



## KARACHI WATER & SEWERAGE SERVICES IMPROVEMENT PROJECT

### Project Implementation Unit

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## **Minutes of Pre-Bid Meeting** **Contract Package G-1** **Supply and Installation of Bulk Flow Meters under Component-2, SOP-I**

**Venue of the Pre-Bid Meeting:** Committee Room of the PIU-KWSSIP, KW&SB

**Date & Time:** 20 December 2022 at 1600 Hours

### **Proceedings of the Pre-Bid Meeting:**

The Meeting commenced with the recitation of the holy verses from Quran Al-hakeem by the Director Investment, KWSSIP.

The Pre-Bid Meeting was then formally inaugurated by the Director Investment KWSSIP with words of thanks to the participants and the brief introduction of the Project and the subject Works.

At the end, Director Investment KWSSIP invited all the participants to introduce themselves.

Following the introduction session, it was apprised by the Director Investment that it is an interactive session and queries/ clarifications sought thorough email will be replied accordingly.

The meeting was ended by KWSSIP team with the words of thanks to the participants for their attendance and keen interest in this procurement.

The following are the responses to the requests for clarifications raised by the participants vide their emails:

## Responses to Request for Clarifications of the Bidders

Sr. No.	Bidding Document Reference	Bidder's Queries	Employer's Clarifications
<b>1- M/S NEW ERA CONSTRUCTORS</b>			
1		Extension of Time for the submission of bids must be considered for at least 02 months, as you know that the project is mainly based on foreign component and the current uncertain economic situation of the country regarding the opening of LC's. In addition, the European countries are observing the vacations throughout for the next 02 weeks due to Christmas and New Year holidays.	Submission Date has been extended till Monday, 20 <sup>th</sup> February, 2023, 1530 hours.  Corrigendum has been published accordingly.
2		Physical Possession of the Site is the responsibility of Employer to provide the required area for the proper execution of the works. Please describe the relief conditions, if Employer fails to provide the possession / access of the site other than the Termination of the Contract.	Please refer to GCC 10.2 which states that the Employer shall be responsible for acquiring and providing legal and physical possession of the Site and access thereto.
3	ITB 12.3 (i.e., GCC 12.3) -	Delayed payment relief to the contractor as described that Employer will pay the invoice amount with interest. In such condition is contractor liable to claim Extension of Time due to non-availability of funds.	This Project is being financed by World Bank and delay in payment is not envisaged.
<b>2- M/S CRESCENT CONSTRUCTION COMPANY</b>			
4	1.1.2.B (P-2)	Contract TITLE does not include "Design" The contractor shall be solely responsible for design of all civil works & every detail pertaining to Electro, Mechanical and SCADA Works & other Submittals.  <b>Please Clarify.</b>	The bidder shall built-in the cost of design services for various electromechanical and SCADA components in th respective BoQ items in accordance with the provisions of Preamble (Sr. No. 7 & 8) and Technical Specifications (Volume-II).
5	1.3.6 (P-27)	Table 1.10 96" Ms Pipe is Considered for 20 meters. <b>96" Pipe does not exist in the system till to date Please Clarify.</b>	An additional 20 number flow meters of 96" size along with requisite SCADA equipment are included in the Bid for K-IV augmentation lines. Associated civil works required for these flow meters <b>will not be</b> carried out under this Contract.
6	1.4.2. (P-60)	N.2. Measurement Additional lift may not be applicable in this case unless it is part of B.O.Q Drawing 4321/11/TD/1J103 } Drawing 4321/11/TD/1J101 } Depth Varies Drawing 4321/1 1 /TD/1J105 }	Please refer to Vol-1 'Price Schedule' Pg. 80, Item No. 5,6 & 7 are for excavation of chambers. Whereas, item No. 9 at Pg. 81 is pertaining to Additional Lift.

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		(Shall be covered in construction Drawing in rate of Chamber) <b>Excavation of the chambers is not mentioned in B.O.Q. Please Explain.</b>	
7		Drawing 4321/11TDAG01 Rev (0) Cover of Lift dia 8inch Thick Shall weigh about 563.65 Kg but lifting hooks are not provided.  <b>Please Comment.</b>	Lifting Hooks will be provided by the Contractor based on functional requirements. Cost of such hooks shall deemed to be included in the quoted prices.
8	(P-79) of Schedule of Rates and Prices	Drawing 4321/11/TD/G01,G02,G03,G04,G05 & G06 Drawing 4321/11/TD/G011,G012,G013,G014,G015, & G016 Design of chamber is to used for Tender purpose only.  <b>Please note that designing is to be done but Schedule Nr.3 Design Services on P-79 of Section IV is marked "Not Applicable"</b>	The text "For Tender Purpose only" will be removed in Construction Drawings. However, as specified in Clause 2.6 of Volume-II, site specific geotechnical testing will be carried out by the Contractor according to Price Schedule No. 4 at the time of construction after finalization of sites for chamber by KW&SB. The specific site investigations results will be analyzed by the Consultant for any change required in structural drawing of the chambers.
9		For chambers following points shall be considered (for upgrading the Criterion)	
i)		Dewatering	Already Considered in Price Schedule.
ii)		Working plate-form for deeper chambers	Structurally not required. However, any temporary working plate-form required by the contractor during execution will be provided by the Contractor and cost of which shall deem to be included in the quoted prices.
iii)		Two wall-hung ladders shall be required a. Up to plate form b. From plate form to bed Level	Portable wall-hung ladders will be used by the Contractor during O&M. Cost of such ladders shall deem to be included in the quoted prices.
iv)		Presence of water shall affect other parameter a. Class of Concrete b. Water-stop in subsequent lifts c. Swell-able bar around existing pipe	Already Considered Already Considered Already Considered
v)		Segregation of chamber is to be done according	Tentative Pipeline depths are given

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		to parameters, supplied for assessing Quantum of work, more accurately.	however actual depths of pipelines will be finalized after excavation and finalization of sites for chamber by KW&SB. Therefore, segregation of chambers will be done during execution stage. Payment will be made as per actual quantities.
vi)		Spigot & Socket joints of PRCC pipe Should not be enclosed in chamber	Please proceed as per Tender Drawings.
vii)		All pipes inside chamber should be well cleaned, coated or painted for longevity	Not in the Scope of Current Project.
viii)		The chamber should remain dry for sake of protection of electronic panels	It will be ensured by the Contractor.
ix)		All ferrous component should be epoxy coated i.e Manhole cover, bolts	Concrete Manhole Cover has been provided. Furthermore, protection coating for other ferrous components like bolts etc. shall be as per Approved Drawings and Specifications.
x)		Galvanized ladder, open mesh plate-form & Guard rail should be epoxy coated after applying "ETCH" primer	Refer to Reply of Sr. No. ix) and iii)
xi)		Pre-stressing of PRCC pipes is to be protected by all means	It will be ensured by the Contractor.
<b>3- M/S AVANCEON LIMITED</b>			
10	Part 1 - Section I - D - 22	"The Bidder shall deliver the Bid in a single, sealed envelope (one (1) envelope process). Within the single envelope the Bidder shall place the following separate, sealed envelopes: (a) in an envelope marked "ORIGINAL", all documents comprising the Bid, as described in ITB 11; and (b) in an envelope marked "COPIES", all required copies of the Bid; and (c) if alternative Bids are permitted in accordance with ITB 13, and if relevant: (i) in an envelope marked "ORIGINAL-ALTERNATIVE BID" the alternative Bid; and (ii) in the envelope marked "COPIES –	The bidding procedure shall be single stage one envelope. Technical Bid and Priced Bid will not be separately sealed. In addition to one original, number of copies will be three as stated in BDS Sub-Clause ITB 21.1. The Bidder shall prepare and submit its Bid in accordance with procedure described in ITB 22.1.

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		<p>ALTERNATIVE BID" all required copies of the alternative Bid."</p> <p>As per "Vol-I-Prime-Documents, Submission and Opening of Bids" a single envelope containing one "Original" and one "Copy" to be submitted. Please clarify if both technical and commercial are to be submitted separately (Two separate Envelopes).</p>	
11		<p><b>We understand it's a single stage two envelope bidding, please clarify.</b></p>	<p>As explained at Sr. No. 10.</p>
12	<p>Part 1 - Section - IV - Schedule of Rate and Prices</p>	<ul style="list-style-type: none"> <li>• Schedule No. 1: Plant (including Mandatory Spare Parts) Supplied from Abroad</li> <li>• Schedule No. 2: Plant (including Mandatory Spare Parts) Supplied from within the Employer's Country</li> </ul> <p><b>We understand Schedule 1 will cover foreign Currency (USD) component only containing Supply part while schedule 2 covers Local Currency (PKR) component containing services part. Please clarify.</b></p>	<p>For the details of currencies of Bid and Payment, please see Clause ITB 18 read together with Bid Data Sheet. Schedules 1 &amp; 2 pertain to Supply of Plant whereas Schedule 4 is meant for Installation and Other Services.</p>
13	<p>Part 1 - Section IV - Schedule of Rates and Prices - Schedule 6</p>	<p>"Providing Operation &amp; Maintenance (O&amp;M) Services of the complete Flow meters under each Part with SCADA System as per Specifications, requirements stated in Conditions of Contract and subject to the approval of the Employer.</p> <p>O&amp;M shall include but not limited to the following components:</p> <ul style="list-style-type: none"> <li>- Salaries of O&amp;M personnel/staff</li> <li>- Vehicles and fuel expenses</li> <li>- Maintenance of Vehicles</li> <li>- Laboratory Cost</li> <li>- Security of Flow Meters</li> <li>- Furnitures and Fixtures for Control Room"</li> </ul> <p><b>Please clarify duration(No of years) of Operation &amp; Maintenance as per Schedule 6.</b></p>	<p>The Contractor shall operate, maintain and manage the Facilities on behalf of the Employer for a period commencing from the date of issue of Operational Acceptance Certificate of the first part of the Facilities and expiring one (01) year after the date of issue of Operational Acceptance Certificate of the last part of the Facilities in accordance with PCC 47 [Operation &amp; Maintenance]</p>

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14	Part 1 - Section IV - Schedule of Rates and Prices - Schedule 1/2	<p>"Battery-Operated Electromagnetic Flow meter SCADA Enabled including all wastages, labour, tools, accessories and other incidentals, etc. required for proper commissioning as per specifications"</p> <p><b>Please clarify if bidder can propose alternate solution in case battery operated Flowmeters are not available.</b></p>	<p>Please refer to requirement of internal or external battery as per Clause 1.3.4 of Volume II:</p> <p>“The minimum acceptable key parameters of the Battery Powered Electromagnetic full-bore/ inline flow meters along with cellular telecommunications interface for SCADA integration shall be in accordance with Table 1.6 of Volume-II.</p> <p>Power Supply: Internal or external battery pack 12 – 24 V DC and 115 – 230 V AC”</p> <p>Therefore, the proposed electromagnetic flow meter shall be powered by internal or external battery pack.</p>
15		<p>Supply, Transport, Install, Test and Commission of GSM Enabled RTU/Data Logger with battery Backup including all labour, tools, accessories and other incidentals, etc. required for proper working as per specifications,</p> <p><b>Please clarify if bidder can propose alternate solution in case GSM enabled Flowmeters are not available.</b></p>	<p>Please refer to requirement of Clause 1.3.4 of Volume-II:</p> <p>“Battery Powered Electromagnetic full-bore/inline flow meters along with cellular telecommunications interface for SCADA integration shall be provided from some internationally reputable manufacturer for measuring the rate of flow at discharge lines” and Schedules No. 1&amp; 2 of Volume-I which states that “Supply, Transport, Install, Test and Commission of GSM Enabled RTU/Data Logger with battery Backup including all labour, tools, accessories.”</p> <p>Accordingly, GSM enabled Flow meters can be interpreted as a solution using GSM as a mode of communication with being enabled in the Flow meter.</p>
16		<b>Please provide location of Datalogger (Indoor or Outdoor)</b>	Data Logger shall be installed inside the chamber housing the Flow meter and other equipment.
17		<b>Any kind of instrument and power cabling are missing in provided BOQ. Please clarify.</b>	Please refer to our requirement of Schedule of Rates and prices 1 and

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			<p>2 of Volume-I:</p> <p>“Furnish Ancillary equipment in Flow Meter Chambers for Flow Meters, LUTs, RTUs/Data loggers, PIR motion sensors etc. including installation services and material, cables, perforated cable trays, terminals, clamps, mounting kits, GI/PVC/flexible conduits etc.”</p> <p>In addition, requirements of instrument and control cables are also mentioned in Clause 1.3.1 D of Volume-II.</p>
18		<p>Ultrasonic Flow Meter for Cement Pipes (especially Prestressed Reinforced Cement Concrete (PRCC) pipes with corrugated surface) including all wastages, labour, tools, accessories and other incidentals, etc. required for proper commissioning as per specifications, drawings and subject to the approval of the Project Manager.</p> <p><b>For instrument installation, in civil scope reinforced thickness of pipes is mentioned which can increase the probability of failure of Flowmeters. Detailed site survey is required to make sure that appropriate FMs are offered as per requirement.</b></p>	<p>Available PRCC Pipe thickness of different diameters are already given in Table 1.1 of Volume-II, which shall be verified by the Contractor prior to supply of meters. Further, any variation in pipe thickness will be catered for by the Contractor within the quoted prices.</p> <p>Please also refer to Clause 1.3.2 of Volume-II i.e. During the Bidding process, the Contractor should get fully acquainted with the actual pipe conditions especially PRCC pipes besides other pipes i.e., M.S., C.I., HDPE etc. and propose the flow meters which should successfully operate with full accuracy after installation.</p>
19		<p>Supply, Transport, Install, Test and Commission of GSM Enabled RTU/Data Logger with battery Backup including all labour, tools, accessories and other incidentals, etc. required for proper working as per specifications,</p> <p><b>Please confirm if instruments from Chinese origin are acceptable</b></p>	<p>As per Clauses ITB 4.8 and 5.1, all countries except de-barred Countries i.e. Israel are acceptable, provided it fulfil the requirements of the Bidding Documents</p>
20		<p><b>Please confirm if any specific cyber security standards are to be followed or special security is required? Otherwise, Avanceon will propose solution based on experience and the information available.</b></p>	<p>Please refer to requirement of Clause h “Security” of Volume II at Pg. No. 15:  “The Bidders shall provide cyber security solutions which will prevent malicious software, data</p>

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			breaches & hacking across the network.”
21		<b>Our understanding is that the CCR room including all civil works will not be in our scope. Our scope will only be the supply and installation of SCADA hardware and software along with the furniture</b>	Please refer to requirement of Clause J “Office Furniture at CCR” of Volume II at Pg. No. 18:  “A room shall be made available by the Employer at KW&SB to establish the CCR. The necessary furniture and furnishing for the CCR shall be provided under the scope of this Contract.”  Accordingly, furniture and furnishing for the CCR is included in the scope of this Contract as given in Price Schedule No. 1 & 2 at Sr. No. 22.
22		<b>Please share details including protocols and tags of all the third party systems that will be integrated into our SCADA other than the Flowmeters etc. that are in our scope of supply</b>	Please refer to requirement of Clause 1.2 of Volume II reproduced below: <i>“System shall be flexible to allow integration for more flow meters, Hypo-chlorinators, actuators in future.”</i>
23		<b>Please confirm if supply of any MCC/LV equipment etc. is in our scope or this will already be provided</b>	The Contractor shall be responsible for providing all ancillary equipment required for the project.
<b>4- M/S ACCRESCENT ENGINEERS (PVT.) LTD.</b>			
24		Kindly Clarify, this statement mentioned in Tender Specifications  <b>"The Bidder shall suggest solutions to monitor and analyze Raw Data collected from Flow Meter identifying leaks in the system. Proposed software of middleware shall ingest data collected from sensors and flow meters to perform, device control, monitoring and, data analytics services using Machine Learning, Artificial Intelligence and Mobile Applications."</b>	The scope of Work includes hardware and software required to collect data from flow meters and data analytics are required to be performed on the collected data. Software and related applications shall be provided which shall be based on analytics required for display and transfer of the data to remote end users.
25		Kindly Clarify, this statement mentioned in Tender Specifications that this is to be done after the award of project to successful bidder.  <b>"Based on the findings of the site survey, the</b>	The scope of work of Contractor includes preparation and submission of detailed design report after site survey. The design report shall include details of



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		<p><b>Contractor shall submit its detailed design of the SCADA based water monitoring system including, Telecommunication and Electrical/ mechanical/civil works for the review and approval of the Project Manager. The report shall cover strength and availability of 2G, 3G or 4G-LTE or whatever Telco signals for services the Contractor intends to use for end-to-end data communication in all respect."</b></p>	<p>SCADA and Telecommunication system along with associated electrical/mechanical and civil works. The Telecommunication part shall include cover strength and availability of Telco signals in the project area. These works shall be carried out after the award of project to the successful bidder.</p>
26		<p>Kindly Clarify, this statement mentioned in Tender Specifications.</p> <p><b>"It shall be possible to define a schedule for an individual or a group of meters to be monitored by water monitoring system as auto operation without operator intervention."</b></p>	<p>It shall be possible to monitor water flow of a specific meter or a group of meters from operator interface, SCADA workstation in the CCR or cellphone as and when required or after a fixed duration as an auto operation. Data monitoring shall automatically repeat after a programmed interval.</p>
27		<p><b>20KVA CCR UPS:</b>  <b>1: Backup Time for CCR UPS ?</b>  <b>2: Redundant or Single UPS Required ?</b>  <b>3: UPS to have 3 phase input and 3 phase out or 3 phase input and Single Phase out ?</b></p>	<p>UPS shall be in redundant mode each capable to provide 6 hours backup. CCR UPS shall be 3 phase as specified in Section VII Uninterrupted Power Supply (UPS) at CCR of Volume II of Bidding Documents.</p>
28		<p><b>Backup Small UPS for Flow transmitter</b>  <b>1: Backup Time for Flowmeter UPS ?</b>  <b>2: Please confirm AC or DC UPS required at Flowmeters ?</b>  <b>3: AC Supply at site to be 3 phase or Single Phase ?</b></p>	<p>Please refer to Table 1.9: General Specifications for Ultrasonic Clamp-on Flow Meters for Cement Pipes and Table 1.12: General Specifications for Ultrasonic Clamp-on Flow Meters for All Pipes Except Cement Pipes.</p> <p>"Supplier/manufacturers shall provide AC or DC UPS for the meter such that full functionality is available in the absence of AC mains for period of 24 Hours. Supplier/manufacturers shall specify whether their solution uses an external UPS or DC Battery. In either case there shall be no loss of data due to power failure. Supplier/manufacturer to give details of their UPS solution."</p> <p>Also refer to Clause Site Survey and Detailed Design of Volume II of Bidding Documents,</p> <p>"Immediately upon award of Contract, the Contractor shall</p>

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			<p>collect existing data and carry out site survey activities to assess the actual conditions and facilities available at the sites. The obtained data shall be compiled and results of the survey shall be submitted to the Project Manager. The survey shall include assessment of existing utility AC power supply at each site.”</p> <p>Accordingly, AC or DC UPS may be offered with backup time of 24 hours. The status of 3 phase or single phase AC supply at site shall be determined by Contractor after site survey. However, electricity connection charges with K-Electric along with Ancillary Items (where required) shall be paid from provisional sum as mentioned in Schedule No. 7. Provisional Sums of Volume I of Bidding Documents.</p>
29		<p><b>RTU/Data Logger Battery 1: Battery Backup required for RTU/Data Logger Battery ?</b></p>	<p>Please refer to Clause 1.3.10 Physical Layer Interfaces. The RTU/Data Logger shall have internal rechargeable battery backup. The duration of data logging depends upon two parameters – the power backup of the data logger and its memory capacity. However, the number of readings taken per day should be kept minimum to save the battery. The battery backup shall have sufficient capacity to enable retention of data for uninterrupted operation.</p>
30		<p><b>SCADA &amp; Historian Server Machines Required should be Rack Mounted or Desktop Servers will be acceptable</b></p>	<p>As SCADA and Historian Servers shall be in Central Control Room, these shall be desktop type.</p>
31		<p><b>Required IP Rating for Safety Boxes to be installed in Flowmeter Chamber</b></p>	<p>IP rating of safety boxes to be installed in Flow meter Chamber shall be the same as for LUT meters i.e. IP65</p>
32		<p><b>Data transfer Kit Qty is 221 whereas RTU Qty is 231, Please confirm these quantities are correct. As per our understanding RTU</b></p>	<p>Data Transfer Kit consists of RS232 cable, adapter RS232 to USB and cable gland. As these are</p>

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		<b>and Data Transfer Kit Quantities should be same.</b>	already available in 10 No. Electromagnetic flowmeters hence only required for 221 No. ultrasonic type flowmeters and LUTs.
33		<b>Chinese's make Flow Meters and GSM Based RTU/Data Logger are acceptable ?</b>	As per Clauses ITB 4.8 and 5.1, all countries except de-barred Countries i.e. Israel are acceptable provided fulfil the requirements of the Bidding Documents.
34		Ref to "Price Schedule 1" item 1 "Data Transfer Kit". Kindly clarify what is required against this line item. As per our understanding it is the Safety Box (Junction Box) for installing the GSM Based RTU /Data Logger and all its accessories.	Details of Data Transfer Kit are provided in reply of Sr. No. 32.
<b>5- M/S LINDENBERG-EMIRATES LLC.</b>			
35		<p><b>Control room details</b></p> <p>a) "Please provide the location of the Control room (to understand geo-technical soil parameters in this area). Also confirm if this building is new or equipment to be housed in an existing control room as there is no civil/mechanical/electrical items for this room in the BOQ"</p> <p>b) Please provide the Mechanical (MEP including HVAC, Firefighting, Water supply, drainage, storm drain etc), Electrical, Instrumentation &amp; civil/Architectural drawings for the Control room</p> <p>c) Confirm our understanding that all items (mechanical, electrical, Civil, Instrumentation etc) required to construct this room will be remeasured from the BOQ items provided (eg civil work from schedule No. 4. Installation and Other Services" etc)</p>	<p>Please refer to reply at Sr. No. 21.</p> <p>Relevant drawings of the control room (if available) will be provided at execution stage. In case of non-availability of requisite drawings, the Contractor will develop its shop drawings and get it approved from the Employer.</p> <p>Please refer to Clause 1.3.2 (B) of Volume II of Bidding Documents, any additional works or repair of existing facilities etc. necessary to successfully operate the complete system shall be highlighted in the site survey report carried out by the Contractor and cost of the same shall deem to be included in quoted price.</p> <p>Furthermore, for electrical works in CCR, BOQ item is present in Schedule 1 and 2 at Sr. No. 24.</p>

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36		<p><b>Civil works for chambers etc</b></p> <p>a) The Quantity of excavation mentioned in pg 312 of 377 of Vol-II-Specifications.pdf is 1,397,926 M3. This quantity is not tallying with the excavation quantity mentioned in the BOQ schedule 4. Please clarify. Also confirm if this quantity is based on structure net external dimensions or includes access space/shoring slope.</p> <p>b) Please confirm our understanding that the civil works (excavation/ backfill/ concrete/ formwork/ rebar/ coating/chamber accessories etc) for the entire contract including the chambers will be re-measured under BOQ "Schedule No. 4. Installation and Other Services"</p> <p>c) Please confirm our understanding that the mechanical/instrumentation supply &amp; installation works for the Flowmeters will be re-measured under BOQ Schedule No. 1 &amp; 2</p> <p>d) Please confirm that all reinstatement works (asphalt/ kerbstones, paving/ trees/green areas etc) for the chamber construction work will be remeasured from the Schedule 4 BOQ items.</p> <p>e) Please provide the spacing of the reinforcement (only bar number (diameter) is currently shown on the drawing eg. 4321/033/TD/4G06 etc)</p> <p>f) Please provide the standard drawing for the reinstatement of Asphalt Roads/Kerbstones</p>	<p>Please consider quantities mentioned in Schedule 4 of Schedule of Rates and Prices. Please also refer to Clause 4 of Preamble of Schedule of Rates and Prices.</p> <p>Please refer to Clause 4 of Preamble of Schedule Rates and Prices.</p> <p>Please refer to Clause 4 of Preamble of Schedule Rates and Prices.</p> <p>Please refer to Clause 4 of Preamble of Schedule Rates and Prices.</p> <p>Subject drawing is issued for Tender Purpose only whereas spacing of bars will be provided in Construction Drawings.</p> <p>Furthermore, for mild steel reinforcement, BOQ item is present in Schedule No. 4 at Sr. No. 14.</p> <p>Reinstatement will be carried out as per existing road/pavement structures. Payment will be made as per actual quantities.</p>
37		<p>Number of Flowmeter Locations List Refer "Vol-II-Specifications.pdf" Table No. 2.11 &amp; 1.2</p> <p><b>In Tender "Vol-II-Specifications.pdf" under table no. 2.11 "GIS Attributes Data of flow Meter Location"s, indicates 211 Nr (refer</b></p>	<p>Please refer to reply at Sr. No. 5.</p>

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		page no. 175 of 377 of pdf) whereas table 1.2 (pafe 27 of 377 of pdf) mentions 231. Kindly clarify the remaining 20 location details.	
38		<p><b>BOQ for Electrical power supply</b></p> <p>a) There are no details of any existing power supply source/location/voltage etc to power the Flowmeters or I&amp;C equipment. Please provide details for the FM locations &amp; CCR(SLD etc)</p> <p>b) Add BOQ items for the electrical works (eg cable length in Mtr, Solar panels if needed, Turrets/Kiosks/other source, generator for CCR if required etc)</p>	<p>Please refer to Clause Site Survey and Detailed Design of Volume II of Bidding Documents,</p> <p>“Immediately upon award of Contract, the Contractor shall collect existing data and carry out site survey activities to assess the actual conditions and facilities available at the sites. The obtained data shall be compiled and results of the survey shall be submitted to the Project Manager. The survey shall include assessment of existing utility AC power supply at each site.”</p> <p>The status of power supply at site shall be determined by Contractor after site survey. Electricity connection charges with K-Electric along with Ancillary Items (where required) shall be paid from provisional sum as mentioned in Schedule No. 7, Provisional Sums of Volume I of Bidding Documents.</p> <p>Cables in lot are already included in Ancillary equipment mentioned in Schedule Nos. 1 and 2 however exact quantity of cables in meter shall be determined by Contractor after site survey. Solar panels, Turrets, Kiosks and Generators are not included in the scope of this Contract.</p>
39		<p>BOQ item schedule 4, item 8-"Earth for slush or Daldal..."</p> <p><b>Please clarify the description or provide reference to specification as it is not clear to contractor</b></p>	<p>It is a provisional item to cater for specific site conditions pertaining to Slush/ Daldal.</p>
40		<p>BOQ for Pipeline valves &amp; Fittings for Electromagetic FM Installation/ Connection:</p> <p><b>There is no BOQ item for supply &amp; installation of Pipeline fittings (Dismantling</b></p>	<p>Flanges are already covered in item 21 of Schedule 1&amp;2 of Volume I of Bidding Documents. However, other pipeline fittings are covered in ancillary equipment</p>

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		<b>Joints, Flange Adapter, Flexible Coupling / Collars / step couplings, Spool pieces etc.). Please add or confirm if to be included in the rate for the Flowmeter supply. (note that BOQ item Schedule 1 or 2- item 21 mentions only flanges)</b>	mentioned in Schedule Nos. 1 and 2.
41		Unit of "Job" for BOQ item schedule 4, item 29-Unit Lowering of Sub Soil Water Table (Provisional Quantity)  <b>The unit of "Job" is not clear as this involves one or more pumps (either wellpoint or deep well submersible or shallow submersible ) for an extended duration. Please revise the description &amp; unit accordingly (eg per pump Day).</b>	If required to lower sub soil in any chamber then all the requisite arrangements including pumps, boring, hose, disposal of water etc. and complete duration of pumping will be carried out by the Contractor. This complete activity for requisite chamber as approved by the Project Manager will be considered as "Job".
42		Missing BOQ items/variations  <b>Please confirm that any missing BOQ items will be evaluated on a cost + 15% basis.</b>	Please refer to Clause 13 of Preamble of Schedule of Rates and Prices.
43		<b>Scope of Design</b> a) Please confirm that there is No design scope for Contractor as BOQ mentions "Schedule No. 3. Design Services-Not applicable" (i.e. Client will provide approved for construction drawings for all departments (Civil, mechanical, piping, electrical & instrumentation etc) to contractor including civil structural drawings such as for chambers, I&C equipment foundations, Thrust blocks if any etc)  b) Please confirm our understanding that there are no surveys to be done to evaluate the integrity/thickness/material of existing pipe. Also No Hydraulic (steady state) or Surge analysis or Stress analysis or Water quality analysis to be done by contractor.  c)	Please refer to "Scope of Supply of Plant and Installation Services by the Contractor" provided in Section VII - Employer's Requirements of Volume I of Bidding Documents and Clause 1.3.2 (B). Based on the findings of the site survey, the Contractor shall submit its detailed design of the SCADA based water monitoring system including Telecommunication and electrical/mechanical/civil works. Hence the cost of design is built-in different components as is evident from the Technical specifications.  Please refer to Page No. 9 of Volume-II of Bidding Documents.
44		Spare parts (refer Vol-I-Prime-Documents.pdf, Section -IV, Bidding Forms, "Schedule No. 9. Recommended Spare Parts", Pg 92	Please refer to Clause ITB 17.5 (b), Recommended spare parts shall be quoted separately (Schedule 6) as specified in either

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		<p>Referenced schedule mentions "Not Applicable". As such please confirm our understanding that Spare parts are not required and if required please provide the list of Spare parts that client requires.</p>	<p>subparagraph (a) or (b) above in accordance with the origin of the spare parts. Also refer to Clause "PCC 7. Scope of Facilities [Spare Parts] (GCC Clause 7)" of Volume I of Bidding Documents wherein The Contractor shall confirm to supply spare parts for a period of years: Five (05) years.</p>
45		<p><b>Third Party inspection</b></p> <p>a) Please provide a list of equipment/Instruments etc that Client requires Third party inspection and/or Witnessed tests to be done.</p> <p>b) Please confirm our understanding that Client will bear the cost of all such Inspection / Witness tests including travel/ accommodation/food/transport etc</p>	<p>Please refer to Clause 1.7 INSPECTIONS AND TESTS of Volume II of Bidding Documents for testing requirements.</p> <p>Please refer to Clause 1.7 INSPECTIONS AND TESTS Volume II of Bidding Documents.</p>
46		<p>Client's vendor List:</p> <p><b>Please provide us Client's approved Manufacturer List with Country of Origin for all supply materials, If available. If not available, then confirm that Contrator can propose any local or international manufacturer who meets client's specification.</b></p>	<p>Contractor can propose any local or international subcontractor's who meets Client's specification.</p>
47		<p>Client's Sub-Contractor List:</p> <p><b>Please provide us Client's approved sub-contractor list for major activities (eg. civil construction, ICT &amp; Electrical works (installation, testing and commissioning), If available. If not available, then confirm that Contrator can propose any local or international subcontractor's who meets client's specification.</b></p>	<p>The Bidder is required to propose subcontractors in accordance with ITB 16.2. Please refer ITB 11.1(i) in this respect.</p>
48		<p><b>Pressure Rating:</b></p> <p>a) Please provide the pressure rating of existing pipelines for the proposed FM installation Work.</p> <p>b) Please confirm the pressure rating of</p>	<p>Data pertaining to pressure rating of existing pipelines is not available. Whereas, please refer to Table 1.6, 1.9, and 1.12 of Volume II of Bidding Documents for required operating pressure of FM.</p> <p>Please refer to Table 1.6 (15):</p>

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		proposed Electromagnetic Flow meters.	General Specifications for Electromagnetic Flow Meters for pressure rating.
		c) Please clarify whether the line has to be re-hydrotested and flushed after installation of the Electromagnetic flow meters (as these require line to be cut then flowmeter & new fittings installed) & if so provide Test pressure.	Testing shall be carried out as per provisions of the Bidding Documents.
49		No Reducers or strainers on Flowmeters  <b>Please confirm our understanding that NO strainers or reducers are required on existing line when installing the new Flowmeters.</b>	Please refer to Clause 1.3.4 Electromagnetic Full-Bore Flow Meter of Volume II of Bidding Documents.  The installation shall be in accordance with the manufacturer's recommendations. If required, reducers shall be installed in the pipeline before and after the meter to ensure that a velocity of at least 0.01 meter per second to a maximum of 10 meters per second is achieved through the meter.
50		<b>Location/distance of existing isolation valves on Pipelines for Electromagnetic Flowmeter installation (for Line draining calculation):</b>	
		a) Please advise us the location of upstream & downstream isolation valves as this is required for our estimation for de-watering of pipeline.	The locations mentioned in Table 2.11 of Volume II of Bidding Documents are in vicinity of Gate Valve Chambers.
		b) Please confirm our understanding the Client will supply water, free of cost, to refill the line after draining / installation of new Electromagnetic flowmeter.	Water Supply will be reinstated by KW&SB after installation of Electromagnetic flowmeter.
51		No Isolation Valve Chamber / Flow Control Valve / Pressure Control Valve Chamber:  <b>Please confirm our understanding that other than Flowmeter chambers no other chambers are required on the existing pipeline. (i.e. No isolation valve, Control Valve, Washouts or air release valves etc)</b>	Only Flow Meter Chambers are under the scope of this Contract.
52		<b>Site offices</b>	
		a) please clarify the number of site office required by client and their location.	Facilities for the Client will be provided by the Contractor against Provisional Sums included at Schedule 7 of Schedule of Rates and Prices, Volume-I.
		b) please clarify if client requires any mobile site offices	



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		c) please clarify if contractor can install only one site office for the whole project or has to mandatory install more than one and if so specify the number of site offices required.	
		d) please provide the specification of the site office for client (number of offices, number of rooms, area, furniture, IT requirements etc)	
53		<b>Camp(Accommodation)/Food/Transport for Client / Client's Consultant</b>	
		a) please clarify if client /client's consultant requires any accommodation & food facilities	Supervisory Staff Facilities will be provided by the Contractor as required by the Project Manager for which Provisional Sums has been allocated in Schedule 7 of Schedule of Rates and Prices, Volume-I.
		b) please clarify if client requires any transport vehicles & if so the number & type & if driver also to be provided.	
54		Traffic diversion (refer pg 377 of 377 of Vol-II-Specifications.pdf)  <b>Three scenarios of Traffic diversion are shown. Please clarify the number of flowmeters for each of these scenarios.</b>	As per Site Requirements.
55		<b>Bid security (refer Vol-I-Prime-Document.pdf, Section -I, ITB, clause 20.3-"Bid security")</b>	
		a) Please confirm our understanding that as per clause 20.3(a to d ), Contractor can use any one of the methods mentioned for the Bid Security including issuing a cheque drawn of Contractors Home office Bank.	Please refer to ITB 20.3 and should be read in totality. A Bid security shall be in any form stipulated therein. Bid Security can be from a source outside the Employer's Country meeting the requirements stipulated therein.
		b) Please confirm our understanding that as per clause 20.3(c ), Contractor caan issue a guarantee from an approved Bank in Contractors Home country (i.e. not Pakistan) for the Bid Security	
56		O& M-Frequency of Lab tests (refer clause 2.16.3, pg 181 of 377 of Vol-II-Specifications.pdf)  <b>Please indicate the frequency of mentioned tests</b>	The tests shall be conducted as per O&M requirements.
57		<b>O&amp; M-Security of Installed Meters etc (refer clause 2.16.1, pg 180 of 377 &amp; clause 2.16.5 pg 182 of 377 of Vol-II-Specifications.pdf)</b>	
		a) clause 2.16.1, mentions 2 Number of	In Clause 2.16.1 of Volume-II

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		security guard needed during the O&M period whereas clause 2.16.5 mentions dedicated security teams in each town. It seems the 2 security guards mentioned are not adequate to provide for the security of all the flowmeters and the CCR.	dedicated staff for CCR is required whereas Clause 2.16.5 of Volume-II pertains to security of installed Flow Meter.
		b) Clause 2.16.5 states that in case of theft, contractor has to replace the equipment. Please confirm our understanding that such replacement in case of theft is not in contractor scope as such security against theft is the responsibility of government agencies and/or to be covered by client thru its insurance.	Clause 2.16.5 is self-explanatory and provides the scope of security of Flow Meters to be undertaken by the Contractor during O&M period.
58		<b>Submission of Bid: (refer Vol-I-Prime-Documents.pdf, Section -II, Bid data sheets, ITB 21.1</b>	
		a) Please reconfirm our understanding that 1 original & 3 hardcopies to be provided + 1 Softcopy on USB	Pursuant to ITB 21.1 of BDS. In addition to the original of the Bid, the number of copies are three (03). The Bidder shall also submit USB containing the PDF copy of the entire Bid and word/excel copy of the technical and financial parts of Bid.
		b) Please reconfirm our understanding that name of bidder to be written on external envelope also (as per ITB 22.2)	Yes. Please refer ITB 22.2 for other requirements.
59		Site visit  <b>Please arrange a site visit to better understand the site conditions</b>	Please refer ITB 7.2 & ITB 7.3. The Bidder is to visit and examine the site at its own expense.
60		Extension of Bid closing date  <b>In view of the above clarifications, we request you to kindly extend the current bid closing date by 4 weeks as we need to also obtain Vendor &amp; subcontractor quotations based on the replies received</b>	Submission Date has been extended till Monday, 20 <sup>th</sup> February, 2023, 1530 hours.  Corrigendum has been published accordingly.
<b>6- M/S KHAN BROTHERS</b>			
61		<b>15 year of Experience required from bidder in the field of water works is essential or it will be acceptable if any of the heads contractor, subcontractor, supplier / manufacturer or management contractor having 15 years of experience. Kindly confirm it.</b>	The criteria mentioned is self-explanatory in which the Bidder or each member of Bidder (in case of a JV) shall have experience in urban water supply sector as contractor, subcontractor, supplier / manufacturer or management contractor for at least last fifteen

Sr. No.	Bidding Document Reference	Bidder's Queries	Employer's Clarifications
		<p>Page#54 VOL1</p> <p>“Experience of the Bidder in urban water supply sector in the role of contractor, subcontractor, supplier / manufacturer or management contractor for at least last fifteen (15) years starting 1st January 2007.”</p>	<p>(15) years starting 1st January 2007.</p>
62		<p>Similarly explain will it be required for any one of the provided categories for the “Participation as contractor, joint venture member<sup>1</sup>, management contractor, or subcontractor, in at least two (02) contracts within the last fifteen (15) years, each with a value of at least US\$ 10 Million, that have been successfully and substantially completed and that are similar to the proposed Plant supply “ <b>kindly explain</b></p>	<p>The criteria mentioned is self-explanatory in which the Bidder or All members combined of Bidder (in case of a JV) shall have worked as contractor, joint venture member ,management contractor, or subcontractor, in at least two (02) contracts within the last fifteen (15) years, each with a value of at least US\$ 10 Million, that have been successfully and substantially completed and that are similar to Plant supply and installation.</p> <p>The similarity of the contracts shall be based on Section VII, Employer's Requirements.</p>
63		<p><b>Requested to recheck the certification required for the ultrasonic flowmeter are same as Electromagnetic flow meters. OIML is used for the custody transfer whereas in this project we don't have any requirement for the custody transfer especially in case of ultrasonic. Please review the certification for ultrasonic as the approvals/certification will be different as compared to Electromagnetic flow meter.</b></p>	<p>For Certifications of Electromagnetic flow meters, please refer to Table 1.5: Applicable Standards for Electromagnetic Flow Meters</p> <p>For Certifications of Ultrasonic flow meters, please refer to Table 1.8: Applicable Standards for Ultrasonic Clamp-on Flow Meters for Cement Pipes and Table 1.11: Applicable Standards for Ultrasonic Clamp-on Flow Meters for All Pipes Except Cement Pipes</p> <p>From above certifications, it can be observed that the standards required for ultrasonic flowmeters and Electromagnetic flow meters are separately mentioned in Bidding Documents.</p> <p>It is to be noted that OIML R49 is a standard of Water meters for cold potable water and hot water.</p>
64		<p><b>AC Power will be supplied at the site where ultrasonic flow meters are going to installed ? Battery backup /ups required only in case of power failure</b></p>	<p>For Battery Backup/ups in case of AC power failure, please refer to following Clauses:</p> <p>1.9 (14): General Specifications for</p>

Sr. No.	Bidding Document Reference	Bidder's Queries	Employer's Clarifications
			<p>Ultrasonic Clamp-on Flow Meters for Cement Pipes  1.12: General Specifications for Ultrasonic Clamp-on Flow Meters for All Pipes Except Cement Pipes  1.15 (13): General Specifications for LUT Meters  From above Clauses, it is clear that AC Power will be supplied at the sites where ultrasonic flow meters are going to installed and Battery backup /ups shall be required only in case of power failure.</p>
65		<p><b>Kindly explain the required alarms / indication/trends/logs etc at the software/scada end.</b></p>	<p>Please refer to Table 1.3: Tele-information Plan and Clause 1.3.9 Water Monitoring System and Control Room for required alarms / indication/trends/logs etc.  The above Clauses provide required details of alarms/ indication/ trends/ logs etc. at the software/SCADA end.</p>
66		<p><b>Kindly explain what is meant by SCADA for this project -its only for remote monitoring? Please elaborate</b></p>	<p>Please refer to Clause 1.3.2 Scope of Work of Volume II of Bidding Documents for Scope of SCADA which specified details of SCADA.</p>
67		<p><b>Transducers/Sensors Transducers / Sensors mainly include smart flow meters- explain what type of smart meter smart flow meter: page 30 vol 2</b></p>	<p>Please refer to Clause 1.3.9 Water Monitoring System and Control Room of Volume II of Bidding Documents for details of Smart Flow meters.</p>
68		<p>Page 31: Proposed software of middleware shall ingest data collected from sensors and flow meters to perform, device control, monitoring and, data analytics services using Machine Learning, Artificial Intelligence and Mobile Applications:</p> <p><b>Kindly explain AI /MI requirement in details for the software as all the alarms generated from the meters and AI/MI integration will enhance the cost of the software please share detail requirement for AI/MI analysis.</b></p>	<p>The scope of Work includes hardware and software required to collect data from flow meters and data analytics are required to be performed on the collected data. Software and related applications shall be provided which shall be based on analytics required for display and transfer of the data to remote end users.</p>
69		<p>The Bidders shall provide cyber security solutions which will prevent malicious software, data breaches &amp; hacking across the network.</p>	<p>Cyber security software is required to protect data from hacks, malware, phishing attacks, zero-day threats, advanced persistent</p>

Sr. No.	Bidding Document Reference	Bidder's Queries	Employer's Clarifications
		<p><b>Cybersecurity software with license keys required -its not part of RFQ kindly explain the anti-hacking software's as required.</b></p>	<p>threats, reconnaissance, and brute force attacks. For licensing requirements, Please refer to Table-6: Schedule of Technical Data for SCADA Software.</p>
70		<p><b>4 types of flow meters are using for measuring flow rates- All meters requirement to have full flow in the line to measure the accurate flow recommended by all manufacturers- please confirm all the selected lines are full to achieve the desired objective. Please explain</b></p>	<p>Please refer to Schedule of Rates and Prices, LUTs shall be installed along with other type of flow meters on sites where flows are not full. For details of LUT meters to be installed case pipes are not running full, please refer to Clause 1.3.7 Level Ultrasonic Transmitters.</p>
71		<p><b>Battery life depend on the temperature and utilization – kindly provide detail of how much battery life cycle required w.r.t utilization.</b></p>	<p>The proposed Battery shall be good for warranty period based on the system load designed by the Contractor. For Battery of CCR in case of power failure, please refer to Clause 1.3.2 (D) of Volume II of Bidding Documents. For Battery of sites in case of power failure, please refer to following tables: Table 1.9 (14): General Specifications for Ultrasonic Clamp-on Flow Meters for Cement Pipes Table 1.12: General Specifications for Ultrasonic Clamp-on Flow Meters for All Pipes Except Cement Pipes Table 1.15 (13): General Specifications for LUT Meters</p>
72		<p><b>Please share the remote monitoring pattern required- real time or after an hour or day or month because battery drain out especially for battery operated meters subjected to utilization</b></p>	<p>Please refer to Clause 1.3.2 Scope of Work of Volume II of Bidding Documents Associated hardware/software shall be deployed to display real time water statistics in a Central Control Room (CCR). The system shall be capable of providing real time data. The monitoring pattern shall be based on need or after a configurable interval. For battery size estimation, 5 measurements per day can be considered.</p>

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73		<b>GSM based network has been authorized by the approved PTA operators -please explain what type of cyber security required from the operators.</b>	GSM being a wireless network is always prone to the unauthorized access to the network. Cyber security software is required to protect data from hacks, malware, phishing attacks, zero-day threats, advanced persistent threats, reconnaissance, and brute force attacks.
74		<b>Please elaborate server station required at the site -whose responsibility to take care the security of the server in the CCR. Also explain backup of the server details- do you prefer cloud server or only local in-house server for the database</b>	Please refer to Schedule of Rates and Prices, SCADA servers are not required at sites and will only be required in CCR. Also refer to SCADA System Topology in Volume II of Bidding Documents, archival of all water flow data is required to be done on Employers proprietary hardware located at the CCR.
75		<b>Share the load at the CCR for 20KVA UPS for batteries w.r.t life cycle required for the batteries</b>	List of hardware required at CCR is given in Clause 1.3.1: Central Control Room (CCR) Equipment. The load calculations shall be done by Contractor. For battery service life, please refer to Clause 1.3.9 d. Uninterrupted Power Supply (UPS) AT CCR. Battery size shall be calculated by Contractor based on his load calculation
76		<b>Please explain utilization of LUT sensors:</b> a) It will be installed in the pipe? b) Please share the pipe details like cemented pipe? c) Do need RTUS for LTU data? d) Do need RTUS for LTU data? e) Kindy explain lowest measurement range for the LTU required? f) LTU quantities are 81 , all the lines are different or it will be installed with the combination of flow meters? g) LTU cannot submersible in water please confirm h) Share the installation procedure required with general drawings.	Please refer to Clause 1.3.7 Level Ultrasonic Transmitters for installation procedure of LUT sensors, details of pipe. Please refer to Clause 1.3.9 B. Field Equipment GSM Based RTU/Data Logger shall be used for communication between CCR and field instruments. Please refer to Table 1.15 (13): General Specifications for LUT Meters for Battery requirements Please refer to Table 1.15 (3): General Specifications for LUT Meters for Depth range Please refer to Schedule of Rates and Prices, LUTs shall be installed on sites with the combination of

Sr. No.	Bidding Document Reference	Bidder's Queries	Employer's Clarifications
			flow meters.
77		<p>Supply, Transport, Install, Test and Commission of GSM Enabled RTU/Data Logger with battery Backup including all labour, tools, accessories and other incidentals, etc</p> <p><b>Kindly share the details for tools /accessories and other incidentals, etc in details.</b></p>	Tools/accessories and other incidentals required to complete the work includes cables, thimbles, shrouds etc. and/or any other equipment required for proper working as per specifications, drawings.
78		<p><b>For PIR sensor do you need remote data monitoring or its just enable with alarm at the site- if remote data required kindly share the communication type for the PIR sensor.</b></p>	<p>Please refer to Clause 1.3.8 PIR Motion Sensor of Volume II of Bidding Documents</p> <p>Remote monitoring of PIR Motion Sensor shall be done form CCR. Alarm shall be triggered in CCR in case of unauthorized entry.</p> <p>Also refer to Clause 1.3.9 B. Field Equipment</p> <p>GSM Based RTU/Data Logger shall be used for communication between CCR and field instruments.</p>
79		<p><b>There should be no objection from any government authority in approval to deploy such network after/during commencement of project or any change/restriction/operator failure in the services /any change in law w.r.t any condition then it will be supported/handle/responsibility of the client.</b></p>	<p>Please refer to Clauses 9.3 and 10.3 of General Conditions of the Contract in Volume I of Bidding Documents for details of permits, approvals and/or licenses.</p>
80		<p>Batteries shall be contained within translucent impact resistant flame retardant polypropylene cases. They shall be designed for no maintenance and shall have a life in service of at least 5 years.</p> <p><b>Kindly share the life cycle w.r.t utilization/temperature with some reference</b></p>	<p>Please refer to Safety data Sheets (SDS) of major manufacturers of maintenance free batteries used in UPS systems.</p>

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		of 5 years having no maintenance or analysis report	
81		Certification Mentioned for the Ultrasonic flow meters are same as MAG flow meters.	Please refer to reply No.63.
82		Please note that MAG flow meters are insertion type in the line having approvals as mentioned in the tender. For the ultrasonic flow meter (which is clamp-on type) will have different type of approval as compared to Mentioned certification in the tender like : ISO 9001:2015	Please refer to reply No.63.
83		OIML certificate for custody transfer which is not the current application requirement.	Please refer to reply No.63.
84		SCADA system means the process will be designed to monitor the flow rates /alarms from remote locations .No Control required for this project, please confirm.	Please refer to reply No.66. Further, It is to be noted that control is not required under this Contract
85		All the lines will be properly filled for accurate measurement of flow. For very low flow volume lines it will responsibility of the concern authority to provide the relevant information prior to ordering flow meters for particular site.	Please refer to reply No. 70.