

BIDDING DOCUMENT

Package number: T21

Package name: Supply of Equipment, Installation, Construction, Testing & Commissioning for Water Treatment Plant

Project: LONG PHU 1 THERMAL POWER PLANT

Release date: Refer to Invitation to Bidding

Issued with the Decision: Refer to Invitation to Bidding

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SUMMARY

Part 1. Bidding Procedures

Chapter I. Instructions to Bidders

This chapter provides information to assist Bidders in preparing their bids. The information includes provisions for preparing, submitting, opening, evaluating bids, as well as for awarding contracts.

Chapter II. Bid Data Sheet

This chapter specifies the contents of chapter I, as applied to this bid package.

Chapter III. Criteria for Evaluation of Bids

This chapter sets out the criteria for evaluating bids, including the assessment of the Bidder's qualifications, capacity and experience to perform the bid package.

Chapter IV. Bidding forms

This chapter contains the standard forms that Bidders will be required to complete as part of their bids.

Part 2. Technical Requirements and Specifications

Chapter V. Technical Requirements and Specifications

This chapter introduces the bid package and provide details on the scope of work, technical requirements and specifications, as well as project schedule.

Part 3. CONTRACT

Chapter VI. Contract

This chapter includes the Conditions and Contract Forms.

ABBREVIATIONS

BDS	Bid Data Sheet
ITB	Instructions to Bidders
USD	US Dollar
VND	Vietnam Dong
VNEPS (the System)	Vietnam National E-Procurement System
Decree 24/CP	Decree No. 24/2024/NĐ-CP dated February 27, 2024 of the Government on elaboration of and measures for implementation of the Law on Bidding regarding bidder selection
Decree 17/CP	Decree No. 17/2025/NĐ-CP dated February 6, 2025 of the Government amending and supplementing several articles of the decrees detailing and providing measures for the implementation of the Law on Bidding
Law on Bidding	<p>Law on Bidding No. 22/2023/QH15 dated June 23, 2023 of the National Assembly;</p> <p>Law No. 57/2024/QH15 dated November 29, 2024 of the National Assembly, amending the Law on Planning, the Law on Investment, the Law on Public-Private Partnership Investment, and the Law on Bidding;</p> <p>Law No. 90/2025/QH15 dated June 25, 2025, of the National Assembly on amending and supplementing a number of articles of the Law on Bidding, the Law on Investment in the form of Public-Private Partnership, the Law on Customs, the Law on Value-Added Tax, the Law on Export and Import Duties, the Law on Investment, the Law on Public Investment, and the Law on Management and Use of Public Property.</p>
BOQ	Bill of Quantity

PART I. BIDDING PROCEDURES

CHAPTER 1. INSTRUCTIONS TO BIDDERS

<p>1. Scope of the Bid Package</p>	<p>The Owner, as identified in the Bid Data Sheet (BDS), issues this Bidding Document for the selection of contractors to implement the bid package covering the supply of goods and construction/installation works, in accordance with the one-stage, one-envelope bidding method. The Package Name, Package Number, Project Name and the Owner are specified in the BDS.</p>
<p>2. Source of Funds</p>	<p>Sources of Funds (or capital-raising methods) to be used for the package are specified in the BDS.</p>
<p>3. Prohibited Acts</p>	<p>3.1. Offering, giving, receiving, or taking bribes in any form.</p> <p>3.2. Abusing positions or entrusted authority to influence or unlawfully interfere with any aspect of the bidding process.</p> <p>3.3. Collusive practices, including:</p> <ul style="list-style-type: none"> a. Entering, with or without undue influence, into arrangements or agreement designed to allow one or more parties to coordinate the preparation of their bids or to withdraw submitted bids, with the intent of ensuring that a particular party wins the bid. b. Agreeing to withhold the provision of goods or services, refusing to sign subcontract agreements, or entering into other arrangements that limit competition to favor a particular bidder. c. Intentionally failing to provide documents proving capacity and experience when requested to clarify the bid, despite participating in the bidding, meeting the requirements of the Bidding Documents, and being assessed by the Owner as qualified and experienced, with the intent to create favorable conditions for another party to win the bid. <p>3.4. Fraudulent practices, including:</p> <ul style="list-style-type: none"> a. Forging or falsifying information and/or documents used in the bidding process. b. Deliberately providing inaccurate or misleading information and documents to distort the bid selection outcome. <p>3.5. Obstructive practices, including:</p> <ul style="list-style-type: none"> a. Destroying, falsifying, or concealing evidence; submitting false reports; intimidating or coercing parties to obstruct investigations or to hide evidence of bribery or collusion; or

	<p>colluding with supervising, inspecting, or auditing authorities.</p> <p>b. Obstructing the Owner or other bidders during the bidding process.</p> <p>c. Hindering the supervisory, inspection, or audit rights of competent authorities.</p> <p>d. Intentionally making false complaints, petitions, or denunciations to disrupt the bidding process.</p> <p>e. Violating safety or cybersecurity regulations in order to interfere with bidding activities.</p> <p>3.6. Inequality and non-transparency practices, including:</p> <p>a. Bidding for the bidding package where one is also the Owner or performing tasks of the Owner in contravention of the provisions of the Law on Bidding.</p> <p>b. Participating in both the formulation and appraisal of the Bidding Documents for the same bid package.</p> <p>c. Participating in both the evaluation of the bids and the appraisal of the selection results for the bid package.</p> <p>d. Any individual from the Owner who directly participates in the bidder selection process, serves as a member of the expert or appraisal team responsible for evaluating the bidding result, is a competent person or the head of the Owner, or is the legal representative of a bidder participating in the bid, must not be related by family ties to any individual participating in the same bidding package, as prescribed by the Law on Enterprises.</p> <p>e. Bidding for a procurement or construction package while simultaneously providing consultancy services for the same package, such as cost estimation, technical design, construction drawings, front-end engineering design (FEED), preparation of bidding documents, bid evaluation and appraisal, goods inspection, appraisal of bidder selection results, or contract execution supervision.</p> <p>f. Acting as a bidder for a package under a project where the Owner is an agency or organization in which the person previously worked and held a leadership or managerial position, within 12 months from the date of termination of employment at such agency or organization.</p> <p>g. Imposing specific requirements on trademarks and origin of the goods in the Bidding Documents, except as provided in Point e, Clause 3, Article 10; Clause 2, Article 44; and Clause 1, Article 56 of the Law on Bidding.</p> <p>3.7. Disclosing documents and information related to the process of selecting contractors, except in cases where</p>
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	<p>disclosure is permitted under Point b Clause 8 Article 77, Clause 11 Article 78, Clause 4 Article 80, Clause 4 Article 81 and Clause 2 Article 82 of this Law, including:</p> <ul style="list-style-type: none"> a. Contents of the Bidding Documents prior to their official issuance as prescribed; b. Contents of bids, including clarification requests made by the Owner and the Bidder’s responses during the bid evaluation process; reports prepared by the Owner, the expert group, the appraisal team, the consulting contractor, and relevant professional agencies involved in the bid selection process; recorded documents, minutes of bid review meetings, and individual comments and evaluations for each bid prior to official disclosure as prescribed by regulations; c. The bidder selection results prior to their official disclosure; d. Other documents generated during the bidder selection process that are classified as containing state secrets under applicable laws. <p>3.8. Contract transfer, including the following acts:</p> <ul style="list-style-type: none"> a. Transferring to another contractor a portion of the bidding package's tasks that exceeds the maximum value permitted for subcontracting, or includes tasks designated for special subcontractors under the signed contract. b. Transferring to another contractor a portion of the bidding package's tasks whose value does not exceed the maximum subcontracting threshold under the signed contract, but which falls outside the scope of subcontractable tasks as specified in the bid, and without the approval of the Owner or the supervision consultant. c. As the Owner or the supervision consultant, approving a transfer of tasks as described in Point a of this Clause. d. As the Owner or the supervision consultant, approving a transfer of work as described in Point b of this Clause that results in exceeding the maximum value permitted for subcontractors under the signed contract.
<p>4. Eligible Bidders and Eligible Materials, Equipment and Related Services</p>	<p>4.1. An eligible Bidder is an organization meeting all the following requirements:</p> <ul style="list-style-type: none"> a. A local bidder must be an enterprise, cooperative, cooperative union, cooperative group, public non-business unit, or an economic organization with foreign investment capital, established and operating in accordance with Vietnamese law. A foreign bidder must be registered for establishment and operation under the laws of its home

	<p>country.</p> <ul style="list-style-type: none">b. Must have independent financial accounting.c. Must not be undergoing dissolution procedures, have its business registration certificate or cooperative registration certificate revoked, or be insolvent under applicable bankruptcy laws.d. Must be registered on the Vietnam National E-Procurement System (VNEPS) prior to approval of the bidder selection result.e. Must ensure the competition in bidding as prescribed in the BDS.f. Must not be banned from bidding under the Law on Bidding.g. Must not be under criminal prosecution.h. For foreign bidder, it is mandatory to enter into a consortium with a local bidder or subcontract local bidder, unless local bidder is incapable of performing any tasks of bid package.i. Must comply with other regulations as specified in the BDS. <p>4.2. Eligible Materials, Equipment and Related Services:</p> <ul style="list-style-type: none">a. All materials, equipment, and related services to be supplied under the Contract shall be considered eligible if they have a clear and lawful origin. The Bidder must specify symbols, trademarks (if any), and the origin of key materials and equipment. The Owner may request the Bidder to provide supporting documents to verify the origin. For other types of materials and equipment, the Bidder must declare the origin during contract execution.b. The term “origin” means the country or territory where the goods is exploited, raised, cultivated, manufactured, produced or processed through processing or assembly into a commercially recognized product that is substantially different in fundamental characteristics from its original constituents.c. Documents proving the origin of materials and equipment, and eligibility of Related Services may consist of: certificates of origin issued by the competent authority of the exporting country, certificates of quality issued by the manufacturer, bills of lading, deliverables related to materials and equipment, and other supporting documents proving the eligibility of goods and Related Services provided for the package.
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	<p>d. The Owner does not mandate a specific origin of goods (except for the control systems and instrumentation (e.g., PLC systems, pressure transmitters, differential pressure transmitters, thermocouples, flow transmitters, temperature switches, indicators, etc.) specified at Sub-item 1.1.3, Point 1.1, Clause 1, Section II, Chapter V, Part 2). However, the Bidder is encouraged to maximize the use of domestically produced goods to mitigate potential risks during tax exemption applications, implementation, and post-clearance inspections.</p> <p>For goods that have origin requirements according to groups of countries or territories as specified at Sub-item 1.1.3, Point 1.1, Clause 1, Section II, Chapter V, Part 2 of Bidding Document, Bidder must offer goods that meet the origin requirements or have Vietnamese origin, even if the required origins does not include Vietnam. Bidder offering goods that do not meet the origin requirements of the Bidding Document or are not of Vietnamese origin will be rejected.</p> <p>e. The Bidder must declare the manufacturer of the goods in Form No. 19 (a), Chapter IV. If the Bidder proposes multiple manufacturers for more than one unit of the goods (e.g., two pieces, two items) at the same unit price, the Owner shall require clarification to determine the specific quantity associated with each manufacturer. If the Bidder proposes multiple manufacturers for a single unit of the goods (e.g., one piece), the Bid will not be considered or evaluated.</p> <p>f. Bidder must specifically provide the information as specified in Form No. 19 (a), Chapter IV. In the event of any discrepancies between the information declared in Form No. 19 (a), Chapter IV and the attached documents, the information in Form No. 19 (a), Chapter IV shall serve as the basis for review and evaluation, except in cases where the information declared in Form No. 19 (a), Chapter IV does not exist on the market.</p> <p>g. Any standards for manufacturing, production processes, brands, materials, equipment, or catalog numbers specified by the Owner in Chapter V are for reference and descriptive purposes only, and are not intended to restrict competition. The Bidder may propose alternatives with equal or better quality, provided that sufficient proof is submitted to demonstrate that the alternatives meet or exceed the requirements set out in Chapter V.</p>
<p>5. Contents of Bidding Document</p>	<p>5.1. The Bidding Document consists of Invitation to Bid and Parts 1, 2 and 3 in conjunctions with any clarification issued in accordance with ITB 6 and any Addendum issued in</p>

	<p>accordance with ITB 7 (if any).</p> <p>5.2. The Owner shall not be responsible for the accuracy or completeness of the Bidding Documents, any addenda, minutes of the pre-bid meeting (if any), documents clarifying the Bidding Documents as specified in ITB 6, or documents amending the Bidding Documents as specified in ITB 7, if such documents were not obtained directly from the Owner via the System. The version of the Bidding Documents issued by the Owner on the System shall serve as the basis for review and evaluation.</p> <p>5.3. The Bidder shall review all information related to the Invitation to Bid and other Bidding Documents, including any amendments, clarifications, and minutes of pre-bid meeting (if any), in order to prepare the bid in accordance with the requirements of the Bidding Documents.</p>
<p>6. Clarification of Bidding Documents, Site Visit, Pre-Bid Meetings</p>	<p>6.1. A Bidder seeking any clarification of the Bidding Documents shall submit a request to the Owner through the System no later than five (05) working days prior to the Bid Closing Date, or raise questions at the pre-bid meeting (if any) as specified in ITB 6.4. Upon receiving the request, the Owner shall review and respond by providing clarifications through the System no later than two (02) working days before the Bid Closing Date. The clarification shall include the content of the Bidder’s request but shall not disclose the identity of the requesting Bidder.</p> <p>6.2. Any clarification of the Bidding Documents shall not contradict the contents of the approved Bidding Documents. If the clarification results in content that necessitates an amendment to the Bidding Documents, such amendment shall be carried out in accordance with the procedures specified in ITB 7 and 21.2.</p> <p>6.3. The Owner shall be responsible for monitoring information on the System in order to promptly provide clarifications to the Bidding Documents upon the Bidder’s request.</p> <p>6.4. The Bidder shall be responsible for monitoring information on the System to stay updated on any amendments to the Bidding Documents and changes to the Bid submission deadline (if any), which serve as the basis for preparing the Bid. If any errors occur due to the Bidder’s failure to monitor and update such information, resulting in damages during the bidding process, including those related to changes or amendments to the Bidding Documents, Bid submission deadlines, contract negotiation schedules, or other matters, the Bidder shall be solely responsible and shall bear</p>

	<p>all resulting damages.</p> <p>6.5. The Bidder is advised to visit and examine the site and its surroundings and, at its own responsibility, obtain all information necessary for preparing the Bid and entering into a Contract. All risks and costs associated with the site visit shall be borne solely by the Bidder.</p> <p>6.6. The Bidder and any of its personnel or agents shall be granted permission by the Owner to enter the premises and land for the purpose of conducting a site visit, but only on the express condition that the Bidder, its personnel, and agents release and indemnify the Owner, its personnel, and agents from and against all liability arising therefrom. The Bidder, its personnel, and agents shall be solely responsible for any accidents, loss or damage to property, or any other loss, damage, costs, or expenses incurred as a result of the site inspection. Where necessary, the Owner shall provide the Bidder with site visit guidelines as specified in the BDS.</p> <p>6.7. When necessary, the Owner shall organize a Pre-Bid Meeting as specified in the BDS to clarify unclear contents of the Bidding Documents for interested Bidders. The Owner shall issue a notice of the Pre-Bid Meeting on the System. All interested Bidders may attend the Pre-Bid Meeting without prior notice to the Owner. The discussions among the Owner and the Bidders shall be recorded in meeting minutes, and a written clarification of the Bidding Documents shall be issued via the System within a maximum of two (02) working days after the conclusion of the Pre-Bid Meeting. If any amendments to the Bidding Documents are deemed necessary as a result of the meeting, the Owner shall proceed with such amendments in accordance with ITB 7. The minutes of the Pre-Bid Meeting shall not be considered an amendment to the Bidding Documents. The Bidder's failure to attend the site survey or Pre-Bid Meeting, or failure to present a site survey certificate or Pre-Bid Meeting attendance certificate, shall not be grounds for disqualification of the Bidder's Bid.</p>
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<p>7. Amendment of Bidding Document</p>	<p>7.1. If it is necessary to amend the Bidding Documents after issuance, the Owner shall publish a decision on the amendment, together with the amended content and the revised Bidding Documents, on the System. Amendments must be made at least ten (10) days prior to the Bid Closing Date. If this timeline cannot be met, the Bid submission deadline shall be extended in accordance with ITB 21.2.</p> <p>7.2. The clarification and decision on amendment of Bidding Document are part of the Bidding Document.</p> <p>7.3. The Bidder is responsible for tracking information on the System to update information on amendment of Bidding Document, extend deadline for the submission of Bid (if any) to prepare the Bid. Should occurred errors due to failure to monitor and update information on System cause damages to bidder during bidding process including changes or amendments on Bidding Document, deadline for submission of Bid, contract negotiation time and others, Bidder itself must take responsibility and bear damages during bidding process.</p>
<p>8. Cost for Bidding</p>	<p>The Bidding Documents shall be posted on the System. The Bidder shall pay to purchase the electronic copy of the Bidding Documents when or before submitting its Bid.</p> <p>The Bidder shall bear all costs associated with the preparation and submission of its Bid. The Owner shall not be responsible or liable for any of these costs.</p>
<p>9. Language of Bid</p>	<p>The Bid, along with all correspondence and documents exchanged between the Bidder and the Owner relating to the bid, shall be written in the language prescribed in the BDS.</p>
<p>10. Documents Comprising the Bid</p>	<p>The Bid comprises the following:</p> <p>10.1. Letter of Bid in accordance with ITB 11;</p> <p>10.2. Consortium Agreement (for any Bidder in a consortium) using Form No. 03 (prepared by the Bidder) of Chapter IV - Bidding Forms;</p> <p>10.3. Bid Bond, in accordance with ITB 18;</p> <p>10.4. Documentary evidence of bidder eligibility, in accordance with ITB 4.1;</p> <p>10.5. Documentary evidence of the origin of materials and equipment, and eligibility of services, in accordance with ITB 4.2;</p> <p>10.6. Documentary evidence establishing the eligible signatory of the Letter of Bid in accordance with ITB 19.3;</p>

	<p>10.7. Documentary evidence establishing the Bidder's qualifications and experience in accordance with ITB 12;</p> <p>10.8. Technical Proposal in accordance with ITB 13.</p> <p>10.9. Financial Proposal and schedules, in accordance with ITB 11 and ITB 14.</p> <p>10.10. Alternative Technical Proposal, if permitted, in accordance with ITB 15, together with the corresponding Financial Proposal (if any);</p> <p>10.11. Any other documents specified in the BDS.</p>
11. Letter of Bid and Schedules	The Bidder shall submit the Letter of Bid and equivalent Schedules using the forms furnished in Chapter IV - Bidding Forms (prepared by the Bidder).
12. Documents Establishing the Qualifications and Experience of the Bidder	<p>The Bidder shall complete the required information in the forms provided in Chapter IV – Bidding Forms to demonstrate its qualifications to perform the contract, in accordance with Chapter III – Evaluation and Qualification Criteria. The Bidder shall prepare original documents for verification upon request by the Owner.</p> <p>In cases where prequalification has been applied, if there are any changes in the Bidder's qualification information between the time of prequalification and the Bid submission, the updated information must be provided. If no changes have occurred, the Bidder shall submit a written confirmation affirming its continued compliance with all the qualification criteria of the package.</p>
13. Technical Proposal	The Bidder shall submit a Technical Proposal that includes a statement of work methods, equipment, personnel, schedule, and any other information as specified in Chapter IV – Bidding Forms, with sufficient detail to demonstrate the adequacy of the Bidder's proposal in meeting the work requirements and completion timeline.
14. Bid Price and Discounts	<p>14.1. The Bid Price means the total price quoted in the Letter of Bid. Details as specified in the BDS.</p> <p>14.2. If the Bidder offers a discount, the percentage of the discount must be clearly stated in the Letter of Bid.</p> <p>This discount shall be understood to apply uniformly across all items listed in the Summary Bid Price Table.</p> <p>14.3. For construction work:</p> <p>a. The value of the construction work proposed by the Bidder in the Bid shall include all necessary costs to perform the construction work in accordance with Chapter V - Technical</p>

	<p>Requirements and Specifications in the Bidding Documents. The Bidder is responsible for reviewing the construction work items in Form No. A1, Chapter IV - Bidding Forms and the actual conditions to propose a suitable bid price table. The “Bill of Quantity” provided in Form No. A1, Chapter IV - Bidding Forms, are for reference only.</p> <p>b. The Bidder may add or remove construction work items in the “Bill of Quantity” in Form No. A1, Chapter IV – Bidding Forms, to reflect the design and actual site conditions. Any such adjustments must be reflected in the corresponding price proposal in Form No. 20, Chapter IV – Bidding Forms.</p> <p>14.4. For goods supply:</p> <p>a. The quoted price for goods supply must include all costs necessary to perform the supply scope in accordance with Chapter V – Technical Requirements and Specifications, and the actual conditions of the equipment and systems.</p> <p>b. The Bidder shall quote prices for all items listed in the “Bill of Quantity” in Form No. A1, Chapter IV – Bidding Forms.</p> <p>c. If there are any additional work items or volumes required for project completion, based on the Work Scope Division Table in Chapter V and the actual condition of systems, but not included in the “Description” in Form No. A1, Chapter IV, the Bidder shall provide separate quotations for these additional items. Such quotations must be accompanied by supporting documents or reasonable justifications for consideration, evaluation, and discussion during contract negotiations.</p> <p>14.5. If the Bidder leaves blank or enters "0" in the "Unit Price" or "Total Price" columns, it will be deemed that the cost for those items has been allocated to other components of the package. The Bidder shall still be responsible for executing such work in full compliance with the Bidding Document, without any additional payment from the Owner, except as reflected in the total bid price.</p> <p>14.6. The Bid Price must include all applicable taxes, fees, and charges, based on the rates in effect twenty-eight (28) days prior to the Bid submission deadline.</p> <p>If the Bidder declares that the Bid Price is exclusive of such taxes, fees, or charges, the Bid shall be rejected.</p> <p>14.7. The Bidder shall be fully responsible for the accuracy and sufficiency of the quoted price in meeting the requirements of the Bidding Documents.</p> <p>If the final evaluated price (after error correction and</p>
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	<p>deduction of any discounts) is abnormally low and may affect the quality of the contract performance, the Owner shall proceed according to Clause 11, Article 131 of Decree No. 24/2024/NĐ-CP..</p> <p>14.8. The Bid Price shall be on a lump-sum basis. No price adjustment will be allowed during the execution of the contract.</p>
<p>15. Alternative Technical Proposal in Bid</p>	<p>15.1. Unless otherwise indicated in the BDS. Alternative Technical Proposal(s) shall not be considered.</p> <p>15.2. The Alternative Technical Proposal(s) shall only be considered if main Bid is evaluated as responsive and the Bidder is ranked the first. In this event, the Bidder shall provide all essential information in order that the Owner to evaluate alternative technical options, including: description, drawings, technical specifications, delivery schedule and other relevant information. The evaluation of Alternative Technical Proposal(s) shall comply with Section 5 Chapter III - Evaluation and Qualification Criteria.</p>
<p>16. Bid Currency and Payment Currency</p>	<p>The currency for bidding and payment shall be as specified in the BDS.</p>
<p>17. Validity Period of Bid</p>	<p>17.1. The Bid shall remain valid for the period which is not shorter than the period specified in the BDS. The Bid valid for a shorter period shall be rejected as non-responsive.</p> <p>17.2. In exceptional circumstances, prior to the expiration of the bid validity period, the Owner may request Bidders to extend the period of validity of their Bids. If a Bid Bond is requested, it shall also be extended for a corresponding period (equivalent to the extended validity period plus thirty (30) days). If the Bidder refuse the request, its Bid shall not be kept considering and the Bid Bond shall be returned. The Bidder accepting the request shall not change any content of the Bid. The request and the responses shall be made in writing.</p>
<p>18. Bid Bond</p>	<p>18.1. When submitting the Bid and before the deadline for submission of Bid, the Bidder shall provide a bid bond in one or more of the following forms:</p> <ul style="list-style-type: none"> a. A bank guarantee letter issued by legal representative of domestic credit institution or foreign bank branch established under Vietnamese law, or b. A guarantee insurance certificate from domestic non-life insurance enterprise, branches of foreign non-life insurance enterprises established under Vietnamese law <p>Such instruments shall use Form No. 04 in Chapter IV – Bidding Forms, or another form provided it contains the</p>

essential content and is subject to the Owner's approval. If the bid validity period is extended under ITB 17.2, the Bid Bond must also be extended accordingly.

For a consortium, the Bid Bond may be provided in one of the following two ways:

- Each member of the consortium may submit a separate Bid Bond, provided that the total value is not less than that required in ITB 18.2. If any of the Bid Bonds is found invalid, the consortium's Bid shall be rejected as non-responsive. If any consortium member commits a violation of the law that results in the Bid Bond not being returned under ITB 18.5, none of the Bid Bonds will be returned.
- The Consortium may designate one partner responsible for providing the Bid Bond on behalf of the entire consortium. The Bid Bond may be issued in the name of the consortium or the lead partner, provided that the total value is not less than the amount specified in ITB 18.2. If any consortium member violates the law, resulting in non-return under ITB 18.5, the Bid Bond shall not be returned.

18.2. The value, currency, and validity period of the Bid Bond shall be specified in the **BDS**. The validity period shall be calculated from the Bid submission deadline to the final day of the Bid Bond's validity, without requiring a full 24-hour extension on that day.

18.3. A Bid Bond shall be considered invalid in one of the following cases:

- Its value is lower than required,
- Its validity period is shorter than required under ITB 18.2,
- It states an incorrect name of the Owner (beneficiary),
- It lacks a valid signature,
- It is dated before the Bidding Documents were issued,
- It includes conditions that are disadvantageous to the Owner.

Guarantee letters or guarantee insurance certificates must be signed and (if applicable) sealed by a legal representative of the issuing entity, which must be either a domestic credit institution, a foreign bank branch established under Vietnamese law, a domestic non-life insurance enterprise, or branches of foreign non-life insurance enterprises established under Vietnamese law.

18.4. For unsuccessful Bidders, the Bid Bond shall be returned or released within the time frame specified in the **BDS**, counted from the date of notification of bid results. For the successful Bidder, the Bid Bond shall be returned or released upon submission of the Performance Bond and the

	<p>effective date of the Contract.</p> <p>18.5. A Bidder shall forfeit the Bid Bond in the following cases due to violations of the Law on Bidding:</p> <ol style="list-style-type: none"> a. The Bidder withdraws its Bid or submits a written refusal to perform one or more items proposed in the Bid after the Bid submission deadline and within the bid validity period; b. The Bidder commits any prohibited act under Article 16 of the Law on Bidding or any violation leading to bid cancellation; c. The Bidder fails to submit the required Performance Bond as prescribed in Article 68 of the Law on Bidding and ITB 41; d. The Bidder fails or refuses to engage in contract negotiations (if applicable) within ten (10) days of receiving the negotiation invitation, or refuses to sign the minutes after negotiations (except in cases of force majeure); e. The Bidder fails or refuses to finalize the contract within twenty (20) days of receiving the Contract Award Notification from the Owner, except for force majeure events; f. The Bidder fails or refuses to sign the contract within twenty (20) days of finalizing the contract documents, except in force majeure cases; g. The Bidder refuses or fails to submit the original bid security (guarantee letter or insurance certificate) within five (5) working days from the Owner’s request. This will be handled in accordance with the commitment made in the Bid Letter.
<p>19.Format and Signing of Bid</p>	<p>19.1. The Bidder shall prepare the Bid consisting of one original Bid as described in ITB 10 and a number of copies of the Bid as prescribed in the BDS. The cover of the Bid shall be clearly marked "BID ORIGINAL" and BID COPY".</p> <p>In case of any amendments to or replacements for Bid, the Bidder shall prepare one original and a number of copies of the Bid as prescribed in the BDS. The cover of documents shall be clearly marked “MODIFIED BID ORIGINAL”, “MODIFIED BID COPY”, “SUBSTITUTED BID ORIGINAL”, “SUBSTITUTED BID COPY”.</p> <p>19.2. The Bidder shall be responsible for the consistency between the original and the copies. In the event of any discrepancy between the original and the copies of the Bid, the following rules shall apply:</p> <ul style="list-style-type: none"> • In the event of any discrepancy between the original and the copies does not lead to any change to the rank of the Bidder, the original shall prevail. • In the event of any discrepancy between the original and the copies leading change to the rank of the Bidder, the Bid

	<p>shall be rejected.</p> <p>19.3. The original Bid shall be typed or written in indelible ink and paginated continuously. The Letter of Bid, Letter of Discount (if any), additional or clarifying documents, Price Schedule, and other forms specified in Chapter IV – Bidding Forms must bear the signature and seal of the Bidder’s legal representative or authorized representative (if applicable).</p> <p>If signed by an authorized representative, the Bid must include either:</p> <ul style="list-style-type: none"> • An original or notarized Power of Attorney using Form No. 02 in Chapter IV – Bidding Forms, or • A copy of the Company Charter, a certified Decision on the Establishment of a branch, or other documents proving the representative’s authority. <p>These documents must be submitted with the Bid.</p> <p>19.4. If the Bidder is a consortium, the Bid shall bear the signatures of legal representatives of all consortium’s partners or the partner that represents the consortium according to the consortium agreement. In order to ensure that all consortium's partners are legally bound, the consortium agreement shall bear the signatures of legal representatives of all consortium's partners.</p> <p>19.5. Any interlineations, erasures, or overwriting in the Bid shall be valid only if they are signed or initialed by the same person who signs the Bid.</p>
<p>20. Sealing and Marking of Bid</p>	<p>20.1. The Bid envelope shall contain the original and the copies of the Bid and clearly marked as “BID”.</p> <p>If the Bidder submits a modified or replacement Bid, the revised documents (including both original and copies) must be placed in separate sealed envelopes and clearly marked as "MODIFIED BID" or "SUBSTITUTED BID", respectively.</p> <p>If the Bidder submits an Alternative Technical Proposal, it shall be enclosed in a separate sealed envelope and clearly marked as "ALTERNATIVE TECHNICAL PROPOSAL".</p> <p>All such envelopes including those containing the Bid, Modified Bid, Substituted Bid (if any), and Alternative Technical Proposal (if any) must be sealed, with the sealing method determined by the Bidder in accordance with its internal procedures.</p> <p>20.2. The outer envelopes shall:</p> <ol style="list-style-type: none"> a. bear the name and address of the Bidder; b. be addressed to the Owner in accordance with ITB 21.1; c. bear the name of the package in accordance with ITB 1;

	<p>and</p> <p>d. bear a warning: "Do not open before the time and date for Bid opening" for the envelopes containing the Bid, Modified Bid, or Substituted Bid (if any).</p> <p>If the envelopes are not sealed, if the seals are broken during transmission, or if the envelopes are not properly marked in accordance with ITB 20.1 and 20.2, the Bidder shall bear full responsibility. The Owner shall not be liable for the confidentiality or integrity of the Bid if the Bidder fails to comply with these sealing and marking requirements.</p>
<p>21. Deadline for the submission of Bid</p>	<p>21.1. The deadline for submission of Bids shall be the date and time specified in the Invitation for Bids. The Owner shall receive all Bids submitted by Bidders prior to the Bid closing time, as prescribed in the BDS. Upon submission of the Bid, the Bidder shall pay the Owner an amount equivalent to the selling price of the Bidding Document prior to the receipt of their Bid.</p> <p>21.2. The Owner may extend the deadline for submission of Bids by issuing an amendment to the Invitation for Bids. In such case, all rights and obligations of the Owner and the Bidders under the original deadline shall thereafter apply to the extended deadline.</p>
<p>22. Late Bid</p>	<p>The Owner shall not consider any Bid received after the deadline for submission. Any Bid arriving after the deadline shall be deemed late, rejected, and returned unopened to the Bidder.</p>
<p>23. Withdrawal, Substitution, and Modification of Bid</p>	<p>23.1. A Bidder may withdraw, substitute, or modify its Bid after submission by sending a written notice duly signed by its legal representative or authorized representative, accompanied by a copy of the Power of Attorney in accordance with ITB 19.3. The corresponding substitution or modification of the Bid shall accompany the written notice. These documents shall:</p> <ul style="list-style-type: none"> a. be submitted in accordance with ITB 19 and ITB 20, and the respective envelopes shall be clearly marked "MODIFIED BID," "SUBSTITUTED BID," or "WITHDRAWAL"; and b. be received by the Owner prior to the deadline for submission of Bids, in accordance with ITB 21.1. <p>23.2. Any Bid requested to be withdrawn in accordance with ITB 23.1 shall be returned unopened to the Bidder.</p> <p>23.3. No Bid may be withdrawn, substituted, or modified after the deadline for submission of Bids and before the expiration of the Bid validity period specified in the Letter of Bid or any extension thereof.</p>

<p>24. Confidentiality</p>	<p>24.1. Information relating to the evaluation of Bids and the recommendation for Contract Award shall not be disclosed to Bidders or any other persons not officially involved in the evaluation process until the publication of the bidder selection result. Under no circumstances shall information contained in one Bidder’s Bid be disclosed to any other Bidders, except for the information announced at the Bid opening.</p> <p>24.2. Except in cases of Bid clarification as prescribed in ITB 25 or during contract negotiations, the Bidder shall not contact the Owner regarding any matter related to its Bid or the bidding package from the time of Bid opening until the publication of the bidder selection result.</p>
<p>25. Clarification of Bid(s)</p>	<p>25.1. After Bid opening, the Bidder shall clarify its Bid at the request of the Owner. If the Bid lacks documentary evidence of the Bidder’s qualifications such as eligibility, capacity, experience, similar contracts, production capability, financial statements, tax declarations and payments, key personnel, or construction equipment the Owner shall request the Bidder to clarify and provide the missing documents. Clarification related to eligibility must not alter essential information regarding the identity of the Bidder. Clarification of technical or financial proposals must not result in any change to essential contents of the Bid or the Bid Price. The Bidder shall acknowledge receipt of the clarification request by submitting a confirmation letter via email.</p> <p>25.2. The Clarification of Bid between the Bidder and the Owner shall be in writing;</p> <p>25.3. Within the period specified in the BDS, if the Bid lacks necessary documents proving the Bidder's qualifications (e.g., eligibility, similar contracts, production capacity, financial statements, tax declarations and payments, personnel, or equipment), the Bidder may supplement such documents. The Owner shall consider these supplemental documents as an integral part of the Bid.</p> <p>25.4. The Clarification of Bids shall be conducted exclusively between the Owner and the Bidder whose Bid requires clarification. The content of the clarification shall be treated as an integral part of the Bid. For clarifications concerning qualifications, technical, or financial criteria, if the Bidder fails to provide clarification before the deadline or if the response is inadequate, the Owner shall evaluate the Bid based solely on the information submitted by the original Bid Closing Date.</p> <p>25.5. Where necessary, the Owner may request in-person clarification from potentially successful Bidders. Such clarification meetings shall be documented, and the information exchanged must be provided objectively and</p>

	<p>transparently.</p> <p>25.6. If there is any doubt regarding the authenticity of documents submitted by the Bidder, the Owner reserves the right to verify the documents with the relevant authorities or individuals.</p>
<p>26. Deviations, Reservations, and Omissions</p>	<p>26.1. During the evaluation of Bids, the following definitions shall apply:</p> <p>a. "Deviation" means any variation or departure from the requirements specified in the Bidding Documents.</p> <p>b. "Reservation" means the inclusion of restrictive conditions or the expression of partial or incomplete acceptance of the requirements stated in the Bidding Documents.</p> <p>c. "Omissions" means the failure to submit, either in part or in full, the information or documentation required by the Bidding Documents.</p> <p>26.2. If a Bidder fails to meet any of the following evaluation criteria eligibility, qualifications, experience, technical, or financial or if the Bid contains deviations, reservations, or omissions that result in the Bid being non-compliant, such Bid shall be rejected, and no further evaluation of other criteria shall be conducted.</p>
<p>27. Determination of Responsiveness</p>	<p>27.1. The Owner shall determine a Bid's responsiveness based on content of the Bid as prescribed in ITB 10.</p> <p>27.2. A substantially responsive Bid is one that meets all the requirements of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:</p> <p>a. if accepted, would affect in any substantial way the scope, quality, or performance of the work, or would limit in any substantial way, contrary to the Bidding Documents, the Owner's rights or the Bidder's obligations under the proposed Contract; or</p> <p>b. if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.</p> <p>27.3. The Owner shall examine all technical aspects of the Bid submitted in accordance with ITB 13, particularly to confirm that all requirements of the Bidding Documents have been met without any material deviation, reservation, or omission.</p> <p>Any Bid that is not substantially responsive to the requirements of the Bidding Documents shall be rejected and shall not subsequently be made responsive by the Bidder's correction of the material deviation, reservation, or omission.</p>
<p>28. Nonmaterial Nonconformities</p>	<p>28.1. Provided that a Bid is substantially responsive to the requirements of the Bidding Documents, the Owner may waive any nonconformities in the Bid that do not constitute a</p>

	<p>material deviation, reservation, or omission.</p> <p>The Owner may also request the Bidder to submit, within a reasonable period of time, any necessary information or documentation to rectify nonmaterial nonconformities related to the documentation requirements. Such requests shall not relate to any aspect of the Bid Price. Failure of the Bidder to comply with the request may result in rejection of its Bid.</p> <p>28.2. Provided that a Bid is substantially responsive to the requirements of the Bidding Documents, the Owner shall rectify nonmaterial and quantifiable nonconformities related to the Bid Price. For the purpose of Bid comparison only, the Bid Price shall be adjusted to reflect the cost of any missing or nonconforming item or component.</p>
<p>29. Subcontractor (Including Manufacturer and Supplier)</p>	<p>29.1. A subcontractor is an organization or individual that enters into a contract with the Bidder to carry out a portion of the work listed in the Summary of Bid Price. The Bidder shall submit a list of subcontractors and the corresponding work items as prescribed in Form No. 18 (a), Chapter IV - Bidding Forms. If the subcontractors are not identified at the time of bidding, the Bidder must indicate the anticipated work items intended for subcontracting.</p> <p>The use of subcontractors does not relieve the Bidder of any obligations. The Bidder remains fully responsible for the quality, quantity, schedule, and all contractual obligations related to the work performed by subcontractors. The qualifications of subcontractors, manufacturers, or suppliers will not be considered during the Bid evaluation (except for special subcontractors as defined in the Bidding Documents), but shall be subject to final approval during contract execution. The Bidder must independently meet all qualification requirements without reliance on subcontractors. If the Bidder does not propose the use of subcontractors for specific tasks, it shall be deemed to have undertaken responsibility for the entire package. The use of subcontractors not declared in the Bid during contract execution will be treated as a "Contract Transfer" under ITB 3.8.</p> <p>29.2. [Not applicable].</p> <p>29.3. The Bidder shall not subcontract any work items other than those listed in the Bid. Replacement or addition of subcontractors not originally proposed shall only be permitted with legitimate justification and prior approval by the Owner. Otherwise, such actions shall be considered a "Contract Transfer." Any bidder who engages in Contract Transfer under Clause 8, Article 16 of the Law on Bidding shall be prohibited from participating in future bidding activities, as prescribed in Point b, Clause 1, Article 125 of Decree No.</p>

	<p>24/2024/ND-CP.</p> <p>29.4. The Owner may allow the use of special subcontractors as specified in the BDS. The Bidder must submit a list of such special subcontractors, including their qualifications and work experience, using Form No. 18 (b), Chapter IV - Bidding Forms. The Owner shall evaluate the qualifications of special subcontractors in accordance with the criteria set forth in Clause 2.3, Section 2 - Qualification Criteria, Chapter III - Evaluation and Qualification Criteria. If either the Bidder or its proposed special subcontractor fails to meet these criteria, the Bid shall be deemed nonresponsive.</p> <p>29.5. The Owner shall not permit the use of subcontractors that have participated in consultancy services related to the Bidder's success in the bidding process. This includes involvement in: preparation or verification of technical designs, construction drawings, cost estimates, FEED designs; valuation; contract supervision and inspection; preparation or appraisal of Request for Pre-Qualification or Bidding Documents; evaluation of Pre-Qualification Applications or Bids; appraisal of prequalification or bidder selection results; project management; contract management; or other consulting services directly related to the package.</p>
<p>30. Incentives in Bidder Selection</p>	<p>30.1. Incentive Rules:</p> <ul style="list-style-type: none"> a. If a Bidder is eligible for multiple incentives related to capacity, experience, or financial criteria, only the most favorable incentive shall apply for each respective evaluation item. b. If all Bidders are equally eligible for incentives, or none qualify, incentive calculations for the purpose of comparison and ranking shall not be necessary. c. Incentives shall be calculated based on the entirety of the Bidder's proposal, covering consultancy services, supply of goods, and construction. A Bidder qualifies for incentives if its proposed domestic cost components, including consultancy, non-consultancy services, goods of Vietnamese origin, and construction/installation, account for at least 25% of the total package value. d. A Bidder shall be eligible for incentives when supplying goods that meet the minimum ratio of domestic production cost as specified in Article 5 of Decree No. 24/2024/NĐ-CP. e. The Bidder must provide sufficient evidence that the offered goods and services are eligible for incentives in accordance with Clause 1, Article 10 of the Law on Bidding. <p>30.2. The specific entities entitled to incentives and the corresponding determination methods shall be as specified in the BDS.</p>

31. Bid Opening	<p>31.1. Except as provided under ITB 22 and ITB 23, all Bids received before the deadline for submission shall be opened by the Owner in accordance with ITB 31.5. The Bid opening shall be conducted publicly at the location, date, and time specified in the BDS, in the presence of the Owner and relevant agencies and organizations. The Bid opening shall proceed regardless of the presence or absence of any Bidder's representative.</p> <p>31.2. Envelopes marked "WITHDRAWAL" shall be opened first and the corresponding Bid shall not be opened, but returned to the Bidder. No Bid withdrawal shall be accepted unless the corresponding withdrawal notice includes valid authorization.</p> <p>31.3. Envelopes marked "SUBSTITUTED BID" shall be opened next, and the original Bid envelope shall not be opened but returned to the Bidder. No substitution shall be accepted unless the notice of substitution includes valid authorization.</p> <p>31.4. Envelopes marked "MODIFIED BID" shall then be opened along with the corresponding original Bid. No modification shall be accepted unless accompanied by a valid authorization.</p> <p>Only envelopes that are opened and read out at the Bid opening shall be considered further.</p> <p>31.5. The Bid opening shall be conducted to every Bid or Substituted Bid (if any) in alphabetical order of the Bidders' names, following these procedures:</p> <ol style="list-style-type: none">a. The seals shall be checked and the envelopes marked "BID". "MODIFIED BID" (if any) or "SUBSTITUTED BID" (if any) shall be opened;b. All other envelopes, including original, modified or substitute (if any) shall be opened and read aloud: Bidder's name (including whether submitting independently or as part of a consortium), Bid validity period, implementation schedule, contract duration, Bid Bond value and validity, Bid Price as stated in the Letter of Bid and Grand Total, any discount offered, and other relevant details;c. The number of originals and copies submitted, as well as information regarding any Alternative Bid (if applicable), shall be read out;d. The representative of the Owner shall initial or sign key documents such as the original Letter of Bid, Power of Attorney (if applicable), Consortium Agreement (if applicable), Bid Bond, and Letter of Discount (if any). No Bid
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	<p>shall be rejected at the Bid opening stage except for those deemed late under ITB 22.</p> <p>31.6. The Owner shall prepare a record of the Bid opening, including the contents specified in ITB 31.3. This record shall be signed by the representatives of the Bidders present at the Bid opening. The absence of a Bidder's signature shall not invalidate the record. A copy of the Bid opening record shall be distributed to all participating Bidders and published on the System within twenty-four (24) hours of the Bid opening. The record shall include the following:</p> <p>a. Information of bidding package:</p> <ul style="list-style-type: none"> • Number of Invitation to Bid; • Name of the bidding package; • Name of the Owner; • Form of bidder selection; • Type of contract; • Time for Completion of the bidding package; • Total number of participating bidders. <p>b. Information about participating bidders:</p> <ul style="list-style-type: none"> • Bidder's name; • Validity of Bid; • Bid Price; • Discount percentage (%) (if any); • Bid price after discount (if any); • Value and validity of Bid Bond; • Implementation time of bidding package; <p>c. Other related information (if any).</p>
<p>32. Bid Evaluation</p>	<p>32.1. The Owner shall evaluate the Bids based solely on the criteria and methodology stated in this Section and as prescribed in the BDS. The application of any criteria or methods not explicitly set forth in the Bidding Document is strictly prohibited.</p> <p>32.2. Inspection and Evaluation of Bid validity:</p> <p>a. The inspection and evaluation of the validity of the Bid shall comply with Section 1 of Chapter III - Evaluation and Qualification criteria;</p> <p>b. Only Bidders whose Bids are deemed valid shall be considered for subsequent stages.</p> <p>32.3. Qualification Evaluation:</p> <p>a. The evaluation of Bidder's qualification shall comply with</p>

	<p>Section 2 of Chapter III - Evaluation and Qualification Criteria;</p> <p>b. Only the Bidders who meet the qualification requirements shall proceed to the next stage of evaluation.</p> <p>32.4. Technical Evaluation:</p> <p>a. The technical evaluation shall comply with Section 3 of Chapter III - Evaluation and Qualification Criteria;</p> <p>b. Only the Bidders who satisfy the technical evaluation shall be considered further.</p> <p>32.5. Financial Evaluation: The financial evaluation shall comply with Section 4 of Chapter III - Evaluation and Qualification Criteria.</p>
<p>33. Price Opening Bid</p>	<p>[Not applicable.]</p>
<p>34. Ranking of Bidders</p>	<p>Upon completion of the detailed evaluation of Bids, the Owner shall prepare a ranking list of Bidders in accordance with the criteria and methodology stipulated in the BDS. The Bidder ranked first shall be invited to enter into contract negotiations.</p>
<p>35. Contract Negotiation</p>	<p>35.1. Where necessary, the Owner shall invite the first-ranked Bidder for contract negotiation. The basis for negotiation shall include:</p> <p>a. The Bid Evaluation Report;</p> <p>b. The Bid and any Clarifications submitted by the Bidder;</p> <p>c. The Bidding Document, including any amendments and clarifications issued.</p> <p>Principles of Negotiation:</p> <ul style="list-style-type: none"> • No negotiation shall be conducted on contents already quoted in accordance with the requirements of the Bidding Document; • No changes shall be allowed to unit prices determined during the financial evaluation. <p>35.2. Contract Negotiation Contents:</p> <p>a. Resolve ambiguities or inconsistencies between the Bidding Documents and the Bid, or within the Bid itself, which could cause disputes or affect the contractual obligations during execution;</p> <p>b. Address deviations proposed by the Bidder using Form No. 23 and 24 of Chapter IV, including any permitted alternatives or substitutions. Deviations or proposals not declared in the Bid shall not be subject to negotiation;</p> <p>c. Discuss proposed key personnel: During negotiation, the Bidder shall not replace any proposed key personnel unless the bid evaluation period exceeds the expected duration stated</p>

	<p>in the selection plan or in the event of force majeure. Any replacement personnel must meet or exceed the qualification requirements of those originally proposed, and this shall not affect the Bid Price;</p> <p>d. Finalize any matters arising during the bidder selection process (if applicable) to complete the detailed contents of the package;</p> <p>e. Clarify and rectify nonmaterial nonconformities in accordance with ITB 28;</p> <p>f. Identify the taxes applicable to the Bidder in accordance with tax laws, including import duties, special consumption tax (if any), VAT, and any other related tax obligations. The tax rates and values must be explicitly stated in the Contract.</p> <p>g. Address other essential matters relevant to the finalization of the Contract.</p> <p>35.3. During the contract negotiation, Both parties shall jointly prepare a draft Contract, including terms and conditions and appendices, detailing the Scope of Works, Price Schedule, and Performance Schedule.</p> <p>35.4. If negotiations with the first-ranked Bidder fail, the Owner shall consider inviting the next-ranked Bidder for negotiation. If negotiations with the next-ranked Bidder also fail, the Owner shall consider canceling the Bidding in accordance with Point a of ITB 39.1..</p>
<p>36. Conditions for successful bidder</p>	<p>A Bidder shall be proposed as the successful Bidder when all of the following conditions are met:</p> <p>a. The Bidder has an eligible Bid as required in Section 1 of Chapter III - Evaluation and Qualification Criteria;</p> <p>b. The Bidder is qualified as required in Section 2 of Chapter III - Evaluation and Qualification Criteria;</p> <p>c. The Bidder has a satisfactory technical proposal as prescribed Section 3 of Chapter III - Evaluation and Qualification Criteria;</p> <p>d. The deficient deviation is not more than 10% of the Bid Price;</p> <p>e. The Bidder meets requirements as prescribed in the BDS;</p> <p>f. The successful Bid Price (including taxes, fees, charges (if any)) is not exceed the approved package price specified in the bidder selection plan, in which: (i) The successful Bid Price for the BASE PORTION (including taxes, fees, charges (if any)) is not exceed the corresponding value in the approved package price; (ii) The successful Bid Price for the OPTIONAL PORTION (including taxes, fees, charges (if any)) is not exceed the corresponding value in the approved package price. If the successful Bid Price exceeds the</p>

	<p>approved package price, the provisions of Clauses 7 and 8, Article 131 of Decree No. 24/2024/ND-CP shall apply.</p> <p>g. In case the approved bid package estimation is lower or higher than the approved bid package price, this estimation shall replace the bid package price as the basis for consideration of winning bid. If the successful Bid Price exceeds the approved package price, the provisions of Clauses 7 and 8, Article 131 of Decree No. 24/2024/ND-CP shall apply.</p> <p>h. The Bidder shall be responsible for regularly monitoring and promptly updating the package cost estimate on the VNESP. In any case, the cost estimate must be approved and published on VNESP no later than three (03) working days before the bid closing date.</p>
<p>37. Publishing of the Bidder Selection result</p>	<p>37.1. Before the deadlines prescribed in the BDS, the Owner shall public notifications of bidder selection result on the System and send the notification of bidder selection result to bidders participating in bidding. Contents of the notification of bidder selection result shall included:</p> <ul style="list-style-type: none"> a. Name and number of the bidding package; b. Name of the successful Bidder; c. Address of the successful Bidder; d. Successful Bid Price; e. Type of contract; f. Time to implement the bidding package as prescribed in Clause 7, Article 39 of the Law on Bidding and Time for Completion; g. List of unsuccessful Bidders and brief explanation for each of them. h. Plan for finalizing and signing the contract with the selected Bidder. <p>37.2. Regarding bidding cancellation prescribed in Point a ITB 39.1, the explanation for the bidding cancellation shall be provided in the notification of bidder selection result.</p> <p>37.3. Upon receiving the notification of the bidder selection result under ITB 37.1, an unsuccessful Bidder may submit a written request or meet directly with the Owner to receive a brief explanation of the specific reasons for their non-selection. The Owner shall respond to such requests within five (05) working days from the date of receipt.</p>
<p>38. Letter of Acceptance and Notification of Award</p>	<p>Together with the notification of the bidder selection result, the Owner shall send the Letter of Acceptance and Notification of Award to the successful Bidder. These documents shall include requirements regarding the performance bond, time for completion, and contract</p>

	<p>finalization as specified in Chapter VI – Contract, provided that the Bidder is confirmed to be qualified to satisfactorily perform the Contract. The Letter of Acceptance and Notification of Award shall be an integral of the Contract Documents. In the event that the successful Bidder fails to complete and conclude the Contract or submit Performance Bond before the deadline mentioned in the Letter of Acceptance and Notification of Award, such Bidder shall be rejected and his Bid Bond shall be revoked as prescribed in Point e of ITB 18.5.</p>
<p>39. Bidding Cancellation</p>	<p>39.1. The Owner shall issue a notice of bidding cancellation in the following circumstances:</p> <ul style="list-style-type: none"> a. All Bids fail to meet the requirements specified in the Bidding Documents; b. The Owner changes the investment objectives and scope under the approved investment decision, leading to changes in the scope of work and evaluation criteria set out in the Bidding Documents; c. The Bidding Documents fail to comply with the Law on Bidding or other relevant regulations, resulting in the successful Bidder being unable to meet the requirements for performance of the package; d. Organizations or individuals other than the selected Bidder engage in prohibited acts under Article 16 of the Law on Bidding, thereby distorting the bidder selection results. <p>39.2. Any organization or individual that violates the Law on Bidding and causes a bidding cancellation under Points c or d of ITB 39.1 shall be liable for compensation to relevant parties and subject to penalties in accordance with applicable regulations.</p> <p>39.3. For bidding cancellations under ITB 39.1, the Owner shall, within five (05) working days, return or release the Bid Bonds to the Bidders, except for the Bidder involved in the violation under Point d of ITB 39.1.</p>
<p>40. Conditions for Signing of Contract</p>	<p>40.1. The Bid submitted by the Bidder shall remain valid at the time of contract signing.</p> <p>40.2. At the time of signing of contract, the successful Bidder shall be determined to meet the technical and financial qualifications to perform the Contract. In case the Bidder is no longer qualified as prescribed in the Bidding Documents, the Owner shall refuse to conclude the contract with the Bidder. In such case, the Owner shall cancel the decision approving the bidder selection result, the Letter of Acceptance, and the Notification of Award, and shall invite</p>

	<p>the next ranked Bidder for contract negotiation.</p> <p>40.3. The Owner shall ensure the availability of necessary conditions for timely contract performance, including the arrangement of advance and payment capital, site and other essential conditions.</p>
41. Performance Bond	<p>41.1. Before or at the time the Contract becomes effective, the successful Bidder shall furnish a Performance Bond in the form of a bank guarantee issued by a domestic credit institution or a foreign bank branch established under Vietnamese law, or a guarantee insurance certificate issued by a domestic non-life insurance enterprise or a branch of a foreign non-life insurance enterprise established under Vietnamese law. The contents of the Performance Bond shall comply with the form prescribed in Chapter VI – Contract, or another form approved by the Owner.</p> <p>41.2. The Performance Bond shall not be released in any of the following circumstances:</p> <ol style="list-style-type: none"> a. The Contractor refuses to perform the Contract after it has become effective; b. The Contractor breaches the terms and conditions of the Contract; c. The Contractor causes delays in Contract performance due to its own fault and refuses to extend the validity period of the Performance Bond accordingly.
42. Handling Complaints in Bidding	<p>Bidders are entitled to file complaints against the bidder selection progress and result to the Owner, competent persons, advisory board at the address prescribed in the BDS, if they believe their legitimate rights and interests have been violated.</p>
43. Monitoring Bidder Selection Progress	<p>In the event that the Bidder detects any actions or contents that are inconsistent with the Law on Bidding, the Bidder shall promptly notify the relevant organizations or individuals responsible for monitoring the bidder selection process, as specified in the BDS.</p>

PART 1. BIDDING PROCEDURES

CHAPTER II. BID DATA SHEET

ITB 1	<ul style="list-style-type: none"> - Package Name: Supply of Equipment, Installation, Construction, Testing & Commissioning for Water Treatment Plant. - Package Number: T21. - Project Name: Long Phu 1 Thermal Power Plant Project. - Owner: PetroVietnam Long Phu 1 Power Project Management Board.
ITB 2	Sources of Funds (or capital-raising methods): Owner's equity.
ITB 4.1 (e)	<p>Assurance of competitiveness in bidding shall be prescribed as follows:</p> <ul style="list-style-type: none"> - Bidders participating in bidding as enterprise must not hold shares or capital contributions of more than 30% with: <ul style="list-style-type: none"> + Vietnam National Industry - Energy Group (PVN). Address: 18 Lang Ha Street, Giang Vo Ward, Ha Noi Capital, Vietnam; and + PetroVietnam Long Phu 1 Power Project Management Board (LP1PP). Address: Thanh Duc hamlet, Dai Ngai commune, Can Tho City, Vietnam, <p>except in cases where:</p> <ul style="list-style-type: none"> (i) The Bidder is a member company or subsidiary of a state-owned corporation or a corporation whose main production and business lines are consistent with the nature of the bid package of that state-owned corporation or corporation; (ii) The Bidder is a parent company, subsidiary, or member company of an economic corporation or state-owned corporation whose products and services in the bid package are in the main production and business lines of the economic corporation or state-owned corporation and this bid package belongs to the subsidiary or member company. <ul style="list-style-type: none"> - The participating Bidder does not hold shares or capital contributions in the consulting contractor(s) and vice versa; and they do not each hold 20% or more of shares or capital contributions in the same organization or individual, specifically as follows: <ul style="list-style-type: none"> + Consulting contractor of technical design: The Kujian Corporation (TKC); + Consulting contractor for cost estimation: Power Engineering Consulting Joint Stock Company 1 (PECC1); + Consulting contractor for cost estimation verification: Institute of construction economics (VKT); + Consulting contractor of Project Management: Not applicable; + Consulting contractor of Supervision: Not applicable;

	<ul style="list-style-type: none"> + Consulting contractor of Inspection: Not applicable; + Contract Management Consulting Contractors of the Owner or hired by the Owner : Not applicable; + Consulting contractor of Price appraisal: Not applicable; + Consulting Contractor of Bidding Document preparation and verification: Not applicable; + Consulting contractor of Bids evaluation: Not applicable; + Consulting contractor of Bidder selection results appraisal: Not applicable; + Other consulting contractors directly participate in the bidder selection organizing process. <ul style="list-style-type: none"> - Bidders participating in bidding must not belong to the same agency or organization directly managing with the consulting contractor (mentioned above). - Bidders participating in bidding must not belong to same agency or organization directly managing with the Owner, unless the bidder is a public non-business unit under state management agency assigned functions and tasks consistent with nature of the bidding package of that state management agency. Public non-business units and enterprises have the same direct management agency and contributed capital when participating in each other's bidding packages not having to meet the independent regulations on legality and financial independence between the bidder and the Owner. - The ratio of shares and capital contribution between parties is determined at the deadline for submission of Bid according to ratio stated in the business registration certificate, establishment decision, and other documents of equivalent value. <p>In case Bidder participates in bidding as a consortium or the consulting bidder selected is a consortium, the capital ownership ratio of other organizations and individuals of the consortium is determined as following formula:</p> $\text{Capital ownership ratio} = \sum_{i=1}^n X_i \times Y_i$ <p>In which:</p> <ul style="list-style-type: none"> X_i: Capital ownership ratio of other organizations and individuals in consortium member i; Y_i: Workload percentage (%) of consortium member i in consortium agreement; n: Number of members participating in consortium.
<p>ITB 4.1 (i)</p>	<p>In the case of using local subcontractors, the proposed scope and volume of tasks, along with the subcontractors' names, must be specified in the Bid. If the Bidder cannot identify the local</p>

	<p>subcontractor's name at the time of Bid submission, Bidder shall clearly specify the scope and volume of tasks to be performed by the local subcontractors. The Bidder shall submit a commitment to employ local subcontractors for the works mentioned in the Bid in the event of the contract awarded (as per Form No. 18(d), Chapter IV).</p>
ITB 6.6	<p>In case, Bidder needs to conduct a site visit as specified in ITB 6.5, Bidder shall submit a written proposal specifying the desired time for the Owner's preparation.</p>
ITB 6.7	<p>The Owner shall not conduct a Pre-Bid meeting.</p>
ITB 9	<p>The Bid, as well as all correspondence and documents related to the Bid exchanged between the Bidder and the Owner, shall be written in English.</p> <p>Supporting documents and printed literature that are part of the Bid may be in another language provided that they are accompanied by an accurate translation of the relevant passages into English notarized by authorized competent agencies. In case of absence of the translation, the Owner may request the Bidder to supplement when necessary.</p>
ITB 10.11	<p>The Bidder shall submit with the Bid the following additional documents:</p> <ul style="list-style-type: none"> - Engineering and construction proposals and other documents as specified in Section 3, Chapter III - evaluation and Qualification Criteria of Bidding Document. - Proposal for employing local engineers/bachelors, workers and manual labor where the Works or Contract is performed. - Proposal to use local subcontractors as prescribed in ITB 4.1 (h). - Supporting documents to prove the Bidder's fulfillment of the tax declaration and payment obligation for the latest fiscal year (2024) in the form of Tax declaration and payment receipt/confirmation issued by the tax authority (to be applied for Local Bidder only). - Other documents, which seem to be helpful for the Owner during bid evaluation process. <p>Based on Article 94 of Decree 175/2024/ND-CP, foreign Bidder must submit the license for construction activities after the contract award, which is applied to independent foreign Bidder and/or foreign Consortium member.</p>
ITB 14.1	<p>a) Bid Price means the price to be quoted in the Letter of Bid, including the total price of the Bid (excluding any discounts offered) to perform the package in accordance with Chapter V.</p> <p>b) Bid Price proposal including of all taxes, duties, fees and charges to be born by the Bidder in order to execute and complete the package's scope of work. Bidder is requested to investigate the following relevant applicable laws for:</p> <ul style="list-style-type: none"> - Corporate Income Tax (CIT); - Personal Income Tax (PIT);

	<ul style="list-style-type: none"> - Business Registration Tax for Foreign Contractors (BTCC); - Foreign contractor withholding tax arising under Circular No.103/2014/TT-BTC dated 6th August 2014 and any equivalent Vietnamese regulations amending or replacing this Circular 103/2014/TT-BTC applicable to foreign organization(s), individuals doing business in Vietnam or having income in Vietnam, as such law may be varied or replaced from time to time; - Social security, health insurance and unemployment insurance contributions; - Value Added Tax or VAT means tax imposed under Law No.13/2008/QH12 dated 3rd June 2008, as amended by Law No.31/2013/QH13, dated 19th June 2013, and Law No. 106/2016/QH13 dated 6th April 2016, and other related valid regulations of Vietnam any equivalent tax under any Laws of Vietnam amending or replacing such laws; - Import Tax: included in the Bid Price. The Bidder shall acknowledge that the Owner shall apply and obtain the Import Tax exemption to goods, materials, equipment which constitute the fixed assets of the Power Plant, except for those goods, materials, equipment can be produced, manufactured in Vietnam by local manufacturers, in complying with Vietnamese applicable laws. In order to apply the tax exemption, the Contractor has to submit the detail list of goods, materials, equipment to be imported at the Owner's request. In all cases, the Bidder shall be responsible for its own costs, related fees and charges for any Import Tax arising out of goods, materials, equipment, which are unable to apply the tax exemption or which can be produced within Vietnam but the Contractor decides to buy abroad at the Contractor's discretion. Bidder is advised to investigate and adhere to the following applicable laws: <ul style="list-style-type: none"> ✓ Investment Law No.61/2020/QH14 dated 17/06/2020; ✓ Law on export and import duties No.107/2016 QH13 dated 06/04/2016; ✓ Decree No.134/2016/ND-CP dated 01/09/2016; ✓ Decree No. 18/2021/ND-CP dated 11/03/2021; ✓ Decree No. 31/2021/ND-CP dated 26/03/2021; ✓ Circular No. 45/2013/TT-BTC dated 25/04/2013 of Ministry of Finance; ✓ Circular No. 14/2015/TT-BTC dated 30/01/2015 Ministry of Finance; ✓ Circular No. 38/2015/TT-BTC dated 25/3/2015 Ministry of Finance; ✓ Circular No. 39/2018/TT-BTC dated 20/4/2018 Ministry of Finance; ✓ Circular No. 01/2023/TT-BKIIDT dated 14/04/2023 Ministry
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	<p>of Planning and Investment.</p> <p>For clearly understanding, Contractor has responsibility to execute all import activities by using the tax exemption list furnished by the Owner, providing explanations to inspection and audit authorities, and implementing the conclusions of such inspections and audits related to the importation of goods within the scope of the contract and shall have to bear for charges, penalties, if any.</p>
ITB 15.1	The Bidder is not allowed to submit Alternative Technical Proposal in Bid.
ITB 16	<p>In accordance with the ordinance on foreign exchange control and current regulations, the Bid currency and payment currency are following:</p> <ul style="list-style-type: none"> - For costs incur in Vietnam, which includes domestic services, domestically produced goods or overseas-produced goods being sold in Vietnam, to implement the Bid package, Bid currency and Payment currency are in VND. - For costs incur outside Vietnam, to implement the Bid package, Bid currency and Payment currency are in USD or VND. In case of USD, the Bidder shall demonstrate the works using foreign currencies attached to schedule of work items and equivalent foreign currency portion, provided that each work item is quoted in only one currency. <p>For evaluation and comparison of Bids, the Bid currency in USD shall be converted into VND. The exchange rate of VND/USD shall be the selling rate issued by Vietcombank's head quarter and announced on portal.vietcombank.com.vn at the time of the Bid Opening indicated in ITB 31.1.</p>
ITB 17.1	The bid validity period shall be not less than 150 days from the date of the deadline for submission of Bid. The time from the deadline for submission of Bid to the end of twenty-four (24) hours on the date of deadline for submission of Bid is one (1) day.
ITB 18.2	<ul style="list-style-type: none"> - Currency of Bid Bond: VND or/and USD. - Value of the Bid Bond: in VND is 10,000,000,000 VND; or in USD is 400,000 USD. In case the Bid Bond submitted by Bidder is in both VND and USD the exchange rate of USD/VND is 24,740 VND and shall be the basis for the Owner to convert the total value of Bidder's Bid Bonds into VND for comparison with the Value of the Bid Bond in VND above. - The validity period of the Bid Bond shall not be less than 180 days from the date of deadline for submission of Bid. - Original documents proving and showing the person who signs the Bid Bond, is the legal representative of the credit organization or bank or insurance enterprises shall be enclosed. <p>For bidders named in the bidder list with performing acts specified in</p>

	<p>Clause 1, Article 18 of Decree No. 24/2024/ND-CP and released on the System, must implement bid bond measures with triple value of the above required value within two (2) years from the last time these acts are performed. For bidder as a consortium, consortium member performing acts specified in Clause 1, Article 18 of Decree No. 24/2024/ND-CP as mentioned above, must implement bid bond measures with triple value of the bid bond value corresponding to work value proportion taken charge by that consortium member.</p>
ITB 18.4	<p>The unsuccessful Bidder shall be either returned or released the Bid Bond within fourteen (14) days from the date on which the bidder selection result is approved.</p>
ITB 19.1	<ul style="list-style-type: none"> - 01 Original Bid; - 03 copies of the Bid; - 01 Electronic copy (USB): must be scanned from the Original Bid and provided in Word/Excel format; especially, the Price Bid must be provided in Microsoft Excel format. The information must be assured to be readable by the Owner, not encrypted and must include links for calculation. - In case of any modifications to or substitutes for the Bid, the Bidder must submit the modified or substituted documents in the same number of copies as the original Bid.
ITB 21.1	<p>For bid submission purposes, the Owner's address is:</p> <ul style="list-style-type: none"> - Attention: PetroVietnam Long Phu 1 Power Project Management Board (LP1PP), address Thanh Duc hamlet, Dai Ngai commune, Can Tho City, Vietnam. - Tel: (84-299) 3 713 333 - Fax: (84-299) 3 713 444 - Email address: longphu1@lp1pp.pvn.vn <p>Deadline for submission of the Bid is in accordance with the Invitation to Bidders.</p>
ITB 25.3	<p>The Bidder may send self-clarification document for the Bid to the Owner within five (05) working days from the date of bid closing time.</p>
ITB 29.4	<p>Special subcontractor: Not applicable</p>
ITB 30.2	<p>a) Objects eligible for incentives are as follows:</p> <ul style="list-style-type: none"> - Foreign contractors in consortium with local contractor(s), where the local contractor(s) undertakes at least 25% of the work value of the package, as stipulated in Point d, Clause 1, Article 10 of the Law on Bidding No. 22/2023/QH15; or - Local Bidders participating independently or in a consortium with other local bidders, as stipulated in Point dd, Clause 1, Article 10 of the Law on Bidding No. 22/2023/QH15; or - The Bidder propose domestic costs (costs of consulting, non-consulting, Vietnamese-origin goods, construction/erection, and

	<p>installation) of at least 25% of the work value of the package, as stipulated in Clause 3, Article 4 of the Decree No. 24/CP; or</p> <ul style="list-style-type: none"> - Goods that have origin in Vietnam; or - Local bidders producing goods of Vietnamese-origin in accordance with the Bidding Document. <p>b) Determining incentives:</p> <p>The Bidder who is not eligible for incentives shall be added an amount equivalent to 7.5% of the Bid Price after error correction and adjustment of deviation, then minus the discount (if any), to the evaluation price of the Bidder for the purposes of comparison and ranking.</p> <p>In compliance with the requirement under ITB 30.2, the Bidder shall declare the amount of domestic costs (costs of consulting, non-consulting, Vietnamese-origin goods, construction, and erection/installation) by VND for determining incentives as specified in Form 20 of Chapter IV - Bidding Forms (Price Schedule). Besides, the Bidder shall fulfill Form No. 22 of Chapter IV - Bidding Forms (Domestic costs eligible for incentives) to prove and ensure the accuracy and consistency of declared figures with Form 20 of Chapter IV - Bidding Forms (Price Schedule).</p> <p>The Bidder shall provide detailed evident documents to demonstrate the proposed domestic costs are eligible for incentives. In case the proposed domestic costs are not accurate, the Owner will re-determine Bidder's domestic costs based on the regulations of competent authorities.</p> <p>c) Incentives for goods originating in Vietnam: according to Article 5 of Decree No. 24/2024/NĐ-CP.</p> <p>The Bidder shall provide the details of evident documents to demonstrate the proposed Vietnamese-origin goods are eligible for incentives. Otherwise, these goods are not considered as eligible for incentives.</p>
ITB 31.1	<p>The Bid opening shall take place, date and time in accordance with the Invitation to Bidder.</p> <ul style="list-style-type: none"> - PetroVietnam Long Phu 1 Power Project Management Board (LP1PP); - Address: Thanh Duc hamlet, Dai Ngai commune, Can Tho city, Vietnam.
ITB 32.1	<p>The method for evaluation:</p> <ul style="list-style-type: none"> - Qualification evaluation: Pass/Fail; - Technical evaluation: Pass/Fail; - Financial evaluation: The evaluation price method.
ITB 34	<p>The ranking of Bidders shall be conducted in one of the following two cases:</p> <ul style="list-style-type: none"> - In case the scope of the package includes both the BASE PORTION and the OPTIONAL PORTION: Bidder having the

	<p>lowest evaluated price (for both the BASE PORTION and the OPTIONAL PORTION) shall be ranked first.</p> <ul style="list-style-type: none"> - In case the scope of the package includes only the BASE PORTION: The bidder with the lowest evaluated price (for the BASE PORTION) shall be ranked first.
ITB 36 (e)	<p>Bidder having the lowest evaluation price.</p> <ul style="list-style-type: none"> - In case the scope of the package includes both the BASE PORTION and the OPTIONAL PORTION: Bidder having the lowest evaluated price (for both the BASE PORTION and the OPTIONAL PORTION). - In case the scope of the package includes only the BASE PORTION: The bidder with the lowest evaluated price (for the BASE PORTION).
ITB 37.1	<p>Time limit for sending notification of bidder selection results is five (05) working days, from the date on which the bidder selection result is approved by the Owner.</p>
ITB 42	<ul style="list-style-type: none"> - Competent person: Board of Members, Vietnam National Industry - Energy Group. - Address: 18 Lang Ha Street, Giang Vo Ward, Ha Noi Capital, Vietnam. - Tel : (+84-24) 3825 2526. - Fax : (+84-24) 3826 5942. <p>The standing department assists the Chairman of the Advisory Board in revolving recommendation :</p> <ul style="list-style-type: none"> - Legal and Bidding Divisions - Vietnam National Industry - Energy Group. - Address: 18 Lang Ha Street, Giang Vo Ward, Ha Noi Capital, Vietnam. - Tel : (+84-24) 3825 2526. - Fax : (+84-24) 3826 5942.
ITB 43	<p>Address of organization, individual performing monitoring and supervision tasks: Not applicable.</p>

PART 1. BIDDING PROCEDURES

CHAPTER III. EVALUATION AND QUALIFICATION CRITERIA

1. INSPECTING AND EVALUATING THE VALIDITY OF THE BID

1.1 Inspecting the Bid

- a) Inspect the quantity of copies of the Bid;
- b) Inspect the composition of the original of Bid, consisting of: Letter of Bid, Consortium Agreement (if any), Power of Attorney to sign the Letter of Bid (if any); Power of Attorney from bidder's legal representative (if any); Bid Security; documents proving the Bidder's qualifications; technical proposal; and other documents of the Bid as prescribed in ITB 10;
- c) Inspect the consistency between the original and copies to serve the detailed evaluation of the Bid.

1.2 Evaluating the validity of the Bid

A Bid is considered valid if all the following requirements are satisfied:

No.	Items to verify	Requirements
1	Original copy	There is an original of Bid.
2	Letter of Bid	<ul style="list-style-type: none"> - There is an original Letter of Bid signed and sealed (if any) by the legal representative of the Bidder as required by the Bidding Document; the time of signature shall be after Bidding Document issuance, there are no different bid prices or accompanied disadvantaged conditions to the Owner. - For consortium, the Letter of Bid shall be signed and sealed (if any) by the legal representative of every consortium's member or the assigned consortium's member on behalf of the consortium to sign the Letter of Bid according to the regarding consortium agreement.

No.	Items to verify	Requirements
3	Validity period of Bid	The validity period of the Bid satisfies requirements as prescribed in ITB 17.1.
4	Bid Bond	There is a Bid Bond of which value, validity period, and the Owner's name (beneficiary), comply with ITB 18.2 and do not violate regulations in ITB 18.3.
5	Eligibility	<p>The Bidder shall not have its name included in multiple Bid as a single bidder or a consortium's member for the same package.</p> <p>The Bidder shall fulfill the eligibility requirements as stipulated in ITB 4.</p>
6	Consortium Agreement	<ul style="list-style-type: none"> - The consortium agreement (in case of consortium) shall be signed and sealed (if any) of the legal representative of each consortium's member and clearly indicate the scope/tasks to be performed by each member of the Consortium and the corresponding value thereof (%) as well as other provisions in accordance with ITB 4.1 and Form No. 03 of Chapter IV - Bidding Form. - The division of work in the consortium must be based on the items listed in the bid price table or according to the tasks within the production process of the items in the Form No. 20 Price Schedules. The division must not include tasks that are not part of these items or not part of the production process of these items.
7	Commitment	The Bidder commits in written document that (i) within the last 03 years up to the deadline for submission of Bid, Bidder does not have employee (signed labor contract with the Bidder at the time the employee committed the violation) convicted by the Court of violating the regulations on bidding that lead to serious consequences according to criminal Law in order to let this Bidder win the bid and (ii) comply with the regulations regarding prohibited acts in bidding as stipulated in Point b, Clause 3, Article 16 of the Law on Bidding No. 22/2023/QH15, in accordance with Form No. 08 of Chapter IV - Bidding Forms.

The Bidder having a valid Bid will be further evaluated in respect of qualifications and experience. Any non-confirming Bid will be rejected at this stage and not further evaluated.

2. QUALIFICATION CRITERIA

- Qualification evaluation criteria shall be established on a responsive/nonresponsive basis.
- Qualification of a consortium shall be total qualifications of all consortium's members, provided that each consortium's member is qualified to perform their tasks in the consortium; if any consortium's member is not qualified to perform their tasks in the consortium, the consortium shall be considered not qualified.
- The subcontractors' qualifications shall not be evaluated when the Bid of the Bidder is evaluated (unless the special subcontractors are employed as stated in the Bidding Document). The Bidder is required to satisfy all qualification criteria (regardless of the subcontractor's qualification).
- The Bidder's qualification shall be evaluated as specified in Items 2.1, 2.2 and 2.3 of this Section. The Bidder shall be considered qualified only if all the criteria specified in these items are qualified.
- In case the Bidder participating in the bid is the parent company (e.g. the corporation) and mobilizes the subsidiary companies or member companies to perform a part of the work of the bid package, the Bidder must specifically declare the part of work for the subsidiary companies or member companies according to Form No. 06, Chapter IV. The evaluation of experience in implementing similar contracts is based on the value, volume of work undertaken by the parent company, the subsidiary companies or member companies in the bid package.
- Bidders who do not meet the capability and experience requirements will have their bids disqualified and will not be evaluated further.

2.1 Qualification criteria for financial capability and experiences.

The criteria for assessing capacity and experience are carried out according to Table No. 01, Bidder are assessed as meeting all assessment standards. The capacity and experience of the subcontractor (except for special subcontractors) will not be considered when evaluating Bid. Bidder itself must meet the evaluation criteria for capacity and experience.

The Bidder's qualification shall be evaluated as per the criteria specified in the Table No. 01 - Table of qualification criteria for financial capability and experiences below. The qualified Bidder is the one satisfying all criteria specified as following:

Table No. 01

Criteria			Compliance Requirements applicable to the Bidder			Documents
No.	Description	Requirement ⁽²⁾	Single bidder	Consortium		Submission Requirements
				All members combined	Each member	
1	Previous Contract Non-Fulfillment Records	From January 1 st 2022, to the deadline for submission of Bid, the Bidder did not fail to perform any PC contract due to Bidder's fault ⁽¹⁾ .	Must meet requirement	Not applicable	Must meet requirement	Form No. 07
2	Obligation of tax declaration and tax payment	The obligation to declare and pay tax of the most recent fiscal year compared to the time of bid closing	Must meet requirement	Not applicable	Must meet requirement	Commitment in the Letter of Bid and Supporting documents as per ITB 10.11
3	Financial Capacity Requirements					
3.1	Financial Performance	The net asset value of the contractor in the most	Must meet requirement	Not applicable	Must meet requirement ⁽⁹⁾	Form No. 09 with supporting

Criteria			Compliance Requirements applicable to the Bidder			Documents
No.	Description	Requirement ⁽²⁾	Single bidder	Consortium		
				All members combined	Each member	
		recent fiscal year compared to the time of bid closing must be positive. (Net Asset Value = Total Assets - Total Debt)				documents
3.2	Average annual revenue (excluding VAT)	The average annual revenue (excluding VAT) of the lastest 03 consecutive (2022, 2023 and 2024) fiscal year compared to the time of bid closing of Bidder has a minimum value of 29,000,000 USD or 717,000,000 VND.	Must meet requirement	Must meet requirement	Not applicable	Form No. 10 with supporting documents
3.3	Financial resources	The Bidder must prove that it has access to or availability of highly liquid assets ⁽³⁾ , available credit lines (credit lines that are still in use) or other financial sources (excluding contractual payment advances) to meet the requirements for financial resources to implement the bidding package with a value of 6,000,000 USD or 148,000,000,000 VND. In case the contractor uses the credit provision commitment of a domestic credit institution or a foreign bank branch established under Vietnamese law, the credit provision	Must meet requirement	Must meet requirement	Not applicable	Forms No. 11 and 12 with supporting documents

Criteria			Compliance Requirements applicable to the Bidder			Documents
No.	Description	Requirement ⁽²⁾	Single bidder	Consortium		
				All members combined	Each member	Submission Requirements
		<p>commitment must meet the following conditions:</p> <ul style="list-style-type: none"> - Minimum value: 6,000,000 USD or 148,000,000 VND; - Validity period of the credit provision commitment: valid in 11 months from the Contract Effective Date; - Signed and stamped by the lawful representative of a domestic credit institution or a foreign bank branch established under Vietnamese law. <p>In case the Financial resources submitted by Bidder is in both VND and USD the exchange rate of USD/VND is 24,740 VND and shall be the basis for the Owner to convert the total value of Bidder's Financial resources into VND for comparison with the Value of the Financial resources in VND above.</p>				

Criteria			Compliance Requirements applicable to the Bidder			Documents
No.	Description	Requirement ⁽²⁾	Single bidder	Consortium		
				All members combined	Each member	
4	Experience in performing similar contracts ⁽⁴⁾	<p>From January 1, 2015 to the time of bid closing, the Bidder has been fully or substantially completed⁽⁵⁾ as the main contractor (independent or joint venture member)⁽⁶⁾, subcontractor or management contractor⁽⁷⁾ of the following scopes:</p> <p>(1) Supplying for Water Treatment plant of Thermal Power Plant with capacity minimum 600 MW/Unit, with total minimum value of 198,800,000,000 VND or 8,000,000 USD.⁽⁸⁾</p> <p>(2) Constructing of a Water Treatment Plant for a Thermal Power Plant with a minimum capacity of 600 MW/Unit, or a Grade I civil or industrial construction project, with a minimum total construction value of 47,680,000,000 VND.</p>	Must meet requirement	Must meet requirement	Must meet requirement which is proportionate to the corresponding value in the Consortium Agreement	Forms No. 13 with supporting documents
5	Ability to warranty, maintain,	The Bidder commits to perform the obligations of warranty, maintenance, service, repair, supply of spare parts or	Must meet requirement	Must meet requirement	Not applicable	Form No. 18 (d).

Criteria			Compliance Requirements applicable to the Bidder			Documents
No.	Description	Requirement ⁽²⁾	Single bidder	Consortium		
				All members combined	Each member	Submission Requirements
	service, repair, provide spare parts or provide other after-sales services	provision of other after-sales services as required by Bidding Documents.				

(1) *Non-fulfillment contracts include:*

- *Contracts that are considered as non-fulfilled by the Owner without objection of the Bidder;*
- *Contracts that are considered non-fulfilled by the Owner with the objection of the Bidder, but the litigation is treated as resolved against the Bidder by the arbitrator or the court.*

Non-fulfilled contracts shall not include the contracts that the Owner's decisions are rejected by settlement of disputes. Non-fulfilled contracts shall be determined according to all information about the dispute or litigation that is settled in conformity with the terms of settlement of disputes as mentioned in the corresponding contracts and the Bidder could not file any complaint.

(2) *For evaluation of Bids:*

- *The informative data extracted from audited financial statements shall be converted to VND/USD (as required by the bidding package) when the Bidder makes the Bid. The exchange rate shall be the selling rate published by Vietcombank on its official website portal.vietcombank.com.vn on the fiscal year-end date of audited financial statements.*
- *The value of similar contracts or the Owner's payment confirmation for similar contracts has been performed or the tax declaration or relevant documents proving Bidder's capacity and experience shall be converted to VND/USD (as required by the bidding package) when the Bidder makes the Bid. The exchange rate shall be the selling rate published by Vietcombank on its official website*

portal.vietcombank.com.vn on the date of signing the respective contract.

- *For other values in currencies other than VND/USD (as required by the bidding package), the Owner shall use the selling rate published by Vietcombank on its official website portal.vietcombank.com.vn on the date of the Bid closing time to convert such values into VND/USD for the purpose of Bid evaluation.*
- *In case the bid closing time is after the end of the contractor's fiscal year (year Y) and before or on the last day of the 3rd month from the end of year Y: (i) the request for fulfillment of the obligation to declare and pay tax applies to the fiscal year before year Y (year Y-1); (ii) the determination of the contractor's net asset value shall be carried out on the basis of the financial statements of the previous year of year Y (year Y-1, Y-2...); (iii) the requirements for submission of financial statements apply to previous years of year Y (year Y-1, Y-2...).*

(3) Highly liquid assets are cash and cash equivalents, short-term financial instruments, ready-to-sell securities, easy-to-sell securities, commercial receivables, short-term financial receivables and other assets that can be converted into cash within one year. In case the Bidding Document has a requirement on a commitment to provide credit and the contractor uses this commitment to prove financial resources, the contractor must attach a scanned copy of the commitment to provide credit in the Bid.

(4) For similar contracts in which the contractor has entered into as a joint venture member or subcontractor, only the value of the part of the work performed by the contractor shall be calculated. Failing to consider and evaluate the contracts that the contractor has performed as a subcontractor due to illegal bid transfer, violating the provisions of Clause 8, Article 16 of the Law on Bidding.

(5) For item 4.1, "substantially completed" requires the completion of at least 80% of the contract's task volume, as certified by the project owner who contracted with the Bidder. Additionally, this milestone of 80% completion must have occurred from 1st January 2015 to the deadline for submission of bid.

(6) With regard to contracts in which the Bidder has participated as a consortium member or subcontractor, only the value of the performed part of the work by the Bidder is calculated.

(7) Managing contractor means a contractor who does not directly perform part or all of the work of the bidding package but signs a contract with other contractors to perform but the contractor still manages the performance of the contractors under which he has signed a contract, and at the same time still bears all responsibilities and risks related to costs, the implementation schedule, quality of the bidding package and other contents of the bidding package.

(8) This scope of works could be performed by one (01) or multiple contracts.

(9) In the event that a member of the Consortium has a negative Net Asset Value, the Consortium shall still be deemed to meet this criterion if all of the following conditions are satisfied:

- No more than one (01) member of the Consortium (which must not be the lead member) has a negative Net Asset Value;*
- Such member has provided a cash flow management commitment letter to be confirmed by the payment bank (in accordance with Form No. 18 (e), Chapter IV), ensuring that advance payments and other payments are used solely for the works of the package and for no other purposes).*

2.2 Qualification criteria for technical capability

The Bidder's qualification shall be evaluated as specified in Items 2.2.1 and 2.2.2 of this Section. The qualified Bidder is the one satisfying all criteria specified in Items 2.2.1 and 2.2.2 of this Section.

2.2.1 Key personnel

Key personnel can be employees of the Bidder or be mobilized by the Bidder. In case the key personnel proposed by the Bidder in the Bid do not meet the requirements or cannot demonstrate the ability of mobilization (including cases that have been mobilized for the other contracts/projects with the working period coinciding with the implementation time of this bidding package), the Owner shall allow the Bidder to supplement or replace. The Bidder shall be allowed to add or replace each of the key personnel position once within an appropriate period of time but not less than 03 working days. In case the Bidder does not have the replacement personnel that meets the requirements of the Bidding Document, the Bidder shall be disqualified. In all cases, if the Bidder declares personnel untruthfully, the Bidder shall not be allowed to replace the other personnel. The Bid of the Bidder shall be rejected, and the Bidder shall be considered fraudulent according to the provisions of Clause 4, Article 16 of the Law on Bidding and shall be handled according to the provisions of Point a, Clause 1, Article 125 of Decree No.24/2024/ND-CP.

The experience of personnel in similar scopes of work shall be shown in the minimum number of years or a minimum number of contracts performed in similar scopes of work. The number of years of experience of key personnel shall be calculated from the time that the personnel start performing similar scopes of work to the time of bid closing. The Bidder must provide the detailed information of key personnel proposed in Form No.14, 15 and 16, Chapter IV - Bidding Forms to demonstrate that the Bidder has sufficient personnel for the key positions that meet the following requirements:

No	Position	Quantity	Experience in Similar Work	Evidence document
1	Project Manager	01	<ul style="list-style-type: none"> - Have a university degree or a higher degree. - Have at least 10 years of experience in the field of construction or installation. - Experience as a: <ul style="list-style-type: none"> + Project Manager for 01 project including supply and installation for Water Treatment plant, or + Project manager/Site manager for 01 project including supply and installation for equipment system for at least: <ul style="list-style-type: none"> • One (01) Industrial Construction Class I, or • Two (02) Industrial Construction Class II. 	<ul style="list-style-type: none"> - The labour contract or agreement for labour. - The university degree or higher degree. - CV as mentioned in Form No. 15 and Form No.16, Chapter IV. - The evidence document proving the experience in executing similar Contract including the confirmation of Client (Applicable for Vietnamese personnel only).
2	Site Manager	01	<ul style="list-style-type: none"> - Have a university degree or a higher degree in a relevant major. - Have at least 7 years of experience in the field of construction or installation. - Experience as a Project manager/Site manager for 01 project including construction and installation for at least: <ul style="list-style-type: none"> • One (01) Water Treatment plant of Thermal Power Project with capacity minimum 600MW/Unit, or • One (01) Industrial Construction Class I, or • Two (02) Industrial Construction Class II. 	<ul style="list-style-type: none"> - The labour contract or agreement for labour. - The university degree or higher degree. - CV as mentioned in Form No. 15 and Form No.16, Chapter IV. - The evidence document proving the experience in executing similar Contract including the confirmation of Client (Applicable for Vietnamese personnel only).
3	Civil engineering Manager	01	<ul style="list-style-type: none"> - Have a Class I Practicing Certificate in construction design in according to Article 82, Decree 175/2024/ND-CP elaborating of Law on Construction regarding 	<ul style="list-style-type: none"> - The labour contract or agreement for labour. - The relevant certificate.

No	Position	Quantity	Experience in Similar Work	Evidence document
			<p>management of construction activities in Vietnam (for foreigner personal, the required certificate will be provided before starting working).</p> <ul style="list-style-type: none"> - Have a university degree or a higher degree. - Have at least 7 years of experience in the field of construction design. - Experience as Engineering manager or lead of design or lead of design review for at least: <ul style="list-style-type: none"> • One (01) Water Treatment plant of Thermal Power Project with capacity minimum 600MW/Unit, or • One (01) Industrial Construction Class I, or • Two (02) Industrial Construction Class II. 	<ul style="list-style-type: none"> - The university degree or higher degree. - CV as mentioned in Form No. 15 and Form No.16, Chapter IV. - The evidence document proving the experience in executing similar Contract including the confirmation of Client (Applicable for Vietnamese personnel only).
4	Mechanical and Electrical Engineering Manager	01	<ul style="list-style-type: none"> - Have a university degree or a higher degree. - Have at least 7 years of experience in the field of mechanical or electrical design. - Experience as lead of mechanic or lead of electric for at least: <ul style="list-style-type: none"> • One (01) Industrial Construction Class I, or • Two (02) Industrial Construction Class II. 	<ul style="list-style-type: none"> - The labour contract or agreement for labour. - The university degree or higher degree. - CV as mentioned in Form No. 15 and Form No.16, Chapter IV. - The evidence document proving the experience in executing similar Contract including the confirmation of Client (Applicable for Vietnamese personnel only).
5	HSE Manager	01	<ul style="list-style-type: none"> - Have a university degree or a higher degree. - Have a Certificate of occupational safety and health 	<ul style="list-style-type: none"> - The labour contract or agreement for labour.

No	Position	Quantity	Experience in Similar Work	Evidence document
			training, group II (in Vietnamese: Giấy chứng nhận huấn luyện an toàn vệ sinh lao động, nhóm 2). - Have at least 03 years of experience in the field of HSE in construction/installation of industrial constructions.	<ul style="list-style-type: none"> - The relevant certificate. - The university degree or higher degree. - CV as mentioned in Form No. 15 and Form No.16, Chapter IV. - The evidence document proving the experience in executing similar Contract including the confirmation of Client (Applicable for Vietnamese personnel only).
6	QAQC Manager	01	<ul style="list-style-type: none"> - Have a college degree or higher degree. - Have at least 03 years of experience in the field of QAQC in construction/installation of industrial works. 	<ul style="list-style-type: none"> - The labour contract or agreement for labour. - The college degree or higher degree. - CV as mentioned in Form No. 15 and Form No.16, Chapter IV. - The evidence document proving the experience in executing similar Contract including the confirmation of Client (Applicable for Vietnamese personnel only).
7	Commissioning Manager	01	<ul style="list-style-type: none"> - Have a university degree or a higher degree. - Experience as commissioning manager of at least one (01) Water Treatment plant. 	<ul style="list-style-type: none"> - The labour contract or agreement for labour. - The university degree or higher degree. - CV as mentioned in Form No. 15 and

No	Position	Quantity	Experience in Similar Work	Evidence document
				Form No.16, Chapter IV. - The evidence document proving the experience in executing similar Contract including the confirmation of Client (Applicable for Vietnamese personnel only).
8	Planning and Control Manager	01	- Have a university degree or a higher degree. - Experience as Planning and Control Manager of at least one (01) Water Treatment plant.	- The labour contract or agreement for labour. - The university degree or higher degree. - CV as mentioned in Form No. 15 and Form No.16, Chapter IV. - The evidence document proving the experience in executing similar Contract including the confirmation of Client (Applicable for Vietnamese personnel only).

Notes:

- Each personnel shall solely be quoted for one position;
- The Bidder shall demonstrate that it has sufficient personnel for the key positions that meet the above requirements by providing details of the proposed key personnel and their experience records using Forms No. 14, 15 and 16 of Chapter IV - Bidding Forms.

2.2.2 Equipment to be mobilized

Bidder shall demonstrate clearly that Bidder has the capability to meet the requirements of the package. Key equipment to perform the package are listed hereafter:

No	Equipment	Quantity	Remark
1	Crane \geq 15T	1	-
2	Hoist \geq 10T	1	-
3	Forklift \geq 5T	1	-
4	Box Truck (7-10) tons	1	-
5	Truck >10 tons	2	-
6	Excavator >0,5m ³	2	-
7	Compactor >9 tons	1	-

The Bidder shall provide further details of proposed items of equipment to perform the package using the Form No. 17 of Chapter IV - Bidding Forms.

The Bidder may supplement or replace each proposed equipment item only once, within a reasonable period, but not less than three (03) working days. Failure to provide a compliant replacement shall result in disqualification. In any case of false declaration regarding equipment, no replacement shall be permitted, the Bid shall be rejected, and the Bidder shall be deemed fraudulent.

In case the Bidder wins the bid and signs the contract, the Bidder is obliged to mobilize the key personnel and major construction equipment as initially proposed or modified according to the provisions of this Section. In case the Bidder cannot mobilize the key personnel and major construction equipment, the Bidder shall be fined in compliance with the contract and the Bidder's reputation shall be assessed when participating in the other bid package.

2.3 Special Subcontractors (if any). Not Used.

The Bid is considered to meet the technical requirements when all general criteria are assessed as passing.

3. TECHNICAL EVALUATION CRITERIA

Technical evaluation criteria shall be a Pass/Fail method.

No.	ITEM	EVALUATION CRITERIA	
1	The proposed scope in Form No. 19 (a) in Chapter IV.	<ul style="list-style-type: none"> - All required information in Form No. 19 (a) is fully filled in and must meet the requirements in Form A1. If the proposed quantity deviates from the requirements in Form No. A1, the Bidder shall declare technical variation in the Deviation Form and the proposed solution still ensures that this quantity is sufficient for the Water Treatment plant to operate stably and reliably as per the technical requirements in Chapter V. 	Pass
		<ul style="list-style-type: none"> - No proposal or information is incomplete/inadequate. 	Fail
2	The technical proposal as required at Form No. 19 (b) in Chapter IV.	<ul style="list-style-type: none"> - All required information marked as (*) in Form No. 19 (b) is fully provided and must meet the Requirements as specified in this Form. - In case all required information marked as (*) in Form No. 19 (b) is fully provided and in which some deviation from the requirements in Form No. 19 (b) are listed in the Deviation Form and these deviations illustrate that the Water Treatment plant operates stably and reliably as per the technical requirements in Chapter V. - Almost all the remaining information in Form No. 19 (b) is provided. 	Pass
		<ul style="list-style-type: none"> No proposal or information marked as (*) is incomplete/inadequate. 	Fail
3	Project management organization as required at Form No. 19 (d) in Chapter IV.	<ul style="list-style-type: none"> - Organization chart of project management organization conforms to the requirements in the Bidding Document. - A complete description of the roles and responsibilities of each department in the organizational chart is provided. <p>Have an overview of cost management, scheduling and progress tracking, procurement, manufacturing oversight, inspection and quality testing, site supervision, commissioning coordination, and defect notification services. However, the management structure remains incomplete.</p>	Pass

No.	ITEM	EVALUATION CRITERIA	
		- No proposal or information is incomplete/inadequate.	Fail
4	Construction plan as required in Form No. 19 (e) in Chapter IV.	- All required information in Form No. 19 (e) is fully provided and clear.	Pass
		- No proposal or information is incomplete/inadequate.	Fail
5	Package schedule as required in Form No. 19 (f) in Chapter IV.	- The overall project schedule is no more than 330 days , indicating main milestones and key dates, phases and dependencies including engineering, procurement, fabrication, delivery, erection, commissioning and testing to meet the required completion date.	Pass
		- The schedule is longer than 330 days , or - The schedule does not include enough information as required.	Fail
6	Quality assurance system as required in Form No. 19 (g) in Chapter IV.	- All required information in Form No. 19 (g) is fully provided. The required information is not totally clear, but acceptable.	Pass
		- No proposal or information is incomplete/inadequate.	Fail
7	Health, safety and environmental management system in Form No. 19 (h) in Chapter IV.	- All required information in Form No. 19 (h) is fully provided and clear.	Pass
		- No proposal or information is incomplete/inadequate.	Fail
8	Warranty period	- The bidder proposes a warranty period of at least 24 months from the date of issuance of the Taking Over Certificate.	Pass
		- The bidder either does not propose a warranty period or proposes a warranty period of less than 24 months from the date of the issuance of the Taking Over Certificate.	Fail
9	Performance guarantee	- All guaranteed parameters comply with the requirements specified in item VI, Chapter V.	Pass

No.	ITEM	EVALUATION CRITERIA	
		- Any guaranteed parameter that fails to meet the requirements in item VI, Chapter V.	Fail
Summary of evaluation		The bidder is rated as “PASS” when all criterions are evaluated as “PASS”.	Pass
		The bidder is evaluated as “FAIL” when any criteria is evaluated as “FAIL”.	Fail

4. COMMERCIAL/FINANCIAL EVALUATION CRITERIA

Section 4. Financial Evaluation Criteria

In case the scope of the package includes both the BASE PORTION and the OPTIONAL PORTION: the evaluated price shall be the total price for both the BASE PORTION and the OPTIONAL PORTION.

In case the scope of the package includes only the BASE PORTION: the evaluated price shall be the price for the BASE PORTION.

To be evaluated by **the evaluation price method** as the following steps:

Step 1. Determination of Bid Price.

Step 2. Correct errors (in accordance with the Notes (1)).

Step 3. Adjust deviation (in accordance with the Notes (2)).

Step 4. Determine bid price after error correction and adjustment of deviation, and minus (-) discount (if any) and the bid price shall be converted into VND for evaluation. The exchange rate shall be the selling rate published by Vietcombank on its official website portal.vietcombank.com.vn on the date of the Bid closing time.

Step 5. Determination of the evaluation price:

The determination of the evaluation price shall be carried out according to the following formula:

$$GDG = G \pm \Delta G + \Delta U\text{Đ}$$

In which:

- G is the bid price after error correction and adjustment of deviation, and minus (-) discount (if any) and the bid price shall be converted into VND for evaluation determined in Step 3 of this Section;

- $\Delta U\text{Đ}$ is the value to be added to goods that are not eligible for incentives as prescribed in ITB 30.2;

- ΔG is the value of factors attributed to a common baseline, including:

+ Bidding Currency: In the event that the Bidder submits the bid in both USD and VND, the portion of the bid price quoted in USD shall be converted to VND as a common basis for the purpose of comparison and evaluation, using the approved exchange rate adjusted by the deviation contingency ratio specified in the Revised Total Investment Cost (1.0086% per annum), in accordance with the following formula:

$$\Delta G_i = \frac{\text{USD}_i}{n} \times 1,0086\% \times m \times \text{the exchange rate}$$

in which:

ΔG_i : the value quoted in USD of Bidder i shall be converted to a common baseline.

USD_i : the value quoted in USD of Bidder i.

n: contract implementation time calculated by year (the implementation period is 11 months, therefore $n = 1$)

m: the contingency for exchange rate period ($m=1$)

the exchange rate: the selling rate published by Vietcombank on its official website portal.vietcombank.com.vn on the date of the Bid closing time.

Step 6. Rank bidders: The Bidder with the lowest evaluation price (after calculating incentives) shall be ranked first.

Notes:

(1) Error correction

Provided that the bid is substantially responsive, the arithmetical errors and other errors shall be corrected on the following basis:

a) Arithmetical errors include errors due to incorrect addition, subtraction, multiplication and division when calculating bid price.

- If there is a discrepancy between the unit price and the total price, the unit price shall prevail and the total price shall be corrected; if there is an obvious misplacement of the decimal point in the unit price (10 times, 100 times, 1,000 times), the total price shall prevail and the unit price shall be corrected.
- In case the Bidder insert no value or insert “0” in the columns “unit price” and “total price”, the Bidder shall be considered allocating the price of this work item to another work item of the procurement, the Bidder shall be responsible for performing these work items in conformity with the Bidding Documents’ requirements without any payment from the Employer during the contract performance.

b) Other errors:

- If a total price is fully filled but the equivalent unit price is left blank, the unit price shall be determined by dividing the total price by the quantity; if a unit price is fully filled but the equivalent total price is left blank, the total price shall be determined by multiplying the unit price and the quantity; if a unit price and the equivalent total are fully filled but the equivalent quantity is left blank, the quantity shall be determined by dividing the total price by the unit price. If the additional quantity determined above is different from the equivalent quantity mentioned in the Bidding Documents, such discrepancy shall be the deviation related to Scope of Supply which shall be adjusted as prescribed in the Step 3;
- Physical unit errors: correct units in conformity with the Bidding Documents’ requirements;
- Unit errors: replace “.” (stop) with “,”(comma) and vice versa in conformity with the Vietnamese unit. If the Procuring Entity believes that the stops and commas in the unit price are put in wrong position, the total amount shall prevail and the unit bid price shall be corrected;
- If there is an error in a total corresponding to the addition of subtotals, the subtotals shall prevail and the total shall be corrected;
- If there is a discrepancy between words and figures, the amount in words shall prevail, and the amount in figures shall be corrected. If the amount in words is erroneous, the amount in figures after correction as prescribed in this Section shall prevail.

(2) Adjustment of deviation:

- a) If there is a deviation from Scope of Supply, the deficiency shall be added and the redundancy shall be subtracted according to the equivalent unit price in the Bid;
- If there is a deficiency (deficiency in work item(s) in comparison with the supply requirements) without a equivalent unit price in the Bid, the deficiency shall be adjusted as follows:

- The highest unit prices of work items in deficiency of the Bids satisfying technical evaluation shall prevail for adjustment of deviation; if the Bids satisfying technical evaluation having no equivalent unit prices, the unit prices of the approved estimated costs of the procurement shall prevail; if there is no estimated costs of the procurement, the unit price constituting the price of procurement shall prevail.
- If there is only one bidder passing the technical evaluation, its equivalent unit price shall be prevail for adjustment of deviation; if the Bid has no equivalent unit price, the unit price of the approved estimated costs of the procurement shall prevail; if there is no estimated costs of the procurement, the unit price constituting the price of procurement shall prevail.
- b) If the Bidder has a Letter of Discount, the correction and adjustment of deviation shall be carried according to the bid price without subtracting the discount. The rate of deficiency shall be determined according to the ratio of deficiency to bid price mentioned in the Letter of Bid.

Section 5. Alternative Technical Solutions in the Bid: No Applicant.

Section 6. The procurement is divided into independent lots. No Applicant.

PART 1. BIDDING PROCEDURES

CHAPTER IV. BIDDING FORMS

A FORM IS PREPARED BY OWNER

- 1 FORM NO. A1.1 BILL OF QUANTITY SUPPLY OF EQUIPMENT & COMMON SERVICE FOR PACKAGE (BASE PORTION)
- 2 FORM NO. A1.2 BILL OF QUANTITY EQUIPMENT INSTALLATION & CONSTRUCTION WORK AT SITE (BASE PORTION)
- 3 FORM NO. A2 BILL OF QUANTITY SUPPLY OF EQUIPMENT AT OEM'S WAREHOUSE (OPTIONAL PORTION)
- 4 FORM NO. A3.1 BILL OF QUANTITY FOR MATERIALS IDENTIFIED FOR POTENTIAL REPLACEMENT DUE TO LONG-TERM STORAGE AT SITE (ADDITIONAL PORTION)
- 5 FORM NO. A3.2 BILL OF QUANTITY FOR SOLUTION TO ENHANCE CAPABILITY OF WATER TREATMENT PLANT WHEN SALINITY OF HAU RIVER EXCEEDS DESIGN LEVEL (ADDITIONAL PORTION)

B FORM IS PREPARED BY BIDDER

1. FORM NO. 01 (a) LETTER OF BID
2. FORM NO. 01 (b) LETTER OF BID
3. FORM NO. 02 POWER OF ATTORNEY
4. FORM NO. 03 CONSORTIUM AGREEMENT
5. FORM NO. 04 BID BOND
6. FORM NO. 05 (a) BIDDER INFORMATION
7. FORM NO. 05 (b) CONSORTIUM MEMBERS INFORMATION
8. FORM NO. 06 LIST OF COMPANIES IN CHARGE OF PACKAGE WORKS
9. FORM NO. 07 NON-FULFILLMENT RECORDS OF PREVIOUS CONTRACT
10. FORM NO. 08 CONFIRMATION LETTER
11. FORM NO. 09 FINANCIAL SITUATION OF BIDDER
12. FORM NO. 10 AVERAGE ANNUAL TURNOVER FROM THE CONSULTANCY SUPPLY OF GOODS AND CONSTRUCTION
13. FORM NO. 11 FINANCIAL RESOURCES
14. FORM NO. 12 MONTHLY FINANCIAL RESOURCES FOR CONTRACTS IN PROGRESS
15. FORM NO. 13 SIMILAR CONTRACTS

16. FORM NO. 14	TABLE OF PROPOSED PERSONNEL FOR KEY POSITIONS
17. FORM NO. 15	CURRICULUM VITAE OF PERSONNEL FOR KEY POSITION
18. FORM NO. 16	PROFESSIONAL QUALIFICATIONS OF PERSONNEL
19. FORM NO. 17	EQUIPMENT
20. FORM NO. 18 (a)	WORK ITEMS PERFORMED BY SUBCONTRACTORS
21. FORM NO. 18 (b)	LIST OF SPECIAL SUBCONTRACTORS
22. FORM NO. 18 (c)	NOT USED.
23. FORM NO. 18 (d)	CONFIRMATION LETTER OF MANUFACTURER
24. FORM NO. 19 (a)	BIDDER'S PROPOSAL FOR GOODS
25. FORM NO. 19 (b)	TECHNICAL DATA SHEET
26. FORM NO. 19 (c)	LIST OF SPARE PARTS AND SPECIAL TOOLS
27. FORM NO. 19 (d)	PROJECT MANAGEMENT ORGANISATION
28. FORM NO. 19 (e)	CONSTRUCTION PLAN
29. FORM NO. 19 (f)	PROJECT SCHEDULE
30. FORM NO. 19 (g)	QUALITY ASSURANCE DOCUMENTS
31. FORM NO. 19 (h)	HEALTH, SAFETY, ENVIRONMENTAL AND SOCIAL DOCUMENTS
32. FORM NO. 20	PRICE SCHEDULE
33. FORM NO. 21	SUMMARY TABLE OF CURRENCY REQUIREMENTS
34. FORM NO. 22	DOMESTIC COSTS ELIGIBLE FOR INCENTIVES
35. FORM NO. 23	TECHNICAL DEVIATION DECLARATION FORM
36. FORM NO. 24	COMMERCIAL DEVIATION DECLARATION FORM

A. FORM IS PREPARED BY OWNER**FORM A1.1 BILL OF QUANTITY SUPPLY OF EQUIPMENT & MISCELLANEOUS WORKS (BASE PORTION)**

No	Description of works	Unit	Quantity	Remarks
A	River Water Transportation up to River Water Pre-Treatment System			
1	Raw Water Intake Pumps 10GAF10AP001, 10GAF10AP002, 10GAF10AP003, 10GAF10AP004	lot	1	
2	Sluice Gates 10HSD10AT001 and 10HSD10AT002 at Sand Settling Basin	lot	1	
3	Raw Water Forwarding Pump 10GAF20AP001, 10GAF20AP002, 10GAF20AP003, 10GAF20AP004	lot	1	
4	Bar Screen 10GAA10AT001 & 10GAA10AT002 Raw Water Forwarding Chambers	lot	1	
5	Sluice Gate 10HSD10AT001 at Raw Water Forwarding Chambers	lot	1	
6	Control valve 10GAC10AA701 for raw water recirculation to Raw Water Intake Chamber	lot	1	
7	Control Valve 10GAC20AA701 for raw water recirculation to Raw Water Forwarding Pump Sump	lot	1	
8	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, snipe, and piping specialties,...) connecting Raw Water Intake Pumps and Sand Settling Basins	lot	1	
9	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, snipe, and piping specialties,...) connecting Raw Water Forwarding Pumps and inlet of River Water Pre-treatment system	lot	1	
B	River Water Pre-treatment System (RWPT)			
1	Drain Pump 10GMD01AP001	lot	1	
2	Agitators of Slaking solution tanks (10GBQ41AM001 and 10GBQ42AM001)	lot	1	
3	Agitators of Lime preparation tank (10GBQ43AM001 & 10GBQ44AM001)	lot	1	
4	Sluice gates 10GDB10AT001/10GBK54AA001 & 10GDB10AT003 for inlet and outlet of compartment 1 and 10GDB10AT002/10GBK54AA002 & 10GDB10AT004 for inlet and outlet of compartment 2 of Filtered Water Reservoir	lot	1	
5	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire River Water Pre-Treatment System (Not Fabricated Parts)	lot	1	

No	Description of works	Unit	Quantity	Remarks
6	Necessary instruments/devices for measurement of quality of treated water as shown in section [Performance Guarantees]	lot	1	
C	Desalination System by Reverse Osmosis (RO) 1°			
1	UF Permeate Storage Tank (11GCK01BB001)	lot	1	
2	Antiscalant dosing pumps 10GCQ31AP001, 10GCQ32AP001*	lot	1	May wrongly delivered by Wabag
3	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Desalination RO System Stage 1 (Not Fabricated Parts)	lot	1	
4	Necessary instruments/devices for measurement of quality of treated water as shown in section [Performance Guarantees]	lot	1	
D	Fresh Water Transfer Pipeline and Potable Water System			
1	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, sniper, and piping specialties,...) connecting Fresh Water Reservoir and Potable Water System	lot	1	
2	Control Valve 10GKD20AA701 for fresh water recirculation to Fresh Water Reservoir	lot	1	
3	Field Fabricated Potable Tanks 1x1000m ³	lot	1	
4	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Fresh Water Transfer Pipeline and Potable Water System	lot	1	
E	Demineralization RO 2° System			
1	RO Stage 2 Permeate Storage Tanks 10GCK08BB001 and 10GCK08BB002	lot	1	
2	Necessary instruments/devices for measurement of quality of treated water as shown in section [Performance Guarantees]	lot	1	
3	Field Fabricated DM Storage Tanks 2x2500m ³	lot	1	
4	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Demineralization RO Stage 2 System (Not Fabricated Parts)	lot	1	
F	Electrical Equipment for Water Treatment Plant			
1	Electrical Motors and Actuators	lot	1	
2	Cable Trays, Cable Trench and Accessories within package	lot	1	
3	Local Control Panel/Local Starter Panel/ Local Push Button Station/ Junction Boxes	lot	1	
4	Uninterrupted Power Supply System (UPS)	lot	1	
5	220V DC System include supply of 220V DC System	lot	1	
6	Above ground equipment earthing (up to riser)	lot	1	

No	Description of works	Unit	Quantity	Remarks
7	All lightning protection for the buildings/Construction facility	lot	1	
8	All illumination and small power system (including distribution boards) for equipment/structure and the buildings (<i>such as Raw Forwarding Pump House, Filtered Water Pump House, Water Treatment Plant Chemical House, Desalination Ultra-filtration Pump House, Main Desalination-Demineralization Building, Fresh & Fire Water Pump House, ...and other buildings under bidder's design work</i>)	lot	1	
H	Control and Instrumentation for Water Treatment Plant			
1	PLC system, including main panels, I/O panels, and required interface modules	lot	1	
2	Local control room operation workstation, including HMI units, printer, desks, and chairs	lot	1	
3	Junction boxes, local control panels, local racks/boxes, instrument racks/boxes, and marshalling kiosks as required.	lot	1	
4	Portable engineering laptop with built-in serial port and licensed programming/configuration software for PLC and ACS systems.	lot	1	
5	All instrument and control cables with all necessary accessories, including connectors, terminals, glands, etc.	lot	1	
6	All types of special cables including system bus, Ethernet, fiber optic cables, grounding/earthing cables.	lot	1	
7	Cable trays, conduits, clamps, and supports for installation and protection of instrument/control cables.	lot	1	
9	All source codes, configuration files, and software licenses related to the supplied I&C system.	lot	1	
8	Any other equipment, devices, or accessories necessary to ensure a complete, safe, and operable I&C system for the Water Treatment Plant package.	lot	1	
J	Service & HVAC			
I	Customs clearance and local transportation			
1	Equipment for Base Portion	lot	1	
2	Equipment for Optional Portion	lot	1	
II	HVAC			
1	Heat, Ventilation, Air Conditioning (HVAC) for various buildings/facilities (<i>such as Raw Forwarding Pump House, Filtered Water Pump House, Water Treatment Plant Chemical House, Desalination Ultra-filtration Pump House, Main</i>	lot	1	

No	Description of works	Unit	Quantity	Remarks
	<i>Desalination-Demineralization Building, Fresh & Fire Water Pump House, Chemical Laboratory Building...and other buildings under bidder's design work)</i>			
K	Miscellaneous Works			
1	Technical Advisors for guiding on construction, installation, commissioning at Site	lot	1	
2	Training of Owner personnels	lot	1	
3	All consummables for installation works, oil & grease for first lubricant and chemicals (Lime Ca(OH) ₂ , FeCl ₃ , Antiscalant, Sodium Bisulphate, NaOCl, HCl, Poly Electrolyte POF, KMnO ₄ , NaOH Caustic...) and other consumables during commissioning	lot	1	
4	All anchor bolts, templates, sleeves, sole plates, base plates, etc. for all plant, equipment, building & facility within package as required	lot	1	
5	Start-up & commissioning spare parts	lot	1	
6	Special Tools and Tackles	lot	1	
7	Painting at Shop and at Site in accordance with LP1-TKC-10XXX-M-G1-SPC-2022: Project Specification for Painting	lot	1	
8	Study, collect input data for quality of Hau river water serving for design of Water Treatment Plant (if required)	lot	1	
9	Hoist in Water Treatment Chemical House	lot	1	
10	Hoist/Crane in Desalination & Demineralization Building	lot	1	
11	Hoist/Crane in Ultra-filtration Pump House	lot	1	
12	Hoist for Sluice Gates at Sand Settling Basins, Filtered Water Reservoir and Fresh Water Reservoir	lot	1	
13	Manual Lifting Mechanism shown on drawing LP1-WAB-10UGA-M-M3-DSE-0012	lot	1	
14	Other Hoist and Crane within package designed by Bidder or shown on Owner's drawings	lot	1	
15	Other items not declared but needed to complete system under package			

Note:

- According to Wabag (please see inspection report in 02/2020 in folder [*Attachment Chapter V\4. Package Status Documents\2. Goods at Site*], Drive for one set of antiscaling agent tank + dosing pumps (package LP1-WAB-262 in MGMR 914), is wrongly delivered. Therefore, these equipment is also in subject of new supply by Bidder. However, in case of right delivery when opening the package, the cost for supply by Bidder shall be deducted.

- The scope of work listed in Bill of Quantity is provided for reference only. Bidder is responsible for accurately determining the relevant work items and quantities in accordance with the design (if any) and the technical requirements of Chapter V. Upon verification the required scopes, Bidder shall submit pricing for each item in Form No. 20, Chapter IV.

- The price of Spare parts for Operation is for reference only and is not included in the Bid Price or the Contract price if the bidder wins. The Owner shall purchase them at a later stage.

**FORM A1.2 BILL OF QUANTITY EQUIPMENT INSTALLATION &
CONSTRUCTION WORK AT SITE (BASE PORTION)**

No	Description of works	Unit	Quantity	Remarks
A	River Water Transportation up to River Water Pre-Treatment System			
I	Equipment (including supporting steel structure, platform, Staircase...) Installation			
1	Raw Water Intake Pumps 10GAF10AP001, 10GAF10AP002, 10GAF10AP003, 10GAF10AP004	lot	1	
2	Sluice Gates 10HSD10AT001 and 10HSD10AT002 at Sand Settling Basin	lot	1	
3	Raw Water Forwarding Pump 10GAF20AP001, 10GAF20AP002, 10GAF20AP003, 10GAF20AP004	lot	1	
4	Bar Screen 10GAA10AT001 & 10GAA10AT002 Raw Water Forwarding Chambers	lot	1	
5	Sluice Gate 10HSD10AT001 at Raw Water Forwarding Chambers	lot	1	
6	Control valve 10GAC10AA701 for raw water recirculation to Raw Water Intake Chamber	lot	1	
7	Control Valve 10GAC20AA701 for raw water recirculation to Raw Water Forwarding Pump Sump	lot	1	
8	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, sniper, and piping specialties,...) connecting Raw Water Intake Pumps and Sand Settling Basins	lot	1	
9	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, sniper, and piping specialties,...) connecting Raw Water Forwarding Pumps and inlet of River Water Pre-treatment system	lot	1	
II	Construction item			
1	Pipe support	lot	1	
2	Sand Settling Basin*	lot	1	
3	Raw Water Forwarding Pump House*	lot	1	
4	Raw Water Forwarding Sump	lot	1	
B	River Water Pre-treatment System (RWPT)			
I	Equipment (including supporting steel structure, platform, Staircase...) Installation			
1	Control Station	lot	1	
2	Dissolved Air Flotation (DAF) (Equipment)	lot	1	
3	Parshall Flume for Stilling Chamber (Equipment)	lot	1	
4	Parshall Flume for Distribution Chamber (Equipment)	lot	1	
5	Solid Contact Clarifier Lamella type (Equipment)	lot	1	
6	Gravity Sand Filters (Equipment)	lot	1	

No	Description of works	Unit	Quantity	Remarks
7	Sand for Gravity Sand Filters	lot	1	
8	Sludge Recirculation Pumps 10GBD30AP110, 10GBD30AP120, 10GBD31AP110, 10GBD31AP120	lot	1	
9	Sludge removal pumps 10GBD31AP110, 10GBD31AP120, 10GBD41AP110, 10GBD41AP120	lot	1	
10	Sludge Disposal Pumps 10GBS10AP001, 10GBS20AP001	lot	1	
11	Air blowers for Gravity Sand Filters (10GBP21AN001, 10GBP22AN001)	lot	1	
12	Backwash wastewater Transfer Pumps 10GBR23AP001, 10GBR24AP001	lot	1	
13	Drain Pump 10GMD01AP001	lot	1	
14	FeCl3 Dosing Tanks 10GBQ20BB001, 10GBQ20BB002	lot	1	
15	FeCl3 Dosing Pumps 10GBQ21AP001, 10GBQ22AP001, 10GBQ23AP001, 10GBQ24AP001, 10GBQ25AP001	lot	1	
16	Agitators of Slaking solution tanks (10GBQ41AM001 and 10GBQ42AM001)	lot	1	
17	Ca(OH) ₂ Lime transfer pumps 10GBQ41AP001, 10GBQ42AP001 to Lime Preparation tank	lot	1	
18	Agitators of Lime preparation tank (10GBQ43AM001 & 10GBQ44AM001)	lot	1	
19	Ca(OH) ₂ Dosing Pumps (10GBQ43AP101, 10GBQ44AP101, 10GBQ45AP101, 10GBQ46AP101, 10GBQ47AP101)	lot	1	
20	Polyelectrolyte dosing tanks 10GBQ11BB001 & 10GBQ12BB001 with electric mixers 10GBQ11AM001 and 10GBQ12AM001	lot	1	
21	Polyelectrolyte dosing pumps (10GBQ11AP001, 10GBQ12AP001, 10GBQ13AP001, 10GBQ14AP001, 10GBQ15AP001)	lot	1	
22	KMnO ₄ dosing tanks 10GBQ31BB001, 10GBQ32BB001 with electric mixers 10GBQ31AM001 and 10GBQ32AM001	lot	1	
23	KMnO ₄ dosing pumps 10GBQ31AP001, 10GBQ32AP001	lot	1	
24	Sluice gates 10GDB10AT001/10GBK54AA001 & 10GDB10AT003 for inlet and outlet of compartment 1 and 10GDB10AT002/10GBK54AA002 & 10GDB10AT004 for inlet and outlet of compartment 2 of Filtered Water Reservoir	lot	1	
25	A set of Safety Shower 10GCP90BR001	lot	1	
26	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire River Water Pre-Treatment System (Fabricated Parts and stored at Manufacturer's warehouse)	lot	1	

No	Description of works	Unit	Quantity	Remarks
27	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire River Water Pre-Treatment System (Not Fabricated Parts)	lot	1	
28	Necessary instruments/devices for measurement of quality of treated water as shown in section [Performance Guarantees]	lot	1	
II	Construction item			
1	Pipe support	lot	1	
2	Control station	lot	1	
3	Dissolved air flotation (DAF)	lot	1	
4	Stilling champer	lot	1	
5	Parshall flume	lot	1	
6	Distribution chamber	lot	1	
7	Clarifier*	lot	1	
8	Sand filter building*	lot	1	
9	Waste water sludge pit*	lot	1	
10	Waste water backwash pit*	lot	1	
11	Filtered water reservoir*	lot	1	
12	Chemical House*	lot	1	
13	All concrete channels for transferring water between equipment within River-water Pre-treatment System	lot	1	
C	Desalination System by Reverse Osmosis (RO) 1°			
I	Equipment (including supporting steel structure, platform, Staircase...) Installation			
1	Ultra-filtration feed pumps 10GCB01AP001, 10GCB01AP002, 10GCB01AP003	lot	1	
2	Activated Carbon Filters for Ultra-filtration skids 10GCB11AT001, 10GCB12AT001, 10GCB13AT001, 10GCB14AT001	lot	1	
3	Activated Carbon	lot	1	
4	Complete Ultra-filtration skids 10GCB21AT001, 10GCB22AT001	lot	1	
5	Ultra-filtration membranes	lot	1	
6	Remaining items of Ultrafiltration Skids: Connection and assembly material for two pieces of ultrafiltration block (4 sets)	lot	1	
7	Remaining items of Ultrafiltration Skids: Butterfly valves DN 125 for two pieces of ultrafiltration block	lot	1	
8	Remaining items of Ultrafiltration Skids: Butterfly valves DN 125 and DN 150 for two pieces of ultrafiltration block	lot	1	
9	UF Permeate Storage Tank (11GCK01BB001)	lot	1	
10	UF Backwash Pumps 10GCP15AP001, 10GCP16AP001	lot	1	
11	Desalination RO Feed Pumps 10GCK02AP001, 10GCK03AP001	lot	1	

No	Description of works	Unit	Quantity	Remarks
12	UF Backwash waste transfer pumps 10GBP11AP001, 10GBP12AP001	lot	1	
13	Ba2+ filters (10GCF11AT001, 10GCF12AT001)	lot	1	
14	Ba2+ filters Ionex mass	lot	1	
15	Desalination RO skids 10GCF21AT001, 10GCF22AT001 (including Micron filters 11GCF21AT001/11GCF22AT001, high pressure pumps 10GCF21AP001&002/10GCF22AP001&002, PLC, valves, internal piping and instruments,...)	lot	1	
16	RO Membranes Stage 1	lot	1	
17	De-gasser towers 10GCC11AT001 and 10GCC12AT001 for CO2 removal	lot	1	
18	Air fans for De-gasser towers 10GCC11AN001 and 10GCC12AN001	lot	1	
19	NaOH Caustic dosing tank 10GCQ20BB001 with electric mixer	lot	1	
20	NaOH Caustic dosing Pumps (10GCQ21AP001, 10GCQ22AP001, 10GCQ23AP001, 10GCQ24AP001 and 10GCQ25AP001)	lot	1	
21	Antiscalant dosing tank 10GCQ30BB001 with electric mixer*	lot	1	
22	Antiscalant dosing pumps 10GCQ31AP001, 10GCQ32AP001*	lot	1	
23	Sodium Bisulphate dosing tank 10GCQ40BB001 with electric mixer	lot	1	
24	Sodium Bisulphate dosing pumps 10GCQ41AP001, 10GCQ42AP001	lot	1	
25	Acid HCl dosing tank 10GCQ50BB001 with electric mixer	lot	1	
26	Acid HCl dosing pumps 10GCQ51AP001, 10GCQ52AP001, 10GCQ53AP001, 10GCQ54AP001)	lot	1	
27	NaOCl dosing tank 10GCQ10BB001 with electric mixer	lot	1	
28	NaOCl dosing pumps 10GCQ11AP001, 10GCQ12AP001, 10GCQ13AP001 and 10GCQ14AP001	lot	1	
29	Cleaning In Place (CIP) for Desalination RO System and DM RO System complete with chemical tank 10GCP50BB001, cleaning solution pumps 10GCP51AP001, 10GCP52AP001, cartridge filters 10GCP53AT001, 10GCP54AT001, valves, instruments and specialties,...	lot	1	
30	Desalination RO Flushing Pumps 10GCP43AP001, 10GCP44AP001	lot	1	
31	Desalinated water for ion-exchange resin regeneration pumps 10GCP41AP001, 10GCP42AP001	lot	1	
32	Air Blowers for Neutralization Pit 10GCP61AN001 and 10GCP62AN001	lot	1	

No	Description of works	Unit	Quantity	Remarks
33	Chemical tanks for Neutralization Pit 10GCQ61BB001 for HCl tank and 10GCQ62BB001 for NaOH tank	lot	1	
34	Wastewater disposal pumps from Neutralization Pit 10GCR55AP001, 10GCR56AP001	lot	1	
35	A set of Safety Shower 10GCP90BR001	lot	1	
36	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Desalination RO System Stage 1 (Fabricated Parts stored at Manufacturer's warehouse)	lot	1	
37	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Desalination RO System Stage 1 (Not Fabricated Parts)	lot	1	
38	Necessary instruments/devices for measurement of quality of treated water as shown in section [Performance Guarantees]	lot	1	
II Construction item				
1	Pipe support	lot	1	
2	Filtered Water Pump House*	lot	1	
3	Backwash pit*	lot	1	
4	Neutralization pit*	lot	1	
5	Fresh Water Reservoir*	lot	1	
6	Ultra-filtration Pump House*	lot	1	
7	Desalination-Demineralization Building*	lot	1	
8	Fresh and Fire Water Pump House*	lot	1	
9	UF Permeate Storage Tank*	lot	1	
10	Transformer for Water Treatment System	lot	1	
D Fresh Water Transfer Pipeline and Potable Water System				
I Equipment (including supporting steel structure, platform, Staircase...) Installation				
1	Fresh Water Transfer Pumps	lot	1	
2	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, sniper, and piping speciaties,...) connecting Fresh Water Reservoir and Potable Water System	lot	1	
3	Control Valve 10GKD20AA701 for fresh water recirculation to Fresh Water Reservoir	lot	1	
4	Field Fabricated Potable Tanks 1x1000m ³	lot	1	
5	Activated Carbon Filter for Potable Water Treatment 10GCB31AT001, 10GCB32AT001	lot	1	
6	Activated Carbon for Potable Water Treatment	lot	1	
7	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Fresh Water Transfer Pipeline and Potable Water System	lot	1	

No	Description of works	Unit	Quantity	Remarks
II Construction item				
1	Pipe support	lot	1	
2	Potable storage Tanks*	lot	1	
E Demineralization RO 2^o System				
I Equipment (including supporting steel structure, platform, Staircase...) Installation				
1	Demineralisation RO feed pumps (10GCK06AP001 and 10GCK07AP001)	lot	1	
2	Demineralization RO Skids complete with RO micron filters 10GCF35AT001/10GCF36AT001, High pressure pump Grundfos (10GCF31AP001/10GCF32AP001), valves, instruments, piping,...	lot	1	
3	RO Membranes Stage 2	lot	1	
4	RO Stage 2 Permeate Storage Tanks 10GCK08BB001 and 10GCK08BB002	lot	1	
5	CEDI feed pumps 10GCK11AP001, 10GCK12AP001	lot	1	
6	CEDI modules 10GCF33AT001 and 10GCF34AT001	lot	1	
7	Ionex mass	lot	1	
8	Necessary instruments/devices for measurement of quality of treated water as shown in section [Performance Guarantees]	lot	1	
9	Field Fabricated DM Storage Tanks 2x2500m ³	lot	1	
10	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Demineralization RO Stage 2 System (Fabricated Parts stored at Manufacturer's warehouse)	lot	1	
11	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Demineralization RO Stage 2 System (Not Fabricated Parts)	lot	1	
II Construction item				
1	Pipe support	lot	1	
2	DM Storage Tanks*	lot	1	
3	UF permeate & DM RO permeate tank*	lot	1	
4	Duct banks and Storm drainage of the area	lot	1	
F Electrical Equipment for Water Treatment Plant				
1	Motor Control Centre (MCC) 400V: - 10BFE54 & 10BFE64 for River Water Pre-treatment System (RWPT) - 10BFE55 & 10BFE65 for Desalination System by Reverse Osmosis Stage 1 - 10BFE52 & 10BFE62 for Demineralization RO Stage 2 System	lot	1	
2	Electrical Motors and Actuators	lot	1	

No	Description of works	Unit	Quantity	Remarks
3	Cable Trays, Cable Trench and Accessories within package	lot	1	
4	Power, Control & Instrument Cables	lot	1	
5	Local Control Panel/Local Starter Panel/ Local Push Button Station/ Junction Boxes	lot	1	
6	Uninterrupted Power Supply System (UPS)	lot	1	
7	220V DC System include supply of 220V DC System	lot	1	
8	Above ground equipment earthing (up to riser)	lot	1	
9	All lightning protection for the buildings/Construction facility	lot	1	
10	All illumination and small power system (including distribution boards) for equipment/structure and the buildings (<i>such as Raw Forwarding Pump House, Filtered Water Pump House, Water Treatment Plant Chemical House, Desalination Ultra-filtration Pump House, Main Desalination-Demineralization Building, Fresh & Fire Water Pump House, ...and other buildings under bidder's design work</i>)	lot	1	
H	Control and Instrumentation for Water Treatment Plant			
1	PLC system, including main panels, I/O panels, and required interface modules	lot	1	
2	Local control room operation workstation, including HMI units, printer, desks, and chairs	lot	1	
3	Complete set of field instrumentation and control devices within the Water Treatment plant, including but not limited to: sensors, transmitters, switches, analyzers, control valves, MOV and all necessary accessories (e.g. fittings, impulse lines, mounting brackets, tubing, manifolds, etc.).	lot	1	
4	Junction boxes, local control panels, local racks/boxes, instrument racks/boxes, and marshalling kiosks as required.	lot	1	
5	Portable engineering laptop with built-in serial port and licensed programming/configuration software for PLC and ACS systems.	lot	1	
6	All instrument and control cables with all necessary accessories, including connectors, terminals, glands, etc.	lot	1	
7	All types of special cables including system bus, Ethernet, fiber optic cables, grounding/earthing cables.	lot	1	
8	Cable trays, conduits, clamps, and supports for installation and protection of instrument/control cables.	lot	1	
9	All source codes, configuration files, and software licenses related to the supplied I&C system.	lot	1	

No	Description of works	Unit	Quantity	Remarks
10	Any other equipment, devices, or accessories necessary to ensure a complete, safe, and operable I&C system for the Water Treatment Plant package.	lot	1	
J Others				
1	Other items not declared but needed to complete system under package	lot	1	

Note:

- (*) These items are under construction. The Bidder shall complete the remaining works (please refer to item I.4.b-Status of package of Chapter V)
- The scope of work listed in Bill of Quantity is provided for reference only. Bidder is responsible for accurately determining the relevant work items and quantities in accordance with the design (if any) and the technical requirements of Chapter V. Upon verification the required scopes, Bidder shall submit pricing for each item in Form No. 20, Chapter IV.

**FORM A2 BILL OF QUANTITY SUPPLY OF EQUIPMENT AT OEM'S
WAREHOUSE (OPTIONAL PORTION)**

No	Description of works	Unit	Quantity	Remarks
A	River Water Transportation up to River Water Pre-Treatment System			
B	River Water Pre-treatment System (RWPT)			
1	Control Station	lot	1	
2	Sludge Disposal Pumps 10GBS10AP001, 10GBS20AP001	lot	1	
3	A set of Safety Shower 10GCP90BR001	lot	1	
4	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire River Water Pre-Treatment System (Fabricated Parts and stored at Manufacturer's warehouse)	lot	1	
C	Desalination System by Reverse Osmosis (RO) 1°			
1	Ultra-filtration feed pumps 10GCB01AP001, 10GCB01AP002, 10GCB01AP003	lot	1	
2	Complete Ultra-filtration skids 10GCB21AT001, 10GCB22AT001	lot	1	The item 2 and 3 delivered and fully stored at Site and The item 4, 5, 6 is being stored at OEM's storage. Please see soft-copy (excel file) & hard copy of DPL 172C. The difference of 2 lists in above DPLs is remaining work.
3	Ultra-filtration membranes	lot	1	
4	Remaining items of Ultrafiltration Skids: Connection and assembly material for two pieces of ultrafiltration block (4 sets)	lot	1	
5	Remaining items of Ultrafiltration Skids: Butterfly valves DN 125 for two pieces of ultrafiltration block	lot	1	
6	Remaining items of Ultrafiltration Skids: Butterfly valves DN 125 and DN 150 for two pieces of ultrafiltration block	lot	1	
7	De-gasser towers 10GCC11AT001 and 10GCC12AT001 for CO2 removal	lot	1	
8	Air fans for De-gasser towers 10GCC11AN001 and 10GCC12AN001	lot	1	
9	Desalinated water for ion-exchange resin regeneration pumps 10GCP41AP001, 10GCP42AP001	lot	1	
10	A set of Safety Shower 10GCP90BR001	lot	1	
11	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Desalination RO System Stage 1 (Fabricated Parts stored at Manufacturer's warehouse)	lot	1	
D	Fresh Water Transfer Pipeline and Potable Water System			
1	Fresh Water Transfer Pumps	lot	1	
E	Demineralization RO 2° System			

No	Description of works	Unit	Quantity	Remarks
1	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Demineralization RO Stage 2 System (Fabricated Parts stored at Manufacturer's warehouse)	lot	1	
F	Electrical Equipment for Water Treatment Plant			
1	Motor Control Centre (MCC) 400V: - 10BFE54 & 10BFE64 for River Water Pre-treatment System (RWPT) - 10BFE55 & 10BFE65 for Desalination System by Reverse Osmosis Stage 1 - 10BFE52 & 10BFE62 for Demineralization RO Stage 2 System	lot	1	
2	Power, Control & Instrument Cables	lot	1	
H	Control and Instrumentation for Water Treatment Plant			
1	Complete set of field instrumentation and control devices within the Water Treatment plant, including but not limited to: sensors, transmitters, switches, analyzers, control valves, MOV and all necessary accessories (e.g. fittings, impulse lines, mounting brackets, tubing, manifolds, etc.).	lot	1	
<p>Note:</p> <ul style="list-style-type: none"> - For item (OEM's storage): please refer to table [Division of work] in Chapter V for equipment which is manufactured and stored at original OEM. The Bidder shall refer to Table 1.2.1 of form 20 [Price Schedules-Summary] to provide separate quotation for re-manufacturing and supply these equipment. - The scope of work listed in Bill of Quantity is provided for reference only. Bidder is responsible for accurately determining the relevant work items and quantities in accordance with the design (if any) and the technical requirements of Chapter V. Upon verification the required scopes, Bidder shall submit pricing for each item in Form No. 20, Chapter IV. - The price of Spare parts for Operation is for reference only and is not included in the Bid Price or the Contract price if the bidder wins. The Owner shall purchase them at a later stage. 				

**FORM A3.1 BILL OF QUANTITY FOR MATERIALS IDENTIFIED FOR
POTENTIAL REPLACEMENT DUE TO LONG-TERM STORAGE AT SITE
(ADDITIONAL PORTION)**

No	Description of works	Unit	Quantity	Remarks
1	Membranes Ultrafiltration Skid	pcs	72	
2	Filter cartridges for RO 1°	pcs	76	
3	Membranes RO 1°	pcs	250	
4	Membranes RO 2°	pcs	125	
5	Ionex mass for ion exchange filter	bags	640	
6	Activated Carbon	bags	760	
7	CEDI Modules model VNX55-EP2	pcs	10	
<p>Note: - Please see section VIII [SPARE PARTS & CONSUMABLES AND OPTIONAL SOLUTION] of Chapter V for Technical specification for these consumables</p>				

**FORM A3.2 BILL OF QUANTITY FOR SOLUTION TO ENHANCE
CAPABILITY OF WATER TREATMENT PLANT WHEN SALINITY OF
HAU RIVER EXCEEDS DESIGN LEVEL (ADDITIONAL PORTION)**

No	Description of optional solution to enhance capability of Water Treatment System	Unit	Quantity	Remarks
1	For example (inscrease capacity of storage tanks)	lot	1	
2	For example (additional RO system and auxiliary)	lot	1	
3	For example (Cathodic Protection)	lot	1	
4	For example (Salinity online monitoring station)	lot	1	
5	For example (advanced technology to keep salinity of Hau river as design)	lot	1	
6	1	
<p>Note: - Please see section VIII [SPARE PARTS & CONSUMABLES AND OPTIONAL SOLUTION] of Chapter V for requirements and quotation</p>				

B. FORMS ARE PREPARED BY BIDDER

Form No. 01 (a) LETTER OF BID (1)

(Applicable to the Bidder who has no discount offer or has a discount offer submitted in a separate Letter of Discount)

Date: _____ *[insert date of signing of Letter of Bid]*

The package's name: *[insert the package's name specified in BDS]*

Project's name: *[insert the project's name specified in BDS]*

Invitation to Bid No.: *[insert the number of Invitation to Bid]*

To: ___ *[insert the complete and accurate name of the Owner as specified in BDS].*

After carefully examining the Bidding Document and addendum No. ___ *[insert the number of the addendum (if any)]*, we, ___ *[insert the Bidder's name]*, pledge ourselves to perform ___ *[insert the package's name]* in accordance with the Bidding Document with the contract duration of ___ *[insert the total performance duration of all the work as required by the package]* ⁽²⁾ and with the total Bid Price amount ___ *[insert the amount in figures, in words, and currency]* ⁽³⁾ together with the tables of Bid Price.

We hereby declare that:

1. We only participate in this Bid as the Bidder.
2. We are not undergoing a dissolution process, are not thrown into bankruptcy, and do not incur bad debts as prescribed by law.
3. We do not commit violations against regulations on the assurance of competitiveness in bidding.
4. We are not involved in corrupt, fraudulent or conclusive practice and other violations against the Law on Bidding.
5. We are not banned from bidding as prescribed in law on bidding;
6. Every information provided herein is truthful to be the best of our knowledge.
7. We commit that have fulfilled of the obligation of tax declaration and tax payment of the latest fiscal year (2024).
8. Within 03 years before the time of bid closing, the contractor without personnel (signing a labor contract with the contractor at the time the personnel commits the violation) is convicted by the court of violating regulations on bidding, causing serious consequences in accordance with the provisions of the criminal law for the purpose of allowing that contractor to win.

If our Bid is accepted, we shall provide the Performance Bond as prescribed in ITB 41, Chapter I - Instructions to Bidders of the Bidding Document.

This Letter of Bid takes effect within ___ ⁽⁴⁾ days, from _____ *[date]* ⁽⁵⁾.

Legal representative of Bidder⁽⁶⁾

[Full name, position, signature and seal⁽⁷⁾]

Notes:

- (1) Bidder shall provide sufficient and accurate information including names of the Owner and the Bidder, effective period of the Bid, which bears the signature and seal (if any) and of the bidder's legal representative.
- (2) The contract duration mentioned in the Letter of Bid shall conform to the Bid and Time Schedule in the Bid.
- (3) The Bid Price mentioned in the Letter of Bid shall be detailed, specified in both number and words, and in conformity with the total Bid Price mentioned in the Grand Total. There shall be only one Bid Price which does not cause any disadvantage condition to the Owner. If permitted, the Bidder may offer the Bid Price in other currencies and clarify the price in words and figures in respect of each currency.
- (4) Insert number of validity days as prescribed in Section 17.1 of **BDS**. The effective period of the Bid is from the deadline for submission of Bid to its expiration date as prescribed in the Bidding Document. The period of time from the deadline for submission of Bid to 24:00 (midnight) of the bid closing date is considered 01 day.
- (5) Insert the bid closing date as prescribed in Section 21.1 of the **BDS**.
- (6) If the Bidder's legal representative authorizes his/her subordinate to sign the Letter of Bid, a Power of Attorney (Form No. 02 provided in this Chapter) shall be enclosed. If the company's charter or another document permits such subordinate to sign the Letter of Bid, such document shall be enclosed (In this case, the Power of Attorney is not required). Regarding consortium, the Letter of Bid shall be signed by legal representative of every consortium's partner, unless the head/leader of the consortium may sign the Letter of Bid according to the consortium agreement as mentioned in Form No. 03 of this Chapter. Each consortium's partner may give authorization similarly to an independent Bidder. If the Bidder is successfully awarded (become a successful Bidder), it shall present certified true copies of these documents to the Owner before contract conclusion. If information provided is found inaccurate, the Bidder will be considered fraudulent as prescribed in ITB 3.
- (7) If a foreign Bidder has no seal, it shall furnish a certification issued by a competent agency that the signature in the Letter of Bid and any other documents of the Bid belongs to its legal representative.

Form No. 01 (b) LETTER OF BID (1)

(Applicable to the Bidder who has a discount offer in the Letter of Bid)

Date: _____ *[insert date of signing of Letter of Bid]*

The package's name: *[insert the package's name specified in BDS]*

Project's name: *[insert the project's name specified in BDS]*

Invitation to Bid No.: *[insert the number of Invitation to Bid]*

To: _____ *[insert the complete and accurate name of the Owner as specified in BDS].*

After carefully examining the Bidding Document and addendum No. _____ *[insert the number of the addendum (if any)]*, we, _____ *[insert the Bidder's name]*, pledge ourselves to perform _____ *[insert the package's name]* in accordance with the Bidding Document with the contract duration of _____ *[insert the total performance duration of all the work as required by the package]* ⁽²⁾ and with the total Bid Price amount (including the BASE PORTION and the OPTIONAL PORTION) _____ *[insert the amount in figures, in words, and currency]* ⁽³⁾ together with the Table of bid price.

In addition, we voluntarily offer a discount of bid price with an amount _____ *[insert the discount amount in figures, in words and in currency]* ⁽⁴⁾.

The bid price after deducting discount is: _____ *[insert the amount in figures, in words and in currency]*.

We hereby declare that:

1. We only participate in this Bid as the Bidder.
2. We are not undergoing a dissolution process, are not thrown into bankruptcy, and do not incur bad debts as prescribed by law.
3. We do not commit violations against regulations on the assurance of competitiveness in bidding.
4. We are not involved in corrupt, fraudulent or conclusive practice and other violations against the Law on Bidding.
5. We are not banned from bidding as prescribed in law on bidding;
6. Every information provided herein is truthful to be the best of our knowledge.
7. We commit that have fulfilled of the obligation of tax declaration and tax payment of the latest fiscal year (2024).
8. Within 03 years before the time of bid closing, the contractor without personnel (signing a labor contract with the contractor at the time the personnel commits the violation) is convicted by the court of violating regulations on bidding, causing serious consequences in accordance with the provisions of the criminal law for the purpose of allowing that contractor to win.

If our Bid is accepted, we shall provide the Performance Bond as prescribed in ITB 41 - Instructions to Bidders of the Bidding Document.

This Letter of Bid takes effect within _____ ⁽⁵⁾ days, from _____ *[date]* ⁽⁶⁾.

Legal representative of Bidder ⁽⁷⁾
[Full name, position, signature and seal] ⁽⁸⁾

Notes:

- (1) Bidder shall provide sufficient and accurate information including names of the Owner and the Bidder, effective period of the Bid, which bears the signature and seal (if any) and of the bidder's legal representative.
- (2) The contract duration mentioned in the Letter of Bid shall conform to the Bid and Time Schedule in the Bid.
- (3) The Bid Price mentioned in the Letter of Bid shall be detailed, specified in both number and words, and in conformity with the total Bid Price mentioned in the Grand Total. There shall be only one Bid Price which does not cause any disadvantage condition to the Owner. If permitted, the Bidder may offer the Bid Price in other currencies and clarify the price in words and figures in respect of each currency.
- (4) The discount is whether applicable to the package or one or several work items (specifying the work items eligible for discounts).
- (5) Insert number of validity days as prescribed in Section 17.1 of **BDS**. The effective period of the Bid is from the deadline for submission of Bid to its expiration date as prescribed in the Bidding Document. The period of time from the deadline for submission of Bid to 24:00 (midnight) of the bid closing date is considered 01 day.
- (6) Insert the bid closing date as prescribed in Section 21.1 of the **BDS**.
- (7) If the Bidder's legal representative authorizes his/her subordinate to sign the Letter of Bid, a Power of Attorney (Form No. 02 provided in this Chapter) shall be enclosed. If the company's charter or another document permits such subordinate to sign the Letter of Bid, such document shall be enclosed (In this case, the Power of Attorney is not required). Regarding consortium, the Letter of Bid shall be signed by legal representative of every consortium's partner, unless the head/leader of the consortium may sign the Letter of Bid according to the consortium agreement as mentioned in Form No. 03 of this Chapter. Each consortium's partner may give authorization similarly to an independent Bidder. If the Bidder is successfully awarded (become a successful Bidder), it shall present certified true copies of these documents to the Owner before contract conclusion. If information provided is found inaccurate, the Bidder will be considered fraudulent as prescribed in ITB 3.
- (8) If a foreign Bidder has no seal, it shall furnish a certification issued by a competent agency that the signature in the Letter of Bid and any other documents of the Bid belongs to its legal representative.

Form No. 02 POWER OF ATTORNEY (1)

[Location and date] _____

I am _____ [insert name, ID/passport number, position of Bidder's legal representative], the legal representative of _____ [insert name of Bidder] at _____ [insert address of Bidder] hereby authorizes _____ [insert name, ID/passport number, position of authorized person] to perform the following tasks during the participation in the process of bidding for _____ [insert name of the package] of _____ [insert name of the project] held by _____ [insert name of the Owner]:

- [Sign the Letter of Bid;
- Sign the consortium agreement (if any);
- Sign documents with the Owner during the shortlisting processing, including the request for Clarification of Bidding Document and Clarification of Bid; sign requests for withdrawal, modification or substitutions of Bid;
- Participate in contract negotiation and finalization;
- Sign complaint letter (if any);
- Sign contract with the Owner if the Bidder is awarded the contract.]⁽²⁾

The authorized person only performs the tasks within the area of competence of a legal representative of _____ [insert name of Bidder]. _____ [insert name of Bidder's legal representative] is totally responsible for the tasks performed by _____ [insert name of authorized person] within the authorization scope.

The Power of Attorney is effective from _____ [date] to _____ [date]⁽³⁾ and is made into _____ copies with the same legal validity. _____ copies are kept by the authorizer, _____ copies are kept by the authorized person and _____ copies are kept by the Owner.

Authorized person

[Full name, position, signature
and seal]

Authorizer

[Full name, position, signature and seal of
the legal representative]

Notes:

(1) The original copy of the Power of Attorney shall be sent to the Owner in conjunction with the Letter of Bid as prescribed in ITB 19.3. The Bidder's legal representative may authorize their deputies, subordinates, directors of branches, heads of representative offices of the Bidder to perform the tasks on behalf of the Bidder. The authorized person may use the seal of the Bidder or their seal. The authorized person shall not authorize another person.

(2) Area of authorization includes one or multiple tasks above.

(3) Insert the effective date and expiration date of the Power of Attorney in conformity with the bidding process.

Form No. 03 CONSORTIUM AGREEMENT (1)

[Location and date] _____

Package: *[insert name of the package]*Project's name: _____ *[insert the project's name]*Pursuant to ⁽²⁾ _____ *[the Law on Bidding No. 22/2023/QH15 dated June 23, 2023];*Pursuant to ⁽²⁾ _____ *[the Government's Decree No. 24/2024/ND-CP dated February 27, 2024 on implementation of some articles on contractor selection of the Law on Bidding];*Pursuant to ⁽²⁾ _____ *[the Government's Decree No. 17/2025/ND-CP dated February 06, 2025 amending and supplementing a number of articles of the decrees detailedly providing a number of articles and measures for implementing the law on bidding];*In response to Bidding Document for _____ *[insert name of package]* dated _____ *[insert date written on the Bidding Document];*

Representatives of signatories to the consortium agreement include:

Name of member _____ *[insert name of each consortium's member]*

Mr./Ms. _____

Position: _____

Address: _____

Phone number: _____

Fax: _____

Email: _____

Account: _____

TIN: _____

Power of Attorney No. _____ dated _____ *(in case of authorization).*

The parties have reached a consensus on entering into a consortium agreement with the following contents:

Article 1. General rules1. Parties voluntarily establish this consortium to participate in the process of bidding for _____ *[insert name of package]* of _____ *[insert name of project]*.2. Official name of the consortium used in every transaction related to the package with the consent of all parties: _____ *[insert the agreed name of the consortium]*.

3. Every consortium's partner is committed not to unilaterally participate or establish a consortium with another consortium's partner to participate in this package. If awarded the contract, no consortium's partner is entitled to refuse to fulfill the duties and obligations prescribed in the contract except for the written consent of other members. Any partner of the consortium that refuses to perform their duties as agreed shall:

- Pay damages to other partners in the consortium;
- Pay damages to the Owner as prescribed by the contract;
- Incur other disciplinary actions _____ *[specify the action]*.

Article 2. Assignment of duties

All parties unanimously assign to be jointly and severally liable for the execution of _____ [*insert name of package*] of _____ [*insert name of project*] as follows:

1. Leading member of the consortium

All parties unanimously authorize _____ [*insert name of a partner*] as the leading partner (leader) of the consortium who represents the consortium to perform the following tasks ⁽³⁾:

- [*Sign the Letter of Bid*].
- *Sign documents with the Owner during the shortlisting processing, including the request for Clarification of Bidding Document and Clarification of Bid; sign requests for Bid withdrawal, modification or substitutions;*
- *Provide Bid Bond for the consortium;*
- *Participate in contract negotiation and finalization;*
- *Sign complaint letter (if any);*
- *Perform other tasks except for contract conclusion: _____ [*specify other tasks (if any)*].*

2. Tasks of consortium's members with the consent of all parties are specified in the table below ⁽⁴⁾:

No.	Name	Tasks	Proportion value to bid price
1	Name of leading member	- ____ - ____	- ____ % - ____ %
2	Name of second member	- ____ - ____	- ____ % - ____ %
....
Total		All tasks of the package	100%

The consortium commits to complete all requirements and obligations of the contract.

Article 3. Effect of consortium agreement

1. The consortium agreement takes effect from the day on which it is signed.
2. The consortium agreement expires in the following cases:
 - All parties have fulfilled their duties and finalize the contract;
 - The agreement is unanimously terminated by all parties;
 - The consortium is not awarded the contract;
 - The bidding for _____ [*insert name of the package*] of _____ [*insert name*

of the project] is cancelled as notified by the Owner.

The consortium agreement is made into _____ copies with same legal validity, each party keeps _____ copies.

LEGAL REPRESENTATIVE OF LEADING MEMBER

[Full name, position, signature and seal]

LEGAL REPRESENTATIVE OF MEMBER

[Full name, position, signature and seal of each consortium's partner]

Notes:

- (1) Bidder is noted that the project's name and package's name shall be clarified accurately and sufficiently as prescribed in **BDS**.
- (2) Update legislative documents in force.
- (3) Area of authorization includes one or multiple tasks above.
- (4) The Bidder shall specify detailed tasks and proportion value of tasks performed by every consortium's member in accordance with Form No 20 Price Schedules. Division of work for every member shall be in accordance with their own experiences and enclosed supporting documents for evaluation.

Failure to meet this requirement shall result in the rejection of the Bid.

Form No. 04**BID BOND (1)**

Beneficiary: *[insert name and address of the Owner]*

Date of issue: *[insert date of issue]*

BID BOND NO. *[insert number of the Bid Bond]*

Guarantor: *[insert name and address of issuing bank, if it is not written in the title]*

We have been informed that _____ *[name of the Bidder]*⁽²⁾ (hereinafter called "the Bidder") has submitted to participate in the bid for the execution of _____ *[name of package]* of _____ *[name of project]* under Invitation to Bid.

We hereby act as a guarantee for the Bidder to participate in the bid for this package with an amount of _____ *[amount in figures, in words and currency]*.

This Guarantee takes effect within _____⁽³⁾ days, from _____ *[date]*⁽⁴⁾.

At the request of the Bidder, we, as the Guarantor, hereby undertake unconditionally and irrevocably to pay you, Beneficiary, any sum or sums not exceeding in total an amount of _____ *[amount in figures]* (_____) *[amount in words]* upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s), because the Bidder:

1. has withdrawn its Bid after the deadline for submission of Bid and during the period of bid validity;
2. has violated Law on Bidding leading bid cancellation as prescribed in Point d of ITB 39.1 in Chapter I – Instruction to Bidder of the Bidding Document;
3. fails or refuses to execute the contract negotiation within 05 working days, from the date on which the notification of contract negotiation sent by the Owner is received, excluding force majeure events;
4. fails or refuses to complete the contract within 28 days, from the date on which the notification of bid acceptance sent by the Owner is received, or refuses to conclude the contract after the contract completion excluding force majeure events;
5. fails to furnish the Performance Bond as prescribed in ITB 41.1, Chapter I – Instructions to Bidders of the Bidding Document.

If any consortium's member violates regulations of law leading ineligible for Bid Bond return as prescribed in ITB 18.5, Chapter I – Instructions to Bidders, the Bid Bond of all consortium's members shall be revoked.

Consequently, any demand for payment under this guarantee shall be received by us at the address on or before that date.

Legal representative of Bank
[Full name, position, signature and seal]

Notes:

(1) Applicable to Bid Bond in the form of Bid Guarantee issued by a credit institution or a branch of foreign bank established under Vietnamese law. This form is encouraged to be used, if another form that violates any requirements as set out in ITB 18, Chapter I – Instructions to Bidders, is used, the Bid bond shall be considered invalid.

(2) The Bidder may have one of the following names:

- Name of the consortium, for example Bidder A and Bidder B enter into a consortium to make a Bid, their name shall be “consortium A + B”;
- Name of the consortium’s member who is in charge of the Bid Bond for the consortium, for example: consortium A + B + C makes a Bid, if their consortium agreement assigns Bidder A to furnish a Bid Bond for the consortium, the consortium’s name shall be “Bidder A (on behalf of consortium A + B + C)”;
- Name of every consortium’s member separately furnishing the Bid Bond.

(3) Insert as prescribed in **BDS** 18.2.

(4) Insert the deadline date as prescribed in **BDS** 21.1.

(5) Application to consortium.

BIDDER QUALIFICATION

In order to prove the qualification to perform the contract as specified in Part 1, Chapter III - Evaluation and Qualification Criteria, the Bidder shall provide the necessary information using the following forms:

Form No. 05(a)

BIDDER INFORMATION

Date: _____

Number and name of package: _____

Bidder's name: _____
<i>In case of consortium, name of each member: __</i>
Place of business registration and operation: _____ <i>[insert province/city where the Bidder registers and operate business]</i>
Year of establishment:
Bidder's legal address: _____ <i>[insert the registered address]</i>
Bidder's legal representative information Name _____ Address: _____ Phone number/Fax: _____ Email address: _____
<ol style="list-style-type: none"> 1. Attached are copies of one of the following documents: Certificate of Enterprise Registration, Establishment Decision or equivalent document issued by a competent authority of the country in which the Bidder is operating. 2. Diagram of organizational structure of the Bidder or of the consortium as the case may be.

Form No. 05(b) CONSORTIUM MEMBERS INFORMATION ⁽¹⁾

Date: _____

Number and name of package: _____

Bidder's name:
Consortium member name:
Member's Country of Registration:
Member's Year of Establishment:
Member's Legal Address in Country of Registration:
Member's legal representative information Name _____ Address: _____ Phone number/Fax: _____ Email address: _____
1. Attached are copies of one of the following documents: Certificate of Enterprise registration, an Establishment Decision or equivalent document issued by a competent authority of the country in which the Bidder is operating. 2. Diagram of organizational structure.

Notes: Each consortium's member shall declare information using this Form.

Form No. 06 LIST OF COMPANIES IN CHARGE OF PACKAGE WORKS ⁽¹⁾

No.	Name of subsidiary company, associate company⁽²⁾	Work performed in the package⁽³⁾	Proportion of value to Bid Price⁽⁴⁾	Notes
1				
2				
3				
4				
5				
...				

Notes

(1) If the Bidder is a parent company (e.g. a corporation), it shall declare specific tasks assigned to subsidiary companies, associate companies. The qualification of the Bidder shall be evaluated according to the value and volume of work performed by the parent company, subsidiary companies, and associate companies. If the Bidder is not a parent company, this Form shall not be used.

(2) Insert name of the subsidiary companies, associate companies.

(3) Insert work performed by the subsidiary companies, associate companies.

(4) Insert proportion of value of work performed by the subsidiary companies, associate companies to the bid price.

Form No. 07 NON-FULFILMENT RECORDS OF PREVIOUS CONTRACT ⁽¹⁾

Bidder’s name: _____

Date: _____

Consortium’s member name (if any): _____

Previous contract non-fulfillment records prescribed in Chapter III - Evaluation and Qualification Criteria			
<input type="checkbox"/> No concluded contract without fulfillment from January 1, ___ [year] prescribed in criterion 1 in the Table of qualification criteria in Section 2.1 of Chapter III - Evaluation and Qualification Criteria.			
<input type="checkbox"/> At least one concluded contract without fulfillment from January 1, ___ [year] prescribed in criterion 1 in the Table of qualification criteria in Section 2.1 of Chapter III - Evaluation and Qualification Criteria.			
Year	Unfinished tasks in the contract	Description of contract	Total value of contract (current value, currency unit, exchange rate, equivalent value in VND)
		Description of contract Investor’s name: Address: Reasons for contract non-fulfillment:	

Notes:

(1) The Bidder shall declare accurately and truthfully history of contract non-fulfillment; any contract non-fulfillment being not declared shall be considered “fraudulent” and rejected.

Regarding consortium, each consortium’s member shall declare information using this Form.

Form No. 08

CONFIRMATION LETTER

Date:

To whom it may concern

We,

.....

[Name and address of company and country]

hereby confirm and commit that:

- 1. Within the last 03 years up to the deadline for submission of Bid, we do not have employee (signed labor contract with us at the time the employee committed the violation) convicted by the Court of violating the regulations on bidding that lead to serious consequences according to criminal law in order to let us win the bid.
- 2. We hereby commit to comply with the regulations regarding prohibited acts in bidding as stipulated in Point b, Clause 3, Article 16 of the Law on Bidding No. 22/2023/QH15, specifically: Arranging, agreeing to refuse to provide goods or services, not signing subcontracting contracts, or engaging in other agreements to limit competition so as to help one party to the win the bid.

Very truly yours,

Date and signature:

Name and title of the signatory:

Name of the company:

Seal/stamp of the company:

Note:

- 1. Documentary proving the eligibility and competence of signatory shall be enclosed.
- 2. Regarding consortium, each consortium’s member shall make this Form.

Form No. 09 FINANCIAL SITUATION OF BIDDER ⁽¹⁾

Bidder’s name: _____

Date: _____

Consortium’s member name (if any): _____

Financial Data for Previous ___ Years⁽²⁾		
Year 1:	Year 2:	Year n:

Information from Balance Sheet

Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			
Working Capital			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

Attached are copies of financial statements (balance sheets including all related notes, and income statements) for last years⁽³⁾, as indicated above, complying with the following conditions:

1. All such documents reflect the financial situation of the Bidder or consortium’s member, and not sister or parent companies.
2. Historic financial statements shall be completed, including all notes to the financial statements as prescribed.
3. Historic financial statements shall correspond to accounting periods already completed, attached are certified true copies of one of the following documents:
 - Inspection record of tax declaration;
 - Tax statement (VAT and enterprise income tax) whose time of submitting certified by tax authority;

- Documentary evidence on electronic tax declaration by the Bidder;
- Certification of tax liability issued by the tax authority (certifying amount paid in the whole year);
- Auditor's report (if any);
- Other documents.

Notes:

(1) Regarding consortium, each consortium's member shall declare information using this Form.

(2) The number of columns in the Table shall correspond to the period of time prescribed in criterion 3.2 Financial Qualification Criteria Section 2.1 Chapter III - Evaluation and Qualification Criteria.

(3) The period of time above shall correspond to the period of time prescribed in criterion 3.2 Financial Qualification Criteria Section 2.1 Chapter III - Evaluation and Qualification Criteria.

Form No. 10 AVERAGE ANNUAL TURNOVER ⁽¹⁾ FROM THE SUPPLY OF GOODS, AND CONSTRUCTION

Each Bidder or a consortium’s member shall fill in this form.

Information supplied should be the Annual Turnover of the Bidder or each consortium’s member in terms of the supply of goods, and construction for each year for contracts in progress or completed.

Annual Turnover Data for the Last ___ Years ⁽²⁾	
Year	Amount
Average Annual Turnover ⁽³⁾	

Notes:

- (1) Regarding consortium, each consortium’s member shall fill in this form.
- (2) Refer to the period of time prescribed in criterion 3.2 Financial Qualification Criteria Section 2.1 Chapter III - Evaluation and Qualification Criteria.
- (3) Average Annual Turnover shall be determined by dividing total turnover by number of years according to the information supplied.

Form No. 11**FINANCIAL RESOURCES ⁽¹⁾**

Specify proposed sources of financing, such as liquid assets, credit limit and other financial means (other than advance payments of the contract), available to meet the financial resources requirements prescribed in Form No. 12 [Monthly Financial Resources for Contracts in Progress] of this Chapter.

Financial Resources of Bidder		
No.	Source of financing	Amount
1		
2		
3		
4		
...		
Total financial resources of Bidder		

Notes:

(1) Every Bidder or consortium's partner shall provide information about their financial resources, enclosed with documentary evidence.

Expected financial resources shall be determined by the following formula:

$$\mathbf{PFR = TFR - MFR}$$

Where:

- PFR is the proposed financial resources to perform the contract (this package);
- TFR is total financial resources of the Bidder (specified in this form);
- MFR is total monthly financial resources required for contracts in progress (specified in Form No. 12).

A Bidder shall be considered responsive to financial resources requirements if Bidder's proposed financial resources (PFR) anticipatively used for this package are no less than the value of financial resources required and prescribed at criterion 3.3. Financial Qualification Criteria Section 2.1 of Chapter III - Evaluation and Qualification Criteria.

If the Bidder encloses a credit commitment issued by a credit institution lawfully operating in Vietnam in the Bid, which promises to lend to the commitment holder (the Bidder) to perform the considered package with minimum amount equivalent to the required value prescribed in criterion 3.3 Financial Qualification Criteria Section 2.1. Chapter III – Evaluation and Qualification Criteria during the contract duration, the Bidder shall be considered satisfying financial requirements for the package and not required to declare information using this Form and Form No. 12.

Form No. 12 MONTHLY FINANCIAL RESOURCES FOR CONTRACTS IN PROGRESS ⁽¹⁾

No.	Contract's name	Contact person of the relevant Owner (address, phone number, fax)	Finish date of contract	Number of remaining months of contract (A) ⁽²⁾	Unpaid contract value, including taxes (B) ⁽³⁾	Monthly financial resources required (B/A)
1						
2						
3						
4						
...						
Total monthly financial resources required for contracts in progress (DTH)						

Notes:

(1) Each Bidder or consortium's member shall provide information below to calculate all required financial resources, which is all value of: (i) current commitments of the Bidder (or each consortium's member) in all contracts being executed or to be executed; (ii) required financial resources of the to-be-considered contract by the Owner. In addition, the Bidder shall provide information about any other financial obligation likely substantially affecting the execution of the to-be-considered contract if the Bidder is awarded the contract.

(2) Number of remaining months of contract at 28 days prior to the deadline for submission of Bid.

(3) Unpaid value of contract at 28 days prior to the deadline for submission of Bid.

Form No. 13

SIMILAR CONTRACTS

Similar Contracts		
The Contract Agreement No. _____ dated _____	Information:	
Date of Award of Contract: _____	Finish date: _____	
Total Contract Price	_____	
For consortium’s member or subcontractor, insert its contribution in total contract price	Value as a percentage of total contract price	Amount: _____
Owner’s name: Address: Phone number/Fax: Email:		
Description of similar characteristics prescribed in criterion 4 similar contracts experience Criteria Section 2.1 of Chapter III - Evaluation and Qualification Criteria.		
Similar characteristics required	<i>Similar characteristics of completed contracts⁽¹⁾</i>	

Notes:

Bidder carefully studies Bidding Documents and proposes similar contracts to ensure that it meets the requirements of Bidding Document.

- (1) The Bidder shall specify similar characteristics of similar contracts to demonstrate their responsiveness.
- (2) In case of a Consortium, each member of Consortium shall declare according to this Form. In case Bidder has many similar contracts, each contract shall be declared according to this Form.
- (3) Bidder shall only declare the same contents as the requirements of the bidding package. In case the contract value is not calculated in VND, it shall be converted into VND at the exchange rate as prescribed in Section 2.1 of Chapter III as a basis for evaluation.
- (4) The Bidder must attach copies of relevant documents, including contract(s) and the corresponding documents that have been fully or substantially completed (such as the Taking Over Certificate, Acceptance Protocol, Calculation Table, Final Calculation Table, Liquidation Minutes, or equivalent documents signed by the Client(s)).

Form No. 14 TABLE OF PROPOSED PERSONNEL FOR KEY POSITIONS

Regarding every position prescribed in this Form, the Bidder shall declare detailed information according to Forms 15 and 16 of this Chapter.

Key personnel may be on the contractor's payroll or mobilized by the contractor. In case the key personnel (except for key personnel performing the consultancy work) proposed by the contractor in the Bid do not meet the requirements or fail to prove the ability to mobilize personnel (including cases where personnel have been mobilized for other contracts for a certain time working time coincides with the time of implementation of this bidding package), the procuring entity shall allow the contractor to supplement or replace. Contractors are only allowed to supplement and replace each personnel position once in an appropriate period of time but not less than 03 working days. In case the contractor does not have replacement personnel to meet the requirements of the Bidding Document, the contractor shall be disqualified

The Bidder shall propose personnel for key positions having qualifications satisfying requirements prescribed in Item 2.2.1, Section 2.2 of Chapter III - Evaluation and Qualification Criteria and be available to perform the package; no personnel being in charge of another package with the same working time is proposed in this Table. If the declaration is not truthful, the Bidder shall be considered fraudulent.

1	Position: <i>[insert detailed position in charge]</i>
	Name <i>[insert the employee's name for key position]</i>
2	Position: <i>[insert detailed position in charge]</i>
	Name <i>[insert the employee's name for key position]</i>
3	Position:
	Name
4	Position:
	Name
5	Position:
	Name
....	Position:
	Name

Form No. 15 CURRICULUM VITAE OF PERSONNEL FOR KEY POSITION

The Bidder shall provide adequate information required below and enclose certified true copies of relevant degrees and certificates.

Position		
Personnel information	Name	Date of birth:
	Professional qualifications	
Present work	Employer's name	
	Employer's address	
	Phone number:	Contact person (manager/personnel officer)
	Fax:	Email:
	Job title	Years with present employer

Form No. 16 PROFESSIONAL QUALIFICATIONS OF PERSONNEL

Summarize professional experience in reverse chronological order, and indicate particular technical and managerial experience relevant to the package.

From	To	Company/Project/Position/Relevant technical and management experience

Form No. 17 EQUIPMENT

The Bidder shall provide adequate information to demonstrate clearly that it has the capacity to meet the requirements for the major equipment listed in Item 2.2.2, Section 2.2 of Chapter III - Evaluation and Qualification Criteria and be available to perform the project. No equipment being proposed of another project with the same schedule is proposed in this Table. If the declaration is not truthful, the Bidder shall be considered fraudulent.

The equipment may be owned by the Bidder or rented provided that the Bidder shall demonstrate clearly that Bidder has the capability to meet the requirements of the package. If an item of equipment is rented, a lease of equipment and documents proving the ownership of the lessor are required. A separate Form shall be prepared for each item of equipment listed or for alternative equipment proposed by the Bidder.

In case the main construction equipment proposed by the contractor in the Bid does not meet the requirements of the Owner to allow the contractor to supplement or replace it. The contractor is only allowed to supplement and replace each equipment once in an appropriate period of time but not less than 03 working days. In case the contractor does not have replacement equipment to meet the requirements of the Bidding Document, the contractor shall be disqualified.

Item of equipment		
Equipment information	Name of manufacturer	Model
	Capacity	Year of manufacture
	Functions	Origin
Current status	Current location	
	Details of current using commitments	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Add the following information for the equipment not owned by the Bidder:

Owner	Name of Owner	
	Address of Owner	
	Telephone:	Contact name and title
	Fax:	Telex
Agreements	Details of rental/lease/manufacture agreements specific to the project	

Form No. 18 (a) WORK ITEMS PERFORMED BY SUBCONTRACTORS ⁽¹⁾

No.	Subcontractor's name⁽²⁾	Work items⁽³⁾	Quantity/ Volume⁽⁴⁾	Estimated value⁽⁵⁾	Contract/agreement concluded with subcontractor⁽⁶⁾
1					
2					
3					
4					
...					

Notes:

- (1) In case of employment of subcontractors, then fill in this form.
- (2) Indicate name of subcontractors. In case names of subcontractors are not determined, this column may be left blank and only the column “Work items” is filled. If the Bidder is selected, it may employ subcontractors with the work items as indicated in the table only with the consent of the Owner.
- (3) Indicate name of work items for subcontractors.
- (4) Indicate quantity/volume of work/items for subcontractors.
- (5) Indicate value of work/items performed by subcontractors as percentage of the Bid Price.
- (6) Indicate number of contract(s)/agreement(s); the Bidder shall submit the relevant original or certified true copy of such document(s).
- (7) The Owner reserve the right to change and/or replace any subcontractor/vendor if it is found that such subcontractor/vendor does not ensure credibility, quality and finally the list during Contract negotiation.

Form No. 18 (b)

LIST OF SPECIAL SUBCONTRACTORS ⁽¹⁾

NOT APPLICABLE.

Form No. 18 (c) OWNER/END USER'S CERTIFICATE

NOT APPLICABLE.

Form No. 18(d) CONFIRMATION LETTER OF BIDDER

Date:

To whom it may concern

We,

.....

[Name and address of company and country]

hereby confirm that we shall:

- [employ local contractors to carry out the works:
+ ...
+ ...
- *apply with all codes and standards as specified in Chapter V – Technical Requirement and Technical Specification .*
- *perform the obligations of warranty, maintenance, service, repair, supply of spare parts or provision of other after-sales services as required by Bidding Documents.]*

We understand that, during Contract performance, failure to comply with this confirmation letter shall cause forfeit the Performance Bond.

Very truly yours,

Date and signature:

Name and title of the signatory:

Name of the company:

Seal/stamp of the company:

Note:

Documentary proving the eligibility and competence of signatory shall be enclosed.

Form No. 18(e) CASH FLOW MANAGEMENT COMMITMENT LETTER

Date:

To whom it may concern

We,

.....

[Name and address of company and country- hereinafter referred to as the Bidder]

And

.....

[Name and address of bank and country, hereinafter referred to as the Bank]

In the event that the Bidder is awarded the contract for Package T21 “Supply of Equipment, Installation, Construction, Testing & Commissioning for Water Treatment Plant”, the Bank hereby undertakes to manage the cash flow of the advance payments and payments disbursed by the Owner to the Contractor for the performance of the package, through a Cash Flow Management Agreement to be executed among the Owner, the Contractor, and the Bank under the following principal conditions:

- The Contractor shall only receive advance payments and payments from the Owner through an account opened at [Name of the Bank, Bank Branch];
- The Bank shall manage and control the advance payments and payments made by the Owner to the Contractor, ensuring that such funds are used solely for the works of the package and for no other purposes;
- Any disbursement from the above account to service providers/subcontractors executing work related to the package must be confirmed by the Owner;
- The Cash Flow Management Agreement shall be effective from the date of signing (prior to receipt of any advance payment) until the Contractor has fully completed all work under the package and the parties have completed the final settlement of the contract, or until it is otherwise terminated in writing by the Owner.

We understand that, during the Contract Performance, any failure to comply with this confirmation letter shall result in the forfeiture of the Performance Bond.

Very truly yours,

Authorized representative of the Bank

[insert full name, title, signature, and official stamp]

Legal Representative of the Bidder

[insert full name, title, signature, and official stamp]

Note:

Documentary proving the eligibility and competence of signatory shall be enclosed.

FORM No. 19 (a) BIDDER'S PROPOSAL FOR GOODS

STT	Equipment (**)	Units	Quantity	Year of manufacture	Origin (country, region of production)	Manufacturer
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	River Water Transportation up to River Water Pre-Treatment System					
1.1	Raw Water Intake Pumps 10GAF10AP001, 10GAF10AP002, 10GAF10AP003, 10GAF10AP004	set	4			
1.2	Sluice Gates 10HSD10AT001 and 10HSD10AT002 at Sand Settling Basin	set	3			
1.3	Raw Water Forwarding Pump 10GAF20AP001, 10GAF20AP002, 10GAF20AP003, 10GAF20AP004	set	4			
1.4	Bar Screen 10GAA10AT001 & 10GAA10AT002 Raw Water Forwarding Chambers	set	2			
1.5	Sluice Gate 10HSD10AT001 at Raw Water Forwarding Chambers	set	2			
1.6	Control valve 10GAC10AA701 for raw water recirculation to Raw Water Intake Chamber	set	1			
1.7	Control Valve 10GAC20AA701 for raw water recirculation to Raw Water Forwarding Pump Sump	set	1			
1.8	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger	lot	1			

STT	Equipment (**)	Units	Quantity	Year of manufacture	Origin (country, region of production)	Manufacturer
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	& support, pipe clamps, sniper, and piping specialties,...) connecting Raw Water Intake Pumps and Sand Settling Basins					
1.9	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, sniper, and piping specialties,...) connecting Raw Water Forwarding Pumps and inlet of River Water Pre-treatment system	lot	1			
2	River Water Pre-treatment System (RWPT)					
2.1	Control Station	set	1			
2.2	Sludge Disposal Pumps 10GBS10AP001, 10GBS20AP001	set	2			
2.3	Drain Pump 10GMD01AP001	set	1			
2.4	Agitators of Slaking solution tanks (10GBQ41AM001 and 10GBQ42AM001)	set	2			
2.5	Agitators of Lime preparation tank (10GBQ43AM001 & 10GBQ44AM001)	set	2			
2.6	Sluice gates 10GDB10AT001/10GBK54AA001 & 10GDB10AT003 for inlet and outlet of compartment 1 and 10GDB10AT002/10GBK54AA002 & 10GDB10AT004 for inlet	set	4			

STT	Equipment (**)	Units	Quantity	Year of manufacture	Origin (country, region of production)	Manufacturer
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	and outlet of compartment 2 of Filtered Water Reservoir					
3	Desalination System by Reverse Osmosis (RO) Stage 1					
3.1	Ultra-filtration feed pumps 10GCB01AP001, 10GCB01AP002, 10GCB01AP003	set	3			
3.2	Remaining items of Ultrafiltration Skids: Connection and assembly material for two pieces of ultrafiltration block (4 sets)	set	4			
3.2	UF Permeate Storage Tank (11GCK01BB001)	set	1			
3.3	De-gasser towers 10GCC11AT001 and 10GCC12AT001 for CO2 removal	set	2			
3.4	Air fans for De-gasser towers 10GCC11AN001 and 10GCC12AN001	set	2			
3.5	Desalinated water for ion-exchange resin regeneration pumps 10GCP41AP001, 10GCP42AP001	set	2			
4	Fresh Water Transfer Pipeline and Potable Water System					
4.1	Fresh Water Transfer Pumps	set	2			
4.2	Control Valve 10GKD20AA701 for fresh water recirculation to Fresh Water Reservoir	set	2			

STT	Equipment (**)	Units	Quantity	Year of manufacture	Origin (country, region of production)	Manufacturer
(1)	(2)	(3)	(4)	(5)	(6)	(7)
4.3	Field Fabricated Potable Tanks 1x1000m ³	set	1			
5	Demineralization RO Stage 2 System					
5.1	RO Stage 2 Permeate Storage Tanks 10GCK08BB001 and 10GCK08BB002	set	2			
5.2	Field Fabricated DM Storage Tanks 2x2500m ³	set	2			
6	Electrical Equipment for Water Treatment Plant					
6.1	Motor Control Centre (MCC) 400V: - 10BFE54 & 10BFE64 for River Water Pre-treatment System (RWPT) - 10BFE55 & 10BFE65 for Desalination System by Reverse Osmosis Stage 1 - 10BFE52 & 10BFE62 for Demineralization RO Stage 2 System	lot	1			
6.2	Uninterrupted Power Supply System (UPS)	lot	1			
6.3	220V DC System include supply of 220V DC System	lot	1			
6.4	Cables, duct banks, cable trays and accessories	lot	1			
6.5	Illumination	lot	1			
6.6	Grounding	lot	1			
6.7	Lightning protection	lot	1			

STT	Equipment (**)	Units	Quantity	Year of manufacture	Origin (country, region of production)	Manufacturer
(1)	(2)	(3)	(4)	(5)	(6)	(7)
7	Control & Instrumentation for Water Treatment Plant					
7.1	Control & Instrumentation for River Water Pre-treatment System	lot	1			
7.2	Control & Instrumentation for Desalination & Demineralization RO	lot	1			
8	Other equipment					
8.1	Hoists and Cranes under package	lot	1			
8.2	HVAC	lot	1			
8.3	Other items/materials/equipment not specified but needed for completion of system	lot	1			

Notes:

- Column (5), (6), (7): to be filled in by Bidder.

For example, the contractor declares in this Form the symbol "according to the technical proposal"; trademark: "according to Bid", origin: "according to technical proposal"... then the contractor's Bid shall not be considered and evaluated.

- The contractor's proposal in this Form shall be extracted into Form No. 20.

FORM No. 19 (b) TECHNICAL DATA SHEET

It's not intent to list out all scope of work and technical requirements in this section. In any cases, the bidder shall comply with specification as stipulated in Chapter V or agreement in Contract in later stage.

The following technical datasheet shall be proposed by bidder during tendering phase for Owner to evaluate bidder's proposal. In this section:

- (*) mean **Obligated** to be provided by Bidder so that Owner can assess the compliance of Bidder's proposal vs **Owner's Requirements**.

- For information not marking (*), Bidder shall provide the information (if available).

- For another information not declared in this section and No deviations submitted/proposed by Bidder during bidding/tendering phase, it's understood that the bidder shall fully comply with specification stipulated in Chapter V.

In case the information provided by Bidder deviate from Specification in Chapter V, they must clearly highlight these deviations in a separate Deviation Sheet, referencing the relevant clause.

1. Mechanical Equipment

1.1 Raw Water Intake Pumps

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
1	Type	Vertical wet pit, centrifugal, self-lubricated, single stage, above floor discharge, Mixed Flow, Non-overloading Type		(*)
2	Number	Four (4) with following KKS: 10GAF10AP001 10GAF10AP002 10GAF10AP003 10GAF10AP004		(*)
3	Fluid Flowing	Suitable for Sea Water		(*)
4	Rated Capacity (m ³ /h)	510		(*)
5	Pump Total Dynamic Head at rated capacity at Minimum Water Level (mWC)	30		(*)
6	Performance Standard	Hydraulic Institute, USA		
7	Pump Speed	1500 RPM		
8	Material construction of	- Impeller: Duplex Stainless steel /suitable for sea water		

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
		- Shaft: ASTM A473 Gr. 410 (13% Cr.Hardened)/suitable for sea water - Shaft Sleeve: AISI-410 (Hardened)/suitable for sea water - Suction Bell: Duplex Stainless steel /suitable for sea water - Pump Column Pipe: Duplex Stainless steel /suitable for sea water		

1.2 Raw Water Forwarding Pumps

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
1	Type	Vertical wet pit, centrifugal, self-lubricated, single stage, above floor discharge, Mixed Flow, Non-overloading Type		(*)
2	Number	Four (4) with following KKS: 10GAF20AP001 10GAF20AP002 10GAF20AP003 10GAF20AP004		(*)
3	Fluid Flowing	Suitable for Sea Water		(*)
4	Rated Capacity (m ³ /h)	510		
5	Pump Total Dynamic Head at rated capacity at Minimum Water Level (mWC)	35		
6	Performance Standard	Hydraulic Institute, USA		
7	Pump Speed	1500 RPM		
8	Material construction of	- Impeller: Duplex Stainless steel /suitable for sea water - Shaft: ASTM A473 Gr. 410 (13% Cr.Hardened)/suitable for sea water		

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
		- Shaft Sleeve: AISI-410 (Hardened)/suitable for sea water - Suction Bell: Duplex Stainless steel /suitable for sea water - Pump Column Pipe: Duplex Stainless steel /suitable for sea water		

1.3 Sluice Gate at Raw Water Forwarding Pump House

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
1	Size of Gate Opening (Width x Depth)	0,5mx0,5m of Non rising Spindle		
2	Number required	One (1)		(*)
3	Fluid Flowing	Suitable for Sea Water		(*)
4	Flow	510m ³ /h		(*)
5	Design & Testing Code	AWWA C561		(*)
6	Leakage Rate & Performance Guarantee	Leakage rate shall be less than 0.2lps/meter		(*)
7	Shape of Waterway	Square		
8	Water Sealing	Water Sealing/leakage protection required for both side of the sluice gate		
9	Maximum differential design water head	6,1m		
10	Method of lifting/Lowering	Hand Wheel		
11	Material of Construction a) Frame b) Guide c) Hand Wheel d) Stem e) Wedge f) Drive Sleep	SS316L/Compatible for Sea Water		

1.4 Sluice Gate at Sand Settling Basin

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
1	Size of Gate Opening (Width x Depth)	0,75mx0,75m, Non rising Spindle		
2	Number required	Two (2)		(*)
3	Fluid Flowing	Suitable for Sea Water		(*)
4	Flow	510m ³ /h		(*)
5	Design & Testing Code	AWWA C561		(*)
6	Leakage Rate & Performance Guarantee	Leakage rate shall be less than 0.2lps/meter		(*)
7	Shape of Waterway	Square		
8	Water Sealing	Water Sealing/leakage protection required for both side of the sluice gate		
9	Maximum differential design water head	6,1m		
10	Method of lifting/Lowering	Hand Wheel		
11	Material of Construction a) Frame b) Guide c) Hand Wheel d) Stem e) Wedge f) Drive Sleep	SS316L/Compatible for Sea Water		

1.5 Bar Screen at Raw Water Forwarding Pump House

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
1	Effective Size of Screen (Width x Depth)	2,3mx6,1m		(*)
2	Number required	Two (2)		(*)
3	Flow	Suitable for Sea Water		(*)
4	a) Rated throughput (m ³ /hr)	a) 510m ³ /h b) 625m ³ /h		(*)

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
	b) Max. throughput (m ³ /hr)			
5	Screen Panel Inclination	10° from vertical plane		
6	Differential head during normal operation (clean condition)	10mm (max)		
7	Design differential head	1m		
8	Method of lifting/Lowering	Hoist to be supplied also by Bidder		
9	Material of Construction a) Screen Frame, Clamping Flats b) Wire c) Fasteners d) Screen segments e) Rake arm, rake shelf, apron, discharge chute, wiper assembly and pin rack f) Bar rack and dead plate g) Side frames and guides	SS316L/Compatible for Sea Water		
10	Guide frame	1 set per screen with full height from sump bottom to finished floor level		

1.6 Fresh Water Transfer Pumps

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
1	Type	Horizontal, Centrifugal (Liquid Ring Rotary) with self-lubricated and using bearing of Oil ring/Anti-friction type		(*)
2	Number	Two (2) with following KKS: 10GDK20AP001 10GDK20AP002		(*)

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
3	Fluid Flowing	Suitable for Fresh Water (Desalinated Water)		
4	Rated Capacity (m ³ /h)	65		
5	Pump Total Dynamic Head at rated capacity at Minimum Water Level (mWC)	60		
6	Performance Standard	Hydraulic Institute, USA		
7	Pump Speed	1500 RPM		
8	Material of construction	- Impeller: Stainless steel 316 or equivalent - Shaft: Stainless steel 316 or equivalent - Casing: Stainless steel 316 or equivalent - Wearing Ring: Stainless steel 316 or equivalent		

1.7 DM Water Storage Tank

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
1	Type	Vertical, Cylindrial & Cone roof		(*)
2	Type of fluid to handled	DM Water		(*)
3	Quantity	Two (2)		(*)
4	Effective Capacity	2500 m ³		(*)
5	Size (mm)	ID14.000, Height 17.000 ID to be complied and Height depends on Bidder's calculation to meet capacity requirement		(*)
6	Design Pressure, Kg/cm ² .g	Atmospheric		
7	Design Temperature, °C	50		

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
8	Design Code	AWWA D100/API 650		
9	Material of Construction a) Shell b) Roof and Bottom c) Flanges d) Nozzle neck	Shall be as follows a) ASTM 283 Gr C b) ASTM 283 Gr C a) ASTM A105 d) ASTM A53 Gr B		
10	Corrosion Allowance (min) in mm	1,5		
11	CO2 Absorber and Seal pot	Yes		
12	Manhole	One (1) on shell and one (1) on roof – Each of minimum 600 mm NB		
13	Testing and Inspection	Shall be in line with Specification/approved field quality plans and relevant codes/standard		
14	Nozzle orientation and arrangement	Please see tentative drawing LP1-PCC1-10GHC-B-B01-DOR-9911 for adaption		
15	Sketch drawing for Tanks	Please see tentative drawing LP1-PCC1-10GHC-B-B01-DGA-9911 for adaption		
16	Spherical Staircase	Yes		

1.8 Potable Water Storage Tank

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
1	Type	Vertical, Cylindrial & Cone roof		(*)
2	Type of fluid to handled	Potable Water		(*)
3	Quantity	One (1)		(*)
4	Effective Capacity	1000 m ³		(*)
5	Size (mm)	ID12.000, Height 10.000 ID to be complied and Height depends on Bidder's		(*)

No.	Item	Owner's Requirements	Bidder's proposal	Remarks
		calculation to meet capacity requirement		
6	Design Pressure, Kg/cm ² .g	Atmospheric		
7	Design Temperature, °C	50		
8	Design Code	AWWA D100/API 650		
9	Material of Construction a) Shell b) Roof and Bottom c) Flanges d) Nozzle neck	Shall be as follows a) ASTM 283 Gr C b) ASTM 283 Gr C a) ASTM A105 d) ASTM A53 Gr B		
10	Corrosion Allowance (min) in mm	1,5		
11	CO2 Absorber and Seal pot	No		
12	Manhole	One (1) on shell and one (1) on roof – Each of minimum 600 mm NB		
13	Testing and Inspection	Shall be in line with Specification/approved field quality plans and relevant codes/standard		
14	Nozzle orientation and arrangement	Please see tentative drawing LP1-PCC1-10GKB-M-B01-DOR-9912 for adaption		
15	Sketch drawing for Tanks	Please see tentative drawing LP1-PCC1-10GKB-M-B01-DGA-9912 for adaption		
16	Spherical Staircase	Yes		

2. Electrical, IC Equipment, Construction Item and O&M

No.	Requirements	Bidder's proposal	Remark
I.	Electrical Equipment		

No.	Requirements	Bidder's proposal	Remark
1	Main diagrams of the electrical power systems include single line diagram for the electrical system		
2	MV and LV electrical room layout and battery room layout.		
3	Lists and specifications of electrical equipment.		
4	List of equipment requiring UPS and emergency diesel power.		
5	Specification for DC systems, UPS.		
6	Specification of installations and field equipment.		
7	Specification of grounding and lightning protection.		
8	System description and interface data for the plant connections		
II	I&C Equipment		
1	Descriptions of all control, protection and supervisory systems and other I&C equipment.		
2	System architecture diagram, presenting partitions to subsystems and all internal and external communication.		
3	Principle diagram of electric distribution for control systems.		
4	Technical specification of DCS/PLC and other systems.		
5	Control room layout proposal, with a device list and description of the functions of the devices.		
6	Approximate no. of I/O's of different type /DCS/PLC or another subsystem.		
7	Tentative list of control valves, motors, on/off-actuators etc. controlled by DCS/PLC or other subsystems.		
8	Tentative lists of transmitters, analyzers and other I&C equipment to be connected to the DCS/PLC or other subsystems.		

No.	Requirements	Bidder's proposal	Remark
9	List of field equipment types offered.		
10	Specifications for cabling.		
11	List of documentation to be provided with examples of the documents		
III	Construction		
1	List and specifications for buildings including room arrangements, frames, floors, roofs, walls, sanitary equipment, windows, etc.		
2	Specifications for earthing works.		
3	Specifications for foundations including structures foundations.		
4	Description of anticipated foundation system.		
5	Specification for HVAC and building electrification.		
6	Specifications for drainage and sewage arrangement		
IV	Operation and maintance		
1	Mandatory Spare part and Special tools list and recommend Spare part list.		
2	Recommendation on the organization of O&M personnel including total staffing by section.		
3	Training program for O&M personnel.		
4	Information on Bidder's and sub-suppliers' Defects Notification Period services, technical support and availability of spare parts.		
5	Arrangement of drawings of the proposed layout and a description of how major maintenance activities shall be facilitated by the layout		

FORM NO. 19 (c)

LIST OF SPARE PARTS AND SPECIAL TOOLS

1. Start-up and commissioning Spare Parts including consumables

No.	Description of spares (Brand name and Model)	Spare Part Serial Number	Country of origin	Quantity Required per Unit 1	Quantity Required per Unit 2	Price (USD) (VAT excluded, all other taxes and duties included)	VAT other countries (USD) (if any)	Total cost (USD) (VAT, all taxes and duties included)	Remark

2. Mandatory spare list offer

No.	Description of spares (Brand name and Model)	Spare Part Serial Number	Country of origin	Quantity Required per Unit 1	Quantity Required per Unit 2	Price (USD) (VAT excluded, all other taxes and duties included)	VAT other countries (USD) (if any)	Total cost (USD) (VAT, all taxes and duties included)	Remark

3. Recommended spare list offer (For 2 Years)

No.	Description of spares (Brand name and Model)	Spare Part Serial Number	Country of origin	Quantity Required per Unit 1	Quantity Required per Unit 2	Price (USD) (VAT excluded, all other taxes and duties included)	VAT other countries (USD) (if any)	Total cost (USD) (VAT, all taxes and duties included)	Remark

FORM NO. 19 (d) PROJECT MANAGEMENT ORGANISATION

Bidder shall attach to this form a project management concept including the project management structure and organisation which shall be capable of undertaking the project on a turnkey basis. Full details regarding proposed management structures incl. engineering, time, cost, procurement, resource, construction, commissioning, and life cycle management should be provided in the Tender, including the CVs of the key personnel.

The Bidder shall submit an organization chart for its Project Management Organization and identify and provide CVs for the Key Personnel as below in their proposal that conform to the requirements in the bid.

- 1) Project Manager.
- 2) Engineering Manager.
- 3) Procurement Manager.
- 4) Health & Safety Manager.
- 5) Environmental and Social Manager.
- 6) Quality Assurance Manager.
- 7) Site Manager.
- 8) Commissioning Manager.
- 9) Planning and Control Manager.

If the Bidder is unable to provide Key Personnel with sufficient experience to implement the project according to international Contract management principles, the Bidder shall propose to hire an internationally experienced Project Management Consultant.

In addition, the Bidder shall outline the following concepts:

- Cost control
- Scheduling and progress control
- Procurement, including manufacturing control, inspection and testing
- Site management
- Commissioning management
- Defects notification services

FORM NO. 19 (e) CONSTRUCTION PLAN

Bidders shall submit its Construction Plan to include the following:

- 1) Mobilisation plan
- 2) Logistics plan (fuel, power, water, communications, accommodation, supplies, etc.)
- 3) Laydown area proposal including location and requirements by schedule
- 4) Health and safety concept
- 5) Transportation and storage concept
- 6) Description of site services during construction
- 7) Estimated project staffing and labours during construction on a monthly basis.
- 8) Accommodation concept for staff and labour during project construction.

FORM NO. 19 (f)**PROJECT SCHEDULE**

Bidders shall submit its overall Project Programme (time schedule) of no more than **330** days overall indicating main targets and key dates, phases and dependencies including engineering, procurement, fabrication, delivery, erection, commissioning and testing to meet the required completion date for the Water Treatment Plant according to the time for completion shown in the Bid Data Sheet.

As a minimum, the following breakdown shall be provided in the bar chart:

- 1) Commencement date;
- 2) Engineering and design;
- 3) Procurement/manufacturing time of long lead items;
- 4) Site mobilization;
- 5) Site preparation;
- 6) Major foundations (additional breakdown required);
- 7) Major structures (additional breakdown required);
- 8) Systems erection (additional breakdown required);
- 9) Commissioning and testing (additional breakdown required);
- 10) Provisional readiness;
- 11) Taking over.

The schedule shall further show all dates when the Bidder requires interfaces with those of Owner.

The Project Schedule shall be negotiated and included as part of the Contract.

FORM NO. 19 (g)

QUALITY ASSURANCE DOCUMENTS

The bidder shall submit the following other additional information:

- 1) Quality policy and quality assurance system of the bidder;
- 2) Tentative quality assurance plan for the project including inspections and testing.

FORM NO. 19 (h) HEALTH, SAFETY, ENVIRONMENTAL, AND SOCIAL DOCUMENTS

Bidder shall submit its health, safety and environmental management system (HSE) document, including but not limited to:

- Environmental policy (covering site drainage, air and water pollution, chemicals substances and waste/hazardous waste management, and other environmental issues as identified in the project's HSE);
- Health and safety policy;
- Occupational health and safety management plan;
- Environmental management plan;
- Community safety management plan;
- Security management plan;
- Construction safety management process;
- Environmental and occupational health and safety monitoring process;
- Incident/accident investigation process;
- HSE training process;
- Grievance redress mechanism.

The Bidder's HSE document must satisfy and get along with the project's requirements and not conflict with the relevant Vietnamese regulations.

The Contractor shall develop and submit its HSE to the Owner for approval no later than 30 days after the commencement date. The Contractor shall operate, maintain, and update (if necessary) its HSE during the project's implementation. The requirement on HSE of the Contractor is also applied to the subcontractor and the third parties involved in.

FORM NO. 20 PRICE SCHEDULES - SUMMARY

Project:

Package:

No	Price Schedule	Amount		Note
		Local Currency	Foreign Currency	
I	Total value of works (Total value 1.1+1.2+2+3+4) before Taxes			
1.1	Price Schedule No 1.1: Cost of Local Goods.			
1.2	Price Schedule No 1.2: Cost of Imported Goods.			
2	Price Schedule No 2: Cost of Installation			
3	Price Schedule No 3: Cost of Construction			
4	Price Schedule No 4: Cost of Services			
II	Total of Taxes			
5	Corporate income tax (CIT)			
6	Value Added Tax (VAT)			
7	Other taxes, fees and charges			
III	Total of offer Price include taxes and related costs (I + II)			

Note.

- The detailed price list of bid prices (Price Schedule No. 1.1, 1.2, 2, 3, 4) have been fully prepared and completed in accordance with Form No. 20 and Form No. A1.
- The total bid price submitted by the Bidder must include all taxes, fees, charges, and contingency costs, which shall be appropriately allocated within the bid price. The bid price is a lump-sum, fixed price and shall remain unchanged throughout the contract implementation period.
- In addition, the Bidder shall provide a detailed breakdown of the bid price, inclusive of taxes, fees, charges, and contingency costs, for both the base portion and the optional portion of the works, in accordance with Form 20A below.

FORM NO. 20A PRICE SCHEDULES – EACH PORTION

No	Price Schedule	USD	VND	Note
1	Price schedule for the BASE PORTION			Refer to Price Schedule No. 1.1, No. 1.2 , No. 2, No. 3 and No. 4;
2	Price schedule for the OPTIONAL PORTION			Refer to Price Schedule No. 1.1 [Cost of local goods] and Table 1.2 [Cost of import goods]
3	Total			

PRICE SCHEDULE NO. 1.1: COST OF LOCAL GOODS

No	Description	Unit	Quantity	Amount (VND)	
				Price without Taxes	Total without Taxes
....	(1)	(2)	(3)	(4)	(5)
A	The BASE PORTION				
				
				
B	The OPTIONAL PORTION				
				
				
I	Total (without Taxes)				
II	Taxes				
				
				
III	Total (include Taxes)				

PRICE SCHEDULE NO. 1.2: COST OF IMPORTED GOODS (USD)

No	Description	Unit	Quantity	Price without Taxes	Import Taxes	VAT taxes	Other taxes (if any)	Price include Taxes	Amount
....	(1)	(2)	(3)	(4)	(5)	(6)		(7)	(8)
A	The BASE PORTION								
								
								
B	The OPTIONAL PORTION								
								
								
	Total								

Note: The price of goods quoted by the Bidder shall be understood as the CIF (Cost, Insurance and Freight) price in accordance with Incoterms 2010, which includes the cost of goods, insurance, and freight to the port of discharge in Vietnam.

PRICE SCHEDULE NO. 2: COST OF INSTALLATION

No	Description	Unit	Quantity	Amount (VND)	
				Price without Taxes	Total without Taxes
....	(1)	(2)	(3)	(4)	(5)
I	Total (Without Taxes)				
II	Taxes				
				
				
III	Total (Include Taxes)				

PRICE SCHEDULE NO. 3: COST OF CONSTRUCTION

No	Description	Unit	Quantity	Amount (VND)	
				Price without Taxes	Total without Taxes
....	(1)	(2)	(3)	(4)	(5)
I	Total (Without Taxes)				
II	Taxes				
				
				
III	Total (Include Taxes)				

PRICE SCHEDULE NO. 4: COST OF SERVICES

No	Description	Unit	Quantity	Amount (VND)		Amount (USD)	
				Price without Taxes	Total without Taxes	Price without Taxes	Total without Taxes
....	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	<i>Customs clearance and local transportation</i>						
2	<i>Technical services</i>						
						
I	Total (without Taxes)						
II	Taxes						
						
						
III	Total (include Taxes)						

Notes:

- The value of each unit price will be stated in Summary of Bid Price in Form No. 20.*
- For columns (1), (2), and (3) of the Price Schedule Tables (from Price Schedule Table No 1.1 to Price Schedule Table 5, the Bidder must extract data from Form No. A1 of the Bidding Documents, to quote the corresponding price for each work item/task.*
- Customs clearance and local transportation cover both the base portion and the optional portion of the equipment.*

The following instructions are mandatory requirements in the Bidding Documents:

- *Bidders are required to thoroughly review: (i) The actual conditions for design, supply, construction, and installation provided by the Owners, (ii) Technical design documents and technical requirements and survey of the current status of the Project, the supply of materials and equipment on the market, and the sources of construction materials. This is to accurately re-evaluate the items and volume of work, including all parts of the work or volume that Bidder anticipates will be required to complete the Project, and to quote a total price for the bid package.*
- *The elements constituting the Bid Price include, but are not limited to, the following cost items: direct costs of materials, labor, machinery and equipment, field testing, other direct costs; general costs and Bidder's profit; fees; insurance premiums that Bidder must purchase; customs clearance costs; transportation of machinery, materials, and equipment to the construction site; other construction-related costs allocated in the Bid Price, such as temporary and auxiliary works (e.g., yards, worker housing, warehouses, construction electricity and water, etc.); costs for obtaining various types of guarantees as required by the Bidding Documents; insurance costs, including compensation for repair of existing roads used by the Bidder's vehicles and equipment to transport materials; environmental protection costs for impacts caused by Bidder; warranty costs; costs for permanent or temporary rental of a staging area to dump excess sand (if any), which must be accompanied by a written agreement from the local authorities; and costs for loading, unloading, transporting, dumping, and leveling all excess sand from the Project to the staging area; compensation costs if the current elevation is lower than the design elevation (if any); costs for reinforcing or relocating existing infrastructure works of the Investor within the project site; costs for ensuring site security and safety; other costs necessary to perform the work within the scope of the bid package; and contingency costs for unforeseen risks related to volume and price fluctuations during the contract performance period.*
- *Bidder must provide the unit price and total amount corresponding to each work item stated in the Detailed Bidding Price. If Bidder does not provide a unit price and total amount for a specific work item, the cost for that item will be considered as included in the unit prices and total amounts of other items. However, the provisions on error correction and deviation adjustment must still be observed during the bidding process.*
- *The quantities given in the Bidding Price Details Table are based on Bill of Quantities specified in Form No. A1 of Chapter IV of the Bidding Documents. If the Bidder finds that the quantity listed in the Bill of Quantities differs from that in the approved technical design documents, the Bidder is responsible for notifying the Owners and preparing a separate quotation for the discrepant quantity for the Owner's consideration. This difference must not be included in the bid price.*
- *For any work items or volumes that Bidder anticipates will be required but are not included in the Bill of Quantities or are different from the quantities listed (either increased or decreased), Bidder must notify the Bidder Solicitor and prepare a separate quotation for the difference. These differences should not be included in this form so that the two parties can negotiate during the contract negotiation process.*
- *Regarding import tax: According to current Vietnamese law, imported materials and equipment used to create fixed assets for the Long Phu 1 Thermal Power Plant Project are exempt from import tax. To make the most of this tax exemption, Bidder is responsible for studying current regulations, the list of imported goods, and the list of goods that can be produced domestically. Bidder must propose a list of goods for import*

so that the Owner can register this list with customs and apply it during contract implementation. If the Bidder chooses to import materials or equipment that can be produced domestically, all associated taxes are considered included in the bid price and will be borne by the Bidder.

- The Owner shall authorize the Bidder to handle all procedures related to the importation process—including but not limited to customs declaration and import tax payment—for the clearance of imported goods, in accordance with applicable legal regulations. The Bidder shall be responsible for paying all applicable taxes and any additional taxes (if any), providing explanations to inspection and audit authorities, and fully implementing the findings or conclusions resulting from such inspections and audits, insofar as they relate to goods imported within the Bidder's scope of work. All costs for the above responsibilities are considered included in the Bidder's bid price.*
- The Bid Price is a lump sum price, inclusive of value-added tax (VAT) and all applicable taxes, duties, levies, fees, charges, and other financial obligations (if any), both within and outside the territory of Vietnam, that the Bidder shall bear for the full completion of the Works as specified in Chapter V, except for import duties on goods, materials, equipment, and the corresponding VAT that are exempted under the prevailing laws or applicable tax incentives granted to the Project. In case such exemptions are not granted, the Bidder shall remain responsible for paying such taxes, and they shall be deemed included in the Bid Price.*

FORM NO. 20B PRICE SCHEDULES – ADDITIONAL PORTION

The Bidder shall quote prices for the items listed below. However, these unit prices shall not be included in the bid price, shall not be used for evaluation, and will be considered by the Owner at a later stage.

20B.1. MATERIALS IDENTIFIED FOR POTENTIAL REPLACEMENT DUE TO LONG-TERM STORAGE AT SITE

No	Description of Consumables	Unit	Quantity	Price without Taxes	Import Taxes	VAT taxes	Other taxes (if any)	Price include Taxes	Amount
....	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Membranes Ultrafiltration Skid	pcs	72						
2	Filter cartriges for RO 1°	pcs	76						
3	Membranes RO 1°	pcs	250						
4	Membranes RO 2°	pcs	125						
5	Ionex mass for ion exchange filter	bags	640						
6	Activated Carbon	bags	760						
7	CEDI Modules model VNX55-EP2	pcs	10						
	Total								

Note:

The unit price of consumables is the total cost required for manufacturing, fabrication, and transportation of the goods to the project site, including but not limited to the cost of materials, labor, packaging, domestic and international transportation, insurance, taxes and related fees (if any), excluding any import duties exempted by law and the corresponding value-added tax (VAT) on such consumables, as well as any other costs necessary to ensure the consumables are delivered to the site in compliance with the quality, schedule, and requirements specified in the Bidding Documents and the Contract.

20B.2 SOLUTION TO ENHANCE CAPABILITY OF WATER TREATMENT PLANT WHEN SALINITY OF HAU RIVER EXCEEDS DESIGN LEVEL

No	Description of optional solution to enhance capability of Water Treatment System	Unit	Quantity	Price without Taxes	Total without Taxes
1	For example (inscrease capacity of storage tanks)	lot	1		
2	For example (additional RO system and auxiliary)	lot	1		
3	For example (Cathodic Protection)	lot	1		
4	For example (Salinity online monitoring station)	lot	1		
5	For example (advanced technology to keep salinity of Hau river as design)	lot	1		
6	1		
I	Total (Without Taxes)				
II	Taxes				
				
				
III	Total (Include Taxes)				

FORM NO. 21 SUMMARY TABLE OF CURRENCY REQUIREMENTS

Work/Expense: *(fill in the task or type of expense)*

Currency Type	Amount
Local Currency (VND): _____	
United state dollars (USD): _____	

Form No. 22 DOMESTIC COSTS ELIGIBLE FOR INCENTIVES ⁽¹⁾

No.	DESCRIPTION	AMOUNT
I	PROCUREMENT	
1	Name of item No. 01	
	Bid Price	(I)
	Expenditures on imported equipment/material (<i>Imported Cost Portion</i>)	(II)
	Other outward expenditures (<i>if any</i>)	(III)
	Taxes	(IV)
	Domestic Cost	$P(G1) = (I) - (II) - (III) - (IV)$
2	Name of item No. 02	
	Bid Price	(I)
	Expenditures on imported equipment/material (<i>Imported Cost Portion</i>)	(II)
	Other outward expenditures (<i>if any</i>)	(III)
	Taxes	(IV)
	Domestic Cost	$P(G2) = (I) - (II) - (III) - (IV)$
	...	
n	Name of item No. N	
	Bid Price	(I)
	Expenditures on imported equipment/material (<i>Imported Cost Portion</i>)	(II)
	Other outward expenditures (<i>if any</i>)	(III)
	Taxes	(IV)
	Domestic Cost	$P(GN) = (I) - (II) - (III) - (IV)$
	Sub-Total – Procurement Domestic Cost	$P(G) = P(G1) + P(G2) + \dots + P(GN)$
II	SERVICES COSTS	
1	Name of item No. 01	
	Bid Price	(I)

No.	DESCRIPTION	AMOUNT
	Expenditures on imported equipment/material (<i>Imported Cost Portion</i>)	(II)
	Other outward expenditures (<i>if any</i>)	(III)
	Taxes	(IV)
	Domestic Cost	$C(G1) = (I) - (II) - (III) - (IV)$
2	Name of item No. 02	
	Bid Price	(I)
	Expenditures on imported equipment/material (<i>Imported Cost Portion</i>)	(II)
	Other outward expenditures (<i>if any</i>)	(III)
	Taxes	(IV)
	Domestic Cost	$C(G2) = (I) - (II) - (III) - (IV)$
	...	
n	Name of item No. N	
	Bid Price	(I)
	Expenditures on imported equipment/material (<i>Imported Cost Portion</i>)	(II)
	Other outward expenditures (<i>if any</i>)	(III)
	Taxes	(IV)
	Domestic Cost	$C(GN) = (I) - (II) - (III) - (IV)$
	<i>Sub-Total – Construction Domestic Cost</i>	$C(G) = C(G1) + C(G2) + \dots + C(GN)$
IV	TOTAL DOMESTIC COST	$G = E(G) + NC(G) + P(G) + C(G)$

Note:

(1) In case the goods are not eligible for incentives, Bidder shall not declare this Form.

Form No. 23 TECHNICAL DEVIATION DECLARATION FORM

Bidder is requested to carefully study the Bidding Document and declare technical deviations (if any):

Deviation No.	Reference to Bidding Document		Deviations
	Clause, page	Description in Bidding Document	
Technical Deviations			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
...			

Form No. 24 COMMERCIAL DEVIATION DECLARATION FORM

Bidder is requested to carefully study the Bidding Document and declare commercial/financial deviations (if any):

Deviation No.	Reference to Bidding Document		Deviations
	Clause, page	Description in Bidding Document	
Commercial/Financial Deviations			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
<i>[To be inserted]</i>			
...			

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PART 2. TECHNICAL REQUIREMENTS AND SPECIFICATIONS

Chapter V. TECHNICAL REQUIREMENTS AND SPECIFICATIONS

I. INTRODUCTION OF PROJECT

1. Project overview

Long Phu 1 Thermal Power Plant is located in the Long Phu Power Center with a total capacity of 4,400MW approved by the Ministry of Industry and Trade in Decision No. 1233/QĐ-BCT dated October 23, 2007. Long Phu 1 Thermal Power Plant consists of 2 units, with a capacity of 1200MW (2x600MW) with total estimated land area of 115 hectares, located at Thanh Duc Hamlet, Dai Ngai Commune, Can Tho city, Viet Nam.

Previously, the project was implemented in the form of EPC contract, namely EPC Contract No. 9488/HĐ-DKVN dated 27th December, 2013 and its Amendment No. 9226/HĐ-DKVN, signed on 30th December, 2014 between PVN and the Consortium of Power Machines (Russian Contractor) - PetroVietnam Technical Services Corporation (PTSC). The Kuljian Corporation (TKC) was a subcontractor of PM responsible as a general designer for detailed design, engineering interface, and procurement management.

2. Time Schedule of Project

- Commercial operation of unit 1: Quarter III/2027;
- Commercial operation of unit 2: Quarter IV/2027.

3. Existing infrastructure

The Owner has invested in and constructed essential infrastructure to support the project's construction activities, including:

- A temporary water supply system for construction;
- A temporary power supply system for construction;
- A temporary drainage system for construction;
- An Equipment Import Wharf located on the Hau River to facilitate the maritime transportation of equipment to the construction site;
- A temporary traffic system for construction, comprising the main access road connecting the site to Nam Song Hau National Road, the internal road system within the site, and the access road to the Equipment Import Wharf.

These facilities are currently well-maintained and operating stably, effectively supporting the ongoing construction activities of the project

4. Introduction of Package

a. Name of the package

- Package name: *“Supply of Equipment, Installation, Construction, Testing & Commissioning for Water Treatment Plant”*;
- Capital sources: Owner’s Equity;
- Forms of selection of Bidders: International competitive Bidding, offline selection;
- Method of selection of bidders: Single-stage one-envelope bidding procedure;
- Contract type: Lump-sum Contract;
- Time of contract performance: 330 days

b. Status of package

In 2014, Petrovietnam signed an EPC contract with a consortium of Power Machines (Russia) and PTSC (Vietnam) for a 2×600MW coal-fired power plant in Soc

Trang Province (now Can Tho city). Power Machines led the consortium with responsibilities for engineering, procurement, and commissioning supervision, while PTSC was responsible for site construction, installation and erection.

By early 2018, U.S. sanctions were imposed on Power Machines, resulting in their unilateral contract termination in early 2019. The Water Treatment Plant portion had been subcontracted to VCL Watertech (formerly Wabag Bro) for engineering and procurement, and to TKC for civil design. Subcontracts between VCL Watertech and PM are still valid..

Since the project stopped on 28 January 2019, only equipment preservation and maintenance have been carried out. With the project’s anticipated restart, the Owner is seeking a new qualified contractor to complete the engineering, procurement, and construction of the remaining Water Treatment Plant scope as defined in the current specifications.

This section is not intended to provide an exhaustive list of all items within the Water Treatment Plant. Any items not included in the tables below are to be understood as not yet performed and to be performed by Bidder. The current progress regarding design, equipment supply, construction, and on-site installation at the WTP is listed as follows:

➤ **Input River Water Data**

All components of the existing Water Treatment Plant (WTP) design are based on historical river water quality data. The reference input parameters used during the original design stage (with Chloride Cl⁻ content at 2000mg/L) are detailed in the table below.

The Bidder is advised to carefully review this baseline dataset and compare it with updated monitoring data to assess the relevance and adequacy of the current design under evolving water quality conditions.

Parameter	Units	Current Design Value
Calcium	mg/l	54.71
Magnesium	mg/l	106.73
Sodium	mg/l	1246.81
Potassium	mg/l	39.65
Sulfate	mg/l	408.00
Chloride	mg/l	2000*
Nitrate	mg/l as N	14.50
Carbon Dioxide	mg/l	178.65
Silica	mg/l	8.90
Bicarbonate	mg/l	153.90
Carbonate	mg/l	0.01 at pH 6.12 0.50 at pH 7.61
Hydroxyl	mg/l	0.00 at pH 6.12 0.02 at pH 7.61
pH	standard units	6.12 - 7.61
Conductivity	micromhos/cm	5100 (approx.)
Solid total dissolved (TDS)	mg/l	4130 (approx.)
Solid total suspended (TSS)	mg/l	825

Parameter	Units	Current Design Value
Turbidity	NTU	558
Color	Color units	260
Oil and Grease	mg/l	13.40
Temperature	C	30.0
Oxygen demand, biological (BOD)	mg/l	5.0
Oxygen demand, Chemical (COD)	mg/l	93.0
Organic carbon, total (TOC)	mg/l	21.50
Ammonia	mg/l as N	0.27
Nitrite	mg/l as N	0.050
Phosphate, total	mg/l as P	0.450
Chlorine, total residual	mg/l	0.74
Chlorine, demand	mg/l	1.56
Coliform, total	MPN/100 ml	11,000
Coliform, fecal	MPN/100 ml	930
Aluminum	mg/l	2.41
Antimony	mg/l	0.88
Arsenic	mg/l	0.0300
Barium	mg/l	6.010
Beryllium	mg/l	0
Boron	mg/l	9.9600
Bromine	mg/l	0.04
Cadmium	mg/l	0.026
Chromium	mg/l	0.410
Chromium (hexavalent)	mg/l	0.055
Copper	mg/l	0.750
Cyanide	mg/l	0.340
Fluoride	mg/l	7.680
Iron	mg/l	1.71
Lead	mg/l	0.358
Lithium	mg/l	0.100
Manganese	mg/l	0.160
Mercury	mg/l	0.000
Molybdenum	mg/l	0.000
Nickel	mg/l	0.310
Selenium	mg/l	3.265

Parameter	Units	Current Design Value
Silver	mg/l	0.120
Strontium	mg/l	0.690
Thallium	mg/l	0.000
Vanadium	mg/l	0.090
Zinc	mg/l	0.063

*Note: New Chloride content value design (3,236mg/L) for remaining works shall follow EPC RFP requirement (established in 2010) in folder [Attachment Chapter V\1. RFP Documents] to complete WTP.

➤ **Design, Manufacture, and Installation**

No.	Items	Percentage of completion (%)			
		Design	Manufacture	Delivery	Installation
1	River Water Pre-treatment System (RWPT)	96.2	90	76.88	0
2	Desalination System by Reverse Osmosis (RO) 1 ^o	96.2	87	55	0
3	Fresh Water Transfer Pipeline and Potable Water System				0
4	Demineralization RO 2 ^o System	96.2	80	49.28	0

*** Note:**

1. Engineering & Design Progress

- Design completion percentage is based on reports from *PM/VCL Watertech*.
- Detailed tracking available in the document: *List of Engineering Documents by VCL Watertech*.

2. Equipment Manufacturing Status

- Manufacturing progress and inventory (including delivered and stored items) are detailed in: *"Status of Equipment Reported by VCL"* (Attachment) in folder [Attachment Chapter V\4. Package Status Documents\2. Goods at Site].

3. Delivery & Site Receipt

- Refer to *Table 2: Delivery Status of Water Treatment Plant Equipment* for equipment received on-site by Owner.
- Delivered equipment includes Hoist and Crane units (manufactured by Vinalift, Vietnam).

Table 1 : General Information of Water Treatment Plant

During EPC implementation performed by former EPC Contractor Power Machines (PM), the delivery of Goods, Materials, Equipment to Site between Owner-PM is recorded and managed via Minutes of Goods, Materials, Equipment Receipt at Site (MGMER). Each delivery of goods by PM is recorded by one (1) MGMER (*for example MGMER No. 786 means 786th delivery to Site by PM*). For materials/equipment of Water treatment plant, the delivery status is summarized as follows:

No.	Items	MGMER	Date of delivery to Site
I	River Water Pre-treatment System (RWPT)		
1	Parshall flumes for Stilling chambers	786	14/12/2017
2	Parshall flumes for Distribution chambers	786	14/12/2017
3	Submersible pump filter backwash waste from gravity 10GBR23AP001, 10GBR24AP001	786	14/12/2017
4	Gravity Sand Filters	790	30/11/2017

No.	Items	MGMER	Date of delivery to Site
5	Air Blowers for Gravity Sand Filters 10GBP21AN001, 10GBP22AN001	881	21/01/2018
6	Sludge Recirculation Pumps (for eight sets of sludge pumps) 10GBD30AP110, 10GBD30AP120, 10GBD31AP110, 10GBD31AP120	884	26/01/2018
7	Sludge removal pumps (for eight sets of sludge pumps) 10GBD31AP110, 10GBD31AP120, 10GBD41AP110, 10GBD41AP120	884	26/01/2018
8	Pumps for two sets of tank 7m ³ Ca(OH) ₂ , pumps.		
9	Pumps for five sets of tank of 6% Ca(OH) ₂ , pumps.	884	26/01/2018
10	Dosing unit including 5-dosing pumps, distribution panel, valves, junction boxes and piping mounted on a common frame for one set of dosing pumps of 40% FeCl ₃	884	26/01/2018
11	Dosing unit 5 dosing pumps, distribution panel, valves, junction boxes and piping mounted on a common frame for one set of dosing pumps of 0.01% POF	884	26/01/2018
12	Dosing unit including 5 dosing pumps, distribution panel, valves, junction boxes and piping mounted on a common frame for one set of dosing pumps of 1% KMnO ₄	884	26/01/2018
13	Dissolved Air Flotation (DAF) equipment	924	08/02/2018
14	Lamellar modules for two sets of solid contact clarifiers equipment	925	09/02/2018
15	2 Tanks of POF	954	09/04/2018
16	Mixers - one piece for each tank POF	954	09/04/2018
17	2 Tanks of KMnO ₄	954	09/04/2018
18	Drivers - one piece for each tank KMnO ₄	954	09/04/2018
19	2 Tank of 40% FeCl ₃	954	09/04/2018
II	Desalination System by Reverse Osmosis (RO) 1°		
1	UF backwash waste transfer pumps 10GBP11AP001, 10GBP12AP001	784	17/12/2017
2	Pumps of UF water to RO 1° 10GCK02AP001, 10GCK03AP001	784	17/12/2017
3	Wastewater neutralization 10GCR55AP001, 10GCR56AP001	786	14/12/2017
4	Flushing pumps 10GCP43AP001, 10GCP44AP001	786	14/12/2017
5	Ionex mass for Ba filters and CEDI module	786	14/12/2017
6	Blowers for neutralization pit 10GCP61AN001 and 10GCP62AN001	786	14/12/2017
7	Ultra-filtration Skids (UF)*	788	09/04/2018
8	Filtration Membranes for UF	788	09/04/2018
9	Desalination RO Stage 1 Skid	788	09/04/2018
10	RO Stage 1 Membranes	788	09/04/2018
11	Cleaning In Place (CIP) Station for Desalination RO and Demineralization RO	902 914	23/02/2018 16/03/2018
12	Antiscale agent tank for one set of antiscale agent tank + dosing pumps	914	16/03/2018
13	Dosing unit including 2 dosing pumps, distribution panel, valves, junction boxes and piping mounted on a common frame for one set of antiscale agent tank + dosing pumps	914	16/03/2018

No.	Items	MGMER	Date of delivery to Site
14	Tank for 10% Na ₂ S ₂ O ₅ for one set of tank of 10% Na ₂ S ₂ O ₅ + dosing pumps	914	16/03/2018
15	Dosing unit including 2 dosing pumps, distribution panel, valves, junction boxes and piping mounted on a common frame for one set of tank of 10% Na ₂ S ₂ O ₅ + dosing pumps	914	16/03/2018
16	Tank for 15% NaClO for one set of tank of 15% NaClO + dosing pumps	914	16/03/2018
17	Dosing unit including four pcs. of dosing pumps, distribution panel, valves, junction boxes and piping mounted on a common frame for one set of tank of 15% NaClO + dosing pumps	914	16/03/2018
18	Tank for 31% HCl for one set of tank of 31% HCl + dosing pumps	914	16/03/2018
19	Dosing unit including 3 dosing pumps, distribution panel, valves, junction boxes and piping mounted on a common frame for one set of tank of 31% HCl + dosing pumps	914	16/03/2018
20	Tank for 50% NaOH for one set of tank of 50% NaOH + dosing pumps	914	16/03/2018
21	Dosing unit including 6 dosing pumps, distribution panel, valves, junction boxes and piping mounted on a common frame for one set of tank of 50% NaOH + dosing pumps	914	16/03/2018
22	Mixers for one set of antiscaling agent tank + dosing pumps, one set of tank of 10% Na ₂ S ₂ O ₅ + dosing pumps, one set of tank of 15% NaClO + dosing pumps, one set of tank of 31% HCl + dosing pumps and one set of tank of 50% NaOH + dosing pumps	914	16/03/2018
23	Drive for one set of antiscaling agent tank + dosing pumps (*) , one set of tank of 10% Na ₂ S ₂ O ₅ + dosing pumps, one set of tank of 15% NaClO + dosing pumps, one set of tank of 31% HCl + dosing pumps and one set of tank of 50% NaOH + dosing pumps	914 (Note)	16/03/2018
24	UF washing water pump 10GCP15AP001, 10GCP16AP001	914	16/03/2018
25	Activated Carbon Filters for UF	926	10/02/2018
26	Ba Filters/Ion-exchange filter	926	10/02/2018
27	Activated Carbon for UF and for Potable Water Treatment	930	23/02/2018
III	Fresh Water Transfer Pipeline and Potable Water System		
1	Activated Carbon Filter for Potable Water Treatment 10GCB31AT001, 10GCB32AT001/ <i>Pressure filter with carbon</i>	786	14/12/2017
IV	Demineralization RO 2° System		
1	Pumps of permeate to CEDI 10GCK11AP001, 10GCK12AP001	784	17/12/2017
2	Pump of desalinated water to RO 2° 10GCK06AP001 and 10GCK07AP001	786	14/12/2017
3	Demineralization RO Stage 2 Skid	788	09/04/2018
4	RO Stage 2 Membranes	788	09/04/2018
5	CEDI Modules	922	14/03/2018
V	Hoists and Crane within Water Treatment Plant		
1	Hoist & Crane in Raw Forwarding Pump House*	972	15/05/2018
2	Hoist & Crane in Filtered Water Pump House*	972	15/05/2018

No.	Items	MGMER	Date of delivery to Site
3	Hoist & Crane in Fresh & Fire Water Pump House*	972	15/05/2018
<p>* Note:</p> <p>1. Delivery & Site Receipt</p> <ul style="list-style-type: none"> Refer to <i>Table 2: Delivery Status of Water Treatment Plant Equipment</i> for equipment received on-site by Owner. Delivered equipment includes Hoist and Crane units (manufactured by Vinalift, Vietnam). According to inspection report by Wabag (VLC Watertech in 02/2020) in folder [<i>Attachment Chapter V\4. Package Status Documents\2. Goods at Site</i>], Drive for one set of antiscaling agent tank + dosing pumps (package LP1-WAB-262 in MGMER 914) is wrongly delivered. The equipment is still in Wabag warehouse in Czech Republic. Instead, was delivered equipment “<i>Dosing unit NOX biocide</i>” for treatment input water to reverse osmosis RO 2°. This delivered dosing unit is not initially in packing list. <p>2. Ultra-Filtration Skid Assembly</p> <ul style="list-style-type: none"> Partially delivered as per <i>MGMER No. 788 (09/04/2027)</i>. Discrepancy identified using Packing List #<i>LPPM-172C-DPL</i> (soft copy) vs actual hard-copy delivery records. To complete assembly, the following packages must be shipped from VCL storage to Site: LP1-WAB-191 to LP1-WAB-196. <p>3. Reference Documentation</p> <ul style="list-style-type: none"> Complete delivery tracking available in: “<i>List of Materials/Equipment Delivered to Site</i>” (Water Treatment Plant) in Attachment 4. 			

Table 2: Delivery status of Water Treatment Plant Equipment

➤ **Detailed design and construction for civil part**

No.	Items	Status	
		Design	Construction
I	River Water Transportation up to River Water Pre-Treatment System		
1	Raw water forwarding pump house		
-	Piling	Design completed	Work finished
-	Foundation, Structure	Design is nearly completed, except for the detail of the screen bar slab at EL +2.25m, which remains unclear.	Not yet construction
2	Sand settling basin.		
-	Sand settling basin	Design is nearly completed, except for the detail of the circular opening with Raw water forwarding pump house, which remains unclear.	The works are substantially completed, but the connection to the Raw water forwarding pump house has not yet been executed.
3	Raw water area substation		
-	Piling	The design is available but not yet completed due to a lack of input data.	Not yet construction
-	Foundation, Structure	The design is available but not yet completed due to a lack of input data.	
4	Pipe support of the area	Design is not available	Not yet construction
II	River Water Pre-treatment System (RWPT)		
1	Control station	Design completed	Not yet construction
2	Dissolved air flotation (DAF)	Design is not available	Not yet construction
3	Stilling chamber	Design is not available	Not yet construction

No.	Items	Status	
		Design	Construction
4	Parshall flume	The pile design is available. However, it has not yet been approved.	Not yet construction
5	Distribution chamber	Design is not available	Not yet construction
6	Clarifier		
-	Piling	Design completed	Work finished
-	Foundation	Design is not available	Not yet construction
7	Sand filter building		
-	Piling	Design completed	Work finished
-	Foundation	Design is not available	Not yet construction
8	Waste water sludge pit		
-	Foundation	Design completed	The structural works have been completed. The chemical-resistant coating, operation platform, handrails, and access ladders have not yet been installed
9	Waste water backwash pit		
-	Foundation	Design completed	The structural works have been completed. The chemical-resistant coating, operation platform, handrails, and access ladders have not yet been installed
10	Filtered water reservoir		
-	Foundation	Design is nearly completed, except for the detail of the opening D1000 on wall connecting Parshall Flume, which remains unclear.	The works are substantially completed, but the connection to the Parshall Flume, Filtered water pump house, handrails and access ladders have not yet been executed.
11	Chemical House		
-	Piling	Design completed	Work finished
-	Foundation	Design completed	Work finished
-	Structure	Design is nearly completed, except for the Ground floor slab (WC slab) and electrical room and tank supporting at +6.7m level, which remains unclear.	The works are substantially completed, except for the positions that have not yet been unclear.
-	Finish	Design completed	Not yet construction
12	Pipe support of the area	Design is not available	Not yet construction
III	Desalination & Demineralization System		
1	Filtered water pump house		
-	Piling	Design completed	Work finished
-	Foundation	Design completed	Work finished
-	Structure	Design is nearly completed, except for the Ground floor slab and beams/slab at +1.4m level, which remains unclear.	The works are substantially completed, except for the positions that have not yet been unclear.
-	Finish	Design completed.	Not yet construction
2	UF backwash pit		

No.	Items	Status	
		Design	Construction
-	Foundation	Design completed	The structural works have been completed. The chemical-resistant coating, operation platform, handrails, and access ladders have not yet been installed
3	UF permeate & DM RO permeate tank FND		
-	Piling	Design completed	Work finished
-	Foundation	Design is nearly completed, except for the anchor bolt, which remains unclear.	Not yet construction
4	Ultra-filtration Pump House		
-	Piling	Design completed	Work finished
-	Foundation	Design completed	Work finished
-	Structure	Design is nearly completed, except for the Ground floor slab, which remains unclear.	The works are substantially completed, except for the positions that have not yet been unclear.
-	Finish	Design completed	Block wall construction is approximately 70% complete.
5	Neutralisation Pit		
-	Foundation	Design completed	The structural works have been completed. The chemical-resistant coating, operation platform, handrails, and access ladders have not yet been installed
6	Fresh Water Reservoir		
-	Foundation	Design completed	The works are substantially completed, but the connection to the Fresh & Fire water pump house, handrails and access ladders have not yet been executed.
7	Fresh & Fire Water Pump House		
-	Piling	Design completed	Work finished
-	Foundation/structure	Design is nearly completed, except for the Ground floor slab and some location foundation equipment at, which remains unclear.	The works are substantially completed, except for the positions that have not yet been unclear.
-	Finish	Design completed	Not yet construction
8	Desalination & Demineralization Building		
-	Piling	Design completed	Work finished
-	Foundation	Design completed	Work finished
-	Structure	Design is nearly completed, except for the Ground Floor axis 1-4/A-D, which remains unclear.	The works are substantially completed, except for the positions that have not yet been unclear.
-	Finish	Design completed	Block wall construction is approximately 80% complete.
9	DM Water Storage Tank		
-	Piling	Design completed	Work finished
-	Foundation	Design completed	Works done except for compacted clean sand mixed hot asphalt.

No.	Items	Status	
		Design	Construction
10	Potable Water Storage Tank		
-	Piling	Design completed	Work finished
-	Foundation	Design completed	Works done except for compacted clean sand mixed hot asphalt.
11	Chemical laboratory building		
-	Piling	Design completed	Work finished
-	Foundation/structure	Design is nearly completed, except for the Ground floor, which remains unclear.	Not yet construction
-	Finish		Not yet construction
12	Pipe support of the area	Design is not available	Not yet construction
13	Duct banks and Storm drainage of the area	Design is not available	Not yet construction
14	Transformer for Water Treatment System	Design is not available	Not yet construction

To support efficient system completion, Bidders are advised to refer to **Attachment 4**, which provides the status of engineering documents, delivered equipment, and partially constructed components. Wherever practical, these existing materials should be reused to optimize time, cost, and consistency with prior work.

For detailed engineering, Bidder may consult engineering work performed by Power Machines/Vendor/General Designer (TKC) for Water Treatment Plant during EPC period from 2015-2019. These documents are attached to Contractor for review and adaption. These documents shall not be bound by Owner. The Owner shall not be responsible for any omission, errors, adequacy, sufficiency of these attached documents. The Bidder shall be responsible for reviewing, adjustments, modifications, and development supplied documents for the purpose of this package execution, keep all documents confidentiality and keep Owner harmless from any claims (if any) from previous Vendor/General Designer (TKC) as well as ensure quality of works and meet performance guarantee requirements. In any cases, the Bidder remains fully accountable to ensure that all work meets the requirements outlined in this Specification.

If the Bidder decides on a completely new design, it must be fully compliant with all technical, quality, and performance criteria specified in this package and also compliant with existing overall plant layout arranged.

II. SCOPE OF WORK

1. Overview

The Bidder is responsible for delivering a complete Water Treatment Plant system, covering design, procurement, construction, installation, testing, commissioning, and all associated project services. Where possible, existing engineering documents, equipment, and partially constructed works at site should be reused to save cost and time, but this does not release the Bidder's responsibilities.

The Bidder shall decide to have a Visit to the site (if necessary) before submission of the bid. The information/capacity (which is based upon existing design and current delivered equipment to Site) are given here for general guidance urpose of tendering only and shall not be binding on the Owner. All relevant site data /information/capacity of

equipment/quality of input raw water as may be necessary shall have to be obtained /collected/calculated by the Bidder to meet Specification outlined in this Chapter V.

Any additional items, materials, equipment or services that are not specifically mentioned here but are required to make the system complete in every respect in accordance with the technical specification for safe, trouble-free & efficient operation and guaranteed performance shall be deemed to be covered within the scope of this package, unless otherwise stipulated in the Bidding Documents.

It is not the intention to completely specify all details of design and construction herein. Nevertheless, the equipment and installation shall conform to a high standard of engineering design & workmanship in all respects and shall be capable of performing continuous commercial operation in a satisfactory manner. In case of confusion/contradiction with other subsections, if any there, the bidder is advised to seek clarification.

Based on the current status of a package, the Bidder shall consider reusing/utilizing all documents, delivered materials and equipment at the Site and partially constructed items/components in the construction work in order to save cost and maintain the schedule.

In addition, the Bidder should note that the Water Treatment Plant (WTP) was originally designed based on an assumed input chloride (Cl^-) concentration of 2,000 mg/L. However, recent monitoring has confirmed that chloride levels have increasingly surpassed this design threshold on a growing number of days during the dry season, as detailed in Attachment #5.

Therefore, except equipment already available on site, the Bidder is required to study and consider maximizing the use of materials for pipes, valves, pumps, tanks, etc., that are suitable for a chloride concentration of 3,236 mg/L (*the design value for the Water Treatment Plant in the EPC RFP*), and also to calculate and design the system to ensure Demin water output of 148.1 m³/h, as shown in document ref. LP1-TKC-10XXX-M-G1-DBD-1001-0: Water Balance Diagram.

In addition to completing scope of work of the Water Treatment System as described in the section below, the Bidder is also responsible for surveying, studying and proposing supplementary technical solutions to support operation or measures to upgrade the existing Water Treatment System (if necessary) to deal with the increasing salinity of the Hau River, which is expected to surpass the design value (Cl^- content of 3,236 mg/L) aiming to ensure that the water supply is safe, stable, high-quality, and uninterrupted.

These proposals shall serve as spare or standby measures in case future salinity levels exceed historical trends. The Bidder shall also submit clear cost estimates for each optional solution to facilitate evaluation and potential inclusion in contractual negotiation and future project implementation phases.

1.1 Engineering, manufacturing, supply, and delivery of equipment to the site

1.1.1 Mechanical Equipment

1.1.1.1 River Water Transportation up to River Water Pre-Treatment System

The bidder may consult the following tentative P&ID drawings (LP1-TKC-10G-M-M3-P&ID-1050-SH01) to properly understand below process description for River Water Transportation up to River Water Pre-Treatment System.

(i) Raw Water Intake Pumps

- *Location:* Cooling Water Intake Pump House
- *Quantity:* 4x50% vertical pumps (IDs: 10GAF10AP001–004)

- *Capacity*: 510 m³/h each
 - *Head*: ≥ 30 mWC
 - *Function*: Transport of raw water from Hau River to Sand Settling Basin and filling Cooling Water during start-up.
- (ii) **Sand Settling Basin**
- *Structure*: RCC with 2 compartments, 10,800 m³ each
 - *Components*:
 - ✓ Sluice gates (non-rising spindle type): 10HSD10AT001 & 002
 - ✓ Overflow pipes: 2 × DN300
- (iii) **Raw Water Forwarding Pumps**
- *Location*: Raw Water Forwarding Pump House
 - *Quantity*: 4x50% vertical pumps (IDs: 10GAF20AP001–004)
 - *Capacity*: 510 m³/h each
 - *Head*: ≥ 35 mWC
 - *Function*: Transport raw water from Sand Settling Basin to Pre-Treatment System
- (iv) **Raw Water Forwarding Sump**
- *Components*:
 - ✓ Bar screens: 10GAA10AT001 & 002
 - ✓ Sluice gate: 10HSD10AT003 (non-rising spindle type) between Raw Water Forwarding Chambers.
- (v) **Pipeline System (Section 1)**
- *Connects*: Raw Water Intake Pumps → Sand Settling Basin
 - *Features*: Includes valves, expansion joints, supports, etc.
 - *Special Lines*: 2 refill lines for cooling water (Unit 1 & Unit 2)
 - *Recirculation*: Controlled via pneumatic valve 10GAC10AA701 to maintain pump chamber level
- (vi) **Pipeline System (Section 2)**
- *Connects*: Raw Water Forwarding Pumps → River Water Pre-Treatment System
 - *Recirculation*: Controlled by pneumatic valve 10GAC20AA701 for sump water level control

1.1.1.2 River Water Pre-treatment System (RWPT)

The bidder may consult the following tentative P&ID drawings (LP1-WAB-10UGA-M-M3-P&ID-0001 and LP1-WAB-10UGA-M-M3-P&ID-0002) to properly understand below process description for River-Water Treatment System:

(i) **Control Station and DAF**

- *Source*: Raw water flows from settling basins (2 × 10,800 m³) through a flow control station.
- *DAF Units*: Two (2×50%) Dissolved Air Flotation units treat water in slightly acidic to neutral pH, removing oils/fats.
- *Equipment*: Each DAF includes 2×100% recirculation pumps, 1×100% air compressor, and 1×100% air dissolving tube & all other accessories.

(ii) **Stilling Chamber and Parshall Flumes**

- *Stilling Chamber*: One (1×100%) concrete chamber complete with all other accessories to calm water.
- *Parshall Flumes*: Water from Stilling Chamber will then flow to Two (2×83.33% each) Parshall Flumes for measurement of flow in open Concrete Channels.

(iii) Solid Contact Clarifiers

- *Clarifiers*: Two (1W+1S) lamella-type clarifiers (972 m³/h/each) dosing of Ca(OH)₂, FeCl₃, and POF.
- *Components included*: Each clarifier consists of
 - ✓ 2 pcs of fast chambers fitted with electrical mixers.
 - ✓ Slow mixing chambers fitted with a low-speed mixer with frequency converter.
 - ✓ Sludge space for floccules deposited to the centre of the tank.
 - ✓ Segment space, where the remaining floccules are deposited.
- *Sludge Handling*: Gravity flow to sludge pit; recirculation and removal with following screw pumps:
 - ✓ Sludge recirculation pumps (10GBD31AP110, 10GBD31AP120, 10GBD41AP110, 10GBD41AP120) to accelerate flocculation reactions. The pumps are fitted with frequency converters – circulation is controlled in exact proportion to the clarifier's output
 - ✓ Sludge removal pumps (10GBD30AP110, 10GBD30AP120, 10GBD41AP110, 10GBD41AP120) for sludge disposal from clarifier to Sludge Sump

(iv) Sludge Sump and Disposal

- *Structure*: RCC sump with two compartments of 60 m³.
- *Pumps*: 2 (1W + 1S) pumps 10GBS10AP001, 10GBS20AP001 (63 m³/h each) for transfer to WWTS (Terminal point detailed in Section II.3)

(v) Sand Filtration and KMnO₄ Dosing

- *Post-clarification*: Silica sand filters (2×50%, each 240 m² each with a load of fine filtration sand and rated capacity 950m³/h) to remove remaining solids, Fe, and Mn.
- *KMnO₄ Dosing*: Added to influent via two PE-HD tanks and dosing pumps (250 L/h each).

(vi) Filter Backwash System for Gravity Sand Filters

- *Backwash Water Source*: Taken from ultra-filtration feed pumps; stored in 700 m³ overhead concrete tank (10GBP12BB001)
- *Air Blowers*: Two oil-free rotary blowers 10GBP21AN001, 10GBP22AN001 (3600 m³/h/each) for scouring the beds.
- *Waste Handling*: collected in 400m³ Filter backwash wastewater collection sump 10GBR23BB001; pumped back to Stilling Chamber via pumps (10GBR23AP001, 10GBR24AP001 of 2×150 m³/h).
- *Drain*: accumulated in Sump. The drain pump (10GMD01AP001) suitable capacity for pumping on the ground.

(vii) Chemical House

- *Ground Floor*: Chemical storage, hoist system for unloading and storage.

- *First Floor*: Preparation of FeCl_3 , $\text{Ca}(\text{OH})_2$, POF, and KMnO_4 solutions; dosing systems included.
- *Walkways & Utilities*: 1 m wide walkway connects Chemical House to rest of plant; water sourced from service line.
- *Hoisting device*: Two (2) nos. Electrically Operated Monorail Hoists, each of 1.0 Ton safe working capacity or suitable with Bidder's equipment design, complete with all accessories at ground floor and first floor for Chemical handling.

(viii) Chemical Dosing Equipment

- *FeCl₃*: 2 tanks PP-HD 10GBQ20BB001, 10GBQ20BB002 (7 m³), dosing to flotation and clarifiers via 5 dosing pumps (10GBQ21AP001, 10GBQ22AP001, 10GBQ23AP001, 10GBQ24AP001, 10GBQ25AP001) 600 l/h/each.
- *Ca(OH)₂*: including:
 - ✓ Two (2) RCC lime slaking solution tanks (10GBQ41BB001, 10GBQ42BB001) of 20m³/each with agitators (10GBQ41AM001 & 10GBQ42AM001) and transferred by 2 slaked lime transfer pumps (10GBQ41AP001, 10GBQ42AP001) of 10m³/h into the lime solution preparation tanks.
 - ✓ Lime prepared in 2 concrete tanks (10GBQ43BB001 & 10GBQ44BB001) of 32m³ with electric mixers (10GBQ43AM001 and 10GBQ44AM001), dosing to flotation and clarifiers via 5 dosing pumps (10GBQ43AP101, 10GBQ44AP101, 10GBQ45AP101, 10GBQ46AP101, 10GBQ47AP101), capacity 3m³/h.
- *POF*: 2×1.5 m³ tanks PP-HD 10GBQ11BB001 & 10GBQ12BB001 with mixer (10GBQ11AM001/10GBQ12AM001) and 5 dosing pumps 10GBQ11AP001, 10GBQ12AP001, 10GBQ13AP001, 10GBQ14AP001, 10GBQ15AP001 (100 L/h) to flotation and clarifier.
- *KMnO₄*: 2×6 m³ tanks PE-HD 10GBQ31BB001, 10GBQ32BB001 with mixer (10GBQ31AM001/10GBQ32AM001) and 2 pumps 10GBQ31AP001, 10GBQ32AP001 (250 L/h) to outlet of clarifier.

(ix) Interconnecting Works

- Includes all associated piping, valves, sumps, concrete channels, pipe supports, bridges, racks, and accessways indicated in the P&ID.

(x) Filtered Water Reservoir after clarification

- *Structure*: RCC with 2 compartments (7,500 m³ each) with sluice gates and overflow pipes (3×DN250/compartment).
- *Components*:
 - ✓ Inlet sluice gates: 10GDB10AT001 and 10GDB10AT002
 - ✓ Outlet sluice gates: 10GDB10AT003 and 10GDB10AT004
 - ✓ Overflow pipes: 3×DN250/compartment

1.1.1.3 Desalination System by Reverse Osmosis (RO) 1^o

The Bidders are advised to consult the following tentative P&ID drawings (LP1-WAB-10UXA-M-M3-P&ID-0201, LP1-WAB-10UXA-M-M3-P&ID-0202, LP1-WAB-10UXA-M-M3-P&ID-0203 and LP1-WAB-10UXA-M-M3-P&ID-0204) for a comprehensive understanding of the Desalination RO System layout and components.

(i) Filtered Water Pump House

- Filtered water flows from the Filtered Water Reservoir to a sump inside the Filtered Water Pump House.
- Located at this sump:
 - ✓ Three (3) Ultrafiltration Feed Pumps (3×50%, 240 m³/h each, vertical type, KKS: 10GCB01AP001~003)
 - ✓ Two (2) Filtered Water Transfer Pumps (2×100%, vertical type – *excluded from Bidder's scope*)
- The Pump House construction and sump are within the Bidder's scope.

(ii) Activated Carbon (AC) Filters

- Prior to UF, filtered water passes through four (4) vertical AC filters (3W+1S, Ø3000 mm with dish end, KKS: 10GCB11AT001~004).
- *Rated flow*: 315 m³/h total
- *Function*: Removal of suspended solids, oil traces, and residual organics.

(iii) Ultrafiltration Skids

- Two (2) UF Skids (10GCB21AT001 & 10GCB22AT001) of 3600 m³/day total capacity, hollow fiber membrane type (pore size 0.02 µm).
- Each skid includes:
 - ✓ 1 x automatic mechanical pre-filter (200 µm)
 - ✓ 36 x membrane modules (INGE dizzer, 70 m²/module; total area: 2520 m²)
 - ✓ 14 pcs valve DN 150 with pneumatic actuator
 - ✓ 12 pcs valve DN 125 with pneumatic actuator
 - ✓ 2 pcs valve with pneumatic actuator ½ “
 - ✓ 4 pcs automatic breather valve 2“
 - ✓ 6 pcs sample valve 1“
 - ✓ 8 pcs Pressure measurement with outlet 4 ÷ 20 mA
 - ✓ 1 pcs Temperature measurement of inlet water PT 100
 - ✓ 2 pcs control valve DN 100 with servo
 - ✓ 2 pcs Level measurement continual for BW and NT tank with outlet 4 ÷ 20 mA
 - ✓ 1 pcs Back wash pump 185 m³/h, 2,5 bar
 - ✓ 1 set Pneumatic switchboards
 - ✓ 1 set Pressure air treatment unit
 - ✓ 2 pcs Flow measurement DN 100 with outlet 4 ÷ 20 mA
 - ✓ PLC system with touch panel to controlling and monitoring the operation
 - ✓ 1 set of internal piping

(iv) UF Permeate Storage & Pumping

- Filtrate (permeate) collected in 1 × UF Permeate Storage Tank (600 m³, vertical, FRP, KKS: 11GCK01BB001).
- From this tank:
 - ✓ 2 × Backwash Pumps (1W+1S, 300 m³/h, 10GCP15AP001, 10GCP16AP001) for UF skid cleaning
 - ✓ 2 × RO Feed Pumps (1W+1S, 350 m³/h, 10GCK02AP001, 10GCK03AP001) to supply downstream Ba²⁺ removal and RO system.

- Backwashing of UF skids and AC filters is performed in sequence using air (from Owner-supplied instrument air) and water. Air receipt point defined in Section II.3.

(v) UF Backwash Collection and Reuse

- Backwash waste is collected in 1 × RCC pit (10GBP10BB001), 150 m³ capacity.
- Reused for washing in River Water Pre-Treatment Stilling Chamber via 2 × Vertical Transfer Pumps (75 m³/h each, KKS: 10GBP11AP001, 10GBP12AP001)

(vi) Barium Removal Filters

- Two (2) Ba²⁺ filters (KKS: 10GCF11AT001 & 002) of Ø3200 mm, velocity: 21 m/h
- Rated capacity: 165 m³/h each.
- Type: Cation exchange resin-based filters, with full accessory set for efficient removal of divalent ions ahead of RO 1^o.

(vii) RO System Stage 1 Configuration

- Two (2) RO units, each with a permeate capacity of 120 m³/h, operating in a 2+0 sequence (units: 10GCF21AT001 & 10GCF22AT001).
- The system achieves a 75% recovery rate, concentrating salts 1.5–15x, with RO reject routed to the Wastewater Treatment System.
- Pre-filtration via 5 µm cartridge filters is included upstream of high-pressure pumps.
- Each RO skid includes:
 - ✓ 1 set. Fine filters 5 µm (11GCF21AT001/11GCF22AT001) with capacity 160m³/h vertical cylindrical type
 - ✓ 18 pcs Pressure modul 7 m, 8“
 - ✓ 126 pcs Membrane modules Hydranautic SWC5LD placed in pressure tanks
 - ✓ 1 set with 2 High pressure pumps (10GCF21AP001&002/10GCF22AP001&002) Grundfos BM with frequency convertors of capacity 160m³/h and dynamic head 275m (for elimination of effects of temperature fluctuation and fluctuation in inlet water composition)
 - ✓ 1 pcs Mounting frame for membranes
 - ✓ 1 pcs Mounting frame for pumps
 - ✓ 2 pcs valve DN 150
 - ✓ 2 pcs valve with pneumatic actuator DN 150
 - ✓ 2 pcs valve with pneumatic actuator DN 200
 - ✓ 6 pcs valve DN 125
 - ✓ 10 pcs Pressure measurement
 - ✓ 1 pcs Conductivity measurement 0÷100 bar
 - ✓ 2 pcs Flow measurement with outlet 4 ÷ 20 mA
 - ✓ 2 pcs Pressure switchboard
 - ✓ PLC system to controlling and monitoring the operation
 - ✓ 1 set Pipping connecting as per P&D

(viii) CO₂ Removal – Degassing System

- Two (2) aeration degasser towers (Ø2400 mm, 22 m³, PE-HD tanks: 10GCC11AT001 & 10GCC12AT001)
- Two (2) blowers (5100 Nm³/h, 800 mbar: 10GCC11AN001 & 10GCC12AN001) for aeration
- System removes excess CO₂ due to the technology of Ba²⁺ removal before permeate enters Fresh Water Reservoir.

(ix) Chemical Dosing

Chemicals to optimize membrane performance and control fouling:

- *NaOH*: 1 m³ storage/dosing tank (10GCQ20BB001) PP/PE/FRP with electric mixer + 3 pumps 10GCQ21AP001, 10GCQ22AP001, 10GCQ23AP001 (7 L/h each) commonly used also for Demineralization RO stage 2 system.
- *Antiscalant*: 0.08 m³ FRP tank (10GCQ30BB001) with agitator + 2 pumps 10GCQ31AP001, 10GCQ32AP001 (2.5 L/h each)
- *Sodium Bisulphate*: 0.5 m³ tank (10GCQ40BB001) with electric mixer + 2 pumps 10GCQ41AP001, 10GCQ42AP001 (20 L/h) and flow-controlled (signal 4...20mA).
- *Instrumentation* for pH, ORP, and conductivity installed after cartridge filter to control of Chemical dosing rate.

(x) Cleaning Systems (CIP)

- *Acid (HCl 40%)*: 4 m³ tank (10GCQ50BB001) PP/PE with electric mixer + 4 pumps 10GCQ51AP001, 10GCQ52AP001 for Ba²⁺ filter (4m³/h/each) and 10GCQ53AP001, 10GCQ54AP001 (150 l/h/each) for UF Skid.
- *Caustic (NaOH)*: Shared tank (10GCQ20BB001) with 2 pumps 10GCQ24AP001 and 10GCQ25AP001 (150 L/h each) for UF Skid.
- Sodium Hypochlorite (NaOCl): 1m³ tank (10GCQ10BB001) PP/PE with electric mixer + 2 pumps 10GCQ11AP001, 10GCQ12AP001 (30 L/h each) for UF Skid.
- CIP Station includes:
 - ✓ *Source*: Treated water from Desalination RO Stage 1, Continuous Electrical De-Ionized (CEDI) module and Demineralization RO Stage 2 mixed with chemicals from Acid (10GCQ50BB001) and Caustic dosing system (10GCQ20BB001) to produce cleaning water for RO stage 1, RO stage 2 and CEDI Module.
 - ✓ 20 m³ FRP mixing tank (10GCP50BB001) store mixed cleaning water
 - ✓ 2 × 220 L/h cleaning pumps 10GCP51AP001, 10GCP52AP001
 - ✓ 2 × 1 m³ cartridge filters (5 µm)
 - ✓ Valves, piping, and instrumentation

(xi) Fresh Water Reservoir

- Permeate stored in a RCC Fresh Water Reservoir of 2 compartments (4,500 m³ each)
- Each compartment has three (3) overflow DN250 pipes.

(xii) Post-RO Pumping

Pumps at the outlet of Fresh Water Reservoir:

- Flushing RO-1: 2 × 125 m³/h pumps (10GCP43AP001 & 10GCP44AP001) also used for acid flushing of Ba²⁺ filters.

- Regeneration Water: 2 × 180 m³/h pumps (10GCP41AP001 & 10GCP42AP001) for Ba²⁺ filter resin

(xiii) Chemical Neutralization

- RCC Neutralization pit with two compartments 10GCR51BB001 & 10GCR52BB001 (105 m³ each)
- Aeration via 2 blowers 10GCP61AN001 and 10GCP62AN001 (200 Nm³/h each)
- Neutralization chemicals (NaOH and HCl) stored in 1 m³ tanks PP/PE (10GCQ61BB001 & 10GCQ62BB001), dosed by gravity.
- Final discharge via two submersible pumps 10GCR55AP001 & 10GCR56AP001 (50 m³/h each) to the WWTS. The terminal point shall be indicated in Section II.3.

(xiv) Accessories

- All piping, valves, fittings, sumps, gates, pipe/cable supports and racks, as indicated in the tentative P&ID drawings.

1.1.1.4 Fresh Water Transfer Pipeline and Potable Water System

The bidder shall refer to the tentative P&ID drawings (LP1-TKC-10G-M-M3-P&ID-1050-SH02 and LP1-WAB-10UXA-M-M3-P&ID-0205) to understand the following process and system requirements.

(i) Fresh Water Pumping

- Two (2) horizontal centrifugal pumps (65 m³/h each, 60 mWC dynamic head) will transfer desalinated water from the Fresh Water Reservoir to the Potable Water Treatment System.
- These pumps are located in the Fresh Water and Fire Water Pump House whose the construction is within the Bidder's scope.

(ii) Transfer Pipeline System

- The pipeline connecting the Fresh Water Reservoir to the Potable Water Treatment System shall include:
 - ✓ Piping, valves, instruments, expansion joints
 - ✓ Pipe supports, hangers, clamps, and necessary specialties
- A recirculation line with a pneumatic control valve (10GKD20AA701) shall be incorporated to maintain reservoir water levels.

(iii) Activated Carbon Filtration

- Two (2) Activated Carbon Filters (1W + 1S, Ø1200 mm, 15 m³/h each; 10GCB31AT001 & 002) shall treat RO permeate.
- Filters are backwashed every 1–2 weeks using compressed air and inlet water.
- The connection point for compressed air will be identified in Section II.3.

(iv) Sodium Hypochlorite Dosing

- To maintain microbiological quality, NaClO solution dosed into the treated water.
- Dosing performed from tank 10GCQ10BB001 (shared with UF chemical cleaning system) using 2 dosing pumps (10GCQ13AP001 and 10GCQ14AP001, 1 L/h each).

(v) Potable Water Storage

- Treated potable water will be transferred to a Potable Water Tank 1000m³ installed by the Bidder at site.
- Technical specification of the tank is as follows.

STT	Description	Specification
1	Type	Vertical, Cylindrial & Cone roof
2	Type of fluid to handled	Potable Water
3	Quantity	One (1)
4	Effective Capacity	1000 m ³
5	Size* (mm)	ID12,000, Height 10,000*
6	Design Pressure, Kg/cm ² .g	Atmospheric
7	Design Temperature, °C	50
8	Design Code	AWWA D100/API 650
9	Material of Construction a) Shell b) Roof and Bottom c) Flanges d) Nozzle neck	Shall be as follows a) ASTM 283 Gr C b) ASTM 283 Gr C a) ASTM A105 d) ASTM A53 Gr B
10	Corrosion Allowance (min) in mm	1.5
11	CO2 Absorber and Seal pot	No
12	Manhole	One (1) on shell and one (1) on roof – Each of minimum 600 mm NB
13	Testing and Inspection	Shall be in line with Specification/approved field quality plans and relevant codes/standard
14	Nozzle orientation and arrangement	Please see tentative drawing LP1-PCC1-10GKB-M-B01-DOR-9912 for adaption
15	Sketch drawing for Tanks	Please see tentative drawing LP1-PCC1-10GKB-M-B01-DGA-9912 for adaption
16	Spherical Staircase	Yes
<p><i>* Note:</i></p> <ul style="list-style-type: none"> - The foundation for One (1) Potable Storage Tanks is partially constructed based on the following reference drawings: <ul style="list-style-type: none"> ✓ LP1-PCC1-10GKB-M-B01-DGA-9912: Arrangement for Potable Storage Tank ✓ LP1-TKC-10UGG-C-C1-DRD-8092: Foundation Pile Layout & Pile Cap Details - The Bidder is required to supply and install the field-fabricated Potable tank, ensuring compatibility with the existing foundation conditions and construction progress. - The final tank height shall be proposed by the Bidder to achieve the required storage capacity (1 × 1.000 m³). 		

(vi) Others

- The Bidder shall provide all associated civil, mechanical, and interconnecting works, including: Pipework, valves, sumps, gates, Pipe/cable racks, supports, and bridges as shown in the P&ID drawings.

1.1.1.5 Demineralization RO 2^o System

The bidder shall refer to the tentative P&ID drawings (LP1-WAB-10UGD-M-M3-P&ID-0101) to understand the following process and system requirements.

(i) RO Stage 2 Feed System

- Desalinated water is pumped from the Fresh Water Reservoir to RO Stage 2 via two (2) Demineralization RO Feed Pumps (1W+1S, 220 m³/h each; KKS: 10GCK06AP001 & 002), located upstream of RO 2°.

(ii) Reverse Osmosis Stage 2 (RO 2°)

- Two (2) reverse osmosis skids (2W+0S), each producing 85 m³/h of permeate, with a system recovery of 85%.
- RO concentrate, due to its favorable quality, will be recycled to the UF Permeate Storage Tank (11GCK01BB001).
- Water after passing Demineralization RO micron filters shall be recirculated to Fresh Water Reservoir for refilling.
- Components of each RO 2° Skid include:
 - ✓ 1 × Demineralization RO cartridge filter 10GCF35AT001/10GCF36AT001 (5 µm, 100 m³/h, FRP/PP construction)
 - ✓ 1 × High-pressure pump 10GCF31AP001/10GCF32AP001 (100 m³/h with VFD) for elimination of effects of temperature fluctuation and fluctuation in inlet water composition
 - ✓ 9 pcs Pressure modules 7 m, 8“
 - ✓ 63 pcs Membrane modules Hydranautic ESPA2-MAX placed in pressure tanks
 - ✓ 1 pcs Mounting frame for membranes and pumps
 - ✓ Valves, Piping, Field mounted instrument mounted on remote control panel,...
- Product water is stored in two (2) vertical FRP tanks (200 m³ each; KKS: 10GCK08BB001 & 002)

(iii) CEDI Feed and Treatment

- Permeate from RO 2° is pumped to CEDI units using two (2) Feed Pumps (1W+1S, 190 m³/h; KKS: 10GCK11AP001, 10GCK12AP001).
- Prior to CEDI units, water passes through two (2) cartridge filters (5 µm, 85 m³/h each; KKS: 10GCF33AT001 and 10GCF34AT001), FRP/PP type.

(iv) Continuous Electro Deionization (CEDI)

- Two (2) CEDI units (2+0 mode; KKS: 10GCF35AT001 & 002), each with 75 m³/h output and 95% recovery, producing high-purity demineralized water.
- CEDI concentrate is recirculated to the RO Stage 1 permeate tank, and product water may also be partially returned to the Fresh Water Reservoir for operational balance.

(v) Instrumentation and Monitoring

Quality of final demineralized water is monitored using:

- Conductivity analyzers
- pH sensors
- Silica analyzers

(vi) Demineralized Water Storage

- Final product stored in two (2) DM Storage Tanks (2,500 m³ each) to be supplied and installed by the Bidder at site.
- Technical specification of the tanks is as follows.

STT	Description	Specification
1	Type	Vertical, Cylindrical & Cone roof
2	Type of fluid to handled	DM Water
3	Quantity	Two (2)
4	Effective Capacity	2500 m ³
5	Size* (mm)	ID14,000, Height 17,000*
6	Design Pressure, Kg/cm ² .g	Atmospheric
7	Design Temperature, °C	50
8	Design Code	AWWA D100/API 650
9	Material of Construction a) Shell b) Roof and Bottom c) Flanges d) Nozzle neck	Shall be as follows a) ASTM 283 Gr C b) ASTM 283 Gr C a) ASTM A105 d) ASTM A53 Gr B
10	Corrosion Allowance (min) in mm	1.5
11	CO2 Absorber and Seal pot	Yes
12	Manhole	One (1) on shell and one (1) on roof – Each of minimum 600 mm NB
13	Testing and Inspection	Shall be in line with Specification/approved field quality plans and relevant codes/standard
14	Nozzle orientation and arrangement	Please see tentative drawing LP1-PCC1-10GHC-B-B01-DOR-9911 for adaption
15	Sketch drawing for Tanks	Please see tentative drawing LP1-PCC1-10GHC-B-B01-DGA-9911 for adaption
16	Spherical Staicase	Yes
<p><i>* Note:</i></p> <p>- The foundation for the two (2) DM Storage Tanks is partially constructed based on the following reference drawings:</p> <ul style="list-style-type: none"> ✓ LP1-PCC1-10GHC-B-B01-DGA-9911: General Arrangement for DM Storage Tank ✓ LP1-TKC-10UGC-C-C1-DRD-8090: Foundation Pile Layout & Pile Cap Details <p>- The Bidder is required to supply and install the field-fabricated DM tanks, ensuring compatibility with the existing foundation conditions and construction progress.</p> <p>- The final tank height shall be proposed by the Bidder to achieve the required storage capacity (2 × 2,500 m³).</p>		

(vii) Cleaning Systems (CIP)

- Both RO Stage 1 and RO 2° will share a common CIP (Cleaning-in-Place) unit, which is installed within the RO 1° area. This shared equipment will be used for periodic cleaning of membrane systems in both stages to ensure optimal performance and membrane longevity.
- Preventive Rinsing of RO 2° shall be performed periodically after several hours of operation or during shutdown by:
 - ✓ Using water from downstream of CEDI pumps.
 - ✓ Using water (gravity) from RO 2° permeate tank in case of power failure.

(viii) Piping and Interconnection Works

The Bidder shall be responsible for the supply, fabrication, installation, and testing of all integral and interconnected piping systems and accessories related to the

Demineralization RO Stage 2 System, as shown in the tentative P&ID drawings. This includes but is not limited to:

- Process pipework and fittings
- Manual and automated valves
- Sumps and gate assemblies
- All types of pipe supports and guides
- Pipe and cable racks and bridges
- All mechanical and civil provisions required for full functional integration.

1.1.1.6 HVAC

(i) The bidder shall design, supply and installation of Heat Ventilation and Air Conditioning (HVAC) equipment for various building for Water Treatment Plant meeting following criteria:

Sl. No.	Area	Indoor Design Condition		Fresh Air Rate	Filtration Efficiency ASHRAE Arrestance Std. 52.1 (%micron)	Noise Criteria
		Temp. °C	RH %			
A. Air Conditioning System						
1	Control room of Water Treatment Plant (Chemical House and Main Desalination & Demineralization building,...and other control room)	23±3	55±5	1.5 Air Change per hour	95-98, 1-3	NC-45
2	Control rooms served by non-duct able air conditioners-Local Control Rooms & Remote I/O rooms, wherever applicable	23±3	<60	1.5 Air Change per hour	80-95, 3-10	NC-45
B. Ventillation System						
1	Battery Rooms, wherever applicable	41 (Max.)		4 Air Change per hour	None	85 dBA
2	Stair Case , wherever applicable	41 (Max.)			None	85 dBA
3	Kitchen, Pantry , wherever applicable	41 (Max.)		7.5L/s/m ² (Min.)	None	NC-60
4	Toilets , wherever applicable	41 (Max.)		85 CMH/Urinal (Min.)	None	NC-50
5	MCC / Switch Gear/Electrical Room, wherever applicable	41 (Max.)		30 Air Change per hour	80-95, 3-10	85 dBA
6	Cable Spreader Room , wherever applicable	41 (Max.)		20 Air Change per hour	80-95, 3-10	85 dBA

SI. No.	Area	Indoor Design Condition		Fresh Air Rate	Filtration Efficiency ASHRAE Arrestance Std. 52.1 (%micron)	Noise Criteria
		Temp. °C	RH %			
7	Pump House areas	41 (Max.)		30 Air Change per hour	None	Back ground
8	Chemical House of River Water Pretreatment system and any other building	41 (Max.)		10 L/s/Person	None	85 dBA

(ii) Cooling load estimation for various facilities shall be done based on the above design considerations and allowing 5% margin on room sensible heat and 5% margin on room latent

Heat based upon following outdoor design conditions:

- Highest Dry bulb Temperature: 37°C
- Relative Humidity: 84%
- Daily Range: 8.4°C
- Lowest Dry bulb Temperature: 25°C

(iii) An overall margin of around 10% on the total Cooling load shall be considered

(iv) The description of HVAC under this section is included but not limited as follows (*in case of any new buildings/facility needed for Bidder's design, the HVAC shall be still under Bidder's scope of work. The HAVC for the new buildings shall follow the same concept as described in this section*):

1.1.1.6.1 Main Desalination & Demineralization Building

Please refer to drawing LP1-TKC-10UGD-A-A1-DAL-8211 for layout of Main Desalination & Demineralization Building

(i) Precision Air Conditioner (PAC) room, Control/Control Equipment Room

- 2x100 % or 4x 50 % capacity Air cooled Precision Air conditioners (PAC) and each complete with scroll compressors and remote air cooled condensers, interconnecting refrigerant piping (duly insulated) between outdoor condensers and indoor PAC units, evaporator fans with EC (Electronic Commutator) motor, high efficiency filters, cooling coils with electronic expansion valve, SS condensate drip tray (duly insulated) with insulated drain piping, electrode type humidifiers with controls, electric strip heaters and built-in microprocessor/PLC based control panel thermally and acoustically lined powder coated MS casing with Supply air outlets and RA grille.
- Insulated Galvanized sheet metal Ducting of Air Distribution System with Grilles/Diffusers, Volume Control Dampers, Fire Dampers etc. The conditioned air from the PACs is distributed to the said areas, through a network of thermally insulated galvanized sheet steel (GI) ducting, supply air diffusers/grilles. The return air is collected in the RA duct system through RA grilles & diffusers and led back to the PAC room

- Acoustic lining of fiberglass rigid board of density 48Kg/m³ covered with fiberglass cloth and perforated aluminium sheet inside the supply air duct up to a length of 6M from the PAC units outlets.
- Fresh air will be introduced to the PAC room with the help of Fan-Filter unit consisting of a set of inlet Louver, a set of Pre-Filter and a fan-motor set mounted on outside wall of the PAC room.
- Smoke Exhaust system consisting of Axial Flow type smoke exhaust fan with drive motor, suitable for operation with air having a temperature of 400°C for 2 hours, motorized isolating damper and short ducting suitably connected with the common RA duct inside Air Handling Unit room, supports, vibration isolators.
- Power will be fed to the PAC units, Fresh air fan and Smoke exhaust fan from the Main Desalination & Demineralization BUILDING HVAC PANEL/MCC Cum PDB.

(ii) Pump House area (Desalination & Demineralization Equipment Room)

Supply Fan units for supplying fresh air to the Filtered Water Pump House area, each complete with:

- A wall mounted axial flow fan with cast aluminium alloy impeller and drive motor
- Supply cowl of steel sheet metal construction (duly painted) with protective screen made of galvanized iron (GI)
- Rain protection cowl of GI construction with bird screen
- Supports and supporting structure
- Grouting frame with bolts and nuts
- Resilient mountings/Vibration isolators
- Wall mounted louvers of sheet metal construction for air exhaust

(iii) Electrical Room and Space for Wabag's Demin & Desal Equipment Room

Fan-Filter units for supplying filtered air to the MCC/Switch gear room, each complete with:

- A set of Air inlet louver with supporting frame
- A set of Pre-Filters with supporting frame
- A Tube-Axial Fan with cast alloy aluminium alloy impeller & drive motor
- Sheet metal casing housing the air inlet louver and pre-filters
- Supports
- Wall mounted back draft dampers

(iv) Battery Room

Fresh Air entry from outside through air inlet louver and air exhaust through Wall Mounted Bifurcated Exhaust Fans with flame proof motors and Electric fuse link type fire dampers. 100% stand-by exhaust fans have been envisaged. Each complete with:

- Fan impeller of cast alloy aluminium construction with blades of aerofoil design
- Flame proof type drive motor with brackets
- Fan Casing of sheet metal construction
- Electric Fuse link type Fire Damper
- Motorized isolation damper

- Resilient mounting
- Grouting frame work
- Supports and supporting structures
- Rain protection cowl (with bird-screen) made of galvanized steel sheet, fixing Bolts etc.
- Wall mounted manually operated louver shutter

(v) Others

- Local Starter Panels (LPS) for the above ventilation fans mentioned under (ii), (iii) and (iv)
- One no DESALINATION & DEMINERALIZATION BUILDING HVAC PANEL/MCC CUM PDB which shall feed power to (a) the above Precision air conditioners, fresh air & smoke exhaust fans and (b) three phase ventilation fans through LSPs.
- All necessary power and control cabling with cable trays, supports and grounding.

1.1.1.6.2 Fresh & Fire Water Pump House

Please refer to drawing LP1-TKC-10UGN-A-A1-DAL-9499 for layout of Fresh & Fire Water Pump House

(i) Pump House area/Equipment Area: please refer to point (ii) [1.1.1.6.1]

(ii) Electrical Room: please refer to point (iii) [1.1.1.6.1]

(iii) Others: please refer to point (v) [1.1.1.6.1]

1.1.1.6.3 Raw Water Forwarding Pump House and Electrical Sub-station

Please refer to drawing LP1-TKC-10UPH-A-A1-DAL-9480 for layout of Raw Water Forwarding Pump House and LP1-TKC-10UBB-A-A1-DAL-9475 for layout of Electrical Sub-station of Raw Water Area (Sand Settling Basin)

(i) Pump House area/Equipment Area: please refer to point (ii) [1.1.1.6.1]

(ii) Electrical Room: please refer to point (iii) [1.1.1.6.1]

(iii) Others: please refer to point (v) [1.1.1.6.1]

1.1.1.6.4 Ultra-filtration Pump House

Please refer to drawing LP1-TKC-10UXA-A-A1-DAL-8220 and LP1-WAB-10UXA-M-M3-DLP-0208 for layout of Ultra-filtration Pump House

(i) Pump House area/Equipment Area: please refer to point (ii) [1.1.1.6.1]

1.1.1.6.5 Filtered Water Pump House

Please refer to drawing LP1-TKC-10UGN-A-A1-DAL-9710 for layout of Filtered Water Pump House

(i) Control Room Area

- Non duct able air cooled Split Air Conditioners of suitable capacity and numbers with 100% stand-by units for air conditioning of the Control room and each complete with compressors and air cooled condensers in the Outdoor unit with powder coated GI casing, built-in electrical items & supports and Indoor unit housing pre filters, cooling coils, evaporator fans with drive motors, control console, all encased in powder coated GI casings with swiveling type supply air grilles and decorative RA grilles and interconnecting refrigerant piping (duly insulated) between outdoor and indoor units and insulated drain piping and microprocessor based cordless remote control panel.
- MCB for the above Split Unit

(ii) Pump House area/Equipment Area: please refer to point (ii) [1.1.1.6.1]

(iii) Electrical Room: please refer to point (iii) [1.1.1.6.1]

(iv) Others: Please refer to to point (v) [1.1.1.6.1]

1.1.1.6.6 Water Treatment Plant Chemical House

Please refer to tentative drawing LP1-TKC-10UTS-A-A1-DAL-8230 for layout of WTP Chemical House

(i) Precision Air Conditioner (PAC) room, Control/Control Equipment Room: Please refer to point (i) [1.1.1.6.1]. The PAC room shall be arranged by Bidder to meet requirement.

(ii) Chemical House and Pump Area:

Exhaust Fan units for exhausting air from the Chemical House, each complete with:

- Fan impeller of cast alloy aluminium construction (LM-6 Grade) with blades of aerofoil design
- Electric drive motor including motor brackets
- Resilient Mountings
- Grouting framework
- Rain protection cowl (with bird-screen) made of galvanized steel sheet, fixing Bolts,...
- Wall mounted louvers of sheet metal construction for air entry.

(iii) Toilet

Wall mounted type Exhaust fans for Toilet, each complete with:

- Fan impeller of cast alloy aluminium construction (LM-6 Grade) with blades of aerofoil design (for fans having capacities 1000 CMH and above) or of sheet metal construction (for fans having capacities lower than 1000 CMH)
- Electric drive motor including motor brackets
- Resilient Mountings
- Grouting framework
- Supports and supporting structures
- Rain protection cowl (with bird-screen) made of galvanized steel sheet, fixing Bolts,...
- Wall mounted louvers of sheet metal construction for air entry to Toilet.

(iv) Electrical Room: please refer to point (iii) [1.1.1.6.1]

(iii) Others: please refer to point (v) [1.1.1.6.1]

1.1.1.6.7 Chemical Laboratory Building

Please refer to tentative drawing LP1-TKC-10USV-A-A1-DAL-5810 for layout of Chemical Laboratory Building.

(i) Office, Stored, Water Testing Lab, Fuel Analysis Lab, General Equipment Lab, Balance Room: Please refer to point (i) [1.1.1.6.5]

(ii) Electrical Room: please refer to point (iii) [1.1.1.6.1]

(iii) Toilet and Pantry: Please refer to point (iii) [1.1.1.6.6]

(iv) Others: Please refer to to point (v) [1.1.1.6.1]

1.1.2 Electrical Equipment

The electrical scope under this package includes the design, supply, installation, testing, and commissioning of all electrical systems related to the Water Treatment Plant. The Bidder shall refer to the following key drawings:

- LP1-TKC-10XXX-E-E2-DSL-1001-D: Plant Key Single Line Diagram
- LP1-WAB-10UXX-E-E2-DSL-0001: Power SLD for RWPT, Desalination RO Stage 1, and Demineralization RO Stage 2

In case of discrepancies, the drawings shall prevail. All equipment must be sized to cover the plant's electrical load list, and additional items required for operability, including PCCs, MCCs, transformers, UPS, DC systems, etc., shall be within the Bidder's scope. Any changes to the existing Plant Key SLD must demonstrate performance and energy efficiency benefits.

(i) Power Distribution Equipment

- MCCs & MLDB for RWPT (10BFE54 & 10BFE64), Desalination RO-1 & Potable Water treatment (10BFE55 & 10BFE65), Demineralization RO-2 (10BFE52 & 10BFE62)
- Provide cable routing and accessories to connect all loads to relevant MCCs
- Include spare feeders and designated Owner feeders (1×100A & 1×200A per bus section)
- The Raw Water Intake Pumps 10GAF10AP001, 10GAF10AP002, 10GAF10AP003, 10GAF10AP004 and another electrical consumers nearby fed by MCC (not in Bidder's scope) located in Electrical room of Cooling Water Intake Pump House. However, the Bidder shall supply and install cabling between Pump and this MCC.
- The Raw Water Forwarding Pumps and another electrical consumers nearby shall be fed by MCC 10BFE54 & 10BFE64 located in Electrical Room of Water Treatment Chemical House. The cable routing and accessories between the pumps and MCC shall be within Bidder's scope.

(ii) Electric Motors & Actuators

- Supply all motors with baseplates and actuators for motorized valves as per the Technical Specifications.

(iii) Cabling Infrastructure

- Cable Trays, Cable Trench, Duct Banks, Conduits: For all power, control, and instrument cables with segregation per type
- Cables: Power/control/instrumentation including special cables where applicable
- Drawings for reference:
 - ✓ LP1-TKC-10XXX-E-E2-DLB-1100: Notes and details for Cabling System
 - ✓ LP1-TKC-11UMY-E-E2-DAL-8000 & 8001: Overall Cable routing layout
 - ✓ LP1-TKC-10UQA-E-E2-DAL-4000&4001: Equipment & Cable Routing Layout Intake CW Pump House – Plan & Section
 - ✓ LP1-TKC-10GAD-E-E2-DAL-4800: Equipment and Cable Routing Layout Sand Settling Basin and Raw water Forwarding Pump House (GAD)
 - ✓ LP1-TKC-10GDK-E-E2-DAL-9600: Equipment & Cable Routing layout-Fresh water reservoir and fresh water & fire water pump house

- ✓ LP1-TKC-10UBB-E-E2-DAL-9601: Equipment & Cable Routing Layout - Raw Water Area Substation (UBB)
- ✓ LP1-TKC-10UGN-E-E2-DAL-9603: Equipment and Cable Routing Layout- Filtered Water pump house
- ✓ LP1-WAB-10UXX-E-E2-DSL-0001: Single Line Diagram for RWPT, Desalination RO Stage 1 & Demineralization RO Stage 2
- ✓ LP1-WAB-10UGA-E-E2-DAL-0001: Electrical and I&C Room of Chemical house layout
- ✓ LP1-WAB-10UXX-E-E2-DAL-0001: Electrical and I&C Room of Demineralization and Desalination house layout

(iv) Control and Monitoring Panels

- Local Control Panels (LCPs), Starter Panels (LSPs), Push Button Stations (LPBS), and Junction Boxes (JBs) for all equipment

(v) UPS and DC Systems

- UPS systems with batteries and distribution boards for critical loads.
- 220V DC system with lead acid batteries and chargers.
- Cable routing between UPS and DC System to PCC 10BFB22 & 10BFB42 and 10BFB29 & 10BFB49 as shown in tentative Key Single Line Diagram DSL-1001.

(vi) Earthing & Lightning Protection

- Earthing systems up to aboveground riser level for all structures and equipment
- Full lightning protection for all buildings and construction facilities
- Drawings for reference:
 - ✓ LP1-TKC-10XXX-E-E2-DLB-1300: Notes and details- Lightning protection.
 - ✓ LP1-TKC-10UPH-E-E2-DAL-4880: Lightning Protection Layout-Raw water Forwarding Pump House (UPH)
 - ✓ LP1-TKC-10UXA-E-E2-DAL-9641: Lightning Protection Layout-Ultra Filtration Pump House (UXA).
 - ✓ LP1-TKC-10UGD-E-E2-DAL-9642: Lightning Protection Layout-Desalination and Demineralization Building
 - ✓ LP1-TKC-10UBB-E-E2-DAL-9644: Lightning Protection Layout-Raw Water Area Substation (UBB)

(vii) Illumination and Small Power System

- All illumination and small power systems, including associated distribution boards, for the following buildings and structures within the Water Treatment Plant:
 - ✓ Raw Water Forwarding Pump House & Electrical Substation
 - ✓ Filtered Water Pump House
 - ✓ Water Treatment Chemical House
 - ✓ Desalination Ultrafiltration Pump House
 - ✓ Ultra-filtration Pump House
 - ✓ Main Desalination–Demineralization Building
 - ✓ Fresh & Fire Water Pump House

- ✓ And any other applicable plant, outdoor operating areas covered under this package

- Drawings for reference:

The Bidder shall refer to the following documents during detailed design and final engineering:

- ✓ LP1-TKC-10XXX-E-E2-DLB-1400: Notes and details for illumination system
- ✓ LP1-TKC-10UPH-E-E2-CAL-4920: Illumination calculation - Sand Settling Basin and Raw water Forwarding Pump House
- ✓ LP1-TKC-10UPH-E-E2-CAL-4921: Illumination & Small Power Layout - Power Sand Settling Basin and Raw water Forwarding Pump House (UPH)
- ✓ LP1-TKC-10GDK-E-E2-CAL-5766: Illumination Calculation-Fresh water & fire water pump house
- ✓ LP1-TKC-10GDK-E-E2-CAL-5767: Illumination and Small power layout - Fresh water & fire water pump house
- ✓ LP1-TKC-10UGN-E-E2-CAL-9562: Illumination Calculation - Filter Water Pump House
- ✓ LP1-TKC-10UGN-E-E2-DAL-9563: Illumination and Small Power Layout - Filter Water Pump House.
- ✓ LP1-TKC-10UGD-E-E2-CAL-9564: Illumination Calculation - Desalination & Demineralisation Building
- ✓ LP1-TKC-10UGD-E-E2-DAL-9565: Illumination Calculation and Small Power Layout- Desalination & Demineralisation Building
- ✓ LP1-TKC-10USV-E-E2-CAL-9566: Illumination Calculation - chemical lab building
- ✓ LP1-TKC-10USV-E-E2-DAL-9567: Illumination and small power layout - chemical lab building
- ✓ LP1-TKC-10USC-E-E2-CAL-9572: Illumination Calculation-Ultra Filtration Pump House
- ✓ LP1-TKC-10USC-E-E2-CAL-9573: Illumination and Small Power Layout - Ultra Filtration Pump House

Additional illumination layouts, calculations, and as-built documentation shall be prepared by the Bidder during the contract execution phase, as part of the final engineering deliverables

(viii) Integration Responsibilities

- Any modifications requiring new PCC, MCC, switchgear, or space in the Central Control Room (CCR) must be fully included in Bidder's scope, including busducts, trays, cabling, and steel structures for integration.

1.1.3 Control and Instrumentation Equipment

The Bidder shall be responsible for the complete design, engineering, manufacturing, supply, installation, testing, pre-commissioning, commissioning, and documentation of the Instrumentation & Control (I&C) system for the Water Treatment Plant. The scope shall include all necessary equipment, materials, and works to ensure proper field instrumentation and safe, reliable operation.

All control systems and instrumentation (e.g., PLC systems, pressure transmitters, differential pressure transmitters, thermocouples, flow transmitters, temperature

switches, indicators, etc.) shall originate from OECD (Organisation for Economic Co-operation and Development) countries or be manufactured under a valid license from an OECD company.

The Water Treatment Plant shall be monitored and operated locally via a dedicated PLC-based control system, and shall also be interfaced with the Distributed Control System (DCS) via hardwired and/or fiber optic cables in a redundant configuration for remote monitoring, and interlocking functions as technical requirements (Volume II-E Technical specifications for Instrumentation and control)

The I&C scope shall include, but not be limited to, the following:

(i) Control Panels and PLC System

- Supply of local control panels with PLC-based automation system
- Redundant CPUs, power supplies, memory modules, network and communication modules.

(ii) Field Instrumentation

Measuring and monitoring devices suitable for WTP including but not limited:

- Pressure and differential pressure transmitters.
- Temperature sensors and transmitters, switches.
- Level transmitters, switches.
- Flow meters (magnetic, ultrasonic, or as specified).
- Vibration sensors, proximity switches, position sensors, limit switches.
- Analyzers pH, Conductivity, silica, Turbidity,...

(iii) Installation Accessories

- Manifolds, impulse tubing, fittings, mounting hardware, local indicators, and junction boxes.

(iv) Cabling and Connectivity

- Supply of signal, control, communication and power cables.
- Cable trays, glands, and connectors for complete I&C cabling infrastructure.

(v) Human-Machine Interface (HMI) and Local Stations

- HMI units, local control stations, push-button panels, indicator lights, and interface devices.

(vi) Communication Integration

- Open protocol communication interface (e.g., Modbus TCP/IP) to link with main plant DCS
- Network redundancy and interface programming to ensure data reliability

(vii) Control Room Equipment

- Consoles, furniture, monitors, and necessary auxiliary devices for centralized I&C operations

(viii) System Integration

- I/O signal exchange and interlocks with external systems (e.g., DM Water Transfer, Condensate Transfer, Cooling Water System)
- Coordination with Owner for boundary definitions.

(ix) Engineering & Configuration

- Control logic, interlock schemes, graphic interfaces, alarm management, and system diagnostics.

(x) Documentation

- Complete set of technical documents: I/O list, logic diagrams, wiring diagrams, interface matrix, O&M manuals, and system architecture drawings.

To define the boundaries of instrumentation and control responsibilities, the control architecture for the Water Treatment System is structured as follows:

(xi) For DCS-Controlled Equipment:

- The following equipment, located within the Cooling Water Intake Pump House, shall be monitored and controlled directly by DCS from the Central Control Room (CCR):
 - ✓ Four (4) Raw Water Intake Pumps (10GAF10AP001 to 004)
 - ✓ Motorized Butterfly Control Valves (11GAC01AA101 and 12GAC01AA101¹), which regulate filling to Cooling Water Units 1 and 2
 - ✓ The Bidder shall be responsible for supply and installation of junction boxes and all associated cabling from field instruments to the designated interface points.
 - ✓ Reference Drawing: LP1-TKC-10G-M-M3-P&ID-1050, Sheet 1

(xii) For Package-Controlled Systems:

- All remaining systems, equipment, and instrumentation under this package shall be controlled via a dedicated PLC-based control system, integrated as per system architecture defined in Section II.2 [Detailed Scope of Work].

1.2 Design and construction for civil system:

The Bidder is responsible for detailed design, procurement of materials and equipment for construction to complete Water Treatment Plant with the ultimate aim of providing the Owner with a complete, safe and effectively operated system, including but not limited to the following:

- The Bidder shall carry out Topographic survey, Soil investigation and final Grading (if necessary) to support the design and construction activities.
- Detailed design (including correction of existing designs - if necessary), and other design services related to the works;
- Provide all necessary personnel, machinery, equipment, materials, and supplies required for the proper execution and completion of the works.
- Prepare the construction method statement and carry out the construction, installation works.
- Establish procedures and management systems to strictly control the quality and progress of the project.
- Construct all temporary works and maintain them safely and effectively to serve the execution of the Works until they are dismantled or returned in accordance with the requirements of the Contract.

The scope of detailed design and construction for civil system of the Water Treatment Plant includes, but is not limited to, the following items:

¹ Please see drawing LP1-TKC-10PA-M-M4-P&ID-1008: P&ID for Main Cooling Water System for these valves

No.	Items	Remark
I	River Water Transportation up to River Water Pre-Treatment System	
1	Raw water forwarding pump house*	Remaining works
2	Sand settling basin*	Remaining works
3	Raw water area substation	
4	Pipe support	
II	River Water Pre-treatment System (RWPT)	
1	Control station	
2	Dissolved air flotation (DAF)	
3	Stilling chamber	
4	Parshall flume	
5	Distribution chamber	
6	Clarifier*	Remaining works
7	Sand filter building*	Remaining works
8	Waste water sludge pit	
9	Waste water backwash pit*	Remaining works
10	Chemical House*	Remaining works
11	Filtered water reservoir*	Remaining works
12	Pipe support	
III	Desalination & Demineralization RO System	
1	Filtered water pump house*	Remaining works
2	UF backwash pit*	Remaining works
3	UF permeate & DM RO permeate tank*	Remaining works
4	Ultra-filtration Pump House*	Remaining works
5	Neutralisation Pit*	Remaining works
6	Fresh Water Reservoir*	Remaining works
7	Fresh & Fire Water Pump House*	Remaining works
8	Desalination & Demineralization Building*	Remaining works
9	DM Water Storage Tank	Remaining works
10	Potable Water Storage Tank*	Remaining works
11	Chemical laboratory building*	Remaining works
12	Pipe support	
13	Duct banks and Storm drainage of the area	Tentative Duct bank and drainage culvert shown in drawing LP1-TKC-10UMY-E-E2-DAL-8000 in folder [Attachment Chapter V\0. Technical Datasheet\Drawings for scope]
14	Transformer for Water Treatment System	

Note: (*) *The items marked as under construction are partially completed. The Bidder shall assume full responsibility for completing all outstanding works, as referenced in Item I.4.b – Status of Package in this Chapter. This includes carrying out any necessary repairs, modifications, or replacements to align the partially constructed components with the Bidder’s final system design and performance requirements*

1.3 Installation, testing, commissioning and service

This scope includes all activities required to ensure the successful installation and handover of the Water Treatment Plant. The Bidder shall be responsible for:

(i) Installation

- Erection and alignment of equipment, machinery, and structural steel components in accordance with design drawings and specifications.
- Assembly, anchoring, grouting, and interconnection of all systems to achieve operational readiness.

(ii) Testing and Commissioning

- Supervise and execute pre-commissioning and commissioning activities for all installed systems.
- Conduct performance testing to verify compliance with functional requirements and performance guarantees.
- Ensure all works are executed in full compliance with applicable safety standards, environmental regulations, and fire prevention codes.

(iii) Training

- Provide comprehensive training and operational guidance to the Employer's personnel, covering routine operation, troubleshooting, and preventive maintenance.
- Supply user manuals and operational checklists as part of training handover.

(iv) Documentation

- Prepare and submit complete as-built documentation in accordance with applicable regulatory and contractual requirements.
- This includes red-marked drawings, test results, calibration certificates, and system operation manuals.

(v) Additional Completion Duties

- Carry out any remaining works required to bring the plant to full operational condition.
- Resolve punch list items and finalize systems integration and functional verifications.

2. Detailed scope of work

2.1 For Division of Work

In this table Division of Work

- **O**: means The materials and equipment are partially delivered and fully stored at Site and they will be handed-over from Owner to Bidder and will be under Bidder’s custody for installation and commissioning to complete the package. Except materials, equipment available at Site, all remaining materials/equipment needed to complete package shall be within Bidder’s scope of work.

The Bidder shall be also responsible for receiving, inspecting and assessing the condition, adequacy, sufficiency of materials and equipment available at Site during Contract performance in order to propose a plan for repair/replacement (if necessary), ensuring

that the equipment quality is equivalent to the original condition and meets the performance guarantees as stated in this chapter.

- **B:** means scope of work by Bidder/Contractor

- **N/A:** Not applied

- **A:** means Alternative

+ The materials/equipment is now stored at OEM's warehouse (VCL Watertech for Water Treatment equipment and Apollo for Fresh Water Transfer Pump) but under PM' Ownership (former EPC Contractor) as PM paid to VCL and Apollo for the stored materials/equipment. The Detailed packing list (DPL) of stored equipment is summarized in Attachment #4 [4. Package Status Documents\5. Goods at OEM's warehouse].

+ For evaluation of Bidder's proposal during tendering phase, Bidder shall provide full quotation for scope of work of this package (including provision of detailed break-down price for re-manufacturing and supply of equipment stored at original OEM's warehouse).

+ However, for EPC contractual settlement with PM, the Owner plans to ship these materials/equipment to Site. In case the Owner successfully negotiates with PM/VCL/Apollo for the pick-up of materials/equipment stored at OEM's warehouse to Ho Chi Minh port, the Contract Price shall exclude Optional Portion. Nevertheless, the Bidder shall still be required and responsible to:

- (i) On behalf of Owner, inspect and assess the condition of the packages upon delivery at Ho Chi Minh Port (including but not limited for checking shortages, visual damage to packing, seal integrity, and non-compliance with delivery documents). After signing hand-over protocol for receiving packages at Ho Chi Minh port, any loss or damage for packages (if not properly reported) shall be Bidder's responsibility.
- (ii) Provide service for custom clearance (including any additional fee) and domestic transportation (including transit insurance) from Ho Chi Minh port to Long Phu 1 Site. The tentative Detailed packing list for Bidder to estimate weight of local transportation to Site is given in Attachment #4 [4. Package Status Documents\5. Goods at OEM's warehouse]
- (iii) Itemize inspection and assess materials/equipment with visual damages upon package opening (including checking quantity, quality, condition, etc.). After signing protocol of opening packages, any loss, damage, or repair of these materials and equipment (if not properly reported) shall be Bidder's responsibility.

- **Engineering:** Includes but not limited both basic (if any) and detailed design

- Technical description of systems.
- Process Flow Diagrams, P&IDs.
- Equipment sizing, GA drawings.
- Equipment, valve, pipeline, instrument lists.
- Architectural and civil drawings for site works.

*Note: Bidder must refer to existing engineering documents from the 2015–2019 EPC phase by Power Machines/Vendor/TKC. These are for reference only and do not relieve the Bidder of responsibility. Any errors or omissions in these documents are not the Owner's liability. The using of these documents must not result in any claims against the Owner.

- **Supply:** Manufacture of equipment and supporting structures, inspection, and testing of equipment at supplier's facility.

- **Transportation:** Packing, shipment, transit insurance, and full delivery to Site (including customs clearance, both international and domestic).
- **Construction:** Full civil and installation works per Bidder's design, including unloading, storage, handling, technical advisors for supervision, and all construction materials.
- **Commissioning:** Includes all activities such as inspection, calibration, testing, and verification to ensure that all installed equipment and systems (mechanical, electrical, instrumentation, control, etc.) are correctly installed, operate according to the design intent, are safe, meet the required technical specifications, and are ready to be handed over for official operation.

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A River Water Transportation up to River Water Pre-Treatment System							
I Equipment (including supporting steel structure, platform, Staircase...) & Installation							
1	Raw Water Intake Pumps 10GAF10AP001, 10GAF10AP002, 10GAF10AP003, 10GAF10AP004	B	B	B	B	B	
2	Sluice Gates 10HSD10AT001 and 10HSD10AT002 at Sand Settling Basin	B	B	B	B	B	
3	Raw Water Forwarding Pump 10GAF20AP001, 10GAF20AP002, 10GAF20AP003, 10GAF20AP004	B	B	B	B	B	
4	Bar Screen 10GAA10AT001 & 10GAA10AT002 Raw Water Forwarding Chambers	B	B	B	B	B	
5	Sluice Gate 10HSD10AT001 at Raw Water Forwarding Chambers	B	B	B	B	B	
6	Control valve 10GAC10AA701 for raw water recirculation to Raw Water Intake Chamber	B	B	B	B	B	
7	Control Valve 10GAC20AA701 for raw water recirculation to Raw Water Forwarding Pump Sump	B	B	B	B	B	
8	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, sniper, and piping specialties,...) connecting Raw Water Intake Pumps and Sand Settling Basins	B	B	B	B	B	
9	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, sniper, and piping specialties,...) connecting Raw Water Forwarding Pumps and inlet of River Water Pre-treatment system	B	B	B	B	B	
II Construction item							
1	Pipe support	B	B	B	B	B	
2	Sand Settling Basin*	B	B	B	B	B	

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3	Raw Water Forwarding Pump House*	B	B	B	B	B	
4	Raw Water Forwarding Sump	B	B	B	B	B	
B River Water Pre-treatment System (RWPT)							
I Equipment (including supporting steel structure, platform, Staircase...) & Installation							
1	Control Station	B	A	B	B	B	
2	Dissolved Air Flotation (DAF) (Equipment)	B	O	B	B	B	
3	Parshall Flume for Stilling Chamber (Equipment)	B	O	B	B	B	
4	Parshall Flume for Distribution Chamber (Equipment)	B	O	B	B	B	
5	Solid Contact Clarifier Lamella type (Equipment)	B	O	B	B	B	
6	Gravity Sand Filters (Equipment)	B	O	B	B	B	
7	Sand for Gravity Sand Filters	B	O	B	B	B	
8	Sludge Recirculation Pumps 10GBD30AP110, 10GBD30AP120, 10GBD31AP110, 10GBD31AP120	B	O	B	B	B	
9	Sludge removal pumps 10GBD31AP110, 10GBD31AP120, 10GBD41AP110, 10GBD41AP120	B	O	B	B	B	
10	Sludge Disposal Pumps 10GBS10AP001, 10GBS20AP001	B	A	B	B	B	
11	Air blowers for Gravity Sand Filters (10GBP21AN001, 10GBP22AN001)	B	O	B	B	B	
12	Backwash wastewater Transfer Pumps 10GBR23AP001, 10GBR24AP001	B	O	B	B	B	
13	Drain Pump 10GMD01AP001	B	B	B	B	B	
14	FeCl ₃ Dosing Tanks 10GBQ20BB001, 10GBQ20BB002	B	O	B	B	B	
15	FeCl ₃ Dosing Pumps 10GBQ21AP001, 10GBQ22AP001, 10GBQ23AP001, 10GBQ24AP001, 10GBQ25AP001	B	O	B	B	B	
16	Agitators of Slaking solution tanks (10GBQ41AM001 and 10GBQ42AM001)	B	B	B	B	B	
17	Ca(OH) ₂ Lime transfer pumps 10GBQ41AP001, 10GBQ42AP001 to Lime Preparation tank	B	O	B	B	B	
18	Agitators of Lime preparation tank (10GBQ43AM001 & 10GBQ44AM001)	B	B	B	B	B	
19	Ca(OH) ₂ Dosing Pumps (10GBQ43AP101, 10GBQ44AP101, 10GBQ45AP101, 10GBQ46AP101, 10GBQ47AP101)	B	O	B	B	B	
20	Polyelectrolyte dosing tanks 10GBQ11BB001 & 10GBQ12BB001 with	B	O	B	B	B	

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	electric mixers 10GBQ11AM001 and 10GBQ12AM001						
21	Polyelectrolyte dosing pumps (10GBQ11AP001, 10GBQ12AP001, 10GBQ13AP001, 10GBQ14AP001, 10GBQ15AP001)	B	O	B	B	B	
22	KMnO4 dosing tanks 10GBQ31BB001, 10GBQ32BB001 with electric mixers 10GBQ31AM001 and 10GBQ32AM001	B	O	B	B	B	
23	KMnO4 dosing pumps 10GBQ31AP001, 10GBQ32AP001	B	O	B	B	B	
24	Sluice gates 10GDB10AT001/10GBK54AA001 & 10GDB10AT003 for inlet and outlet of compartment 1 and 10GDB10AT002/10GBK54AA002 & 10GDB10AT004 for inlet and outlet of compartment 2 of Filtered Water Reservoir	B	B	B	B	B	
25	A set of Safety Shower 10GCP90BR001	B	A	B	B	B	
26	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire River Water Pre-Treatment System (Fabricated Parts and stored at Manufacturer's warehouse)	B	A	B	B	B	
27	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire River Water Pre-Treatment System (Not Fabricated Parts)	B	B	B	B	B	
28	Necessary instruments/devices for measurement of quality of treated water as shown in section [Performance Guarantees]	B	B	B	B	B	
II Construction item							
1	Pipe support	B	B	B	B	B	
2	Control station	B	B	B	B	B	
3	Dissolved air flotation (DAF)	B	B	B	B	B	
4	Stilling chamber	B	B	B	B	B	
5	Parshall flume	B	B	B	B	B	
6	Distribution chamber	B	B	B	B	B	
7	Clarifier*	B	B	B	B	B	
8	Sand filter building*	B	B	B	B	B	
9	Waste water sludge pit*	B	B	B	B	B	

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
10	Waste water backwash pit*	B	B	B	B	B	
11	Filtered water reservoir*	B	B	B	B	B	
12	Chemical House*	B	B	B	B	B	
13	All concrete channels for transferring water between equipment within River-water Pre-treatment System	B	B	B	B	B	
C	Desalination System by Reverse Osmosis (RO) 1°						
I	Equipment (including supporting steel structure, platform, Staircase...) & Installation						
1	Ultra-filtration feed pumps 10GCB01AP001, 10GCB01AP002, 10GCB01AP003	B	A	B	B	B	
2	Activated Carbon Filters for Ultra-filtration skids 10GCB11AT001, 10GCB12AT001, 10GCB13AT001, 10GCB14AT001	B	O	B	B	B	
3	Activated Carbon	B	O	B	B	B	
4	Complete Ultra-filtration skids 10GCB21AT001, 10GCB22AT001	B	O	B	B	B	See soft-copy (excel file) & hard copy of DPL 172C. The difference of 2 lists in above DPLs is remaining work
5	Ultra-filtration membranes	B	O	B	B	B	
6	Remaining items of Ultrafiltration Skids: Connection and assembly material for two pieces of ultrafiltration block (4 sets)	B	A	B	B	B	
7	Remaining items of Ultrafiltration Skids: Butterfly valves DN 125 for two pieces of ultrafiltration block	B	A	B	B	B	
8	Remaining items of Ultrafiltration Skids: Butterfly valves DN 125 and DN 150 for two pieces of ultrafiltration block	B	A	B	B	B	
9	UF Permeate Storage Tank (11GCK01BB001)	B	B	B	B	B	
10	UF Backwash Pumps 10GCP15AP001, 10GCP16AP001	B	O	B	B	B	
11	Desalination RO Feed Pumps 10GCK02AP001, 10GCK03AP001	B	O	B	B	B	
12	UF Backwash waste transfer pumps 10GBP11AP001, 10GBP12AP001	B	O	B	B	B	
13	Ba2+ filters (10GCF11AT001, 10GCF12AT001)	B	O	B	B	B	
14	Ba2+ filters Ionex mass	B	O	B	B	B	

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
15	Desalination RO skids 10GCF21AT001, 10GCF22AT001 (including Micron filters 11GCF21AT001/11GCF22AT001, high pressure pumps 10GCF21AP001&002/10GCF22AP001&002, PLC, valves, internal piping and instruments,...)	B	O	B	B	B	
16	RO Membranes Stage 1	B	O	B	B	B	
17	De-gasser towers 10GCC11AT001 and 10GCC12AT001 for CO2 removal	B	A	B	B	B	
18	Air fans for De-gasser towers 10GCC11AN001 and 10GCC12AN001	B	A	B	B	B	
19	NaOH Caustic dosing tank 10GCQ20BB001 with electric mixer	B	O	B	B	B	
20	NaOH Caustic dosing Pumps (10GCQ21AP001, 10GCQ22AP001, 10GCQ23AP001, 10GCQ24AP001 and 10GCQ25AP001)	B	O	B	B	B	
21	Antiscalant dosing tank 10GCQ30BB001 with electric mixer	B	O	B	B	B	
22	Antiscalant dosing pumps 10GCQ31AP001, 10GCQ32AP001	B	O*	B	B	B	Note
23	Sodium Bisulphate dosing tank 10GCQ40BB001 with electric mixer	B	O	B	B	B	
24	Sodium Bisulphate dosing pumps 10GCQ41AP001, 10GCQ42AP001	B	O	B	B	B	
25	Acid HCl dosing tank 10GCQ50BB001 with electric mixer	B	O	B	B	B	
26	Acid HCl dosing pumps 10GCQ51AP001, 10GCQ52AP001, 10GCQ53AP001, 10GCQ54AP001)	B	O	B	B	B	
27	NaOCl dosing tank 10GCQ10BB001 with electric mixer	B	O	B	B	B	
28	NaOCl dosing pumps 10GCQ11AP001, 10GCQ12AP001, 10GCQ13AP001 and 10GCQ14AP001	B	O	B	B	B	
29	Cleaning In Place (CIP) for Desalination RO System and DM RO System complete with chemical tank 10GCP50BB001, cleaning solution pumps 10GCP51AP001, 10GCP52AP001, cartridge filters 10GCP53AT001, 10GCP54AT001, valves, instruments and specialties,...	B	O	B	B	B	
30	Desalination RO Flushing Pumps 10GCP43AP001, 10GCP44AP001	B	O	B	B	B	

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
31	Desalinated water for ion-exchange resin regeneration pumps 10GCP41AP001, 10GCP42AP001	B	A	B	B	B	
32	Air Blowers for Neutralization Pit 10GCP61AN001 and 10GCP62AN001	B	O	B	B	B	
33	Chemical tanks for Neutralization Pit 10GCQ61BB001 for HCl tank and 10GCQ62BB001 for NaOH tank	B	O	B	B	B	
34	Wastewater disposal pumps from Neutralization Pit 10GCR55AP001, 10GCR56AP001	B	O	B	B	B	
35	A set of Safety Shower 10GCP90BR001	B	A	B	B	B	
36	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Desalination RO System Stage 1 (Fabricated Parts stored at Manufacturer's warehouse)	B	A	B	B	B	
37	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Desalination RO System Stage 1 (Not Fabricated Parts)	B	B	B	B	B	
38	Necessary instruments/devices for measurement of quality of treated water as shown in section [Performance Guarantees]	B	B	B	B	B	
II Construction item							
1	Pipe support	B	B	B	B	B	
2	Filtered Water Pump House*	B	B	B	B	B	
3	Backwash pit*	B	B	B	B	B	
4	Neutralization pit*	B	B	B	B	B	
5	Fresh Water Reservoir*	B	B	B	B	B	
6	Ultra-filtration Pump House*	B	B	B	B	B	
7	Desalination-Demineralization Building*	B	B	B	B	B	
8	Fresh and Fire Water Pump House*	B	B	B	B	B	
9	UF Permeate Storage Tank*	B	B	B	B	B	
10	Transformer for Water Treatment System	B	B	B	B	B	
D Fresh Water Transfer Pipeline and Potable Water System							
I Equipment (including supporting steel structure, platform, Staircase...) & Installation							
1	Fresh Water Transfer Pumps	B	A	B	B	B	

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2	The pipeline system (complete with piping, valves, instruments, expansion joints, hanger & support, pipe clamps, sniper, and piping specialties,...) connecting Fresh Water Reservoir and Potable Water System	B	B	B	B	B	
3	Control Valve 10GKD20AA701 for fresh water recirculation to Fresh Water Reservoir	B	B	B	B	B	
4	Field Fabricated Potable Tanks 1x1000m ³	B	B	B	B	B	
5	Activated Carbon Filter for Potable Water Treatment 10GCB31AT001, 10GCB32AT001	B	O	B	B	B	
6	Activated Carbon for Potable Water Treatment	B	O	B	B	B	
7	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Fresh Water Transfer Pipeline and Potable Water System	B	B	B	B	B	
II Construction item							
1	Pipe support	B	B	B	B	B	
2	Potable storage Tanks*	B	B	B	B	B	
E Demineralization RO 2° System							
I Equipment (including supporting steel structure, platform, Staircase...) & Installation							
1	Demineralisation RO feed pumps (10GCK06AP001 and 10GCK07AP001)	B	O	B	B	B	
2	Demineralization RO Skids complete with RO micron filters 10GCF35AT001/10GCF36AT001, High pressure pump Grundfos (10GCF31AP001/10GCF32AP001), valves, instruments, piping,...	B	O	B	B	B	
3	RO Membranes Stage 2	B	O	B	B	B	
4	RO Stage 2 Permeate Storage Tanks 10GCK08BB001 and 10GCK08BB002	B	B	B	B	B	
5	CEDI feed pumps 10GCK11AP001, 10GCK12AP001	B	O	B	B	B	
6	CEDI modules 10GCF33AT001 and 10GCF34AT001	B	O	B	B	B	
7	Ionex mass	B	O	B	B	B	
8	Necessary instruments/devices for measurement of quality of treated water as shown in section [Performance Guarantees]	B	B	B	B	B	
9	Field Fabricated DM Storage Tanks 2x2500m ³	B	B	B	B	B	

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
10	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Demineralization RO Stage 2 System (Fabricated Parts stored at Manufacturer's warehouse)	B	A	B	B	B	
11	All integral and interconnected pipe works, valves, sumps, gates, all types of pipe supports, pipe and cable racks, pipe and cable bridges, etc. for the entire Demineralization RO Stage 2 System (Not Fabricated Parts)	B	B	B	B	B	
II Construction item							
1	Pipe support	B	B	B	B	B	
2	DM Storage Tanks*	B	B	B	B	B	
3	UF permeate & DM RO permeate tank*	B	B	B	B	B	
4	Duct banks and Storm drainage of the area	B	B	B	B	B	
F Electrical Equipment for Water Treatment Plant							
1	Motor Control Centre (MCC) 400V: - 10BFE54 & 10BFE64 for River Water Pre-treatment System (RWPT) - 10BFE55 & 10BFE65 for Desalination System by Reverse Osmosis Stage 1 - 10BFE52 & 10BFE62 for Demineralization RO Stage 2 System	B	A	B	B	B	
2	Electrical Motors and Actuators	B	B	B	B	B	
3	Cable Trays, Cable Trench and Accessories within package	B	B	B	B	B	
4	Power, Control & Instrument Cables	B	A	B	B	B	
5	Local Control Panel/Local Starter Panel/Local Push Button Station/ Junction Boxes	B	B	B	B	B	
6	Uninterrupted Power Supply System (UPS)	B	B	B	B	B	
7	220V DC System include supply of 220V DC System	B	B	B	B	B	
8	Above ground equipment earthing (up to riser)	B	B	B	B	B	
9	All lightning protection for the buildings/Construction facility	B	B	B	B	B	

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
10	All illumination and small power system (including distribution boards) for equipment/structure and the buildings (<i>such as Raw Forwarding Pump House, Filtered Water Pump House, Water Treatment Plant Chemical House, Desalination Ultra-filtration Pump House, Main Desalination-Demineralization Building, Fresh & Fire Water Pump House, ...and other buildings under bidder's design work</i>)	B	B	B	B	B	
H Control and Instrumentation for Water Treatment Plant							
1	PLC system, including main panels, I/O panels, and required interface modules	B	B	B	B	B	
2	Local control room operation workstation, including HMI units, printer, desks, and chairs	B	B	B	B	B	
3	Complete set of field instrumentation and control devices within the Water Treatment plant, including but not limited to: sensors, transmitters, switches, analyzers, control valves, MOV and all necessary accessories (e.g. fittings, impulse lines, mounting brackets, tubing, manifolds, etc.).	B	A	B	B	B	
4	Junction boxes, local control panels, local racks/boxes, instrument racks/boxes, and marshalling kiosks as required.	B	B	B	B	B	
5	Portable engineering laptop with built-in serial port and licensed programming/configuration software for PLC and ACS systems.	B	B	B	B	B	
6	All instrument and control cables with all necessary accessories, including connectors, terminals, glands, etc.	B	B	B	B	B	
7	All types of special cables including system bus, Ethernet, fiber optic cables, grounding/earthing cables.	B	B	B	B	B	
8	Cable trays, conduits, clamps, and supports for installation and protection of instrument/control cables.	B	B	B	B	B	
9	All source codes, configuration files, and software licenses related to the supplied I&C system.	B	B	B	B	B	
10	Any other equipment, devices, or accessories necessary to ensure a complete, safe, and operable I&C system for the Water Treatment Plant package.	B	B	B	B	B	
J HVAC							

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Heat, Ventilation, Air Conditioning (HVAC) for various buildings/facilities (<i>such as Raw Forwarding Pump House, Filtered Water Pump House, Water Treatment Plant Chemical House, Desalination Ultra-filtration Pump House, Main Desalination-Demineralization Building, Fresh & Fire Water Pump House, Chemical Laboratory Building...and other buildings under bidder's design work</i>)	B	B	B	B	B	
K	Miscellaneous Works						
1	Technical Advisors for guiding on construction, installation, commissioning at Site	N/A	B	N/A	B	B	
2	Training of Owner personnels	N/A	B	N/A	B	B	
3	All consumables for installation works, oil & grease for first lubricant and chemicals (Lime Ca(OH) ₂ , FeCl ₃ , Antiscalant, Sodium Bisulphate, NaOCl, HCl, Poly Electrolyte POF, KMnO ₄ , NaOH Caustic...) and other consumables during commissioning	B	B	B	B	B	
4	All anchor bolts, templates, sleeves, sole plates, base plates, etc. for all plant, equipment, building & facility within package as required	B	B	B	B	B	
5	Start-up & commissioning spare parts	B	B	B	B	B	
6	Special Tools and Tackles	B	B	B	B	B	
7	Painting at Shop and at Site in accordance with LP1-TKC-10XXX-M-G1-SPC-2022: Project Specification for Painting	B	B	B	B	B	
8	Study, collect input data for quality of Hau river water serving for design of Water Treatment Plant (if required)	B	B	N/A	N/A	N/A	
9	Crane in Raw Forwarding Pump House	B	O	B	B	B	
10	Crane in Filtered Water Pump House	B	O	B	B	B	
11	Crane in Fresh & Fire Water Pump House	B	O	B	B	B	
12	Hoist in Water Treatment Chemical House	B	B	B	B	B	
13	Hoist/Crane in Desalination & Demineralization Building	B	B	B	B	B	
14	Hoist/Crane in Ultra-filtration Pump House	B	B	B	B	B	
15	Hoist for Sluice Gates at Sand Settling Basins, Filtered Water Reservoir and Fresh Water Reservoir	B	B	B	B	B	
16	Manual Lifting Mechanism shown on drawing LP1-WAB-10UGA-M-M3-DSE-0012	B	B	B	B	B	

Schedule Division of Work							
No	Description of works	Engineering	Supply	Transportation	Construction	Commissioning	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
17	Other Hoist and Crane within package designed by Bidder or shown on Owner's drawings	B	B	B	B	B	
18	Other items not declared but needed to complete system under package	B	B	B	B	B	
<p>(*) Note: These items are under construction. The Bidder shall complete the remaining works (please refer to item I.4.b-Status of package of this Chapter)</p> <p>- According to Wabag, Drive for one set of antiscaling agent tank + dosing pumps is wrongly delivered. Therefore, this equipment is also in subject of new supply by Bidder. However, in case of right delivery when opening the package, the cost for supply by Bidder shall be deducted.</p>							

2.2 For Site Activity Management

No.	Description of Work	Scope by		Remarks
		Owner	Bidder	
1	General Management			
1.1	<i>Site Management Service</i>			
	- Management of entire Long Phu 1 Project Site	✓		
	- Construction/erection work management	✓	✓	The Bidder shall manage construction work under his scope.
1.2	<i>Schedule management</i>			
	- Overall schedule of project	✓		
	- Detailed project schedule LV1, LV2, LV3 of the package		✓	The Bidder shall submit Project Schedule showing main tasks of Project during bidding phase and detailed Project Schedule (LV2, LV3) during Contract execution phase.
1.3	<i>Reports</i>			
	- Daily, weekly and monthly progress reports		✓	
	- Daily reports on mobilization of machine, equipment, man-power for construction work at Site.		✓	
	- Reports on materials/equipment control at Site		✓	

No.	Description of Work	Scope by		Remarks
		Owner	Bidder	
	- Reports on inspection, testing during construction work at Site.		✓	
2	Project Documents			
2.1	Drawings, Documents, Manuals for Construction	✓	✓	The Owner shall provide attached documents for request of proposal in section XI below. The bidder shall be responsible for carefully reviewing, studying to determine quantity of work to be performed under the specification
2.2	Mark-up drawing during and after construction		✓	
2.3	As-built drawings		✓	The bidder shall be responsible for providing informations, documents and co-ordination with Owner's Consultant/Owner to establish as-built drawings in accordance with Vietnamese regulation.
2.4	Construction Method Statement (CMS)		✓	
2.5	Management, distribution of data, engineering/construction documents to match with project schedule. The document distributed by bidder shall be updated with latest information	✓		
3	Receipt, transportation and preservation of materials/equipment			
3.1	Transportation of materials/equipment to temporary storage warehouse at Site (including materials & equipment unloading)		✓	The bidder shall inform Owner for witness and acceptance of materials/equipment when delivered to Site before transportation to temporary storage warehouse and unloading
3.2	Transportation from temporary warehouse to construction area (including pick-up and unloading during transportation)		✓	The Owner shall reserve space within the Power Plant for temporary storage before installation as per Storage Manual from Manufacturer. The Bidder shall have properly stored and take care of packages containing materials/equipment in sealed condition.

No.	Description of Work	Scope by		Remarks
		Owner	Bidder	
3.3	Opening packages for inspection of materials/equipment before installation		✓	The bidder shall also provide necessary machinery for inspection and customization
3.4	Storage, Preservation of materials/equipment after opening the packages and during construction works		✓	The bidder shall follow manufacturer's instruction. Any arising work for storage and preservation shall be paid at Bidder's cost
3.5	Return of materials/equipment in excess		✓	After finishing package, the materials in excess (if any) shall be returned to Owner by Bidder before leaving the Site.
4	QA/QC Management			
4.1	Establishment of Project Management System during construction work at Site		✓	
4.2	Establishment of Inspection and Test Plan (ITP)		✓	
4.3	Quality assurance during construction work at Site	✓	✓	The Owner shall hire Consultant for supervision and acceptance work at Site while the bidder shall be responsible for quality of construction in accordance with approved drawings
4.4	Preparation of dossier for inspection and acceptance		✓	
4.5	Provide tools, machinery, equipments served for inspection and acceptance		✓	
4.6	Perform testing, sampling, inspection during construction work.		✓	
4.7	Perform Non-destructive test-NDT (if required)		✓	
4.8	Certificate for machinery & equipment		✓	
4.9	Registration of machinery for construction		✓	The certificate must be valid during construction. Any works for registering, re-newing certificates of machinery/equipment for construction work shall be performed at bidder's cost.

No.	Description of Work	Scope by		Remarks
		Owner	Bidder	
4.10	Welder qualification		✓	
4.11	Welding Procedure (WPS, PQR), Procure for qualification of welders		✓	
4.12	Construction diary writing as per regulation		✓	Template for construction diary shall be prepared by bidder
4.13	Register of equipment having safety regulation before putting in use		✓	The hoisting device needs to be registered for safety before putting in use. Any permit, dossiers needed as required by Authority shall be prepared by bidder. In case of requirement of 3 rd party for inspection, hiring of such company shall be also within bidder's scope.
4.14	Management of Construction area at Site		✓	The Bidder shall co-operate with Owner and other Contractors working at site and arrange to perform the construction work in a manner so as to minimise interference with other Contractor's works. The Owner shall be notified promptly impacts of other Contractor's works on Bidder's construction work. In case of rescheduling Bidder's work for the sake of overall site activities, the Bidder shall comply with Owner's instruction without any commercial implication.
5	Health, Security, Safety, Environment (HSSE)			
5.1	Safety and security plan within the package		✓	
5.2	Personal Protective Equipment (PPE)		✓	
5.3	Safety sign, barriers for construction		✓	
5.4	Safety training	✓	✓	The owner in charge of overall management. The bidder shall assign HSSE staff for safety management in construction area.
5.5	Permit for entering and leaving the Site	✓		Follow Project security procedure

No.	Description of Work	Scope by		Remarks
		Owner	Bidder	
5.6	HSSE for package at Site	✓	✓	The Owner is responsible for managing the security perimeter at the Construction Site. The Bidder is responsible for managing the security at the construction area, warehouse area, and temporary gathering place of materials/equipment.
5.7	Execution of HSSE during construction work	✓	✓	
5.8	HSSE report and dossier	✓	✓	
5.9	Medical station, medical equipment, health care for bidder's staff at Site		✓	first aid at construction area (if needed) shall be bidder's responsibility
5.10	Collection of waste during construction work. The cleaning of bidder's construction area (<i>including waste classification, collection, gathering as per Project requirement</i>)		✓	The bidder in charge of collecting, classifying, transporting waste to agreed locations. The waste disposal from agreed locations out of Project Site shall be also Bidder's responsibility.
5.11	Leaving, cleaning, dismantling temporary facility of the bidder after finishing package		✓	
5.12	Fire Protection and Fighting management during construction work (not permanent equipment for power plant)		✓	The bidder is in charge of fire protection and firing in his construction area (including HSSE and fire fighting equipment as per regulation)
6	Mobilize and provide resources and construction equipment (including Special Tools, Tackles, Man-power, Scaffolder,...)		✓	For personnel, the bidder shall follow signed contract
7	Temporary Facility			
7.1	Arrangement for temporary facility of bidder such as temporary office, warehousing as proposed by bidder	✓		
7.2	Construction of temporary facility serving for package at Site such as office, warehouse,...including clearing of construction area		✓	

No.	Description of Work	Scope by		Remarks
		Owner	Bidder	
7.3	Storage Warehouse of Project		✓	The bidder shall manage materials/equipment under this package.
7.4	Main Internal Road within Long Phu Site (including enhance, repair during construction work)	✓		
7.5	Common drainage water and waste water at Site	✓		
7.6	Temporary Road, water drainage at construction area		✓	Including excavation and compacting work within construction area
7.7	Preparation of foundation for construction machinery (as required)		✓	
7.8	<i>Fence, Gate, Illumination system at Long Phu Site</i>			
	- for common are of Long Phu Site	✓		
	- For temporary office, warehousing and construction area of bidder		✓	
7.9	<i>Power for construction & commissioning</i>			
	- temporary power distribution system from main source for construction		✓	
	- temporary power for commissioning		✓	For purpose to produce DM Water serving for Boiler pressure test, the partial commissioning of Water Treatment plant shall be performed by Bidder. Any additional power transmission line (if required) serving for partial commissioning and temporary running of water treatment plant to produce DM Water shall be Bidder's scope
	- Emergency Diesel Generator during construction work		✓	
	- Cost for using power for construction		✓	

No.	Description of Work	Scope by		Remarks
		Owner	Bidder	
	- Dismantle the temporary power distribution system after finishing the package		✓	
7.10	<i>Water for construction</i>			
	- Distribution system of water for construction		✓	From Terminal point
	- Cost for using water during construction		✓	
	- Flushing, cleaning the pipeline before commissioning		✓	
	- Design and supply temporary equipment (pumps, valves, pipeline, flanges, instruments,..., namely temporary equipment) serving for flushing and cleaning		✓	
	- Installation of temporary equipment serving for flushing and cleaning		✓	
	- Collecting effluent after flushing and cleaning before discharge to environment		✓	
	- Drying the pipeline after flushing, cleaning		✓	
	- Dismantle the temporary distribution pipeline after finishing the package		✓	
7.11	Internal and temporary communication system during construction work		✓	
7.12	Accommodation for workers		✓	

3. Terminal points & exclusion for scope of work

3.1. Mechanical Terminal Points

In case of connection by flange, the bolts, nuts, washers, gaskets and counter-flanges shall be provided by Bidder.

Sl. No	Terminal Point (TP) Description	TP No.	Drawings indicating TP	Fluid	Remarks
1	Circulating Water Piping (System Fill-up for Unit 1)	TP01	1. LP1-TKC-10G-M-M3-P&ID-1050, SH01 2. LP1-TKC-10PA-M-M4-P&ID-1008	River Water	1. The Terminal points shall be located on Cooling Water Piping (waiting nozzles with welding connection) shown on mentioned drawings. For

Sl. No	Terminal Point (TP) Description	TP No.	Drawings indicating TP	Fluid	Remarks
			3. LP1-TKC-10PG-M-M24-DGA-1369 4. LP1-AGR-10XXX-M-M4-DSW-0002 5. LP1-AGR-10XXX-M-M4-DRD-0002		<p>successful connection, the Bidder shall provide complete pipeline (11GACBR001 for Unit 1 and 12GACBR001 for Unit 2 with full accessories such as hanger & support, pipe clamp, pipe sniper, instruments and other piping specialties,...) up to Cooling Water Piping (including motorized butterfly control valves 11GAC01AA101 and 12GAC01AA101 on respective pipelines)</p> <p>2. For installation of cooling water pipe in drawing LP1-AGR-10XXXM-M4-DSW-0002, please see spool No. 1-P2-UT-002 (Unit 1) and 2-P2-UT-001 (Unit 2).</p> <p>3. The spool -P2-UT-002 (Unit 1) and 2-P2-UT-001 (Unit 2) shown in fabrication drawing is not manufactured. Therefore, in case of changing diameter of connection point, the fabrication drawing shall be adjusted in accordance with P&ID drawing.</p>
2	Circulating Water Piping (System Fill-up for Unit 2)	TP02	1. LP1-TKC-10G-M-M3-P&ID-1050, SH01 2. LP1-TKC-10PA-M-M4-P&ID-1008 3. LP1-TKC-10PG-M-M24-DGA-1369 4. LP1-AGR-10XXX-M-M4-DSW-0002 5. LP1-AGR-10XXX-M-M4-DRD-0002	River Water	Please see remarks of item 1
3	Mimumum recirculation of river water to Raw Water Intake Chamber	TP03	1. LP1-TKC-10G-M-M3-P&ID-1050, SH01 2. LP1-TKC-10UPA-M-M29-DGA-1209	River Water	Cooling Water Pump House as shown in drawing LP1-TKC-10UPA-M-M29-DGA-1209 shall be constructed by Others. However, the Bidder shall supply and install pipeline system as shown in P&ID-1050-SH01 up to nozzles found in Pump House.

Sl. No	Terminal Point (TP) Description	TP No.	Drawings indicating TP	Fluid	Remarks
4	Level Transmitter LT 10GAD10CL001 (including isolation valves + hook-up materials)	TP04	1. LP1-TKC-10G-M-M3-P&ID-1050, SH01 2. LP1-TKC-10UPA-M-M29-DGA-1209	River Water	Cooling Water Pump House as shown in drawing LP1-TKC-10UPA-M-M29-DGA-1209 shall be constructed by Others. However, the Bidder shall supply and install level transmitter as shown in P&ID-1050-SH01 up to nozzles found in Pump House.
5	Sludge Disposal of River Water Pre-treatment to Wastewater Treatment System	TP05	1. LP1-WAB-10UGA-M-M3-P&ID-0001 2. LP1-WAB-10UGA-M-M3-DAL-0001 3. LP1-TKC-10UMY-M-G1-DGA-1365	Sludge	The outlet header of Sludge Transfer Pumps is to be terminated at a suitable point located on the pipe rack in the vicinity of River Water Pre-Treatment Plant, to deliver sludge generated from Clarifiers at around 40 mlc pressure (exact value shall be intimated later) to Waste Water Treatment Plant
6	Nozzle for minimum recirculation from Filtered Water Transfer Pumps	TP06	LP1-TKC-10G-M-M3-P&ID-1050, SH01	Filter Water	
7	Desalination RO stage 1 reject to Waste water treatment system (WWTP)	TP07	1. LP1-WAB-10UXA-M-M3-P&ID-0202 2. LP1-WAB-10UGD-M-M3-DAL-0101 3. LP1-TKC-10UMY-M-G1-DGA-1365	Waste Water	The outlet header of Desalination RO Stage 1 is to be terminated at a suitable point located on the pipe rack in the vicinity of Desalination RO Stage 1 System, to deliver Wastewater generated from RO Stage 1 at around 40 mlc pressure (exact value shall be intimated later) to Waste Water Treatment Plant
8	Neutralized Waste Disposal Pump of Desalination RO System 1	TP08	1. LP1-WAB-10UXA-M-M3-P&ID-0204 2. LP1-WAB-10UGD-M-M3-DAL-0101 3. LP1-TKC-10UMY-M-G1-DGA-1365	Chemical Waste Water	The outlet header of Neutralized Effluent Disposal Pumps is to be terminated at a suitable point located on the pipe rack in the vicinity of Desalination RO Stage 1 System, to deliver chemical Wastewater at around 40 mlc pressure (exact value shall be intimated later) to Waste Water Treatment Plant
9	Outlet Nozzle N1, N2 from Fresh Water Reservoir for firefighting system	TP09	LP1-TKC-10G-M-M3-P&ID-1050, SH02	Fresh Water	

Sl. No	Terminal Point (TP) Description	TP No.	Drawings indicating TP	Fluid	Remarks
10	Outlet Nozzle N2 and N3 of Potable Water Tank (1x1000m ³)	TP10	1. LP1-WAB-10UXA-M-M3-P&ID-0205 2. LP1-TKC-10G-M-M3-P&ID-1050, SH02 3. LP1-TKC-10GK-M-M38-P&ID-1026 4. LP1-WAB-10UGD-M-M3-DAL-0101 5. LP1-PCC1-10GKB-B-B01-DGA-9912	Potable Water	Nozzle N2 is for outlet Nozzle N3 is for recirculation
11	Outlet Nozzle N1 and N2 of DM Water Tanks (2x2500m ³)	TP11	1. LP1-TKC-10G-M-M3-P&ID-1050, SH02 2. LP1-WAB-10UGD-M-M3-DAL-0101 3. LP1-PCC1-10GHC-B-B01-DGA-9911	DM Water	Nozzle N1 is for outlet Nozzle N2 is for recirculation
12	Outlet of Valve 10GDK20AA015 to Service Water Hydro-Pneumatic Tank	TP12	1. LP1-TKC-10G-M-M3-P&ID-1050, SH02 2. LP1-TKC-10GDK-M-M3-DGA-1270	Potable Water	The valve shall be located on pipeline 10GDK20BR012 to Service Water Distribution (SW hydro-pneumatic tank) located on Fresh & Fire Water Pump House. The arrangement of valve in appropriate position in the pump house shall be Bidder's scope.
13	Service Water (from Fresh Water Reservoir) for - (1) Sand Settling Basin and Raw Water Forwarding Pump House - (2) River Water Pre-treatment System (using for rinsing water) - (3) Desalination RO Stage 1, Potable Water Treatment System and Demineralization RO Stage 2 system	TP13	1. LP1-TKC-10G-M-M3-P&ID-1050, SH01 (Plant Water System) 2. LP1-WAB-10UGA-M-M3-P&ID-0001 (RWPT) 3. LP1-WAB-10UGA-M-M3-P&ID-0002 (RWPT) 4. LP1-WAB-10UXA-M-M3-P&ID-0201 5. LP1-WAB-10UXA-M-M3-P&ID-0203 6. LP1-TKC-10H-M-M37-P&ID-1025	Service Water	The service water inlet pipeline is to be terminated by Owner at one (1) suitable point located on the pipe rack in the vicinity of respective system (1), (2) and (3), to receive service water for each system. The distribution pipeline from receiving point shall be Bidder's scope The exaction position on piperack shall be detailed in engineering phase.

Sl. No	Terminal Point (TP) Description	TP No.	Drawings indicating TP	Fluid	Remarks
			7. LP1-TKC-10UZ-G-G1-DPP-1200-0 Plot Plan 8. LP1-WAB-10UGA-M-M3-DAL-0001 9. LP1-WAB-10UGD-M-M3-DAL-0101 10. LP1-TKC-10UMY-M-G1-DGA-1365		
14	Potable/Drinking Water Distribution to Water Treatment Plant	TP14	LP1-TKC-10GK-M-M38-P&ID-1026-1-Potable Water Distribution	Potable Water	The potable water shall be supplied by Owner up to Potable Water Tank located in top of respective buildings/facility (except Cooling Water Intake Pump House) under Package. The tanks and pipeline distribution inside of respective building/facility shall be bidder's scope of work. For illustration, please see P&ID-1026.
15	Instrument Air Supply for controlling valves and for washing air with respective system: - (1) Sand Settling Basin and Raw Water Forwarding Pump House - (2) River Water Pre-treatment System (using for rinsing water) - (3) Desalination RO Stage 1, Potable Water Treatment System and Demineralization RO Stage 2 system	TP15	1. LP1-TKC-10G-M-M3-P&ID-1050, SH01 (Plant Water System) 2. LP1-WAB-10UGA-M-M3-P&ID-0001 (RWPT) 3. LP1-WAB-10UXA-M-M3-P&ID-0201 (Desalination RO Stage 1) 4. LP1-WAB-10UXA-M-M3-P&ID-0202 (Desalination RO Stage 1) 5. LP1-TKC-10QFB-M-M39-P&ID-1031: Instrument Air Distribution 6. LP1-TKC-10UMY-M-G1-DGA-1365: Piperack	Air	1. The instrument air inlet pipeline is to be terminated by Owner at One (1) suitable point located on the pipe rack in the vicinity of respective system (1), (2) and (3) to receive instrument air. 2. Under normal condition, pressure of instrument air available at this Interface Point will be around 5,5 kgf/cm ² . The distribution of instrument air to each pneumatic control valves and washing destination point within package shall be Bidder's scope except valve 10GAC10AA701 (shown on drawing LP1-TKC-10G-M-M3-P&ID-1050, SH01) located in Cooling Water Intake Pump House. The instrument air pipeline up to this valve shall be supplied and installed by Others . 3. For illustration of instrument air distribution network, please see TKC-P&ID-1031

Sl. No	Terminal Point (TP) Description	TP No.	Drawings indicating TP	Fluid	Remarks
16	Service air supply for Water Treatment Plant	TP16	LP1-TKC-10QEB-M-M40-P&ID-1032: Service air distribution	Air	The service air shall be supplied by Owner up to 1m outside the building/facility (except Cooling Water Intake Pump House) under Package. From this point, the pipeline system shall be bidder's scope of work. For illustration, please see P&ID-1032

For the Water Treatment Plant, all domestic wastewater discharge points shall be terminated at the collecting sumps of respective buildings or facilities, excluding the Cooling Water Intake Pump House.

The Bidder shall be responsible for the complete pipeline system comprising supports, hangers, valves, and associated fittings up to these sumps, *including design and construction of these sumps* themselves.

All drains, vents and overflow lines from all equipment must be routed to the nearest drain pocket or trench systems. The construction of these trenches (up to common trench by Owner) for each facility and equipment area is also included in the Bidder's scope of work.

3.2. Electrical Terminal Points

(i) Incoming terminals of 400V MCC:

- 10BFE54 & 10BFE64 for River Water Pre-treatment System (RWPT) located in electrical room of Water Treatment Chemical House.

- 10BFE55 & 10BFE65 for Desalination System by Reverse Osmosis Stage 1 and 10BFE52 & 10BFE62 for Demineralization RO Stage 2 System located in electrical room of main Desalination & Demineralization Building.

(ii) Incoming Terminal of PCC 10BFB22 & 10BFB42 and 10BFB29 & 10BFB49 for UPS and DC System of respective system (1) Sand Settling Basin, Raw Water Forwarding Pumps, RWPT located in Chemical House and (2) Desalination RO, Potable Water Treatment, Demineralization RO located in main Desalination & Demineralization Building. The accessories for successful connection with PCC provided by Others shall be within Bidder's scope.

3.3. Control and Instrumentation Terminal Points

(i) For Water Treatment Plant, there will be two (2) PLC systems:

- One (1) system located in control room of Water Treatment Chemical House to control Sand Settling Basins, Raw Water Forwarding Pumps, Pipeline from Raw Water Forwarding Pumps to RWPT and RWPT (1)

- One (1) system located in control room of main Desalination & Demineralization Building to control Desalination RO, Potable Water Treatment, Demineralization RO (2)

The terminal points shall be at PLC of each sub-system (1) and (2) located in Water Treatment Chemical House and main Desalination & Demineralization Building. The Bidder shall be responsible for providing all necessary accessories and interface components required for signal and communication connections from the PLCs to other systems (e.g., DCS), such as cable glands, ODF, patch cords, pigtailed, converters, interface modules, lugs, ferrules, fittings, etc., excluding signal and communication cables.

For detailed information regarding these terminal points, please see drawing LP1-WAB-10UXX-I-I1-DSL-0001.

(ii) For Raw Water Intake Pump 10GAF10AP001, 10GAF10AP002, 10GAF10AP003, 10GAF10AP004), motorized butterfly control valves 11GAC01AA101, 12GAC01AA101 located in Cooling Water Intake Pump House as well as pipeline system (control valves, instruments,...) from Raw Water Intake Pump upto Sand Settling Basin, the terminal point shall be at Junction Boxes located in electrical/control room of Cooling Water Intake Pump House.

The four (4) Raw Water Intake Pump 10GAF10AP001, 10GAF10AP002, 10GAF10AP003, 10GAF10AP004) located in Cooling Water Intake Pump House as well as pipeline system (control valves, instruments,...) from Raw Water Intake Pump upto Sand Settling Basin shall be directly controlled by Plant DCS from CCR. The Bidder shall provide the Junction Box and connected cables from Field Instruments on this pipeline (for the details of pipeline, please see drawing LP1-TKC-10G-M-M3-P&ID-1050 sheet 1).

3.4. Civil Terminal Points

(i) Cooling Water Intake Pump House

The Cooling Water Intake Pump House will be constructed by Others. However, the Bidder shall provide all necessary technical input for the installation of Raw Water Intake Pumps (10GAF10AP001 to 10GAF10AP004). Refer to drawing LP1-TKC-10PG-M-M24-DGA-1369 for pump locations.

(ii) Filtered Water Pump House

The Filtered Water Transfer Pumps (10GDK10AP001 and 10GDK10AP002), MCC,... are not within Bidder's scope. The Bidder shall design and coordinate the layout and interface requirements of these pumps and MCC, within the Filtered Water Pump House, considering integration during civil construction. The construction of Pump House shall be taken into consideration for installation of Pump and MCC.

Reference drawings include:

- LP1-TKC-10GDK-M-M3-DGA-1269 (General Arrangement for Filtered Water Reservoir and Pump House).
- LP1-TKC-10UGN-A-A1-DAL-9710 (Ground Floor & Roof Plan)
- LP1-TKC-10UGN-A-A1-DEL-9711 (Elevation & Section)

(iii) Fresh & Fire Water Pump House

The DM Water Transfer Pumps (10GHC10AP001 and 10GHC10AP002), Service Water Hydro-pneumatic tank, Potable water Hydro-pneumatic tank, and Potable Water distribution Pumps, MCC,... are not within Bidder's scope. The Bidder shall still prepare arrangements for the installation of these systems inside the Fresh & Fire Water Pump House, considering equipment arrangement and interface points during civil construction.

Reference drawings include:

- LP1-TKC-10GDK-M-M3-DGA-1270 (General Arrangement – Fresh Water Reservoir & Pump House)
- LP1-TKC-10UGN-A-A1-DAL-9499 (Ground Floor & Roof Plan)
- LP1-TKC-10UGN-A-A1-DEL-9500 (Elevation & Section)

(iv) Civil work for Transformers of Water Treatment System

The supply and installation of the transformers located at outside of Main Desalination & Demineralization Building shall be performed by **Others**. However, the civil work for these transformers shall be Bidder’s scope based upon input data provided by **Others**.

3.5. Exclusion for scope of work

The following items are excluded from the Bidder’s scope of supply and services:

- (i) Power cables, cable trays, supporting steel structures, and erection hardware from the Owner’s PCC/Switchgear to the Bidder’s MCC.
- (ii) Permanent fire protection & firefighting system.
- (iii) Telephone, public address system, and any inter-plant communication facilities.
- (iv) CCTV systems and/or any camera-based monitoring under this package.
- (v) HVAC system for the Cooling Water Intake Pump House
- (vi) The main pipe rack shown in drawing LP1-TKC-10UMY-M-G1-DGA-1365 is not in the Bidder’s scope. However, internal pipe racks, pipe supports and all associated structural provisions within the package boundary remain the Bidder’s responsibility.

III. SCHEDULE REQUIREMENT

The total contract package duration is 330 calendar days.

The Bidder/Contractor is required to develop and submit a detailed schedule covering all major activities such as engineering, procurement, manufacturing, installation, commissioning, and final acceptance.

The proposed schedule shall clearly outline the logical sequence of works and align with the specified key milestones:

No.	Items	Start Date	Duration
1	Construction, Installation, Testing, and Commissioning served for Boiler Pressure Test	After Commencement date	284 days
2	Procurement, Manufacture, Delivery and Construction, Installation, Testing & Commissioning to finalize the package	After Commencement date	330 days

IV. TECHNICAL REQUIREMENTS

The priority of documents for the same information found these documents shall be as follows in order:

- (i) The requirements declared in this specification (Chapter V) is highest interpretation.
- (ii) The Technical Datasheet (including attached documents) (in Attachment #0)
- (iii) The requirements on **Specification**
- (iv) The requirements on **RFP Documents**.

1. General requirements

Please refer to following documents:

- Volume II-A, Section II- PROJECT SYNOPSIS AND GENERAL INFORMATION.

- Volume II-A, Section IV- PROJECT GENERAL TECHNICAL REQUIREMENTS.

- Volume II-A, Section V PROJECT MANAGEMENT AND SITE SERVICE

- Volume II-A, Section VI, ENGINEERING SERVICE for general requirements for Engineering Service under this package.

- Volume II-A, Section VII, QUALITY ASSURANCE REQUIREMENTS

- LP1-TKC-10XXX-M-G1-SPC-2022: Project Specification for Painting

- For numbering of engineering documents, please see the procedure LP1-TKC-10XXX-G-G1-PRO-0001

2. Mechanical Requirements

For River Water Pre-treatment System

- LP1-TKC-10GD-M-M26-SPC-2036: Specification for River Water Pre-treatment System RWPT (Specification)

- Volume II-K/4, Section I: Specification for RWPT (RFP Documents)

For Desalination RO 1^o and Potable Water Treatment System

- LP1-TKC-10GB-M-M41-SPC-2037: Specification for Desalination RO Stage 1 & Potable Water treatment system (Specification)

- Volume II-K/4, Section II: Specification for Desalination RO, Potable Water Treatment and Demineralization RO System (RFP Documents)

For Demineralization RO 2^o

- LP1-TKC-10GC-M-M42-SPC-2038: Specification for Demineralization RO Stage 2 (Specification)

- Volume II-K/4, Section II: Specification for Desalination RO, Potable Water Treatment and Demineralization RO System (RFP Documents)

For DM Water Tanks (2x2500m³) and Potable Water Tank (1x1000m³)

- LP1-TKC-10BB-M-G1-SPC-2012: Specification for Field Fabricated Tank (Specification)

- Volume II-I, Section V: Specification for Large Diameter Low Pressure Piping, Valves and Fabricated Tanks (RFP Documents)

For Vertical Sump Pumps

- LP1-TKC-10AP-M-G1-SPC-2010: Specification for Miscellaneous Vertical Pumps & Sump Pumps (Specification)

- Volume II-H, Section IIIA: Specification for Vertical Pumps (RFP Documents)

For Bar Screen and Sluice Gates

- LP1-TKC-11H-M-M1A-SPC-2054: Specification for Gates, Screens (Specification)

- Volume II-H, Section I: General Design Requirement for Main and Auxiliary Cooling Water System (RFP Documents)

For Hoist and Crane under package

- LP1-TKC-10SM-M-M32-SPC-2024: Specification for Miscellaneous Hoist & Crane (Specification)

- Volume II-J, Section II-B: Specification for Miscellaneous Cranes (RFP Documents)

- Volume II-J, Section III: Specification for Miscellaneous Hoist (RFP Documents)

For Low Pressure (LP) Piping & Valve:

- Volume II-I, Section VI: Specification for LP Piping, Valves & Specialty (RFP Documents)

3. Electrical Requirements

Please refer following **RFP Documents**

1. LP1-TKC-10GD-M-M26-SPC-2036: Specification for River Water Pre-treatment System RWPT (Specification) for electrical parts.

2. LP1-TKC-10GB-M-M41-SPC-2037: Specification for Desalination RO Stage 1 & Potable Water treatment system (Specification) for electrical parts.

3. LP1-TKC-10GC-M-M42-SPC-2038: Specification for Demineralization RO Stage 2 (Specification) for electrical parts.

4. LP1-TKC-10AP-M-G1-SPC-2010: Specification for Miscellaneous Vertical Pumps & Sump Pumps (Specification) for electrical parts

- 5.1 Volume II-F/1, Section VII Technical Specification for PCC/MCC, ACDB and DCDB (RFP Documents).

- 5.2 Typical drawings of PCC/MCC (RFP Documents)

6. Volume II-F/1, Section II Technical Specification for AC & DC Motors (RFP Documents).

7. Volume II-F/1, Section III Technical Specification for Electrical Motors Actuators (RFP Documents).

8. Volume II-F/2, Section IX Technical Specification for Installation of Cabling, Earthing and Lightning Protection Systems (RFP Documents).

9. Volume II-F/2, Section IV Technical Specification for Cables (RFP Documents).

10. Volume II-F/1, Section VIII Technical Specification for Miscellaneous Local Panels (RFP Documents).

11. Volume II-F/2, Section XIV Technical Specification for Uninterruptible Power Supply System (UPS) (RFP Documents).

12. Volume II-F/2, Section III Technical Specification for Batteries and Battery Chargers (RFP Documents).

4. Instrument and control requirements

Please refer to:

1. Volume II-E, Section I General Technical Requirements for Instrumentation & Control (RFP Documents)

2. Volume II-E, Section II Scope of Work for Instrumentation & Control (RFP Documents)
3. Volume II-E, Section V Instrumentation & Control for Plant Auxiliaries and Off-site plants (RFP Documents)
4. Volume II-E, Section VI Technical Specification for Field Instruments and Enclosures, Erection Hardware, Tools & Tackles (including Technical Specification for Instrumentation Cable (RFP Documents).
5. Volume II-E, Section VIII Erection and Commissioning for Instrumentation & Control (RFP Documents)
6. LP1-TKC-10GD-M-M26-SPC-2036: Specification for River Water Pre-treatment System RWPT (Specification) for control & instrumentation parts.
7. LP1-TKC-10GB-M-M41-SPC-2037: Specification for Desalination RO Stage 1 & Potable Water treatment system (Specification) for control & instrumentation parts.
8. LP1-TKC-10GC-M-M42-SPC-2038: Specification for Demineralization RO Stage 2 (Specification) for control & instrumentation parts.
9. LP1-TKC-10AP-M-G1-SPC-2010: Specification for Miscellaneous Vertical Pumps & Sump Pumps (Specification) for control & instrumentation parts.

5. Civil Requirements

(i) Please refer to:

1. Volume II/G1 General specification and design criteria for civil and structural work
2. Volume II-G2 General specification and design criteria for architectural work
3. Volume II-G/3 Technical specification for civil, structural & architectural work

V. REQUIREMENTS FOR WARRANTY, MAINTENANCE

The Warranty Period shall be 24 months from the date of issuance of the Owner’s Taking-Over Certificate for the Water Treatment Plant.

VI. PERFORMANCE GUARANTEES

- Guarantee Conditions Operation Mode - TMCR, 100%; Fuel - Design coal; Temperature of air =26.7 C; Moisture of air = 84%; Design coal (max. total moisture 26%).

- Hau river analysis: please refer to section I.4 [Introduction of package]

(i) For quality guarantees of Water after River-Water Pre-treatment System

TREATED WATER QUALITY AFTER PRE-TREATMENT			
Parameter	Units	Clarifier(s)	Gravity sand filter(s)
Total Suspended Solids	mg/l	15 (nor.) 20 (max.)	2 (nor.) 3 (max.)
Turbidity	NTU	15 (nor.) 20 (max.)	2 (nor.) 3 (max.)
Iron as iron	mg/l	<0.3 (max.)	<0.3 (max.)
Total available chlorine	mg/l	0.5 (nor.)	0.5 (nor.)

Note: Further to above, the quality of treated water shall be suitable in respect of oil & grease, barium, heavy metals and TOC as a feed to Activated Carbon Filters / Ultrafiltration Units / Reverse osmosis Units included under Desalination RO and Potable Water Treatment System.

(ii) Flow rate guarantees for River Water Pre-treatment System

Item	Values
1. Dissolved Air Flotation (DAF) Units	
1.1 Net output capacity for each DAF at rated condition (m ³ /h)	460
2. Solid Contact Clarifier	
2.1 Net output capacity for each Clarifier at rated condition (m ³ /h)	810
2.2 Net output capacity for each Clarifier at overflow condition (m ³ /h)	972
3. Gravity Sand Filter	
3.1 Net output capacity for each Filter at rated condition (m ³ /h)	452

(iii) For quality guarantees of Water after passing Desalination RO 1^o System

TREATED WATER QUALITY AFTER DESALINATION SYSTEM			
No.	Item	Unit	Value
1.	Silt Density Index of permeate from Ultra filtration System	@ 15 minutes	<2.0
2.	TDS of permeate from Desalination RO System (at highest temperature)	mg/L	<500

Note: Further to above, the treated water quality shall be suitable as a feed to RO Units of Demineralization RO System

(iv) Flow rate guarantees of Desalination RO 1^o System and Potable Water System

Item	Values
1. Activated Carbon Filter for Desalination RO 1^o System	
1.1 Rated continuous treated water output capacity (m ³ /h)	105
1.2 Free Chlorine content of treated water (mg/l)	0.5
2. Ultrafiltration (UF) Skid	
2.1 Net output from each skid (m ³ /h)	150
2.2 System Recovery (%)	90

Item	Values
3. Desalination RO Skid	
3.1 Net permeate flow of each skid (m ³ /h)	120
3.2 System Recovery (%)	75
4. Activated Carbon Filter for Potable Water Treatment System	
4.1 Rated continuous treated water output capacity (m ³ /h)	15
4.2 Max Free Chlorine content of treated water (mg/l)	0.3

(v) For quality guarantees of DM Water after CEDI module serving for Boiler & Steam Turbine:

Parameters	ppb as ion
NH ₄	N/A
K	< 1
Na	2
Mg	< 1
Ca	< 1
Sr	N/A
Ba	N/A
Fe	< 10
Cu	< 2
Al	N/A
Mn	N/A
CO ₃	< 1
HCO ₃	5
NO ₃	1
Cl	1
F	< 1
SO ₄	< 1
B	0.3
SiO ₂	< 5
CO ₂	3
pH	6-8
Conductivity at 25 ⁰ C (μS/cm)	< 0.1
At Maximum Temperature 32.4°C	

(vi) Flow rate guarantees for Demineralization RO 2°

Item	Values
1. Demineralization RO Skid	

Item	Values
1.1 Net permeate flow of each Skid (m ³ /h)	85
1.2 System Recovery (%)	85
2. CEDI Skid	
2.1 Net output from each skid (m ³ /h)	75
2.2 System Recovery (%)	93

(vii) For Power Consumption, please refer following table:

Guarantee for Auxiliary Power Consumption for each Pump/Equipment supplied by Bidder	Values
Raw Water Intake Pumps (4 Pumps)	65kW/Pump
Raw Water Forwarding Pumps (4 Pumps)	75kW/Pump
Sludge Disposal Pumps for River Water Pre-treatment (2 Pumps) (A) ²	11kW/Pump
Ultra-filtration Feed Pumps (3 Pumps) (Desalination RO) (A) ³	37kW/Pump
Air fans for De-gasser tower (2 fans) (Desalination RO) (A) ⁴	2.2 kW/Fan
Desalinated water for ion-exchange resin regeneration pumps 10GCP41AP001, 10GCP42AP001 (Desalination RO) (2 pumps) (A) ⁵	30kW/Pump
Fresh Water Transfer Pumps (in case of supply by Bidder) (A) ⁶ (2 pumps)	22kW/Pump

(v) For capacity of pumps and tanks supplied by Bidder, please refer minimum capacity in [Attachment #0 Technical Datasheet] of Chapter V.

(vi) Noise level: 85 dbA at 1m of equipment

VII. TRAINING OF THE OWNER'S PERSONNEL

(i) General Technical Requirements shall comply with clause 19.00.00 of Volume II-A, Section IV GENERAL TECHNICAL REQUIREMENTS.

(ii) The Bidder shall be also responsible for providing operation and maintenance training for the Owner's personnel, including on-site operation and maintenance training and on-the-job training during the commissioning period. The cost of such training shall be deemed to be included in the Contract Price. The Bidder shall deliver comprehensive knowledge, techniques, and practical skills to ensure that the Owner's operation and maintenance personnel are fully competent to effectively operate and maintain the Water Treatment Plant. The Schedule of on-the-job training should be proposed by Bidder.

² Please see section II.2 Detailed Scope of Work

³ Please see section II.2 Detailed Scope of Work

⁴ Please see section II.2 Detailed Scope of Work

⁵ Please see section II.2 Detailed Scope of Work

⁶ Please see section II.2 Detailed Scope of Work

The Operation and Maintenance (O&M) Training Course for Water Treatment Plant was undertaken by the Bidder.

- The content of the training program shall include but not be limited to:
 - + Principles in management and practice for operators, technicians and maintenance personnel.
 - + Equipment operation and systems training for operators including simulator training as applicable;
 - + Maintenance training program covering electrical, mechanical, instrumentation and control.
 - + The Bidder shall be responsible for the development of the training program schedule which shall be submitted to the Owner for approval.
 - + The Bidder shall provide qualified English speaking instructors and training coordinators during the tenure of the training program.
 - + The program, requirements of the training and number of Trainees and resource days are provided in table below. Training courses shall be conducted by experienced personnel of Bidder. Course participants shall receive individual copies of technical manuals at the time the course is conducted. Upon completion of each course, training manuals shall be property of Owner. Bidder shall supply all updates and revisions to the manuals.
 - + Training for the operators shall be based on direct hands-on use of the offered system. Bidder shall train Owner's personnel in the programming and maintenance of the equipment to the extent that Owner's personnel can make corrections and changes to the system and maintain the systems hardware independently. Bidder shall include in his proposal a detailed description of the training course proposed by him (class-room lecture, audio-visual presentation, hands-on). If Bidder conducts Owner's training on regular periodic basis, a printed brochure of such program may be enclosed for reference.
 - + The Bidder shall have the responsibility to, with the costs as included in the Bidder Price, carry out the training (including on Job training of commissioning work during commissioning period) of operation and maintenance to the Owner's personnel through providing full knowledge, techniques and skills to well perform the operation and maintenance of the Equipment. The personnel shall be sufficiently qualified to perform the task assigned to them.
 - + The Works shall not be considered to be completed for the purposes of Taking-over until this training has been completed.
 - + The Bidder shall extend all possible assistance and co-operation to the Owner regarding the transfer of technology and developing expertise in the area of engineering operation and maintenance of the Equipment.
 - + Bidder will be responsible for providing documents to support the training process.

- The O&M Training Course at the site shall include, but not be limited to, the following modules:
 - + Module A: Operation for Raw Water Transportation up to River Water Pre-treatment Plant . The training for interlock and co-ordination with Cooling Water System is required for this module.
 - + Module B: Operation for River Water Pre-treatment System. Module B was designed for training operators at Water Treatment Chemical House/Control Room and operators for River Water Pre-treatment System and auxiliary systems.
 - + Module C: Operation for Desalination RO, Potable Water Treatment and Demineralization RO. Module C was designed for training operators at Desalination & Demineralization Building/Control Room and operators for Desalination & Demineralization RO and auxiliary systems
 - + Module D: Maintenance for Water Treatment Plant. Module D was designed for training completed maintenance scope/activities under package.

No.	Training course	Training location	Number of trainees	Extent of training	Remark
1	Module A			After the course, the trained and qualified personnel are able to independently operate/maintain systems/components/ machines of Water Treatment Plant.	
1.1	Module A: Raw Water Transportation up to River Water Pre-treatment System	At Control Room	10		
1.2	Operation for Raw Water Transportation up to River Water Pre-treatment System	On the local equipment	15		
2	Module B				
2.1	Module B: Operation for River Water Pre-treatment System	At Control Room	15		
2.2	Operation for River Water Pre-treatment System	On the local equipment	20		
3	Module C				
3.1	Module C: Operation for Desalination RO, Potable Water Treatment and Demineralization RO	At Control Room	20		
3.2	Operation for Desalination RO, Potable Water Treatment and Demineralization RO	On the local equipment	25		
4	Module D: Maintenance for Water Treatment Plant				
4.1	Mechanical Team	At control	15		
4.2	Electrical Team	Room and	15		

No.	Training course	Training location	Number of trainees	Extent of training	Remark
4.3	I&C Team	the local equipment	15		

VIII. SPARE PARTS & CONSUMABLES AND OPTIONAL SOLUTION

(i) For Spare Parts: the Bidder shall supply

- Mandatory the spare parts for 2-year operation (Bidder shall provide a spare part list with price. Owner will purchase under another bid package).

- Recommended spare parts (list of recommended spare parts),

(ii) For consumables:

- The Bidder shall supply optional quotation for consumables delivered to Site but potentially replaced due to long storage. This optional quotation shall not be used for evaluation by Owner and shall not be integral part of bid price. The quotation shall include all accessories needed for smooth operation and transportation fee to the Site.

No	Description of Consumables	Technical Requirement	Quantity	Remarks
1	Membranes Ultrafiltration Skid	Attachment #0 [Technical Datasheet]	72pcs	see package LP1-WAB-185 to LP1-WAB-190 of packing list LP/PM-172C-DPL-1/2 in MGMR No 788
2	Filter cartridges for RO 1°	Attachment #0 [Technical Datasheet]	76pcs	see package LP1-WAB-216 , LP1-WAB-217 of packing list LP/PM-173C-DPL in MGMR No 788
3	Membranes RO 1°	Attachment #0 [Technical Datasheet]	250pcs	see package LP1-WAB-200 to LP1-WAB-209 of packing list LP/PM-173C-DPL in MGMR No 788
4	Membranes RO 2°	Attachment #0 [Technical Datasheet]	125pcs	see package LP1-WAB-220 to LP1-WAB-226 of packing list LP/PM-173C-DPL in MGMR No 788
5	Ionex mass for ion exchange filter	Attachment #0 [Technical Datasheet]	640 bags	see package LP1-WAB-135 to LP1-WAB-150 of packing list LP/PM-168C-DPL in MGMR No 786
6	Activated Carbon	Attachment #0 [Technical Datasheet]	760 bags	see package LP1-WAB-089 to LP1-WAB-126 of packing list LP/PM-159C-DPL in MGMR No 930
7	CEDI Modules model VNX55-EP2	LP1-WAB-10UGD-M-M3-CMM-0101	10pcs	see package LP1-WAB-277 to LP1-WAB-278 of packing list LP/PM-218C-DPL in MGMR No 922

No	Description of Consumables	Technical Requirement	Quantity	Remarks
*Note: Minute of Goods, Materials, Equipment Receipt at Site (MGMER) is recorded in folder [Attachment Chapter V\4. Package Status Documents\2. Goods at Site]				

(iii) For Optional Solution:

Based upon data given in Attachment #5 [*Salinity Monitoring Results of Hau River*], the Bidder shall supply optional quotation to enhance capability of Water Treatment System to meet the required quality and flow rate of the Demin water (148.1 m³/h) when salinity exceeds design level.

The optional solution proposed by Bidder shall not be used for evaluation by Owner and shall not be integral part of bid price. The quotation shall include covering design, procurement, construction, installation, testing, commissioning, and all associated project services in connection with existing Water Treatment System.

No	Description of optional solution to enhance capability of Water Treatment System	Unit	Quantity	Remarks
1	For example (increase capacity of storage tanks)	lot	1	
2	For example (additional RO system and auxiliary)	lot	1	
3	For example (Cathodic Protection)	lot	1	
4	For example (Salinity online monitoring station)	lot	1	
5	For example (advanced technology to keep salinity of Hau river as design)	lot	1	
6	1	

IX. TECHNICAL INSTRUCTION

1. Technical requirements for design documents

Construction drawing design shall comply with the project standards, technical instructions, and the laws and regulations of Vietnam.

Design documents shall include all drawings, technical specifications, and other documents as required by the Owner's bidding documents. These documents must meet the Owner's requirements and are subject to the Owner's approval.

For all work requiring the Owner's approval of the design:

- Construction shall only commence after the Owner has approved the design documents.
- Construction shall be carried out in accordance with the design documents approved by the Owner.
- In the event of any design changes, construction shall only proceed after the Owner has approved the revised design documents.

Any approval by the Owner shall not relieve the Contractor of its responsibilities and obligations under the Contract.

If the design documents contain any errors, omissions, inconsistencies, or otherwise fail to conform to the Contract, the Bidder shall make the necessary amendments or

provide additional design work. The Bidder shall bear all costs associated with correcting any related defects, even if the Owner has previously accepted or approved the design documents.

2. Requirements for equipment procurement and installation

All materials and equipment shall be inspected prior to delivery to the site to ensure that their quality, type, and origin comply with the requirements of this Contract.

The Bidder shall be responsible for the stability and safety of all equipment during the construction period and shall ensure its proper performance throughout the warranty period.

All machinery and equipment shall meet the Contract requirements, comply with the technical standards approved by the Owner, and be accompanied by a Certificate of Origin (CO) and a Certificate of Quality (CQ) issued by the manufacturer.

The equipment must have the capacity and technical specifications consistent with the design documents approved by the Owner.

The installation of equipment and machinery shall be carried out with precision to ensure proper operation and to extend the lifespan of the equipment.

Equipment installation shall conform to the design and manufacturing drawings and comply with the manufacturer's installation and operation manuals.

Any equipment that fails to meet technical requirements shall be rejected and removed from the site at the Bidder's expense.

The Bidder shall prepare the site for equipment installation and provide the necessary technical personnel, operators, maintenance workers, power sources, and materials to facilitate static, no-load, and single-load acceptance testing of the equipment.

During interlocking, no-load, and load test runs, the Bidder shall ensure that adequate technical personnel and workers are present to promptly address any issues or defects that may arise.

The Bidder shall supervise and instruct the installation process in accordance with the technical requirements, approved design, and the manufacturer's technical specifications. The Bidder shall also coordinate with relevant parties to test the equipment to its designed capacity.

The Bidder shall perform self-inspections of the equipment installation and prepare all required acceptance documentation, including but not limited to meeting minutes, as-built drawings, and construction diaries, to confirm that the installation has been completed in accordance with the technical requirements and that the test runs meet the design specifications.

3. Requirements for construction.

The Bidder must ensure that the construction complies with current technical standards or project-specific standards, as well as legal regulations on construction quality management.

The Bidder shall prepare a construction plan and an overall/detailed schedule for submission to the Owner for approval prior to commencing on-site construction. Measures must be taken to ensure labor safety, environmental hygiene, fire prevention, and site security throughout the construction period.

The Bidder must establish acceptance procedures and a quality control plan to ensure compliance with applicable legal regulations.

The Bidder shall carry out and complete the construction in accordance with the design documents approved by the Owner.

The Bidder is responsible for organizing the construction works to meet the technical requirements and the schedule stipulated in the Contract.

Upon completion of the project, the Bidder must provide operation and maintenance manuals

4. Requirements for Fire and Explosion Prevention and Fighting

The Bidder shall be fully responsible for implementing fire and explosion safety measures throughout the construction period.

Temporary facilities such as site offices, accommodations, and storage areas shall comply with applicable fire safety regulations.

Emergency assembly points shall be designated across the site, including within office and storage areas.

Firefighting equipment, including hydrants and extinguishers, shall be properly installed and maintained in good working condition.

Strict safety controls shall be implemented when using electricity, gas, or compressed air.

The Bidder shall ensure the protection of property and personnel from fire and explosion hazards in accordance with applicable laws and regulations

5. Environmental Sanitation Requirements

The Bidder shall take all feasible measures to mitigate adverse environmental impacts.

Upon completion of construction, environmental restoration shall be carried out prior to final acceptance.

All costs associated with environmental remediation or damage shall be borne by the Bidder.

The Bidder shall control emissions such as noise, dust, smoke, vibration, wastewater, and hazardous substances (e.g., oil, grease) in full compliance with environmental regulations.

6. Occupational Safety Requirements

The Bidder shall implement comprehensive safety measures covering material transportation, equipment handling, foundation work, erection, and other relevant activities, ensuring full compliance with Vietnamese regulations and the technical standards of the electricity industry.

The Bidder shall strictly comply with regulations on periodic occupational safety inspections and implement appropriate protective measures.

Traffic within and around the construction site shall be organized to ensure safety and minimize congestion. Adequate signage shall be installed, and designated personnel shall be assigned to guide and warn pedestrians.

Safety measures specific to each construction phase shall be applied, including reinforcement of foundations, walls, temporary structures, and the installation of fall protection systems for work at height.

The Bidder shall anticipate and plan for activities involving fire or explosion risks. Fire prevention protocols must be established, along with proper procedures for the storage and handling of flammable and explosive materials when working near such hazards.

7. Health and Safety (HSSE) Management

Occupational safety procedures shall be submitted to the Owner for approval prior to the commencement of construction.

All equipment and machinery used shall be certified, inspected, and comply with applicable safety regulations and technical standards.

Equipment movement and operational zones shall adhere to prescribed safe distances and layouts in accordance with relevant regulations.

The Bidder shall coordinate with local authorities to manage labor, ensure legal registration, and fulfill all obligations related to employment contracts, insurance, and medical examinations.

The Bidder shall establish cooperation with nearby medical facilities to ensure timely response in case of emergencies.

Safety training programs shall be conducted and periodically audited to ensure ongoing compliance.

All workers shall be equipped with personal protective equipment (PPE), including helmets, uniforms, safety footwear, and goggles. Safety harnesses or nets must be used when working at heights of 2 meters or more, or in hazardous areas lacking guardrails.

8. Measures for Manpower and Equipment Mobilization

Ensure the mobilization of key personnel to the site, including the Site Manager, Safety Officer, and relevant supervisors, to directly manage and execute construction and installation activities.

Prepare a manpower deployment chart that aligns with the construction phases.

Develop and submit a detailed construction schedule specifying timelines and the quantities of major equipment to be mobilized.

Implement contingency plans to ensure schedule adherence under adverse conditions such as rain, flooding, power outages, or force majeure events.

9. Requirements for Construction Method Statement

Submit both general and detailed construction method statements to the Owner for approval prior to execution, ensuring full compliance with current technical standards and applicable regulations.

The method statements shall include technical solutions and overall construction strategies for the defined scope of work.

Clearly define construction sequences and material transportation methods.

Present the selected construction methods with consideration of seasonal challenges (e.g., hot, cold, rainy, and stormy periods), labor safety measures, construction site layout, and process flow diagrams for key activities.

Propose appropriate machinery and equipment to support the selected methods, including transport vehicles, cranes, excavators, bulldozers, concrete compactors, and surveying instruments.

The Contractor shall comply with all applicable technical requirements, national codes, standards, and norms in force.

10. Requirements for the Contractor's Quality Inspection and Supervision System

The Contractor shall be fully responsible for quality management, inspection of materials and workmanship, and adherence to the project schedule in accordance with the terms of the Contract.

A Quality Management System (QMS) shall be developed, implemented, and submitted to the Owner for approval. This system shall govern all manufacturing, fabrication, and on-site construction activities. The QMS shall include, but not be limited to, the following components:

- An organizational chart and a list of personnel responsible for quality management, clearly defining their roles and responsibilities.
- A quality assurance policy and defined quality objectives.
- Inspection and testing plans, including procedures for monitoring and measuring compliance with technical specifications, design documents, and applicable standards.
- Methods for inspecting incoming materials, components, construction products, and equipment intended for use or installation.
- Procedures for quality inspection and supervision during construction, equipment installation, and factory fabrication, including acceptance criteria, responsible parties, and standardized documentation formats.
- Measures to ensure occupational safety, environmental protection, and fire prevention during construction activities.
- Document control procedures, including construction diaries, inspection records, internal and external reporting systems, issue resolution protocols, and communication management throughout the construction process.

For Factory Acceptance Tests (FATs), the Contractor shall prepare and submit a detailed testing program for the Owner's approval prior to the shipment of equipment from the manufacturer.

11. Requirements for Test and Safety Operation.

The final acceptance and handover for operation: The Bidder shall prepare all necessary documents (including technical acceptance, testing report, construction logbook, confirmation of completed corrective action for non-conformance report (NCR) or punch-list,... for each stage, as follows:

- Acceptance of construction and installation works;

- Acceptance of the construction and installation stages;
- Acceptance of commissioning and handover for operation.

The Bidder is only allowed to proceed to the next construction stage after obtaining confirmation from the Supervisor Consultant and the Owner that the quality of construction items meets the requirements in the approved technical design.

The Bidder shall promptly take corrective actions for any non-conformance report (NCR) or punch list items (if any), within the timeframe specified in the acceptance report by the Supervision Consultant and the Owner.

All necessary test grade instruments for Performance Guarantee Tests of various equipment and systems must be brought and installed by the Bidder. All test and measuring instruments must be calibrated and test certificates from authorized institution to be submitted to the Owner 30 days in advance of the test. The calibration certificates must be valid for a period of 6 months from the date of their calibration.

All necessary test shall be carried out in presence of the Owner and the Owner's representative:

- Pre-commissioning tests, which shall include the appropriate inspections and functional tests to demonstrate that each item of Works can safely under-take the next stage.
- Commissioning tests, which shall include the specified operational tests to demonstrate that the Works can be operated safely and as specified, under all available operating conditions and the equipment supplied is satisfactorily installed and commissioned.
- Reliability Run, which shall demonstrate that the Works perform reliably and in accordance with the Technical Requirements. The Contractor shall also demonstrate the operation of the safety interlocks, as applicable, to the full satisfaction of the Owner.

Details are as follows:

➤ **Reliability run test:**

Without prejudice to the more detailed requirements as given elsewhere in the Contract, the Bidder must demonstrate that while the Unit is operating in accordance with normal operating procedures (except as necessarily modified for testing purposes) and within the limits of output specified, either continuously or intermittently as may be more convenient for the Owner and in compliance with all applicable laws and statutory approvals:

- The duration of Reliability Run of the complete plant & equipment for each unit in the automatic mode of control shall be thirty (30) days out of which at least seventy two (72) hours shall be in continuous operation on full load or any other duration as may be agreed to between the Owner and the Contractor;

- For the period of Reliability Run, the time of operation with minimum 85% load shall be counted, minor interruptions not exceeding One (1) to Two (2) hours at a time caused during the continuous operation shall not affect the total duration of Reliability Run. Maximum number of such interruption during the reliability run shall be four (4). However, if in the opinion of the Owner, the interruption is long, the Reliability Run shall be prolonged for the period equivalent to the duration of interruption.
- Air emissions and noise levels of the Unit must be in compliance with guaranteed requirements; and
- Effluent discharge from the Unit must be in compliance with guaranteed requirements.

If any failure or interruption occurs in the Facility or any portion of the Facility due to, or arising from, defects in design, materials or workmanship which is sufficient to prevent the agreed usage of the equipment, the Reliability Test must be repeated after the Bidder has remedied the causes of failure. The Reliability Test procedure must be agreed between the Owner and the Bidder prior to the Completion Tests being commenced.

A Reliability Run report comprising observations and recordings of various parameters to be measured, in respect of the above run shall be prepared by the Contractor for each unit. This report besides recording the details of the various observations during operation shall also include the dates of start and finish of the Reliability Run and shall be signed by the representatives of both the parties. The report shall have sheets, recording and print out of all the details of interruption occurred, adjustments made, any minor repairs done during the Reliability Run. Based on the observations, necessary modifications/repairs to the plant shall be carried out to the full satisfaction of the Owner to enable the later to accord permission to carry out Performance and Guarantee Tests on the plant. However, minor defects which do not endanger the safe operation of the equipment shall not be considered as reasons for with holding the aforesaid permission.

Should any major failure or interruption occur in any portion of the plant due to or arising from faulty design, materials, workmanship or omissions or incorrect erection, sufficient to prevent safe and full commercial use of the plant, the reliability run shall be considered void and the reliability test period of 30 days shall recommence for that unit after the Contractor has remedied the cause of defect.

Major Failure

Major failure means failure or interruption in any portion of the plant due to or arising from faulty design, material or workmanship, omission or incorrect erection to prevent safe and full use of the plant equipment during the Reliability Run period of 30 days.

Reliability Run would be considered a failure for any one of the following:

- Failure to operate in accordance with normal operating procedures with all plant systems under automatic control.
- Plant tripping or reduction in plant output.

- Failure to meet Guaranteed Maximum Emission Rate at any time.
- The Contractor performs significant repairs or overhauls.
- Unauthorized adjustment during Reliability Run. Unauthorized adjustment means that adjustment made without a Permit To Work. However, in emergency situations, immediate adjustment may be necessary. In this case, the adjustment made should be recorded and the effect of such adjustment on the validity of the Reliability Run will be discussed and decided by the commissioning committee (created for this purpose before the start of the Reliability Run) between Owner and the Contractor.
- Failure to start-up/shut-down as and when required according to normal procedure.
- Major defects to warrant plant shut-down or interruption for repair which would otherwise affect safety of personnel and/or plant and equipment.
- Failure to respond correctly during the run back or emergency trip.

In the event of failure, the reliability run test period of 30 days shall recommence after the Contractor has remedied the cause of the defect.

➤ **Final completion test.**

On the completion of the Completion Tests of both Units and after the Bidder has notified the Owner's Representative, the Facility is deemed ready for the carrying out of the Final Completion Test.

Without prejudice to the more detailed requirements as given elsewhere in the Contract, the Bidder must demonstrate that while the Facility is operating in accordance with normal operating procedures (except as necessarily modified for testing purposes) and within the limits of output specified, either continuously or intermittently as may be more convenient for the Owner and in compliance with all applicable laws and all statutory approvals:

- The Facility must be available for not less than 168 consecutive hours. During this time, the Facility must operate continuously at full load for at least 72 hours, and for the rest of the period at any load as required by the Owner.
- Air emissions and noise levels of the Facility must be in compliance with guaranteed requirements; and
- Effluent discharge from the Facility must be in compliance with guaranteed requirements.

If any failure or interruption occurs in the Facility or any portion of the Facility due to, or arising from, defects in design, materials or workmanship which is sufficient to prevent the agreed usage of the equipment, the Final Completion Tests must be repeated after the Bidder has remedied the causes of failure.

The Final Completion Tests procedure must be agreed between the Owner and the Bidder

X. DOCUMENTS SUBMITTALS

1. Bidding Phase

During bidder phase, following technical documents shall be at least submitted to Owner for evaluation:

- a. System description and specification
- b. Capacity, technology, and equipment specifications (The Bidder shall fill Technical Schedule datasheet prepared by Owner)
- c. Regulations, codes and standards that are applied
- d. General arrangement drawings (plan, elevation, section view), P&ID drawings, Single line diagram...
- e. Technical and Performance Guarantee Data
- f. Execution Schedule
- g. Control system configuration diagram
- h. Electrical load list (including power consumer and consumption) (In case not submitted to Owner, the Bidder shall comply with performance guarantees)
- i. Qualification documents (Business registration; company profile, ISO certificates, Evidence proving it has been participating and successfully completed in similar relevant work, reference list,...)
- j. Other documents which can be helpful for OWNER during Bid evaluation

2. Contract Execution

During contract execution, the bidder shall submit Master Document List (MDL) comprising at least following documents and/or information

- a) System description and specification
- b) Scope of Interface
- c) Capacity, technology, and equipment specifications, technical datasheet
- d) General arrangement drawings (plan, elevation, section view), P&ID drawings, Single line diagram...
- e) Operation & Control Philosophy
- f) Technical and Performance Guarantee Data
- g) Foundation drawing including loading data
- h) Technical data schedule as required
- i) Control system configuration diagram
- j) Mandatory Spare part and Special tools list as required
- k) Recommend Spare part list
- l) Electrical load list (including power consumer and consumption)
- m) Auxiliary power consumption list
- n) Utility consumption list

- o) Catalogues
- p) The Bill of quantity (volume and weight) (including erection drawings).
- q) The Bill of quantity to be purchased/manufactured as per scope of work
- r) Training program concept
- s) 3-D modeling (including Equipment, piping and support) (if required)
- t) Operation & Maintenance Manual (O&M)
- u) Water-Balance Diagram within bidder's scope (if required)
- v) List of Valves, Pipeline, Instruments (including specification, basic datasheet)
- w) As-built documents
- x) Other documents which can be helpful for completion of scope of work or required by Owner during engineering phase.

XI. ATTACHMENTS

- Attachment #0 – Technical Datasheet (attached documents in folder)
- Attachment #1 – Technical Specification / Scope of work – RFP Document.
- Attachment #2 – Specification for River Water Pre-treatment System (document LP1-TKC-10GD-M-M26-SPC-2036), for Desalination RO Stage 1 & Potable Water treatment system (LP1-TKC-10GB-M-M41-SPC-2037), for Demineralization RO Stage 2 (LP1-TKC-10GC-M-M42-SPC-2038), for Vertical Pumps & Sump Pumps (LP1-TKC-10AP-M-G1-SPC-2010), for DM Water Tank (LP1-TKC-10BB-M-G1-SPC-2012), for Bar Screen and Sluice Gates (LP1-TKC-11H-M-M1A-SPC-2054), for Hoist & Crane (LP1-TKC-10SM-M-M32-SPC-2024).
- Attachment # 3 – Package Interface/Terminal Point information.
- Attachment #4 – Existing engineering, procurement, construction documents performed by previous Vendor (Package Status Documents)
- Attachment #5 – Salinity Monitoring Results of Hau River

PART 3. CONTRACT

Chapter VI. Contract

CONTRACT

Contract No. : _____

FOR

**SUPPLY OF EQUIPMENT, INSTALLATION,
CONSTRUCTION, TESTING & COMMISSIONING FOR
WATER TREATMENT PLANT**

LONG PHU 1 THERMAL POWER PLANT PROJECT

BETWEEN

AND

CONTRACT

THIS CONTRACT is made and entered into as of dd/mm/yyyy by and between:

I. PetroVietnam Long Phu 1 Power Project Management Board, hereinafter referred to as LP1PP or "the Owner":

Represented by: **Mr. Ha Dinh Nien**

Position: : General Director

Address : Thanh Duc Hamlet, Dai Ngai commune, Can Tho City

Telephone : +84-299 3713333

Fax : +84-299 3713 444

Email : longphu1@lp1pp.pvn.vn

Bank account : 0111370888889

At : Joint Stock Commercial Bank for Foreign Trade of Vietnam, Can Tho Branch

Tax code : 0100681592-024

And

II. (Company name) (hereinafter called "Contractor"):

Represented by: **Mr.**

(Under POA registered No. dated)

Position: :

Address :

Telephone :

Fax :

Email :

Bank account :

At :

Tax code :

The Owner and the Contractor shall be hereinafter referred individually to as "Party" or collectively as "Parties".

WITNESSETH

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NOW THEREFORE, in consideration of the premises and mutual understandings, both parties have hereto entered into the Contract as per the provisions hereinafter described in the Terms and Conditions of the Contract.

IN WITNESSETH WHEREOF, the Parties have hereunder set their respective signatories to be executed on the date and year first above written.

1. GENERAL PROVISIONS**1.1 Definitions**

In this Contract ("Contract") the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

- 1.1.1** "Associated Works" means any works being or to be carried out at or connecting with the Site by the Owner or any Public Sector Entity or any Associated Works Contractors.
- 1.1.2** "Associated Works Contractors" means any of the third parties, contractors, consultants or service providers engaged by or on behalf of the Owner or a Public Sector Entity to carry out Associated Works.
- 1.1.3** Not applicable.
- 1.1.4** "Commencement Date" is defined in the Sub-Clause 7.1. [*Commencement Date*]
- 1.1.5** "Contract": means this Contract for the "Supply of Equipment, Installation, Construction, Testing and Commissioning for Water Treatment Plant" and all additional documents (if any) hereunder duly signed by the authorized representatives of the Parties.
- 1.1.6** "Contract Price" means the agreed amount stated in the Contract for the design, supply, construction and commissioning of the Works and the remedying of any defects, and includes adjustments (if any) in accordance with the Contract as described in the Sub-Clause 12.1. [*The Contract Price*]
- 1.1.7** "Contractor's Documents" means the calculations, computer programs, software, drawings, manuals, models and other documents of a technical nature supplied by the Contractor under the Contract as described in Sub-Clause 4.2 [*Contractor's Documents*].
- 1.1.8** "Contractor's Equipment" means all Special Tools and Test Equipment, apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Plant, Materials and any other things intended to form or forming part of the Permanent Works.
- 1.1.9** "Contractor's Representative" means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 3.1. [*Contractor's Representative*], who acts on behalf of the Contractor.

- 1.1.10** "Contractor's Personnel" means the Contractor's Representative and all personnel whom the Contractor utilizes on Site, who may include the staff, labor and other employees of the Contractor and of each Subcontractor: and any other personnel assisting the Contractor in the execution of the Works.
- 1.1.11** "Cost" means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges.
- 1.1.12** "Cure Period" for Works means a period for the Contractor to remedy any defect of the Works as indicated in Sub-Clause 8.3 [*Retesting*].
- 1.1.13** "Day" or "day" means a calendar day and "year" means 365 days.
- 1.1.14** Not applicable.
- 1.1.15** Not applicable.
- 1.1.16** Not applicable.
- 1.1.17** "Design Values" or "design value" means the values as defined in the Appendix 2 [Technical Specification and Requirement].
- 1.1.18** "EPC Contract": Not applicable.
- 1.1.19** "Equipment" means the apparatus, machinery and/or vehicles intended to form or forming part of the Permanent Works.
- 1.1.20** "EVN" means Electricity of Vietnam, and their legal successors or assignees or novates.
- 1.1.21** "Goods" means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.
- 1.1.22** "Good Engineering Practice" means engineering practices and other practices, methods, equipment and procedures usually employed in engineering, design, construction, operation and maintenance by power industries throughout the world, the degree of skill, diligence, prudence and foresight which would reasonably be expected to be observed by a skilled and experienced turnkey contractor engaged in carrying out activities the same as or similar to the Works under the same or similar circumstances for the lawful, safe, reliable, efficient, design, engineering, construction, operation and maintenance of electrical power generation and transmission equipment.
- 1.1.23** "Final Acceptance Certificate" means the certificate issued under Clause 11 [*Completion of the Work*].
- 1.1.24** "Force Majeure" is defined in Clause 17 [*Force Majeure*].
- 1.1.25** "Performance Guarantees" is defined in the Appendix 12 [Performance Guarantees].
- 1.1.26** "Laws" means all applicable laws of the Socialist Republic of Vietnam, including but not limited to the Constitution, laws, codes, ordinances, resolutions, decrees, circulars, and other legislative or regulatory instruments issued by the National Assembly, the Government, Ministries, and other competent State authorities.

- 1.1.27** "Lien" means any mortgage, lien, pledge, claim, charge, lease, easement, security interest or encumbrance of any kind.
- 1.1.28** "List of Subcontractors and Manufacturers" means the list of subcontractors and manufacturers as specified in Appendix 5 [List of Subcontractors and Manufacturers].
- 1.1.29** "Materials" means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the materials to be supplied by the Contractor under the Contract.
- 1.1.30** "Origin" means the place where the Goods, Materials and Equipment or any parts thereof are mined, grown, produced or manufactured, and from which the services are provided. Goods, Materials and Equipment components are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that is substantially in its basis characteristics or in purpose or utility from its components.
- 1.1.31** "Owner" means Vietnam National Industry - Energy Group (PVN) and/or PetroVietnam Long Phu 1 Power Project Management Board, who act on behalf of PVN in managing the Project, and the legal successors in title to each of these entities.
- 1.1.32** "Owner's Representative" means the person named by the Owner in the Contract or appointed from time to time by the Owner, who acts on behalf of the Owner.
- 1.1.33** "Owner's Personnel" means the Owner's Representative, the assistants and all other staff, labor and other employees of the Owner; and any other personnel notified to the Contractor, by the Owner, as Owner's Personnel.
- 1.1.34** Not Applicable.
- 1.1.35** "Party" means each of the Owner or the Contractor, as the context requires.
- 1.1.36** "Parties" means both the Owner and the Contractor.
- 1.1.37** "Penalties" means "Penalties for Delay" or "Penalties for Performance tests" described in Sub-Clause 7.6 [*Penalties*].
- 1.1.38** "Permanent Works" means the permanent works to be designed and executed by the Contractor under the Contract.
- 1.1.39** "Power Plant" or "Plant" means the coal fired power plant consisting of two (2) Units each 600 MW (gross) and Common facilities, as more particularly described in the Technical Requirements, to be designed and executed by the Contractor under the Contract.
- 1.1.40** "Provisional Acceptance Certificate" means the certificate issued under Clause 9 [*Acceptance of the Work*].
- 1.1.41** "Taking Over Certificate" means the certificate issued under Sub-Clause 9.4.1.
- 1.1.42** "Public Sector Entity" means any national, federal, regional, state, municipal or local government, and any division, ministry, department, agency or other

emanation of any of the same, including any court, commission, board, branch or similar authority of such government and anybody empowered to grant, withdraw or determine the terms and conditions of any license".

- 1.1.43** "Punch List" means a schedule of items of an administrative or less important nature which have not been completed but which do not affect the safe and reliable start-up, testing and commercial operation of any Plant, Equipment, Materials and Works and which are to be completed, corrected, fixed or repaired by the Contractor at its own expense as a condition to obtaining the Provisional Acceptance Certificate. The Punch List shall also include a timetable for the completion of such Punch List items.
- 1.1.44** "Reliability Run" means the "trial operation" referred to under Clause 8 [*Tests on Completion*]. The term "Reliability Run" shall be used in this connection during execution of the Contract.
- 1.1.45** "Scope of Work" means the specifications of Work to be performed by the Contractor and materials to be supplied by Contractor, as set forth in Appendix 1 [*Scope of Work*].
- 1.1.46** "Site" means the place or places, provided or made available by the Owner where work is to be done by the Contractor or to which the Power Plant is to be delivered, together with so much of the area surrounding the same as the Contractor shall with the consent of the Owner use in connection with the Works otherwise than merely for the purposes of access.
- 1.1.47** "Special Tools and Test Equipment" means all special erection tools, machinery, testing devices, expendable supplies, as necessary to properly erect, commission and test the Works.
- 1.1.48** "Subcontractor" means any person entitled as subcontractor and/or appointed as a subcontractor of the Contractor to perform part(s) of the Works and the legal successors in title to each of these persons.
- 1.1.49** "Technical Requirements and Specifications" or "Technical Requirements" or "Technical Specifications" means all the documents as included in Specifications and entitled technical requirements, the project information, general technical requirements, particular technical requirements, Technical Schedules and Drawing and documents, and any additions and modifications to such document in accordance with the Contract. Such document specifies the purpose, scope, and/or design and/or other technical criteria, for the Works under Appendix 2 [*Technical Specification and Requirement*].
- 1.1.50** "Tests on Completion" means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 8 [*Tests on Completion*] and Appendix 2 [*Technical Specification and Requirement*], before the Works are taken over by the Owner.
- 1.1.51** "Temporary Works" means all temporary works of every kind (other than Contractor's Equipment) required on the Site for the execution and completion of the Permanent Works and the remedying of any defects.
- 1.1.52** "Time for Completion for Unit" - Not applicable.

- 1.1.53** "Time for Completion of Works" means the date at which the acceptance of the Works is to be attained by the Owner as set out in Sub-Clause 7.2 [*Time for Completion of Works*].
- 1.1.54** Not Applicable.
- 1.1.55** "Unit" means either Unit 1 or Unit 2 (as the case may be) and Units means both Units 1 and 2.
- 1.1.56** "Unit 1" means the coal fired power unit of 600 MW (gross) entitled "Unit 1".
- 1.1.57** "Unit 2" means the coal fired power unit of 600 MW (gross) entitled "Unit 2".
- 1.1.58** "Variation" means any change to the Technical Requirements or the Works, which is instructed or approved as a variation under Clause 13 [*Variations and Adjustments*].
- 1.1.59** "Warranty Period" means the period for notifying defects for Works under Clause 10 [*Warranty Period*]
- 1.1.60** "Working day" or "Working day" means any day other than Saturday, Sunday or any other day which is a public holiday in the Country.
- 1.1.61** "Works" or "Work" mean the Permanent Works and the Temporary Works, including without limitation the design, supply of all Plants, equipment, materials, construction, commissioning and services to be provided and the work to be done by the Contractor in accordance with the stipulations of the Contract and Appendix 1 [*Scope of Work*].
- 1.1.62** "Project" means Long Phu 1 Thermal Power Plant Project, located in Thanh Duc hamlet, Dai Ngai commune, Can Tho city, S.R. Vietnam.

1.2 Communications

Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices and requests, these communications shall be:

- (a) in writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Technical Specification; and
- (b) delivered, sent or transmitted to the address for the recipient's communications as stated in the Contract. However:
- (c) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
- (d) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed.

1.3 Law and Language

The Contract shall be governed by the law of the Socialist Republic of

Vietnam.

All documents integrated into contract documents must be initialed by authorized persons of the Parties. The official language for communications, including communications in dispute resolution, shall be English. If there are versions of any part of the Contract that are written in more than one language, the English version shall prevail. Unless otherwise stated in the Contract, documents forming the Contract, including technical/technological documents prepared and submitted by the Contractor and or foreign subcontractors/manufacturers, shall be in English.

1.4 Compliance with Laws

The Parties shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Contract, the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the Laws in relation to the design, execution and completion of the Works and the remedying of any defects in accordance with the Contract and its conditions; and the Contractor shall indemnify and hold the Owner harmless against and from the consequences of any failure to do so.

1.5 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

1. The Conditions of Contract and the Addendums (if any), including the Appendices:
 - Appendix 1 - [Scope of Work]
 - Appendix 2 - [Technical Specification and Requirement]
 - Appendix 3 - [Price Schedule, Terms and procedure for payment]
 - Appendix 4 - [Forms of Contract]
 - Appendix 5 - [List of Subcontractors and Manufacturers]
 - Appendix 6 - [List of Code & Standards]
 - Appendix 7 - [List of Spare Parts]
 - Appendix 8 - [List of Permits and Licenses]
 - Appendix 9 - [Schedule level 2]
 - Appendix 10 - [Schedule of Engineering Documents and Submission Dates]
 - Appendix 11 - [Quality Control Procedure]
 - Appendix 12 – [Performance Guarantees]
2. Contract Discussion Agreement (including deviations proposed by the Contractor and agreed by the Owner)
3. Bid Documents
4. Contractor's Proposal

In the event of any ambiguity or conflict between the documents listed above, interpretation of higher priority documents shall prevail.

Notwithstanding this provision of priority of the contract documents, if any deviations are found elsewhere which are not declared in Contractor's Proposal or new issues/proposals not agreed/approved by the Owner, they will not be accepted and the Contractor shall fully conform to the Technical Specification and Requirements as stipulated in Appendix 2 [Technical Specification and Requirement]. In any circumstance, the Contractor is obligated to construct and hand over the Works with quality and schedule as regulated in the Contract.

1.6 Validity of Contract

The Contract will become binding after signature by both parties and become effective whenever the Owner has received the Performance Bond in comply with Sub-Clause 1.6.2 hereunder [*Performance Bond*].

The Contract shall remain in full force until the Contractor has fulfilled its obligations under the Contract and the Final Acceptance Certificate has been issued by the Owner and the payments thereof have been affected.

1.6.1 General Requirements for Bond (Advance Payment Bond, Performance Bond, Warranty Bond)

Unless otherwise stated under this Contract or agreed by Parties, the Contractor shall obtain Bonds from a bank that meets the following condition:

- (i) A Vietnamese bank accepted by the Owner; or
- (ii) A Foreign bank that has a branch in Vietnam; or
- (iii) A Foreign bank that has transactions with nominated Vietnamese banks.

All expenses incurred in connection with obtaining, extending the validity and/or supplementing the value and/or revising the Bonds under the Contract shall be borne by the Contractor.

1.6.2 Performance Bond

Within seven (07) Working days from the contract signing date, the Contractor shall submit a performance bond according to the form as provided in Appendix 4 [Forms of Contract], issued by a bank accepted by the Owner. The value of the performance bond shall be equivalent to ten percent (10%) of the Contract Price at the relevant currency as stated in the Contract.

The Contractor shall ensure that the performance bond remains valid and effective until the Works have been fully executed, completed, and any defects have been duly remedied. If the performance bond specifies an expiry date but on that date the Contractor has not yet received the Taking Over Certificate, then in twenty-eight (28) days prior to the stated expiry date, the Contractor must extend the performance bond's validity until the Works are completed, and all omissions or defects are remedied.

Unless otherwise stated in the Contract, the Owner shall be entitled to

withdraw this performance bond when:

- (a) the Contractor fails to perform its responsibility and obligation under this Contract; or
- (b) the Contract is terminated by the Owner as specified under Sub-Clause 14.2 [*Termination by the Owner*]; or
- (c) breach of Contract by the Contractor; or
- (d) the Contractor has not reimbursed, within forty-two (42) days from the agreement of reimbursement, the due payment to the Owner as agreed by the Parties or as stipulated at the Sub-Clause 18.1 [Owner's Claim] or Clause 18 [Claims, Disputes and Arbitration]; or
- (e) the Contractor has not yet extended the performance bond's validity period as above mentioned.

The Owner shall return performance bond to the Contractor within twenty-one (21) days after awarding the Taking Over Certificate of the Works.

1.6.3 Advance Payment Bond

Within seven (07) Working days from the Contract signing date, the Contractor shall submit an advance payment bond according to the form as provided in the Appendix 4 [Forms of Contract], issued by a bank accepted by the Owner. The value of the advance payment bond shall be equivalent and in the same currency as the advance payment amount. The value of the advance payment bond shall be gradually reduced in equivalent to the deduction made from each interim payment to recover the advance payment, until the full value of the advance payment has been totally recovered by the Owner. The advance payment bond shall become null and void and shall be returned to the Contractor when the full amount of the advance payment has been recovered by the Owner and upon the progress payment reaching up to 80% of the Contract Price. In any circumstance, the advance payment bond must be submitted to the Owner prior to the Owner making any advance payment to the Contractor.

The advance payment bond shall be valid from the date of its issuing and effective from the date the Contractor receives full amount of Advance Payment until thirty (30) days from the issuance of the Taking Over Certificate for the Works or the Owner has recovered all the value of the advance payment in accordance with the conditions of the Contract, whichever happens earlier. In case the advance payment bond stipulates an expiry date but the Owner has not yet recovered the full amount of the advance payment on the expiry date, then the Contractor shall extend the validity date of the advance payment bond no later than twenty-eight (28) days prior to such expiry date until the Owner has totally recovered the advance payment amount.

Unless otherwise stated in the Contract, the Owner shall be entitled to

withdraw this advance payment bond's remaining value when:

- (a) the Contractor materially fails to perform its responsibility and obligation under this Contract; or
- (b) the Contract is terminated under Clause 14 [*Termination*]; or
- (c) Material breach of Contract by the Contractor; or
- (d) the Contractor has not reimbursed, within forty-two (42) days from the agreement of reimbursement, the due payment to the Owner as agreed by the Parties or as stipulated at the Sub-Clause 18.1 [Owner's Claim] or Clause 18 [Claims, Disputes and Arbitration]; or
- (e) the Contractor has not yet extended Advance Payment Bond effective period as above mentioned.
- (f) The amount of advance payment that has not been fully recovered when the payment progress reaches 80% of the Contract Price.

1.6.4 Warranty Bond

The Contractor shall submit a warranty bond according to the form as provided in the Appendix 4 [Forms of Contract], issued by a bank accepted by the Owner within fourteen (14) Working days before the issuance of the Taking Over Certificate. The warranty bond's value shall be 5% of the Contract Price and the bond shall be valid and fully enforceable for thirty (30) days after the end of the Warranty Period.

In addition to the warranty bonds provided to cover the contractor's general obligations under the overall scope of work, if the contractor fails to remedy any defect or damage within a technically reasonable time, the owner may carry out the necessary remedial work directly or through a third party with the Owner's prior notice to the Contractor. The costs incurred for such work shall be recoverable under the warranty bond.

If the warranty period is extended for any part of the works, the contractor shall correspondingly extend the expiry date of the warranty bond or issue a new warranty bond in an amount proportional to the contract price of the affected part.

The Warranty Bond shall be returned to the Contractor within twenty-one (21) days after its expiration.

1.7 Interpretation

In the Contract, except where the context requires otherwise:

- Words indicating one gender include all genders;
- Words indicating the singular also include the plural and words indicating the plural also include the singular;
- Provisions including the word "agree", "agreed" or "agreement" require the

agreement to be recorded in writing;

- "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record;

- Unless otherwise stated, or the context otherwise requires, references to Clauses, Sub-Clauses and Schedules are to the clauses and sub-clauses of and schedules to this Contract;

- Any reference to this Contract or any other document or agreement shall include any appendices, schedules, or other annexed memoranda thereto and shall refer to the 'agreement' or 'contract' as in force for the time being and as from time to time amended, restated, supplemented or renewed;

The marginal words and other headings shall not be taken into consideration in the interpretation of this Contract.

1.8 Assignment

Neither Party shall assign the whole or any part of the Contract. However, either Party may assign any part with prior agreement of the other Party and at the sole discretion of such other Party only.

1.9 Care and Supply of Documents

Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Owner. Unless otherwise stated in the Contract, the Contractor shall supply to the Owner four (04) copies of each of the Contractor's Documents.

The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Technical Specification and Requirements, the Contractor's Documents, and Variations and other communications given under the Contract. The Owner, the Owner's Personnel shall have the right of access to all these documents at all reasonable times.

If a Party becomes aware of an error or defect of a technical nature in a document that was prepared for use in executing the Works, that Party shall promptly give notice to the other Party of such error or defect.

1.10 Confidentiality

1.10.1 Subject to Sub-Clauses 1.10.2 and 1.10.3 hereunder, both Parties shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out obligations under it or to comply with applicable Laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of the Owner.

1.10.2 Either Party shall be entitled to disclose the terms and conditions of the Contract and any documents and other information acquired by it under or pursuant to the Contract without the prior written consent of the other Party if such disclosure is made in good faith:

(a) to the extent required by applicable Laws;

- (b) to the extent required by the rules of a relevant and recognized stock exchange;
- (c) to any insurer or its affiliates/or its partners in holdings or groups under a policy of insurance issued pursuant to the Contract;
- (d) to any of its affiliates;
- (e) to its directors, employees and officers;
- (f) to any Subcontractor, for the furtherance of the performance of that Party's obligations under the Contract;
- (g) to the lender or any prospective lender and to any affiliate, agent, trustee or representative of the lender or any prospective lender;
- (h) to outside auditors, consultants or advisors engaged by or on behalf of the disclosing Party and acting in that capacity in connection with the Project (including insurance, tax and legal advisors);
- (i) to Associated Works Contractors, to the extent necessary for them to co-operate and co-ordinate Associated Works with the Works; or
- (j) to those contractor(s) which the Owner proposes to retain to operate and maintain the Power Plant (and any affiliates of such contractor(s));
- (k) to those contractor(s) which the Owner retains to complete the Works in accordance with Sub-Clause 14.2 [*Termination by Owner*] of the Contract,
- (l) in respect to drawings, procedures and other documents as reasonably required in order to execute the Works under the Contract for the Owner; Owner's contractors, designers and consultants.
- (m) provided that, in the case of the persons mentioned in paragraph (c) to (k), the disclosing Party shall have first obtained the person's agreement in writing to be bound by the same obligations of confidentiality, mutatis mutandis, as those set forth in this Sub-Clause 1.10.

1.10.3 The obligations of a Party under this Sub-Clause 1.10 shall not apply to information and documents which: now or hereafter have entered the public domain through no fault of that Party; or otherwise lawfully became available to that Party from a third party under no obligation of confidentiality.

1.11 Intellectual Property and Use of Contractor's Documents

As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor for the purpose of the Contract.

The Contractor represents that the Works or any part thereof do not infringe on any patent registered in any countries of the world. The Contractor also represents that the Works do not infringe on any other intellectual property right registered in such countries. The Contractor further represents that the Works do not constitute an unauthorized disclosure or use of a trade secret which Contractor is contractually bound to keep confidential.

The Contractor shall be deemed (by signing the Contract) to give to the

Owner a non-terminable transferable non-exclusive royalty-free license to copy, use and communicate all intellectual property and the Contractor's Documents, including making and using modifications thereof, solely for the purposes of executing, operating, maintaining and/or fulfilling warranty obligations in relation to the Power Plant. This license shall:

- (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
- (b) entitle any person appointed by the Owner and the Owner and in lawful possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of design, construction, completion, operation, modification, revamp, improvement, repairing, maintenance and demolishing the Power Plant, or replacement all or any part of the Power Plant, and
- (c) in the case of Contractor's Documents are in the form of computer programs or other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

Owner may use the information contained in Contractor's Documents and reproduce any submittals received from Contractor that are considered necessary for engineering, construction, start-up, commissioning, maintenance, or other purposes related to the Power Plant, despite any notice to the contrary appearing on the document, provided the Owner undertakes that recipient of such submittals shall be under the same confidentiality obligations to the Contractor as the Owner is under this Contract.

If all or part of the Works is held to constitute an infringement of patent registration or any intellectual property right or an unauthorized use or disclosure of a trade secret as agreed in this Sub-Clause 1.11, and if the use of all or part of the Works is enjoined, the Contractor shall, at its own expense, and at the Owner's option:

- (a) procure for the Owner the right to use such Works;
- (b) replace the affected Works with versions that do not infringe any intellectual property right or constitute an unauthorized use or disclosure of a trade secret as defined in this Sub-Clause 1.11; or
- (c) modify the Works so that it does not infringe any intellectual property right or constitute an unauthorized use or disclosure of a trade secret as agreed in this Sub-Clause 1.11.

Replacement of or modification of the Works shall not relieve the Contractor of the Contract requirements.

The Contractor shall indemnify and hold the Owner harmless against and from any other claim which arises out of or in relation to (i) the Contractor's design, manufacture, construction or execution of the Works, (ii) the use of Contractor's Equipment, or (iii) the proper use of the Works.

1.12 Contractor's Use of Owner's Documents

As between the Parties, the Owner shall retain the copyright and other intellectual property rights in the Technical Specification and Requirements and other documents made by (or on behalf of) the Owner. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract.

They shall not, without the Owner's consent, be copied, used or communicated to a third party by the Contractor, except as necessary, for the purposes of the Contract.

1.13 Tropical Serviceability

Unless otherwise specified, all supplies, Works, Plant, and Materials under this Contract shall be suitable for, and, where necessary, specially treated and processed for, delivery, storage, and operation under tropical conditions—particularly high temperatures, high humidity, heavy rainfall, and environments conducive to mildew and fungus growth. The materials and processes used for tropicalization shall conform to the best commercial and industrial practices and shall be subject to the approval of the Owner.

1.14 Early Work

Where the Contractor has affected any design, services or work in furtherance of the Works prior to the Commencement Date or the date of the Contract, the Contractor warrants to the Owner that such activities have been carried out in accordance with the requirements of the Contract and confirms that the warranties and undertakings set out in this Contract applied to such activities (without prejudice to the generality of such warranties and undertakings).

2 THE OWNER**2.1 Right of Access to the Site**

The Owner shall ensure that the Contractor has the right of access to, and possession of, all parts of the Site within the time (or times) reasonably required by the Contractor.

2.2 Permits, Licenses or Approvals

The Contractor shall be responsible for the obtaining any permit and licenses required by the law and as stated in Appendix 8 [List of Permits and Licenses] and any other licenses and permits required according to the Laws for the Works, except for a valid certificate of construction capacity, which must be provided by the Contractor prior to the Contract award.

2.3 Owner's Personnel

The Owner shall be responsible for ensuring that the Owner's Personnel and other contractors on the Site:

- (a) co-operate with the Contractor's efforts under Sub-Clause 3.14 [*Co-operation*], and
- (b) take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 3.16 [*Safety Procedures*] and

under Sub-Clause 3.21 [*Protection of the Environment*],

2.4 Delegated Persons

All persons, including the Owner's Representative and assistants, to whom duties have been assigned or authority has been delegated, shall only be authorized to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by a delegated person, the Owner's Representative or assistant, in accordance with the assignment or delegation, shall have the same effect as though the act had been an act of the Owner. However:

- (a) unless otherwise stated in the delegated person's communication relating to such act, it shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances;
- (b) any failure to disapprove any part of the Works, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Owner to reject the Works, Plant or Materials; and
- (c) if the Contractor questions any determination or instruction of a delegated person, the Contractor may refer the matter to the Owner, who shall promptly confirm, reverse or vary the determination or instruction.

2.5 Instructions

The Owner may issue to the Contractor instructions, including instructions to request the Contractor to perform obligations concerning common facilities sharing between the Project and other projects, which may be necessary for the Contractor to perform his obligations under the Contract. Each instruction, when issued, shall be given in writing and shall state the obligations to which it relates and the sub-clause (or other term of the Contract) in which the obligations are specified. If any such instruction constitutes a Variation, Clause 13 [*Variations and Adjustments*] shall be applied.

The Contractor shall take instructions from the Owner, or from the Owner's Representative or assistants to whom the appropriate authority has been delegated under this Clause.

2.6 Determinations

Whenever this Contract provide that the Owner shall proceed in accordance with this Sub-Clause 2.6 to agree or determine any matter, the Owner shall consult with the Contractor in an endeavor to reach an agreement. If an agreement is not achieved, the Owner shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Owner shall give notice to the Contractor of each agreement or determination, with supporting particulars. Each Party shall give effect to such agreement or determination, unless the Contractor gives notice, to the Owner, of his dissatisfaction with a determination within fourteen (14) days of receiving it. Either Party may then refer the dispute for resolution in

accordance with Clause 18 [*Claims, Disputes and Arbitration*].

Notwithstanding that the Contractor may dispute any determination made by the Owner in accordance with this Contract and refer such dispute for resolution in accordance with Clause 18 [*Claims, Disputes and Arbitration*], both Parties shall continue to execute the work in accordance with the Contract and the Contractor shall proceed with such work in accordance with the Owner's determination pending any resolution agreed between the Parties or any determination by an arbitral tribunal in accordance with Clause 18 [*Claims, Disputes and Arbitration*].

3 THE CONTRACTOR

The Contractor shall design, execute and complete the Works in accordance with the Contract, and shall remedy any defects in the Works. When completed, the Works shall be fit for the purposes for which the Works are intended as defined in the Contract.

Before performing any tasks that require a certificate of competency in performing construction activities as stipulated by the current laws on construction, the Contractor must submit to the Employer a valid certificate of competency in performing construction activities that meets the requirements applicable to the entity carrying out the corresponding work.

The Contractor warrants to the Owner that the Works:

- shall be carried out with all the skill and care to be expected of qualified and experienced turnkey contractors, designers and engineers engaged in carrying out works of a similar scale, nature and complexity to the Works;
- shall be carried out so as not to contravene any applicable Laws and Licenses and that upon being taken over, shall be in compliance with all applicable Laws and Licenses;
- shall consist of all necessary activities for the supply, shipment, construction, commissioning, testing, Reliability Run, Tests on Completion and warranty services after Acceptance of the Works as specified in the Contract.
- shall have been and shall be designed, engineered, procured, commissioned and tested in accordance with Good Engineering Practice;
- shall have been and shall be performed based on planning, supervision and quality control in accordance with Good Engineering Practice
- shall incorporate only new, high quality plant and materials that are fit for their intended purposes and suitable for integration into the Works;
- shall incorporate system design, major plant components and materials that utilize proven technology, i.e., designs and technologies that have been commercially deployed and successfully operated at other power plants;

The Contractor shall provide the Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other items and services, whether of a temporary or permanent nature, required in and for this execution, completion and remedying of defects.

The Works shall include any work which is necessary to satisfy the Technical

Requirements, or is implied by the Contract, and all the work which (although might not be mentioned in the Contract) is necessary for the stability, or for the completion, or for the safe and proper operation, of the Works.

The Contractor shall, whenever required by the Owner, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without prior notification to the Owner.

The Contractor shall be responsible for the adequacy, stability and safety of all Site operations, of all methods of construction and of all the Works.

3.1 The Contractor's Representative

The Contractor shall appoint a Contractor's Representative and shall give them all authority necessary to act on the Contractor's behalf under the Contract. For the avoidance of doubt, the Contractor's Representative has authority to act on behalf of all of the persons forming the Contractor.

Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Owner for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked, or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Owner, revoke the appointment of the Contractor's Representative or appoint a replacement, such consent shall not be unreasonably withheld or delayed.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 2.5 [*Instructions*].

The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Owner has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

The Contractor's Representative and all these persons shall be fluent in the language for communications defined in Sub-Clause 1.3 [*Law and Language*],

3.2 Subcontractors

3.2.1 The Contractor shall not subcontract the whole of the Works.

3.2.2 The final List of Subcontractors and Manufacturers and supported documents on their eligibility and qualification shall be evaluated, and thereafter submitted by the Contractor to the Owner for approval within three weeks after the Commencement Date. If the Contractor subcontracts any portion of the Works, the Contractor remains responsible for complying with the Contract requirements and will be liable to the Owner for the acts and

omissions of Subcontractors and manufacturers as if the acts and omissions were those of the Contractor.

- 3.2.3 The Contractor shall submit to the Owner the following supporting documents on subcontractors and manufacturers eligibility and qualification for their approval:
- Company profile;
 - References of the earlier supplied equipment/ executed works;
 - The applicable quality certificates;
 - Any other documents requested by the Owner.
- 3.2.4 Subcontractors and manufacturers must be selected from the list specified in Appendix 5 [List of Subcontractors and Manufacturers], which shall be officially approved by the Owner. This list may be modified from time to time, subject to the Owner's approval.
- 3.2.5 In case of replacement of any approved subcontractor or manufacturer indicated in Appendix 5 [List of Subcontractors and Manufacturers], the Contractor shall submit full information in order to ensure the Technical Requirements and propose commercial variations (if any) for the Owner's review and approval. The Contractor shall sign such subcontract only based on the approval of the Owner.
- 3.2.6 Not application.
- 3.2.7 The Contractor shall be responsible for the acts or defaults of any Subcontractor, their agents or employees, as if they were the acts or defaults of the Contractor. Whenever requested by the Owner, the Contractor shall give the Owner not less than twenty-eight (28) days' notice of:
- (a) the intended appointment of the Subcontractor, with detailed particulars which shall include his relevant experience,
 - (b) the intended commencement of the Subcontractor's work, and
 - (c) the intended commencement of the Subcontractor's work on the Site.
- 3.2.8 The names and addresses of all Subcontractors and manufacturers shall be listed in the relevant schedules, together with complete details of the equipment and scope of Work assigned to each, whether related to importation or construction. Such schedules shall include a confirmation from the Contractor guaranteeing the timely completion of each Subcontractor's or manufacturer's assigned Work.
- 3.2.9 The Contractor must ensure that all the materials and equipment supplied by its Subcontractors are ordered and imported within suitable time and in a timely manner. The Contractor shall be fully responsible for all actions and performance of its Subcontractors.
- 3.2.10 The Contractor shall submit to the Owner both a hard copy and a soft copy of each subcontract, in English, containing all relevant information necessary to verify compliance with the Contract. The subcontract may omit pricing details unless otherwise requested by the Owner. However, this will not

release the Contractor from its responsibility in case of any delay for any of its Subcontractors. All Subcontractors are subject to the Contractor's approval before commencement of any Work sublet to them.

- 3.2.11 In order to ensure the Technical Requirements and/or Technical Specifications as well as quality and project schedule, the Owner/Owner's consultant shall have the right to participate in the technical negotiation, selection and approval of Subcontractors (excluding price and commerce negotiation of subcontractor) in respect of critical equipment and other equipment, services and materials if the Owner finds that such equipment, materials or services may affect the quality of the Works.
- 3.2.12 For the purpose of the Project execution and ascertainment the Project Schedule, the Owner reserves the right to request any Subcontractor selected by the Contractor to open an account through a Vietnamese bank accepted by the Owner. Such account shall be used for receiving payment made directly by the Owner. However, the Contractor shall hold and keep the Owner harmless against the Subcontractor's claim with particulars. If the justified claim with particulars is certified, the Owner reserves the right to make directly payment to such mentioned subcontractor with the prior written acknowledge of the Contractor.

3.4 Not Applicable

3.5 Program

Within fifteen (15) days from the Commencement Date the Contractor shall submit a time program to the Owner in accordance with the Technical Requirements. The Contractor shall also submit a revised program whenever the previous program is inconsistent with actual progress or with the Contractor's obligations. Unless otherwise stated in the Contract, each program shall include:

- (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each major stage of the Works and estimated time of subcontractor selection, if any,
- (b) the periods for reviews under Sub-Clause 4.2 [Contractor's Documents],
- (c) the sequence and timing of inspections and tests specified in the Contract, and
- (d) a supporting report, which includes:
 - (i) a general description of the methods which the Contractor intends to adopt for the execution of each major stage of the Works, and
 - (ii) the approximate number of each class of Contractor's Personnel and of each type of Contractor's Equipment for each major stage.
- (iii) Plan and time of subcontractor selection, if any.

Within twenty-eight (28) days after receiving a program, the Owner gives notice to the Contractor stating the extent to which it does not comply with the Contract. The Contractor shall only proceed in accordance with the approved program, subject to his other obligations under the Contract. The

Owner's Personnel shall be entitled to rely upon the program when planning their activities.

The Contractor shall promptly give notice to the Owner of specific probable future events or circumstances which may adversely affect or delay the execution of the Works. In this event, or if the Owner gives notice to the Contractor that a program fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised program to the Owner in accordance with this sub-clause.

3.6 Progress Reports

Monthly progress reports shall be prepared by the Contractor and submitted to the Owner up to the 1st day of every month, covering the whole previous calendar month. The first report shall cover the period up to the end of the first calendar month following the Commencement Date.

Reporting shall continue until the Contractor has completed all the work which is known to be outstanding at the completion date stated in the Provisional Acceptance Certificate for the Works.

Each report shall include:

- (a) charts and detailed descriptions of progress for each phase of the Works, including design and submission of Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection, testing, Tests on Completion;
- (b) photographs documenting the status of manufacturing activities and progress on the Site;
- (c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacturing's location, percentage progress, and the actual or expected dates of:
 - (i) commencement of manufacture,
 - (ii) Contractor's inspections,
 - (iii) testing, and
 - (iv) shipment and arrival at the Site;
- (d) the details described in Sub-Clause 5.10 [*Records of Contractor's Personnel and Equipment*];
- (e) copies of quality assurance documents, test results and certificates of materials;
- (f) a list of Variations, notices given under Sub-Clause 18.1. [*Owner's Claims*] and notices given under Sub-Clause 18.2. [*Contractor's Claims*];
- (g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations;
- (h) comparisons of actual and planned progress, with details of any events or circumstances which may jeopardize the completion in accordance with the

- Contract, and the measures being (or to be) adopted to overcome delays;
- (i) physical progress for the month and estimated progress of the following month;
 - (j) major activities for the month and major activities planned for the following month;
 - (k) a revised program;
 - (l) a tabulation of Site employees showing the supervisory staff and the number of the several classes of labor employed by the Contractor during the month;
 - (m) a list of the Contractor's Equipment, Special Tools and Test Equipment utilized for the execution of the Works during the month;
 - (n) a list of Plant and Materials on Site indicating their status, i.e., used, erected, etc.;
 - (o) payment records during the month;
 - (p) climatic conditions and similar items;
 - (q) a construction report covering Site activities weekly.

3.7 Coordination Meetings

Coordination meetings between the Owner and the Contractor shall be conducted for purposes of clarifying problems that may arise during the design/ manufacturing/ erection/ installation/ testing/pre-commissioning/ commissioning/ Reliability Run/ Tests on Completion/ warranty stage of the Works. The Contractor shall clarify all questions of the Owner to the extent required by the Owner. The venue of such meetings shall be at the Owner's head office or at the Site except meetings regarding the design works to be mutually agreed upon by both parties.

Weekly meetings shall be held at Site to discuss progress and safety issues and may be called by the Owner at any other time to discuss other relevant issues.

A Minutes of Meeting shall be prepared and signed by the Owner and the Contractor evidencing agreements and required actions.

Whenever requested the Contractor shall attend any Site meetings to be held between the Owner and the Contractor.

3.8 Purchasing of Material and Equipment

The Contractor shall be responsible for obtaining approval of, ordering, purchasing and delivering to the Site, by the proper time for incorporation into the Work, all materials, equipment, Special Tools and Test Equipment required for the Works.

All the Contractor's Equipment, Special Tools and Test Equipment shall be maintained in top working condition and provisions shall be made for immediate repairs or replacement of damaged or inefficient Special Tools and Test Equipment. In case of default, the Owner may provide what is lacking or provide proper protection, and deduct any costs for so doing from

any payment to the Contractor.

3.9 Transportation of Goods

3.9.1 Not application.

3.9.2 The Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other items required for the Works in accordance with the Scope of Work and Technical Requirements and Specifications, to assure the good quality of the Works.

3.9.3 Not applicable.

3.9.4 If the Contractor introduces changes of number of shipments, ports of export and/or place of departure after the Owner has received the draft Equipment delivery schedule, the Contractor shall immediately inform the Owner of such changes and submit an updated Equipment Delivery Schedule no later than three (3) months prior to the affected shipment(s). In such cases, the Owner and the Contractor shall jointly assess and evaluate any cost impact resulting from the changes within fourteen (14) days from the date of receipt of the updated Equipment Delivery Schedule. Any resulting cost impact shall be borne solely by the Contractor.

3.9.5 The Contractor shall submit to the Owner, no later than thirty (30) days prior to dispatch, detailed shipping data for the Equipment to be supplied, including weight and dimensions of all packages.

3.9.6 The Contractor shall provide the Owner with written notice of the intended delivery date to the Site of any Equipment, no less than twenty-eight (28) days in advance.

3.9.7 The Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other items required for the Works.

3.9.8 The Contractor shall indemnify and hold the Owner harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transportation of goods, and shall negotiate and pay all claims arising from their transportation.

3.10 Supply of Electric Power and Water

The Contractor shall, at their own risk and cost, be responsible for the procurement, installation, operation, maintenance and provision of all power, water, telecommunication, consumable and services, except the diesel oil, coal and limestone for Plant commissioning, which are to be provided by the Owner or the Owner's third Party who manage the Site, for the execution of the Works in the Contract.

The Contractor is responsible to make a contract with the Owner or the Owner's third Party who manage the Site to provide electricity and water.

The Contractor shall be entitled, subject to the Owner's agreement, to use for the purposes of the Works such supplies of electricity, water, and other services as may be made available on the Site by the Owner or the Owner's

third Party who manage the Site. The Contractor shall, at its own risk and expense, provide all necessary apparatus for the utilization and measurement of such services, including equipment for recording quantities consumed.

The Contractor shall be responsible for maintaining the continuity and reliability of the electric power and water supply and for providing all necessary standby equipment.

The Contractor shall make all necessary arrangements for all temporary storage, distribution and drainage of water as well as provide all necessary arrangements for the distribution of lighting and power for the proper execution and protection of the Works including temporary wiring, fittings and portable power generating units.

The Contractor shall adapt and maintain the Temporary Works as long as necessary and remove it and make good the area occupied when no longer required.

The costs of water and electricity for the Contractor's consumption shall be borne by Contractor.

3.11 Quality Assurance

The Contractor shall maintain a quality assurance system in accordance with the requirements specified in the Contract. To demonstrate compliance of the system with the requirements of the Contract, the Contractor shall submit a quality assurance program that detailing the system's processes at all stages of the Contract implementation. The Owner shall be entitled to audit any aspect of the system at any time.

Details of all procedures and compliance documents shall be submitted to the Owner for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Owner, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

3.12 Unforeseeable Difficulties

Except as otherwise stated in the Contract:

- (a) the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Works.
- (b) by signing the Contract, the Contractor accepts total responsibility for having foreseen all difficulties and costs associated with the successful completion of the Works; and
- (c) the Contract Price shall not be adjusted on account of any unforeseen difficulties or additional costs.

3.13 Contractor's Specific Warranties

In addition to those general warranties set forth in Sub-Clause 3.1 [*The*

Contractor's Representative], Contractor makes the following specific warranties relating to the completed Works (said general and specific warranties being sometimes collectively referred to as the Contractor Warranties)

Mechanical Warranty:

The Contractor warrants that:

- (a) All Plant, Materials and Works are specified and supplied, including without limitation, all Plant, Materials and Works designated by Owner for the operation and maintenance of Water Treatment Plant , as per the requirements of the Contract;
- (b) The Water Treatment Plant shall properly and safely function;
- (c) The Water Treatment Plant system shall be free of any defects and /or deficiencies; and
- (d) All Plant, Materials and Works shall be brand new, unused, and of good and acceptable quality, fit for their intended purposes.

Environmental Warranty:

The Contractor warrants that the Water Treatment Plant shall meet or exceed the environmental performance criteria as set forth in Appendix 12 [Performance Guarantees].

3.14 Co-operation

3.14.1 The Contractor shall, as specified in the Contract or as instructed by the Owner, allow appropriate opportunities for carrying out work to:

- (a) the Owner's Personnel,
- (b) such Associated Works Contractors related to the Project,
- (c) the personnel of any legally constituted public authorities, who may be employed in the execution on or near the Site of any work not included in the Contract.

3.14.2 The Owner shall notify the Contractor of any other Associated Works Contractors to be engaged by the Owner to work on the Site. The Contractor shall, in accordance with the Owner's instructions, afford such other contractors engaged by the Owner and persons lawfully upon the Site all reasonable opportunities for carrying out their work provided that the same shall not materially obstruct or disturb the progress of the Works as ascertained by the Owner. The Contractor shall also afford such opportunities to the employees of the Owner.

3.14.3 Services for these personnel and other contractors may include the use of Contractor's Equipment. Temporary Works or access arrangements which are at the Contractor's responsibilities. Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to incur Cost in an amount which was not reasonably foreseeable by an experienced contractor by the date for submission of the Proposal.

3.14.4 The Contractor shall be responsible for his construction activities on the Site,

and shall co-ordinate his own activities with those of other contractors to the extent specified in the Contract.

3.14.5 All Work shall be executed to allow the necessary facilities for Owner's other Contractors, or the Owner and the Owner's workmen, or any other employees who execute or supervise any Work on the Site or adjacent to it connected with the Contract, or otherwise.

3.14.6 The Contractor shall do all in its power to co-operate with these persons without interfering with their assignments, and shall also comply with the Owner's instructions and requests for that matter. Any conflict that arises between the contractors will be discussed and resolved mutually between the contractors and the Owner.

3.14.7 If any part of the Contractor's Work to ensure proper execution or results depends on the Work of any other contractor, the Contractor shall inspect and promptly report in writing to the Owner any defects in the other contractor's Work that would render it unsuitable for the proper execution of the Works. Contractor's failure to inspect and report shall constitute an acceptance of the other contractor's job as fit and proper for the requirements of its own Work.

3.15 Setting Out

The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Appendix 2 [Technical Specification and Requirement], The Contractor shall be responsible for the correct positioning of all parts of the Works by its costs and expenses, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

The Contractor shall be deemed to have been satisfied original point, lines and levels of reference specified in the Appendix 2 [Technical Specification and Requirement].

The Owner shall have no responsibility for accuracy, sufficiency or completeness of such data.

3.16 Safety Procedures

The Contractor shall:

- (a) comply with all applicable safety regulations,
- (b) take care for the safety of all persons entitled to be on the Site,
- (c) use reasonable efforts to keep the Site and the Works clear of unnecessary obstruction so as to avoid danger to these persons in part b,
- (d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 9 [*Acceptance of the Works*], and
- (e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

3.17 Site Data

The Owner shall have made available to the Contractor for his information,

prior to the Commencement Date, all relevant data in the Owner's possession on subsurface and hydrological conditions at the Site, including environmental aspects. The Owner shall similarly make available to the Contractor all such data which come into the Owner's possession after the Commencement Date.

The Contractor shall be responsible for verifying and interpreting all such data. The Owner shall have no responsibility for the accuracy, sufficiency or completeness of such data, except as stated in Sub-Clause 4.1 [*General Design Obligations*].

3.18 Rights of Way and Facilities

The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which he may require, including those for access to the Site. The Contractor shall also obtain, at his risk and cost, any additional facilities outside the Site which he may require for the purposes of the Works.

3.19 Avoidance of Interference

The Contractor shall not interfere unnecessarily or improperly with:

- (a) the convenience of the public, or
- (b) the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Owner or of others.

The Contractor shall indemnify and hold the Owner harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

3.20 Access Route

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site. The Owner shall ensure the Contractor has access to the chimney site. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in the Contract:

- (a) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
- (b) the Owner shall not be responsible for any claims which may arise from the use or otherwise of any access route,
- (c) the Owner does not guarantee the suitability or availability of particular access routes, and
- (d) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

3.21 Protection of the Environment

The Contractor shall take all reasonable steps to protect the environment

(both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations. The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values indicated in the Technical Requirements, and shall not exceed the values prescribed by applicable Laws. For avoidance of doubt, Contractor has to comply with all applicable Law regarding environment.

3.22 Contractor's Operations on Site

The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Owner as working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

Upon the issue of Provisional Acceptance Certificate for the Works in accordance with Sub-Clause 9.1 [*Acceptance of the Work*], the Contractor shall clear away and remove all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Warranty Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

3.23 Fossils and Explosive

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Owner. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

The Contractor shall, upon discovery of any such finding, promptly give notice to the Owner, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Owner and shall be entitled, subject to and in accordance with Sub-Clause 18.2 [*Contractor's Claims*] to:

- (a) an extension of time for any such delay under Sub-Clause 7.3. [*Extension of Time for Completion of Works*], and payment of any reasonable cost.
- (b) After receiving this further notice, the Owner shall proceed in accordance with Sub-Clause 2.6 [*Determinations*] to agree or determine these matters.

Whenever explosives are detected, works have to be stopped immediately and authorized organizations to be informed.

3.24 Old Materials

Old materials of value found by the Contractor upon the Site, shall be carefully piled together where designated by the Owner within the Site, and the Contractor shall be responsible for the same until it is disposed of by the Owner but not later than the issuance of the Taking Over Certificate for the Works.

3.25 Existing Services

The Contractors shall locate all existing mains and services which can be observed on, under or above ground whether or not shown on any of the Technical Specifications, and shall execute Work in such a manner that it does not damage or interfere with such mains and services.

The Contractor shall accept responsibility for damage or interference to these mains and services caused by the execution of the Work and shall carry out all necessary repairs at its own expense to the satisfaction of the Owner. Any service encountered below ground and not shown on any of the Technical Specifications shall be brought immediately to the attention of the Owner for further instructions. Any costs for works to divert, protect, excavate or work around existing services and obstructions will be reimbursed to the Contractor at a rate agreed to by the Parties.

The Contractor shall carefully execute the Works in such manner at any time in order to avoid damage or interference with such mains and services.

3.26 Security of the Site

Unless otherwise stated in the Contract:

- (a) the Contractor shall be responsible for keeping unauthorized persons off the Site, and
- (b) authorized persons shall be limited to the Contractor's Personnel and the Owner's Personnel and to any other authorized personnel of the Owner's other contractors on the Site.

However, the Contractor shall be responsible for the protection of the Works, equipment and materials, etc. until issuance of the Taking Over Certificate.

3.27 Way leaves and Land

The Owner will provide all the land, access roads into the land, for the permanent Works, and the Contractor may, where approved by the Owner use the same for temporary purposes. In case of land required to temporary purposes such as workshops, work yards, offices, storage or materials etc. the Owner will allocate the area that can be used for these purposes. Should the Contractor find that the land provided for the Temporary Work is inadequate it shall apply to the Owner giving details of its additional requirements, and the Owner decisions will depend on the availability of free space within the Site and if not, so the Contractor will find any other place outside the Site as approved by the Owner. In any case the provision of the additional storage area is not obligatory on the part of the Owner.

The Contractor is solely responsible for accommodation of its staff. The

Owner will not be involved in providing accommodation or land to be used for the Contractor's personnel outside the Site. No accommodation is allowed within the Site.

3.28 Interference with Traffic and Adjoining Properties

All operations necessary for the execution of the Works and for the construction of any Temporary Works shall as far as compliance with the requirements of the Contract terms permit be carried out so as not to interfere unnecessarily or improperly with the public or to access and use and occupation of public or private roads and footpaths or properties whether in the possession of the Owner or of any other persons and the Contractor shall save harmless and indemnify the Owner in respect of all claims, demand, proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matters in so far as the Contractor is responsible thereof.

3.29 Extraordinary Traffic

The Contractor shall use every reasonable means to prevent any of the roads or bridges connecting with or the routes to the Site from being damaged by any traffic of the Contractor or any of its sub-subcontractors and in particular shall select routes, choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from the moving of the Plant or the Contractor's equipment and materials from and to the Site shall be limited, as far as reasonably possible, and so that no unnecessary damage may occur to such roads or bridges. Where any such damages occur, the Contractor shall be responsible for all appropriate cost associated with reinstatement.

3.30 Special Loads

Should it be found necessary for the Contractor to move one or more loads of the Plant or the Contractor's Equipment over part of a road or bridge, the moving thereof which may be likely to damage any road or bridge unless special protection or strengthening is carried out then the Contractor shall, before moving the load onto such road or bridge, give notice to the Owner of the weight and other particulars of the load to be moved and its proposals for protection or strengthening of the said road or bridge. The Contractor shall also give a similar notice to the concerned local authorities that no protection or strengthening is required. The Contractor shall at its own expense carry out all such Work as may be required by and to the approval of the Owner and the local authorities.

4. DESIGN

4.1 General Design Obligations

4.1.1 The Drawings, procedures and documentation required for the execution of the Works according to the Owner's design shall be provided by the Contractor in accordance with Appendix 2 [Technical Specifications and Requirements] and submitted for approval of the Owner.

4.1.2 In the event the Contractor fails to get approvals of any of its Drawings,

documents and Work plan procedures, the responsibility for any delay resulting thereby shall be borne by the Contractor.

- 4.1.3 The Contractor shall be deemed to have scrutinized, prior to the Commencement Date, the Technical Requirements (including design criteria and calculations, if any). The Contractor shall be responsible for the design of the Works and for the accuracy of such Technical Requirements (including design criteria and calculations), except as stated below.
- 4.1.4 The Owner shall not be responsible for any error, inaccuracy or omission of any kind in the Technical Requirements as originally included in the Contract. Any data or information received by the Contractor, from the Owner or otherwise, shall not relieve the Contractor from his responsibility for the design and execution of the Works.

4.2 Contractor's Documents

- 4.2.1 The Contractor's Documents shall comprise the technical documents specified in the Technical Requirements, the Schedule of Engineering Documents and Submission Dates, documents required to satisfy all regulatory approvals, and the documents described in Sub-Clause 4.5 [*As-Built Documents*] and Sub-Clause 4.6 [*Operation and Maintenance Manuals*]. The Contractor's Documents shall be written in the language for communications defined in Sub-Clause 1.3 [*Law and Language*].
- 4.2.2 The Contractor shall be responsible to submit all engineering documentation in accordance with the Schedule of Engineering Documents and Submission Dates. The Contractor should prepare and submit its Schedule of Engineering Documents and Submission Dates to Owner within two (2) weeks of the Commencement Date for approval.
- 4.2.3 The Contractor shall prepare all Contractor's Documents, and shall also prepare any other documents necessary to instruct the Contractor's Personnel.
- 4.2.4 The Contractor's Documents that are to be submitted to the Owner for review shall be submitted accordingly, together with notice as described below. In the subsequent provisions of this Sub-Clause, (i) "review period" means the period required by the Owner for their review, and (ii) "Contractor's Documents" exclude any documents which are not specified as being required to be submitted for review.
- 4.2.5 Each review and/or approval period shall not exceed fifteen (15) days, calculated from the date on which the Owner receives a Contractor's Document and the Contractor's notice. This notice shall state that the Contractor's Document is considered ready, both for review in accordance with this Sub-Clause and for use. The notice shall also state that the Contractor's Document complies with the Contract, or the extent to which it does not comply.
- 4.2.6 The Owner may, within the review period, give notice to the Contractor that a Contractor's Document fails (to the extent stated) to comply with the Contract. If a Contractor's Document so fails to comply, it shall be rectified, resubmitted and reviewed in accordance with this Sub-Clause, at the Contractor's cost.

4.2.7 For each part of the Works, and except to the extent that the Parties otherwise agree: execution of such part of the Works shall not commence prior to the expiry of the review periods for all the Contractor's Documents which are relevant to its design and execution; execution of such part of the Works shall be in accordance with these Contractor's Documents, as submitted for review; and

if the Contractor wishes to modify any design or document which has previously been submitted for review, the Contractor shall immediately give notice to the Owner. Thereafter, the Contractor shall submit revised documents to the Owner in accordance with the above procedure.

4.2.8 Any such agreement (under the preceding paragraph) or any review (under this Sub-Clause or otherwise) shall not relieve the Contractor from any obligation or responsibility.

4.2.9 Anything mentioned elsewhere in the Technical Requirements and not shown the Drawings, or shown on the Drawings but not mentioned elsewhere in the Technical Requirements, shall be of like effect as if shown or mentioned in both. In case of differences between the Drawings and the other Technical Requirements, the other Technical Requirements shall govern, except as otherwise directed by the Owner, before the start of the work affected by such differences. Should any conflict arise between the Technical Requirements and the detailed design drawings of the Contractor, the Technical Requirements shall govern, except as, and only to the extent, determined or agreed to and timely advised otherwise by the Owner.

4.2.10 The Drawings are considered as illustrative to show the general layout and requirements of the Power Plant, except where limiting or mandatory dimensions and elevations are indicated.

4.2.11 The Works shall be executed in accordance with the detailed design drawings prepared by the Contractor and approved by the Owner.

4.3 Contractor's Undertaking

The Contractor undertakes that the design, the Contractor's Documents, the execution and the completed Works will be in accordance with:

- (a) Applicable laws of Vietnam, and
- (b) the documents forming the Contract, as altered or modified by any Variations.

4.4 Technical Standards and Regulations

The design, the Contractor's Documents, the execution and the completed Works shall comply with Vietnam's technical standards, building, construction and environmental Laws, Laws applicable to the product being produced from the Works, and other standards specified in the Technical Requirements, applicable to the Works, or defined by applicable Laws.

The Contractor shall be responsible to submit all codes or standards that will be mentioned in the engineering documentation.

All these laws shall, in respect of the works, be those prevailing when the

works are taken over by the Owner under Clause 9 [*Acceptance of The Works*]. References in the contract to published standards shall be understood to be references to the edition applicable on the Commencement Date, unless stated otherwise.

If changed or new applicable standards come into force in the Country after the Commencement Date, the Contractor shall give notice to the Owner and (if appropriate) submit proposals for compliance. In the event that:

- (a) the Owner determines that compliance is required, and
- (b) the proposals for compliance constitute a variation, then the Owner shall initiate a Variation in accordance with Clause 13 [*Variations and Adjustments*].

4.5 As-Built Documents

The Contractor shall prepare, and keep up-to-date, a complete set of "as-built" records of the execution of the Works, showing the exact as-built locations, sizes and details of the work as executed. These records shall be made within the approved drawings by hand writing, shall be kept on the Site and shall be used exclusively for the purposes of this sub-clause. Two copies shall be submitted to the Owner prior to the commencement of the Tests on Completion. The final printed as-built document has to be copied from the above mentioned records and has to be handed over to the Owner four weeks after the Test on Completion.

In addition, the Contractor shall supply to the Owner as-built drawings of the Works, showing all work as executed, and submit them to the Owner for review under Sub-Clause 4.2 [*Contractor's Documents*]. The Contractor shall obtain the consent of the Owner as to their size, the referencing system, and other relevant details.

Prior to the issue of any Provisional Acceptance Certificate, the Contractor shall submit to the Owner the specified numbers and types of copies of the relevant as-built drawings, in accordance with the Technical Requirements. The Works shall not be considered to be completed for the purpose of taking-over under Sub-Clause 9.1 [*Acceptance of the Works*] until the Owner has received these documents.

4.6 Operation and Maintenance Manuals

Prior to commencement of the Tests on Completion, the Contractor shall supply to the Owner provisional operation and maintenance manuals in sufficient detail for the Owner to operate, maintain, dismantle, reassemble, adjust and repair the Water Treatment Plant.

The Works shall not be considered to be completed for the purposes of taking-over under Sub-Clause 9.1 [*Acceptance of the Works*] until the Owner has received final operation and maintenance manuals in such detail, and any other manuals specified in the Technical Requirements.

4.7 Design Error

If errors, omissions, ambiguities, inconsistencies, inadequacies or other

defects are found in the Contractor's Documents, they and the Works shall be corrected at the Contractor's cost, which shall not be added to the Contract Price, notwithstanding any consent or approval under this clause.

4.8 Warranties Unaffected

4.8.1 The Contractor acknowledges and agrees that the Contractor will bear and continue to bear full liability and responsibility in accordance with the Contract for the performance of the Works under the Contract, notwithstanding any one or more of the following:

- (a) any design work carried out by the Contractor before the Commencement Date and included in the Contract, unless otherwise stated in the Contract;
- (b) the involvement of Subcontractors in the execution of any part of the Works;
- (c) any receipt or review of, or comment on, or rejection of, or approval of, or permission to use or deemed permission to use, or expression of satisfaction or dissatisfaction with:
 - (i) any of the Contractor's Documents;
 - (ii) any other document or information provided by the Contractor;
 - (iii) any submission, proposal or recommendation by the Contractor; or
 - (iv) any of the Contractor's work methods or procedures by (or on behalf of) the Owner (whether under any provision of the Contract or otherwise).
- (d) any supervision, superintendence or review of, or comment on, or rejection of, or approval of, or expression of satisfaction or dissatisfaction with any of the Contractor's subcontractor selections:
 - (i) any of the Contractor's Materials, Plant or equipment selections;
 - (ii) the execution of any part of the Works;
 - (iii) any work, Plant, Materials or equipment by (or on behalf of) the Owner (whether under any provision of the Contract or otherwise):
- (e) the making available to or the provision to the Contractor by or on behalf of the Owner of any Site information;
- (f) any variation directed under Sub-Clause 13.1 [*Right to Vary*];
- (g) any failure by the Owner to do any of the things referred to in subparagraphs (c), (e), (f), or (g) of this Sub-Clause; or
- (h) any failure by the Owner to direct a variation under Sub-Clause 13.1 [*Right to Vary*].

4.9 No Duty of Care or Liability Imposed on the Owner

No review, comment, approval, consent, rejection, permission to use, deemed permission to use, permission to proceed, expression of satisfaction or dissatisfaction, supervision or superintendence by (or on behalf of) the Owner concerning:

- (a) any Contractor's Document or other document or information provided by the Contractor; or

- (b) any work, Plant, equipment, Materials or any other aspect of the Works; nor any failure by the Owner and/or the Owner to do any of those things, shall:
 - i) limit or exclude any obligation or liability of the Contractor;
 - ii) prejudice any of Owner's rights against the Contractor;
 - iii) result in the Owner assuming any responsibility or liability for the adequacy, quality, compliance or fitness of the Works or of any Contractor's Document or other document provided by the Contractor or for any errors in or omissions from any Contractor's Document or other document or the Works; or constitutes an admission that the Owner or the Owner's Personnel or their agents have checked any Contractor's Document, other documents or work for errors, omissions or compliance with the requirements of the Contract.

4.10 Training

The Contractor shall have the responsibility to, with the costs as included in the Contract Price, carry out the training (including on-job training of commissioning work during the commissioning period) of operation and maintenance to the Owner and the Owner's personnel through providing the operation and maintenance trainees of the Owner (hereinafter referred to as "Trainees") full knowledge, techniques and skills to well perform the operation and maintenance of the Equipment. The Trainees shall be sufficiently qualified based on Contractor's recommendations to perform the task assigned to them. The Works shall not be considered to be completed for the purposes of Taking-over under Sub-Clause 9.1 [*Acceptance of the Works*] until this training has been completed.

The detail content and requirements of the training work including the program and number of Trainees shall be agreed by the Owner. The Contractor shall follow the agreed training program.

After the completion of the training, the Parties sign the Completion Certificate for the Trainees.

5. STAFF AND LABOUR

5.1 Engagement of Staff and Labor

The Contractor shall make arrangements for the engagement of all staff and labor, local or otherwise, and for their payment, accommodation, meals, and transportation.

The Contractor must prioritize the use of domestic workers for unskilled positions, where their qualifications are suitable and the supply is available. Foreign workers can only be employed when domestic workers are underqualified.

5.2 Rates of Wages and Conditions of Labor

The Contractor shall pay rates of wages, and observe conditions of labor, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions not lower than the general level of wages and conditions observed locally by the Owners, whose

trade or industry is similar to that of the Contractor.

5.3 Persons in the Service of Others

The Contractor shall not recruit, or attempt to recruit, staff and labor from amongst the Owner's and the Owner's Personnel and vice versa.

5.4 Labor Laws

The Contractor shall comply with all the relevant applicable labor laws of Vietnam to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights. In connection therewith, the Contractor shall maximize the number of Vietnamese employees, except for the work that Vietnamese employees are not capable to perform.

The Contractor shall require their employees to obey all applicable Laws, including those concerning safety at work.

5.5 Working Hours

No work shall be carried out on the Site on locally recognized days of rest, or outside normal working hours, unless:

- (a) otherwise stated in the Contract,
- (b) the Owner gives consent, or
- (c) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Owner
- (d) In case the Project Schedule is urgent, or delayed by the reasons attributable to the Contractor, the Contractor shall be responsible for shift working and overtime, in holidays if the Contractor receives such requirement from the Owner and the Owner which cannot be unreasonably withheld and at the Contractor's expenses.

5.6 Facilities for Staff and Labor

The Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel.

The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

5.7 Health and Safety

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with the Owner and local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint an accident prevention officer at the Site, be

responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send, to the Owner, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Owner may reasonably require.

5.8 Contractor's Superintendence

Throughout the design and execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.

Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.3 [*Law and Language*]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

5.9 Contractor's Personnel

The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Owner may require the Contractor to remove (or cause to be removed) any person employed on the Site or for the Works, including the Contractor's Representative if applicable, who:

- (a) persists in any misconduct or lack of care,
- (b) carries out duties incompetently as regulated by applicable Laws or negligently,
- (c) fails to conform with any provisions of the Contract, or
- (d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment.

If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

5.10 Records of Contractor's Personnel and Equipment

The Contractor shall submit to the Owner details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Owner, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Provisional Acceptance Certificate for the Works.

5.11 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

6. PLANT, MATERIALS AND WORKMANSHIP**6.1 Manner of Execution**

The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

- (a) in the manner (if any) specified in the Contract,
- (b) in a proper workmanlike and careful manner, in accordance with recognized good practice, and
- (c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

6.2 Samples

The Contractor shall submit samples to the Owner, for review in accordance with the procedures for Contractor's Documents described in Sub-Clause 4.2 [*Contractor's Documents*], as specified in the Contract and at the Contractor's cost. Each sample shall be labelled as to origin and intended use in the Works.

6.3 Inspection

The Owner shall at all reasonable times:

- (a) have full access to all parts of the Site and to all places,
- (b) during engineering, production, manufacture, construction and commissioning (at the Site and, to the extent specified in the Contract, elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of the manufacture and production of equipment.

The Contractor shall give the Owner and the Owner's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

In respect of the parts of the Works which the Owner and the Owner's Personnel are entitled to examine, inspect, measure and/or test, the Contractor shall give notice to the Owner whenever any such parts of the Works are ready and before they are covered up, put out of sight, or packaged for storage or transport. The Owner shall then either carry out the examination inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Owner does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Owner uncover the work and thereafter reinstate and make good, all at the Contractor's cost.

The Owner and Owner's representative shall have the right, whenever he shall deem necessary, to inspect, examine and test the fabrication and the assembly of Plant and Materials in the Contractor's workshops and at the Site, and witness the tests of Plant and Materials. The Contractor shall provide all necessary assistance to these visits, inspections and checks and give all the information requested.

The Contractor shall provide the Owner with a list of the workshops in which the different parts of the supply are manufactured and shall furnish all information that may be useful for the checking of the manufacturing, such as material orders, etc. within two (2) weeks after signing the Contract. In cases where parts of the machinery are manufactured in the workshops of a subcontractor, the Contractor shall arrange that the Purchase and the Owner may freely and without hindrance inspect and examine Plant and Materials and witness the tests, just as if these were in the Contractor's workshop.

The Contractor shall be obligated, moreover, to supply for his account adequate means required for all inspections in project Site which by law are to be made by any Public Sector Entity.

The Contractor shall, upon the request of the Owner, make openings in or through or reinstate or make good to the satisfaction of the Contractor at the cost of the Contractor in the event that Associated Works were found to be faulty or not in accordance with other Drawings issued formally to the Contractor in a timely manner.

6.4 Testing

This sub-clause shall apply to all tests specified in the Contract, other than the Tests on Completion.

6.4.1 The Contractor or his manufacturers shall conduct all necessary tests in accordance with relevant standards and applicable codes, including but not limited to those identified in Appendix 2 [Technical Specifications and Requirements], Tests shall be performed in presence of Owner's representative and Owner's representative if so desired by the Owner.

The Contractor shall give at least seven (07) days' advance notice of the date when the tests are to be carried out.

The particulars of the proposed tests and procedures for the tests shall be submitted to the Owner for approval in fifteen (15) days before conducting the tests. Cost of such tests shall be included in the Contract Price and shall be borne by the Contractor.

6.4.2 Tests during the manufacturing shall be carried out on the basis of Manufacturing Quality Plan (MQP) as per Appendix 11 [Quality Control Procedure], Tests during the erection and commissioning shall be carried out on the basis of Inspection Test Plan (ITP) (Field Quality Plan) as per Appendix 11.

The Owner shall be entitled to require additional inspections and tests beyond those specified in the Manufacturer's Quality Plan (MQP) or Inspection and Test Plan (ITP), provided that such requirements are duly

justified and mutually agreed upon with the Contractor.

- 6.4.3** Pre-shipment inspection is carried out in accordance with Appendix 11 [Quality Control Procedure]. The Contractor informs the Owner about the readiness of the Equipment for Pre-shipment inspection no later than twenty (20) days before starting the inspection by sending the notification. Following a satisfactory inspection result, the Owner shall issue the Pre-shipment Inspection Certificate within ten (10) Working days from the date of inspection.

No Equipment may be shipped without confirming their compliance with the requirements of the Contract and permission for the shipment.

- 6.4.4** The Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labor, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Owner, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

The Owner may, under Clause 13 [*Variations and Adjustments*], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials, Works or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

- 6.4.5** The Contractor shall promptly forward to the Owner duly certified reports of the tests. When the specified tests have been passed, the Owner shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Owner has not attended the tests, he shall be deemed to have accepted the readings as accurate.

6.5 Rejection

The Works shall be executed to the satisfaction of the Owner; any work that does not satisfy the Owner or does not meet the specifications shall be removed, replaced and reconstructed according to Appendix 2 [Technical Specifications and Requirements] at the Contractor's expense.

If, as a result of an examination, inspection, measurement or testing, any Equipment, Plant, Materials, design, construction, commissioning or workmanship is found to be defective or otherwise not in accordance with the Contract, the Owner may reject such item by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the replacement item complies with the Contract. Attribution of costs of any such replacement shall be settled under consideration of cause of defect in design, workmanship or other cause.

If the Owner requires such Plant, Materials, design, construction, commissioning or workmanship to be retested, the tests shall be repeated under the same terms and conditions as the original tests. If the rejection and retesting cause the Owner to incur additional costs, the Contractor shall subject to Sub-Clause 18.1 [*Owner's Claims*] pay these costs to the Owner.

If the Contractor fails to repair the defective part within a reasonable time, the Owner may, at its discretion, replace at the Contractor's expense the whole or any portion of the Works which is defective or fails to fulfill the requirements of the Contract.

All repairs to be made by the Contractor shall be made by it at such times as directed by the Owner and in such a manner that they shall cause a minimum of interruption to the operable work. The Contractor shall, if required by the Owner, investigate the cause of any defect, imperfection or fault.

6.6 Remedial Work

Notwithstanding any previous test or certification, the Owner may, to the reasonable extent, instruct the Contractor to:

- (a) remove from the Site and replace any equipment, plant, materials or works that are not in accordance with the Contract.
- (b) remove and re-execute any other works that are not in accordance with the Contract, and
- (c) execute any work that is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

If the Contractor fails to comply with any such instruction, which complies with Sub-Clause 2.5 [*Instructions*], the Owner shall be entitled to employ and pay other persons to carry out the necessary work. Except to the extent that the Contractor would have been entitled to payment for the corresponding work, the Contractor shall, subject to Sub-Clause 18.1 [*Owner's Claims*], pay to the Owner the all costs arising from this failure.

6.7 Ownership of Plant and Materials

Each item of goods, materials, equipment supplied by the Contractor shall, to the extent consistent with the Laws, become the property of the Owner, at the earlier of the following times, free from liens and other encumbrances:

- (a) when it is delivered to the Site; or
- (b) when the Contractor is entitled to payment of the value of the Plant and Materials under Sub-Clause 7.9 [*Payment for Plant and Materials in Event of Suspension*].

The Works, except which belong to the Contractor (including Temporary Works), as well as packaging materials for which all progress payment has been made, shall thereupon become the property of the Owner. This provision shall not be construed as relieving the Contractor from the sole responsibility for all parts of the Works upon which payment has been made or the restoration of any damaged part of the Works or as a waiver on the right of the Owner to require the fulfilment of all the terms of the Contract.

6.8 Royalties

The Contractor shall pay all royalties, rents and other payments for:

- (a) natural Materials obtained from outside the Site, and

- (b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.

6.9 Liens

- 6.9.1** The Contractor shall not file, claim or register any Lien and shall use its best efforts to prevent any Lien from being filed, claimed or registered by any Contractor or by any employee, servant or agent of the Contractor or Subcontractor against the property of the Owner for any Works done or any services rendered or any Plant /Materials/ Equipment or Works supplied under the Contract.
- 6.9.2** In the event that any Lien should be filed, claimed or registered by any such person against any Plant, Equipment or Materials or Contractor's Equipment or against any monies due or to become due to the Contractor from the Owner, the Contractor shall immediately notify the Owner and shall promptly discharge such Lien or attachment, and exonerate, indemnify and protect the Owner against any loss, damage or reasonable expense in connection therewith, including legal fees.
- 6.9.3** Until any Lien contemplated by Sub-Clause 6.9.2 is fully discharged, the Owner shall have the right to withhold one hundred percent (100%) of the full amount thereof of any payments to be made to the Contractor, and such withholding of payment shall not affect the other rights and obligations of the Parties under the Contract. Alternatively, upon prior written notice to and consent from the Contractor, the Owner may discharge the Lien by paying the appropriate amount directly to the relevant person and deduct such amount from further payments to be made to the Contractor pursuant to the Contract.
- 6.9.4** If the Contractor allows any debt to accrue for labor, Contractor's Equipment, Plant, Equipment, or Materials supplied under the Contract, and such debt may result in the Owner being held liable or a lien being placed on the Works, related supplies, or any property of the Owner, the Owner shall be entitled to withhold from any payment due to the Contractor an amount equal to the outstanding debt. The withheld amount shall not be released until the Contractor provides satisfactory evidence that the debt has been fully settled.
- 6.9.5** On its application of any Provisional Acceptance Certificate and the payment upon Provisional Acceptance, pursuant to Clause 9 [*Acceptance of the Works*], the Contractor shall certify to the Owner, by way of a certificate (the "Release of Liens and Claims Certificate") that it has no knowledge of any outstanding Liens or claims which may result in Liens affecting the Works or the Site.
- 6.9.6** With respect to any Lien or claim outstanding at the date of issue of the Provisional Acceptance Certificate or termination of the Contractor's engagement under the Contract, the Contractor shall promptly pay or reimburse to the Owner all costs actually incurred or likely to be incurred by the Owner in extinguishing such Liens or claims, including any costs for filing and legal fees.

6.10 Spare Parts

Start-up and commissioning spare parts, special tools and lubricants are included in the Contractor's scope of supply. The Contractor shall also state for each item of spares both mandatory and recommended, the normal expected service life.

Quality requirements for main equipment shall equally apply for spare parts and replacement items.

All spares supplied under this Contract shall be strictly interchangeable with the parts for which they are intended to replace. The spares shall be treated and packed for long storage under the climatic conditions prevailing at the site, e.g., small items shall be packed in sealed transparent plastic bags with desiccators packs as necessary.

Each spare part shall be clearly marked or labeled on the outside of the packing with the description. When more than one spare part is packed in a single case, a general description of the contents shall be shown on the outside and a detailed list enclosed. All cases, containers and other packages must be suitably marked and numbered for the purposes of identification.

The Contractor shall guarantee the supply of spare parts, which will be made, based on manufacturer's drawings on special order from the Owner for fifteen (15) years after commissioning of the plant.

During the Warranty Period, the Contractor shall be responsible to supply the spare parts necessary to repair the equipment defects in accordance with Sub-Clause 10.3. [*Completion of Outstanding Work and Remedying Defects*] of the Contract, free of charge to the Owner.

6.11 Spare Parts for Operation

Within thirty (30) days from the Commencement Date, the Contractor shall provide to the Owner a list of spare parts for Operation formed as per Appendix 7 [List of Spare parts] for two (02) years of normal operation of the plant including the unit price of each part.

The price of spare parts for Operation is for reference only and is not included in the contract price. The Owner shall purchase them at a later stage.

6.12 Start-up and Commissioning Spare Parts, Special Tools and Lubricants

Start-up and commissioning spare parts, special tools and lubricants are included in the Contractor's scope of supply.

Within thirty (30) days from the Commencement Date, the Contractor shall submit to the Owner for approval a list of start-up and commissioning spare parts, special tools, and lubricants. These items shall include all spares that may be required during the start-up and commissioning of the Equipment, systems, or the Works. Such spare parts, properly marked shall be supplied together with the main Equipment and shall be used by the Contractor, if needed, during installation and commissioning stage.

The list shall be formed as per Appendix 7 [List of Spare Parts].

The list of start-up and commissioning spare parts, special tools and

lubricants subjects to the Owner's approval and can be modified without the Contract Price adjustment in case the Owner requirement changes and provided the modified items do not increase the Contractor's costs.

The Contractor shall be responsible to supply all necessary start-up, commissioning spare parts, special tools and lubricants.

6.13 Not applicable.

6.14 Spare Parts after Acceptance of the Works

The Contractor shall use its reasonable endeavors to make available for purchase by the Owner, for a period of ten (10) years following the Acceptance of the Works, instrumentation and control spare parts and special tools.

The Contractor shall use its reasonable endeavors to cause its Subcontractors to make available for purchase by the Owner, at any time after Acceptance of the Works, the recommended spare parts and special tools identified in the Technical Requirements.

If the Contractor or a Subcontractor ceases or notifies the Contractor that it will cease, to manufacture any of the spare parts or special tools referred to in this clause or the Contractor otherwise becomes aware of the same, then the Contractor shall promptly notify the Owner of the same, in order that the Owner can consider whether it wishes to purchase such spare parts or special tools at that time.

7. COMMENCEMENT, DELAYS AND SUSPENSION

7.1 Commencement Date

The Commencement Date shall be the date on which the Contractor receives the advance payment made by the Owner or the 15th day from the date that the Contract is signed by both Parties, whichever comes first. The Owner shall notify the Contractor in writing of the commencement date.

The Contractor shall commence the design and the execution of the Works as soon as reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

7.2 Time for Completion of Works

Guaranteed time for completion of the Works shall be 570 days from the Commencement Date [Time for Completion of Works].

The Contractor shall complete the whole of the Works, up to the Time for Completion of Works, including:

- (a) achieving the passing of the Tests on Completion, and
- (b) completing all work which is stated in the Contract as being required for the Works to be considered to be completed for the purposes of acceptance under Sub-Clause 9.1 [Acceptance of the Works].

7.3 Extension of Time for Completion of Works

The Contractor shall be entitled subject to Sub-Clause 18.2 [*Contractor's*

Claims] to an extension of the Time for Completion of Works if and to the extent that completion for the purposes of Sub-Clause 9.1. [*Acceptance of the Works*] is or will be delayed by any of the following causes:

- (a) a Variation (unless an adjustment to the Time for Completion of Works has been agreed under Sub-Clause 13.3 [*Variation Procedure*]), or
- (b) a cause of delay giving an entitlement to extension of time under a subclause of these Conditions.

If the Contractor considers himself to be entitled to an extension of the Time for Completion of Works, the Contractor shall give notice to the Owner in accordance with Sub-Clause 18.2 [*Contractor's Claims*]. When determining each extension of time under Sub-Clause 18.2 [*Contractor's Claims*], the Owner shall review previous determinations and may increase, but shall not decrease, the total extension of time.

7.4 Delays Caused by Authorities

If the following conditions apply, namely:

- (a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,
- (b) these authorities delay or disrupt the Contractor's work, and
- (c) the delay or disruption was not reasonably foreseeable by an experienced contractor by the Commencement Date,

then this delay or disruption shall be considered as a cause of delay under subparagraph (b) of Sub-Clause 7.3 [*Extension of Time for Completion of Works*] except if the default is attributable to the Contractor.

7.5 Rate of Progress

If, at any time:

- (a) the actual progress is too slow to complete within the Time for Completion basing on the Critical Path Method, and/or
- (b) the progress has fallen (or will fall) behind the current program under Sub-Clause 3.5 [*Program*],

other than as a result of a cause listed in Sub-Clause 7.3 [*Extension of Time for Completion*], then the Owner may instruct the Contractor to submit, under Sub-Clause 3.5 [*Program*], a revised program and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion of Works.

Unless the Owner notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor and shall not cause the Owner to incur additional costs.

7.6 Penalties

7.6.1 Penalties for Delay

If the Contractor fails to comply with Time for Completion of Works as per Sub-clause 7.2 [*Time for Completion of Works*] then the Contractor shall pay penalties for delay to the Owner for this default [Penalties for Delay]. These Penalties for Delay shall be zero point one percent (0.1 %) of the Contract Price for every day which shall elapse between Time for Completion of Works as per Sub-clause 7.2 [*Time for Completion of Works*] and the actual Time for Completion of Works. However, the total amount due under this Sub-Clause shall not exceed twelve percent (12%) of the Contract Price. The Penalties for Delay is only applicable if the delay is solely caused by the Contractor.

7.6.2 Penalties for Performance Tests

If during the performance tests, the Equipment fails to achieve the guaranteed performance levels in accordance with Appendix 12 [Performance Guarantees] for reasons for which Contractor is responsible, the Contractor shall pay to the Owner the following penalties as calculated:

- For exceeding the guaranteed total equipment power consumption, the Contractor shall pay a penalty of **USD 3,000 per each 1 kW** in excess (applicable only to the highest excess value recorded across various operating modes specified in Appendix 12). The payment of penalties shall not relieve the Contractor from his obligation to complete the Works to eliminate the defects for repeat tests.

If the Contractor, for reasons attributable to it, fails to remedy any Punch List item by the date of Notification of Final Completion, and such failure results in the Water Treatment Plant Equipment being unremedied, the Contractor shall pay the Owner a penalty of 0.084% of the value of the affected Equipment per day of delay, calculated from the date of Notification of Final Completion until the date the respective Punch List item is fully remedied. However, the total amount of such penalties shall not exceed 9% of the Contract Price.

7.7 Suspension of the Works

7.7.1 The Owner may, upon reasonable prior written notice to the Contractor, instruct the Contractor to suspend performance of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

The Contractor shall use all reasonable means to minimize the consequences and costs associated with such suspension.

Upon receiving the suspension notice from Owner, the Contractor shall, unless the notice requires otherwise:

- (a) Immediately discontinue the Works or part of the Works suspended on the date and to extent specified in the notice;
- (b) Place no further orders to sub-suppliers for materials, services, or facilities

with respect to the suspended work other than to the extent stated in the notice;

- (c) Promptly make every reasonable effort to provide suspension status upon terms satisfactory to the Owner of all orders, sub-suppliers, and rental agreement to the extent they relate to performance of suspended Works.
- (d) Take any other reasonable steps to minimize costs associated with such suspension and to protect the life, property or safety of the Works or parts of the Works.

The Owner may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 7.8 - 7.11 shall not apply.

7.8 Consequences of Suspension

If the suspension is not due to Contractor's failure, and the Contractor suffers delay and/or incurs cost from complying with the Owner's instruction for suspension, the Contractor shall give notice to the Owner and shall be entitled subject to Subclause 18.2 [*Contractor's Claims*] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Subclause 7.3 [*Extension of Time for Completion*];
- (b) payment of any such cost, which shall be added to the Contract Price.

After receiving this notice, the Owner shall proceed in accordance with Subclause 2.6 [*Determinations*] to agree or determine these matters.

The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Subclause 7.7.1 [*Suspension of the Works*].

7.9 Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant, Equipment and/or Materials that have not been delivered to Site, if:

- (a) the work on Plant or delivery of Plant, Equipment and/or Materials has been suspended for more than sixty (60) days, and
- (b) the Contractor has marked the Plant, Equipment and/or Materials as the Owner's property in accordance with the Owner's instructions.

7.10 Prolonged Suspension

If the suspension under Subclause 7.7 [*Suspension of the Works*] has continued for more than ninety (90) days, the Contractor may request the Owner's permission to proceed. If the Owner does not give permission within thirty-three (33) days after being requested to do so, the Contractor may, by giving notice to the Owner, treat the suspension as an omission under Clause 13 [*Variations and Adjustments*] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of

termination under Subclause 14.7 [*Termination by Contractor*].

7.11 Restart of the Suspended Works

The Owner may at any time direct the Contractor to proceed with all or any part of the suspended Works by giving written notice to the Contractor specifying the part of the Works to be resumed and the effective date of the resumption. The Contractor shall promptly resume the suspended Works after receipt of such notice.

7.12 Resumption of the Works

After the permission or instruction to proceed is given, the Parties shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials that has occurred during the suspension.

8. TESTS ON COMPLETION

8.1 Contractor's Obligations

The Contractor shall carry out the Tests on Completion in accordance with this clause and Appendix 12 [Performance Guarantee] in compliance with all applicable Laws and, in respect of the relevant portion the Works:

- (a) The Works shall have undergone all other testing, inspection, and commissioning activities as may be specified in Appendix 12 [Performance Guarantee] as preconditions to the performance of the Tests on Completion; and the Contractor shall have provided any training that is required in the Technical Requirements for the Owner and the Owner's (or its contractors') personnel, who shall participate in the commissioning and/or the Tests on Completion of such part of the Works (save for any training which Appendix 12 [Performance Guarantee] permits to be conducted after the commencement of such Tests on Completion).

The Owner or the Contractor shall be entitled to order the cessation of any Test on Completion if damage to the Works or personal injury is likely to result from continuation.

The Contractor shall submit to the Owner for approval the detailed procedures for those tests required to attain Acceptance of the Works in accordance with Appendix 12 [Performance Guarantee].

All test procedures submitted shall comply with applicable Laws, Contract requirements, MQP and Good Engineering Practice. If the Owner reasonably requests modifications to the submitted procedures, the Contractor shall promptly incorporate such changes and resubmit its modified procedures within five (5) days of a request so to do. The process shall be repeated until such detailed test procedures have been agreed by the Parties. If the Parties have not agreed upon the procedures forty-five (45) days prior to the anticipated start of a relevant test, the Owner shall make a decision in accordance with Clause 2.6 [*Determinations*]. The Owner shall notify the Contractor of any such determination at least fourteen (14) days prior to the anticipated start of the relevant test which shall include any instruction that

may be necessary in order to enable the Contractor to carry out such test.

The Contractor shall give to the Owner not less than fifteen (15) days' notice of the date after which the Contractor will be ready to carry out of the Tests on Completion including any necessary instruction in carrying out these Tests. Unless otherwise agreed, Tests on Completion shall be carried out within fourteen (14) days after this date, on such day or days as the Owner shall instruct. All necessary test shall be carried out in presence of the Owner and the Owner's representatives:

- (b) pre-commissioning tests, which shall include the appropriate inspections and functional tests to demonstrate that each item of the Works can safely undertake the next stage;
- (c) commissioning tests, which shall include the specified operational tests to demonstrate that the Works can be operated safely and as specified, under all available operating conditions and the equipment supplied is satisfactorily installed and commissioned;
- (d) Reliability Run, which shall demonstrate that the Works perform reliably and in accordance with the Technical Requirements. The Contractor shall also demonstrate the operation of the safety interlocks, as applicable, to the full satisfaction of the Owner.

During the Reliability Run, when the Works are operating under stable conditions, the Contractor shall give notice to the Owner that the Works are ready for any other Tests on Completion, to demonstrate whether the Works conform with criteria specified in Appendix 12 [Performance Guarantee].

In considering the results of the Tests on Completion, appropriate allowances shall be made for the effect of any use of the Works by the Owner on the performance or other characteristics of the Works. As soon as the Works, have passed each of the Tests on Completion described in sub-paragraphs (a), (b), (c), (d), the Contractor shall submit a certified report of the results of these Tests to the Owner.

The results of the Tests on Completion shall be compiled and evaluated jointly by the Owner and the Contractor in the manner detailed the Technical Requirements and Specifications. Any necessary adjustments to the results to take account of the measuring tolerances and any differences between the operating conditions under which the Tests on Completion were conducted and the specified guarantee conditions shall be made in accordance with the provisions of Technical Requirements and Specifications.

If the Owner and the Contractor disagree on the interpretation of the Test results, each shall give a statement of his views to the other within ten (10) days after such disagreement arises. The statement shall be accompanied by all relevant evidence.

When the Tests on Completion have been conducted and before applying for Provisional Acceptance Certificate, the Contractor shall submit to the Owner the final As-built drawings and operation and maintenance manuals for operation the Water Treatment Plant.

Upon substantial completion of the Works, the Contractor shall submit a written request to the Owner for issue of the Provisional Acceptance Certificate for the Works, and the Owner shall, within twenty (20) days from the receipt of such request, notify the Contractor as to whether or not the Provisional Acceptance Certificate will be forthcoming. If the Owner decides that the Works are not substantially completed, then it shall notify the Contractor of its decision not to issue the Provisional Acceptance Certificate and specify the work required by the Contractor for substantial completion. If the Contractor does not receive any response from the Owner within sixty (60) days of the said request, the Works shall be deemed to have been substantially completed and the Provisional Acceptance Certificate to have been issued.

8.2 Delayed Test

If the Tests on Completion are being unduly delayed by the Contractor, the Owner may by notice require the Contractor to carry out the Tests within fourteen (14) days after receiving the notice in accordance with Subclause 2.5 [*Instruction*]. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Owner.

8.3 Retesting

If the Works fail to pass the Tests on Completion, Sub-Clause 6.5 [*Rejection*] shall apply, and the Owner or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions within the Cure Period. The Cure Period for the Works shall be ten (10) days from the date the Owner provides written notice to the Contractor regarding the failure of the Tests on Completion. The Cure Period for Works may be changed after approval by the Owner.

8.4 Creation of Punch List

8.4.1 As soon as the Contractor reasonably believes the state of the Works warrants such action, but in any event before Acceptance the Works, the Contractor shall provide written notice to the Owner that the Contractor is prepared to conduct a joint inspection of the Water Treatment Plant system to produce a proposed Punch List. The Owner and the Contractor shall cooperate with each other in scheduling and conducting a joint inspection of the Works as soon as reasonably possible after the Owner's receipt of such written notice but, in any event, within fourteen (14) days of its receipt. At the Owner's option, the Punch List may be prepared and joint inspections performed on a component-by-component or system-by-system basis.

8.4.2 Within five (5) days of completion of any such joint inspection, the Contractor shall prepare and deliver to the Owner a written description of all proposed items for the Punch List and the appropriate dates for completion of such items which the Contractor, in its best good faith judgment, believes have not been completed or require revision or correction to cause them to conform with the requirements of this Contract. Items of additional work disclosed by testing or operation of the Works through the successful

- completion of the Tests on Completion shall be added to the proposed Punch List.
- 8.4.3 If the Owner accepts such proposed list as a complete Punch List, then it shall sign a copy of such list marked "accepted" and return such copy to the Contractor within twenty-one (21) days. If the Owner does not so accept such proposed list, then the Owner shall within seven (7) days, state its objections to such proposed list and all of its proposed changes therein and additions thereto by written notice to the Contractor.
- 8.4.4 The Owner shall be entitled to withhold up to two billion Vietnamese Dong (2,000,000,000 VND) from payment due at Provisional Acceptance Certificate to account for the items remaining on the Punch List. The amount retained shall be paid to the Contractor upon completion of all Punch List items and certified by the Owner. For the purposes of clarity, the Final Acceptance Certificate according to Clause 11 [*Completion of the Works*] shall not be issued if any Punch List items are still outstanding.
- 8.4.5 Promptly after the giving of such notice, the Owner and the Contractor shall cause their respective representatives to meet, cooperate and negotiate in good faith to arrive at an agreed list of items for the Punch List and appropriate dates for completion of such items. The Owner shall have the right to have the Owner's Representative present during any such negotiations. If the Parties fail to so agree within three (3) Working days, the Contractor may declare an impasse on the specific items in dispute by delivery of a written notice to the Owner to such effect, and the disputed items shall be resolved in accordance with Clause 18 [*Claim, Disputes and Arbitration*].
- 8.4.6 Promptly following the Owner's acceptance of the Punch List, the Contractor shall commence and thereafter diligently pursue the completion of the items on the Punch List, as well as any portion of the Works which the Contractor, in its best good faith judgment, believes has not been completed or require revision or correction, to cause it to conform with the requirements of this Contract. The period for completion of items on the Punch List is forty-five (45) days commencing on the Owner's acceptance of the Punch List.
- 8.4.7 The Owner's acceptance of, or agreement on, a Punch List shall not alter or diminish either the Contractor's obligations to complete all of the Works, or the Owner's right to require the Contractor's completion of the Works, in accordance with the Contract.

9. ACCEPTANCE OF THE WORKS

9.1 Acceptance of the Works

Acceptance in respect of the Works means the time when all the events below shall have occurred:

- (a) the Contractor has completed the Works (except for the items on the Punch List) in accordance with all Contract requirements and the Water Treatment Plant complies with applicable Laws;
- (b) the Water Treatment Plant has passed all relevant Tests on Completion in

- accordance with Appendix 12 [Performance Guarantee];
- (c) the Punch List of minor outstanding work and defects that do not affect the safe and reliable operation of the Works has been mutually agreed in accordance with Sub-Clause 8.4. [*Creation of Punch List*];
 - (d) the Contractor has completed its training obligations in accordance with Subclause 4.10 [*Training*];
 - (e) the Contractor has supplied final and completed Operation and Maintenance Manuals in accordance with Sub-Clause 4.6 [*Operation and Maintenance Manuals*], and has supplied specified numbers and types of copies of the relevant as-built drawings in accordance with Sub-Clause 4.5 [*As-Built Documents*] except minor pages that do not affect the operation;
 - (f) All permits, licenses and certificates in accordance with Appendix 8 [List of Permits and Licenses] are complete and available as required by any relevant Public Sector Entity;
 - (g) All control and instrumentation systems operate satisfactorily in automatic mode in accordance with the Technical Requirements;
 - (h) the Contractor has supplied the spare parts and special tools required to be delivered prior to Acceptance of the Works in accordance with the Technical Requirements and replaced any spare parts used or consumed during the carrying out of Tests on Completion which are required to be replaced;
 - (i) the Contractor has supplied the stockpile of consumables required prior to the relevant Taking Over pursuant to the Technical Requirements and Specifications;
 - (j) the Contractor has provided a Release of Liens and Claims Certificate pursuant to Sub-Clause 6.9 [*Liens*];
 - (k) the Contractor has paid or agreed the penalties (if any) in accordance with Sub-Clause 7.6 [*Penalties*], and

Except as stated in Sub-Clause 8.3 [*Retesting*], the Works shall be taken over by the Owner and a Provisional Acceptance Certificate may be issued, provided that the Contractor signs and accepts to complete the outstanding items on the Punch List which shall have to be completed within the period under Sub-Clause 8.4. [*Creation of Punch List*].

The Contractor shall submit a written request to the Owner for the issuance of the Provisional Acceptance Certificate for the Works, not earlier than seven (7) days before the Works will, in the Contractor's opinion, be complete and ready for acceptance satisfying the requirements of this subclause.

The Owner shall, within twenty (20) days after receiving the Contractor's application:

- (a) issue the Provisional Acceptance Certificate to the Contractor, stating the date on which the conditions for acceptance of the Works were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works for their intended purpose (either until or whilst this work is completed and these

defects are remedied); or

- (b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Provisional Acceptance Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause 9.1 [*Acceptance of the Works*].

If the Owner fails either to issue the Provisional Acceptance Certificate or to reject the Contractor's application within the period of sixty (60) days, and if the Works are substantially completed in accordance with the Contract, the Provisional Acceptance Certificate shall be deemed to have been issued on the last day of that period.

9.2 Acceptance of Parts of the Works

Parts of the Works (other than the Works) shall not be taken over or used by the Owner, except as may be stated in the Contract or as may be agreed by both Parties.

9.3 Clearance of Site upon Acceptance of the Works

The Contractor shall at all times during the execution of the Works, keep the Site clean and free from all hazards, accumulations of waste materials and rubbish and debris, radioactive and other toxic substances as may be occasioned during contract execution caused by their employees or the Works and shall also keep all residential camps and the Site of the Works in a sanitary condition as directed by the Owner. If the Contractor fails to maintain or leave the Site in a clean, tidy, and sanitary condition within a reasonable time after receiving written notice from the Owner, the Owner may remedy this default or cause the same to be remedied, at the Contractor's expense. (Note: Radioactive material is allowed to be used for weld testing by applying the relevant security standards.)

Special attention shall be given to keeping the structures and surrounding grounds clean. The Contractor shall employ sufficient personnel to thoroughly clean and keep sanitary his work areas continuously each Working day. Materials and supplies shall be stored in locations which will not block access ways and arranged to permit easy cleaning of the area.

Any material that is deposited elsewhere than in places designated or approved by the Owner will not be paid for, and the Contractor may be required to remove such material and deposit it where directed.

Upon the issue of the Provisional Acceptance Certificate for the Works, the Contractor shall clear away and remove all construction equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Warranty Period, such materials as are required for the Contractor to fulfil obligations under the Contract, subject to the Owner's approval.

The Contractor shall not, without written permission of the Owner which shall be given within twenty-one (21) days of Contractor's request, remove any of the foregoing from the Site, nor sell, let or transfer any goods. Plant

or other property, designated for this Project.

After the Provisional Acceptance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time under the Contract.

9.4 Taking Over of the Works

9.4.1 The taking over in respect of the Works means the time when all the events below shall have occurred:

a) The Provisional Acceptance Certificate has been issued according to Sub-Clause 9.1 [*Acceptance of the Works*];

b) The commercial operation date of Unit 1 has been approved by the authority. The Contractor shall submit a written request to the Owner for issuance of a taking over certificate for the Works, not earlier than seven (7) days before the Works will, in the Contractor's opinion, be complete and ready for acceptance satisfying the requirements of this sub-clause [Taking Over Certificate].

The Owner shall, within twenty (20) days after receiving the Contractor's application:

a. issue the Taking Over Certificate to the Contractor, stating the date on which the conditions for acceptance of the Works was completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works for their intended purpose (either until or whilst this work is completed and these defects are remedied); or

b. reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause 9.1 [*Acceptance of the Works*].

If the Owner fails either to issue the Taking Over Certificate or to reject the Contractor's application within the period of sixty (60) days, and if the Works are substantially completed in accordance with the Contract, the Taking Over Certificate shall be deemed to have been issued on the last day of that period.

9.4.2 If the conditions from (a) to (j) stated in Sub-Clause 9.1 are met but the Provisional Acceptance Certificate has not been issued due to the Parties' failure to reach an agreement on penalties for delay specified at point (k), Sub-Clause 9.1, the Parties agree to issue the Taking Over Certificate upon the Owner's request.

10. WARRANTY PERIOD

10.1 Contractor's Warranty

The Contractor warrants that it will repair, replace, correct, and make good at no cost to the Owner any defects or deficiencies to the Work or failures in or damages to the Work resulting there from, that occur during the Warranty Period, including work on the construction of the pile field and foundation.

The Contractor shall arrange for a duly authorized warranty engineer to be available during the Warranty Period to address warranty issues, and/or to cooperate with other contractors who execute their packages on the Site.

The Contractor shall perform such remedial actions and make any tests in such a manner and at such time arranged by the Owner so as to minimize revenue loss to the Owner and disruption of normal operations at the Plant.

10.2 Warranty Period

10.2.1 The Warranty Period for the whole Works shall be twenty-four (24) months calculated from the issuing date of the Taking Over Certificate under Sub-Clause 9.4. [*Taking Over of Work*]

10.2.2 The Owner shall be entitled to an extension of the Warranty Period if the Equipment cannot be used for its intended purposes by reason of a defect or damage attributable to the Contractor.

The Warranty Period with respect to any part of the Works and/or any remedial work that is repaired, replaced, modified, or otherwise altered during the Warranty Period shall be extended for a further period of twenty-four (24) months from the date of completion of such repair, replacement, modification or alteration. In any case, the total Warranty Period after extension shall not be more than forty-eight (48) months.

10.2.3 In the event of discrepancies during the Warranty Period the Contractor must be called out to investigate the causes of deficiencies (defects) and coordinate with the Owner actions, manner and terms of defects remedying.

The Owner shall promptly notify the Contractor in writing of the discovery of any defects or deficiencies in the Works.

In the event of any defects or deficiencies, the Contractor shall, at the Contractor's own cost and expense and in the shortest possible time, but in any event within three (3) Working days following occurrence of such defects or deficiencies that jeopardize the performance of the plant or any section thereof, or ten (10) Working days for other defects or deficiencies following the Contractor's receipt of notice of defects or deficiencies or the Contractor's otherwise obtaining knowledge of defects or deficiencies:

- (a) Initiate the performance of, and thereafter diligently pursue the completion of, any necessary senders to correct any defects or deficiencies;
- (b) Initiate and thereafter diligently pursue the completion, repair, replacement, re-working, and retesting (as appropriate) of defective materials; and
- (c) Provide to the Owner the relevant data and records regarding the defects or deficiencies

10.2.4 The Contractor shall, at its own expense, rectify any detected discrepancy unless it can prove that such discrepancy resulted from the Owner's non-compliance with the Contractor's documentation regarding the storage, installation, or transportation of the Equipment.

In case of disagreements between the Parties related to the causes of detected deviations, an independent examination can be carried out. The expert

opinion of an independent organization will be final. The costs of the examination are charged to the expenses of the default Party.

The non-compliance report made by the independent organization will have legal force as if it had been jointly issued by the Parties.

10.2.5 If the Contractor fails to begin rectification of the discrepancies, does not respond to the Owner's request accompanied by the non-compliance report, or is unable to eliminate the discrepancies within the period specified in the non-compliance report, the Owner may choose one (but not more than one) of the following options:

- (a) require the Contractor to eliminate the discrepancies at the Contractor's cost; or
- (b) if it becomes obvious that the defect cannot be eliminated by the Contractor, the Owner is entitled to have it eliminated by another specialized company at the cost of the Contractor provided that the Owner does notifies the Contractor of its intention to do so. The execution of such remedial work by third parties shall not void the Contractor's warranty hereunder.

If the defect or damage deprives the Owner of substantially the entire benefit of the Water Treatment Plant the Owner shall be entitled to terminate the Contract in accordance with Subclause 14.2 [*Termination by Owner*] in respect of such Water Treatment Plant, which cannot be put to its intended use.

10.2.6 The Contractor shall bear full liability with respect to all warranties set forth in this Contract, including any defect or deficiency covered by a subcontractor warranty.

10.3 Completion of Outstanding Work and Remedying Defects

In order that the Works and Contractor's Documents, and each the Equipment, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Warranty Period or as soon as practicable thereafter, the Contractor shall:

- (a) complete any work that is outstanding on the date stated in the Punch List, within such reasonable time as is instructed by the Owner;
- (b) execute all work required to remedy defects or damage, as may be notified by the Owner before the expiry date of the Warranty Period for the Equipment.

If a defect appears or damage occurs, the Owner shall notify the Contractor within reasonable time.

The Contractor shall not be responsible for the cost of the repair, replacement or making good of any defects or damages due to improper operation or maintenance of the Equipment.

10.4 Cost of Remedying Defects

All work referred to in sub-paragraph (b) of Sub-Clause 10.3 [*Completion of Outstanding Work and Remedying Defects*] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

- (a) the design of the Works, or
- (b) Plant, Materials or workmanship not being in accordance with the Contract, or
- (c) improper operation or maintenance which was attributable to matters for which the Contractor is responsible for, or
- (d) failure by the Contractor to comply with any other obligation.

If and to the extent that such work is attributable to any other cause, the Owner shall give notice to the Contractor accordingly, and Subclause 13.3 [*Variation Procedure*] shall apply.

10.5 Remedial work

Notwithstanding any previous tests or certifications, the Owner may, to the reasonable extent, instruct the Contractor to:

- (a) remove from the Site and replace any Equipment which is not in accordance with the Contract;
- (b) remove and re-execute any work which is not in accordance with the Contract;
- (c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.
- (d) remove from the Site any part of the Works which is defective or damaged, if the nature of the defect or damage is such that repairs cannot be expeditiously carried out on the Site.

If the Contractor fails to comply with any such instruction, which complies with Subclause 2.5 [*Instructions*], the Owner shall be entitled to employ and pay other persons to carry out the relevant work. Such work done by the Owner shall not decrease the Contractor's responsibility under the Contractor's warranty hereunder. Except to the extent that the Contractor would have been entitled to the payment for the work, the Contractor shall subject to Subclause 18.1 [*Owner's Claims*] pay to the Owner the all costs arising from this failure with supporting documents.

10.6 Failure to Remedy Defects

If the Contractor fails to initiate the repair work required hereunder within fifteen (15) days after the Owner's request or to diligently pursue such repair work, or if the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Owner, on or by which the defect or damage is to be remedied. The Contractor shall be given notice of this date.

If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor, the Owner may select not more than one of the following options:

- (a) require the Contractor to carry out further remedial work at the Contractor's cost; or
- (b) if it becomes obvious that the defect cannot be remedied by the Contractor,

the Owner may engage a specialized third-party company to perform the remedial work at the Contractor's cost, provided that the Owner notifies the Contractor of its intention to do so. The execution of such remedial works by third parties shall not invalidate or diminish the Contractor's warranty obligations under this Contract.

- (c) if the defect or damage deprives the Owner of substantially the whole benefit of the Water Treatment Plant the Owner may terminate the Contract in accordance with Subclause 14.2 [*Termination by Owner*] in respect of such Water Treatment Plant, which cannot be put to its intended use.

10.7 Further Tests

If the work of remedying any defect or damage may affect the performance of the Works, the Owner may require the repetition of any of the tests described in the Contract, including Tests on Completion and/or tests after completion. The requirement shall be made by notice within thirty (30) days after the defect or damage is remedied.

These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable.

10.8 Contractor to Search

The Contractor shall, if required by the Owner, search for the cause of any defect, under the direction of the Owner. Unless the defect is to be remedied at the cost of the Contractor, the Cost of the search shall be agreed or determined in accordance with Subclause 2.6 [*Determinations*] and shall be added to the Contract Price.

10.9 Repair Work

From the Commencement Date to the issuance of the Taking Over Certificate by the Owner, the Contractor shall take full responsibility for the care thereof and of all the Works. In the event that any damage, loss, or injury occurs to the Works or any part thereof, from any cause whatsoever, the Contractor shall, at its own cost, repair and restore the Works to good order and condition, fully in accordance with the requirements of the Contract and the Owner's instructions.

10.10 Urgent Repairs

If, due to any accident, failure, or other event occurring in connection with the Works or any part thereof either during execution or the maintenance period any remedial or other work or repair is, in the opinion of the Owner, urgently necessary for safety or security, the Contractor shall immediately carry out such work or repair. If the Contractor fails to do so, the Owner may perform the necessary work or repair using its own personnel or third parties. If such work or repair is determined to be the Contractor's responsibility under the Contract, all costs and expenses properly incurred by the Owner in carrying out the work shall be borne by the Contractor.

The Contractor shall bear full liability with respect to all warranties set forth in this Contract, including any defect or deficiency caused by a subcontractor

warranty.

Otherwise, the Owner shall be entitled to deduct the corresponding amount from any sums otherwise payable to the Contractor. The Owner shall provide written notice to the Contractor of such deduction within a reasonable time.

10.11 Protection of Materials and Plant

The Contractor shall make good any loss occasioned by theft, fire damages or weather factors, etc. of any materials which are the property of or provided by the Owner together with all materials and construction equipment for the Contractors or other parties engaged by the Contractor upon the Work.

10.12 Right of Access

Until the Final Completion Certificate has been issued, the Contractor shall have the right of access to all parts of the Works and to records of the operation and performance of the Works, except as may be inconsistent with the reasonable security restrictions at Site.

11. COMPLETION OF THE WORK

At the end of the Warranty Period(s) and after all obligations under the Contract have been fulfilled by the Contractor, the Final Acceptance Certificate shall be issued by the Owner.

The Owner shall issue the Final Acceptance Certificate within sixty (60) days after the latest of the expiry dates of the Warranty Period as described in Subclause 10.2.

Only the Final Acceptance Certificate shall be deemed to constitute acceptance of the Works.

Performance of the Contractor's obligations shall not be considered to have been completed until the Owner has issued the Final Acceptance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract. After the Final Acceptance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation that remains unperformed at that time under the Contract. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.1 Clearance of Site

Upon receiving the Final Acceptance Certificate, the Contractor shall remove, store, or dispose and restore the original status (if any) as may be directed by the Owner, any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

If all these items have not been removed within thirty (30) days after the Owner issues the Final Acceptance Certificate, the Owner may sell or otherwise dispose of any remaining items. The Owner shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

The Contractor shall not, without the Owner's prior written permission, which shall be granted within six (6) days of the Contractor's request, remove

any of the aforementioned items from the Site, nor sell, lease, or otherwise transfer any goods, materials, equipment, or other property designated for the Project. If no response is provided by the Owner within said six (6) day period, the Contractor's request for removal shall be deemed approved.

12. CONTRACT PRICE AND TERMS OF PAYMENTS

12.1 The Contract Price

Total value of the Contract Price is _____

(In words: _____).

The Contract Price is a lump sum amount and includes VAT as well as all applicable taxes, duties, levies, fees, and charges, both within and outside of Vietnam, which are the responsibility of the Contractor in order to complete the Works. This excludes exemptions related to import taxes and the corresponding VAT on goods, materials, and equipment.

The Contract Price is detailed in Appendix 3 [Price Schedule]. The Contractor shall bear all taxes, duties, levies, fees, and charges required to be paid under the Contract, both domestically and internationally. The Contract Price shall not be subject to adjustment on account of these costs, except as specified in Clause 13 [Variations and Adjustments], and only when supported by a written supplementary agreement signed by authorized representatives of both Parties.

Payments under the Contract shall be made by the Owner to the Contractors' bank account via bank transfer, in United States Dollars and/or Vietnamese Dong.

All charges and fees imposed by the Contractor's bank shall be borne by the Contractor.

All charges and fees imposed by the Owner's bank shall be borne by the Owner.

12.2 Sufficiency of the Contract Price

The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the Contract Price. Unless otherwise stated in the Contract, the Contract Price is accepted by the Contractor to spend on all the Contractor's obligations under the Contract, covers all the Contractor's obligations under the Contract and all things necessary for the proper design, execution and completion of the Works and the remedying of any defects.

12.3 Custom Duties, Taxes, Other Duties, Permits and Contributions

The Contractor shall be liable and responsible for all taxes, duties, tariffs, fees, imposes, excises and other taxes and charges payable in connection with the Contract levied on the Contractor in strict accordance with the applicable Laws of Vietnam. Contractor shall hold the Owner harmless with respect to claims resulting from tax obligations of the Contractor and Subcontractors in accordance with applicable regulations.

The Contractor shall pay custom duties, taxes and all other duties in respect of all material, Equipment and Plant components to be supplied by Contractor

for the construction and erection as well as all tools and erection devices required thereof which arrive in Vietnam for the sole purpose of the implementation of the Contract and in accordance with the terms and conditions of the Contract.

The Contractor shall obtain, at its own cost, work permits from the authorities to enable any foreign personnel to Work in Vietnam. The Contractor shall be responsible for all formalities in connection with passports, obtaining visas, police permits and expenses for customs duties related to personal goods of the foreign personnel employed for the Work.

The Contractor shall accept full and exclusive liability for the payment of fees or taxes imposed by authorities having jurisdiction for unemployment insurance, old age pension, immunities or similar taxes, if any, which are determined by remuneration paid to the Contractor's employees. The Contract Price shall not be adjusted or amended in respect of such expenses.

The Contract price include import tax, except for taxes to be exempted under applicable Law of Vietnam and corresponding VAT tax. The Contractor shall acknowledge that the Owner shall apply and obtain the import tax exemption to goods, materials, equipment which constitute the fixed assets of the Power Plant, except for the goods, materials, equipment that can be produced, manufactured in Vietnam by local manufacturers. In order to apply the tax exemption, the Contractor has to submit the detail list of goods, materials, equipment to be imported at the Owner's request within three (03) Working days from the Commencement Date. In all cases, the Contractor shall be responsible for its own costs, related fees and charges for any import tax arising out of goods, materials, equipment that are unable to apply the tax exemption or which can be produced within Vietnam but the Contractor decides to buy abroad.

For the avoidance of doubt, the Contractor shall be responsible for carrying out all import-related activities under the Contract using the tax exemption list provided by the Owner. The Contractor shall also be responsible for providing explanations to inspection and audit authorities and for implementing any conclusions, decisions, or directives issued as a result of such inspections or audits related to the importation of goods within the scope of the Contract. The Contractor shall bear all associated costs, including any penalties or charges arising therefrom, if any.

12.4 Payments

All payments under this Contract shall be made in Vietnamese Dong (VND) and/or United States Dollar (USD).

Payments shall be effected via direct bank transfer to the Contractor's bank account as specified in the preamble of this Contract.

Bank charges and fees associated with the transfer of funds from the Owner's bank to the Contractor's bank shall be borne by the Owner. All banking charges and fees related to the receipt or deposit of funds into the Contractor's bank account shall be borne by the Contractor.

The date of payment shall be deemed the date on which the payable amount is debited from the Owner's bank account, provided that the payment is made to the Contractor's bank account as specified in the Contract or in a written notice duly issued by the Contractor.

a) Advance Payment:

The Owner shall make an advance payment as equivalent to fifteen percent (15%) of the Contract Price to the Contractor in accordance with the Subclause 12.1 (including all types of taxes, fees, and charges), which is equal to ... VND and/or ... USD [Advance Payment], within twenty-eight (28) Working days upon full and complete submission of these following documents:

- Application for payment in four (04) originals;
- Original Performance Bond in accordance with Sub-Clause 1.6.2 [*Performance Bond*];
- Original Advance Payment Bond in accordance with Sub-Clause 1.6.3 [*Advance Payment Bond*].

The advance payment shall be recovered through proportional deductions from subsequent payments. Such deductions shall be made at an amortization rate of eighteen point seventy-five percent (18.75%) of the executed value, which shall be applied to the amount otherwise due (excluding the advance payment and deductions in accordance with Subclause 18.1 [*Owner's Claims*] and repayments of retention), until such time as the advance payment has been repaid. In any case, the entire advance payment amount must be fully recovered when the total payment reaches eighty percent (80%) of the Contract Price.

If the advance payment has not been recovered prior to the issuance of the Taking-Over Certificate or prior to termination under Subclause 14.2 [*Termination by Owner*], Sub-Clause 14.7 [*Termination by Contractor*] or Clause 19 [*Force Majeure*], as the case may be, the whole of the balance outstanding shall immediately become due and payable by the Contractor to the Owner.

b) Milestone Payment:

Milestone payments shall be made by the Owner to Contractors' bank account in milestones as stipulated in the Appendix 3 [Price Schedule, Terms and Procedure for Payment].

Value of each milestone payment shall be in compliance with Appendix 3 [Price Schedule, Terms and Procedure for Payment]. Milestone payments shall be made upon the completion of each milestone as per Appendix 3 [Price Schedule, Terms and Procedure for Payment].

Up to the ninety percent (90%) of the value of each milestone shall be made by the Owner to the Contractor within twenty-eight (28) Working days upon full and complete submission of the documents required in Section B of Appendix 3 [Price Schedule, Terms and Procedure for Payment] to the

Owner by the Contractor.

12.5 Payment upon Provisional Acceptance

12.5.1 Payment for the Withheld Warranty Amount

The Owner shall pay a withheld warranty amount to the Contractor (equivalent to five percent (5%) of the Contract Price) within twenty-eight (28) Working days upon receipt of the following complete documents required in Section B of Appendix 3 [Price Schedule, Terms and Procedure for Payment]

12.5.2 Payment upon Provisional Acceptance

After the Provisional Acceptance Certificate is signed by both Parties accordingly to Sub-Clause 9.1 [*Acceptance of the Works*] and the Taking Over Certificate is signed by both Parties, The Contractor shall prepare and submit to the Owner the final calculation table;

Within fourteen (14) Working days after receiving the above-mentioned document, the Owner shall sign the final calculation table and either send the signed document to the Contractor or provide a written notification of refusal.

Within seven (07) Working days after receiving the written notification of refusal from the Owner (if any), the Contractor shall re-submit the adjusted final calculation table.

The Owner shall pay the Contractor up to ninety-five percent (95%) of the value of the completed work in accordance with the Contract within 28 Working days upon receipt of the complete documents required in Section B of Appendix 3 [Price Schedule, Terms and Procedure for Payment].

12.5.3 Payment for the Withheld Amount in Accordance with Subclause 8.4.4

The Owner shall pay the withheld amount, as specified in Subclause 8.4.4, to the Contractor within twenty-eight (28) Working days upon completion of the Punch List and confirmation by the Owner. The payment documents shall be specified in Section B of Appendix 3 [Price Schedule, Terms and Procedure for Payment].

12.6 Liquidation

After the Parties have fully performed their obligations under the Contract and the Final Acceptance Certificate is signed by both Parties, both Parties shall proceed with the liquidation of the Contract.

12.7 Payment Procedures

Unless otherwise stated in the Contract, after completion of a payment milestone, the Contractor shall submit to the Owner an Application for Payment signed by its authorized representative. Each Application for Payment shall set forth the earned value for such Works and the sum of all prior payments made to that date. Each Application for Payment will be accompanied by:

- certification from the Owner's representative that part or all of Works within the payment period has been achieved;

- releases and waivers of liens (other than permitted Liens) (if requested by Owner), from the Contractor and all Subcontractors who performed the Works included in the Application for Payment (or in any previous application), in a form and substance acceptable to the Owner and enforceable under applicable Laws; and
- if there is any pending dispute concerning the work included in such Application for Payment, as a result of which the Contractor intends to withhold payment from any Subcontractor, the Contractor shall include a report detailing the nature of the dispute and the relevant circumstances.

Within twenty-eight (28) Working days after receipt of an Application for Payment together with the full set of payment documents, the Owner shall pay the amount requested or pay such lesser amount as it determines is properly due. If less than the full amount of the Application for Payment is paid, the Owner shall state in writing the reasons for paying such lesser sum.

In any case, the payment for the works and/or goods shall not release the Contractor from any of its obligations to perform the Works under the Contract, nor shall it be deemed as the Owner's acceptance of, or satisfaction with, the work performed by the Contractor.

Thereafter, the Owner shall, within thirty (30) days after receiving an invoice and supporting documents, give to the Contractor notice of any items in the invoice with which the Owner disagrees, with supporting particulars. Unless otherwise prescribed by the Contract, payments due shall not be withheld, except that:

- (a) if anything supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or
- (b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Owner, the value of this work or obligation may be withheld until the work or obligation has been performed.

The Owner may, by any payment, make any correction or modification that should properly be made to any amount previously considered due. Payment shall not be deemed to indicate the Owner's acceptance, approval, consent or satisfaction.

12.8 Payment Withheld and Retention

The Owner may withhold from any payment due to Contractor such amounts as the Owner deems reasonably necessary or appropriate to protect it from liability because of any one or more of the following reasons:

- (a) Defects in any part of the Works, whether or not payment has already been made for such Work, or failure of the Contractor to comply with Sub-Clause 18.1 [Owner's Claims];
- (b) The filing of third-party claims relating to the Project for which the Contractor is liable and reasonable evidence of such claims;

- (c) Contractor's failure to make payments to its Subcontractors or workers for the Works, which causes adverse effect to the progress of Works;
- (d) Any overpayments made by the Owner with respect to a previous payment;
- (e) Any undisputed past-due penalties;
- (f) A dispute exists as to the accuracy or completeness of any Application for Payment (but only with respect to the amount then in dispute).

Any retention from payment will be subjected to Subclause 12.6 [*Liquidation*] and Subclause 12.7 [*Payment Procedures*].

If there is a dispute in respect to an amount owing, one Party shall (i) give notice to the other Party of such disputed amount together with sufficient information to outline the nature of the dispute, which notice shall be delivered on or before the due date for payment of the disputed amount; (ii) pay undisputed amounts on or before the due date therefore; or (iii) use the dispute resolution procedure set forth in Clause 18 [*Claims, Disputes and Arbitration*].

The dispute due to such retention shall not be a basis for withholding payment of any undisputed amount. During the pendency of any such dispute and the resolution thereof, the Contractor shall continue to perform the Works in accordance with the provisions set forth herein.

13. VARIATIONS AND ADJUSTMENTS

13.1 Right to Vary

Variations may be initiated by the Owner in respect of Water Treatment Plant at any time prior to issuing the Provisional Acceptance Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal. A Variation shall not comprise the omission of any work which is to be carried out by others.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Owner stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, (ii) it will reduce the safety or suitability of the Works or cause a negative impact to environment regulated by the applicable Laws, or (iii) it will have an adverse impact on the achievement of the Performance Guarantees. Upon receiving this notice, the Owner shall cancel, confirm or vary the instruction.

13.2 Contractor's Right to Submit Proposal

The Contractor may, at any time, submit to the Owner a written proposal which (in the Contractor's opinion) will, if adopted,

- (a) accelerate completion,
- (b) reduce the cost to the Owner of executing, maintaining or operating the Works,
- (c) improve the efficiency or value to the Owner of the completed Works, or
- (d) otherwise, be of benefit to the Owner.

The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Subclause 13.3 [*Variation Procedure*]. In estimating the impact of a proposal and/or a Variation, the Contractor shall ensure that Contractor has properly accounted for all cost and time impacts arising from or related to such proposal and/or Variation, including cumulative impacts associated with all previous Variations.

13.3 Variation Procedure

If the Owner requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

- (a) a description of the proposed design and/or work to be performed and a programme for its execution,
- (b) the Contractor's proposal for any necessary modifications to the programme according to Clause 3.5 [*Programme*] and to the Time for Completion of Works, and
- (c) the Contractor's proposal for adjustment to the Contract Price.

The Owner shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [*Contractor's Right to Submit Proposal*] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

Each instruction to execute a Variation, with any requirements for the recording of Costs and time execution, shall be issued by the Owner to the Contractor, who shall acknowledge receipt.

Upon instructing or approving a Variation, the Owner shall proceed in accordance with Sub-Clause 2.6 [*Determinations*] to agree or determine adjustments to the Contract Price and the Terms and Procedures of Payment. These adjustments shall take account of the Contractor's submissions under this Sub-Clause 13.2 [*Contractor's Right to Submit Proposal*] if applicable. In any case, such adjustments should be made only by signing of an additional agreement to the present Contract.

13.4 Valuation of Variation

Valuation of Variation shall be determined mutually by the Parties in accordance with prevailing regulations.

13.5 Disagreement on Adjustment of the Contract Price

Upon instructing or approving a Variation under Clause 13 hereto, the Owner shall consult with the Contractor in an endeavor to reach a mutually agreement. If agreement is not achieved, the Owner shall make a decision in accordance with the Contract. The decision of the Owner shall be final unless the matter is referred to Clause 18 [*Claims, Disputes and Arbitration*].

In case any Variation is be required for the proper performance of the Works contemplated under this Contract, it is understood that if the Contractor and the Owner fail to arrive at any agreement as to the price of such Variation, the Owner reserves the right to have such Variation done by other persons,

firms, or corporations other than the Contractor, or to perform the same under the charge and supervision of the Owner; in such cases no claim of any sort may be made to the Owner by the Contractor on account thereof.

14. TERMINATION

14.1 Notice to Correct

If the Contractor fails to carry out any obligation under the Contract, the Owner may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

14.2 Termination by Owner

The Owner shall be entitled to terminate the Contract if the Contractor:

- (a) fails to correct a breach by the Contractor of a material obligation prior to the expiry of a notice under Sub-Clause 14.1 [*Notice to Correct*].
- (b) fails to establish a separate legal entity in Vietnam and obtain the construction activities license according to the Laws for the purposes of the Works execution within ninety (90) days from the Commencement Date or from the receipt of the required documents from the Owner, whichever is later.
- (c) the Contractor suspends the Work completely for a period of ten (10) days, unless it proves that the reason for the suspension was not caused by its fault and relates to some a cause beyond its control.
- (d) the Contractor makes slow progress in the execution of the Works in a manner which gives the Owner evidence that the Contractor will not be able to complete the Works in the time specified.
- (e) the Contractor violates any contract term and does not make good that contravention within seven (7) days from the Contractor's receiving a notice in writing from the Owner to do so.
- (f) without reasonable excuse fails to proceed with the Works in accordance with Sub-Clause 7.1 [**Commencement Date**];
- (g) subcontracts the whole of the Works or assigns the Contract without the prior written approval of the Owner;
- (h) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events;
- (i) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward for doing or forbearing to do any action in relation to the Contract, or for showing or forbearing to show favor or disfavor to any person in relation to the Contract, except for lawful inducements and rewards to the Contractor's personnel;
- (j) fails to pay any sum due to the Owner hereunder (being a sum which is in excess of the amount that the Owner at the time the relevant payment

- becomes due and which is not reasonably in dispute) and such failure is continuing for forty-two (42) days following notice of failure to the Contractor;
- (k) has attainment of the limit of liability on Penalties for Delay in accordance with Sub-Clause 7.6 [*Penalties*];
 - (l) has the existence of a defect that is irremovable within of reasonable period given by the Owner to the Contractor to correct or remedy that defect under Subclause 8.3 [*Retesting*] and Subclause 8.4 [*Creation of Punch List*];
 - (m) has the existence of a defect depriving the Owner of the benefit of the whole, or substantially the whole, of the Works that is irremovable after one hundred and eighty (180) days of grace period given by the Owner to the Contractor to correct or remedy that defect.

In any of these events or circumstances, the Owner may, upon giving twenty-one (21) days' notice to the Contractor, terminate the Contract. However, in the case of sub-paragraph (h) or (i) the Owner may by notice terminate the Contract immediately.

The Owner's election to terminate the Contract shall not prejudice any other rights of the Owner, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for them, to the Owner. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Owner may complete the Works and/or arrange for any other entities to do so. The Owner and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor in connection with the Works.

The Owner shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Owner, these items may be sold by the Owner in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Owner. However, the Contractor shall use their best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Owner may complete the Works and/or arrange for any other entities to do so. The Owner and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of

the Contractor in connection with the Works.

The Owner shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Owner, these items may be sold by the Owner in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

14.3 Payment after Termination

After a notice of termination under Subclause 14.2 [*Termination by Owner*] has taken effect, the Owner may:

- proceed in accordance with Subclause 18.1 [*Owner's Claims*];
- withhold further payments to the Contractor until the costs of design, execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Owner, have been established; recover from the Contractor any justified losses and damages incurred by the Owner and any extra costs of completing the Works. After recovering any such losses, damages and extra costs, the Owner shall pay any balance to the Contractor.

14.4 Owner's Entitlement to Termination

The Owner shall be entitled to terminate the Contract, at any reasonable time for the Owner's convenience by giving the prior notice of such termination to the Contractor. After receiving the notice of the Owner, both parties shall discuss and apply the further steps of payment in accordance with conditions of the Contract. The termination shall take effect twenty-eight (28) days after the mutual agreement for payment is reached.

After this termination, the Contractor shall proceed in accordance with Subclause 14.8 [*Cessation of Work and Removal of Contractor's Equipment*] and shall be paid in accordance with Subclause 17.6 [*Optional Termination, Payment and Release*].

14.5 Consequences of Termination

As a result of terminating the Contract or withdrawal of the Works from the contractor as per Clause 14 except Subclauses 14.4, 14.6 and 14.7, or any other stipulation in the conditions, the following shall be applicable:

The Owner shall have its own right to execute or employ any other third party to execute the work that has not been executed in the contract, in a manner that the Owner finds suitable. The Owner shall have the right to receive compensation and reimbursement of expenses from the Contractor. Furthermore, the Owner shall have the right to take possession of all or part of the Contractor's work, materials, equipment, or documents and to use them to complete the Works, without being liable to the Contractor or any third party for any damage or loss that may arise from such use.

The Owner shall use the said equipment without charge and will not be

responsible for any fees or payments due to others in respect of such use.

The Owner shall also have the right to seize all or part of the Contractor's Equipment even after the completion of the Work to guarantee the Owner's rights against the Contractor. The Contractor shall indemnify the Owner for all losses incurred to it due to that, including the expenses over the contract value and additional administration expenses. In connection with this matter, the Owner shall withhold all payments due or to become due to the Contractor until a final settlement of the administrative expenses, losses and other expenses incurred has been reached and shall have the right to seize all or part of the contractor's properties or amount due to other Government Ministries or Departments. The Owner shall also have the right to sell the Contractor's Equipment without being responsible to the Contractor for any losses entailed by the sale.

14.6 Contractor's Entitlement to Suspend Work

The Contractor may not suspend performance of the Works except as directed by Owner under this Subclause 14.6 provided however that Contractor may suspend performance (or reduce the rate of work) under this Contract upon failure by Owner to make payment of amounts due to the Contractor under the payment terms that are not reasonably disputed in good faith and upon thirty (30) calendar days' notice of the Contractor of its intent to suspend performance, unless and until the Contractor has received the reasonable evidence or payment, as the case may be and as described in the notice.

If the Contractor subsequently receives such evidence or payment (as described in the relevant clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable. If the Contractor suffers delay and/or incurs Cost as result of suspending work (or reducing the rate of work) in accordance with this clause, the Contractor shall give notice to the Owner and shall be entitled subject to Subclause 18.2 [*Contractor's Claims*] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Subclause 7.3 [*Extension of Time for Completion*];
- (b) payment of any reasonable cost, which shall be added to the Contract Price.

After receiving this notice, the Owner shall proceed in accordance with Subclause 2.6 [*Determinations*] to agree or determine these matters.

14.7 Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

- (a) the Contractor does not receive the amount due within ninety (90) Working days after the expiry of the time stated in Clause 12 [*Contract price and Terms of Payment*] within which payment is to be made (except for deductions in accordance with Sub-Clause 18.1. [*Owner's Claims*]);
- (b) the Owner substantially fails to perform his obligations under the Contract;
- (c) the Owner fails to comply with Sub-Clause 1.8. [*Assignment*];

- (d) a prolonged suspension affects the whole of the Works as described in Sub-Clause 7.7. [*Suspension of Work*];
- (e) the Owner becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable laws) has a similar effect to any of these acts or events.

In any of these events or circumstances, the Contractor may, upon giving thirty (30) days' notice to the Owner, terminate the Contract.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

14.8 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 14.4. [*Owner's Entitlement to Termination*], Sub-Clause 14.7. [*Termination by Contractor*] or Sub-Clause 17.6. [*Optional Termination, Payment and Release*] has taken effect, the Contractor shall promptly:

- cease all further work, except for such work as may have been instructed by the Owner for the protection of life or property or for the safety of the Works;
- hand over Contractor's Documents, Equipment, spare parts and other work, for which the Contractor has received payment;
- remove all other Goods from the Site, except as necessary for safety, and leave the Site.

15. RISK AND RESPONSIBILITY

15.1 Indemnities

The Contractor shall, at the Contractor's cost and risk, indemnify and hold harmless the indemnified Parties against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- (a) bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the design, execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, willful act or breach of the Contract by the Owner, the Owner's Personnel, or any of their respective agents;
- b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss:
 - i) arises out of or in the course of or by reason of the design, execution and completion of the Works and the remedying of any defects, and
 - ii) is not attributable to any negligence, willful act or breach of the Contract by the Owner, the Owner's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.
- c) infringement by the Works of any intellectual property right or unauthorized disclosure or use of trade secrets by the Contractor, Subcontractors, or their respective officers, employees and agents in accordance with Sub-Clause

1.11 [*Intellectual Property and Use of Contractor's Documents*];

- d) violation of applicable Laws by the Contractor, Subcontractors, or their respective officers, employees and agents;
- e) the filing of a lien, or other encumbrance, on all or part of the Project by the Contractor, Subcontractors, or their respective officers, employees and agents.
- f) Contractor's failure to provide insurance as required by this Contract.

The Owner shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of bodily injury, sickness, disease or death, which is attributable to any negligence, willful act or breach of the Contract by the Owner, the Owner's Personnel, or any of their respective agents.

15.2 Limitation of Liability

15.2.1 Neither Party shall be liable to the other Party whether pursuant to any provision of the Contract (including any indemnity), by way of damages for breach of the Contract, in tort, for breach of statutory duty, equity, or under any other legal theory, for any loss of profit or revenue, loss of use of equipment or associated equipment, loss of production or down time costs, loss of opportunity, loss of contract, loss of goodwill, the cost of obtaining any new financing or maintaining any existing financing (including the making of any scheduled or other repayments or prepayment of debt and the payment of any interest and other costs, fees or expenses incurred in connection with the obtaining or maintaining of financing), provided always that this clause shall not prevent, limit or exclude:

- (a) any liability for such losses or costs to the extent that they form part of the pre-estimated losses for the purposes of calculating the Penalties for Delay under the Contract;
- (b) any liabilities pursuant to Sub-Clause 15.1 [*Indemnities*].

15.2.2 The total liability of the Contractor to the Owner, under or in connection with the Contract other than under Sub-Clause 15.1 [*Indemnities*] and Sub-Clause 1.11 [*Intellectual Property and Use of Contractor's Documents*], shall not exceed twenty percent (20%) of the Contract Price stated in the Contract. This clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct.

15.2.3 The maximum aggregate amount of liability of the Owner for all types of liability (including penalties, fines, interest on borrowed funds), liabilities for damages, as well as liability to third parties shall not exceed ten percent (10%) of the Contract Price.

15.3 Contractor's Care of the Works

The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking Over Certificate is issued (or is deemed to be issued under Sub-Clause 9.4. [*Taking Over of*

Work] for the Works, when responsibility for the care of the Works shall pass to the Owner. ~~If a Provisional Acceptance Certificate is issued (or is so deemed to be issued) for a part of the Works, responsibility for the care of such part shall then pass to the Owner.~~

After responsibility has accordingly passed to the Owner, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking Over Certificate, until this outstanding work has been completed.

If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause, the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

16. INSURANCE

16.1 General Requirements for Insurance

The Owner shall obtain and maintain a Construction All Risks (CAR) or Erection All Risks (EAR) insurance policy for not less than the full replacement value of the Works, Plant, Materials and Contractor's Documents including the costs of demolition, removal of debris and professional fees and profit with a minimum value equal to the Contract Price.

The expected policy conditions may include, subject to final agreement, the following coverages:

- (1) Removal of Debris
- (2) Strike, Riot, and Civil Commotion
- (3) Cross Liability
- (4) Extended Maintenance Cover – 24 months
- (5) Expediting Expenses/Overtime Expenses/Expenses Freight
- (6) Airfreight Expenses
- (7) Warranty Concerning Structures in Earthquake Zones
- (8) Warranty Concerning Underground Cables and Pipes
- (9) Off-Site storage
- (10) Waiver of subrogation against all the Insureds excluding suppliers and manufacturers
- (11) Payment on account

- (12) 72-hour clause
- (13) Professional fees
- (14) 50/50 clause
- (15) Escalation clause
- (16) Serial losses
- (17) War and Terrorism Exclusion
- (18) Automatic Reinstatement of sum insured
- (19) Vibration, removal or weakening of support
- (20) Named Loss Adjusters
- (21) Safety Measures with Respect to Precipitation, Flood and Inundation.
- (22) Special conditions concerning piling foundation and retaining wall works.
- (23) Special conditions concerning wet works
- (24) Special Conditions Concerning the Construction and/or Erection Time Schedule.
- (25) Special Conditions Concerning Fire –Fighting Facilities and Fire Safety on Construction Sites.
- (26) Quarterly Project Progress report.
- (27) Risk survey on Eng.
- (28) EPI 65 Risks Survey
- (29) Claim Cooperation Clause

The General Exclusion shall include, but are not limited to, the following endorsements:

- (1) Terrorism Exclusion Endorsement (Reinsurance) - NMA 2921
- (2) Total Asbestos Exclusion
- (3) International Trade Sanction Clause
- (4) War and Civil war exclusion clause (LRMA G51- Amended)
- (5) Nuclear energy risks exclusion clause (Reinsurance) (1994) (Worldwide excluding U.S.A & Canada) NMA 1975a
- (6) Pollution/Contamination Exclusion Clause.

The Owner, the Contractor, its Subcontractors, Suppliers for their onsite activities, Owner's Engineer and all other parties responsible for constructing the Power Plant shall be named as additional insured under this policy. The Owner shall notify the Contractor of the date this insurance becomes effective. The insurance shall remain in effect until the date of issuance of the Taking-Over Certificate of Power Plant and shall be extended to cover the 24-month Warranty Period thereafter.

The Contractor shall provide all necessary information as required for CAR/EAR insurance within seven (7) days upon the receipt of requirement

from the Owner/Insurer. The Contractor shall bear full responsibility for failing to do so and/or providing misleading information.

Upon any occurrence of an event claimable under the Construction/Erection All Risks insurance policy, the Contractor shall immediately replace or repair any loss or damage and complete the Works in accordance with the Contract

The Contractor shall purchase other insurances required for performance of this Contract. The Contractor shall affect all insurances, except for CAR/EAR as above mentioned, with the insurance provider (the "Insurer") chosen by the Contractor, however with the priority given to Vietnamese insurance providers, and shall give evidence thereof to the Owner.

All insurance policies shall be endorsed or otherwise provide that the Contractor's insurance shall be primary and not in excess to, or contributing with, any insurance maintained by any other party. All policies shall include a waiver of subrogation in favor of the Owner/Contractor/Consultant and all other additional insureds except in the case of workmen's compensation insurance and other statutory insurances. The Contractor shall be named as an additional insured where applicable. The liability policies shall provide severability of interests or cross liability inclusion clauses.

Upon any occurrence of an insured event claimable under the insurance policies, the Contractor shall promptly notify the Insurer and the Owner and send the Owner a copy of the claim to the Insurer and cooperate with the Owner in settling the claim. The Contractor shall negotiate and settle all claims with the Insurer but the Owner shall maintain the right to participate in any or all proceedings. If the Contractor fails to promptly attend to settlement of claims with the Insurer, the Owner shall, without prejudice to any rights that he may have against the Contractor, resend the option to settle the same directly with the Insurer. Any settlement reached between the Owner and Insurer shall be binding upon the Contractor.

Each policy insuring against loss or damage shall provide for payments to be made in US Dollars as the case may be to cover the claim from an insured Party. Payments received from the Insurer shall be used for the rectification of the loss or damage.

The Contractor shall submit to the Owner the following insurance documents within sixty (60) days from the Contract Commencement Date:

- (a) evidence that the insurances described in this clause have been affected;
- (b) copies of the policies for the insurances described in this clause;
- (c) evidence of payment of the insurance premiums.

The Owner and/or the Contractor shall comply with the conditions stipulated in each of the insurance policies. The Owner and/or the Contractor shall keep the Insurer informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this clause.

The Contractor shall not make any material alteration to the terms of any insurance without the prior approval of the Owner. If the Insurer makes (or attempts to make) any alteration, the Contractor shall promptly give notice to

the Owner.

If the Contractor fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this clause, the Owner may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The Contractor shall pay the amount of these premiums to the Owner, and the Contract Price shall be adjusted accordingly.

Nothing in this clause limits the obligations, liabilities or responsibilities of the Contractor under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the Insurer shall be borne at the Contractor's expense in accordance with these obligations, liabilities or responsibilities. However, if the Contractor fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the Owner neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the Contractor. Furthermore, the Owner assumes no responsibility for the solvency of the Insurer or the failure of the Insurer to settle any claim.

The Contractor at its own cost shall purchase any additional insurance it believes necessary to protect its interests. A summary of certain minimum provisions to be included in the Contractor's insurance policies is set forth in the subclauses below.

16.2 Cargo Insurance

The Contractor shall, at its own cost, procure and maintain cargo insurance with a reputable Insurer, giving first priority to Vietnamese insurance companies. Such cargo insurance shall cover all Plant, Equipment, and Materials against all risks of loss or damage normally insurable, including but not limited to risks of war, strikes, riots, and civil commotions. Coverage shall extend from the commencement of loading at the manufacturer's premises through to arrival and unloading at the Site. The sum insured under such insurance shall not be less than 110% (one hundred and ten per cent) of the full replacement value of the insured property shipped including freight and insurance. The policy conditions shall include:

War, Strikes, Riot and Civil Commotion;

Institute Cargo Clauses (A);

Institute War Clauses (Cargo);

Institute Strike Clauses (Cargo);

Institute Cargo Clauses (Air);

Institute War Clauses (Air Cargo);

Institute Strike Clauses (Air Cargo);

Debris Removal;
Deferred Unpacking Clause;
Control of Damaged Goods Clause;
Replacement Clause;
Expediting Costs (Air Freight, Overtime Costs);
50/50 Sharing Clause;
Institute Classification Clause;
Institute War Cancellation Clause;
Institute Radioactive Contamination Exclusion Clause;
Specific warranties in respect of surveys for loading, storage and unloading operations;
Deductible of money _____ Dollars to be advised each and every loss; and
Loss Payee Clause stating the Owner for all claims _____ Dollars.
The Contractor shall submit to the Owner such insurance documents as required under the Contract within 15 (fifteen) days prior to each shipment.

Upon any occurrence of an event claimable under the cargo insurance policy, the Contractor shall notify the insurance company and follow procedures in filing and settling the claim as set forth in the certificate of the insurance,

The Contractor shall, at its own cost and expense, immediately replace or repair any loss or damage and complete the Works in accordance with the Contract.

16.3 Insurance for Contractor's Personnel

Prior to commencement of works on site, the Contractor shall affect and maintain workman's compensation insurance to cover all of the Contractor's Personnel in accordance with the Laws.

The Contractor shall affect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be affected by the Subcontractor, but the Contractor shall still be responsible for compliance with this clause.

16.4 Professional Indemnity Insurance

Within thirty (30) days from the date of signing of the Contract, the Contractor shall be responsible to effect and maintain professional indemnity

insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising out of any errors or omissions in the design, supervision, or other consulting or engineering services performed by the Contractor in connection with the Works. The professional indemnity insurance shall have a minimum coverage limit of one hundred and twenty percent (120%) of each consultancy and / or engineering service value.

The policy shall have no limit on the number of occurrences and a maximum deductible limit of _____ Dollars.

16.5 Construction Equipment Insurance

Upon arrival of the construction equipment on site, the Contractor shall insure for all risks normally insurable, the construction equipment, including vehicles, used by the Contractor or its Subcontractors in connection with the execution of the Works according to the market value of such equipment and in accordance with the Laws of Vietnam.

The Contractor shall at all times keep in force, in as far as they may be applicable, marine policies in respect of all floating craft and equipment covering loss of or damage to such items and liability arising out of their use to include not only the full value thereof but also the cost of removing the same in the event of sinking whether or not the same is declared a total loss and including protection and indemnity and third party liability cover to an amount equal to the full value and estimated cost of removal in the event of sinking.

The Contractor shall confirm that the shipping company buys the floating craft insurance covering its loss on damage including the cost of removing the same in the event of sinking.

16.6 Third Party Liability Insurance

The Contractor shall, at its own cost, procure and maintain third party liability insurance with a reputable Insurer, giving first priority to Vietnamese insurance companies, to cover all claims, damages, losses, and expenses (including legal fees and expenses) arising from bodily injury, sickness, disease, or death of any third party, and/or loss of or damage to third party property caused by or in connection with the performance of the Works.

The insurance shall:

- Provide coverage with a minimum limit of liability of not less than _____ Dollars per occurrence and _____ Dollars in the aggregate;
- Be maintained in full force and effect throughout the performance of the Contract until the issuance of the Taking Over Certificate;
- Include a cross-liability clause ensuring that each insured party shall be treated as if a separate policy had been issued to each;

- Name the Owner, the Contractor, the Engineer, and other parties as additional insureds, without any right of subrogation against them;
- Include worldwide territorial limits, unless otherwise specified, with jurisdiction limited to Vietnam.

The Contractor shall submit evidence of the insurance, including copies of the policies and certificates of insurance, to the Owner within thirty (30) days from the Contract Commencement Date and prior to commencement of any Works on Site.

The Contractor shall ensure that the insurance policy is renewed and remains in effect until completion of the Works and final demobilization from the Site.

If the Contractor fails to effect or maintain the required insurance, the Owner may, without prejudice to any other rights or remedies, procure such insurance and recover the cost from the Contractor.

16.7 Approval of Insurance Policies

The Contractor shall provide for the Owner's review and approval, copies of all insurance policies that the Contractor intends to procure for this Project.

17. FORCE MAJEURE

17.1 Definition of Force Majeure

In this Clause, "Force Majeure" means an exceptional event or circumstance:

- (a) which is beyond a Party's control;
- (b) which such Party could not reasonably have provided against before entering into the Contract;
- (c) which, having arisen, such Party could not reasonably have avoided or overcome;
- (d) which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kinds listed below; so long as conditions (a) to (d) above are satisfied:

- war, hostilities (whether war be declared or not), invasion, act of foreign enemies;
- rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war;
- riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel and other employees of the Contractor and Subcontractor;
- munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity;

- natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

17.2 Notice of Force Majeure

If a Party is or will be prevented from performing any of its obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, of which the performance is or will be prevented. The notice shall be given within 15 (fifteen) days after the Party became aware of the relevant event or circumstance constituting Force Majeure.

The Party shall, having given notice, be excused performance of such obligations for so long as such Force Majeure prevents it from performing them.

17.3 Duty to Minimize Delay

Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure.

A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

17.4 Consequences of Force Majeure

If the Contractor is prevented from performing any of his obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 17.2 [*Notice of Force Majeure*], and suffers delay and/or incurs cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 18.2 [*Contractor's Claims*] to an extension of time for any such delay, if the Completion of the Works is or will be delayed, under Sub-Clause 7.3 [*Extension of Time for Completion of Works*].

After receiving this notice, the Owner shall proceed in accordance with Sub-Clause 2.6 [*Determinations*] to agree or determine these matters.

17.5 Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this clause.

17.6 Optional Termination, Payment and Release

If the execution of substantially all of the Works in progress is prevented for a continuous period of eighty-four (84) days by reason of Force Majeure, of which notice has been given under Sub-Clause 17.2 [*Notice of Force Majeure*], or for multiple periods which total more than one hundred and forty (140) days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event of Force Majeure, the termination shall take effect twenty-one (21) days after the notice is given, and the Contractor shall proceed in accordance with Clause 18 [*Claims, Disputes and Arbitration*].

Upon such termination, the Parties shall make the final settlement of payments. For the avoidance of doubt, the Contractor shall not be entitled to compensation pursuant to this Sub-Clause 17.6 [*Optional Termination, Payment and Release*] for any loss of profit in respect of work not executed, loss of income, revenue, or opportunity or indirect or consequential losses.

18. CLAIMS, DISPUTES AND ARBITRATION

18.1 Owner's Claims

18.1.1 If the Owner considers himself to be entitled to any reasonable payment under any clause of this Contract or otherwise in connection with the Contract, and/or to any extension of the Warranty Period, he shall give notice and particulars specifying the reason for claims and calculation of the claim's amount (if any) to the Contractor responsible for the respective portions of the Works.

18.1.2 The notice shall be given as soon as practicable after the Owner became aware of the event or circumstances giving rise to the claim. A notice relating to any extension of the Warranty Period shall be given before the expiry of such period.

18.1.3 The particulars shall specify the clause(s) or other bases of the claim, and shall include substantiation of the amount and/or extension to which the Owner is entitled in connection with the Contract. The Owner shall then proceed in accordance with Sub-Clause 2.6 [*Determinations*] to agree or determine (i) the amount (if any) which the Owner is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Warranty Period in accordance with Sub-Clause 10.2 [*Warranty Period*]. The Contractor shall pay such agreed amount due to the Owner as mentioned above within thirty (30) days or provide reasonable objection with respect to the Owner's claim.

18.1.4 In case the Contractor fails to pay such agreed amount within thirty (30) days, the Owner shall deduct this amount from any moneys due, or to become due, to the Contractor. The Owner shall only be entitled to set off against or make any deduction from an amount due to the Contractor, or to otherwise claim against the Contractor, in accordance with this clause or with Clause 12 [*Contract Price and Terms of Payment*].

18.2 Contractor's Claims

The Contractor must give written notice, with appropriate supporting documentation, of all claims for extra compensation or additional time for performance of the Works within thirty (30) Working days after the Contractor became aware of the occurrence or event giving rise to the claim.

The Contractor acknowledges that failure of the Contractor to give Owner notice and appropriate supporting documentation within the required time frame constitutes a waiver of all claims arising out of or related to the event. In such case the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Owner shall be discharged from all liabilities in connection with the claim.

The Contractor may not halt the execution of the Works pending resolution

of a claim without the Owner's prior written consent.

The Owner shall proceed in accordance with Sub-Clause 2.6 [*Determinations*] to agree or determine (i) the extension (if any) of the Time for Completion of Works (before or after its expiry) in accordance with Sub-Clause 7.3 [*Extension of Time for Completion of Works*], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

18.3 Arbitration

The Parties agree to seek to resolve any disputes and controversies arising between them by mutual consultation.

Claims of the Parties connected with non-fulfilment or improper fulfilment of the liabilities under this Contract shall be considered by the Parties within thirty (30) days from the day of receiving thereof. A pre-action claim letter shall have the name "Claim" and be signed by the authorized representative of the claiming Party.

In case of impossibility of solving a dispute through mutual consultations, any dispute, controversy or claim arising out of or in connection with this Contract, or the breach, termination or invalidity thereof, shall be finally settled by arbitration in accordance with the arbitration rules of the Singapore International Arbitration Center, for the time being in force, which rules to be incorporated by reference in this clause. The arbitral tribunal shall be composed of three arbitrators. The language to be used in the arbitral proceedings shall be English. The seat of arbitration shall be Singapore.

This Contract shall be governed by the applicable laws of Vietnam.

18.4 Works to Continue

Performance of the Contract shall continue during arbitration proceedings unless the Owner shall order suspension.

18.5 Time Limit for Arbitration

No commencement of arbitration proceeding may be instigated later than one hundred and eighty (180) days after the issue of the Final Acceptance Certificate.

This Contract is made in six (6) originals of the same validity. The Owner keeps four (4) originals and the Contractor keeps two (2) originals.

THE CONTRACTOR

THE OWNER

APPENDIX 1 – [SCOPE OF WORK]

Parties will reach an agreement during the contract negotiation process based on Form No. A1, Chapter IV and Form No. 19 (a) proposed by the Bidder.

APPENDIX 2 – [TECHNICAL SPECIFICATIONS AND REQUIREMENTS]

Technical Specification and Requirement shall be referenced in Chapter V. Terms of Reference.

APPENDIX 3 - [PRICE SCHEDULE, TERMS AND PROCEDURE FOR PAYMENT]**A. Price Schedule**

No	Price Schedule	Amount		Note
		VND	USD	
I	Total value of works (Total value 1.1+1.2+2+3+4) before Taxes			
1.1	Price Schedule No 1.1: Value of Local Goods.			
1.2	Price Schedule No 1.2: Value of Imported Goods.			
2	Price Schedule No 2: Value of Installation.			
3	Price Schedule No 3: Value of Construction.			
4	Price Schedule No 4: Value of Services.			
II	Total of Taxes			
5	Corporate income tax (CIT)			
6	Value Added Tax (VAT)			
7	Other taxes, fees and charges			
III	Total Price include all taxes and related costs (I + II)			

PRICE SCHEDULE NO. 1.1: VALUE OF LOCAL GOODS (VND)

No	Description	Unit	Quantity	Amount (VND)	
				Price without Taxes	Total without Taxes
....	(1)	(2)	(3)	(4)	(5)
I	Total (without Taxes)				
II	Taxes				
				
				
III	Total (include Taxes)				

PRICE SCHEDULE NO. 1.2: VALUE OF IMPORTED GOODS (USD/VND)

No	Description	Unit	Quantity	Price without Taxes	Import Taxes	VAT taxes	Other taxes (if any)	Price include Taxes	Amount
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Total								

PRICE SCHEDULE NO. 2: VALUE OF INSTALLATION (VND)

No	Description	Unit	Quantity	Amount (VND)	
				Price without Taxes	Total without Taxes
....	(1)	(2)	(3)	(4)	(5)
I	Total (Without Taxes)				
II	Taxes				
				
				
III	Total (Include Taxes)				

PRICE SCHEDULE NO. 3: VALUE OF CONSTRUCTION (VND)

No	Description	Unit	Quantity	Amount (VND)	
				Price without Taxes	Total without Taxes
....	(1)	(2)	(3)	(4)	(5)
I	Total (Without Taxes)				
II	Taxes				
				
				
III	Total (Include Taxes)				

PRICE SCHEDULE NO. 4: VALUE OF SERVICES (USD/VND)

No	Description	Unit	Quantity	Amount (VND)		Amount (USD)	
				Price without Taxes	Total without Taxes	Price without Taxes	Total without Taxes
....	(1)	(2)	(3)	(4)	(5)	(6)	(7)
I	Total (without Taxes)						
II	Taxes						
						
						
III	Total (include Taxes)						

B. Payment

Note: *The number of milestone payment is provisional. Bidders are encouraged to propose suitable milestone payment in their Bids for mutual review and agreement during contract negotiations. If the Owner does not agree with the proposed milestone payment, both Parties will follow the milestones payment as specified in the Bidding Documents.*

1. Milestone Payment:

1.1. Payment for the Imported Goods:

The Owner shall pay the Contractor up to ninety percent (90%) of the value of the corresponding Imported Goods for each item listed in Price Schedule No. 1.1, within twenty-eight (28) Working days after such items have been transported to the Site and upon receipt of the following complete documents:

- (i) Application for payment in four (04) originals showing name of goods, quantity, unit price and total amount;
- (ii) For Foreign Contractor: Commercial Invoice in four (04) originals for 100% amount of Goods of the payment period. For Local Contractor: One (01) original valid electronic VAT invoice for 100% amount of Goods of the payment period;
- (iii) Customs Invoice and relevant documents for Customs Clearance Procedure in one (01) original and three (03) copies of the respective imported Goods;
- (iv) Detailed Calculation Table, in four (04) originals which is applied for payment, including but not limited to the following information: Value of the completed work of the Milestone indication 100% the cost of work milestones (including VAT), value of advance payment recovery amount, value of deduction according to the Sub-Clause 12.8, payment application value after deduction of the above mentioned amount (duly signed and stamped by both Parties);
- (v) Acceptance Protocol for the completed Milestone of the corresponding milestone, in four (04) originals, duly signed and stamped by both Parties;
- (vi) Detailed Packing List in four (04) originals;
- (vii) For transportation by sea: 2/3 full set of original clean “on board” ocean Bill of Lading and four (04) non-negotiable copies, made out to order of Consignee PetroVietnam Long Phu 1 Power Project Management Board (LP1PP), blank endorsed and marked “Freight Prepaid”;

For transportation by air: 2/3 full set of original clean Airway Bill and four (04) non-negotiable copies, made out to order of Consignee

PetroVietnam Long Phu 1 Power Project Management Board (LP1PP), blank endorsed and marked “Freight Prepaid”;

- (viii) Certificate of Origin issued by the Chamber of Commerce of manufacturer’s country in one (01) original and three (03) copies;
- (ix) Certificate of Quality issued by the manufacturer in four (04) originals;
- (x) Pre-shipment Inspection Certificate signed by the Owner or Owner’s representative or third party on behalf of Owner in four (04) originals (if any)
- (xi) Minutes of Goods, Materials, Equipment Receipt (MGMER) signed by and between Parties including OS&D report (if any) in four (04) originals;
- (xii) Legal documents to prove that the goods have been lawfully imported, taxes and duties have been fully paid, and customs clearance has been properly completed: customs declaration, tax payment receipt, inspection report (if any) issued by the relevant government authorities,
- (xiii) Other Supporting Documents, if any, as requested by the banks.

1.2. Payments for the Local Goods

The Owner shall pay the Contractor up to ninety percent (90%) of the value of the corresponding Local Goods for each item listed in Price Schedule No. 1.2, within twenty-eight (28) Working days after such items have been transported to the Site and upon receipt of the following complete documents:

- (i) Application for payment in four (04) originals showing name of goods, quantity, unit price and total amount;
- (ii) For Foreign Contractor: Customs Invoice and relevant documents for Customs Clearance Procedure in one (01) original and three (03) copies of the respective imported Goods (if any) and; Commercial Invoice in four (04) originals for one hundred percent (100%) amount of Goods of the payment period. For Local Contractor: One (01) original valid electronic VAT invoice for one hundred percent (100%) amount of Goods of the payment period;
- (iii) Detailed Calculation Table, in four (04) originals which is applied for payment, including but not limited to the following information: Value of the completed work of the Milestone indication 100% the cost of work milestones (including VAT), value of advance payment recovery amount, value of deduction according to the Sub-Clause 12.8, payment application value after deduction of the above mentioned amount (duly signed and stamped by both Parties);

- (iv) Acceptance Protocol for the completed Milestone of the corresponding milestone, in four (04) originals, duly signed and stamped by both Parties;
- (v) Detailed Packing List in four (04) originals;
- (vi) Certificate of Origin issued by the Chamber of Commerce of manufacturer's country in one (01) original and three (03) copies;
- (vii) Certificate of Quality issued by the manufacturer in four (04) originals;
- (viii) Pre-shipment Inspection Certificate signed by the Owner or Owner's representative or third party on behalf of Owner in four (04) originals (if any);
- (ix) Minutes of Goods, Materials, Equipment Receipt (MGMER) signed by and between Parties including OS&D report (if any) in four (04) originals;

1.3. Payment for installation, construction, service

The Owner shall pay the Contractor up to ninety percent (90%) of the corresponding value for the scope of work for the items/parts, as specified in Price Schedule No. 2, 3 and 4, within twenty-eight (28) Working days after such items/parts have been completed and upon receipt of the following complete documents:

- (i) Application for payment in four (04) originals;
- (ii) For Foreign Contractor: Commercial Invoice for one hundred percent (100%) amount of completed works in four (04) original. For Local Contractor: one (01) original valid electronic VAT invoice for one hundred percent (100%) amount of the accepted value of the milestone;
- (iii) Acceptance Protocol for the corresponding completed Milestone, in four (04) originals, duly signed and stamped by both Parties;
- (iv) Calculation table, in four (04) originals; of the value to be paid showing following detailed information: Value of the completed work of the Milestone indication one hundred percent (100%) the cost of work milestones (including VAT), value of advance payment recovery amount, value of deduction according to the Sub-Clause 12.8, payment application value after deduction of the above-mentioned amount (duly signed and stamped by both Parties).

2. Payment upon Provisional Acceptance

2.1. Payment for the withheld warranty amount

The Owner shall pay the withheld warranty amount to the Contractor (equivalent to five percent (5%) of the Contract Price) within 28 Working days upon receipt of the following complete documents:

- (i) Application for payment in four (04) originals;
- (ii) Warranty bond in one (01) original;
- (iii) Taking Over Certificate in one (01) original;

(iv) Calculation table, in four (04) originals; of the value to be paid showing following detailed information: Value of the completed work of the Milestone indication one hundred percent (100%) the cost of work milestones (including VAT), value of advance payment recovery amount, value of deduction according to the Sub-Clause 12.8, payment application value after deduction of the above mentioned amount (duly signed and stamped by both Parties).

2.2. Payment upon Provisional Acceptance

The Owner shall pay the Contractor up to one hundred percent (100%) of the value of the completed work in accordance with the Contract within 28 Working days upon receipt of the following complete documents:

- (i) Application for payment in four (04) originals;

(ii) Final Calculation table, in four (04) originals, of value to be paid showing following detailed information: Value of the completed works under the Contract, indicating the total cost of work milestones; Value of additional work (if any); Value of penalties deduction (if any); Proportional deductions; The amounts withheld in accordance with Sub-Clause 8.1 and/or Sub-Clause 8.4.4; Payment application value after deductions of the mentioned amounts (duly signed and stamped by both Parties);

(iii) For Foreign Contractor: Commercial Invoice in four (04) originals. For Local Contractor: one (01) original valid electronic VAT invoice (if any).

(iv) Provisional Acceptance Certificate with signatures of authorized Owner's representative and the Contractor's Representative and stamps in four (04) originals;

(v) Taking Over Certificate with signatures of authorized Owner's representative and the Contractor's Representative and stamps in one (01) originals.

2.3. Payment for the withheld amount in accordance with Sub-Clause 8.4.4

The Owner shall pay the withheld amount, as specified in Sub-Clause 8.4.4, to the Contractor within twenty-eight (28) Working days upon receipt of the following complete documents:

- (i) Application for payment in four (04) originals;
- (ii) The Owner's Certification according to Sub-Clause 8.4.4 in four (04) originals.

APPENDIX 4 - [FORMS OF CONTRACT]**FORM OF BID APPROVAL LETTER AND CONTRACT AWARD**

To: _____, date ____ month ____ year ____
 [insert name and address of the winning bidder] (hereinafter referred to as "Contractors")

About: Notice of approval of E-Bid and awarding of the contract

Pursuant to the Decision No. ____ date ____ month ____ year ____ of _____ [insert name of Owner] (hereinafter referred to as "Owner") on the approval of the result of selection of contractor for package _____ [insert name and number of the bidding package], the Bid Solicitor _____ [insert name of the Owner] (hereinafter referred to as "the Owner") informs: The Owner has approved the Bid and awarded the contract to the Contractor to implement the ____ package [insert the name and number of the bidding package.] with the contract price of _____ [write the winning bid price in the decision approving the contractor selection result] with the time of implementation of the bidding package as ____ [write the time of implementation of the bidding package in the decision approving the contractor selection result].

The legal representative of the Contractor is requested to finalize and sign the contract with the Owner according to the plan as follows:

- Contract completion time: ____ [insert contract completion time];
- At location ____ [insert contract completion location].

This document is an integral part of the contract dossier. After receiving this document, the Contractor shall finalize and sign the contract according to the above provisions. The Owner will refuse to complete and sign a contract with the Contractor in case it is detected that the Contractor's current capacity does not meet the requirements for the implementation of the bidding package.

If until date ____ month ____ year ____, the Contractor fails to finalize and sign the contract or refuses to complete and sign the contract according to the above requirements, the Contractor will be disqualified.

Legal Representative of the Owner
 [insert name, title, signature and seal]

Notes:

In the process of finalizing the contract, the parties must fully fill in and include all contents, including the contents of correction, supplementation and clarification in the process of selecting contractors, negotiating the contract (if any), finalizing the contract (if any), into the specific conditions of the contract to form an electronic contract document.

FORM OF PERFORMANCE BOND

BANK
BRANCH (optional)....

PERFORMANCE BOND

[City-Country], day ... month ... year ...

To: _____ *[write Owner's name]* (hereinafter referred to as the "Owner")

Pursuant to the request of _____ *[insert name of the Contractor]* (hereinafter referred to as the "Contractor"), who has been awarded the bidding package _____ *[insert name of the package]* and has committed to sign a contract to provide the services under the aforementioned package (hereinafter referred to as the "Contract");

Pursuant to the requirement set out in the Bidding Document (or the Contract), the Contractor is required to submit to the Owner a guarantee issued by a bank for a specified amount to ensure its obligations and responsibilities in the performance of the Contract.

We, _____ *[insert name of the bank]*, located in _____ *[insert country or territory]* with registered office at _____ *[insert address of the bank]* (hereinafter referred to as the "Bank"), hereby undertake to guarantee the performance of the Contractor under the Contract in an amount of _____ *[insert amount in figures, in words, and in the currency as specified in Clause ... of the Particular Conditions of Contract in the Bidding Documents]*. We, unconditionally and irrevocably, undertake to pay the Owner any sum up to the maximum amount of _____ *[insert guarantee amount]* upon receipt of the Owner's document requesting the Bank to transfer the performance guarantee amount. Such payment shall be made within no later than five (05) Working days from the date the Bank receives the Owner's first document (as stated in the document). We shall be responsible for transferring the guarantee amount to the account of the Owner as specified in the contract *[Contract Name, Contract Number]* dated *[Contract date]* without the need for any documentation proving a breach of contract between the Contractor and the Owner.

This guarantee shall be valid from the date of issuance until _____ *[insert expiration date]*.

Authorized representative of the Bank

[insert full name, title, signature, and official stamp]

Note:

1. *If the issuing bank requires a signed contract before issuing the guarantee, the relevant paragraph above may be revised as follows:*
"Pursuant to the request of _____ [insert name of the Contractor] (hereinafter referred to as the "Contractor"), who has been awarded the bidding package _____ [insert name of the package] and signed Contract No. ___ dated ___ [insert contract date] (hereinafter referred to as the "Contract")."
2. *Bank address: include full address, telephone number, fax number, and email for contact purposes.*
3. *Validity period: insert a period that complies with the requirements stated in Sub-Clause 1.6.2 [Performance Bond] of the Contract.*

FORM OF ADVANCE PAYMENT BOND

BANK

BRANCH (optional)....*[Country/City], day Month ..., year***ADVANCE PAYMENT BOND****To:** _____ *[write Owner's name]* (hereinafter referred to as the "Owner")Pursuant to the Contract _____ *[Insert contract name, contract number, contract date]*

In accordance with the advance payment clause stated in the specific conditions of the contract, _____ *[Insert name and address of the Contractor]* (hereinafter referred to as the "Contractor") shall submit to the Owner a bank guarantee to ensure that the Contractor uses the advance payment of _____ *[Insert the value in figures, in words, and the currency used]* for the right purpose of executing the contract.

We, _____ *[insert name of the bank]*, located in _____ *[insert country or territory]* with registered office at _____ *[insert address of the bank]* (hereinafter referred to as the "Bank"), hereby undertake on behalf of the Contractor to unconditionally and irrevocably pay to the Owner an amount up to the value of this guarantee, being ... *[Insert the amount in figures, in words, and the currency used]*, no later than five (05) Working days from the date of receiving the first request document from the Owner (as dated on the Owner's document), without the need for any explanation or documentation proving a breach of contract between the Contractor and the Owner. In such case, we shall be responsible for transferring the guarantee amount to the account of the Owner specified in the contract *[Insert contract name, contract number]* dated *[Insert contract date]*.

Furthermore, we agree that any changes, additions, or adjustments to the terms of the contract or any documents related to the contract signed between the Contractor and the Owner shall not alter any of our obligations under this guarantee.

The value of this guarantee will be gradually reduced in proportion to the advance payments that the Owner has recovered through the contract's payment cycles, after the Contractor submits a document confirming the amount recovered by the Owner in the payment cycles.

This guarantee shall be effective from the date of issuance until the ___ day of ___, ___, or until the Owner has recovered the full advance payment, whichever comes first. The validity period of the advance payment guarantee must be extended until the Owner has fully recovered the advance payment."

Authorized representative of the Bank*[insert full name, title, signature, and official stamp]*

FORM OF WARRANTY BOND

BANK

BRANCH (optional)....*[Country/City], day month year***WARRANTY GUARANTEE/ BOND****To:** _____ *[write Owner's name]* (hereinafter referred to as the "Owner")Pursuant to the Contract _____ *[Insert contract name, contract number, contract date]*Whereas the Owner and _____ *[insert contractor's name]*, located at _____ *[insert contractor's address]* (hereinafter referred to as the 'Contractor') have entered into the Contract _____ *[insert contract number, full name of the contract, contract signing date]* (hereinafter referred to as the 'Contract');AND WHEREAS the Owner requires under the Contract that the Contractor provide a warranty guarantee issued by a Bank in the amount of *[insert amount in figures, in words, and currency used]*, to secure the Contractor's warranty obligations under the Contract;We, _____ *[insert name of the bank]*, located in _____ *[insert country or territory]* with registered office at _____ *[insert address of the bank]* (hereinafter referred to as the "Bank"), hereby undertake to guarantee the Contractor's performance of its warranty obligations under the Contract, in the amount of _____ *[Insert amount in figures, in words, and currency used]*. We hereby irrevocably and unconditionally commit to pay the Owner any amount up to _____ *[Insert amount in figures, in words, and currency used]* as stated above, upon receipt of the Owner's first document (as dated on the document issued by the Owner), without the need for any explanation, justification, or supporting documents evidencing any breach of contract by the Contractor, or without the need for any objection or contestation by the Guarantor, the Contractor, or any third party. No later than five (05) Working days from the date of receipt of such document of the Owner, we shall transfer the guaranteed amount into the bank account specified in the Contract No. _____ *[Insert name, number, and date of the Contract]*.This Guarantee shall be valid from the date of issuance until _____ *[Insert the final date of the warranty period under the Contract]* (hereinafter referred to as the "Validity Period").

Upon expiration of the Validity Period, this Guarantee shall become null and void, whether or not it has been returned to the Bank for cancellation, and any demand received by the Bank after the Validity Period shall be deemed invalid.

The Owner shall not assign or transfer this Guarantee in any form whatsoever. This Guarantee shall be governed by and construed in accordance with the laws of the Socialist Republic of Vietnam.

Authorized representative of the Bank*[insert full name, title, signature, and official stamp]*

APPENDIX 5 - [LIST OF SUBCONTRACTORS AND MANUFACTURERS]

To be proposed by the Bidder and both Parties will reach an agreement during the contract negotiation.

APPENDIX 6 - [LIST OF CODE & STANDARDS]

To be proposed by the Bidder and both Parties will reach an agreement during the contract negotiation.

APPENDIX 7 - [LIST OF SPARE PARTS]

To be proposed by the Bidder and both Parties will reach an agreement during the contract negotiation.

APPENDIX 8 - [LIST OF PERMITS AND LICENSES]

To be proposed by the Bidder and both Parties will reach an agreement during the contract negotiation.

APPENDIX 9 - [SCHEDULE LEVEL 2]

To be proposed by the Bidder and both Parties will reach an agreement during the contract negotiation.

**APPENDIX 10 - [SCHEDULE OF ENGINEERING DOCUMENTS AND
SUBMISSION DATES]**

To be proposed by the Bidder and both Parties will reach an agreement during the contract negotiation.

APPENDIX 11 - [QUALITY CONTROL PROCEDURE]

To be proposed by the Bidder and both Parties will reach an agreement during the contract negotiation.

APPENDIX 12 - PERFORMANCE GUARANTEES FOR WATER TREATMENT PLANT

- Guarantee Conditions Operation Mode - TMCR, 100%; Fuel - Design coal; Temperature of air =26.7 C; Moisture of air = 84%; Design coal (max. total moisture 26%).

- Hau river analysis: please refer to section I.4 [Introduction of package] of Chapter V

(i) For quality guarantees of Water after River-Water Pre-treatment System

TREATED WATER QUALITY AFTER PRE-TREATMENT			
Parameter	Units	Clarifier(s)	Gravity sand filter(s)
Total Suspended Solids	mg/l	15 (nor.)	2 (nor.)
		20 (max.)	3 (max.)
Turbidity	NTU	15 (nor.)	2 (nor.)
		20 (max.)	3 (max.)
Iron as iron	mg/l	<0.3 (max.)	<0.3 (max.)
Total available chlorine	mg/l	0.5 (nor.)	0.5 (nor.)

Note: Further to above, the quality of treated water shall be suitable in respect of oil & grease, barium, heavy metals and TOC as a feed to Activated Carbon Filters / Ultrafiltration Units / Reverse osmosis Units included under Desalination RO and Potable Water Treatment System.

(ii) Flow rate guarantees for River Water Pre-treatment System

Item	Values
1. Dissolved Air Flotation (DAF) Units	
1.1 Net output capacity for each DAF at rated condition (m ³ /h)	460
2. Solid Contact Clarifier	
2.1 Net output capacity for each Clarifier at rated condition (m ³ /h)	810
2.2 Net output capacity for each Clarifier at overflow condition (m ³ /h)	972
3. Gravity Sand Filter	
3.1 Net output capacity for each Filter at rated condition (m ³ /h)	452

(iii) For quality guarantees of Water after passing Desalination RO 1^o System

TREATED WATER QUALITY AFTER DESALINATION SYSTEM			
No.	Item	Unit	Value
1.	Silt Density Index of permeate from Ultra filtration System	@ 15 minutes	<2.0
2.	TDS of permeate from Desalination RO System (at highest temperature)	mg/L	<500

Note: Further to above, the treated water quality shall be suitable as a feed to RO Units of Demineralization RO System

(iv) Flow rate guarantees of Desalination RO 1^o System and Potable Water System

Item	Values
1. Activated Carbon Filter for Desalination RO 1^o System	
1.1 Rated continuous treated water output capacity (m ³ /h)	105
1.2 Free Chlorine content of treated water (mg/l)	0,5
2. Ultrafiltration (UF) Skid	
2.1 Net output from each skid (m ³ /h)	150
2.2 System Recovery (%)	90
3. Desalination RO Skid	
3.1 Net permeate flow of each skid (m ³ /h)	120
3.2 System Recovery (%)	75
4. Activated Carbon Filter for Potable Water Treatment System	
4.1 Rated continuous treated water output capacity (m ³ /h)	15
4.2 Max Free Chlorine content of treated water (mg/l)	0,3

(v) For quality guarantees of DM Water after CEDI module serving for Boiler & Steam Turbine:

Parameters	ppb as ion
NH ₄	N/A
K	< 1
Na	2
Mg	< 1
Ca	< 1
Sr	N/A
Ba	N/A
Fe	< 10
Cu	< 2
Al	N/A
Mn	N/A
CO ₃	< 1
HCO ₃	5
NO ₃	1
Cl	1
F	< 1

Parameters	ppb as ion
SO ₄	< 1
B	0,3
SiO ₂	< 5
CO ₂	3
pH	6-8
Conductivity at 25 ⁰ C (μS/cm)	< 0,1
At Maximum Temperature 32,4 ⁰ C	

(vi) Flow rate guarantees for Demineralization RO 2^o

Item	Values
1. Demineralization RO Skid	
1.1 Net permeate flow of each Skid (m ³ /h)	85
1.2 System Recovery (%)	85
2. CEDI Skid	
2.1 Net output from each skid (m ³ /h)	75
2.2 System Recovery (%)	93

(vii) For Power Consumption, please refer following table:

Guarantee for Auxiliary Power Consumption for each Pump/Equipment supplied by Bidder	Values
Raw Water Intake Pumps (4 Pumps)	65kW/Pump
Raw Water Forwarding Pumps (4 Pumps)	75kW/Pump
Sludge Disposal Pumps for River Water Pre-treatment (2 Pumps) (A) ¹	11kW/Pump
Ultra-filtration Feed Pumps (3 Pumps) (Desalination RO) (A) ²	37kW/Pump
Air fans for De-gasser tower (2 fans) (Desalination RO) (A) ³	2,2 kW/Fan
Desalinated water for ion-exchange resin regeneration pumps 10GCP41AP001, 10GCP42AP001 (Desalination RO) (2 pumps) (A) ⁴	30kW/Pump
Fresh Water Transfer Pumps (in case of supply by Bidder) (A) ⁵ (2 pumps)	22kW/Pump

(v) For capacity of pumps and tanks supplied by Bidder, please refer minimum capacity in [Attachment #0 Technical Datasheet] of Chapter V.

(vi) Noise level: 85 dbA at 1m of equipment

¹ Please see section II.2 Detailed Scope of Work

² Please see section II.2 Detailed Scope of Work

³ Please see section II.2 Detailed Scope of Work

⁴ Please see section II.2 Detailed Scope of Work

⁵ Please see section II.2 Detailed Scope of Work