provision of Bypass with Pipe inside the STP plant premises and channel outside the Plant shall be considered. The location and length of Bypass as per Bidders design and as approved by EIC.
29	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER25 (a) Coarse Screen Isolation gates: Three nos. in each screen channel, MOC- SS manually operated. One gate at inlet of Coarse screen, one gate at downstream of coarse screen, one gate at downstream of fine screen	Please confirm the gates required are 3 or 2 Nos. Also confirm the MOC of gate SS or CI. We suggest CI Moc for gate is suitable.	Coarse Screen Isolation gates: 2 Nos MOC- CI
30	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER26 Sequential Batch Reactor Submerged pipe, equipment MOC: SS-304/SS 316	Please confirm the MOC of submerged for pipe in SBR Basin SS304/SS316.	As per Bidders design and approved by EIC.
31	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER25	Please confirm the Type of gate to be provided Thimble or Open channel mounted.	Thimble Mounted at Upstream and Open Channel at Downstream .Each Screen Channel should be designed

	(b) Fine Screen Isolation gates: Two nos. in each screen channel. MOC- CI manually operated. No of Fine screen: 2 Nos	Also confirm the flow handling of each screen shall be 50% or 100% peak flow.	for 100% of Peak Flow.
32	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER25 (c) Grit Separator MOC of mechanism Grit Bridge: MS epoxy painted	We suggest RCC bridge to be accepted as it will be more rigid.	The Bridge can be MS Epoxy painted or RCC Bridge as per Bidders design and approved by EIC.
33	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER26 Isolation gates at inlet of grit separator 2 no manual, CI material	Please confirm the Type of gate to be provided Thimble or Open channel mounted.	Open Channel Gates
34	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER28 Blower for sludge holding tank Blower shall be provided to supply air in the sludge sump. This air will prevent septicity of sludge.	Please confirm whether Submersible mixer for aeration in sludge sump can be provided.	Tender Condition Shall Prevail.
35	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER29 Sludge Feed Pump to Centrifuge MOC: Stator: Rubber	Please confirm is Nitrite Black MOC can provided for stator of screw pump.	Tender Condition Shall Prevail.
36	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER29 Centrifuge Flow: Co Current	Request to consider Counter Current flow also.	Shall be as per Bidder Design and as approved by EIC.
37	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V (1B) PER30 Poly Electrolyte Dosing System for Centrifuge	Please confirm the RPM of agitator.	Upto 100 RPM

	Poly electrolyte solution shall be dosed in feed line of sludge to centrifuge for dewatering. Agitator rpm		
38	Section – V (1B) Procuring Entity's Requirements/ Sub Section 4B Section V(4B) PER84 Air blowers for Oxygenation The blowers shall be capable of developing the requirement total pressure at the rated capacity for continuous operation. The blowers shall be Tri-lobe or Twin lobe type. The speed of the blowers shall be below 1500 rpm. Section V (1B) PER26 Blowers for SBR Blowers shall be provided for SBR to supply air for biological activity. Type of blower- Twin Lobe type RPM: 1200 MAX	Please confirm the blowers should be TWIN LOBE OR TRI LOBE. Also mention the RPM of Blower 1200 rpm or 1500 rpm.	TWIN LOBE and below 1500 rpm.
39	Section – V (1B) Procuring Entity's Requirements/ Sub Section 4B Section V(4B) PER89 Disinfection System Shall include: Suitable dosing pumps As approved by the Engineer In-Charge shall be established along with proper and adequate storage of sodium hypochlorite solution shall be provided. Chlorination Room The chlorination room shall be constructed as per requirement and approved by Engineer In-Charge. As per CPHEEO manual.	Please confirm is only Hypo dosing system is to be provided or chlorination system is required for Disinfection System. Also provide detail specification for chlorination i.e chlorinator auto or manual, floor stand mounted cabinate or wall mounted, auto drum changeover, leak sensors, ventilation.	Auto Chlorination system shall be provided. Please refer Chlorination System on Section V (1B) PER 27 and PER 28
40	Section – V (1B) Procuring Entity's Requirements/ SUB SECTION 1B Section V PER2 General Requirements and Scope of work Thickener feed sump Sludge Thickener	Please confirm the requirement of sludge thickener. If Yes please provide the detail specification for Sludge thickener.	Sludge Thickner not Required.
41	General Approved Vendor List- (Mechanical Equipment's)	Please provide approved Vendor List for Mechanical Equipment's.	As per List of Makes as mentioned in RUIDP SOR 2017 and approved by Engineer Incharge

42	General Grit Separators of STP	Please provide detail specification for Grit Separators. Also mention if by-pass is required for Grit separators.	Please refer Section V (1B) PER 25, 26. No Bypass required for Grit Chambers.
43	Section – V Procuring Entity's Requirements 7 Post SBR Equalization Tank	Post SBR Equalization Tank will not be needed for regular SBR process, So we understand that post equalization basin shall be based on vendor requirement	CCT chamber can be considered as SBR outlet equalization tank.
44	Section – V Procuring Entity's Requirements 2.1 Raw Sewage Quality 7 COD-1680 mg/l	COD mentioned is very high when compared to normal Sewage parameters. Kindly confirm whether any industrial effluent is getting. Kindly confirm the value of COD once more.	Report attached. Please refer Annexure -3.
45	Section – V Procuring Entity's Requirements Inlet chamber, Fine Screen Channels & Grit Separators of STP 25 Isolation gates Three nos. in each screen channel. MOC- SS manually operated. One gate at inlet of Coarse screen, one gate at downstream of coarse screen, one gate at downstream of fine screen	No of screen is mentioned as 2 (1W and 1 S) but isolation gates is mentioned as three which does not suits the requirements .Kindly clarify	Isolation gates-2 Nos
46	Section – V Procuring Entity's Requirements-Centrifuge 29 Capacity based on 8 hour operation	Usually centrifuge will be operated from 12 to 18 hours a day but tender specifies of 8 working hours which would lead to increase in centrifuge capacity. Kindly consider 16 hours of working for centrifuge	18 Hours operation a day
47	Section – V Procuring Entity's Requirements-poly dosing 30 dose 3 kg/ton of dry solids	usually 1.5 to 2 kg/ton poly of dry solids is used for dosing but tender specifies for 3 kg/ton of dry solids . Kindly clarify	Tender Condition Shall Prevail
48	General Site details	kindly provide high flood level of Jojri river, Inver level of incoming sewer near STP. For economical design of STP	Please refer Annexure 4 for details
49	General Drawings	Kindly provide the layout map HFD for the site with the plot dimensions along with contour map for design of STP and MPS	Please refer Annexure 4 for details

M/s Vishnu Prakash R Punglia Ltd Jodhpur			
10 MLD STP			
1	**4.2 Specific Construction Experience** Should have experience of having successfully completed similar works during the **last 5 years** ending on the last day of the month previous to the one in which applications are invited should comply with any one of the following **One similar work** of minimum value of **Rs. 13.60 Cr** **OR** **Two similar works** each of minimum value of **Rs. 8.5 Cr** **OR** **Three similar works** each of minimum value of **Rs. 6.8 Cr** **Similar work** is defined in the note (B), as given below (B) Similar work shall mean: **Designing, construction, erection, commissioning** of STP/CETP Plant each based on Conventional Activated Sludge Process/ MBBR (Moving Bed Bio-reactor)/ Sequential Batch Reactor (SBR) Technology	**Representation / Suggestion** Should have experience of having successfully completed similar works during the **last 5 years** ending on the last day of the month previous to the one in which applications are invited should comply with any one of the following **One similar work** of minimum value of **Rs. 13.60 Cr** **OR** **Two similar works** each of minimum value of **Rs. 8.5 Cr** **OR** **Three similar works** each of minimum value of **Rs. 6.8 Cr** **Similar work** is defined in the note (B), as given below (B) Similar work shall mean: **Construction and Commissioning of any water supply or sewer work**	Refer Corrigendum No. 2 of this NIT.
2	**4.3 Construction Experience in Key Activities** Should have successfully completed at least 1 (one) project of operation and maintenance for minimum 1 year of 5 MLD (or above) STP Plant during the **last 5 years** ending on the last day of the month previous to the one in which applications are invited	**Representation / Suggestion** Should have successfully completed at least 1 (one) project of 5.0 MLD (or above) WTP/STP Plant during the last 5 years ending on the last day of the month previous to the one in which applications are invited	Please refer corrigendum no. 2 of this NIT.
15 MLD STP			
1	**4.2 Specific Construction Experience** Should have experience of having successfully completed similar works during the **last 5 years** ending on the last day of the month previous to the one in which applications are invited should comply with any one of the following **One similar work** of minimum value of **Rs. 17.92 Cr** **OR** **Two similar works** each of minimum value of **Rs. 11.2 Cr**	**Representation / Suggestion** Should have experience of having successfully completed similar works during the **last 5 years** ending on the last day of the month previous to the one in which applications are invited should comply with any one of the following **One similar work** of minimum value of **Rs. 17.92 Cr**	Refer Corrigendum No. 2 of this NIT.

<table>
<tr><td></td><td>OR
Three similar works each of minimum value of Rs. 8.96 Cr
Similar work is defined in the note (B), as given below
(B) Similar work shall mean: Designing, construction, erection, commissioning of STP/CETP Plant each based on Conventional Activated Sludge Process/ MBBR (Moving Bed Bio-reactor)/ Sequential Batch Reactor (SBR) Technology</td><td>OR
Two similar works each of minimum value of Rs. 11.2 Cr
OR
Three similar works each of minimum value of Rs. 8.96 Cr
Similar work is defined in the note (B), as given below
(B) Similar work shall mean:
Construction and Commissioning of any water supply or sewer work</td><td></td></tr>
<tr><td>2</td><td>4.3 Construction Experience in Key Activities
Should have successfully completed at least 1 (one) project of operation and maintenance for minimum 1 year of 7.5 MLD (or above) STP Plant during the last 5 years ending on the last day of the month previous to the one in which applications are invited.</td><td>Representation / Suggestion
Should have successfully completed at least 1 (one) project of 7.5 MLD (or above) WTP/STP Plant during the last 5 years ending on the last day of the month previous to the one in which applications are invited</td><td>Please refer corrigendum no. 2 of this NIT.</td></tr>
<tr><td colspan="4">M/s Noble Construction Co. Pune</td></tr>
<tr><td colspan="4">10 MLD</td></tr>
<tr><td>1</td><td>Technology provider
Sequential Batch Reactor<table><tr><th>S No</th><th>Parameter</th><th>Value</th></tr><tr><td>10</td><td>All documents from SBR suppliers & GA drawing SBR Basin.</td><td>Shall be stamped and signed by technology supplier.</td></tr></table></td><td>Tender mentions that all the SBR documents shall be stamped and signed by technology supplier/provider but it does not mentions criteria for technology supplier/provider. Being technology driven plant, it also involves the process designs and supply of core equipment by the technology provider. Therefore, we request you to add the qualification criteria for technology provider also.
The below mentioned criteria is widely followed by various government bodies all over India including many STPs in Rajasthan state such as 215 MLD STP at Delawas, Jaipur, RUIDSICO package A, B and C etc.
We propose the criteria as follows;
It shall be mandatory for the Bidder to submit a Technology Tie-up Agreement</td><td>Tender Condition Shall Prevail.</td></tr>
</table>

		with an SBR Technology Provider for the SBR section having experience of providing SBR technology, supply of core technology equipment, supervision services during construction and operation for at least Three STPs of capacity of 10 MLD (or above) during last five years ending on the last day of the month previous to the one in which applications are invited These plants should be in operation satisfactorily for at least three years on the last day of the month previous to the one in which applications are invited and achieving the treated sewage quality as BOD ≤ 10 mg/L, COD≤ 50 mg/L, SS ≤ 20 mg/L, Phosphorous ≤ 2 mg/L, TN ≤ 10 mg/L. Performance Certificate for each work should be issued by the end user, duly certified by an officer not below the rank of Executive Engineer should be enclosed. The technology provider shall be enlisted as a SBR technology provider with any State Government, Central Government bodies. Kindly confirm. Kindly confirm.	
2	Peak Factor STP shall be designed with the conformity of latest CPHEEO manual	The peak factor for the design of STP is not traceable in the tender. Also, tender at various pages mentions that, the design of the sewage treatment plant shall be as per latest CPHEEO manual. Therefore, we understand that the peak factor for the design of STP shall be as per latest CPHEEO manual i.e. 2.25. Kindly confirm	Peak Factor-2.25
3	Raw sewage characteristics	For all the Rajasthan tenders, the capacity of	18 Hours Operations per day

	Volume I Section V (1B) PER 29 S No: 10 | Parameter: Capacity | Value: Based on 8 hrs. operation in a day	the centrifuge is calculated on 16 hr/d working time. Kindly allow the same in this tender also.	
4	Raw sewage characteristics Volume I Section V PER7 2.1 Design parameter BOD 5 @ 20□ = 250 mg/l COD = 1680 mg/l	As per tender, for inlet BOD=250 mg/L, corresponding inlet COD is 1680 mg/l. This shows, the COD/BOD ratio is on higher side. In any STP, it is nearly not possible to achieve effluent COD ≤ 50 mg/L from inlet COD of 1680 mg/L and if same is to be considered the cost of treatment will go very high. The inlet value of COD i.e. 1680 mg/L needs to be reviewed again. Kindly consider.	Please refer annexure 1 for 10 MLD STP and Annexure 3 for 15 MLD STP.
5	Raw sewage characteristics Volume I Section V PER7 2.1 Design parameter TP = 16 mg/l	As per latest CPHEEO manual, for inlet BOD of 250 mg/L, the corresponding inlet Total Phosphorus value is 7.1 mg/L. **In the raw sewage parameters, total Phosphorous value is given as 16 mg/l which is exorbitantly high. Generally, in other tenders of Rajasthan, it is 5 mg/l. Therefore, we request you to kindly recheck and reconfirm the Total Phosphorous to be considered for design**	Please refer annexure 1 for 10 MLD STP and Annexure 3 for 15 MLD STP.
6	Effluent quality Volume I Section V PER8 Total nitrogen ≤ 1 mg/l	As per latest NGT norms effluent total nitrogen ≤ 10 mg/L. It seems that there is a typographical error in the effluent quality of total nitrogen. The tender mentions that the effluent TN ≤ 1	Please consider N total ≤ 10 mg/l

		mg/l. Therefore, we understand that effluent total nitrogen ≤ 10 mg/L is applicable in this tender which is as per latest NGT norms. Kindly confirm.	
7	General	We presume that there is no ingress of industrial wastewater in the sewage. Kindly Confirm	Confirmed
8	SBR Design Volume I 10.13 C Layout of proposed STP at Uchiyadra (10 MLD)	We presume that the layout and sizing of various process units provided with tender document is for tender purpose and are reference purposes only. Bidder shall design the STP as per tender guidelines and latest CPHEEO manual to achieve the desired outlet effluent parameters specified in tender. Kindly confirm.	Tender Conditions Shall prevail.
9	Process units Volume I Section V PER7 2.0 Process Requirements 1. Connecting sewage line to inlet Chamber 2. Inlet Chamber for MPS 3. Manual Screens (coarse screening) . . 27. Odour Control System for Raw Sewage Pumping and Sludge Handling area	We presume that treatment process unit list given in the tender is tentative and for reference purpose only. Bidder shall propose SBR based sewage treatment plant to achieve the desired outlet effluent parameters specified in tender. Kindly confirm.	Tender Conditions Shall prevail.

	28. PLC SCADA		
10	Process units Volume I Section V PER7 15. Post SBR Equalization Tank	Post SBR Equalization Tank is not a part of standard SBR based STP scheme. Also providing Post SBR Equalization Tank will increase the unnecessary power consumption of the plant. Therefore, we understand that the requirement of Equalization Tank shall be provided if required as per bidder's/technology provider's design. Kindly confirm.	CCT chamber can be considered as SBR outlet equalization tank.
11	Process units Volume I Section V PER7 24. Sludge thickener	Tender mentions the requirement of Sludge thickener but It does not mention the same in detailed specifications. Therefore, we understand that bidder is allowed to provide both mechanical and gravity thickener. Kindly confirm.	Sludge Thickner not Required
12	STP site levels Volume I 10.13 C Proposed Location for Uchiyarda STP 1. IL of sewer: 200.612 m 2. Average ground level: Around 198 m Treated outlet sewer pipe: 203.8m	From the levels mentioned in the tender, it seems that either all the units will be on column or there will be requirement of tertiary pumping station. Therefore, we request you to confirm the levels and requirement of tertiary pumping station.	Please refer Annexure 2 for details.
13	Process units Volume I Section V (1B) PER33 Volume I 10.13 C **A. Disposal of treated effluent** 100% of the treated effluent will be reused as specified in the	Tender at one place mentions that the 100% of the treated effluent will be reused and in layout it mentions that treated outlet to be disposed in Jojari river. Kindly confirm the ultimate disposal route for the treated sewage.	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith 2 Nos. of Hydrants for reuse of Water and direct discharge to the Jojari River.

	bid and instructed by the procuring entity. Treated outlet to Jojari river		
14	General Geo Technical Investigation Report	We request you to please provide detailed Geo Technical Investigation Report including type soil strata, bore log locations, etc.	Please refer Annexure 8 for 10 MLD STP and Annexure 5 for 15 MLD STP plant. Also Please refer Section V (1B) PER 34 for details. In addition, for design of structures/ units, maximum SBC shall be taken as 10 T/m^2
15	Plot plan Volume I 10.13C Land Area = 4750 sq.m Plot area = 3546 sq.m Area required = 1200 sq.m	Tender mentions area of the plot plant but it does not mentions length and width of the plot plan. We request you to provide the detailed AUTO-CAD drawing of the plot plan with dimensions.	Please refer Annexure-2 for details
16	Valve Actuators Section V(4B) PER101 The actuator starters shall be integrally housed with the actuator in robustly constructed and totally enclosed weatherproof housing.	Integral actuators are complicated to maintain as compared to non-integral actuators. Integral actuators have compact electronics and parts in their housing which makes them difficult to replace for site person in case of any malfunction. Also the parts of integral actuator are not available easily and it becomes mandatory for contractor to ask for valve actuator supplier to attend and repair the same. Hence, kindly allow us use of non-integral actuators for the same.	Tender Conditions shall Prevail
17	Design Basis Section V(4B) PER106 Power is expected through single circuit 415 V overhead line from the Local Power Supply Company to be terminated in proposed new plant's Two Pole Structure, fuses and lightening	In this clause, availability of 415V supply from overhead line is mentioned. However, approved makes specify use of 11kV switchboard. Kindly re-confirm availability of incoming supply for plant operation.	Confirmed. However Electricity Loads of Plant shall be calculated as per Bidders design.

<table>
<tr><td></td><td>arrestors. Power is then transmitted through cables buried underground and terminated to the indoor 415 V switch gear board located in substation.</td><td>We assume LT supply 415V will be insufficient depending upon the electrical load demand of the plant and HT supply (11kV or above) will be required in this case.
Kindly confirm.</td><td></td></tr>
<tr><td>18</td><td>Cables

Section V4B PER119

6 sq.mm. Aluminium</td><td>Kindly allow us to use 4 sq.mm. as minimum size of Aluminium cable.</td><td>Tender Condition Shall Prevail</td></tr>
<tr><td>19</td><td>SCADA Software

Section V (5) PER189

SCADA Software shall be of Server-Client architecture and One full development Runtime License is requirement.
The operator interface software, herein described as the SCADA shall be common for engineering and as operator works station.-an integrated package for developing and running automation applications and also to be just running the automation application.</td><td>People available in STP plant are not skilled to do programming in PLC & SCADA system and it is dangerous to do changes in PLC & SCADA with them. for this Expert programmer is required, who always carry required licenses and without them.

Hence, we request you to consider runtime software for PLC & SCADA.</td><td>Tender Condition Shall Prevail</td></tr>
<tr><td colspan="2">15 MLD STP</td><td></td><td></td></tr>
<tr><td>1</td><td>Technology provider

Sequential Batch Reactor
<table>
<tr><th>S No</th><th>Parameter</th><th>Value</th></tr>
<tr><td>10</td><td>All documents from SBR suppliers & GA drawing SBR Basin.</td><td>Shall be stamped and signed by technology supplier.</td></tr>
</table></td><td>Tender mentions that all the SBR documents shall be stamped and signed by technology supplier/provider but it does not mentions criteria for technology supplier/provider. Being technology driven plant, it also involves the process designs and supply of core equipment by the technology provider. Therefore, we request you to add the qualification criteria for technology provider also.
The below mentioned criteria is widely followed by various government bodies all over India including many STPs in</td><td>Tender Condition Shall Prevail.</td></tr>
</table>

		Rajasthan state such as 215 MLD STP at Delawas, Jaipur, RUIDSICO package A, B and C etc. We propose the criteria as follows; It shall be mandatory for the Bidder to submit a Technology Tie-up Agreement with an SBR Technology Provider for the SBR section having experience of providing SBR technology, supply of core technology equipment, supervision services during construction and operation for at least Three STPs of capacity of 15 MLD (or above) during last five years ending on the last day of the month previous to the one in which applications are invited These plants should be in operation satisfactorily for at least three years on the last day of the month previous to the one in which applications are invited and achieving the treated sewage quality as BOD ≤ 10 mg/L, COD≤ 50 mg/L, SS ≤ 20 mg/L, Phosphorous ≤ 2 mg/L, TN ≤ 10 mg/L. Performance Certificate for each work should be issued by the end user, duly certified by an officer not below the rank of Executive Engineer should be enclosed. The technology provider shall be enlisted as a SBR technology provider with any State Government, Central Government bodies. Kindly confirm. Kindly confirm.	
2	Peak Factor STP shall be designed with the conformity of latest CPHEEO manual	The peak factor for the design of STP is not traceable in the tender. Also, tender at various pages mentions that, the design of the sewage treatment plant shall be as per latest CPHEEO manual.	Peak Factor-2.25

<table>
<tr><td></td><td></td><td>Therefore, we understand that the peak factor for the design of STP shall be as per latest CPHEEO manual i.e. 2.25.

Kindly confirm</td><td></td></tr>
<tr><td>3</td><td>Raw sewage characteristics

Volume I

Section V (1B) PER 29

<table><tr><td>S No</td><td>Parameter</td><td>Value</td></tr><tr><td>10</td><td>Capacity</td><td>Based on 8 hrs. operation in a day</td></tr></table></td><td>For all the Rajasthan tenders, the capacity of the centrifuge is calculated on 16 hr/d working time.
Kindly allow the same in this tender also.</td><td>18 Hours Operations per day</td></tr>
<tr><td>4</td><td>Raw sewage characteristics

Volume I
Section V PER7
2.1 Design parameter

BOD 5 @ 20 = 250 mg/l
COD = 1680 mg/l</td><td>As per tender, for inlet BOD=250 mg/L, corresponding inlet COD is 1680 mg/l. This shows, the COD/BOD ratio is on higher side. In any STP, it is nearly not possible to achieve effluent COD ≤ 50 mg/L from inlet COD of 1680 mg/L and if same is to be considered the cost of treatment will go very high. The inlet value of COD i.e. 1680 mg/L needs to be reviewed again.

Kindly consider.</td><td>Please refer annexure 1 for 10 MLD STP and Annexure 3 for 15 MLD STP.</td></tr>
<tr><td>5</td><td>Raw sewage characteristics

Volume I
Section V PER7
2.1 Design parameter TP = 16 mg/l</td><td>As per latest CPHEEO manual, for inlet BOD of 250 mg/L, the corresponding inlet Total Phosphorus value is 7.1 mg/L.
In the raw sewage parameters, total Phosphorous value is given as 16 mg/l which is exorbitantly high. Generally, in other tenders of Rajasthan, it is 5 mg/l.
Therefore, we request you to kindly recheck</td><td>Please refer annexure 1 for 10 MLD STP and Annexure 3 for 15 MLD STP.</td></tr>
</table>

		and reconfirm the Total Phosphorous to be considered for design.	
6	Effluent quality Volume I Section V PER8 2.2 Total nitrogen ≤ 1 mg/l	As per latest NGT norms effluent total nitrogen ≤ 10 mg/L. It seems that there is a typographical error in the effluent quality of total nitrogen. The tender mentions that the effluent TN ≤ 1 mg/l. Therefore, we understand that effluent total nitrogen ≤ 10 mg/L is applicable in this tender which is as per latest NGT norms. Kindly confirm.	Please consider N total ≤ 10 mg/l
7	General	We presume that there is no ingress of industrial wastewater in the sewage. Kindly Confirm	Confirmed
8	SBR Design Volume I 10.10 E Layout of proposed STP at VIVEK VIHAR (15 MLD)	We presume that the layout and sizing of various process units provided with tender document is for tender purpose and are reference purposes only. Bidder shall design the STP as per tender guidelines and latest CPHEEO manual to achieve the desired outlet effluent parameters specified in tender. Kindly confirm.	Tender Conditions Shall prevail.
9	Process units Volume I	We presume that treatment process unit list given in the tender is tentative and for reference purpose only.	Tender Conditions Shall prevail.

	Section V PER7 2.0 Process Requirements 1. Connecting sewage line to inlet Chamber. 2. Inlet Chamber for MPS 3. Manual Screens (coarse screening) . . 27. Odour Control System for Raw Sewage Pumping and Sludge Handling area 28. PLC SCADA	Bidder shall propose SBR based sewage treatment plant to achieve the desired outlet effluent parameters specified in tender. Kindly confirm.	
10	Process units Volume I Section V PER7 15. Post SBR Equalization Tank	Post SBR Equalization Tank is not a part of standard SBR based STP scheme. Also providing Post SBR Equalization Tank will increase the unnecessary power consumption of the plant. Therefore, we understand that the requirement of Equalization Tank shall be provided if required as per bidder's/technology provider's design. Kindly confirm.	CCT chamber can be considered as SBR outlet equalization tank
11	Process units Volume I Section V PER7 24. Sludge thickener	Tender mentions the requirement of Sludge thickener but It does not mention the same in detailed specifications. Therefore we understand that bidder is allowed to provide both mechanical and gravity thickener.	Sludge Thickner not Required
12	Process units Volume I Section V (1B) PER33	Tender at one place mentions that the 100% of the treated effluent will be reused and in layout it mentions that treated outlet to be disposed in Jojari river. Kindly confirm the	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith 2 Nos. of Hydrants for reuse of Water and

	A. Disposal of treated effluent 100% of the treated effluent will be reused as specified in the bid and instructed by the procuring entity. Treated outlet to Jojari river	ultimate disposal route for the treated sewage.	direct discharge to the Jojari River.
13	General Geo Technical Investigation Report	We request you to please provide detailed Geo Technical Investigation Report including type soil strata, bore log locations, etc.	Please refer Annexure 8 for 10 MLD STP and Annexure 5 for 15 MLD STP plant. Also Please refer Section V (1B) PER 34 for details. In addition, for design of structures/ units, maximum SBC shall be taken as 10 T/m^2
14	Valve Actuators Section V4B PER101 The actuator starters shall be integrally housed with the actuator in robustly constructed and totally enclosed weatherproof housing	Integral actuators are complicated to maintain as compared to non-integral actuators. Integral actuators have compact electronics and parts in their housing which makes them difficult to replace for site person in case of any malfunction. Also the parts of integral actuator are not available easily and it becomes mandatory for contractor to ask for valve actuator supplier to attend and repair the same. Hence, kindly allow us use of non-integral actuators for the same	Tender Conditions shall Prevail
15	Design Basis Section V4B PER106 Power is expected through single circuit 415 V overhead line from the Local Power Supply Company to be terminated in proposed new plant's Two Pole Structure, fuses and lightening arrestors. Power is then transmitted through cables buried	In this clause, availability of 415V supply from overhead line is mentioned. However, approved makes specify use of 11kV switchboard. Kindly re-confirm availability of incoming supply for plant operation. We assume LT supply 415V will be	Confirmed. However Electricity Loads of Plant shall be calculated as per Bidders design.

	underground and terminated to the indoor 415 V switch gear board located in substation	insufficient depending upon the electrical load demand of the plant and HT supply (11kV or above) will be required in this case. Kindly confirm.	
16	Cables Section V4B PER119 6 sq.mm. Aluminium	Kindly allow us to use 4 sq.mm. as minimum size of Aluminium cable.	Tender Condition Shall Prevail
17	SCADA Software Section V (5) PER189 SCADA Software shall be of Server-Client architecture and One full development Runtime License is requirement. The operator interface software, herein described as the SCADA shall be common for engineering and as operator works station.-an integrated package for developing and running automation applications and also to be just running the automation application.	People available in STP plant are not skilled to do programming in PLC & SCADA system and it is dangerous to do changes in PLC & SCADA with them. for this Expert programmer is required, who always carry required licenses and without them. Hence, we request you to consider runtime software for PLC & SCADA.	Tender Condition Shall Prevail
18	Weightage Factor for annual turnover Section 3 page 45 Evaluation Criteria	The weightage factor for the construction experience is not mentioned. Please provide the percentage escalation to be considered for previous work. Hence, we request you to provide clarity on same.	Tender Condition Shall Prevail.
M/s Vrindavan Constructions, Dhule			
10 MLD STP			
1	In the tender document Section III EQC6 you have required experience in Construction Experience in Key Activities of the following in last five (5) years to both the JV partners Lead Partner - Must have executed minimum 2.50 MLD Work. Lag partner - Must have executed minimum 1.25 MLD Work.	In this regard we hereby request you to kindly consider the condition as follows. "Any One Partner must meet the Requirement."	Please refer Corrigendum No. 2 of this NIT.
2	General	Time given for study and estimation of the project is very less so kindly extend the date of submission for further 20 days.	Please refer Corrigendum No. 1 of this NIT.

<table>
<tr><td>3</td><td>General</td><td>Land availability shown at page no. 81 is 4750 sq mtr, which is very small to accommodate 10 MLD plant with all other required amenities.</td><td>Please refer Annexure 2 for land area details.</td></tr>
<tr><td colspan="4">15 MLD STP</td></tr>
<tr><td>1</td><td>In the tender document Section III EQC6 you have required experience in Construction Experience in Key Activities of the following in last five (5) years to both the JV partners.
Lead Partner - Must have executed minimum 3.75 MLD Work.
Lag partner - Must have executed minimum 2.00 MLD Work.</td><td>In this regard we hereby request you to kindly consider the condition as follows.
"Any One Partner must meet the Requirement."</td><td>Please refer Corrigendum No. 2 of this NIT.</td></tr>
<tr><td>2</td><td>General</td><td>Time given for study and estimation of the project is very less so kindly extend the date of submission for further 20 days</td><td>Please refer Corrigendum No. 1 of this NIT.</td></tr>
<tr><td>3</td><td>General</td><td>Land availability shown at page no. 89 is 15300 sq mtr, whereas at page no. 92 it has been shown as 9500 sq mtr only. please clarify.</td><td>Total Land Available for Proposed STP is 31317 Sqm. Please refer Annexure 4 for Land area details.</td></tr>
<tr><td>4</td><td>General</td><td>Scope has provision of Odour control unit & solar Plant installation. this will require at minimum 17000 to 2000 sq mtr land area please ensure the availability of land</td><td>Total Land Available for Proposed STP is 31317 Sqm. Please refer annexure 4 for details.</td></tr>
<tr><td>5</td><td>General</td><td>In inlet parameter of sewerage the value of COD is shown as 1680 mg/ltr, which seems very high. Please confirm this.</td><td><table><tr><td>Design parameter</td><td>Value for design purpose(STP)</td></tr><tr><td>BOD 5 @ 20o C</td><td>340 mg/l</td></tr><tr><td>COD</td><td>620 mg/l</td></tr><tr><td>TSS</td><td>350 mg/l</td></tr><tr><td>TKN (as N)</td><td>15.3 mg/l</td></tr><tr><td>TP</td><td>4.9 mg/l</td></tr><tr><td>PH</td><td>6-9</td></tr><tr><td>Flow</td><td>As per capacity mentioned above Average Flow</td></tr></table>Please refer Annexure-3 for details</td></tr>
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<tr><td colspan="4">10 MLD STP</td></tr>
<tr><td>1</td><td>Bid Submission Date</td><td>As you are aware due to ongoing pandemic</td><td>Please refer Corrigendum No. 1 of</td></tr>
</table>

	NIT, Page No. 16 Last date and time of Online submission of technical proposal and financial proposal : 25th Jan, 2021 upto 6:00 PM	issues all supplier/vendor offices are working with the limited/partial manpower resources. In addition to above may government holidays will be coming this week. In view of the above, we request you to extend the bid submission date for min 30 days from the date of pre bid reply received.	this NIT.
2	Bid Security Section I, Clause 3.10.2, Page No. 16 Bid Security shall be 2% of the value of the Works indicated in the NIB. For bidders registered with the Procuring Entity, the bid security shall be 0.5% of the value of works indicated in the NIB. The bid security shall be in Indian Rupees, if not otherwise specified in the BDS.	As per the central government office memorandum regarding General Financial Rule, 170 (Published on 12th November, 2020), no provisions regarding Bid Security should be kept in the Bid Documents in future and only provision for Bid Security Declaration should be kept in the Bid Documents. This will applicable to all the tenders published till 31.12.2021. Circular is attached herewith for your reference. With respect to it, Please make the necessary changes in the tender bid security clause.	Please refer the subsequent para of the said clause "This BID Security Amount is not required to be submitted alongwith Bid, only Declaration Form is to submitted. However the above referred amount may be required to be submitted by the Bidder at later stage as per the case may be, as specified in Declaration Form" For clarity.
3	Performance Security ITB Clause 6.3.1, Page No. 48 The successful Bidder will have to submit Performance Security within the period as stipulated in ITB 6.3.1, as detailed below; a) Performance Security (for Execution phase) - @ 3 % of the Capital Cost b) Performance Security (for overlapping phase (24 - 36 Month duration) - @ (3 % of Capital Cost + 5% of the O & M Cost) c) Performance Security (for O&M phase) - @ 5% of the O & M Cost. 1. The performance security (for Execution phase) shall be returned to the Contractor within 28 days of the last Defects Liability Period	As per the central government office memorandum regarding General Financial Rule, 171 (Published on 12th November, 2020), Performance Security from existing 5-10% to 3% of the value of the contract. Circular is attached herewith for your reference. Please look into this matter and make necessary changes to revise the performance security amount.	As per **FINANCE (G&T) DEPARTMENT**,NOTIFICATION **Jaipur, December 18, 2020** The successful bidder at the time of signing of the contract agreement, may submit option for deduction of performance security from his each running and final bill @ 3% of the amount of the bill. This shall be only valid till December 2021, thereafter if any amendment are being issued by FD, GoR, then same shall be applicable for this Performance Security clause of the work. Rest conditions for Performance Security and Retention remains same as per Tender Document i.e. Performance Security (for O&M

			phase) - @ 5% of the O & M Cost and as **Clause 45: Retention** of Section VIB SCC30 and **Clause 45: Retention** of Section VIA GCC14
4	Construction Experience in key Activities Section III, Clause 4.3, Page No. 55 Should have successfully completed at least 1 (one) project of operation and maintenance for minimum 1 year of 7.5 MLD (or above) STP Plant during the last 5 years ending on the last day of the month previous to the one in which applications are invited. For joint Venture/Consortium For Lead Partner - Must have executed minimum 3.75 MLD wrok For Lag Partner - Must have executed minimu 2.00 MLD Work	We request you to consider that any partner/one partner combined/individually meet the requirement.	Please refer Corrigendum No. 2 of this NIT.
5	Advance Payment Section VI, GCC, Clause 48, Page No. 300 No advance payment shall be made	We request you to provide interest free advance payment of 10% of contract value.	Tender Condition Shall Prevail.
6	Site Plan of proposed STP Part II- Requirements	Drawing given in PDF is blurred & levels are not readable. Plot dimensions are also not mentioned. Pl. provide Site Plan layout in ACAD marked with all dimensions & Levels.	Please refer Annexure no-2 for details.
7	Soil Test report Part II- Requirements	Pl. provide soil test report of STP Plot	Please refer Annexure-8.Soil report Attached for reference. Also Please refer Section V (1B) PER 34 for details. In addition, for design of structures/ units, maximum SBC shall be taken as 10 T/m^2
8	Period of Completion Section II BDS 2 & SECTION VI (B1) SCC47 Section II BDS 2 Clause 1.1.2 & SECTION VI (B1) SCC47 Clause 1.0	Pl. confirm project completion time is 24 months inclusive of 3 Months Trial run as per Section II BDS 2 or 27 months (24 months construction + 3 months Trial runs) as per SECTION VI (B1) SCC47	Project completion time is 24 months inclusive of 3 Months Trial run as per Section II BDS 2
9	Site Plan of proposed STP Part II- Requirements	Levels given on drawing are only towards boundary side of plot. No levels given inside of Plot. Pl. provide contour plan/levels for whole site.	Please refer Annexure-2 for details
10	TPI Agency Charges Section V PER3	Pl. confirm TPI agency charges, their lodging, boarding charges etc. will be	Section V (1A) PER11 Para (m) and Section V (1A) PER13, 14 Para (kk)

	General Obligations of the contractor: clause b & c	paid/reimbursed by Client. Contractor has to only consider the cost of arranging testing at manufacturer's work.	(iv) shall prevail.
11	Treated Effluent pumping system Section V PER3 & Section V PER5, Section V (1B) PER33	Section V PER3 mentions "Feeding the treated sewage to Jojari River "whereas Section V PER5 mentions treated Effluent pumping system. Further clause 10A mentions "100% of the treated effluent will be reused as specified in the bid and instructed by the procuring entity". Pl. check & confirm final requirements. if it is to be reused, Pl. elaborate on usage purpose.	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith 2 Nos. of Hydrants for reuse of Water and direct discharge to the Jojari River.
12	STP Plot Section V PER5	From the given drg. & N/E Co-ordinates, it appears that there is some existing Lake/pond on STP site. Pl. confirm if any such pond/lake exists & depth of the same.	Please refer Annexure 2 for Details
13	Treated Water Disposal into Jojari River or lake as make up water Section V PER3 & Section V PER6 Clause 1 on Section V PER3 & Clause 2.0 Process requirements on Section V PER6	Section V PER3 mentions "Feeding the treated sewage to Jojari River "whereas Section V PER5 "feeding the treated water to the lake as makeup water". Pl. check & Confirm	Both provisions shall be made i.e. Underground RCC Tank with ESR (200KL Capacity) alongwith 2 Nos. of Hydrants for reuse of Water and direct discharge to the Jojari River.
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15	Approved Vendor list for Mechanical works Part II- Requirements	Approved Vendor list for Mechanical works is missing. Pl. provide the same	As per List of Makes RUIDP SOR 2017 and as approved by Engineer In charge
16	Power Consumption values Section VII PS3	it mentions" All Bidders shall fill up the format for power consumption given in annexure 2". The same value format is available under online price bid. Hence we assume we need to submit power consumption values only under Online price bid & no separate Anneure 2 needs to be	Bidder need not to fill any value in Section VII Price Schedule. Only online Price Bid (in form of Excel) is to be filled for quoting of rates. However, Bidder need to fill the Guaranteed Power Consumption Details in Bidding Form (BF -

		filled. Pl. check & Confirm	Section IV) and these values should match with the online Price Bid.
17	Raw & treated Sewage Gravity Lines Section V PER3 & Section V4B PER92	Section V PER3 mentions "RCC NP4 grade for raw & treated sewage" whereas Section V4B PER92 "RCC NP4 grade for raw & treated sewage". Pl. check & confirm MOC to be considered	Please consider NP4 in place of NP2. Rest all conditions as specified in the Tender.
18	MOC of SBR Decanter Section V4B PER86 Specifications for Decanting Drive	It mentions " The decanting device shall be rotating moving arm devices of Stainless Steel ". Pl. confirm grade of SS as SS 304 or 316	As per Bidders Design and as approved by EIC.
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21	Operating Hours for Sludge Feed Pump to Centrifuge & Centrifuge Section V (1B) PER29 Sludge Feed Pump to Centrifuge & Centrifuge	Operating hours for Sludge Feed Pump to Centrifuge & Centrifuge units is mentioned as 8 hours/day. This will lead to a big size pumps & centrifuge units. Normally operating hours of these units is kept between 16-20 hours/day. Pl check & confirm	18 Hours Operations per day
22	Strength of Polyelectrolyte solution Section V (1B) PER30	Strength of PE solution is mentioned as 0.3%. This is very high & the PE solution is highly Viscous. Normally its max 0.1% solution. Pl. check & confirm	Tender Conditions Shall Prevail.
23	Minimum size of Air Blower cum Administrative cum MCC & PLC/Control Building, laboratory Section V (1B) PER30 Air Blower cum Administrative cum MCC & PLC/Control Building	Pl. mention the minimum size of Admin Block, laboratory, Blower room to be provided so as to bring all bidders to common platform. Also mention the capacity & MOC of overhead tank & underground tank to be provided.	Please refer Annexure 11 for details. MOC for Tank shall be of RCC.

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<tr><td>31</td><td>Treated Sewage quality
Section V PER8
Clause 2.2 Treated Sewage quality</td><td>This clause mentions " In event of new standards issued by CPCB, contractor has to comply the same for which no payment shall be admissible". We assume this clause is not</td><td><table><tr><td colspan="2">Characteristics of the treated sewage shall be as follows: For STP</td></tr><tr><td>BOD</td><td>≤ 10 mg/l</td></tr></table></td></tr>
</table>

		applicable since contractor shall be designing & constructing plant to match treated water quality requirements as mentioned in clause 2.2. Pl. check & confirm	COD ≤ 50 mg/l TSS ≤ 10 mg/l NH4-N ≤ 5 mg/l N Total ≤ 10 mg/l Total Phosphorus ≤ 2 mg/l Fecal coliform ≤ 100 MPN/100 ml Out Flow Outlet of 10 MLD Treated sewer flow
32	Length of Treated Sewage line Part II- Requirements	Pl. confirm Length of treated sewage line.	Bidder can have Site visit and accordingly envisaged the proposed Length of treated Sewarage Line and consider the same in his costing.
33	Site office Part II- Requirements	Pl. mention size of Site Office to be provided for Client/PMC & whether its temporary construction or permanent Construction	Please refer Section V (1A) PER15 (Site Office during Construction) and Section VIB SCC 40 Clause 85.
15 MLD			
1	Bid Submission Date NIT, Page No. 16 Last date and time of Online submission of technical proposal and financial proposal : 25th Jan, 2021 upto 6:00 PM	As you are aware due to ongoing pandemic issues all supplier/vendor offices are working with the limited/partial manpower resources. In addition to above may government holidays will be coming this week. In view of the above, we request you to extend the bid submission date for min 30 days from the date of pre bid reply received	Please refer Corrigendum No. 1 of this NIT.
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<tr><td>31</td><td>Treated Sewage quality
Section V PER8
Clause 2.2 Treated Sewage quality</td><td>This clause mentions " In event of new standards issued by CPCB, contractor has to comply the same for which no payment shall be admissible". We assume this clause is not applicable since contractor shall be designing & constructing plant to match treated water quality requirements as mentioned in clause 2.2. Pl. check & confirm</td><td><table><tr><td colspan="2">Characteristics of the treated sewage shall be as follows: For STP</td></tr><tr><td>BOD</td><td>≤ 10 mg/l</td></tr><tr><td>COD</td><td>≤ 50 mg/l</td></tr><tr><td>TSS</td><td>≤ 10 mg/l</td></tr><tr><td>NH4-N</td><td>≤ 5 mg/l</td></tr><tr><td>N Total</td><td>≤ 10 mg/l</td></tr><tr><td>Total Phosphorus</td><td>≤ 2 mg/l</td></tr></table></td></tr>
</table>

			Fecal coliform: ≤ 100 MPN/100 ml Out Flow: Outlet of 10 MLD Treated sewer flow
32	Length of Treated Sewage line Part II- Requirements	Pl. confirm Length of treated sewage line.	Bidder can have Site visit and accordingly envisaged the proposed Length of treated Sewarage Line and consider the same in his costing.
33	Site office Part II- Requirements	Pl. mention size of Site Office to be provided for Client/PMC & whether its temporary construction or permanent Construction	Please refer Section V (1A) PER15 (Site Office during Construction) and Section VIB SCC 39 Clause 84.

Executive Engineer (STP)
Jodhpur Development Authority
Jodhpur

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Email : ambayservicesjpr@gmail.com

TEST REPORT

ANNEXURE : 1

Report Number	ULR-TC637320000000750F	**Date of Issue**	20/01/2020
Description of Sample	Sewage water	**Date of Testing**	15-20/01/2020
		Date of Received	15/01/2020
Location/ Source: Near Proposed Vehiyarda STP Plant/ Sewage Water		**Issue to:** M/s Egis India Consulting Engineer Pvt. Ltd. Egis Tower Plot No. 66, Sector-32, Gurgaon, Haryana C/o JDA, Jodhpur	

S. No.	Characteristics	Test –Value	Method of Test
1.	Total Suspended Solid, mg/l	320	IS-3025 (P-17)-1984
2.	pH	6.87	IS: 3025 (P-11): 2006
3.	COD at , mg/l	650	IS: 3025(P-58)-2006
4.	BOD (3 Days at 27°C), mg/l	320	IS: 3025 (P-44)-1993
5.	Dissolve oxygen, mg/l	ND	IS: 3025 (P-38)-1989
6.	Oil & Grease, mg/l	7.0	IS: 3025 (P-39)-1991

Note: 1. ND stands for Not Detectable.
2. Statement of Conformity- NA
3. Decision Rule (In case of borderline)-NA
4. Opinion & Interpretation- NA

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TEST REPORT

Report Number	ATL/JPR(1501B01)2020	**Date of Issue**	20/01/2020
Description of Sample	Sewage water	**Date of Testing**	15-20/01/2020
		Date of Received	15/01/2020
Location/ Source: Near Proposed Vehiyarda STP Plant/ Sewage Water		**Issue to:** M/s Egis India Consulting Engineer Pvt. Ltd. Egis Tower Plot No. 66, Sector-32, Gurgaon, Haryana C/o JDA, Jodhpur	

S. No.	Characteristics	Test –Value	Method of Test
1.	Total Kjeldahl Nitrogen, mg/l	14.5	APHA-22nd Ed-2012
2.	Total Phosphate (as PO_4), mg/l	5.2	APHA-22nd Ed-2012

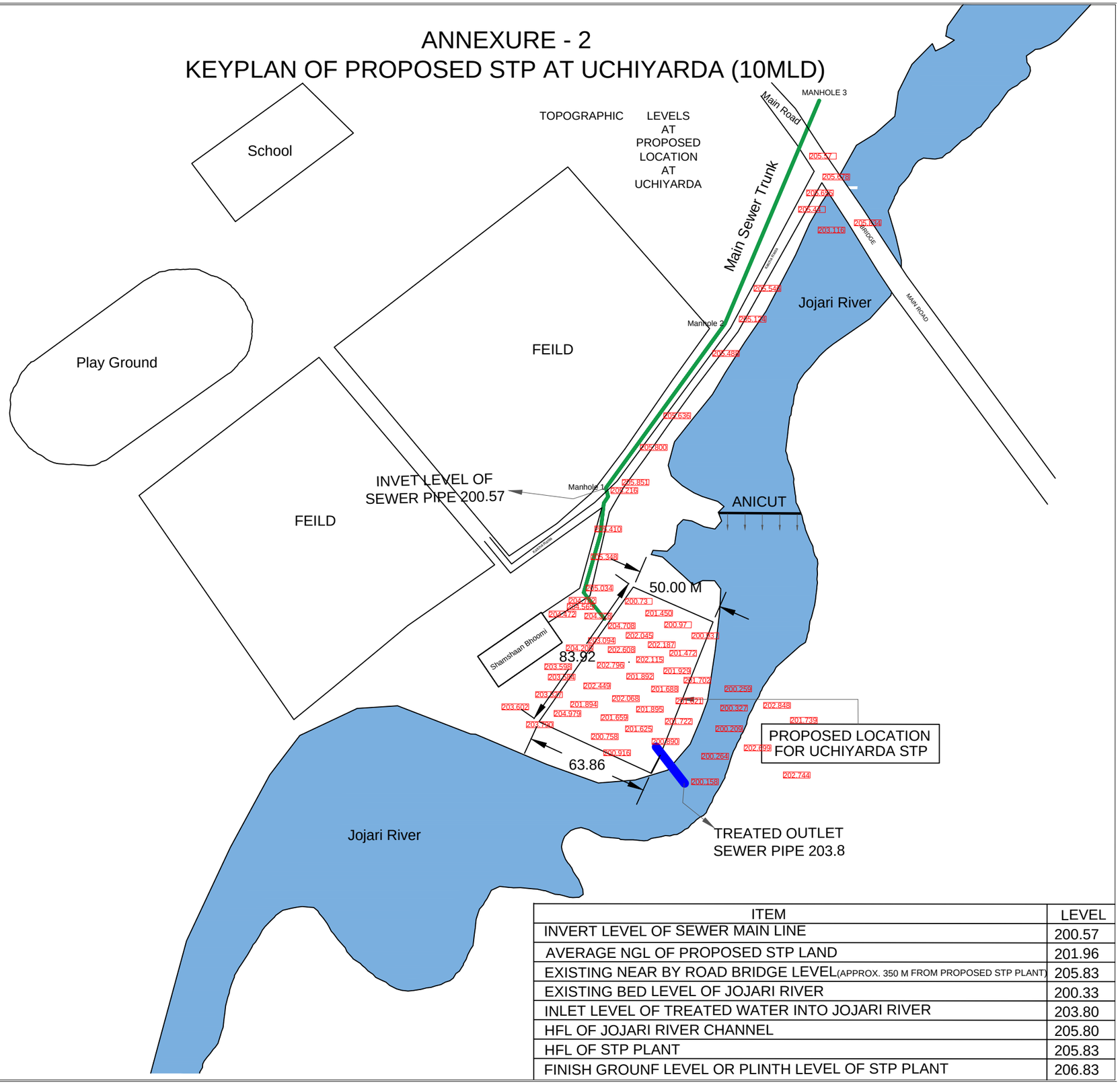
Note: ND stands for Not Detectable.

***********End of Report***********

Authorized Signatory

1. The result listed refer only to the tested sample and applicable parameters endorsement of product is neither inferred not implied.
2. Total liability of our lab. is limited to the invoiced amount.
3. Sample will be destroyed after 10/30days form the date of issue of test report.
4. This report is not be reproduced wholly or in part and cannot be used as an evidence in the court of law and should not be used in any advertising media without our special permission in written.

ANNEXURE - 2
KEYPLAN OF PROPOSED STP AT UCHIYARDA (10MLD)



ITEM	LEVEL
INVERT LEVEL OF SEWER MAIN LINE	200.57
AVERAGE NGL OF PROPOSED STP LAND	201.96
EXISTING NEAR BY ROAD BRIDGE LEVEL(APPROX. 350 M FROM PROPOSED STP PLANT)	205.83
EXISTING BED LEVEL OF JOJARI RIVER	200.33
INLET LEVEL OF TREATED WATER INTO JOJARI RIVER	203.80
HFL OF JOJARI RIVER CHANNEL	205.80
HFL OF STP PLANT	205.83
FINISH GROUNF LEVEL OR PLINTH LEVEL OF STP PLANT	206.83

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TEST REPORT

ANNEXURE - 3

Report Number	ULR-TC637320000000751F	**Date of Issue**	20/01/2020
Description of Sample	Sewage water	**Date of Testing**	15-20/01/2020
		Date of Received	15/01/2020
Location/ Source: Near Proposed Vivek Vihar STP Plant/ Sewage Water		**Issue to:** M/s Egis India Consulting Engineer Pvt. Ltd. Egis Tower Plot No. 66, Sector-32, Gurgaon, Haryana C/o JDA, Jodhpur	

S. No.	Characteristics	Test –Value	Method of Test
1.	Total Suspended Solid, mg/l	350	IS-3025 (P-17)-1984
2.	pH	7.08	IS: 3025 (P-11): 2006
3.	COD, mg/l	620	IS: 3025(P-58)-2006
4.	BOD (3 Days at 27^0C), mg/l	340	IS: 3025 (P-44)-1993
5.	Dissolve oxygen, mg/l	0.1	IS: 3025 (P-38)-1989
6.	Oil & Grease, mg/l	18	IS: 3025 (P-39)-1991

Note: 1. Statement of Conformity- NA
2. Decision Rule (In case of borderline)-NA
3. Opinion & Interpretation- NA

AMBAY TESTING LABORATORY JAIPUR

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TEST REPORT

Report Number	ATL/JPR(1501B01)2020	**Date of Issue**	20/01/2020
Description of Sample	Sewage water	**Date of Testing**	15-20/01/2020
		Date of Received	15/01/2020
Location/ Source: Near Proposed Vivek Vihar STP Plant/ Sewage Water		**Issue to:** M/s Egis India Consulting Engineer Pvt. Ltd. Egis Tower Plot No. 66, Sector-32, Gurgaon, Haryana C/o JDA, Jodhpur	

S. No.	Characteristics	Test –Value	Method of Test
1.	Total Kjeldahl Nitrogen, mg/l	15.3	APHA-22nd Ed-2012
2.	Total Phosphate (as PO_4), mg/l	4.9	APHA-22nd Ed-2012

************End of Report***********

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1. The result listed refer only to the tested sample and applicable parameters endorsement of product is neither inferred not implied.
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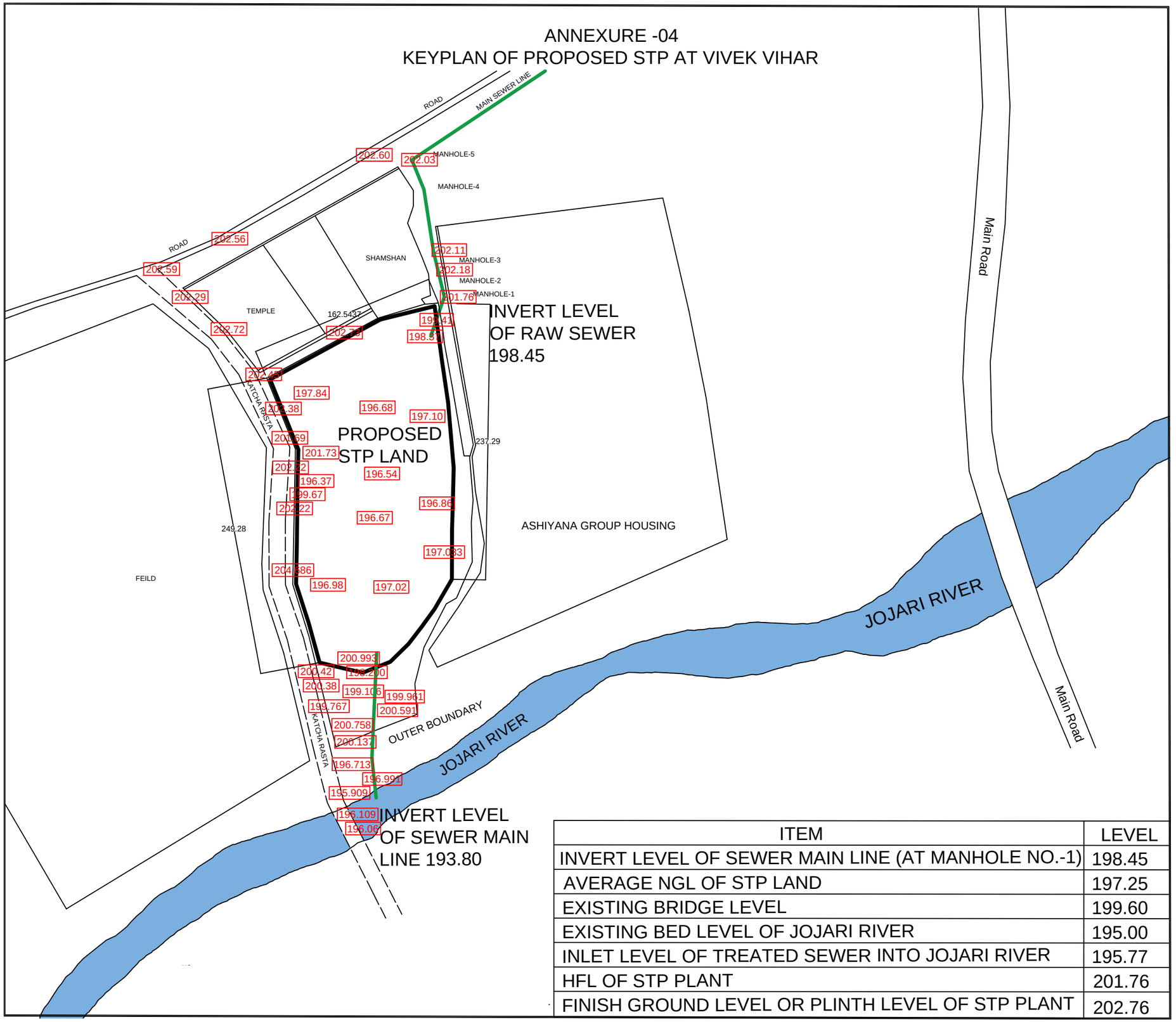
ANNEXURE -04
KEYPLAN OF PROPOSED STP AT VIVEK VIHAR



ITEM	LEVEL
INVERT LEVEL OF SEWER MAIN LINE (AT MANHOLE NO.-1)	198.45
AVERAGE NGL OF STP LAND	197.25
EXISTING BRIDGE LEVEL	199.60
EXISTING BED LEVEL OF JOJARI RIVER	195.00
INLET LEVEL OF TREATED SEWER INTO JOJARI RIVER	195.77
HFL OF STP PLANT	201.76
FINISH GROUND LEVEL OR PLINTH LEVEL OF STP PLANT	202.76

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ANNEXURE - 5

SOIL INVESTIGATION REPORT

R.NO.	MG/TR/EIC/VIVEKVIHAR/011325
CLIENT	M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD.
NAME OF WORK	CONSTRUCTION OF STP PLANT.
LOCATION	VIVEK VIHAR, JODHPUR.
NUMBER OF POINTS	ONE POINT OF 10.0 M DEPTH.
DATE OF REPORTING	17.OCT.2020

Resi. : "SHIVODAY", G-48, SHASTRI NAGAR, JODHPUR - 342 003 TEL.: 2637695, 2432401, 5102418

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-: LIST OF SYMBOLS:-

B	Width of foundation
C	Cohesion
Cn	Overburden correction
dc,dq,dγ	Depth factors
D	Depth of foundation
F	Factor of safety
N	Number of blows (SPT)
Nc,Nq,Nγ	Bearing capacity factors
PI	Plasticity Index
WL	Liquid limit
Wp	Plastic limit
Ws	Shrinkage limit
q	Effective overburden pressure
q ult	Ultimate bearing capacity
q net	Net bearing capacity
q ult_net	Net Ultimate bearing capacity
q s	Safe bearing capacity
SPT	Standard penetration test
Ø	Angle of Internal friction
UDS	Undisturbed sample

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-: LIST OF SYMBOLS:-

SP- **POORLY GRADED SAND**

SM- **SILTY SAND**

GM- **SILTY GRAVELS**

GP- **POORLY GRADED GRAVELS**

GC- **CLAYEY GRAVELS**

R- **ROCK**

Methods Of Computing Safe Bearing Capacity

SHEAR FAILURE METRHOD (6403:1981)	APPLIED
SETTLEMENT METHOD (8009:1976)	APPLIED
N-Ø METHOD	APPLIED
BEARING PRESSURE FOR THE ROCK	N.A.
LOAD SETTLEMENT GRAPH	N.A.

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Asstt. Manager Tech. Sec.

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1.0 INTRODUCTION

It is proposed to carryout soil investigation for the work :- "CONSTRUCTION OF STP PLANT" For M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD.

The M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD. entrusted Moni's Grosam Engineering Lab to carry out soil investigation at the proposed location i.e. at VIVEK VIHAR, JODHPUR.

The schedule of work has been decided by the Engineer In charge. The details are given in the scope of work.

2.0 OBJECTIVE OF INVESTIGATION

Objective of the sub soil investigation is to be determine the following

Nature of the soil strata

1. Physical properties of the sub soil under the foundation of proposed structure.
2. Mechanical properties such as bearing capacity of the soil

Soil investigation was planned for:

A) boring of bore hole at the site up to required depth as per IS:1892 and collection of soil sample (undisturbed) at every change of strata or 1.0m interval and conducting standard penetration test (SPT) as per IS:2131 up to required depth or refusal whichever is earlier including transportation of required machinery and subsequent shifting of equipments from place to place.

a) 0.0 to 10.0m - 1 Nos.

3.0 PROPOSED STRUCTURE & LOCATION

It is proposed to construct Structure for the "CONSTRUCTION OF STP PLANT For M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD." and the soil investigation are required to be done at this location.

4.0 EXTENT OF INVESTIGATION

A) Boring of bore hole at the site up to required depth as per IS:1892 and collection of soil sample (undisturbed) at every change of strata or 1.5m

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interval and conducting standard penetration test (SPT) as per IS:2131 up to required depth or refusal whichever is earlier including transportation of required machinery and subsequent shifting of equipments from place to place.

1) Carrying out the following test on soil samples
   a) Sieve Analysis
   b) Hydrometer Analysis
   c) Liquid Limit
   d) Plastic Limit, Bulk/Dry Density
   e) C-Ø Analysis, Swelling pressure

2) Chemical Analysis of Soil

Chemical Analysis of Soil specific to chloride & Sulphate contents at foundation level.

3) Test for water : Not required.

4) Classification of soil

Report writing including classification of soil recommendation of bearing Capacity with analysis of settlement criteria & shear analysis.

Accordingly, One bore holes (i.e.10.0m depth 1 No) with standard penetration tests (SPT) were performed at the proposed locations. Soil samples were collected for further testing in the laboratory.

5.0 INVESTIGATION OF SOIL

The physical and mechanical properties of soils were determined by combination of in-situ and laboratory testing.

In situ Testing:-

In-situ testing was carried out at proposed site at one location had conducted by our Technical team.

Boring and Standard Penetration Test (SPT)

Total one bore hole were made at the location suggested by the Engineer-in-charge. The bore holes were made as per IS:1892 and sample were collected as required for laboratory testing.

Standard penetration tests have been conducted in the bore holes as per IS:2131-1981.The standard split spoon sampler attached to 'A' drill rods was driven in the bore holes by means of standard hammer of 63.5 Kg. wt.

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falling freely from a height of 75 cm .The sampler was driven for 45 cm. and numbers of blows for each 15 cm penetration were recorded. The numbers of blows for first 15 cm penetration is considered as seating drive and are not taken in to account. The number of blows required for last 30 cm penetration are taken as SPT number ("N" Values). If number of blows for last 30 cm penetration exceeds 50, it is said to be the refusal.

Tests results of standard penetration test (SPT) observed at the site have been presented in the table:

LABORATORY INVESTIGATION

The following laboratory tests have been conducted on the soil samples obtained from test bore hole.

a) Natural Moisture Content
b) Specific Gravity
c) Sieve Analysis
d) Hydrometer Analysis
e) Liquid Limit
f) Plastic Limit
g) Bulk/Dry Density, h) C-Ø Analysis

The above laboratory tests have been conducted as per relevant Indian Standard Codes (IS 2720) of practice. The results are presented in the table. The soil samples are identified as per IS:1498-1970.

6.0 GROUND WATER OBSERVATION

Ground water was encountered after 1.0 m depth at VIVEK VIHAR, JODHPUR.

7.0 RESULTS AND ANALYSIS :-

The safe bearing capacity of foundation has been calculated as given under. Keeping in view of very deep presence of the water table at the site after that correction factor for the ground water table has been taken into account for the calculation of safe bearing capacity of the soil following criteria has been incorporated.

1) Shear failure method:-

As per IS 6403-1981, considering:- general ,local and mixed shear failure as condition of soil.

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2) Settlement method:-
Observed SPT N value (number of blows) as per IS 2131 and peck at 1974 the allowable settlement taken 25 mm as per IS 1904.

3) N- Ø method
The observed N value have been corrected for our burden pressure an dilentency if required. The correction between N- Ø and corresponding bearing capacity has been determined as per IS 6403-1981.

4) BEARING PRESSURE FOR THE ROCK.

4.1 Estimate of safe bearing pressure from Rock Core Strength.

Uni-axial compressive strength test, for determination of SBC has been carried out on rock core sample with length to diameter ratio 2.0. At depth where RQD was very low, the samples collected during drilling were of shorter length. The sample had to be cut & reshaped so as to have length to diameter ratio 2.0. The safe bearing pressure is estimate from the equation
(IS 12070 1987)

$$Qs = qc \times Nj$$

. qs = Safe bearing pressure (gross)
. qc = Average compressive strength of the rock core
. Nj = Empirical coefficient depending upon the spacing of discontinuities

In present case the value of Nj has been taken as 0.1 .This is because the discontinuities are closely spaced.

4.2 Estimate of net safe bearing pressure from Rock Mass Rating (RMR)
An attempt has also been made to estimate net bearing pressure using RMR.RMR is calculated using a formula given by Bieniawaski 1978

$$RMR = 9 \log Q + 44$$

Here Q Rock mass quality index by barton et al 1975 of Norwegian Geotechnical Institute (NGI). Q is a factor which is related to the quality of rock mass depending on Rock Quality Designation (RQD) determined using a method

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proposed by Deere 1988. The quality of rock based on RQD is given by the following table

Rock Quality	RQD	RQD = (E Length of core piece> 10 cm/ Total core run length) x 100
Excellent	100-90	
Good	90-75	
Fair	75-50	
Poor	50-25	
Very Poor	25-0	

Note:-If actual subsoil condition during execution of work found different from what has been reported, the consultants are to be referred for suggestion prior to taking up of actual construction work at site.

Rock Quality based on RQD recorded for the borehole drilled at two location is very poor. RQD is not present.The estimate of the quality of rock based on RQD can then be used to estimate, rock mass quality index Q. Rock Mass quality index Q is read from the reference value given by Hoek & Brown 1980 and by also giving due consideration to the relation that exists between RQD & Q (Refer Barton etel. 1974). Rock mass quality index "Q" reference values given by Hoek and Brown 1980 are tabulated below:

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Quality of Rock	Rock Mass Quality Index "Q"
Exceptionally good	1000-400
Extremely good	400-100
Very good	100-40
Good	40-10
Fair	10-4
Poor	4-1
Very Poor	1-0.1
Extremely Poor	0.1-0.01
Exceptionally Poor	0.01-0.001

We have a complete sequence for estimating RMR of the stratum below foundation level. The Table below gives net safe bearing pressure based on RMR and is adopted from (IS 12070 1987) Table 3.

The following Table gives safe allowable bearing pressure based on the results of

Classification No	I	II	III	IV	V
Description of Rock	Very good	Good	Fair	Poor	Very Poor
RMR	100-81	80-61	60-41	40-21	20-0
Q(t/m2)	600-448	440-288	280-151	145-90-58	55-45-40

uniaxial compressive strength and rock mass rating calculations. The value of Rock Quality Index "Q" based on results obtained from drilling of the bore hole and study of rock quality designation has been taken as 0.1 and rock mass rating calculated. Based on this value safe allowable bearing pressure according to the table is calculated. The Bearing pressure between the various depth is calculated based on average compressive strength of the rock piece below natural ground level. This clause is not applicable because there was no rock found upto 10.0m depth i.e. depth of exploration in bore holes.

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REFERENCES

1. IS:1904-1978 Code of practice for design and construction of foundation on soil General Requirement

2.IS:6403-1981 Code of practice for determination of bearing capacity of shallow foundations.

3.IS: 8009 Code of practice for calculation of settlement of Part –I—1976 foundations

4. IS:1498-1970 Classification & Identification of soil for general engineering purpose.

5. IS: 2131-1981 Method of standard penetration test for soil.

6. IS: 4968 Method of sub surface soundings of soils.

7. Alam Singh (1994) Soil Engineering in Theory and Practice.

8. IS :12070 Code of practice for design and construction of Shallow foundation on Rocks

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CONCLUSIONS AND RECOMMENDATION FOR M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD.

On the basis of the in situ and laboratory investigation the following recommendation are made as under

1. Type of foundation : Square / Isolated (B=1.5).
2. Back filling should be done with proper compaction.
3. The safe bearing capacity at that bore holes had given in table.
4. The minimum foundation depth for proposed structure should be 2.0m or as suggested by structural designer.
5. Ground water was encountered in this bole hole after the depth of 1.0m at the investigated location . A water table correction factor of 0.5 has, however, been applied for all the calculation carried out for determination of net safe bearing capacity.
6. Bituminous coat / TP mastic paint / coal tar epoxy coat to be applied on column footing and column upto plinth and plinth beam to prevent the disastrous effect of the chemical water inflows.
7. LDPE film invariably to be provided beneath floor.
8. Cover should not be less than 75mm in column footings, column upto plinth level and plinth beam as per Table 16 , IS:456:2000 is code to be provided and concreting should be compacted and dense.
9. Use ordinary Portland Cement or Portland slag cement Or Portland pozzolana cement with minimum cement content 360 kg/m3 and maximum water cement ratio 0.50 is recommended. For Supersulphated cement or sulphate resisting Portland cement minimum cement content 320 kg/m^3 and maximum water cement ratio 0.50 is recommended.
10. To protect Against Chloride presence, the cover of the steel should be as per Table 16 , IS:456:2000. And concreting should be Compacted and Dense.
11. In the case of foundation on rock if there loose pockets and any crakes found then it should be cleaned and back filled with lean concrete.

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12. If actual subsoil condition during execution of work found different from what has been reported , the consultants are to be referred for suggestion prior to taking up of actual construction work at site.
13. Chemical test of the sub soil samples have not indicated any abnormal values. Ph Value 8.2 to 8.6, Chlorides 0.0046 to 0.0089, sulphate 0.0056 to 0.0076 % in bore holes.
    which would suggest no remedial measures to be adopted.
14. Absolute bearing pressure at different bores & different depth (t/m^2) is as follow:

S.No.	Depth In M	ABSOLUTE BEARING PRESSURE (T/M^2) FOR B-1.5M
		BH-1
1.0	1.0M	7.8
2.0	2.0M	10.8
3.0	3.0M	11.9
4.0	4.0M	13.0
5.0	5.0M	13.4
6.0	7.0M	14.3
7.0	8.0M	16.0
8.0	10.0M	19.3

For MONI'S GROSAM ENGG. LAB.
(Er.S.D.Bissa)
Retd. Addl. C.E.
AUTHORISED SIGNATORY
P.H.E.D.

(Er.O.D.BISSA)
Civil Engineer

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B-39, INDUSTRIAL ESTATE, NEW POWER HOUSE ROAD, JODHPUR - 342 003 (Raj.)

Tel.: 0291 - 2433910, Mobile : 94141 28695, 94144 77835 • E-mail : monis_lab54@yahoo.com • Website : www.monislab.com

BH NO - 01

(AS PER IS 18792-1979,4453-1980,4464-1967)

Bored For :- EGIS INDIA CONSULTING ENGINEERS PVT. LTD.
Type Of Boring :-Wash Boring
Diameter Of Bore :-100mm

BH No - 01
Depth of Bore -10.0m
Depth Of Casing :-up to Reqd., Depth
Date of Start 14.OCT.2020
Date of Completion 14.OCT.2020

Description of Strata	Soil Classification	Thickness of Strata	Depth From GL	Sample Type	N-Value Corted	Ground water level	core Recovery	RQD %	compressive strength (Mpa)	Remark
SP SANDY SOIL			1.0M	SPT	9		NIL	NIL	NIL	NIL
SM-GM SILTY SOIL WITH GRAVEL			2.0M	DS SPT	11	WL WL	NIL	NIL	NIL	NIL
SM-KANKAR SILTY SOIL WITH KANKAR			3.0M 4.0M	SPT SPT	16 20	WL WL	NIL	NIL	NIL	NIL
SM-GM SILTY SOIL WITH GRAVEL			5.0M	DS SPT	22	WL WL	NIL	NIL	NIL	NIL
SM-GM SILTY SOIL WITH GRAVEL			6.0M	DS DS		WL WL	NIL	NIL	NIL	NIL
SP-KANKAR SANDY SOIL WITH KANKAR			7.0M 8.0M	SPT SPT	26 29	WL WL	NIL	NIL	NIL	NIL
SP-KANKAR SANDY SOIL WITH KANKAR			10.0M	DS SPT	34	WL WL	NIL	NIL	NIL	NIL
BORE TERMINATED AT 10.0M										

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BORE HOLE NO-01

Depth	N-value	IS Classification Soil description	Sieve analysis & hydrometer test			Atterberg limit		Natural Moisture Content %	Specific Gravity	Density T/m3	Shear parameter		Free Swelling	*CHEMICAL TEST %*		
			G	S	SC	LL	PL				C	Ø		PH Value	Cholride	Sulphate
0.0-1.0M	N-1.0= 9	SP	15.0	75.0	10.0	NP	NP	2.4	2.57	1.56	0	30.0	NIL	8.2	0.0046	0.0056
1.0-2.0M	N-2.0= 11	SM-GM	32	47	21	41	36	WL	2.59	1.62	0.04	32	NIL	8.3	0.0054	0.0059
2.0-4.0M	N-3.0= 16	SM-KANKAR	34	44	22	42	35	WL	2.61	1.65	0.05	32	NIL	8.3	0.0061	0.0061
4.0-5.0M	N-4.0= 20	SM-GM	37	43	20	42	36	WL	2.62	1.68	0.03	32	NIL	8.4	0.0069	0.0066
5.0-6.0M	N-5.0= 22	SM-GM	38	40	22	44	37	WL	2.62	1.71	0.06	32	NIL	8.4	0.0077	0.007
	N-7.0= 26															
6.0-8.0M	N-8.0= 29	SM-KANKAR	33	47	20	41	36	WL	2.63	1.74	0.04	32	NIL	8.5	0.0083	0.0073
8.0-10.0M	N-10.0= 34	SM-KANKAR	34	45	21	41	35	WL	2.64	1.78	0.04	32	NIL	8.6	0.0089	0.0076

DEPTH	CORRECTED N-VALUE	REMARK
1.0M	15	NIL
2.0M	15	NIL
3.0M	20	NIL
4.0M	23	NIL
5.0M	24	NIL
7.0M	26	NIL
8.0M	29	NIL
10.0M	34	NIL

Soil Bearing Capacity as per IS 6403 (1) :1981 at 1.0 M

At the depth Of 1.0m — Assume foundation B=1.5 L=1.75

C=0.0,Ø=30, Sq=Sc=1.171 — Sy=0.657 Yd=1.56 — dq=dy=1+0.1Df/B√NØ = 1.115

Ø=Tan-1(0.67tanØ) = 21.14 — Nq= 7.37 Ny= 6.64

Qult-net=cN'cScdcIc+q'(N'q-1)SqdqIq+1/2BYN'y SydyIy.W= 12.97 + 2.84 = 15.81 t/m2

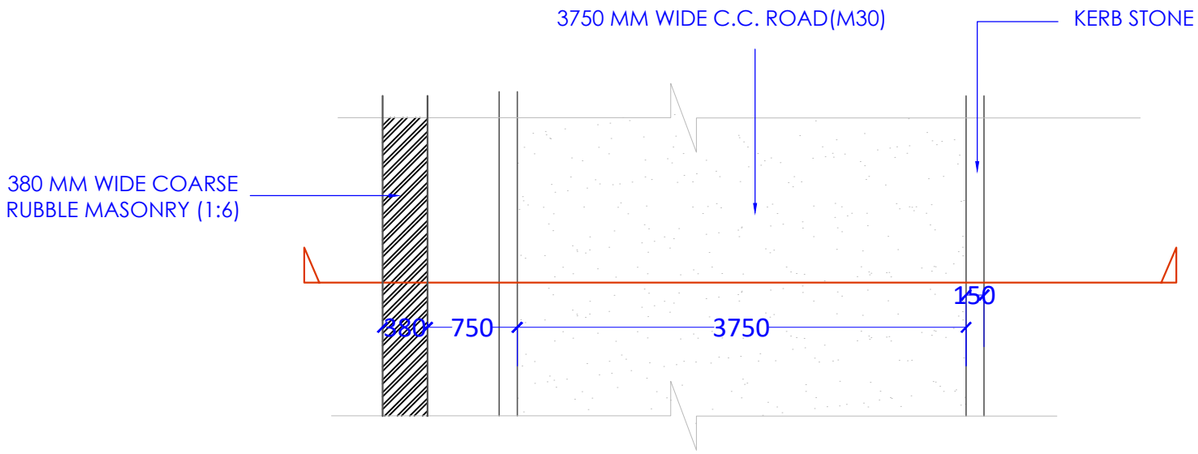
qnu = 15.81 t/m2
qns = 6.32 t/m2
qs = 7.88 t/m2

Settlement analysis as IS 8009 p(1) : 1976 at 1.0 M

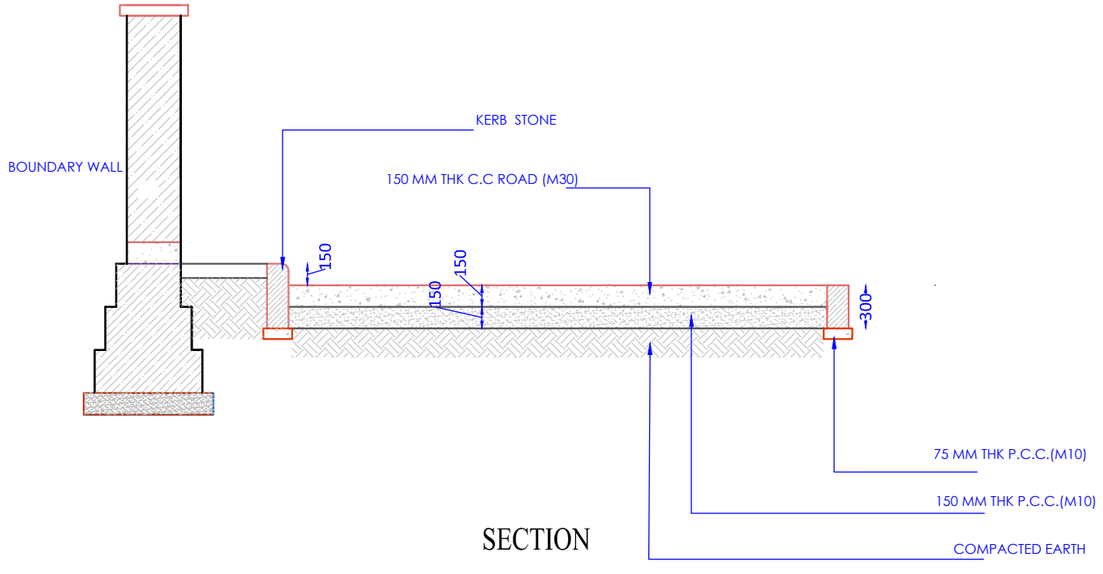
At the dpth 1.0 m SPT value 9, N= 15 foundation Width=1.5m

Settlement for Unit Pressure 11.5 mm — Safe bearing pressure 10.86 t/m2

ANNEXURE- 6
TYPICAL C.C ROAD DETAIL



PLAN

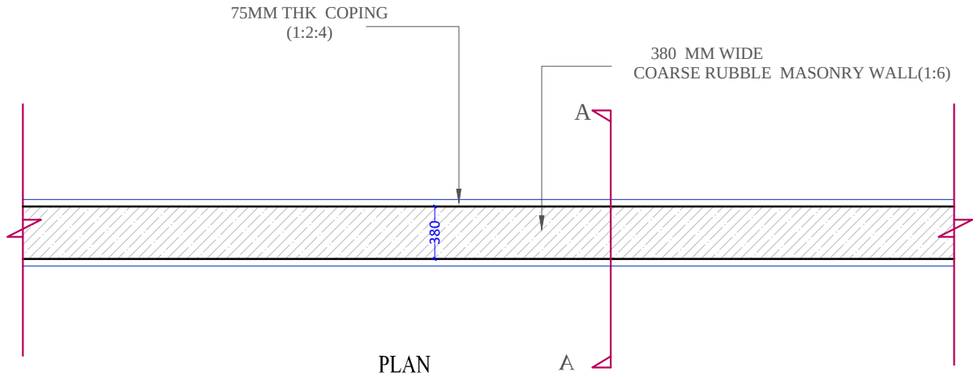


SECTION

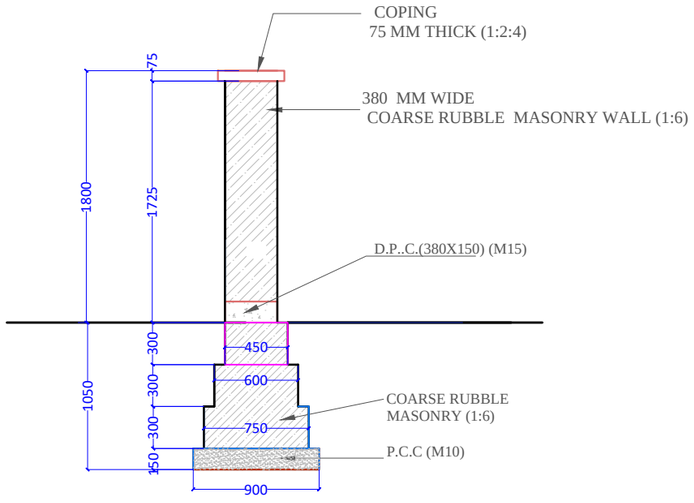
TYPICAL C.C. ROAD
DETAIL

PROJECT NAME:	CLIENT:	SUBMITTED BY:	SHEET TITLE:	
Consultancy work for Preparation of Detailed Project Report for Jojari Riverfront Development at Jodhpur	Jodhpur Development Authority, Jodhpur	Egis India Consulting Engineers Pvt Ltd	**TYPICAL C.C. ROAD DETAIL**	**6**

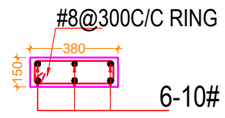
ANNEXURE- 7
TYPICAL BOUNDARY WALL DETAIL



PLAN



SECTION A-A



D.P.C DETAIL

TYPICAL BOUNDARY
WALL DETAIL

PROJECT NAME:	CLIENT:	SUBMITTED BY:	SHEET TITLE:	
Consultancy work for Preparation of Detailed Project Report for Jojari Riverfront Development at Jodhpur	Jodhpur Development Authority, Jodhpur	Egis India Consulting Engineers Pvt Ltd	**Proposal: Typical Boundary Wall Detail**	**7**

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ANNEXURE - 8

SOIL INVESTIGATION REPORT

R.NO.	MG/TR/EIC/UCHIYARDA/011324
CLIENT	M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD.
NAME OF WORK	CONSTRUCTION OF STP PLANT.
LOCATION	UCHIYARDA, JODHPUR.
NUMBER OF POINTS	ONE POINT OF 10.0 M DEPTH.
DATE OF REPORTING	15.OCT.2020

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-: LIST OF SYMBOLS:-

B	Width of foundation
C	Cohesion
Cn	Overburden correction
dc,dq,dγ	Depth factors
D	Depth of foundation
F	Factor of safety
N	Number of blows (SPT)
Nc,Nq,Nγ	Bearing capacity factors
PI	Plasticity Index
WL	Liquid limit
Wp	Plastic limit
Ws	Shrinkage limit
q	Effective overburden pressure
q ult	Ultimate bearing capacity
q net	Net bearing capacity
q ult_net	Net Ultimate bearing capacity
q s	Safe bearing capacity
SPT	Standard penetration test
Ø	Angle of Internal friction
UDS	Undisturbed sample

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-: LIST OF SYMBOLS:-

SP-	POORLY GRADED SAND
SM-	SILTY SAND
GM-	SILTY GRAVELS
GP-	POORLY GRADED GRAVELS
GC-	CLAYEY GRAVELS
R-	ROCK

Methods Of Computing Safe Bearing Capacity

SHEAR FAILURE METRHOD (6403:1981)	APPLIED
SETTLEMENT METHOD (8009:1976)	APPLIED
N-Ø METHOD	APPLIED
BEARING PRESSURE FOR THE ROCK	N.A.
LOAD SETTLEMENT GRAPH	N.A.

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1.0 INTRODUCTION

It is proposed to carryout soil investigation for the work :- "CONSTRUCTION OF STP PLANT" For M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD.

The M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD. entrusted Moni's Grosam Engineering Lab to carry out soil investigation at the proposed location i.e. at UCHIYARDA, JODHPUR.

The schedule of work has been decided by the Engineer In charge. The details are given in the scope of work.

2.0 OBJECTIVE OF INVESTIGATION

Objective of the sub soil investigation is to be determine the following

Nature of the soil strata

1. Physical properties of the sub soil under the foundation of proposed structure.
2. Mechanical properties such as bearing capacity of the soil

Soil investigation was planned for:

A) boring of bore hole at the site up to required depth as per IS:1892 and collection of soil sample (undisturbed) at every change of strata or 1.0m interval and conducting standard penetration test (SPT) as per IS:2131 up to required depth or refusal whichever is earlier including transportation of required machinery and subsequent shifting of equipments from place to place.

a) 0.0 to 10.0m - 1 Nos.

3.0 PROPOSED STRUCTURE & LOCATION

It is proposed to construct Structure for the "CONSTRUCTION OF STP PLANT For M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD." and the soil investigation are required to be done at this location.

4.0 EXTENT OF INVESTIGATION

A) Boring of bore hole at the site up to required depth as per IS:1892 and collection of soil sample (undisturbed) at every change of strata or 1.5m

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interval and conducting standard penetration test (SPT) as per IS:2131 up to required depth or refusal whichever is earlier including transportation of required machinery and subsequent shifting of equipments from place to place.

1) Carrying out the following test on soil samples
   a) Sieve Analysis
   b) Hydrometer Analysis
   c) Liquid Limit
   d) Plastic Limit, Bulk/Dry Density
   e) C-Ø Analysis, Swelling pressure

2) Chemical Analysis of Soil
   Chemical Analysis of Soil specific to chloride & Sulphate contents at foundation level.

3) Test for water : Not required.

4) Classification of soil
   Report writing including classification of soil recommendation of bearing Capacity with analysis of settlement criteria & shear analysis.

Accordingly, One bore holes (i.e.10.0m depth 1 No) with standard penetration tests (SPT) were performed at the proposed locations. Soil samples were collected for further testing in the laboratory.

5.0 INVESTIGATION OF SOIL

The physical and mechanical properties of soils were determined by combination of in-situ and laboratory testing.

In situ Testing:-

In-situ testing was carried out at proposed site at one location had conducted by our Technical team.

Boring and Standard Penetration Test (SPT)

Total one bore hole were made at the location suggested by the Engineer-in-charge. The bore holes were made as per IS:1892 and sample were collected as required for laboratory testing.

Standard penetration tests have been conducted in the bore holes as per IS:2131-1981.The standard split spoon sampler attached to 'A' drill rods was driven in the bore holes by means of standard hammer of 63.5 Kg. wt.

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falling freely from a height of 75 cm .The sampler was driven for 45 cm. and numbers of blows for each 15 cm penetration were recorded. The numbers of blows for first 15 cm penetration is considered as seating drive and are not taken in to account. The number of blows required for last 30 cm penetration are taken as SPT number ("N" Values). If number of blows for last 30 cm penetration exceeds 50, it is said to be the refusal.

Tests results of standard penetration test (SPT) observed at the site have been presented in the table:

LABORATORY INVESTIGATION

The following laboratory tests have been conducted on the soil samples obtained from test bore hole.

a) Natural Moisture Content
b) Specific Gravity
c) Sieve Analysis
d) Hydrometer Analysis
e) Liquid Limit
f) Plastic Limit
g) Bulk/Dry Density, h) C-Ø Analysis

The above laboratory tests have been conducted as per relevant Indian Standard Codes (IS 2720) of practice. The results are presented in the table. The soil samples are identified as per IS:1498-1970.

6.0 GROUND WATER OBSERVATION

Ground water was encountered after 2.0 m depth at UCHIYARDA, JODHPUR.

7.0 RESULTS AND ANALYSIS :-

The safe bearing capacity of foundation has been calculated as given under. Keeping in view of very deep presence of the water table at the site after that correction factor for the ground water table has been taken into account for the calculation of safe bearing capacity of the soil following criteria has been incorporated.

1) Shear failure method:-

As per IS 6403-1981, considering:- general ,local and mixed shear failure as condition of soil.

2) Settlement method:-
Observed SPT N value (number of blows) as per IS 2131 and peck at 1974 the allowable settlement taken 25 mm as per IS 1904.

3) N- Ø method
The observed N value have been corrected for our burden pressure an dilentency if required. The correction between N- Ø and corresponding bearing capacity has been determined as per IS 6403-1981.

4) BEARING PRESSURE FOR THE ROCK.

4.1 Estimate of safe bearing pressure from Rock Core Strength.

Uni-axial compressive strength test, for determination of SBC has been carried out on rock core sample with length to diameter ratio 2.0. At depth where RQD was very low, the samples collected during drilling were of shorter length. The sample had to be cut & reshaped so as to have length to diameter ratio 2.0. The safe bearing pressure is estimate from the equation

(IS 12070 1987)

$$Qs = qc \times Nj$$

. qs = Safe bearing pressure (gross)
. qc = Average compressive strength of the rock core
. Nj = Empirical coefficient depending upon the spacing of discontinuities

In present case the value of Nj has been taken as 0.1 .This is because the discontinuities are closely spaced.

4.2 Estimate of net safe bearing pressure from Rock Mass Rating (RMR)

An attempt has also been made to estimate net bearing pressure using RMR.RMR is calculated using a formula given by Bieniawaski 1978

$$RMR = 9 \log Q + 44$$

Here Q Rock mass quality index by barton et al 1975 of Norwegian Geotechnical Institute (NGI). Q is a factor which is related to the quality of rock mass depending on Rock Quality Designation (RQD) determined using a method

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Asstt. Manager
Tech. Sur.

proposed by Deere 1988. The quality of rock based on RQD is given by the following table

Rock Quality	RQD	RQD = (E Length of core piece> 10 cm/ Total core run length) x 100
Excellent	100-90	
Good	90-75	
Fair	75-50	
Poor	50-25	
Very Poor	25-0	

Note:-If actual subsoil condition during execution of work found different from what has been reported, the consultants are to be referred for suggestion prior to taking up of actual construction work at site.

Rock Quality based on RQD recorded for the borehole drilled at two location is very poor. RQD is not present.The estimate of the quality of rock based on RQD can then be used to estimate, rock mass quality index Q. Rock Mass quality index Q is read from the reference value given by Hoek & Brown 1980 and by also giving due consideration to the relation that exists between RQD & Q (Refer Barton etel. 1974). Rock mass quality index "Q" reference values given by Hoek and Brown 1980 are tabulated below:

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Quality of Rock	Rock Mass Quality Index "Q"
Exceptionally good	1000-400
Extremely good	400-100
Very good	100-40
Good	40-10
Fair	10-4
Poor	4-1
Very Poor	1-0.1
Extremely Poor	0.1-0.01
Exceptionally Poor	0.01-0.001

We have a complete sequence for estimating RMR of the stratum below foundation level. The Table below gives net safe bearing pressure based on RMR and is adopted from (IS 12070 1987) Table 3.

The following Table gives safe allowable bearing pressure based on the results of

Classification No	I	II	III	IV	V
Description of Rock	Very good	Good	Fair	Poor	Very Poor
RMR	100-81	80-61	60-41	40-21	20-0
Q(t/m2)	600-448	440-288	280-151	145-90-58	55-45-40

uniaxial compressive strength and rock mass rating calculations. The value of Rock Quality Index "Q" based on results obtained from drilling of the bore hole and study of rock quality designation has been taken as 0.1 and rock mass rating calculated. Based on this value safe allowable bearing pressure according to the table is calculated. The Bearing pressure between the various depth is calculated based on average compressive strength of the rock piece below natural ground level. This clause is not applicable because there was no rock found upto 10.0m depth i.e. depth of exploration in bore holes.

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CONCLUSIONS AND RECOMMENDATION FOR M/S EGIS INDIA CONSULTING ENGINEERS PVT. LTD.

On the basis of the in situ and laboratory investigation the following recommendation are made as under

1. Type of foundation : Square / Isolated (B=1.5).
2. Back filling should be done with proper compaction.
3. The safe bearing capacity at that bore holes had given in table.
4. The minimum foundation depth for proposed structure should be 2.0m or as suggested by structural designer.
5. Ground water was encountered in this bole hole after the depth of 2.0m at the investigated location . A water table correction factor of 0.5 has, however, been applied for all the calculation carried out for determination of net safe bearing capacity.
6. Bituminous coat / TP mastic paint / coal tar epoxy coat to be applied on column footing and column upto plinth and plinth beam to prevent the disastrous effect of the chemical water inflows.
7. LDPE film invariably to be provided beneath floor.
8. Cover should not be less than 75mm in column footings, column upto plinth level and plinth beam as per Table 16 , IS:456:2000 is code to be provided and concreting should be compacted and dense.
9. Use ordinary Portland Cement or Portland slag cement Or Portland pozzolana cement with minimum cement content 360 kg/m3 and maximum water cement ratio 0.50 is recommended. For Supersulphated cement or sulphate resisting Portland cement minimum cement content 320 kg/m^3 and maximum water cement ratio 0.50 is recommended.
10. To protect Against Chloride presence, the cover of the steel should be as per Table 16 , IS:456:2000. And concreting should be Compacted and Dense.
11. In the case of foundation on rock if there loose pockets and any crakes found then it should be cleaned and back filled with lean concrete.

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12. If actual subsoil condition during execution of work found different from what has been reported , the consultants are to be referred for suggestion prior to taking up of actual construction work at site.
13. Chemical test of the sub soil samples have not indicated any abnormal values. Ph Value 8.1 to 8.5, Chlorides 0.0047 to 0.0086, sulphate 0.0054 to 0.0078 % in bore holes.
    which would suggest no remedial measures to be adopted.
14. Absolute bearing pressure at different bores & different depth (t/m^2) is as follow:

S.No.	Depth In M	ABSOLUTE BEARING PRESSURE (T/M^2) FOR B-1.5M
		BH-1
1.0	1.0M	7.9
2.0	2.0M	11.4
3.0	3.0M	12.6
4.0	4.0M	13.8
5.0	5.0M	14.3
6.0	7.0M	15.4
7.0	8.0M	17.9
8.0	10.0M	21.6

For MONI'S GROSAM ENGG. LAB.
(Er.S.D.Bissa)
Retd. Addl. C.E.
AUTHORISED SIGNATORY
P.H.E.D.

(Er.O.D.BISSA)
Civil Engineer

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Date of Start 13.OCT.2020
Date of Completion 13.OCT.2020

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SM SILTY SOIL			2.0M	DS SPT	13		NIL	NIL	NIL	NIL
SM-KANKAR SILTY SOIL WITH KANKAR			3.0M 4.0M	SPT SPT	18 22	WL WL	NIL	NIL	NIL	NIL
SM SILTY SOIL			5.0M	DS SPT	24	WL WL	NIL	NIL	NIL	NIL
SM SILTY SOIL			6.0M	DS DS		WL WL	NIL	NIL	NIL	NIL
SP-KANKAR SANDY SOIL WITH KANKAR			7.0M 8.0M	SPT SPT	28 32	WL WL	NIL	NIL	NIL	NIL
SP-KANKAR SANDY SOIL WITH KANKAR			10.0M	DS SPT	38	WL WL	NIL	NIL	NIL	NIL

BORE TERMINATED AT 10.0M

MONI'S GROSAM ENGG. LAB. Asstt. Manager Tech.Ser. JODHPUR

Resi. : "SHIVODAY", G-48, SHASTRI NAGAR, JODHPUR - 342 003 TEL.: 2637695, 2432401, 5102418

BORE HOLE NO-01

MGE

Depth	N-value	IS Classification Soil description	Sieve analysis & hydrometer test			Atterberg limit		Natural Moisture Content %	Specific Gravity	Density T/m3	Shear parameter		Free Swelling	CHEMICAL TEST %		
			G	S	SC	LL	PL				C	Ø		PH Value	Cholride	Sulphate
0.0-1.0M	N-1.0= 10	SP	14.0	76.0	10.0	NP	NP	2.4	2.56	1.57	0	30.0	NIL	8.1	0.0047	0.0054
1.0-2.0M	N-2.0= 13	SM	15	64	21	42	36	3.7	2.58	1.6	0.04	31	NIL	8.2	0.0059	0.0058
2.0-4.0M	N-3.0= 18	SM-KANKAR	35	43	22	41	34	WL	2.62	1.64	0.05	32	NIL	8.2	0.0066	0.0062
4.0-5.0M	N-4.0= 22	SM	16	64	20	40	35	WL	2.6	1.66	0.03	31	NIL	8.3	0.0071	0.0068
5.0-6.0M	N-5.0= 24	SM	18	60	22	42	36	WL	2.6	1.68	0.06	31	NIL	8.3	0.0078	0.0071
	N-7.0= 28															
6.0-8.0M	N-8.0= 32	SP-KANKAR	37	54	9	NP	NP	WL	2.62	1.73	0	32	NIL	8.4	0.0081	0.0074
8.0-10.0M	N-10.0= 38	SP-KANKAR	39	51	10	NP	NP	WL	2.63	1.76	0	32	NIL	8.5	0.0086	0.0078

DEPTH	CORRECTED N-VALUE	REMARK
1.0M	16	NIL
2.0M	18	NIL
3.0M	22	NIL
4.0M	25	NIL
5.0M	26	NIL
7.0M	28	NIL
8.0M	32	NIL
10.0M	38	NIL

Soil Bearing Capacity as per IS 6403 (1) :1981 at 1.0 M

At the depth Of 1.0m Assume foundation B=1.5 L=1.75

C=0.0,Ø=30, Sq=Sc=1.171 Sy=0.657 Ɣd=1.57 dq=dy=1+0.1Df/B√NØ = 1.115

Ø=Tan-1(0.67tanØ) = 21.14 Nq= 7.37 Ny= 6.64

Qult-net=cN'cScdcIc+q'(N'q-1)SqdqIq+1/2BYN'y SydyIy.W= 13.05 + 2.86 = 15.91 t/m2

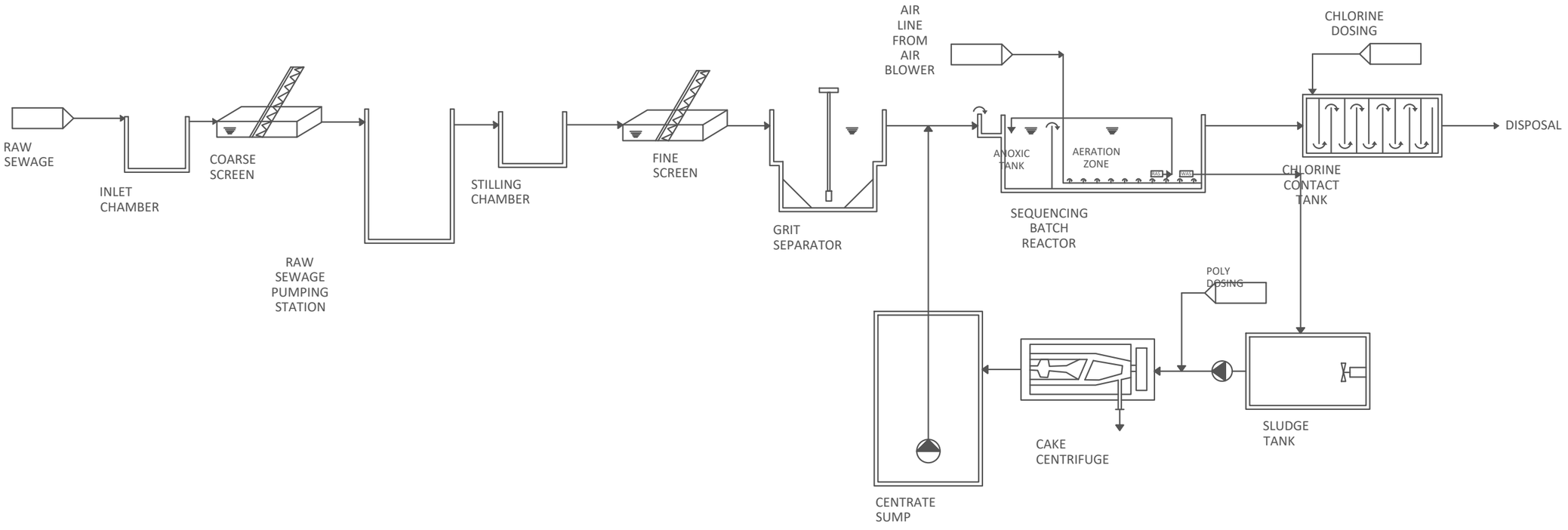
qnu = 15.91 t/m2
qns = 6.36 t/m2
qs = 7.93 t/m2

Settlement analysis as IS 8009 p(1) : 1976 at 1.0 M

At the dpth 1.0 m SPT value 10, N= 16 foundation Width=1.5m

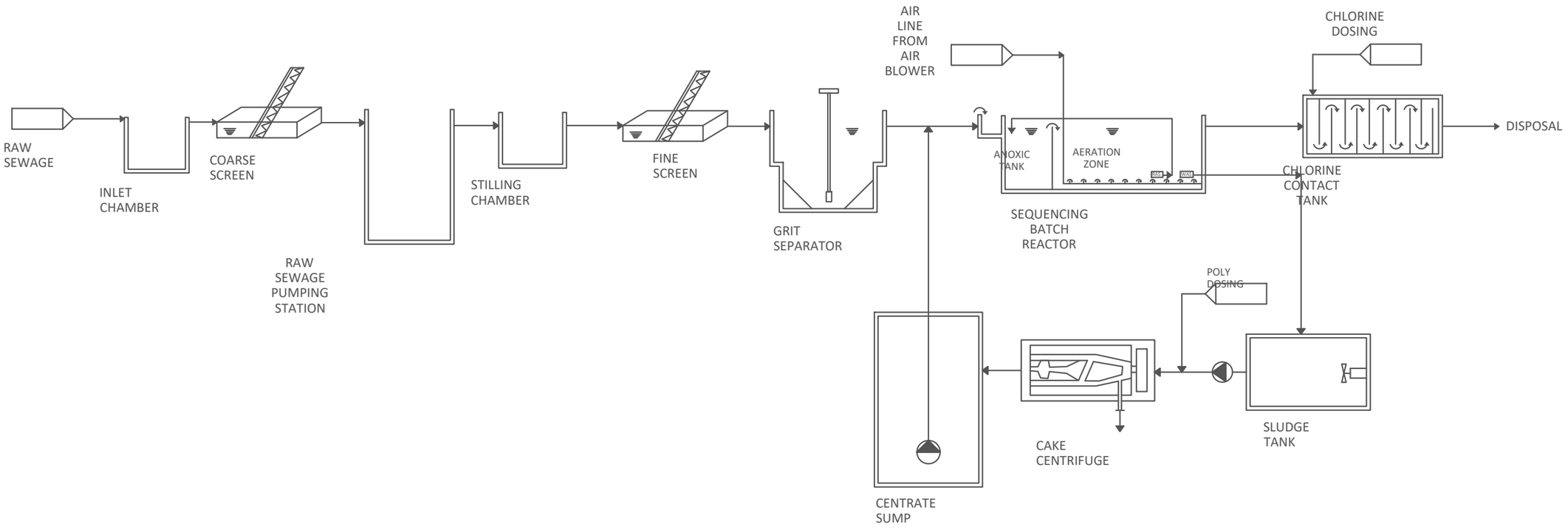
Settlement for Unit Pressure 11.3 mm Safe bearing pressure 11.06 t/m2

ANNEXURE- 9
PROCESS FLOW DIAGRAM 10 MLD UCHIYARDA



PROJECT NAME:	CLIENT:	SUBMITTED BY:	SHEET TITLE:	
Consultancy work for Preparation of Detailed Project Report for Jojari Riverfront Development at Jodhpur	Jodhpur Development Authority, Jodhpur	Egis India Consulting Engineers Pvt Ltd	**PROCESS FLOW DIAGRAM 10 MLD UCHIYARDA**	**9**

ANNEXURE- 10
PROCESS FLOW DIAGRAM 15 MLD VIVEK VIHAR



PROJECT NAME:	CLIENT:	SUBMITTED BY:	SHEET TITLE:	
Consultancy work for Preparation of Detailed Project Report for Jojari Riverfront Development at Jodhpur	Jodhpur Development Authority, Jodhpur	Egis India Consulting Engineers Pvt Ltd	**PROCESS FLOW DIAGRAM 15 MLD VIVEK VIHAR**	**10**

ANNEXURE -11 :-BUILDING AREA DETAILS (Minimum)				
S.No.	**Item**		**Area (Sqm)**	
1	Administrative Building and Laboratory Building with Conference Hall (2 storey) :- Floor area (each storey) (with Toilet facility) (Minimun)	=	180	Sqm
2	PMCC Building (Minimum)	=	75	Sqm
3	SCADA Building (Minimum)	=	150	Sqm
4	Workshop (Minimum)	=	20	Sqm
5	Blower Room (Minimum)	=	120	Sqm
6	Security Room (Minimum)	=	20	Sqm
7	Store Room (Minimum)	=	50	Sqm
8	Vehicle Parking Yard (Minimum)	=	60	Sqm