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INVITATION TO BID

Construction of Leachate Balancing Pond and Balancing Pump/Back Spraying System

ITB No.: UNDP-TUR-ITB(MC2)-2019/07

Project: Turkey Resilience Project in Response to the Syria Crisis; Municipal Service Delivery

Country: Turkey

Issued on: 22 July 2019

Contents

SECTION 1. LETTER OF INVITATION

The United Nations Development Programme (UNDP) hereby invites you to submit a Bid to this Invitation to Bid (ITB) for the above-referenced subject.

This ITB includes the following documents and the General Terms and Conditions of Contract which is inserted in the Bid Data Sheet:

Section 1: This Letter of Invitation
Section 2: Instruction to Bidders
Section 3: Bid Data Sheet (BDS)
Section 4: Evaluation Criteria
Section 5: Schedule of Requirements and Technical Specifications
Section 6: Returnable Bidding Forms

- Form A: Bid Submission Form
- Form B: Bidder Information Form
- Form C: Joint Venture/Consortium/Association Information Form
- Form D: Qualification Form
- Form E: Format of Technical Bid
- Form F: Price Schedule/Bill of Quantities
- Form G: Form of Bid Security

If you are interested in submitting a Bid in response to this ITB, please prepare your Bid in accordance with the requirements and procedure as set out in this ITB and submit it by the Deadline for Submission of Bids set out in Bid Data Sheet.

Please acknowledge receipt of this ITB by sending an email to tr.procurement@undp.org, indicating whether you intend to submit a Bid or otherwise. You may also utilize the "Accept Invitation" function in eTendering system, where applicable. This will enable you to receive amendments or updates to the ITB. Should you require further clarifications, kindly communicate with the contact person/s identified in the attached Data Sheet as the focal point for queries on this ITB.

UNDP looks forward to receiving your Bid and thank you in advance for your interest in UNDP procurement opportunities.

Issued by

Name: Ersin Dağdur
Title: Procurement Officer
Date: **July 22, 2019**

Approved by:

Name: Sukhrob Khojimatov
Title: Deputy Resident Representative
Date: **July 22, 2019**

SECTION 2. INSTRUCTION TO BIDDERS

GENERAL PROVISIONS	
1. Introduction	1.1 Bidders shall adhere to all the requirements of this ITB, including any amendments made in writing by UNDP. This ITB is conducted in accordance with the UNDP Programme and Operations Policies and Procedures (POPP) on Contracts and Procurement which can be accessed at https://popp.undp.org/SitePages/POPPBSUnit.aspx?TermID=254a9f96-b883-476a-8ef8-e81f93a2b38d 1.2 Any Bid submitted will be regarded as an offer by the Bidder and does not constitute or imply the acceptance of the Bid by UNDP. UNDP is under no obligation to award a contract to any Bidder as a result of this ITB. 1.3 UNDP reserves the right to cancel the procurement process at any stage without any liability of any kind for UNDP, upon notice to the bidders or publication of cancellation notice on UNDP website. 1.4 As part of the bid, it is desired that the Bidder registers at the United Nations Global Marketplace (UNGM) website (www.ungm.org). The Bidder may still submit a bid even if not registered with the UNGM. However, if the Bidder is selected for contract award, the Bidder must register on the UNGM prior to contract signature.
2. Fraud & Corruption, Gifts and Hospitality	2.1 UNDP strictly enforces a policy of zero tolerance on proscribed practices, including fraud, corruption, collusion, unethical or unprofessional practices, and obstruction of UNDP vendors and requires all bidders/vendors observe the highest standard of ethics during the procurement process and contract implementation. UNDP's Anti-Fraud Policy can be found at http://www.undp.org/content/undp/en/home/operations/accountability/audit/office_of_audit_andinvestigation.html#anti 2.2 Bidders/vendors shall not offer gifts or hospitality of any kind to UNDP staff members including recreational trips to sporting or cultural events, theme parks or offers of holidays, transportation, or invitations to extravagant lunches or dinners. 2.3 In pursuance of this policy, UNDP: (a) Shall reject a bid if it determines that the selected bidder has engaged in any corrupt or fraudulent practices in competing for the contract in question; (b) Shall declare a vendor ineligible, either indefinitely or for a stated period, to be awarded a contract if at any time it determines that the vendor has engaged in any corrupt or fraudulent practices in competing for, or in executing a UNDP contract. 2.4 All Bidders must adhere to the UN Supplier Code of Conduct, which may be found at http://www.un.org/depts/ptd/pdf/conduct_english.pdf
3. Eligibility	3.1 A vendor should not be suspended, debarred, or otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization. Vendors are therefore required to disclose to UNDP whether they are subject to any sanction or temporary suspension imposed by these organizations. 3.2 It is the Bidder's responsibility to ensure that its employees, joint venture members, sub-contractors, service providers, suppliers and/or their employees meet the eligibility requirements as established by UNDP.

4. Conflict of Interests	4.1 Bidders must strictly avoid conflicts with other assignments or their own interests, and act without consideration for future work. Bidders found to have a conflict of interest shall be disqualified. Without limitation on the generality of the above, Bidders, and any of their affiliates, shall be considered to have a conflict of interest with one or more parties in this solicitation process, if they: a) Are or have been associated in the past, with a firm or any of its affiliates which have been engaged by UNDP to provide services for the preparation of the design, specifications, Terms of Reference, cost analysis/estimation, and other documents to be used for the procurement of the goods and services in this selection process; b) Were involved in the preparation and/or design of the programme/project related to the goods and/or services requested under this ITB; or c) Are found to be in conflict for any other reason, as may be established by, or at the discretion of UNDP. 4.2 In the event of any uncertainty in the interpretation of a potential conflict of interest, Bidders must disclose to UNDP, and seek UNDP's confirmation on whether or not such conflict exists. 4.3 Similarly, the Bidders must disclose in their Bid their knowledge of the following: a) If the owners, part-owners, officers, directors, controlling shareholders, of the bidding entity or key personnel who are family members of UNDP staff involved in the procurement functions and/or the Government of the country or any Implementing Partner receiving goods and/or services under this ITB; and b) All other circumstances that could potentially lead to actual or perceived conflict of interest, collusion or unfair competition practices. Failure to disclose such an information may result in the rejection of the Bid or Bids affected by the non-disclosure. 4.4 The eligibility of Bidders that are wholly or partly owned by the Government shall be subject to UNDP's further evaluation and review of various factors such as being registered, operated and managed as an independent business entity, the extent of Government ownership/share, receipt of subsidies, mandate and access to information in relation to this ITB, among others. Conditions that may lead to undue advantage against other Bidders may result in the eventual rejection of the Bid.
B. PREPARATION OF BIDS	
5. General Considerations	5.1 In preparing the Bid, the Bidder is expected to examine the ITB in detail. Material deficiencies in providing the information requested in the ITB may result in rejection of the Bid. 5.2 The Bidder will not be permitted to take advantage of any errors or omissions in the ITB. Should such errors or omissions be discovered, the Bidder must notify the UNDP accordingly.
6. Cost of Preparation of Bid	6.1 The Bidder shall bear all costs related to the preparation and/or submission of the Bid, regardless of whether its Bid is selected or not. UNDP shall not be responsible or liable for those costs, regardless of the conduct or outcome of the procurement process.
7. Language	7.1 The Bid, as well as any and all related correspondence exchanged by the Bidder and UNDP, shall be written in the language (s) specified in the BDS.

8. Documents Comprising the Bid	8.1 The Bid shall comprise of the following documents and related forms which details are provided in the BDS: a) Documents Establishing the Eligibility and Qualifications of the Bidder; b) Technical Bid; c) Price Schedule; d) Bid Security, if required by BDS; e) Any attachments and/or appendices to the Bid.
9. Documents Establishing the Eligibility and Qualifications of the Bidder	9.1 The Bidder shall furnish documentary evidence of its status as an eligible and qualified vendor, using the Forms provided under Section 6 and providing documents required in those forms. In order to award a contract to a Bidder, its qualifications must be documented to UNDP's satisfaction.
10. Technical Bid Format and Content	10.1 The Bidder is required to submit a Technical Bid using the Standard Forms and templates provided in Section 6 of the ITB. 10.2 Samples of items, when required as per Section 5, shall be provided within the time specified and unless otherwise specified by the Purchaser, at no expense to the UNDP. If not destroyed by testing, samples will be returned at Bidder's request and expense, unless otherwise specified. 10.3 When applicable and required as per Section 5, the Bidder shall describe the necessary training programme available for the maintenance and operation of the equipment offered as well as the cost to the UNDP. Unless otherwise specified, such training as well as training materials shall be provided in the language of the Bid as specified in the BDS. 10.4 When applicable and required as per Section 5, the Bidder shall certify the availability of spare parts for a period of at least five (5) years from date of delivery, or as otherwise specified in this ITB.
11. Price Schedule	11.1 The Price Schedule shall be prepared using the Form provided in Section 6 of the ITB and taking into consideration the requirements in the ITB. 11.2 Any requirement described in the Technical Bid but not priced in the Price Schedule, shall be assumed to be included in the prices of other activities or items, as well as in the final total price.
12. Bid Security	12.1 A Bid Security, if required by BDS, shall be provided in the amount and form indicated in the BDS. The Bid Security shall be valid for a minimum of thirty (30) days after the final date of validity of the Bid. 12.2 The Bid Security shall be included along with the Bid. If Bid Security is required by the ITB but is not found in the Bid, the offer shall be rejected. 12.3 If the Bid Security amount or its validity period is found to be less than what is required by UNDP, UNDP shall reject the Bid. 12.4 In the event an electronic submission is allowed in the BDS, Bidders shall include a copy of the Bid Security in their bid and the original of the Bid Security must be sent via courier or hand delivery as per the instructions in BDS. 12.5 The Bid Security may be forfeited by UNDP, and the Bid rejected, in the event of any, or combination, of the following conditions: a) If the Bidder withdraws its offer during the period of the Bid Validity specified in the BDS, or; b) In the event the successful Bidder fails: i. to sign the Contract after UNDP has issued an award; or

	ii. to furnish the Performance Security, insurances, or other documents that UNDP may require as a condition precedent to the effectivity of the contract that may be awarded to the Bidder.
13. Currencies	13.1 All prices shall be quoted in the currency or currencies indicated in the BDS. Where Bids are quoted in different currencies, for the purposes of comparison of all Bids: a) UNDP will convert the currency quoted in the Bid into the UNDP preferred currency, in accordance with the prevailing UN operational rate of exchange on the last day of submission of Bids; and b) In the event that UNDP selects a Bid for award that is quoted in a currency different from the preferred currency in the BDS, UNDP shall reserve the right to award the contract in the currency of UNDP's preference, using the conversion method specified above.
14. Joint Venture, Consortium or Association	14.1 If the Bidder is a group of legal entities that will form or have formed a Joint Venture (JV), Consortium or Association for the Bid, they shall confirm in their Bid that : (i) they have designated one party to act as a lead entity, duly vested with authority to legally bind the members of the JV, Consortium or Association jointly and severally, which shall be evidenced by a duly notarized Agreement among the legal entities, and submitted with the Bid; and (ii) if they are awarded the contract, the contract shall be entered into, by and between UNDP and the designated lead entity, who shall be acting for and on behalf of all the member entities comprising the joint venture. 14.2 After the Deadline for Submission of Bid, the lead entity identified to represent the JV, Consortium or Association shall not be altered without the prior written consent of UNDP. 14.3 The lead entity and the member entities of the JV, Consortium or Association shall abide by the provisions of Clause 9 herein in respect of submitting only one Bid. 14.4 The description of the organization of the JV, Consortium or Association must clearly define the expected role of each of the entities in the joint venture in delivering the requirements of the ITB, both in the Bid and the JV, Consortium or Association Agreement. All entities that comprise the JV, Consortium or Association shall be subject to the eligibility and qualification assessment by UNDP. 14.5 A JV, Consortium or Association in presenting its track record and experience should clearly differentiate between: a) Those that were undertaken together by the JV, Consortium or Association; and b) Those that were undertaken by the individual entities of the JV, Consortium or Association. 14.6 Previous contracts completed by individual experts working privately but who are permanently or were temporarily associated with any of the member firms cannot be claimed as the experience of the JV, Consortium or Association or those of its members, but should only be claimed by the individual experts themselves in their presentation of their individual credentials 14.7 JV, Consortium or Associations are encouraged for high value, multi-sectoral requirements when the spectrum of expertise and resources required may not be available within one firm.
15. Only One Bid	15.1 The Bidder (including the individual members of any Joint Venture) shall submit

	only one Bid, either in its own name or as part of a Joint Venture. 15.2 Bids submitted by two (2) or more Bidders shall all be rejected if they are found to have any of the following: a) they have at least one controlling partner, director or shareholder in common; or b) any one of them receive or have received any direct or indirect subsidy from the other/s; or c) they have the same legal representative for purposes of this ITB; or d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about, or influence on the Bid of another Bidder regarding this ITB process; e) they are subcontractors to each other's Bid, or a subcontractor to one Bid also submits another Bid under its name as lead Bidder; or some key personnel proposed to be in the team of one Bidder participates in more than one Bid received for this ITB process. This condition relating to the personnel, does not apply to subcontractors being included in more than one Bid.
16. Bid Validity Period	16.1 Bids shall remain valid for the period specified in the BDS, commencing on the Deadline for Submission of Bids. A Bid valid for a shorter period may be rejected by UNDP and rendered non-responsive. 16.2 During the Bid validity period, the Bidder shall maintain its original Bid without any change, including the availability of the Key Personnel, the proposed rates and the total price.
17. Extension of Bid Validity Period	17.1 In exceptional circumstances, prior to the expiration of the Bid validity period, UNDP may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing and shall be considered integral to the Bid. 17.2 If the Bidder agrees to extend the validity of its Bid, it shall be done without any change to the original Bid. 17.3 The Bidder has the right to refuse to extend the validity of its Bid, in which case, the Bid shall not be further evaluated.
18. Clarification of Bid (from the Bidders)	18.1 Bidders may request clarifications on any of the ITB documents no later than the date indicated in the BDS. Any request for clarification must be sent in writing in the manner indicated in the BDS. If inquiries are sent other than specified channel, even if they are sent to a UNDP staff member, UNDP shall have no obligation to respond or confirm that the query was officially received. 18.2 UNDP will provide the responses to clarifications through the method specified in the BDS. 18.3 UNDP shall endeavour to provide responses to clarifications in an expeditious manner, but any delay in such response shall not cause an obligation on the part of UNDP to extend the submission date of the Bids, unless UNDP deems that such an extension is justified and necessary.
19. Amendment of Bids	19.1 At any time prior to the deadline of Bid submission, UNDP may for any reason, such as in response to a clarification requested by a Bidder, modify the ITB in the form of an amendment to the ITB. Amendments will be made available to all prospective bidders. 19.2 If the amendment is substantial, UNDP may extend the Deadline for submission of Bid to give the Bidders reasonable time to incorporate the amendment into their Bids.

20. Alternative Bids	20.1 Unless otherwise specified in the BDS, alternative Bids shall not be considered. If submission of alternative Bid is allowed by BDS, a Bidder may submit an alternative Bid, but only if it also submits a Bid conforming to the ITB requirements. Where the conditions for its acceptance are met, or justifications are clearly established, UNDP reserves the right to award a contract based on an alternative Bid. 20.2 If multiple/alternative bids are being submitted, they must be clearly marked as "Main Bid" and "Alternative Bid"
21. Pre-Bid Conference	21.1 When appropriate, a pre-bid conference will be conducted at the date, time and location specified in the BDS. All Bidders are encouraged to attend. Non-attendance, however, shall not result in disqualification of an interested Bidder. Minutes of the Bidder's conference will be disseminated on the procurement website and shared by email or on the e-Tendering platform as specified in the BDS. No verbal statement made during the conference shall modify the terms and conditions of the ITB, unless specifically incorporated in the Minutes of the Bidder's Conference or issued/posted as an amendment to ITB.
C. SUBMISSION AND OPENING OF BIDS	
22. Submission	22.1 The Bidder shall submit a duly signed and complete Bid comprising the documents and forms in accordance with requirements in the BDS. The Price Schedule shall be submitted together with the Technical Bid. Bid can be delivered either personally, by courier, or by electronic method of transmission as specified in the BDS. 22.2 The Bid shall be signed by the Bidder or person(s) duly authorized to commit the Bidder. The authorization shall be communicated through a document evidencing such authorization issued by the legal representative of the bidding entity, or a Power of Attorney, accompanying the Bid. 22.3 Bidders must be aware that the mere act of submission of a Bid, in and of itself, implies that the Bidder fully accepts the UNDP General Contract Terms and Conditions.
Hard copy (manual) submission	22.4 Hard copy (manual) submission by courier or hand delivery allowed or specified in the BDS shall be governed as follows: a) The signed Bid shall be marked "Original", and its copies marked "Copy" as appropriate. The number of copies is indicated in the BDS. All copies shall be made from the signed original only. If there are discrepancies between the original and the copies, the original shall prevail. (b) The Technical Bid and Price Schedule must be sealed and submitted together in an envelope, which shall: i. Bear the name of the Bidder; ii. Be addressed to UNDP as specified in the BDS; and iii. Bear a warning not to open before the time and date for Bid opening as specified in the BDS. If the envelope with the Bid is not sealed and marked as required, UNDP shall assume no responsibility for the misplacement, loss, or premature opening of the Bid.
Email and eTendering submissions	22.5 Electronic submission through email or eTendering, if allowed as specified in the BDS, shall be governed as follows: a) Electronic files that form part of the Bid must be in accordance with the format and requirements indicated in BDS;

	b) Documents which are required to be in original form (e.g. Bid Security, etc.) must be sent via courier or hand delivered as per the instructions in BDS. 22.6 Detailed instructions on how to submit, modify or cancel a bid in the eTendering system are provided in the eTendering system Bidder User Guide and Instructional videos available on this link: http://www.undp.org/content/undp/en/home/operations/procurement/business/procurement-notices/resources/
23. Deadline for Submission of Bids and Late Bids	23.1 Complete Bids must be received by UNDP in the manner, and no later than the date and time, specified in the BDS. UNDP shall only recognise the actual date and time that the bid was received by UNDP 23.2 UNDP shall not consider any Bid that is received after the deadline for the submission of Bids.
24. Withdrawal, Substitution, and Modification of Bids	24.1 A Bidder may withdraw, substitute or modify its Bid after it has been submitted at any time prior to the deadline for submission. 24.2 Manual and Email submissions: A bidder may withdraw, substitute or modify its Bid by sending a written notice to UNDP, duly signed by an authorized representative, and shall include a copy of the authorization (or a Power of Attorney). The corresponding substitution or modification of the Bid, if any, must accompany the respective written notice. All notices must be submitted in the same manner as specified for submission of Bids, by clearly marking them as "WITHDRAWAL" "SUBSTITUTION," or "MODIFICATION" 24.3 eTendering: A Bidder may withdraw, substitute or modify its Bid by Cancelling, Editing, and re-submitting the Bid directly in the system. It is the responsibility of the Bidder to properly follow the system instructions, duly edit and submit a substitution or modification of the Bid as needed. Detailed instructions on how to cancel or modify a Bid directly in the system are provided in the Bidder User Guide and Instructional videos. 24.4 Bids requested to be withdrawn shall be returned unopened to the Bidders (only for manual submissions), except if the bid is withdrawn after the bid has been opened.
25. Bid Opening	25.1 UNDP will open the Bid in the presence of an ad-hoc committee formed by UNDP of at least two (2) members. 25.2 The Bidders' names, modifications, withdrawals, the condition of the envelope labels/seals, the number of folders/files and all other such other details as UNDP may consider appropriate, will be announced at the opening. No Bid shall be rejected at the opening stage, except for late submissions, in which case, the Bid shall be returned unopened to the Bidders. 25.3 In the case of e-Tendering submission, bidders will receive an automatic notification once the Bid is opened.
D. EVALUATION OF BIDS	
26. Confidentiality	26.1 Information relating to the examination, evaluation, and comparison of Bids, and the recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process, even after publication of the contract award. 26.2 Any effort by a Bidder or anyone on behalf of the Bidder to influence UNDP in the examination, evaluation and comparison of the Bids or contract award decisions may, at UNDP's decision, result in the rejection of its Bid and may subsequently be subject to the application of prevailing UNDP's vendor

	sanctions procedures.
27. Evaluation of Bids	27.1 UNDP will conduct the evaluation solely on the basis of the Bids received. 27.2 Evaluation of Bids shall be undertaken in the following steps: a) Preliminary Examination including Eligibility b) Arithmetical check and ranking of bidders who passed preliminary examination by price. c) Qualification assessment (if pre-qualification was not done) a) Evaluation of Technical Bids b) Evaluation of prices Detailed evaluation will be focussed on the 3 - 5 lowest priced bids. Further higher priced bids shall be added for evaluation if necessary
28. Preliminary Examination	28.1 UNDP shall examine the Bids to determine whether they are complete with respect to minimum documentary requirements, whether the documents have been properly signed, and whether the Bids are generally in order, among other indicators that may be used at this stage. UNDP reserves the right to reject any Bid at this stage.
29. Evaluation of Eligibility and Qualification	29.1 Eligibility and Qualification of the Bidder will be evaluated against the Minimum Eligibility/Qualification requirements specified in the Section 4 (Evaluation Criteria). 29.2 In general terms, vendors that meet the following criteria may be considered qualified: a) They are not included in the UN Security Council 1267/1989 Committee's list of terrorists and terrorist financiers, and in UNDP's ineligible vendors' list; b) They have a good financial standing and have access to adequate financial resources to perform the contract and all existing commercial commitments, c) They have the necessary similar experience, technical expertise, production capacity, quality certifications, quality assurance procedures and other resources applicable to the supply of goods and/or services required; d) They are able to comply fully with the UNDP General Terms and Conditions of Contract; e) They do not have a consistent history of court/arbitral award decisions against the Bidder; and f) They have a record of timely and satisfactory performance with their clients.
30. Evaluation of Technical Bid and prices	30.1 The evaluation team shall review and evaluate the Technical Bids on the basis of their responsiveness to the Schedule of Requirements and Technical Specifications and other documentation provided, applying the procedure indicated in the BDS and other ITB documents. When necessary, and if stated in the BDS, UNDP may invite technically responsive bidders for a presentation related to their technical Bids. The conditions for the presentation shall be provided in the bid document where required.
31. Due diligence	31.1 UNDP reserves the right to undertake a due diligence exercise, aimed at determining to its satisfaction, the validity of the information provided by the Bidder. Such exercise shall be fully documented and may include, but need not be limited to, all or any combination of the following: a) Verification of accuracy, correctness and authenticity of information provided by the Bidder; b) Validation of extent of compliance to the ITB requirements and evaluation criteria based on what has so far been found by the evaluation team; c) Inquiry and reference checking with Government entities with jurisdiction on the Bidder, or with previous clients, or any other entity that may have

	done business with the Bidder; d) Inquiry and reference checking with previous clients on the performance on on-going or completed contracts, including physical inspections of previous works, as deemed necessary; e) Physical inspection of the Bidder's offices, branches or other places where business transpires, with or without notice to the Bidder; f) Other means that UNDP may deem appropriate, at any stage within the selection process, prior to awarding the contract.
32. Clarification of Bids	32.1 To assist in the examination, evaluation and comparison of Bids, UNDP may, at its discretion, request any Bidder for a clarification of its Bid. 32.2 UNDP's request for clarification and the response shall be in writing and no change in the prices or substance of the Bid shall be sought, offered, or permitted, except to provide clarification, and confirm the correction of any arithmetic errors discovered by UNDP in the evaluation of the Bids, in accordance with the ITB. 32.3 Any unsolicited clarification submitted by a Bidder in respect to its Bid, which is not a response to a request by UNDP, shall not be considered during the review and evaluation of the Bids.
33. Responsiveness of Bid	33.1 UNDP's determination of a Bid's responsiveness will be based on the contents of the bid itself. A substantially responsive Bid is one that conforms to all the terms, conditions, specifications and other requirements of the ITB without material deviation, reservation, or omission. 33.2 If a bid is not substantially responsive, it shall be rejected by UNDP and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.
34. Nonconformities, Reparable Errors and Omissions	34.1 Provided that a Bid is substantially responsive, UNDP may waive any non-conformities or omissions in the Bid that, in the opinion of UNDP, do not constitute a material deviation. 34.2 UNDP may request the Bidder to submit the necessary information or documentation, within a reasonable period, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid. 34.3 For the bids that have passed the preliminary examination, UNDP shall check and correct arithmetical errors as follows: a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of UNDP there is an obvious misplacement of the decimal point in the unit price; in which case, the line item total as quoted shall govern and the unit price shall be corrected; b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail, and the total shall be corrected; and c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail. 34.4 If the Bidder does not accept the correction of errors made by UNDP, its Bid shall be rejected.

E. AWARD OF CONTRACT		
35. Right to Accept, Reject, Any or All Bids	35.1	UNDP reserves the right to accept or reject any bid, to render any or all of the bids as non-responsive, and to reject all Bids at any time prior to award of contract, without incurring any liability, or obligation to inform the affected Bidder(s) of the grounds for UNDP's action. UNDP shall not be obliged to award the contract to the lowest priced offer.
36. Award Criteria	36.1	Prior to expiration of the period of Bid validity, UNDP shall award the contract to the qualified and eligible Bidder that is found to be responsive to the requirements of the Schedule of Requirements and Technical Specification and has offered the lowest price.
37. Debriefing	37.1	In the event that a Bidder is unsuccessful, the Bidder may request for a debriefing from UNDP. The purpose of the debriefing is to discuss the strengths and weaknesses of the Bidder's submission, in order to assist the Bidder in improving its future Bids for UNDP procurement opportunities. The content of other Bids and how they compare to the Bidder's submission shall not be discussed.
38. Right to Vary Requirements at the Time of Award	38.1	At the time of award of Contract, UNDP reserves the right to vary the quantity of goods and/or services, by up to a maximum twenty-five per cent (25%) of the total offer, without any change in the unit price or other terms and conditions.
39. Contract Signature	39.1	Within fifteen (15) days from the date of receipt of the award letter, the successful Bidder shall sign the Contract. Failure to do so may constitute sufficient grounds for the annulment of the award, and forfeiture of the Bid Security, if any, and on which event, UNDP may award the Contract to the Second highest rated or call for new Bids.
40. Contract Type and General Terms and Conditions	40.1	The types of Contract to be signed and the applicable UNDP Contract General Terms and Conditions, as specified in BDS, can be accessed at http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html
41. Performance Security	41.1	A performance security, if required in the BDS, shall be provided in the amount specified in BDS and form available at https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Solicitation_Performance%20Guarantee%20Form.docx&action=default within a maximum of fifteen (15) days of the contract signature by both parties. Where a performance security is required, the receipt of the performance security by UNDP shall be a condition for rendering the contract effective.
42. Bank Guarantee for Advanced Payment	42.1	Except when the interests of UNDP so require, it is UNDP's standard practice to not make advance payment(s) (i.e., payments without having received any outputs). If an advance payment is allowed as per the BDS, and exceeds 20% of the total contract price, or USD 30,000, whichever is less, the Bidder shall submit a Bank Guarantee in the full amount of the advance payment in the form available at https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Contract%20Management%20Payment%20and%20Taxes_Advanced%20Payment%20Guarantee%20Form.docx&action=default
43. Liquidated Damages	43.1	If specified in the BDS, UNDP shall apply Liquidated Damages for the damages and/or risks caused to UNDP resulting from the Contractor's delays or breach of

		its obligations as per Contract.
44. Payment Provisions	44.1	Payment will be made only upon UNDP's acceptance of the goods and/or services performed. The terms of payment shall be within thirty (30) days, after receipt of invoice and certification of acceptance of goods and/or services issued by the proper authority in UNDP with direct supervision of the Contractor. Payment will be affected by bank transfer in the currency of the contract.
45. Vendor Protest	45.1	UNDP's vendor protest procedure provides an opportunity for appeal to those persons or firms not awarded a contract through a competitive procurement process. In the event that a Bidder believes that it was not treated fairly, the following link provides further details regarding UNDP vendor protest procedures: http://www.undp.org/content/undp/en/home/procurement/business/protest-and-sanctions.html
46. Other Provisions	46.1	In the event that the Bidder offers a lower price to the host Government (e.g. General Services Administration (GSA) of the federal government of the United States of America) for similar goods and/or services, UNDP shall be entitled to the same lower price. The UNDP General Terms and Conditions shall have precedence.
	46.2	UNDP is entitled to receive the same pricing offered by the same Contractor in contracts with the United Nations and/or its Agencies. The UNDP General Terms and Conditions shall have precedence.
	46.3	The United Nations has established restrictions on employment of (former) UN staff who have been involved in the procurement process as per bulletin ST/SGB/2006/15 http://www.un.org/en/ga/search/view_doc.asp?symbol=ST/SGB/2006/15&referer

SECTION 3. BID DATA SHEET

The following data for the civil works to be procured shall complement, supplement, or amend the provisions in the Invitation to Bid In the case of a conflict between the Instructions to Bidders, the Bid Data Sheet, and other annexes or references attached to the Bid Data Sheet, the provisions in the Bid Data Sheet shall prevail**.**

BDS No.	Ref. to Section.2	Data	Specific Instructions / Requirements
1	7	Language of the Bid	English
2		Submitting Bids for Parts or sub-parts of the Schedule of Requirements (partial bids)	Not allowed.
3	20	Alternative Bids	Shall not be considered
4	21	Pre-Bid conference	Will be Conducted Time: 10:00 am (GMT +3, Local time-Turkey) Date: August 20, 2019 Venue: Kilis Wastewater Treatment Plant, Kilis Atık Su Arıtm İnanlı Köyü/Kilis Merkez/Kilis Turkey Following the pre-bid conference, site visit will also be conducted with the participants of the pre-bid conference in order to examine the Site of Work and its surroundings. Bidders are strongly advised to participate the pre-bid conference and site visits to obtain information that may be necessary for preparing the bid. The costs of participation to pre-bid conference and site visit are at the bidder's own expense. The UNDP focal point for the arrangement is: Ersin Dağdur E-mail: ersin.dagdur@undp.org
5	16	Bid Validity Period	90 days starting from the submission deadline
6	12	Bid Security	For Lot 1; Required in the amount of USD 3,000 Acceptable Forms of Bid Security ▪ Bank Guarantee (See Section 6; Form G for template) Bid Securities will be returned to all bidders upon signature of contract with the successful Bidder.
7	42	Advanced Payment upon signing of contract	Not allowed.

8	43	Liquidated Damages	Will be imposed as follows: Percentage of contract price per week of delay: 2 % Max. number of weeks of delay is 5, after which UNDP may terminate the contract.
9	41	Performance Security	The successful bidder will be asked to provide a performance security of 10% of the amount of the contract at the signing of the contract. This security must be provided no later than 15 days after the bidder receives the award letter by the UNDP. If the selected bidder fails to provide such a security within this period, the awaed letter will be void and a new award letter may be drawn up and sent to the bidder which has submitted the next cheapest compliant tender. The Performance Security must be issued by an accredited bank, in the format included in Appendix I to UNDP General Conditions of Contract for Civil Works and must be valid up to twenty-eight days after issuance of the Certificate of Final Completion. The Performance Security will only be released upon the issuance of Certificate of Final Completion in accordance with the Clause 10 of the UNDP General Conditions of Contract for Civil Works.
10	13	Currency of Bid	United States Dollar
11	18	Deadline for submitting requests for clarifications/ questions	7 days before the submission deadline
12	18	Contact Details for submitting clarifications/questions	Focal Person in UNDP: Ersin Dagdur Address: Yıldız Kule, Yukarı Dikmen Mah. Turan Güneş Blv. No:106 06550, Çankaya/Ankara Turkey E-mail address: tr.procurement@undp.org
13	18, 19 and 21	Manner of Disseminating Supplemental Information to the ITB and responses/clarifications to queries	Direct communication to prospective Proposers who have submitted their intention to submit a proposal, by email and Posting on the websites; www.tr.undp.org www.undp.org www.ungm.org www.devbusiness.com
14	23	Deadline for Physical Submission of Bids to UNDP Premises at 16th floor of Yıldız Kule	August 26, 2019; 2:00 pm (GMT +3, Local time-Turkey)
15	22	Allowable Manner of Submitting Bids	Courier/Hand Delivery The bidders shall make all arrangements and controls to ensure that their bidders are physically delivered to UNDP, address of which is given in this ITB by the stated deadline.

			The bidders are free to make arrangements either for physical dispatch of their bids or through courier companies, at their own risk. UNDP shall not be responsible for any late physical delivery of the bids to UNDP due to potential delays in courier companies, working/non-working days, official holidays, strikes, etc. Physical dispatch of the bids to UNDP will be accepted on working hours of UNDP Country Office, 9:00 to 17:30 (GMT +3, Local time-Turkey). The bidders shall be acknowledged that the bids shall be submitted to the information desk of UNDP CO located at 21st floor of the building, submission time to this desk will be considered in case of late delivery of the bids. The bidders shall be aware that there is a registration desk at the main gate of the building, that shall be considered for timely submission of the bids.
16	22	Number of copies of Bid	Original: 1 Copies: 1 Electronic Copy (CD or USB stick); including scanned copy of the original bid and priced BoQ in excel format
17	22	Bid Submission Address	United Nations Development Programme Turkey Resilience Project in Response to the Syria Crisis Yıldız Kule 21st Floor, Yukari Dikmen Mah. Turan Güneş Blv. No:106 06550, Çankaya/Ankara Turkey UNDP-TUR-ITB(MC2)-2019/07
18	22	Electronic submission (email or eTendering) requirements	Not applicable
19	25	Date, time and venue for the opening of bid	Date and Time: August 26, 2019; 3:00 pm (GMT +3, Local time-Turkey) Venue: United Nations Development Programme Turkey Resilience Project in Response to the Syria Crisis Yıldız Kule, Yukarı Dikmen Mah. Turan Güneş Blv. No:106 06550, Çankaya/Ankara
20	27, 36	Evaluation Method for the Award of Contract	Lowest priced technically responsive, eligible and qualified bid.
21		Expected date for commencement of Contract	*September 16, 2019*
22		Maximum expected duration of contract	75 days, starting from the date on which the Contractor will be given Access to the Site and receive a notice from the UNDP Engineer to commence the Works and ending on the date of substantial completion of Works stated in the Certificate of Substantial Completion. As stated in the General Conditions of Contract for Civil Works, clause 47.1; "Defects Liability Period" is 12 months calculated from the date of completion of the Works stated in the Certificate of Substantial Completion issued by the UNDP Engineer.

23	35	UNDP will award the contract to:	One bidder only
24	40	Type of Contract	Contract for Civil Works http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html
25	40	UNDP Contract Terms and Conditions that will apply	UNDP General Terms and Conditions for Works http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html
26	44	Payment Provisions	**Pricing Structure;** The contract is based on unit price, and the final price of the Contract will be determined on the basis of actual quantities of work and materials utilized in the complete and satisfactory performance of the Works as certified by the Engineer and the unit prices contained in the Contractor's financial proposal. Such unit prices are fixed and are not subject to any variation whatsoever. Unless the technical specifications or the Bill of Quantities specifically and expressly state otherwise, only permanent works are to be measured and paid for by UNDP. **Payment Terms;** Payment will be made following the issuance of the Certificate of Substantial Completion by the Engineer. The Contractor shall submit an invoice within 10 days from the issuance of the Certificate of Substantial Completion by the Engineer. UNDP shall affect payment of the invoice after receipt of the certificate of payment issued by the Engineer, approving the amount contained in the invoice. The Engineer may make corrections to that amount, in which case UNDP may affect payment for the amount so corrected. The Engineer shall process the invoices submitted by the Contractor within 15 days of their receipt. **Currency of Payment;** If the Contractor is registered and operating in Turkey, the payment shall be realized in Turkish Liras (TRY). Contract price will be converted from United States Dollar (USD) to Turkish Liras (TRY) by the UN operational rate of exchange[1] valid on the date of money transfer. Otherwise, the payments shall be affected in United States Dollar.
27		Taxation	UN and its subsidiary organs are exempt from all taxes. Therefore, bidders shall prepare their Bids excluding Value Added Tax (VAT). It is the Bidder's responsibility to learn from relevant authorities (Ministry of Finance) and/or to review/confirm published procedures and to consult with a certified financial consultant as needed to confirm the scope and procedures of VAT exemption application as per VAT Law, Ministry of Finance's General Communiqués. The Contractor to be selected shall not be entitled to receive any amount over its Bid price in relation to VAT, Special Consumption Tax and any other applicable taxes.

[1] Available at the website: https://treasury.un.org/operationalrates/OperationalRates.php#E

SECTION 4. EVALUATION CRITERIA

Preliminary Examination Criteria

Bids will be examined to determine whether they are complete and submitted in accordance with ITB requirements as per below criteria on a Yes/No basis:

- Appropriate signatures
- Power of Attorney
- Minimum Bid documents provided
- Bid Validity
- Bid Security submitted as per ITB requirements with compliant validity period

Minimum Eligibility and Qualification Criteria

Eligibility and Qualification will be evaluated on a Pass/Fail basis.

If the Bid is submitted as a Joint Venture/Consortium/Association, each member should meet the minimum criteria, unless otherwise specified.

Subject	Criteria	Document Submission requirement
ELIGIBILITY		
Legal Status	Vendor is a legally registered entity.	Form B: Bidder Information Form
Eligibility	Vendor is not suspended, nor debarred, nor otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization in accordance with ITB clause 3.	Form A: Bid Submission Form
Conflict of Interest	No conflicts of interest in accordance with ITB clause 4.	Form A: Bid Submission Form
Bankruptcy	Has not declared bankruptcy, is not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against the vendor that could impair its operations in the foreseeable future.	Form A: Bid Submission Form
Certificates and Licenses	▪ Power of Attorney ▪ Official appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country	Form B: Bidder Information Form
QUALIFICATION		
History of Non-Performing Contracts[2]	Non-performance of a contract did not occur as a result of contractor default for the last 3 years. (reference period to be taken into account: from August 26, 2016 to August 26, 2019)	Form D: Qualification Form
Litigation History	No consistent history of court/arbitral award decisions against the Bidder for the last 3 years. (reference period to be taken into	Form D: Qualification

[2] Non-performance, as decided by UNDP, shall include all contracts where (a) non-performance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and (b) contracts that were so challenged but fully settled against the contractor. Non-performance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism. Non-performance must be based on all information on fully settled disputes or litigation, i.e. dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted.

	account: from August 26, 2016 to August 26, 2019)	Form
Previous Experience	Minimum three years of relevant experience.	Form D: Qualification Form
	The Bidder must have successfully completed, **as the prime contractor**, minimum one civil works contract, and a minimum value of USD 150,000 over the last three years. (reference period to be taken into account: from August 26, 2016 to August 26, 2019) (For JV/Consortium/Association, all Parties cumulatively should meet requirement).	Form D: Qualification Form
Financial Standing	Minimum average annual turnover of USD 150,000 for the last 3 years. (2016, 2017, 2018) (The amount of business done in a year, income generated from on-going works and income generated from works undertaken shall be considered as part of the turnover) *(For JV/Consortium/Association, all Parties cumulatively should meet requirement).*	Form D: Qualification Form
	Bidder must demonstrate the current soundness of its financial standing and indicate its prospective long-term profitability. *(For JV/Consortium/Association, all Parties cumulatively should meet requirement).*	Form D: Qualification Form
Technical Evaluation	The technical bids shall be evaluated on a pass/fail basis for compliance or non-compliance with the technical specifications identified in the bid document.	Form E: Technical Bid Form
Financial Evaluation	Detailed analysis of the price schedule based on requirements listed in Section 5 and quoted for by the bidders in Form F. Price comparison shall be based on the total estimated price for all the quantities set out in the Bill of Quantities.	Form F: Price Schedule Form

SECTION 5A: SCHEDULE OF REQUIREMENTS AND TECHNICAL SPECIFICATIONS

Unless otherwise stipulated in the related sections of technical specifications, the following sections shall take precedence over one another in the following order in terms of technical specifications/requirements;

1) Section 5A.1 Statement of Works/Technical Specifications

2) Section 5A.3 Design Drawings

3) Section 5A.2 Specifications for Items/Pose Definitions

SECTION 5A.1 STATEMENT OF WORKS / TECHNICAL SPECIFICATIONS

1. GENERAL

1.1. INTRODUCTION AND BACKGROUND

UNDP Turkey has repositioned to contribute through four areas: 1) Inclusive and Democratic Governance (IDG); 2) Inclusive and Sustainable Growth (ISG); and 3) Climate Change and Environment (CCE); and 4) Syria Crisis and Resilience Response. In addition to these areas, UNDP Turkey is emphasizing the role of Strategic Partnerships that cut across the entire country programme regionally as well as globally.

UNDP supports the Government of Turkey through its Syria Crisis Response and Resilience Programme in Turkey to strengthen the resilience of refugees, host community members, local municipalities and relevant national institutions to cope with and recover from the impact. UNDP's resilience response strategy is to invest in existing national and local systems to ensure they can adequately serve both host and refugee communities.

As part of this programme, UNDP will implement the EU-UNDP Turkey Resilience Project (2018-2019) (hereinafter referred to as 'the Project), funded by the EU Regional Trust Fund in response to the Syrian crisis (EUTF Fund). The Project consists of three main components: Component 1 on Employment Creation, Component 2 on Municipal Service Delivery and Component 3 on Adult Language Training. The overall budget for the Project is 50 million euros to be implemented in 2018-2019.

UNDP uses a resilience-based development approach which focuses on investing in existing national and local systems to ensure they can adequately serve both host and Syrian communities. One of the aimed outcomes of the resilience response is to strengthen infrastructure capacities of the Municipalities by support to municipal solid waste infrastructures.

Kilis Solid Waste Landfill is in operation since 2012 and the proper leachate balancing could not be provided with the negative impacts of insufficient design capacity and the troubleshoots of leachate pump during the operation. Therefore, overall objective of the project is to establish a new leachate balancing and back spraying system at Kilis Landfill site. Hence, the Contractor is responsible for construction of Kilis New Landfill Leachate balancing system and commission, hand over the facility to Solid Waste Management Association of Municipalities. The Contractor shall review the developed design drawings for new leachate balancing systems and proceed for the works.

1.2. DEFINITION AND SCOPE OF THE CONTRACT

1.2.1. Definition

Considering the 1st lot (1st landfill cell) of the landfill under operation, the surface water at the 1st cell and the liquids of the collected waste (all to be considered as leachate) are just discharged to the existing leachate pond by gravity. With considering the previous design for Cell-1 and Medical Waste Leachate discharge system, the slotted HDPE leachate discharge pipes and related piping to the existing leachate pond were designed for the sanitary landfill leachate management but not installed within the previous project aspects. However, the leachate discharge to the existing pond is processing and the existing pond capacity is lower than the previous designed capacity.

All these observations and inspections of previous design data sheets and current operation status required a new leachate management system for the sanitary landfill operation. Therefore, a new leachate pond with larger storage capacity and the proper leachate discharge / circulation will be provided with a higher

capacity mobile pump to be under operation for shorter periods to balance the existing leachate pond overflows.

New Leachate Pond Leachate Storage Capacity will have 5,215 m3 with bottom elevation +906.50 for balancing the existing leachate pond with bottom elevation +905.00 and return pumping to Cell-1 / Cell-2 waste surface.

1.2.2. Scope of Works

All the works covered under this contract include the construction of a new leachate pond and supply, delivery, installation of the pumps, manhole, piping, check valve, back spraying system to Cell-1, power extension cords together with all civil, mechanical, electrical works and only procurement of back spraying system for Cell-2 after trial tests for future operation.

The works contract consists of construction of civil works, installation of the pumps, start-up of the back spraying system commissioning for the operation of the facilities and hand-over of the system to the final beneficiary. The practical training of staff (management, operation, maintenance and service) by the Contractor will take place continuously both during the construction and installation of equipment.

The Contractor shall execute any outstanding work and all such works of repair, amendment, reconstruction, rectification, and making good defects, imperfections, shrinkages or other faults required by Engineer during the Defects Liability Period for 12 months period.

The works shall be executed under this contract, as mentioned in detail, in the Technical Specifications and on Drawings, together with all related civil works. In all construction and manufacturing, the provisions of the Technical Specifications and Drawings shall be obeyed.

Before erection/installation for all materials, the contractor shall request prior approval from the Engineer.

All measurements given on the drawings shall be checked on-site by the Contractor. The Contractor shall prepare the shop drawings accordingly and get the approval of the Engineer before starting the construction.

The Contractor shall be responsible for taking all the necessary health & safety measures according to the relevant legislations until the taking over of the works by the Employer.

The Contractor shall prepare shop drawings and as-built drawings for Engineer's approval, during the execution of the relevant stages of permanent works. The Employer and/or Engineer may request variations and/or additional works to be designed by the Contractor. The variations or new design works shall be carried out in accordance with the provisions of Technical Specifications and subject to Engineer's approval.

New Leachate System Process and Data Sheets

New Pond Top Corner Coordinates

Point No.	Y	X
1	600958.69	4072681.24
2	601025.85	4072674.48
3	601029.55	4072628.02
4	600950.72	4072640.48

Geometry Trapezoid

Bottom of Pond Dimensions 18.0 m x 48.0 m (Bottom Pond Area = 864.00 m2)

Top of Pond Dimensions 30.0 m x 60.0 m (Top Pond Area = 1,800.00 m2)

Average Height of Pond h = 4.00 m

Total Pond Volume 5,215 m3 (approximately)

Pond Structure Geosynthetic Clay 10 mm + Geomembrane 2 mm

Pond Inlet Elevation 910.50 m

Pond Lowest Point Elevation 906.50 m

Highest Waste Elevation 953.00 m (After Cell-2 Operation)

Static pumping Level: 46.50 m

Spraying Loads, Load Efficiency, Tolerance	15.00 m
Pump capacity (H)	61.50 m
Selected Pump (H)	65.00 m
Pump Capacity for 65m	4.00 m3 /h

A mobile submersible sludge pump with capacity 4 m3/h with h= 65 m with set of utility / power supply box procurement is found applicable for this purpose. The control panels of pumps will be with the pumps. The total power of the pump panel is 10 kW. This pumps will be fed from the main distribution panel installed in the transformer and generator building at a distance of 250 m with cables of 4x10 m2 cross section.

All these above data sheet is based on the construction drawings. The assumed values were just defined to determine the pump capacity.The data sheets for the performance of the pump are given with Volume 3. The pumps should be selected to be actively moved easily with Final Beneficiary site operation equipment with level indicator and automation power board. The pumping system will be submitted for Engineer`s approval.

Details for Scope of Work

The Contractor shall perform the below listed works but not limited to

1. Remedy the existing access/service road for access to pond excavation area inside landfill.
2. Surface water discharge and topsoil Excavation for new pond access and construction.
3. Earthworks for New pond trench different classes of medium and some hard rock.
4. Backfilling and compaction works
5. Trimming, levelling and compaction of pond surface.
6. Bank protection works around the top perimeter of new Pond including perimeter surface water drainage.
7. Liner System Installation with 10 mm Geosynthetic Clay + 2 mm Geomembrane Installation.
8. Minor Formwork and Concrete works for anchorage System for Liner locking and fixing.
9. Procurement and installation of submersible pump system with connection board set (2 sets _ 1 for Spare / Emergency) and back spraying systems of cell-1 with overall connection parts. Only procurement of back spraying systems for cell-2.
10. A valve and HDPE manhole procurement and installation for leachate flow control to existing pond.
11. Back Spraying system components procurement and installation of sufficient demountable materials for scanning all the Cell-1 (permanent installation) area and Cell -2 (only procurement) area at the Landfill.
12. Procurement and installation of Portable Power supply extension cords_250 m for the pump.
13. Casing Pipes for back spraying pipe road crossings.
14. Checking the existing duct banks and providing repairs in case for power supply to Pump.

Details of recirculation pumps are given below.

Table 1: Pump Data Sheet

Submersible Pump and Return Pumping
Procurement and Installation of Submersible Pumps (Efficiency _Q=4 m^3/h h_{max}=65 m / with 10 kw) including Starter and Electrical Fuse, 20 m main connection cable to Main Power Board., 1 Active + 1 Spare
10 kW External Remote Panel with Level Indicator, Electrostatic Painted Power Board, 1 Active + 1 Spare

Spraying (Recirculation) System Principles

Spraying to waste surface shall be done for proper possible gas utilization and balancing the leachate amounts by evaporation during final Beneficiary operates. There is a garden irrigation system with enough spraying radius to scan the cell-1 and the cell-2. Spraying system will be mobile systems for different level of waste surface during operation of Cell-1 and Cell-2. Cell -1 back spraying will be permanent to be installed and only procurement will be provided for Cell-2 back spraying systems. Leachate supply to the spraying system will be provided from the new pump. The back-spray system should be combined with easy connection with a quick flange adaptor to pump.

The contractor shall prepare shop drawing of back spraying systems for Engineer`s approval. The details of the equipment to be used in the system shall be submitted to the engineer with a list of materials for approval.

Check Valve System for Existing Pond:

The Valve and HDPE manhole installation for leachate flow control to existing pond will be in scope of the Contract. Existing infrastructure for the leachate discharge to existing pond will be checked by the contractor and the shop drawing for a valve system to stop the leachate discharge to Existing pond will be installed within the scope of contract.

Power Supply:

The power supply only for the new pumping system will be provided from the existing power distribution panel within the scope of work. The Contractor will provide necessary site survey to determine the power cable and existing cable duct.

The Contractor will check the manholes on the existing cable duct line. The Contractor will rehabilitate these parts and cable pipes. The conduits of the cable duct shall be tested and opened with air and the necessary repair work shall be performed according to the cable cross-section for Pump power supply.

The power cable shall be in one piece and cable shall be terminated with distribution panel. One end of the remaining part of the power cable shall be installed with circuit breakers from the main distribution panel. The pumps will be fed through distribution panel. But, the cable coming out of the pump control panel will not be connected directly to the distribution panel.

The distribution panel is actually the socket combination box. The socket combination box shall be mounted and grounded on a galvanized support so that it is at a height of 120 cm from the ground. The socket combination box shall have 2 piece 3-phase and 1 piece single-phase sockets. The 3-phase sockets shall have 16 A fuses and residual current relay of 300 mA.

The power cable lengths of the pump control panel shall be 20 meters and shall terminate with a 3-phase plug. When the pump will operate, the pump cable will be plugged into the distribution panel. Moreover, the all equipment shall be VDE (Verband der Elektrotechnik), CE (European Conformity), TSE (Turkish Standards Institution), IEC (International Electrotechnical Commission) certified and selected IP 67 protection class.

The power supply cable will be selected in NYY type 4x10 m2 cable-cross section considering the NYY type according to the resistant to the external environment. Moreover, the cable-cross selection calculation will be made and submitted to the Engineer's approval. The cables shall be selected according to DIN VDE 0276-603 and TS IEC 60502-1 standards. The power cable will be about 250 meters from the power distribution panel to which it is energized.

1.2.3. Construction Site

The planned location for the new pond is given with the drawing ``KLS-LP-01`` with a coordinate schedule. The Contractor will first provide the site survey works accordingly and the excavation plan with the coordinate schedule will be submitted for Engineer`s approval for future quantity survey works and as-built drawings.

The leachate pond (reservoir/lagoon) in the existing solid waste landfill is in operation by the Solid Waste Management Association of Municipalities, since 2012.

Solid Waste Landfill is located approximately 10.5 km north-east of the city center in the area named Ceylan Yazısı, southern side of a gently sloped hill back with East-West direction. The nearest settlements areas are approximately 1, 5 km north of the Solid Waste Landfill, named Yeniyurt Village and approximately 2 km

south of the Solid Waste Landfill, named Çukuroba Village. There is no forest or agricultural area around the landfill area closer than 1 km to Landfill Boundary. There isn't any protected site in the project area of influence. The nearest protected area is a natural protected area named Hisar Çamlığı Natural Park, which is approximately 35 km northwest of the Solid Waste Landfill. There is a dried creek approx. 300 m south of the Solid Waste Landfill, named Kurt Deresi.

Solid Waste Union Landfill is away from city center and the road to the landfill area is a bit rugged but allows proper site access.

Figure 1: Location of the Landfill and its surrounding

Topography and Geology

Most of the city, except the Kilis Plain and various other small plains, consist of plateaus. In other words, it is possible to evaluate the site as a plateau area. Kilis plain is a tectonic origin plain. It was formed by the deposition of the materials that were eroded from the plateau by the collapse of the southern part with a vertical fault strike. That plain has an area of 100-110 km2 and height is 600-650 m (masl) and elevation of landfill area is around 900-935 m (masl).

City lies down to the west of Gaziantep Plato and Hatay-Maraş Graben and city border are limited by Kurt Mountains. Kurt Mountains start with Darmik Mountain and continue with Hazil, Karruca, Kartal, Büyük, Arapdede and Sof Mountains through the north direction. Average height of Kurt Mountains is around 1,250 m. Highest mountain of the Kurt Mountains is Sof Mountain with a height of 1,496 m.

Geology of the city is represented by 3 main layers; Cretaceous, Tertiary and Anthropogene. From bottom to top sub-layers of these main layers are; Hasaneke Formation, Bozova Formation, Karadur Complex, Koçali Complex and Germav Formation for Cretaceous; Beşenli Formation, Cengin Formation, Aslansuyu Formation, Ardıçlıtepe Formation, Gaziantep Formation, Fırat Formation, Şelmo Formation and Yavuzeli Formation for Tertiary and Old Alluvion and Alluvion for Antropogene layer. Construction area consists of an alluvion layer formed by untouched gravel, sand and mud deposits.

1.4 Existing Soil Survey for Kilis Solid Waste Union Landfill

An existing Soil survey report (dated 2007) is enclosed for information only. The Contractor shall consider the existing site soil survey based on technical specifications presented in volume 2 for any possible temporary works or possible additional purposes.

Previous Site Soil Investigations Summary:

1. As a result of the previous investigations and studies, no dry or flowing stream was found in the Solid Waste Landfill. Groundwater was not detected.

2. In drilling studies, it was determined that the surface soil layer is just under dark grey and black, upper levels are weak porous, generally porous, medium strength basalt layer. The ground layers encountered in

the study area were determined to be composed of weak-very weak basalt deposits which have no liquefaction risk.

3. According to the permeability tests of the ground in the solid waste sanitary landfills, it has been determined that the rock sequences are in the "permeable-less permeable" rock class.

4. Coefficients that can be used in case of design of solid waste sanitary landfill structures foundations are given as follows;

5. qall (allowable bearing pressure) = 250 kPa = 25 t/m2 = 2.5 kg/cm2

6. kv (soil horizontal bedding coefficient) = 35,000 kN/m3 = 3,500 t/m^3

7. Settling is not expected in the structures in the Solid Waste Landfill Facility, as the rock layers are all exposed in the whole area. It is stated that there is no danger of swelling or collapse after excavation in these units.

8. As reported by previous new landfill project and design documents, there is no active river or important surface water affecting this area. In addition to this, no groundwater was observed during the previous site soil investigations. Approximately 50 m. basalt stone layer is not allowing the surface water to be carried out to ground level.

Status of Existing Utilities within the Solid Waste Landfill Site

The Landfill site is under operation and waste disposal will proceed by Kilis Municipality Solid Waste Union at Cell-1 and Cell-2 during the Construction time and Contractor will use the existing site access roads during the operation facilities. Contractor is responsible to provide required equipment and temporarily services in the scope of the activity. The Contractor will submit method of statement of construction works for the cooperation with the operator to prevent any conflicts of works during site operation.

Contractor will provide all services for temporarily access to pond location and the re-instatement works will be performed by the Contractor after completion of works. The wet ground conditions and similar obstacles will be remedied by the Contractor. Temporarily dewatering during the construction is under Contractor`s responsibility.

Cell-1 and Cell-2 disposal status and area (as of March 2019) were given with the site survey report. The final Cells area / status should be checked and the back spraying material procurement and installation should be provided by the Contractor after ensuring the surface scan (instore) of the all landfill cells with the shop drawings to be submitted for Engineer`s approval.

The back-spraying system should be demountable and the operator will proceed for replacement and operation of the back-spray system. The Contractor will once perform the trial of back spraying system in accordance with the current status of landfill Cell-2 but permanent installation for back spraying systems of Cell-1 and pump will be provided within the scope of the Contract.

1.3. SPECIFICATIONS AND STANDARDS

Equivalency of Standards and Codes

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or related to a particular country or region, other authoritative international standards that ensure substantially equal or higher quality than the specified standards and codes should be acceptable subject to the Engineer's prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Engineer at least 7 days prior to the date when the Contractor desires Engineer's consent. In the event the Engineer determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.

During the implementation and management of all issues of the Works; the standards, specifications and principles shall be adhered to in the management, design, construction, testing and acceptance and commissioning of all works.

1.3.1. Standards

The Contractor shall comply with the last updated editions of the following standards, in the order of precedence as listed, in the design, implementation, testing, acceptance and operation of all works within the scope of the tender. In circumstances for which there is no description in the following standards, it shall be permitted to use the last updated editions of other national and international standards on condition that the Engineer accepts.

a. Turkish Standards (TS),

b. European Norm (EN),

c. International Standards Organization (ISO),

1.3.2. Legislation

The Contractor shall execute and complete the Works in strict accordance with applicable legislation of Turkey.

1.3.3. Specifications

The Contractor shall execute and complete the Works in strict accordance with the last updated editions of;

- Republic of Turkey Ministry of Environment and Urbanization "Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications"[3]
- Republic of Turkey General Directorate of Highways "Highways Technical Specifications"
- Union of Chambers of Turkish Engineers and Architects, Chamber of Landscape Architects Publication; Technical Specifications for Landscape Works

1.4. SITE

Refer to provisions stipulated in Clauses 11, 32, 33, 37, 39, 41 and Sub-Clauses 6.2, 34.2 of the General Conditions of Contract.

1.4.1. Arrangement of the Site

The ground levels of the Site shall not be changed without the permission of the Engineer and no infrastructure, structure or tree shall be removed or permanent structure shall be built without the Engineer's prior approval.

The Contractor shall construct temporary parking areas, loading and unloading areas, open storage areas, approach and internal roads, temporary facilities to facilitate its methodology and order of construction of the Works.

1.4.2. Site Requirements

Provision of all the necessary utility requirements on site, such as electricity, water, gas, etc. during the execution of the works shall be under the responsibility of the Contractor.

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[3] Applicable communiques:

- "Communique related to Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications" issued by Ministry of Public Works and Settlement, published in Official Gazette of Republic of Turkey no: 29459, dated 28 August 2015(complementary version) available at http://www.resmigazete.gov.tr/eskiler/2007/06/20070630M1-1.htm
- "Communique related to making amendmends on communique related to Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications" issued by Ministry of Public Works and Settlement, published in Official Gazette of Republic of Turkey no: 27853, dated 21 February 2011 available at: http://www.resmigazete.gov.tr/main.aspx?home=http://www.resmigazete.gov.tr/eskiler/2011/02/20110221.htm&main=http://www.resmigazete.gov.tr/eskiler/2011/02/20110221.htm
- "Communique related to making amendmends on communique related to Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications" issued by Ministry of Environment and Urbanisation, published in Official Gazette of Republic of Turkey no: 30352, dated 06 March 2018 available at: http://sgb.csb.gov.tr/mevzuat/dosyalar/r_20180306093845756_03c559f6-993f-40e1-9009-6701e836970d.pdf

Application to the relevant authorities for subscription to provide utility connections shall also be under the responsibility of the Contractor. All costs of the consumptions on site shall be covered by the Contractor.

Any temporary fencing used by the contractor to protect the works shall be appropriate for the task to keep the public from danger and protect the workers.

The Contractor shall erect such fencing as soon as he is given possession of the relevant portion of the Site. The Contractor shall regularly inspect and maintain all such fencing, any defects being made good without delay.

Access shall be provided in temporary site fencing as necessary for the use of the occupiers of adjacent properties.

Temporary site fencing shall remain in position until the Works are sufficiently completed to enable that portion of the Site to be brought into use without danger to the public.

1.4.2.1. Site Temporary Buildings

The Contractor shall provide offices, dining halls and accommodation places for his own personnel, Subcontractors and furnish and maintain these places.

1.4.2.2. Temporary Water Supply

The Contractor shall supply and distribute water both for the personnel and for the Works. All of the piping, storage and similar main and intermediate systems shall be established in accordance with drawings and specifications. In the event that the municipal water supply is not available in sufficient amounts or pressure, additional supplies shall be provided by the Contractor.

It is the responsibility of the Contractor to provide all necessary back-up, maintenance and repair works for the uninterrupted supply of water sufficient for construction of the Works.

1.4.2.3. Temporary Electricity Supply

Provision of all the necessary utility requirements on site, such as electricity and gas, etc. during the execution of the works shall be under the responsibility of the Contractor.

The Contractor shall be required to make all necessary arrangements with relevant local authorities and/or owners/occupiers of the properties in order to obtain the supply of necessary utilities and cover the expenses for supplying and consuming these services, where necessary.

The Contractor shall provide connection to the site from a suitable point.

The Contractor is obliged to take all precautions for the safety of employees and third parties both in the supply and distribution of the energy. It is the responsibility of the Contractor to provide all necessary back-up, maintenance and repair works for the uninterrupted performance of the temporary electrical supply.

The Contractor shall take necessary measures related to the unexpected cuts off of these services.

1.4.2.4. Temporary Sanitary Installation, Cleaning

The Contractor shall clean the site when necessary and in such a way as to preserve it in a hygienic state and shall comply with the relevant laws and instructions of the Engineer.

The Contractor shall establish temporary sanitary facility in the site in order to meet the requirements for the working personnel. For this purpose, the Contractor shall supply flushed W.C. in suitable places on the site. Domestic water connections of facilities shall be protected against frost. Sewerage drains shall be connected to the sewerage network as much as possible. In the event that this is not possible, connection shall be made to cesspools built in accordance with national specifications. Cesspools shall be drained at suitable intervals.

1.4.2.5. Employer's Equipment and Free-issue material

There is no Employer's Equipment available for the use of the Contractor in the execution of the Works.

Free-issue materials are not available on behalf of the Employer.

1.4.2.6. Temporary Project Sign Board

The Contractor shall at his own cost supply, erect and maintain 1 signboard (size 1.5 m x 2 m) at locations to be determined by the Engineer on which the names and information asked by the Engineer. The design of the sign board requires the prior approval of the Engineer and the Employer.

1.4.2.7. Plant and Temporary Works

The property of all structures, materials, vehicles, tools and equipment supplied and established by the Contractor for the performance of the Work belongs to the Contractor.

Temporary facilities shall be removed within the time and method to be decided by the Engineer after Substantial Completion and their places shall be cleared. Fences, billboards, etc. that have been removed temporarily shall be placed again.

1.4.2.8. Protection of Existing Structures and Utilities

The Contractor shall assume full responsibility for the protection of all buildings, structures, and roads existing in the area of the construction site, public or private, whether or not they are shown on the drawings. Any damage resulting from the Contractor's operations shall be repaired at his expense.

The Contractor shall take all necessary precautions to avoid causing any unwarranted damage to roads, lands, properties, trees and other features and, during the Contract, shall deal promptly with any complaints by owners or occupiers.

Where any portion of the Works is close to, across, or under any existing apparatus of Statutory Undertakers, the Municipality or other parties, the Contractor shall temporarily support and work round, under or adjacent to all apparatus in a manner designed to avoid damage, leakage or danger, and to ensure uninterrupted operation.

Should any leakage's or damage be discovered, the Contractor shall at once notify the Employer and the Statutory Undertaker, Municipality or owner concerned, as appropriate and the Contractor shall afford every facility for the repair or replacement of the apparatus affected.

Building interiors shall be adequately protected during the course of the works to ensure that they remain water-tight.

The Contractor shall adequately safeguard the buildings affected by the works against damage and theft.

All electrical installations shall comply with the relevant national regulations and shall be safe for the Contractor and members of the public. All Works shall be illuminated when daylight deems to be insufficient.

Before commencement of works nearby the existing structures preconstruction photos shall be taken.

1.5. CONTRACTOR'S KEY PERSONNEL

The Contractor shall employ following key personnel with qualifications listed below on site in line with Programme of Work.

Project Manager/Construction Manager: English speaking, minimum 5 years' experience in construction of any kind of structure and degree in civil engineering or architecture. Project Manager/Construction Manager shall be present on site on a full time basis for the period starting from the date on which the Contractor will be given Access to the Site and receive a notice from the UNDP Engineer to commence the Works and ending on the date of substantial completion of Works stated in the Certificate of Substantial Completion.

Electrical Engineer: Minimum 3 years' experience in construction of any kind of structure, and degree in electrical engineering.

Mechanical Engineer: Minimum 3 years' experience in construction of any kind of structure and degree in mechanical engineering.

Surveyor: Minimum 3 years' experience in construction of any kind of structure and degree in Survey Engineer (or equivalent) or minimum 5 years' experience in construction of any kind of structure and degree in Survey Technician.

1.6. PLANT

The contractor shall ensure availability of the followings on site in line with Programme of Work.

Equipment	Specifications (minimum)	Minimum number of Quantity
Excavator	90 hp	1

Truck	15 tons	2
Compressor	180 hp	1
Power Supply Generator	250 kVA	1
Roller Compactor	n/a	1
Loader	n/a	1
Concrete Vibrators	n/a	2

1.7. MATERIALS

1.7.1. Conditions for Materials and Equipment

Materials and equipment within the scope of the Work shall comply with the conditions stated in the Technical Specifications. Materials and equipment proposed to be used by the Contractor and which have not been specified shall only be incorporated in the Works after their equivalence with the Technical Specifications has been verified and approved by the Engineer.

Any material or equipment proposed by the Contractor for substitution from that specified shall be subject to prior approval of the Engineer.

1.7.2. Storage Facilities

The Contractor shall establish open and closed storage places in suitable and sufficient extent at his own expense for the storage of materials and equipment in the site. The Contractor is obliged to take all necessary protective precautions against damage, contamination inclement weather and theft.

1.7.3. Terms of Transportation

All of the materials and equipment shall be packaged in such a way to facilitate transporting in and out of the storage and to the Work Place and to be protected against damage.

Materials and equipment shall be loaded on vehicles in conformity with international transportation rules. During transportation, all necessary additional precautions shall be taken and adequate transportation insurance shall be provided at the sole responsibility and cost of the Contractor.

1.8. SETTING - OUT

All necessary application, measurement and instrumentation processes and equipment necessary for construction of the Works and for preservation of the environment in the vicinity of the Works are the responsibility of the Contractor at his own expense.

1.8.1. Application Works

The Contractor shall prepare application drawings showing the setting out of the structures on the site and based on the reference points and levels given in the Drawings and submit to the Engineer for approval. The accuracy of the setting out shall be the sole responsibility of the Contractor.

For application and measurement processes; the Contractor shall:

- Employ qualified and experienced land surveyors.
- Use modern type and high-quality topography devices suitable for the works.

1.9. ACCOMODATION FOR THE ENGINEER

Before commencing the Contract, the Contractor shall supply and erect on the site an office of a minimum 10 m2 room for the exclusive use of the Engineer at a location to be agreed with the Engineer. This office shall be provided for the total construction period.

The washroom shall be provided with a washbasin, hot and cold-water supplies and a flush operated WC connected to the existing sewer. The Contractor shall be responsible for the security of the Engineer's office and all equipment therein until the office is finally closed.

The Contractor shall maintain, light, heat/cooling and clean the office for the duration of the contract. The Contractor shall be responsible for the insurance of the office for the duration of the contract. The Contractor

shall insure the office and the contents provided by him, against fire, burglary and other risks ordinarily insured against during the period of the Contract.

Material	Quantity
Working Table	1
Director Chair	2
Guest Chairs	5
Design Review Table	1

The electricity, water supply, and maintenance costs of this office shall be met by the Contractor(s) until substantial completion of the Works.

The Contractor shall ensure that all equipment is kept in good condition and shall repair or replace, as directed by the Engineer, any equipment that becomes unserviceable.

1.10. COORDINATION

The Contractor is responsible for ensuring all coordination necessary for the execution of the work in accordance with the quality, cost and timing objectives foreseen by the Employer at the beginning of the work.

The Contractor shall prepare a Critical Path Method (CPM) work schedule, inspect the schedules according to the project timeframe, check the integrity of the schedules between infrastructure, superstructure constructions, electrical and mechanical works, combine the schedules and submit to the Engineer for approval.

The Contractor shall be responsible for ensuring administrative and technical coordination with the Employer, the Engineer and other parties who might directly affect the works along with the following parties who might have indirect effect:

a. Relevant official institutions and organizations,

b. Other authorized persons, institutions and organizations

1.11. CONTROL AND EXAMINATION OF MATERIALS AND EQUIPMENT

If the Engineer requests, s/he sends his own members to the project offices, factories of the Contractor and to factories of its subcontractors for the technical control and examination of the material and equipment, production in factories and for their participation in the project works.

As a result of the control and counting of the material, replacement of materials, which are not in compliance with the quality identified in the specifications, are malfunctioned, deficient or sent by mistake, will be realized and delivered to the buyer within 14 days (this term will be determined mutually, when special manufacturing is necessary) and all expenditures made. Otherwise, the Employer will procure these, and collect all expenditures from the receivables or performance security in the Employer.

1.12. OBTAINING OF RELEVANT APPROVALS AND CERTIFICATES

The Contractor shall obtain all relevant approvals and certificates from local Authorities regarding construction and operation of the Plants in the site.

Permits, license and approval costs which are required by the Turkish laws/regulations will be determined by the relevant local authorities.

1.13. AS-BUILT DRAWINGS AND OPERATION & MAINTENANCE MANUALS

This part of the Specifications covers the "As-built Drawings" to be prepared by the Contractor including Operation and Maintenance Manuals of the Plant incorporated in the Permanent Works. Three complete draft sets of prints of Drawings showing all Works exactly as made shall be submitted to the Engineer for approval within one month following the substantial completion of the Works on site.

The Contractor shall record all information necessary for preparing as-built drawings during the execution of the Works on the Sites. Neatly marked-up drawings and other documents covering the Permanent Works as completed shall be available to the Engineer at any time during construction.

Marked-up drawings shall be kept up to date and submitted to the Engineer for approval, as the Works are completed.

The Contractor shall submit complete sets of instructions and manuals to Engineer for approval describing the installed Plant in order to facilitate operation and maintenance, together with the "As-built Drawings". The documents shall include but not be limited to:

- Layout drawings
- Schematic cabling diagrams
- Specific operation instructions
- Specific maintenance instructions
- Detailed record of all types of tests
- Ensuring all materials, as-built drawings, final finish schedules and plans, and all warranties, guarantees and certifications – that are contractually owed to contractor are collected from contractor's design team before final payments are made.

All information in these manuals shall apply specifically to the Plant and equipment being supplied, and they shall be free from irrelevant matters such as might be contained in the manufacturer's general literature.

The as-built documentation shall include all architectural and engineering disciplines including architectural/ structural, electrical and mechanical drawings, and operation and maintenance manuals. Final version of as-built drawings in two hard copies and one electronic (in Auto CAD and Microsoft Word, Excel, etc) copy of each document shall be provided together with the notice for substantial completion incorporating Engineers' comments and all the modifications/revisions effected during construction. Operation and maintenance manuals shall be provided in Turkish.

All material except drawings shall be A4 size. Drawings shall be on international A size sheets, and drawings shall be marked as "AS-BUILT".

1.14. IMPLEMENTING PARTNER AND FINAL BENEFICIARY

The Contractor shall establish coordination with implementing partner of the project, namely **ILLER BANK** and final beneficiary, namely Municipality of Kilis**.** If deemed necessary by Employer, the representatives of implementing partner and final beneficiary may participate meetings, tests on completion, acceptance and inspection of materials and equipment etc.

The representatives of the implementing partner and final beneficiary have right to access to site to monitor the progress of work, compliancy of the work to the requirements of the contract. The Contractor shall ensure their access to site at any time requested by them. However, they have no legal power in terms of contract terms and conditions.

2. PROJECT CONTROL DOCUMENTS

2.1. PROJECT MANAGEMENT

2.1.1. Project Management Obligation

The Contractor shall be responsible for effectively managing his efforts in carrying out the requirements of this Contract.

The Contractor shall be responsible for the management, performance, monitoring and coordination of the whole project in order to fulfil all requirements of the Contract and those given in Technical Specifications.

The Contractor's management obligations shall include the efficient planning of work to be performed in cooperation with the Engineer and Employer along with their appointed representatives to ensure project progress visibility.

2.1.2. General Requirements

The Contractor shall establish a project organization in accordance with requirements included herein, having the necessary resources, qualification and experience to fulfil all the Contractor's obligations.

The Contractor shall unambiguously define the tasks, responsibilities and authorities of each individual role within the organization, at least at the management level.

The project organization shall have clear and well-defined command lines and channels for reporting, within and outside the project organization.

The Contractor shall describe which parts of the Contractor's organization are used for staffing the project, and how the project organization aligns with the Contractor's main organization.

The Contractor shall describe the support functions, which are available for the project organization in the Contractor's main organization and how such resources are put to the disposal of the project.

The Contractor shall describe the organizational interfaces towards any sub-contractor and supplier that shall be in or outside the project organization. Such interfaces shall provide a clear reference between the project management level within the Contractor's and the sub-contractor's/Supplier's organizations.

The Contractor shall appoint key staff members, and these shall to the highest possible extent remain unchanged by the Contractor for the entire project.

Any later changes in such appointments shall be informed to and approved by the Engineer and shall be argued by the Contractor in order for the Engineer to assess the reasons and likely impact of such change.

The Contractor shall, unless this is not within the power of the Contractor, ensure that existing staff remains until suitable and acceptable replacements have been found.

2.1.3. Programme of Work

The programme of work shall comprise following as minimum:

- The proposed location of office on the site, stations (steel/concrete structures), warehouses, accommodation, etc. (sketches to be attached as required).
- A brief outline for completing the works in accordance with the required method of construction and stated time of completion
- A critical milestone bar chart (schedule of execution) representing the construction programme and detailing relevant activities, dates, allocation of labour and plant resources, etc.
- If the tenderer plans to subcontract part of the works, he must provide the following details:
  - Details of work to be subcontracted,
  - Name and details of subcontractors,
  - Value of subcontracting,
  - Experience of subcontractor in similar work.

2.1.4. Project Manager Responsibilities

The Contractor shall define a project management team and shall appoint a Project Manager in charge of the entire project.

The Contractor shall allocate the necessary competence and authority to the Project Manager, entitling the Project Manager to make decisions related to all aspects of the day-to-day management of the project.

Any restriction in the Project Manager's rights in this respect shall be clearly identified and described. Such restriction shall not impose management difficulties upon the project.

All official communication between the Engineer/ the Employer and the Contractor shall be passed through the Contractor's Project Manager.

2.1.5. Engineer`s Involvement

For the execution of this project, the Engineer reserves the right to be assisted by other agencies for technical, operational and contractual matters.

The Contractor shall establish a close coordination with the Engineer for the development of all planning activities related to the project, and shall forward relevant plans, procedures etc. for review and approval, prior to putting such plans or procedures into force.

Engineer`s duties and responsibilities are defined within the UNDP General Conditions of Contract for Civil Works.

2.1.6. Project Plans

The Contractor shall prepare the following Project plans, which shall be reviewed and approved by the Engineer:

a) Quality Control and Quality Assurance Plan

b) Safety Management Plan

In co-ordination with the Engineer, the Contractor shall also unambiguously define which information is required from the Engineer and when during development and testing.

In addition, the Contractor shall prepare method statements for each activity. Any site activity (excavation, filling etc.) can be start after the approval of the method statements by the Engineer.

2.1.7. Reporting and Reports

The Contractor shall ensure that the Engineer and the Employer are kept informed about the status of all areas within the project, and as a whole ensure that the Engineer can maintain a complete and detailed knowledge of the project.

The Contractor shall provide progress reports to the Engineer describing, but not limited to, achievement, problems, risks and containing updated schedules, WBS, cost/schedule control reports, status of contract variation proposals, and other data which are required for the efficient management of the project.

The Contractor shall agree with the Employer dates for the submission of monthly Progress Reports. These reports shall normally be submitted no later than 7 working days after the completion of each month.

Such reports shall provide information on the status of the Contract, and/or on any matters that could interfere with the timely achievement of any aspect of the Contract and the steps proposed by the Contractor to remedy such matters. The progress report will have minimum the following contents:

• Project progress

* Project management overview. Describes major results achieved, problems that have occurred, and corrective action that has been taken or is planned for solving the problems.

* Technical status: Identifies detailed status, including requirements definition status, design and development progress, problems encountered, corrective actions taken, and a summary of outstanding and approved change items during the period.

* Quality follow-up: Describes activities of the quality assurance program

• Project Schedules: Shows activities completed (e.g., milestones and deliveries), status of ongoing activities, schedule changes (if any). This section also identifies the outlook for the next three months with an assessment of the major activity completion dates.

• Action item status: Describes outstanding action items and action items that have been closed during the reporting period.

- Risk assessment: Presents the current critical paths, critical activities, and technical risk, including assessment, impact, and containment plans.

2.1.8. Meetings

2.1.8.1. Progress Meetings

Progress meetings will be held at the times indicated on the progress chart (at least every 1 months, unless agreed otherwise), and will take place at location, which shall be proposed by the Contractor and approved by the Engineer.

The following persons shall be present at progress meetings:

- The Contractor's representative (i.e. the project manager)
- The representatives of the Employer, the Engineer and the Implementing Partner.
- Any other persons whom the above representatives consider should be present in an assistant/consulting capacity.

The major items to be addressed in the progress meetings are those identified for the progress reports and any other items, which are deemed necessary by the Engineer, the Implementing Partner or the Contractor.

The Contractor shall prepare an agenda and forward it to the Engineer no later than 1 week prior to each meeting for review and approval.

The Contractor shall prepare and produce the minutes. Draft minutes will be ready at the end of meetings and reviews. Minutes signed by the Engineer and the Contractor shall be attached to the contract file and shall become binding for both parties. All of these proceedings pertaining to progress meetings shall be conducted by the Contractor under the orientation of the Engineer.

2.1.8.2. Weekly Site Meetings

Site Meetings (SMs) will be convened by the Contractor as mutually agreed between the Contractor and the Engineer, during the project to allow discussion on specific aspects of the execution, orientation, future arrangement and coordination of the works and also for briefing. SMs may be held to formalize important technical discussions, generally prior to the Progress Meetings and record information's and recommendations arising from these discussions. Decision shall be normally taken at the Progress Meeting.

SMs will be held at locations to be mutually agreed between the Contractor and the Engineer. The Contractor shall provide SMs with the papers documenting the technical items for discussion and recommendations.

The agenda of SMs shall be determined by the Engineer and the Contractor together. In addition to the Engineer, the Employer and the Contractor, SMs can be attended by supply companies, manufacturer companies, subcontractors and other institutions and organizations related to the works when necessary.

Meeting minutes shall be recorded by the Contractor, kept carefully and these shall be distributed as minutes of SMs to the Employer and the Engineer, participants and other persons, institutions and organizations to be found necessary by the Engineer. Minutes signed by the Engineer and the Contractor shall be attached to the contract file and shall become binding for both parties. Minutes shall be forwarded to the Employer for consideration at the next Progress Meeting. All of these proceedings pertaining to SMs shall be conducted by the Contractor under the orientation of the Engineer.

The Contractor is also responsible for organizing additional meetings upon the instruction of the Employer or the Engineer.

2.1.9. Sub- Contractor Involvement

Generally spoken it is the responsibility of the Contractor that all sub-contractors perform their part of the work in accordance with the rules laid down in the contract between the Employer and the Contractor.

This implies that the sub-contractors are subject to the same Project Management procedures and must follow the same standards as applied by the Contractor. The Engineer has the same rights against any sub-contractor as against the Contractor, but this will not free the Contractor for his responsibility for the work performed by the sub-contractors.

To finish the approval procedure for Sub-Contractors involved by the Contractor within the Project, the Contractor shall provide to the Engineer specified documents for each Sub-Contractor (means Sub-Contractor and Sub-Designer) as stated below.

Registration for chamber of commerce

Trade registry gazette

Criminal records of the responsible people of the Sub-contractor

Delivery statement of previous project accomplished by the sub-contractor

Authorized signatures list

Relevant quality certificates like ISO 9001

No bankruptcy statement given by the commercial record authorities

A summary of the status of Sub-contractor with monthly progress payments needs for hand over to keep overview.

Be aware that this matter is pre-condition of payment for works done by Sub-contractors.

The Engineer shall have the right to disapprove a proposed sub-contractor in case of objective evidence that the sub-contractor cannot comply with requirements within this contract, that be related to the delivery or the Project Management and Quality Assurance.

The Contractor shall keep a list of all sub-contractors and suppliers, which are used or are planned to be used within the project and shall forward such list to the Engineer every time it is updated.

The list shall include a precise identification of which parts or components the sub-contractor or supplier in question shall deliver to the Contractor.

The Contractor shall be fully responsible for the work performed by any sub-contractor as for the work performed by the Contractor himself.

2.2. SPECIFIC ON-SITE ACTIVITIES

2.2.1. Management and Planning

The Contractor shall have the full responsibility for the construction, installation and setting up the Works.

The planning of the construction, installation and setting up of the Works shall be developed in close cooperation with the Engineer.

The Contractor shall be responsible for the maintenance and operation of the system during its installation and setting up.

2.2.2. Installation Plan

At each site where installation is going to take place, the Contractor shall prepare an installation plan comprising:

- The Engineer`s activities
- Sub-contractors involved
- Tasks to be performed and who is responsible for each task
- Timing of the tasks
- Documentation of installation (e.g. instructions, specifications and drawings)
- and other information important for the final installation.

The installation plan shall be approved by the Engineer in due time before the final installation

2.2.3. Installation

The Contractor shall, in due time before installation, submit instructions and specifications with detailed information concerning:

- interior
- installation
- cabling, routing, grounding, power, communication
- other topics important for the installation of the Works.

The installation shall take into consideration local legislation, rules and procedures to (i.e.) cabling, power connection and working conditions.

The Contractor shall produce, procure and supply all necessary equipment, tools, etc. consumable as well as non-consumable needed for the installation and setting-up.

2.2.4. Setting up

Setting up covers the activities after the physical installation to adjust and tailor system parameters, fine tuning, etc. to make the system 100% operational.

The Contractor shall specify which procedures will be used to set up the Works.

2.3. SAFETY

The Contractor is responsible for taking all necessary precautions in respect of Works, materials, machinery, equipment and current facilities, persons on site and neighbouring environment. All expenses including indemnities that might arise are the responsibility of the Contractor.

2.3.1. Safety of the Construction Site and Periphery

2.3.1.1. Safety Fence

Contractor shall determine the extent of site boundary fencing necessary to protect the site, works, materials, equipment and facilities against unauthorized access and for safety of the public, to control entries-exits and prevent the entrance of unauthorized persons.

There shall be sufficient number of security officers provided by the Contractor at entrance-exit gates and locations where deemed necessary. There shall be adequate night lighting for ensuring supervision of security officers throughout the fence.

2.3.1.2. Fire Protection

The Contractor is responsible for taking necessary precautions for the protection of Works, Temporary Works and any kind of property and person during performance. All of the precautions, including raising the awareness of personnel, and the proceedings to be implemented in the event of a fire shall be determined working closely with the Fire Department.

During the Work, the special additional precautions that might be needed in the following cases shall be taken and implemented:

- Storage of materials that might easily inflame,
- Collection, storage and disposing of inflammable wastes,
- Operations performed with electric-arc welding and oxy-acetylene cutting machines,

In case a fire breaks out, the Contractor shall supply and get ready following equipment:

- Dry chemical powder type fire extinguishers that can be installed to walls, carried manually with nitrogen pressurized in certain places
- Special extinguishing systems in sections where Fire Department can't enter or access easily

2.3.1.3. Warning Marks, Lighting

All of the open excavations, material piles, structures, facilities and equipment that might create hazard shall be surrounded by barricades with appropriate marks with the aim of protecting the employees and other people.

In the same manner, the roads and passages blocked due to Works shall be protected by barricades.

This kind of areas shall be marked with warning plates placed in appropriate distances and attract the attention of people. All of the barricades, obstacles and marks shall be illuminated from dusk to sunrise.

2.3.2. Safety at Work

It is the responsibility of the Contractor to take necessary precautions to prevent accidents that might cause damage to persons, materials, equipment and facilities during the work.

The Contractor shall assign a Safety Team under the leadership of an experienced Safety Manager for any kind of work on safety at work. The primary duties of this team shall include but not limited to:

- Training the employees in respect of actions and practices that shall cause accidents or damage, taking precautions in the site that shall at least meet the requirement of "TS 8983 General Safety Precautions that Should be Taken in Structures During Construction", Monitoring whether precautions and warning are obeyed or not,
- Taking additional precautions, warning orally, and giving punishment in the event that faults are detected.
- Stepping in and performing what should be done in the event of a harmful event.

The Contractor shall carry out the works in accordance with the Turkish Health and Safety regulations.

2.3.2.1. First Aid

Shall be arranged in accordance with the applicable Turkish Health and Safety Regulations.

2.3.2.2. Hazardous Substances

When the following are encountered, Works shall be ceased in the section where the event occurs:

- Buried known or unknown toxic substances,
- Unnaturally coloured ground water or soil,
- Asbestos,
- Volatile organic compounds measured with photo ionization detector,
- Chemical substances or oil products or other similar circumstances that are spilt and spread on the site.

Cleaning of the area in such a way not to damage employees and removal of the hazardous substance shall be performed by an expert team trained and equipped for this kind of works.

2.4. QUALITY CONTROL AND QUALITY ASSURANCE

2.4.1. Quality Responsibility

All of the Works shall be performed according to the most appropriate engineering practices and standards in respect of construction, material, equipment and workmanship.

It is the responsibility of the Contractor to control the quality of the work and to take samples and carry out necessary tests in respect of achieving conformity with specifications and approved materials at his own expense. A Quality Control and Quality Assurance Manager to be assigned by the Contractor shall be responsible for all phases of quality control and sustain an efficient communication with the Engineer.

2.4.2. Material Quality and Equivalent Materials

All of the materials and equipment supplied to be used permanently within the scope of the works shall comply with current standards and specifications. The products of other Manufacturers instead of determined materials and equipment shall be accepted on condition that their equivalency is approved by the Engineer. In such events, the Contractor shall submit to the Engineer all of the evidences of the equivalency of the new product.

2.4.3. Quality Control and Quality Assurance Plan

After signature of the Contract, the Contractor shall submit to the Engineer a detailed Quality Control and Quality Assurance Plan within 14 days for approval. The plan shall cover quality control and assurance of all phases of works on the site.

The plan shall include at least the following items and shall be supported by additional information that might be needed by the Engineer.

The Plan shall cover the quality assurance of all aspects of the Works, and contain, as a minimum, the following items:

- Organization chart for quality control and quality assurance
- List of Contractor's staff to be engaged in quality control and materials testing together with details of their relevant experience
- List of facilities which will be inspected and tested by the Contractor at stages during implementation of the Works as part of his quality control, together with inspection procedures and test types

- Certificates of materials
- Specifications of equipment and work
- Tests
- Relevant certificates on supplied materials
- Detailed checklist for all installations. The checklist shall be for the Contractor's own use, documenting the Contractor's own quality control of the installation.

The Plan may be supplemented with additional items from time to time as requested by the Engineer.

The approved Quality Plan shall be followed throughout the performance of the Contract, unless the Engineer to the contrary issues specific approvals or instructions. Any approval of the Engineer shall not relieve the Contractor of his obligation to ensure that the Works comply with the requirements of the Contract.

Quality assurance records, test certificates, reports and daily records of on-site testing and inspection shall be kept on site during the works, and the results shall be certified by the responsible member of the Contractor's staff.

Quality Control and Assurance Plan shall enter into force after the approval of the Engineer.

2.4.4. Tests Samples, Materials and Equipment

The Contractor shall supply all of the samples including storage, packaging and transportation related to quality control and tests. The materials represented by these samples shall not be manufactured without the approval of the Engineer, brought to work place or used in any work.

Approved material and equipment samples to be used on the site shall be kept carefully under they are permitted to be disposed by the Engineer.

2.4.5. Test Laboratory Services

Quality Control tests shall be done in the laboratory accredited by Republic of Turkey Ministry of Environment and Urbanization shall be used at the expense of the Contractor.

The Contractor shall ensure that the laboratory perform the desired material inspection, sample receiving and test processes as fast as possible and conclude them.

Test results shall be immediately submitted to Engineer. In the event of detection of disorders or deficiencies that might affect the Work, the Contractor shall take any kind of corrective precaution immediately.

The laboratory is not authorized to change, expand or invalidate the terms of the Contract.

2.4.6. Examinations and Manufacturer`s Tests

The Contractor is responsible for ensuring that quality control and all relevant examinations and tests are carried out duly without taking into account whether they are on Site or in any other place and also for taking corrective precautions when necessary.

The Engineer can audit the work carried out in the Manufacturer Company's facilities and also the tests related to these works. The Contractor shall inform the Engineer on time so that this can be done as desired.

The manufactured items and materials that are delivered to the Site shall be examined by the Contractor on their arrival and any kind of fault shall be informed to the Engineer. The products with important faults shall be returned to the Manufacturer Company to be amended or replaced.

Examinations and tests carried out by the Engineer or on his behalf do not release the Contractor of his obligations related to quality control.

2.4.7. Construction Site Records and Tests Certificates

Quality Control records, test certificates, reports, daily construction site tests and examination records shall be kept on forms approved by the Engineer.

All of the test certificates and examination records shall be divided into their relevant departments and kept including those in the Manufacturer Company and other test institutions. The processes shall be under the responsibility of qualified personnel of the Contractor and moreover the Contractor shall establish a comprehensive archive and library related to quality control.

The Contractor shall prepare details lists including tests, approvals, orders and delivery information related to quality control and other materials and products depending on approval. These lists shall be submitted to Engineer as they are updated, however once in a month under any circumstance.

Test results shall be delivered to Engineer at the end of the test in respect of determining the necessary precautions, if any. Test certificates, on the other hand, shall be submitted to the Engineer

- When the tests of the Production Plant and Manufacturer Company are completed or not later than 7 days before the date on which products should be used in the Work under any circumstance,
- Within 7 days following the completion of the test for those conducted during or upon completion of the continuous work.

3. ENVIRONMENTAL MANAGEMENT

The Contractor shall comply with the provisions of the applicable Turkish legislation on environment protection that may affect the Project (the "Environmental Requirements"). In particular this shall include compliance with the following regulations (latest version of the below mentioned laws will be in placed):

Environment Law (no. 2872, date: 09.08.1983, published in the 11.08.1983 dated and 18132 y numbered Official Gazette, amended on 26.04.2006 no 5491),

Worker Health and Work Safety Act (published in the 11.01.1974 dated and 14765 numbered Official Gazette),

The Regulation for the Assessment and Control Air Pollution 2009

The regulation for the assessment and management of environmental noise (2008),

Water Pollution Control Regulation 2004

Solid Waste Control Regulation (published in the 14.03.1991 dated and 20814 numbered Official Gazette),

Hazardous Waste Control Regulation 2005

Cultural and Natural Assets Protection Law and relevant regulations

Waste Oil Control Regulation (21.01.2004 dated and 25353 numbered Official Gazette.)

Excavation Soil, Construction and Debris Waste Control Regulation (18.03.2004 dated and 25406 numbered Official Gazette)

Soil Pollution Control Regulation (31.05.2005 dated and 28831 numbered Official Gazette.)

The Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising from the execution of Project Activities. This shall, wherever possible, be achieved by suppression of the nuisance at source rather than abatement of the nuisance once generated. The Contractor will also be required to compensate for any damage, loss, spoilage, or disturbance of the properties and health of the project affected people during construction. In conformance with the Contract Specifications of which these Environmental Provisions are a part, the Employer reserves the right to withhold payments and/or stop construction in the event of serious or repeated violations of the conditions stipulated herein.

The Contractor shall, at his own expense, obtain, retain in force and renew as necessary all Consents provided for by the Environmental Requirements of the Government of Turkey that are required to enable it to meet its obligations in designing and constructing the Project.

4. PARTICULAR TECHNICAL SPECIFICATIONS

Unless otherwise stated in particular technical specifications, the Contractor shall execute and complete the Works in strict accordance with the last updated editions of;

- Republic of Turkey Ministry of Environment and Urbanization "Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications"
- Republic of Turkey General Directorate of Highways "Highways Technical Specifications"
- Union of Chambers of Turkish Engineers and Architects, Chamber of Landscape Architects Publication; Technical Specifications for Landscape Works

4.1. PARTICULAR TECHNICAL SPECIFICATIONS FOR CIVIL/STRUCTURAL WORKS

4.1.1. EARTHWORKS

All excavation, fill and soil bent works must comply with directions figured out in the drawings, slopes and elevations or the Engineer's directives shall be followed.

• Fill material continually good-graded within grading limits complying with AASHTO T—27, T—11 or TS1900 standards. Placed and compacted according to relevant standards with maximum layer thickness of 20 cm. For each layer compaction results will be submitted to the Engineer.

• Vegetation soil (top 50 cm) will not be used as backfill, will be stored to be used in landscaping.

• Water insulation/lining will be applied on dry surfaces

• Selected backfill material shall be used for liner system locking and compacted properly

• Surface smoothness shall be measured in lateral and longitudinal directions after compaction work is finished, with a 4 m long straightedge. The gap between the surface and the straightedge shall not exceed 20 mm.

Methods for Determining Soil Dry Density

TEST METHOD TYPE		MAXIMUM PARTICLE		TEST STANDARD
		inches	mm	
Sand cone method	6" diameter	2	50	AASHTO T - 191
	12" dia.	3	75	AASHTO T - 191
Hoop method	10" dia.	1 1/2	37.5	AASHTO T - 181
	12" dia.	3	75	AASHTO T - 181
Nuclear method		1 1/2	37.5	AASHTO T – 239

Granular Fill Compaction Criteria

Type-A	Compaction	Minimum 95%	Modified Proctor TS 1900 ASHTO T - 180
	Optimum Water Content	Wopt ± 2%	
Type-B	Compaction	Minimum 97%	Standard Proctor TS 1900 ASHTO T - 99
	Optimum Water Content	(Wopt – 2)- Wopt	

Tests

Laboratory tests for moisture-dry density relations shall be performed according to compaction procedure mentioned above. Test results shall be submitted to the Engineer within 24 hours after the tests.

Site tests shall conform to TS 1900-T1/1900-T2. Compaction tests shall be made by an approved test laboratory.

Unsatisfactory fill shall be removed up to the level as directed by the Engineer and refilled and re-compacted as required. Re-compacted areas shall be tested again. Test type and frequency shall be as follows:

Test Type and Frequency

Moisture content	One test for each layer
Material Classification	One Gradation and Atterberg Limit test for each Dry Density test and each Compaction test
In-situ moisture test	One Sand Cone or water balloon test for each layer

TS 1900-1-T1/1900-2-T2 One Modified Proctor test for every 200 m^2 for the same material

Materials

The selected fill material shall be used around the foundations under structures, excluding structural foundations. The above selected material must not contain roots or similar organic materials, waste, and rubble greater than 7.5 cm. It must be compactable. Contents of this material have gradation passing percentage %10 from sieve no 200 (0.075mm).

The capilar water barrier shall be constructed under the foundation slabs and shall be formed of crushed stone or natural gravel. Maximum size of the particle must not be greater than 4 cm and the total weight of passing percentage from sieve #4. shall not be greater than %2.

If there are local weak areas and voids under the foundations, with the order of the Engineer, these areas shall be filled with 200 dosage lean concrete or compacted stabilized fill material.

Excavation

The Contractor is required to expose the base of the excavation for foundations and to arrange for the Engineer to inspect it prior to covering it, with the first blinding layer of concrete. If the ground is not found to be satisfactory for the proper support of the foundation without unacceptable settlement, then the Engineer will instruct the Contractor to excavate down to a firmer strata and backfill with mass concrete or take other measures that are necessary to ensure an adequate foundation for the structure.

Areas outside of each building/structure shall be sloped to drain away from the building/structure, and shall be maintained free of trash and debris until provisional approval has been completed and the work has been accepted. In addition, the topsoil which is adversely affected and compacted due to the activities of construction equipment or which is contaminated by cement, lime, etc. shall be ploughed, cleaned and graded. The stockpiled topsoil shall be evenly spread over the ploughed, cleaned and graded surface.

If, at the bottom of the excavations, any pockets of soft material or loose stones or fissures are found, these shall be removed by hand and cavities will be filled in with suitable material.

Starting Foundation Excavation

Contractor shall make application of structures and check the correctness of the process.

Following the approval of the excavation plan by the Engineer, according to the excavation plan, first the top soil part shall be removed and stored in place within the site. Then those stored material shall be used for landscape purposes by the contractor. The foundation excavation shall be made according to the directives of the Engineer and related drawings with the earthwork and as in the specifications.

Methodology of Opening Foundations

Earthwork shall comply with the defined dimensions and elevations for the structure. The excavation area shall have the adequate distance from the walls and foundation piers that allows to establishment of the services and control, locate the establishment of forms and remove them. The only exception of this condition is the allowance of lean concrete and gravel-sand fill material casted directly, adjacent to the excavation surfaces. There shall not be any excavation under the defined levels. If the excavations made without the Engineer's instructions, the additional cost shall not be reflected to the Employer and the selected fill material shall be used for the compaction again and shall be filled. Areas outside of each building shall be sloped to drain away from the building and shall be maintained free of trash and debris until the work has been accepted. In addition, the topsoil which is adversely affected and compacted due to the activities of construction equipment or which is contaminated by cement, lime, etc. shall be ploughed, cleaned and graded.

The excavation slopes shall be protected against slope failures (i.e. with plastic sheets during the rainy periods) according to the instructions of the Engineer.

Appropriate Excavation Material

The appropriate excavated material shall be stored and used in the backfill in the project. If the amount of appropriate excavated material is greater than amount of backfill, the contractor shall transport this excessiveness without bringing any additional cost to the Employer. In case there is an over excavation, the excavated fill material shall be taken away from site like other inappropriate materials in a same manner.

Last Leveling of Ground and protection of Base for Concrete

It is only allowed for a large size scale of excavation for foundations up to 20-30 cm over the designated base elevations. The last 20-30 cm of natural ground elevation shall be excavated under the control of the Engineer

and care shall be taken to ground soil not to be disturbed. The surface of soil must be protected from getting wet and drying. Compacted and non-compacted surfaces under the foundation piers are subject to approval before concrete is casted. When the required level of elevation for foundation of structures is reached, 15 cm of lean concrete shall coat the level under the foundation base and overflows 15 cm from both sides, immediately.

Preparation of Foundation Soil

The last leveling operation is made and if required, soft parts of soil is excavated and filled with an appropriate material and prepared.

The elevation difference between two points on the foundation soil must not exceed 1.5 cm and this shall be controlled by a gauge rod of 5m length. Addition to these restrictions, the foundation elevation changes' must be in an interval of ±2 cm tolerance according to the drawings.

The base of excavation area must be leveled in the above-mentioned statement. The locations that have an elevation difference greater than 2 cm shall be excavated and filled as mentioned in the related paragraphs. All these works shall be a part of the Contractor's responsibility without any additional cost impact.

The Engineer must be informed for checking the works done, and to approve them. If necessary for recording data, before the final excavation elevations are reached and starting of next process. Besides, Engineer has the authority to control the works done.

Removal of Soft Parts

Although the processes are followed there may be still soft parts or cracks found in the excavation base. These shall be excavated by hand and shall be filled with appropriate material by the Contractor.

Removal of Soft Parts under The Foundations:

To remove the soft parts under the foundations, 150 kg/m3 of lean concrete or compacted stabilized fill material shall be used as an appropriate material. The Engineer must approve the selected material. The concrete fill preparation, casting, compaction, curing and testing shall be made regarding the concrete specification and Engineers instructions.

Removal of Soft Parts under Non-Structural Sections:

The selected fill material shall be used as an appropriate fill material for the excavated soft parts under non-structural sections. The arrangement, location, compaction and testing procedure shall be done as described below.

Fill and Compaction:

Fill material shall be laid in the form of horizontal layers and the thickness of the material laid shall not exceed 20 cm in the loose state. Then it shall be compacted. Fill material shall not be laid in muddy surfaces in any conditions. The fill shall be straight and compacted in a stabilized way to avoid the formation of eccentric loading and shear forces in the places adjacent to structures. The sloped surfaces consist of barriers and terraces shall be constructed to prevent sliding of fill materials. During the process of backfill and construction of barriers, machines that may exert additional loads to structures shall not be used for compaction.

In accordance with the Engineer's approval, compaction operation shall be done with vibrated cylinders, cylinders with steel wheels or other machines certified for that type of operation. If required, material shall be moisturized to obtain desired compaction degree and also ventilated. All layers shall be compacted to a degree of not less than a maximum density ratio percentage as tabulated below:

Rearrangement of Foundation Excavation Bases

The approved foundation bases may be damaged due to the weather conditions, because of a contractor's interference or any unexpected situation. In this case before starting the construction, soil shall be controlled without any cost impact to the Employer. Underground installation compaction shall be made by hand.

Tests

There shall be no payment for sampling, testing and reporting the test results to contractor.

The laboratory tests concerning moisture density relationships shall be made according to the procedure regarding the compaction of fills mentioned in the above statements.

Preparing samples in accordance with the laboratory tests does not include any additional payment to contractor. Field tests are also carried out in accordance with TS1900 to check whether the compaction conditions are verified

the tests made by contractor must be in an Engineer certified laboratory. The copy of test results following 24 hours after the tests were made shall be given to Engineer.

The fill and backfill not compacted as defined shall be excavated to the depth that Engineer decides and the degree of density conditions shall be provided with no additional cost to administration. These re-compacted locations are going to be checked whether the conditions are satisfied by the tests. Also these tests shall be out of payment procedure. The test type and frequency intervals are listed in the below table:

Support

There shall be no additional payment to contractor for support work items.

If required, protection by supports is an obligation for; safety of workers, adjacent fills and structures, installations, etc Support walls, plates and supports shall be dismantled without causing any collapse of soil in the working area.

The contractor shall be responsible for all type of accidents and damages to workers and structures, respectively that may be happened because of a collapse near the excavation area or any other reason that may cause collapsing of the soil. These types of damages must be prevented by providing adequate slopes along the surfaces of excavation or the sides of the excavation area must be supported by the contractor. Support procedure shall be done by taking care of soil's state of nature.

The method for strengthening the sides of the excavation area must be approved by the Engineer. But this approval does not abrogate the contractor's responsibility. If Engineer desires the supports remain unchanged in their places for safety reasons at the stage of re-filling after foundation excavation or piping works, contractor shall not have any rights to request a payment for that application.

The re-arrangements or any changes in the support system made by the contractor or the Engineer's directives shall not have any cost impact to the Employer.

Dewatering

There shall be no additional payment for dewatering because these works are included in excavation item.

The excavation works shall be carried on with effective and continuous drainage. There shall not be any permission of water accumulation in the site for any reason. Until concrete and filling works are being completed water accumulated in the foundation or installation holes and surface run-offs shall be drained temporarily by pumping, drainage or other certified methods.

Drainage and dewatering in earthworks shall be carried out by the Contractor as part of the Contract. Excavations shall be performed so that the area of the site and the area immediately surrounding the site, which may affect operations at the site, will be continually and effectively drained. Water shall not be permitted to accumulate in the excavation.

Foundations for structures and utility trenches shall be kept free from standing and surface water at all times by pumping, draining or other approved methods until concreting and backfilling operations are completed. Where pumping is used, a back-up excavation, site drainage and sub grade protection plan shall be approved by the Supervisor prior to initiating construction. The plan shall include proposed measures to keep concrete curing water out of backfill and sub grade areas.

Removing Excavation Material

The excess of excavation material which the Engineer judged to transport from the site area shall be carried to an adequate area that is decided by the contractor, Engineer and local administration together. The permission for transporting materials from site to the selected area is under the contractor's responsibility. After all the excavation is completed all temporary storage and stack areas must be cleaned, drainage slopes are set, and the site is remained in a good view according to the local administration rules.

Transportation and unloading procedures shall be done without giving any disturbance to environment. The trucks shall be prepared covered to prevent rubble pouring, according to the traffic rules.

It may be not convenient to transport some of the trees in the site. In this case these shall be stacked in a suitable place that the Engineer shows.

Exported Compacted Stabilized Fill

Compacted stabilized fill is used between foundations. Fill material shall be in the form as defined in the capillary water paragraph or in the re-arrangement of bases and loading paragraph.

Borrow materials for the use of compacted stabilized fill requirements shall be selected whether the capillary barrier exists. Borrow material shall be obtained outside from the site from a specific location chosen by contractor

and shall be approved by the Engineer. Obtaining compact stabilized fill material, transportation and similar costs are included in the related items.

Sieve Analysis of compacted stabilized fill:

Grain Size	Passing the Sieve (% Percentage)
75 mm	100
35.5 mm	85-100
10 mm	40-70
5 mm	25-45
600 micron	8-22
75 micron	0-5

Backfill

Backfill process shall not begin before; the approval of construction under the final level, control of underground installation systems and their testing, removing form, cleaning the area from wastes and rubbles.

The above-mentioned construction under the final leveling includes water insulation over the faces of exterior basement walls, protection walls but not limited with these.

Fill shall not be placed over the wetted surfaces of soil. Fill material shall be placed and compacted as described in the related paragraphs.

Laying fill materials and compaction shall not be applied with the heavy work machines to foundations and retaining walls at a distance smaller than the height between the foundation system structure and fill level. The compaction work between these distances shall be made with appropriate hand compactors of layers having a compacted thickness of not greater than 20 cm. Fill material shall be placed carefully without giving any harm to covers around pipes. To place the fill material around walls, 7 days must be passed over the construction time. Backfill shall be placed around the walls at equal amounts and level shall be raised up. Also, for the drainage of water, slope shall be given to the surfaces in an applicable ratio. Care must be taken to the locations under the building entrance, slabs and sidewalks. Compaction tests shall be made according to the tests paragraph.

Rock Excavation

If rock is encountered during excavation, no additional payment shall be done. In rock excavations appropriate machines shall be used but explosives are not permitted.

Protection of Existing Service Lines and Structures

Contractor is responsible from protection of existing service lines and structures against damaging. In case of any damage occurrence its rehabilitation is also under Contractor's guarantee.

Levelling

The areas outside the buildings/structures shall be leveled according to project parameters and drainage shall be maintained. Finally, after the last control the area shall be kept clean.

Addition to these, the upper soil layer may be compacted and dirtied by lime or cement because of the working machines. Then it must be cleaned and ventilated.

The stored vegetable soil shall be placed into the ventilated, cleaned and leveled layers.

Transportation of Earthworks

No additional or directly payment for transportation shall be made in any part of the work.

4.1.2. CONCRETE WORKS

Concrete

Concrete Works as specified hereunder shall include the supply of materials, mixing of concrete, formwork, reinforcement, placing, compaction and curing of concrete and site clearance after completion of works. In general, TS 1247 or DIN 1045 shall be respected when mixing, placing and curing concrete.

The prices entered in the price proposal shall fully include the value of works described shall cover the cost of all labour, subsidence, traveling, materials, admixtures, temporary works, yards and stockpiles, sampling and testing and any other expenses whatsoever together with all risks, liabilities and obligations set forth or implied in the Contract Documents.

Record of Concreting

The Contractor shall keep accurate and up to date records of concreting showing for each day when sections of the works were concreted:

- Date, time, weather and temperature;
- Results of all concrete tests including identification for which part of works the sampled material is representative;
- Class of concrete, volume of concrete placed and number of batches used for each location.

The laboratory where concrete test have to be carried out shall be approved by the Engineer and be accessible for him at any time.

Organization of Concrete Production at the Site

At the commencement of the Contract the Contractor shall submit for the approval of the Engineer a Method Statement detailing his proposals for the organization of concreting activities at the site. The concrete to be used for Works should be ready-mixed.

The Method Statement shall include the following items:

- Plant proposed including plant capacity and capability to continuous supply of concrete.
- Quality control procedures for concreting by the contractor.
- Transport and placing of concrete.
- Details of formwork including striking/removing times and procedure for temporary support of beams and slabs.
- Protection and curing.

Ready Mixed Concrete

Concrete obtained from a supplier of ready-mixed concrete may be used in the Works subject to the written approval of the Engineer. Such approval shall not be given until the Engineer is satisfied that the organization and control of the manufacture and delivery of all ready-mixed concrete is satisfactory. Ready mixed concrete shall comply with TS 206-1.

Placing and Compaction of Concrete

Preparatory Work:

The Engineer's approval in writing shall always be obtained before any concrete is placed in the Works. All constructional plant and materials required, or which may be required during the concreting work and for curing shall be on site and the Contractor shall be fully prepared for the work. The Engineer's approval to place concrete shall only be given after such preparations and other relevant requirements of the Technical Specifications have been carried out and complied with.

If necessary and/or directed by the Engineer, the Contractor shall cool any shuttering that has become overheated or exceptionally dry through prolonged exposure to the sun. The Contractor shall ensure that all shuttering retains a sufficient amount of humidity and has not become shrunk or warped. All soaking or spraying of shuttering shall be done with potable water.

When concreting in hot weather the requirements set out under the heading "Concreting in Hot Weather" shall be complied with. The Engineer may completely forbid the placing of concrete in any shuttering, which he believes has become too and/or dry and the condition of which could harm the quality and strength of concrete. No extra payment for cooling or soaking of shuttering shall be made. Pursuant to Section 2.3.6 all shuttering, area of deposition, reinforcement and exposed surfaces of adjoining concrete surface shall be thoroughly cleaned and free from dust, debris, oil any other substance that may be harmful to fresh concrete.

Depositing in Work:

The methods of conveying and depositing concrete shall be such as to prevent segregation of the materials and shall be approved by the Engineer before concreting begins. The placing and compaction of concrete shall be carried out under the direct supervision of a competent member of the Contractor's staff.

Concrete shall be placed directly in the Works as soon as possible without the need for re-handling and not more than 45 minutes after mixing and in any case, before the initial setting has taken place. If any delay has occurred after mixing and the concrete has begun to set, it shall not be used in the Works and shall be removed from the site. Unless otherwise agreed by the Engineer on the basis of satisfactory site trials concrete shall not be dropped into place from a height exceeding 1,5 meters.

Concreting of any section or unit shall be carried out in one continuous operation up to the construction joints. No interruption of the concreting shall be allowed without the approval of the Engineer. Where deposition of concrete has to be interrupted, precautions shall be taken to ensure satisfactory adhesion of later batches of

concrete to that previously placed.
Where delays of more than one hour has occurred between concreting operations in one section or unit of work, concreting shall only be resumed when, in the opinion of the Engineer, the previously placed concrete has had ample time to harden and the resulting joint shall be treated as a Construction Joint within the meaning and description of Section 2.4.9. At all times when concrete is being placed, a competent steel fixer shall be in continuous attendance to adjust and correct the position of any reinforcement, which may become displaced.
Transportation of concrete directly over fixed reinforcement steel during concreting shall not be allowed unless proper provisions are made to avoid displacing or damage to the reinforcement.
Pouring in Layers:
Concrete shall be poured in approved quantities and horizontal layers of such depth as to permit thorough incorporation with the layers below by vibration, spading, ramming and working. If, for unforeseen reasons, it is necessary to stop concreting before completion of a section, then construction joints as specified shall be formed and further concreting shall be suspended for at least 24 hours.
Concreting in Hot Weather:
The Contractor's attention is drawn to TS 1248 or ACI 305 entitled "Hot Weather Concreting". The Contractor's methods shall comply with the recommendations in that document as modified and supplemented below.
The Contractor shall take great care during hot weather to prevent the cracking or crazing of concrete. The Contractor shall arrange for concrete to be placed in the early morning or late evening as directed by the Engineer.

The Contractor shall pay particular attention to the requirements specified herein for curing. Formwork shall be shaded from direct exposure to the sun both prior to placing of the concrete and during its settings. The Contractor shall take appropriate measures to ensure that reinforcement in the section to be concreted is maintained at the lowest temperature practicable.
Concrete at placing shall have a temperature of not more than 32°C. If necessary the Contractor shall cool the aggregates and mixing water by methods approved by the Engineer.
Where necessary the Contractor shall design, install and operate a cooling system by which cooling water is pumped through a piping system in order to decrease the heat of hydration during concreting. The proposal for such a cooling system shall be submitted to the Engineer for his approval well in advance of the concreting operations.
The temperatures of ambient air, concrete at various levels and intervals not exceeding 5 meters and cooling water where applicable shall be measured by means of thermocouples and recorded.
Concreting in Cold Weather:
Cold weather is defined as the situation existing at the Works, where either or both of the following conditions existing:

- The air temperature at the time considered is below 2°C;
- The mean daily air temperature over three or more successive days has dropped below 5°C.

Under no circumstances may concrete be placed in contact with frozen ground or formwork, or in contact with ice, snow or frost on the ground or on formwork or reinforcement. Concrete shall not be made with frozen materials.
Concreting may proceed in cold weather provided special precautions are taken to ensure that the surface temperature of the concrete at the time of placing is not less than 5°C for a succeeding period of at least:
4 days when the cement used in the concrete is ordinary Portland cement;
2 days when the cement used in the concrete is rapid hardening Portland cement.
Such precautions may include the following:

- Warming the aggregates and heating the water, provided that the temperature of either does not exceed 60°C. Water and aggregates shall be mixed for a period sufficiently long for them to acquire a uniform temperature before cement is added.
- Completely surrounding the freshly placed concrete with a cover and heating the enclosed air, which shall be kept moist. Draughts of hot or dry air shall not be directed at surfaces.
- Insulating the formwork and finished concrete surfaces.
- Providing screens to protect the concrete from air currents.

The Contractor shall provide the Engineer with details of the precautions he proposes to take to protect the concrete from the effects of low temperatures and with details of the methods he proposes to use assess the correct timing at which such protection may be removed. No concreting shall be done in cold weather prior to the approval the Engineer for the proposed measures.
Concreting in Unfavorable Weather:

Concreting shall not be permitted during heavy rain or snowfall, or when the air temperature falls below 2°C, or when the concrete temperature rises above 32°C. When the air temperature exceeds 25°C, concreting shall only be permitted after special precautions, approved by the Engineer, have been taken to prevent early setting of the concrete, such as lowering the temperature of the water to be used in the mix or by means of a cooling-system, keeping the aggregates and shutters continuously sprayed with water and erection of temporary sun shades over the working area. During concreting operations the temperature of the placed concrete shall be recorded.

Compaction of Concrete:

The Contractor shall regard the compacting of the concrete to be of fundamental importance for the objects which he shall produce. A watertight concrete of maximum density and strength must be obtained.

Concrete shall be thoroughly compacted during the operation of placing and shall be thoroughly worked around the reinforcement and embedded fixtures and into corners of the formwork and moulds.

Mechanical vibrators shall be of the immersion type with a frequency of not less than 8000 vibrations per minute and as approved by the Engineer. A sufficient number of vibrators shall be used to handle the maximum rate of concrete production with a 50% allowance for stand-by units during any period of concreting. All operators handling vibrators shall be trained in their operation.

Vibrators shall be inserted into the not compacted concrete vertically and at regular intervals. Where the not compacted concrete is in a layer above freshly compacted concrete the vibrator shall be allowed to penetrate vertically for about 100 mm into the previous layer. Vibrators shall be withdrawn slowly from the mass of concrete so as to leave no voids. Internal type vibrators shall not be placed in the concrete in a random or haphazard manner nor shall concrete be moved from one part of the work to another by means of the vibrators. Vibration shall not be applied directly or through the reinforcement to sections or layers of concrete which have hardened to the degree that the concrete flow in the formwork over distances so great as to cause segregation.

Every care shall be taken to see that reinforcement and fittings attached to the shuttering are not disturbed, and that no damage is caused to concrete that has already set or to the internal face of the shuttering by using immersion type vibrators. In areas of congested reinforcement, it may be necessary to use small diameter pokers and the Contractor shall supply suitable sizes of pokers for each part of the work. Vibration of concrete by hammering the shuttering with hand tools is not permitted.

When placing concrete against horizontal or inclined elements of waterstops they shall be lifted and the concrete placed and compacted to a level slightly higher than the underside of the waterstop before releasing the waterstop to ensure complete compaction of the concrete around the waterstop.

The duration of vibration shall be limited to that required to produce satisfactory compaction without causing segregation. Vibration shall not be continued after water or excess grout has appeared on the surface.

Concrete shall not be disturbed after compaction and placing in its final position. Concrete that has partially set before final placing shall not be used and shall be removed from the site.

Placing Concrete on Previously Executed Work:

Where concrete is to be poured against or on top of previously executed work, the surface of the old concrete shall be thoroughly wire brushed, hacked and cleaned with water and air under pressure to expose the surface of the aggregate and to remove all laitance. Special care shall be taken to ensure that the new concrete is thoroughly compacted and rammed against the old.

Protection and Curing of Concrete:

Water used for curing shall comply with TS 1247 and TS 1248. Concrete shall be protected from damage by climatic conditions (direct sunlight, rain, snow or frost), running water or mechanical damage during curing. All methods to be used for curing and protection of freshly placed concrete shall be subject to the prior approval of the Engineer.

The maximum and minimum ambient temperatures and humidity shall be measured and recorded each day by the Contractor. The records shall be made available for the Engineer's inspection.

All exposed surfaces shall as finishing proceed be covered with a wet hessian sheet followed by a reflective polythene sheet. These shall be securely fastened around the edges and supported in order not to damage the finished concrete surface. As soon as practicable the hessian and polythene shall be lowered into close contact with the concrete and securely weighted or fastened down to prevent wind blowing underneath. The hessian sheet shall be maintained in a moist condition at all times and shall be inspected at intervals not exceeding 6 hours. Concrete shall be kept moist on exposed surfaces for a period of not less than 72 hours or as approved by the Engineer.

Alternative methods of protecting and curing concrete, such as ponding in which the water is to be maintained at least 50mm deep, may be approved by the Engineer. In any case liquid curing membranes shall not be used on exposed surfaces or where laitance is to be removed and aggregate exposed to provide satisfactory bond for

placing further concrete or mortar screeds. Liquid curing membranes shall not be used where mortar, resin mortar, or joint sealant is to be applied.
Sufficient methods to afford full protection to a concrete pour shall be available at the place of work prior to the commencement of concreting.
During very hot weather conditions, the Contractor may be required to cool formwork containing concrete by spraying with water. This shall be carried out where directed notwithstanding and whatever other measures the Contractor may have employed for the curing of the concrete. All materials spray equipment and an ample supply of water for curing shall be ready on site before any concreting starts.
Faulty Work:
Any portion of the work which is honeycombed or otherwise inferior shall on the written instruction of the Engineer, be immediately cut out and reconstructed in an approved manner without extra charge. Plastering of defective work shall not be permitted. Any leaks or cracks shall be sealed by injection with a synthetic resin or other appropriate methods approved by the Engineer.
Blinding Concrete (Sub-base):
A blinding layer of minimum 150 mm lean concrete shall be placed under foundations where shown on the Drawings or ordered by the Engineer. The blinding layer shall be allowed to harden before the structural concrete for the ground slab is placed.
Blinding of trimmed surfaces in excavations and trenches includes placing, compaction and screening of surfaces as specified in the Technical Specifications.

Blinding shall be measured net by square meters, referring to minimum trench width as specified for earth works and to the size of structures as shown on approved Drawings.
Loads on Concrete Structures:
No external load of any kind shall be applied to any part of a concrete structure until the concrete has matured for at least 7 days and then only with the approval of the Engineer and after confirmation those 7 days specimen strengths as agreed by the Engineer have been met.

Field Concrete

Joint Sealants and Fillers
The Contractor shall provide Class 5 or Class 8 joint-sealant materials and fillers unless otherwise shown on the plans or approved and other sealant materials of the size, shape, and type shown on the plans in accordance with DMS-6310 (or equivalent), "Joint Sealants and Fillers.
Sawing Equipment
The Contractor shall provide power-driven concrete saws to saw the joints shown on the plans. Provide standby power-driven concrete saws during concrete sawing operations. Provide adequate illumination for nighttime sawing.
Grinding Equipment
When required, provide self-propelled powered grinding equipment that is specifically designed to smooth and texture concrete pavement using circular diamond blades. Provide equipment with automatic grade control capable of grinding at least a 90 cm width longitudinally in each pass without damaging the concrete.
Joints
The Contractor shall

- install joints as shown on the plans,
- clean and seal joints,
- repair excessive spalling of the joint saw groove using an approved method before installing the sealant
- seal all joints before opening the pavement to all traffic,
- When placing of concrete is stopped, install a rigid transverse bulkhead, accurately notched for the reinforcing steel and shaped accurately to the cross-section of the pavement

Placing and Removing Forms
The Contractor shall

- Use clean and oiled forms.
- Secure forms on a base or firm subgrade that is accurately graded and that provides stable support without deflection and movement by form riding equipment.
- Pin every form at least at the middle and near each end.
- Tightly join and key form sections together to prevent relative displacement

Spreading and Finishing
The Contractor shall

- Finish all concrete pavement with approved self-propelled equipment.
- Use power-driven spreaders, power-driven vibrators, power-driven strike-off, and screed, or approved alternate equipment.
- Use the transverse finishing equipment to compact and strike off the concrete to the required section and grade without surface voids. Use float equipment for final finishing.
- Use concrete with a consistency that allows completion of all finishing operations without addition of water to the surface.
- Use the minimal amount of water fog mist necessary to maintain a moist surface.
- Reduce fogging if float or straightedge operations result in excess slurry.

4.1.3. SHUTTERING AND CONCRETE FINISHES

General

Shuttering shall include all temporary moulds for forming the concrete together with all temporary constructions required to support such moulds.
Shuttering shall be of suitable design and adequate construction to carry the loads without excessive bulging, distortion or deflection. Shuttering shall be constructed so as to prevent loss of water or grout from the concrete. Special attention shall be measured to shuttering where poker or shutter vibrators are used to compact the concrete.

Materials for Shuttering

Shuttering shall be made from good quality plywood, free from loose knots, shakes and warped surfaces. Plywood for shuttering shall not be less than 17,5 mm in thickness, and the plywood shall be resistant to deterioration by water, and shall be fixed and jointed in such a manner as to give a perfectly smooth and even finish to the concrete.Alternatively, with the approval of the Engineer, shuttering may be made from:

- metal with accurately aligned and close-fitting joints
- plywood or hardboard 5 mm in thickness supported by close boarded timber

Fixing of Shuttering

Shuttering shall be fixed to perfect line and level and be truly plane with no crevices at joints, and shall be securely braced, supported and wedged so as to retain its position without displacement or deflection during the placing and compaction of the concrete. All joints shall be either horizontal or vertical.

Coating to Prevent Adhesion

All shuttering in contract with concrete shall be treated with an approved mould oil or solution before usage to prevent the adhesion of the concrete. Such oil or solution shall be carefully applied in such a manner that there is no contamination of the reinforcement or previously placed concrete by the oil or solution. Any materials which shall adhere to or discolor the concrete shall not be used.

Cleaning and Re-Using of Shuttering

Before any concrete is placed, the shutters shall be properly cleaned and washed out with water and air under pressure to remove sawdust, shavings and all other foreign matter. All water shall then be drained and mopped out from the shutter.
In no case shall concrete be placed in shuttering before the shuttering has been approved by the Engineer. If shutters or moulds are to be re-used, all surfaces shall be cleaned and shall be completely free from remnants of concrete or mortar. If in the opinion of the Engineer, shutters or moulds are not acceptable for reuse, they shall be either properly repaired or substituted with new shutters or moulds which shall comply with the requirements of Section 2.5.3.

Removal of Shutters

Formwork shall be designed as to permit easy removal without resorting hammering or levering against the surface.
The period of time elapsing between the placing of the concrete and the striking of the formwork shall be as approved by the Engineer and shall be in any case not less than the period stated in TS 500 or DIN 1045. If not otherwise directed, the striking times for side formwork for slabs shall be 3 days.
At all times the Contractor shall delay the removal of the shutter if in the opinion of the Engineer the concrete contained therein has not attained sufficient hardness.
In cases of average temperatures being below 4°C, the period of removal shall be extended by the number of days the temperature has been lower than 4°C. The periods given in days are days of 24 hours duration.

Alternatively, the removal of shutters shall be determined by the demanded compressive strength of the concrete.

Finish to Concrete Surfaces

All surfaces shall be free from cracks, sand runs, honeycombing, porosity and grout/matrix loss.

Dimension and Surfaces of In-Situ Concrete

Workmanship in formwork and concreting shall be such that concrete shall normally require no making good, surfaces being perfectly compacted, smooth and with no irregularities. Concrete surfaces for the various finishes shall in any event never exceed the maximum permitted tolerances stated below:

- Line and level: ±12 mm
- Dimension: ±12

Remedial Treatment of Concrete Surfaces

Any remedial treatment to concrete surfaces shall be agreed with the Engineer following inspection immediately after the stripping of formwork and shall be carried out without delay.
Any concrete surface which is found to have been treated before inspection by the Engineer shall be rejected.
Any minor surface blemishes shall be repaired to the satisfaction of the Engineer immediately after completion of curing. Remedial measures may include, but shall not be limited to, the following:

- Holes left for formwork supports shall be thoroughly cleaned out to remove all loose material and the sides shall be roughened, if necessary, to ensure a satisfactory bond. They shall then be filled with dry-pack mortar.
- Fins, pinhole bubbles, surface discoloration and minor defects may be rubbed down with sacking and cement immediately the formwork is removed.
- Abrupt and gradual irregularities may be rubbed down with carborundum and water after the concrete has been fully cured, where curing shall be applied in accordance with principles stipulated in the "Protection and Curing of Concrete" section
- Small defects and minor honeycombing shall be chipped out perpendicular to the face of the concrete to a depth of at least 25 mm and filled with dry-pack mortar.
- Fissures shall be repaired by using epoxy based materials or by using materials approved by the Engineer.

All other defects shall be regarded as too extensive to permit satisfactory repair and the concrete containing the defect shall be broken out and replaced.

4.1.4. STEEL REINFORCEMENT

Types, Quality and Storage

Steel reinforcement for concrete shall consist of steel bars or steel wire fabric. Steel bars shall consist of deformed bars of type ST III (S420a (with a characteristic tensile strength of 420 MPa)) as specified in TS 500 and TS 706 EN 12620 or DIN 488 T1 and DIN 488 T2. Steel wire fabric reinforcement shall be in accordance with TS 4559 or DIN 488 T4.
The Contractor shall submit reinforcement detail Drawings and calculations for approval of Engineer, if deemed necessary by the Engineer.
The Contractor shall prepare test specimens of steel reinforcement to be used in the Works. Test specimens shall be taken in the presence of the Engineer and shall be of a size sufficient to carry out the tests as described below. They shall be tested in an approved laboratory and the certified copies of the results of the tests shall be submitted to the Engineer. The specimens shall be tested for bending and tensile properties and the wire fabric also for weld shear strength. The methods and requirements for testing shall be carried out in accordance with TS 4559 and TS 802 or DIN 488 T3, 488 T5 and 488 T6. No steel reinforcement shall be used in the Works until the testing results have been approved by the Engineer. If ordered by the Engineer, test procedures shall be repeated at the Contractor's expense for any new supply of reinforcement during the course of the Works.
Storage of reinforcement shall be on racks or supports clear of the ground. Different types and sizes of reinforcement shall be kept separate.
The Contractor shall execute the reinforcement fixing in accordance with the Drawings and/or according to the requirements specified in TS 500 and DIN 1045.

Protection and Cleaning

Reinforcement shall be protected at all times from damage, and when placed in the structure shall be free from dirt, loose mill scale, rust scale, paint, oil or other foreign substance. All reinforcing steel shall be carefully cleaned of all set or partially set concrete, shutter oil or paint which may have been deposited during the construction of

adjacent works.

Bending of Bars

Steel reinforcement shall be cut from straight bars free from kinks and bends or other damage and shall be bend cold by experienced competent workmen. Bars of diameter greater than 16 mm shall be bent in a bending machine designed for the purpose and approved by the Engineer. Any reinforcing bar that has already been bent shall not be re-bent at the place of the previous bend.

Cutting of Wire Fabrics

Wire fabric reinforcement shall be cut straight from the sheets. The use of off-cuts shall not be permitted.

Lapping of Bars and Wire Fabrics

Lapping bars and wire fabrics is permitted when necessary and approved by the Engineer. No welding of reinforcement shall be carried out unless authorized by the Engineer, welding and testing for reinforcement shall comply with the requirements specified in TS 500 or DIN 4099 T1.

Unless otherwise specified, lap length of bars shall be at least forty (40) times the diameter of the larger bar, and laps shall be positioned in a staggered pattern.

Laps on adjacent section of wire fabrics shall generally be carried out as follows:

- End to end by lapping the two pieces one full mesh (measured from the ends of the longitudinal wires in the other piece) and securing the two pieces together with wire ties placed at intervals of about 450 mm.
- Side by side by placing the two selvage wires (the longitudinal wires at the edges of the fabric) one alongside and lapping the other, and by securing the two pieces together with wire ties placed at intervals of about 900 mm.

Fixing of Reinforcement

All reinforcement steel shall be accurately placed and fixed in position and retained in that position during the placing of the concrete.

Spacer blocks for holding the reinforcement from contact with the forms or adjacent reinforcement, shall be of dense pre-cast concrete blocks of approved shapes and dimensions. The blocks shall be fitted with a semi-circular hollowing and double bent poured-in binding wires. The water tightness of these blocks must be at least similar to the concrete into which they are concreted. The use of pebbles, pieces of broken stone or brick or other materials shall not be permitted. Steel shall be bound and tied in its correct position using steel wire. Apart from any other requirement, the reinforcement, the reinforcing steel shall be fixed in such a manner that it shall support its own weight and any loads which may be imposed upon it during construction without displacement, deflection, or movement of any kind.

In slabs provided with two or more layers of reinforcement the parallel layers of steel bars shall be supported in position by the use of steel chairs. Spacer blocks shall be placed at each chair to support the layers of reinforcement from the blinding concrete or shuttering.

The distance between any two parallel bars except at laps shall not be less than 5 mm greater than the nominal aggregate size.

All reinforcement exposed to the weather for long periods before concreting is commenced shall be covered with polythene blinding tape, cement grout or other materials to the surrounding concrete. Should in spite of these precautions rust staining occurs on any permanently visible surfaces, it shall be removed at once to the satisfaction of the Engineer.

Thickness of Cover

The thickness of cover for the reinforced concrete ground slab shall be 50 mm. For the beams and columns it shall be 25mm. For external works, water retaining structures and casting of concrete in/under water, it shall be 75 mm.

Tolerances

Tolerances in placing reinforcement shall be +/- 10 mm.

Approval before Concreting

All reinforcement, after having been fixed in position, shall be inspected and approved by the Engineer before any concrete is placed. Any concrete placed contrary to this requirement shall, if ordered by the Engineer, be removed together with the reinforcement and replaced by the Contractor at his own expense.

External treatment of walls towards ground

Drawings and general provisions of the Contract apply to this Section. Related sections of the relevant Turkish Standards may be applicable in place of the given codes, norms or standards after the Engineer's approval.

Product data for each type of product specified, including data substantiating that materials comply with requirements for each damp proofing material specified. Include recommended method of application, recommended primer, number of coats, coverage or thickness, and recommended protection course.
Comply with manufacturer's recommendations except where more stringent requirements are indicated and where Project conditions require extra precautions to ensure satisfactory performance of work for the materials specified in the item's definitions.

4.2. PARTICULAR TECHNICAL SPECIFICATIONS FOR LEACHATE POND LINER SYSTEM

A second impermeability layer made of HDPE Geomembrane shall be installed on the Geosynthetic Clay Liner (GCL) impermeability layer. The manufacturing company of the HDPE Geomembrane shall have "Geomembrane Manufacturing ISO 9001:2000 Quality Assurance Certificate".
2 mm smooth HDPE geomembrane layer shall be used on GCL impermeability layer. The technical specifications and the minimum values are given below:

Properties of Geomembrane

Technical Specifications	Test Method	Value
Surface appearance	DIN 16726	Flat, without holes, without pores, without gaps
Thickness, minimum, mm	DIN 53353	2.0 ± %10
Minimum singular value, mm	DIN 53353	1.8
Roll width, minimum, m		=5.0
Density, g/cc	EN ISO 1183	=0.945
Yield Strength, kN/m	EN ISO 527-3	= 15
Break strength, kN/m	EN ISO 527-3	= 50
Yield elongation %	EN ISO 527-3	10
Break elongation %	EN ISO 527-3	>700
Tear strength, N	DIN 53515	249
Puncture strength, N	EN ISO 12236	=5000
Fracture strength under pressure, hours	ASTM D 5397	200
Carbon black content, %	EN ISO 11358	2.0
Carbon black distribution, %	EN ISO 11358	Category 1-2
UV resistance, %	ASTM D 5885	50
Melting-flow index, g/10 min	EN ISO 1133	=1.15
Multiaxial elongation	ASTM D5617	%15

Geosynthetic Clay Liner (GCL)

Geosynthetic Clay Liner (GCL) is a lining system with natural sodium bentonite impermeability. As a result of the economic analyses made for SWU Landfill, it has been decided that GCL, which is widely used internationally, shall be used within the scope of previous projects. GCL is a lining system in which natural sodium bentonite is located between two layers of geotextile. The upper layer shall be non-woven geotextile and the bottom layer shall be woven geotextile. Both layers of geotextile shall be bonded to each other with needle-punching method. For the selection of GCL to be used for SWU Landfill, one of the most important issues which should be considered is that the application of GCL selected for 3 (horizontal):2(vertical) slopes shall have sufficient slip safety. For this reason, the Contractor shall prove GCL slip safety on 3:2 slope with a document obtained from the manufacturer. The GCL manufacturer shall have "GCL Manufacturing ISO 9001:2000 Quality Assurance Certificate". The technical specifications and minimum values of GCL to be used at SWU Landfill are given below:

Properties of Geosyhnthetic Clay Liner

Technical Specifications	Test Method	Value
Bentonite		
Materials		Natural sodium bentonite
Mass per unit area, g/m^2	TS EN 965	=4000
Bentonite swelling index, ml/2g	ASTM-D5890	=24
Bentonite fluid loss, ml (maximum)	ASTM-D5894	=18
Water content		<15

Technical Specifications	Test Method	Value
Geotextiles		
Materials		PP
Top layer, non-woven polypropylene, weight of unit surface area, g/m^2	TS EN 965	200
Bottom layer, woven polypropylene, weight of unit surface area, g/m^2	TS EN 965	100
Bonding method		Needle-punching
GCL, as a layer		
GCL, weight of unit surface area, g/m^2	TS EN 965	4300
Thickness, mm (under 2 kPa pressure)		=5
Maximum tensile strength, in the direction of manufacturing/perpendicular to manufacturing direction, kN/m	TS EN ISO 10319 ASTM D 4595	13 /13
Tensile strength, MD, kN/m	ASTM-D6768	4.0
Peeling resistance, N/m	ASTM-D6496	=65
Permeability, m/s	E 96	=5x10-12
Permeability, l/s	ASTM-D-5887	=1x10-8
Roll width, m		=4.0

Preparation of the Surface

The surface area shall be cleaned of all kinds of stones, organic and other materials larger than 50 mm. The floor shall be compacted with smooth wheeled rollers or rubber wheeled rollers for at least 90% proctor density. The prepared floor shall be protected from water (rain, snow, hail, frost, etc.).

Installation of GCL

The storage conditions of GCL rolls are very important due to the hydrophilic nature of the material. Thus, GCL rolls shall be stored in a place that is above the ground and covered with a waterproof material to prevent damage caused by light, excessive moisture and ripped packaging, and other types of damage. All rolls shall be wrapped with opaque and waterproof plastic.

The engineer shall inspect the rollers to see if they are damaged or not, and shall ensure that the following conditions are met:

- GCL rolls shall not be installed on rainy days and when there is excessive wind, as the bentonite powder will wear out.
- The surface of the installed GCL shall be completely covered with geomembrane or another waterproof material on the same day to prevent the material from getting wet with contact with open air.
- On slopes, the rollers shall be anchored in advance and then installed downwards. During this process, the material shall be kept tight. The rolls shall not be released on the slope and allowed to unroll freely by gravity.
- The rolls shall be installed as oriented to the necessary side, usually placed on the transportation side. The rolls with supporting geotextile surface facing upwards shall not be approved.
- During the installation and cutting processes, the underlying material shall not be damaged, and the bentonite powder leakage shall be minimized.
- Gravel, rubble, stone, soil and other geosynthetic materials shall be removed from the supporting surface.
    - The minimum requirements for overlapping joints and seams between adjacent panels are given below:
    - The minimum and recommended length of the overlapping joints between the panels shall be 150 mm and 200 mm, respectively. If the supporting and carrier geotextiles are very thick and heavy, the length of the overlapping joints shall be increased by 100 mm for every 150 g/cm2 exceeding 350 g/m2.
    - The minimum length of the overlapping joints between panel the end and another panel shall be 300 mm.
- Unless indicated otherwise, a sack of bentonite powder shall be laid evenly over the overlapping joints at a rate of 1 kg/ml.
- Horizontal seaming shall not be performed on the slopes.

- Prior to the approval of the installed material, the engineer shall visually check if the overlapping joints are smooth and if the panels are too tight.

Conditions for Repairment

Faulty GCL surfaces must be repaired. Before the approval of a sector, the engineer shall identify the damaged areas and the Contractor shall recommend adequate repairment methods. The main reasons for the repairs are given below;

- Total or partial swelling of geotextiles (lack of cutting strength)
- Wetting of bentonite due to early exposure to water.
- Fracturing due to tearing, cutting or impact to GCL.
- Opening caused by the insufficient overlapping of the joints
- Insufficient overlapping of the joints
- Overlapping joints which do not contain bentonite powder
- Creases over 300 mm
- Too much bentonite powder leakage

Recommended Repairment Methods:

- As a general rule, a flat layer of bentonite powder shall be placed underneath the upper soil layer.
- In order to comply with the specifications indicated in the terms of reference related to overlapping joints and seams; creases shall be cut from their axis and their sides shall be folded.

If there is not enough bentonite powder in the overlapping joints section, in accordance with the engineer, bentonite powder shall be added until it is homogenous.

Tests & Controls

- Pressure thrust test with force application
- Strip tension force test
- Control of the manufacturer's certificate
- Visual control of overlaps
- Stability and endurance testing during the construction and in the final phase

In addition, the manufacturer's documentation shall be controlled to see if the GCL to be supplied has the necessary properties. For this purpose, the Contractor shall submit the certificates provided by the manufacturer, to the approval of the Engineer.

4.3. PARTICULAR TECHNICAL SPECIFICATIONS FOR HDPE GEOMEMBRANE

A second impermeability layer made of HDPE Geomembrane shall be installed on the Geosynthetic Clay Liner (GCL) impermeability layer. The manufacturing company of the HDPE Geomembrane shall have "Geomembrane Manufacturing ISO 9001:2000 Quality Assurance Certificate".

2 mm smooth HDPE geomembrane layer shall be used on GCL impermeability layer. The technical specifications and the minimum values are given below:

Properties of Geomembrane

Technical Specifications	Test Method	Value
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Break strength, kN/m	EN ISO 527-3	= 50
Yield elongation %	EN ISO 527-3	10
Break elongation %	EN ISO 527-3	>700
Tear strength, N	DIN 53515	249
Puncture strength, N	EN ISO 12236	=5000
Fracture strength under pressure, hours	ASTM D 5397	200
Carbon black content, %	EN ISO 11358	2.0
Carbon black distribution, %	EN ISO 11358	Category 1-2
UV resistance, %	ASTM D 5885	50

Technical Specifications	Test Method	Value
Melting-flow index, g/10 min	EN ISO 1133	=1.15
Multiaxial elongation	ASTM D5617	%15

Geomembrane Installation

The Contractor shall prepare an "installation plan" 2 weeks before the commencement of the geomembrane installation works and submit it to the Engineer for approval. All geomembrane, geotextile, geosynthetic clay liner installation plans, phase and durations shall be indicated in detail in the installation plan. Installation works shall only commence after the approval of the Engineer.

Transportation and Storage on Site

Geomembrane rolls shall be packaged and loaded properly to prevent any damages. Geomembrane shall be stored in a way that it is protected from puncture, dirt, oil, water, moisture, mud, mechanical wearing, excessive heat and other damages.

Earthworks

The parts which are not sufficiently tightened, weak or collapsible shall be removed and filled and compacted properly. All installation surfaces shall be smooth; and all kinds of foreign and organic substances, sharp objects and debris shall be removed. Puddles of water and excessive moisture shall not be allowed.

Anchor trenches shall be excavated in a way that will be shown in the implementation projects required by the Contractor before the geomembrane is installed. The corners of the trench shall be slightly rounded and sharp bends shall be avoided where the geomembrane joins the ditch.

Installation Method

- No equipment or tools shall cause damage to the geomembrane during the transportation, usage or for other reasons.
- No personnel shall smoke while working on geomembrane, wear shoes that will cause damage or any perform such activities.
- Panel opening method shall not cause scratches or bends to the geomembrane, nor shall it damage the underlying surface or the geotextile installed at the bottom.
- Sufficient weight (sand bags or similar weights materials that do not cause damage to the geomembrane) shall be placed in order to prevent wind lifting. (In the cases with strong winds, the risk of wind penetrating the panels shall be reduced by placing weights along the edges of the panel)
- Direct contact with the geomembrane shall be minimized. For instance, the geomembrane shall be protected by geotextile, additional membrane or other suitable materials in areas where it is necessary to walk on the geomembrane.
- Installation of the geomembrane shall be performed under conditions where the ambient temperature is between 0ºC and 40ºC. Welding processes shall not be performed during precipitation or frost in the early morning.

Field Welding

The approved welding method for seaming the HDPE geomembrane joints is fusion welding or extrusion welding with automatic welding machines. Welding shall be arranged in parallel to the slope as much as possible. Vertical welding shall be avoided. Field welding shall be minimized in the corners and geometric parts. T welding at the surface shall not be closer than 1.5 meters to the toe of the slope. Welding shall be arranged in a way that will minimize creases and fishmouth. If a fishmouth or crease is found, it shall be straightened or cut.

<u>Welding Overlapping</u>

Geomembrane panels shall be installed with overlapping of minimum 10 cm for fusion welding and minimum 7.5 cm for extrusion welding.

<u>Welding Equipment & Accessories</u>

Approved equipment for field welding is automatic fusion and extrusion welding machines. The operator shall keep the following equipment on the field:

- Automatic Welding Machine
- Extrusion Welding Machine
- High Speed Grinder

- Hot Air Blower
- Vacuum Testing Equipment
- Field tensiometer and test sample cutting equipment for welding shearing and stripping tests
- Equipment for air pressure testing
- Roll opening equipment
- Necessary electrical cables and other tools

Welding Tests on the Field

In order to verify the suitability of welding conditions and welding equipment, welding tests on the field shall be done. Welding tests shall be carried out under the supervision of the Engineer, at the beginning of each welding period and at least once an hour.

All welding tests shall be carried out at the site and surface selected by the Engineer. Length of the welding tests shall be 3 meters for fusion welding and 1 meter for extrusion welding. 2.5 cm test samples shall be cut by the Engineer from each end. If needed, the Engineer shall carry out shearing and stripping tests of these samples using the tensiometer.

If the welding tests are insufficient to meet the values indicated in the ToR, welding tools and/or the welder shall not be accepted before the defects are corrected and at least two successful welding test results are received.

- The width of the welding slip test samples shall be 2.5 cm and grip thickness shall be 10 cm plus weld width. Weld shall be located exactly between the grips. Grip separation speed shall be 5 cm per minute.
- Both welding slip test and stripping test shall be performed on 5 similar samples. At least 4 of the 5 samples shall be successful in the test. The breakage occurring in the weld or welding membrane combination for both welds shall be considered unacceptable.
- The approved welding methods are fusion (hot shoe) and extrusion welding methods.
- The welding rods used for the extrusion welding shall be HDPE and their physical properties shall be the same as those used in the production of HDPE geomembrane.

Minimum Welding Values for HDPE Geomembrane

Welding Test	**Test Method**	**Minimum Value**			
		40 mil **1.0 mm**	60 mil **1.5 mm**	80 mil **2.0 mm**	100 mil **2.5 mm**
Slip Strength **ppi (N/cm)**	ASTM D 4437	87 (152)	131 (229)	175 (306)	218 (382)
Stripping Strength	ASTM D 4437	57 (100) & FTB	86 (150) & FTB	114 (200) & FTB	143 (250) & FTB

Tests of the Field Welds

The Contractor shall test all field welds throughout their length. The Contractor shall keep the following equipment and other equipment in the field.

- Vacuum Test

Vacuum testing equipment for single-geared fusion welding and extrusion welding tests shall be made up of the following:

- A durable cabinet, a transparent monitoring window, a vacuum box made up of a soft rubber seal mounted at the bottom and a vacuum motor
- A plastic bucket and a large brush
- Foamy solution

The Contractor shall perform the following for the tests:

- The extra parts of the overlaps shall be cut off.
- Vacuum box monitoring windows, rubber surfaces shall be cleaned; possible leakage shall be controlled.
- The upper surface of the geomembrane shall be soaked with 30 cm x 120 cm (box size) foamy solution as lines.
- The box shall be placed on top of the soaked part and pressed.
- Vacuum motor shall be run, and vacuum box shall absorb the geomembrane.
- The leakage shall be controlled.

- The geomembrane shall be examined by checking the presence of bubbles from monitoring window for approximately 15 seconds.
- On the condition that no bubbles are seen in the 15 second period, the vacuum motor shall be turned off and the membrane shall be released. Then the box shall be placed 15 cm adjacent to the tested part and the process shall be repeated.
- All the areas with bubbles shall be marked, fixed and the tests shall be repeated.

- Air Pressure Test (Double Geared Fusion Welding)

The following method shall be used in testing of the Double Geared Fusion Welding. The equipment required for the double geared fusion welding is given below:

- An air pump mounted on a pad to protect the geomembrane, with a pressure chamber which is capable of generating and holding pressure of 25-30 psi (1.75-2.10 atm)
- Another sharp-pointed, channelled needle or approved pressure-fed system mounted on a manometer.
- The Contractor shall perform the following tasks for the test:
- One end of the weld to be tested shall be closed.
- Needle or approved pressure-fed system shall be inserted through the closed end of the channel formed by the double geared fusion welding
- Air shall be pumped by a pump to see if the air channel is completely clean.
- The other end of the channel shall also be closed.
- The air pump shall be given the pressure values according to the following table, depending on the membrane thickness, the valve shall be closed and after the pressure in the channel is balanced within 2 minutes, the pressure shall be monitored for approximately 5 minutes.
- If the pressure loss exceeds the values given below or if the pressure does not stabilize, the faulty location shall be found, fixed and retested.
- Needle or approved pressure-fed system shall be detached, and the ends of the channel shall be opened.

Pressure Values for Air Pressure Tests

Membrane Thickness		Minimum Pressure		Maximum Pressure		Allowable Pressure Loss	
(mil)	**(mm)**	**(psi)**	**(bar)**	**(psi)**	**(bar)**	**(psi)**	**(bar)**
40	1.0	24	1.6	30	2.1	4	0.3
60	1.5	27	1.9	35	2.4	3	0.2
80	2.0	30	2.1	35	2.4	2	0.15
100	2.5	30	2.1	35	2.4	2	0.15

4.4. PARTICULAR TECHNICAL SPECIFICATIONS FOR OTHER TESTS AND CONTROLS

Faults and Repairs

The Engineer shall control all welded or non-welded areas of the geomembrane for defects caused by faults, holes, roughness and poor distribution of the raw material, and for pollution caused by any foreign substance. The geomembrane surface shall be clean during the controls as the geomembrane will assist in locating the faults by reflecting the light. The Engineer shall get the geomembrane surface cleaned if the amount of dust or sludge on the geomembrane surface is at a level which will prevent the control. The Engineer shall decide whether the geomembrane needs to be cleaned to facilitate the control, or not. All suspected areas, whether welded or not, shall be tested under the supervision of the Engineer.

The parts which do not pass the tests shall be marked by the Engineer and fixed accordingly.

Repairment

- Small holes can be repaired by sealing them with extrusion welding. The holes shall not be patched if they are bigger than 6 mm.
- Tears shall be repaired by patching. If the patch is on a slope or in a stress zone and has a sharp end, it shall be rounded off before patching to prevent it from getting bigger.
- Faults cause by large holes, roughness and poor distribution of the raw materials and polluted areas caused by any foreign substance shall be patched.
- The HDPE geomembrane surface to be patched shall be cleaned and ground at least 10 minutes prior to the repairment. Maximum 10% of the thickness shall be removed. Welding shall be started from the starting point of the grinding and at least 5 cm of overlapping shall be applied to previous welding

points. If extrusion welding is to be done on an existing extruded welding, the old welding surface shall be ground.

- The patches shall be round or oval, and they shall be over at least 15 cm of the faulty part. All patches shall be at the same thickness and structure as the geomembrane used. Before the patches are placed on top of the geomembrane, they all shall be ground with an angle grinder, and its edges shall be curved. Patches shall only be done with the approved methods.

Inspection of the Repairment

When the repaired welds do not require destructive testing, the non-destructive testing shall be carried out. Repairments which pass the non-destructive testing shall be used as an indicator of adequate repairment. Unsuccessful tests shall indicate that the repairment shall be repeated, and it shall be retested until it passes the test.

Recording the results: The Contractor shall provide the documents which show the results of the tests performed to the Engineer on a daily basis. These documents shall indicate all welds which have not passed the tests at the beginning and the evidence that these welds have been repaired and passed the tests.

Anchor Trench and Locking Details

The Contractor shall provide a shop drawing for the locking of the geomembrane layer, and shall carry out anchor trench and coating covering system accordingly.

4.5. PARTICULAR TECHNICAL SPECIFICATIONS FOR THE HDPE PIPES, VALVES, AND FITTINGS FOR EXISTING POND LEACHATE CONTROL

In order to control the leachate water flow from Cell 1 to existing Leachate Pond, The Contractor shall prepare shop drawing and assembly drawings and submit it to the Engineer for approval for the piping, valves, fittings and manhole.

The Contractor will provide the butterfly valve DN 250 mm / PN 16 ,flange adaptors, flanges and HDPE 1000 mm manhole and the set system for existing pond leachate stop will be installed including the earthworks and simple foundation.

The Contractor should consider the existing structures at site, conduct necessary survey studies and proceed for the construction and procurement in line with the duration and the standards given below.

4.6. PARTICULAR TECHNICAL SPECIFICATIONS FOR SUPPLY OF PUMPS AND BACK SPRAYING SYSTEMS

General

Pumps shall be tested according to EN ISO 9906 witnessed by the Engineer before delivery to site. The operation cycle of the pumps shall include alternating also of the standby pump. The pumps shall be dimensioned for minimum 10 starts per hour.

Discernible noise caused by hydraulic turbulence and cavitation will not be accepted. The pump impeller shall be selected with maximum efficiency. Pumps shall operate right to BEP (Best Efficiency Point) at start conditions and so to the left of BEP at stop conditions. The pump type shall be determined by the Contractor for the time between failures (clogging etc.) to be a minimum of 60 operation days. The pump housing shall be fabricated from cast iron and impellers shall be of wear and corrosion resistant steel. Pumps shall be equipped with thermal switches for thermal protection.

Supply of Pumps for Leachate Pond Balancing

The submersible pumps shall have the following features:

- The casing shall have a large-flow cross-section and replaceable wear ring where applicable
- The impeller shall have large, unobstructed flow ways to ensure non-clogging and non-stringing operation considering the media to be pumped
- The impeller shall have means to reduce end thrust
- The common motor/pump shaft shall be supported in anti-friction bearings with grease and/or oil lubrication
- The motor cooling system shall be highly efficient with cooling shall be based on indirect cooling
- A mobile system shall be provided for lowering and lifting the pump
- There shall be two pumps with capacity in accordance with data sheet given with volume 3 (4 m3/h capacity with hmax= 65 m) with set of utility / power supply box
- The pumps should be of the weight that can lift easily.

The materials given below are the minimum requirements:

- Volute casing : GG-25 with special epoxy coated against corrosion
- Impeller : Hardened steel (Min. 60 HRC)
- Pumps shaft : C45 carbon steel or stainless steel (EN 1.4301 or higher)
- Type of seal : :nical seal suitable for liquids with a high concentration of abrasive solids
- Fastening components shall be stainless steel.

The motor shall have the following feature:

- Dry-running three-phase asynchronous motor in watertight casing according to IEC standard
- Protection type IP 68
- Insulation class H
- Internal cooling for pumps ≥7.5 kW
- Tandem mechanical shaft seal
- Pump completely cabled
- Thermo element in coil for motor protection

The power supply to the pump should have the following characteristics.

- The pump will have own control panel. The control panel and switchgears shall comply with the pump data sheet.
- The power cable of pump shall be provided 250 meters. The power cable shall be suitable for this portable system. In this sense, the power cable shall not be in one piece and cable shall be terminated with a three-phase plug, approximately 20 meters after exiting the control panel of pump. One end of the remaining part of the power cable shall be installed with circuit breakers from the main distribution panel. The other end shall be terminated with a three phase plug. The plugs shall be 3 phase and IP 67 according to IEC 60309 standard.
- In this way, there shall be a one-time installation at the cable connection points of the pump and main distribution panel. When the pump will be used, only the plugs shall be connected. Similarly, the system such as wiring, and sockets shall be provided for the spare pump. The cable drums shall be provided, including spare pump, to protect and properly stock the cables.

Supply and Installation of Spraying System

Spraying to waste surface shall be done for proper possible gas utilisation and balancing the leachate amounts by the Final Beneficiary. There should be a garden irrigation system to scan the cell-1 and the cell-2.

Permanent Spraying system will be installed for Cell-1 and only procurement of back spraying system for cell-2 will be provided with the scope of contract. Leachate back spraying to the cells will be provided from the new pump and the Contractor will provide the shop drawings for supply and installation. Casing Pipes will be installed for main distribution back spraying lines protection with considering the crossing conditions. Back spraying will be controlled with two valves as described with the drawing ``KLS-LP-03`` for the separate distribution to Cell-1 and Cell-2.

The details of the equipment to be used in the system shall be submitted to the engineer with shop drawings and approval shall be obtained accordingly.

<u>High density polyethylene (HDPE) pipes for spraying system</u>

All HDPE pipes and fittings shall be manufactured by a quality assured manufacturer in accordance with the ISO 9000 system. HDPE pipes shall be manufactured from PE 100 material, as classified by the European Technical Committee Report CEN/TC 155. In accordance with ISO 12162 the PE 100 material shall have a minimum required strength (MRS) value of 10 MPa. The pipes and fittings shall be coloured black.

Pressure pipes shall be in pressure class PN10 minimum.

PE pipes and fittings shall comply with the relevant provisions of EN12201 (water and wastewater) and EN1555 (gas).

Generally, all buried pipes shall be jointed using either butt or electro fusion welding techniques. Small diameter pipes (diameter<63 mm), pipes within structures and pipes connecting to metal fittings shall be jointed using mechanical jointing techniques, such as compression, flanged joints or push-fit joints.

Jointing of large pipes of the light weight type shall be made by extruder welding.

All welding shall be performed by certified welders holding licences not older than 12 months, and issued by a recognised institution approved by the manufacturer and the Engineer.

Sprinkler

The properties of the sprinklers used in the spraying system are given below.

- Operating pressure: 1 to 6 Kg/cm2
- Inlet connection: ½" male threaded
- Material: Metal (for example; brass. it should be corrosion resistant)
- Pin and spring should be stainless steel
- Type: Metal impact sprinkler
- Rotation ability: 360º
- It should be against clogging
- Spraying distance (radius): 10 to 15 m

SECTION 5A.2 SPECIFICATIONS FOR ITEMS/POSE DEFINITIONS

The works described in this section include all the necessary materials and losses, loading, horizontal and vertical transportation, unloading, workmanship, **transportation of material to the site**, **transportation of material/surplus material from the site**, contractor's profit and general expenses for the successful completion of the specified items.

The units of measurement used in the items/pose definitions are those of the International System of Units (SI). No other units may be used for measurements, pricing, detail drawings etc. (Any units not mentioned in the technical documentation must also be expressed in terms of the SI.) Abbreviations used are to be interpreted as follows:

mm	means	millimetre
m	means	metre
da	means	decare
mm^2	means	square millimetre
m^2	means	square metre
m^3	means	cubic metre
kg	means	kilogram
ton	means	tonne (1000 kg)
pcs	means	pieces
h	means	hour
L.s.	means	Lump sum
km	means	kilometre
l	means	litre
kVAR	means	kilovolt ampere reactive
%	means	per cent

Civil/Structural Works

Item no:	**Item**	**Unit**
Civ01	**Excavation works**	**m^3**
Description/ Specifications	1 m3 of excavation (free, wide deep excavation and narrow deep excavation and trench excavation (for infrastructure) at all depths in accordance with the project) of any type of soil and rock (soft, hard, very hard, all types of rock excavation and clay excavation), in all depths and widths, by whatever means necessary, including machine aided or hand excavation, whether above or below water table level or flood table level and the like, including soil mixed with boulders or similar hard material of any size, and any kind and type of planking and strutting in all depths and widths, by whatever means necessary, and keeping the excavations in any depth and width free from underground, surface or running water in any amount, by whatever means necessary, including all the necessary materials and losses, transportation of all relevant materials to and/or from the site, loading, unloading, horizontal and vertical transportation, workmanship, contractor's profit and general expenses for the successful completion of the work, measured per m3 of excavation executed calculated according to the dimensions in the approved shop drawings. Notes: Dewatering of the excavation is included to the price. Transportation of excavated material to the dump site is included to the price. Laying fill or barrier, filling the gaps on the excavation site after construction and levelling is included to the price.	

Item no:	**Item**	**Unit**
Civ02	**Backfilling works including Compaction for Bank Protection**	**m^3**

Description/ Specifications	Price per m3 including material and losses, labour, instruments and equipment costs, compaction tests for elimination of the sufficient excavated soil for backfilling, filling with maximum 30 cm layers to ensure the compaction performance, final levelling and providing backfill soil conditions of liner system anchorage for bank protection and stabilization of pond. Watering and compaction in line with the principles of the related sections of the "Technical Specifications of Highway" published by Republic of Turkey General Directorate of Highways, is included to the price. Notes: Dewatering of the excavation is included to the price. Transportation of excavated material to the dump site is included to the price. Measurement: The volume in cubic meters of the filling prepared by watering and compaction in accordance with the shop drawings approved by the Engineer.

Item no:	**Item**	**Unit**
Civ03	**Excavation Works for Anchorage of Liner**	**m^3**
Description/ Specifications	Price per m3 including any material and losses, labour, instruments and equipment costs, on soft rocky ground, cracking, dismantling and excavation of the rocks with machine without using explosives, loading onto vehicles, transportation of excavated material to any distance, laying fill or barrier, filling the gaps on the excavation site after construction and levelling. Dewatering of the excavation is included to the price. Measurment: m3 of excavation executed calculated according to the dimensions in the approved shop drawings.	

Item no:	**Item**	**Unit**
Civ04	**Geosynthetic Clay 10 mm (sodium-based bentonite and geotextile) supply and installation**	**m^2**
Description/ Specifications	Price per m2 supply, installation, repairs and related tests for performance of the geosynthetic clay liner in accordance with Technical Specification and data sheets. The minimum and recommended length of the overlapping joints between the panels shall be 200 mm, respectively and other overlap conditions are clarified within technical specifications. Price also includes to carry, load, horizontal and vertical transportation and unloading, of the material to the site, storage in accordance with the Technical Specification and data sheets.	

Item no:	**Item**	**Unit**
Civ05	**Trimming Soft Soil with Machinery and Equipment with 15 cm Sand Filling Including Material 3-32 mm Sand Gravel Mix**	**m^2**
Description/ Specifications	Price per 1 m2 including trimming soft soil with Machinery and equipment with 15 cm Sand Filling, Material 3-32 mm Sand Gravel Mix.	

Item no:	**Item**	**Unit**
Civ06	**Supply and installation of 2 mm HDPE geo-membrane for liner system**	**m^2**
Description/ Specifications	Price per m2 including loading, horizontal and vertical carriage and unloading, installation and disassembly of working tables, weld logs where necessary at the work site, any material and losses, labour, equipment and instrument costs, cleaning the surface prepared for insulation as per the approved detail project and attaching 2-mm-thick, HDPE-based geomembrane with 10 cm overlaps using thermal welding in accordance with technical specifications and data sheets. All overlap conditions are identified by technical specification. All materials and transportation of materials are included to the price.	

Item no:	**Item**	**Unit**

Civ07	**Bank Protection with Stones at Site**	**m^3**
Description/ Specifications	The price for 1 m3 of quarry stone or gravel-sand mix after the arrangement of the base at the required slope and size including the ramming, loading, horizontal and vertical transportation, unloading at the construction site, loading, unloading and figuring of the stone from quarry, material and material loss, labour, tools and equipment costs. All materials and transportation of materials are included to the price.	

Item no:	Item	Unit
Civ08	**Readymix concrete placement meeting the compressive strength requirements of C 16/20, including procurement, delivery, concrete pump and placement.**	**m^3**
Description/ Specifications	Delivery and placement of readymix concrete procured from concrete batch plant (Batch plant shall meet the following requirements; minimum one loader, sufficient number of transmixers and concrete pumps, backup generator, weight type admixture feeders, 60 m^3/h plant capacity, with air compressor, 4 aggregate bunkers, moisture sensors, conveyor belt-fed, fully automated from computer control cabinet, having a cement silo with minimum 50 tons of capacity, recycling system integrated. Batch plant shall have a laboratory capable of performing aggregate and concrete tests. All instruments of the batch plant shall be regularly calibrated and documented) composed of water, granulometric washed aggregate with artifical or natural sand designed as per the project requirements meeting the compressive strength of C 16/20 including cementitious materials and admixtures. Procurement, transmixer loading & unloading, vertical and horizontal transportation, placement, consolidation, curing, protection from cold and hot weather, providing mixing and curing / cleaning water are included. Quality control procedures of the concrete such as specimen preperation, testing and laboratory services are included. All equipment costs, batch plant expenses, laboratory expenses, advance payments, indirect costs, contrator costs and contractor profit are included. Means of Measurement: As per the dimensions defined in the project, 1 m^3 of C 16/20 regular gray concrete. Remarks: 1) Prequalification of the batch plant meeting the requirements of TSE and governing standards, either manufactured at or procured from, shall be submitted to the administation prior to the batch plant operations for approval. Batch plant can only be used after the approval of the prequalification documentation proving that the batch plant meets the requirements of TSE. 2) Invoices including the compant information and project name have to be submitted as an attachment to the payment applications if the concrete is procured from a readymix plant. 3) Admixtures used during the concrete production will be paid seperately. 4) If a concrete pump is not used, the cost of the concrete pump shall be deducted from the analysis.	

Item no:	Item	Unit
Civ09	**Concreting of C 20/25 compressive strength class concrete being manufactured at a concrete plant or purchased (including concrete transport)**	**m^3**
Description/ Specifications	Technical Description: 1 m^3 price of concrete with compressive strength C 20/25 being poured at site including: the supply of ready concrete manufactured at a complete concrete facility (minimum 60m3/h capacity, with four unit aggregate bunker compressor, computer controlled with control cabin, min. 50 ton capacity cement silo and conveyor system, recycling unit, laboratory for aggregate and concrete tests, generator, sufficient number of truck mixers and mobile concrete pumps and at least one loader, ingredient tank and ingredient tank bunker, humidity-meter and similar tools and equipment) compliant to the standards and the project, manufactured with washed, screened granulometric sand-gravel and/or ballast, cement, water and ingredients if necessary at C 20 / 25 class or having same characteristics; execution of	

	concrete quality controls, loading to truck mixers, transportation to the work place, pouring by concrete pump to the pouring place, placement, compression with vibrator, irrigation, protection from cold, heat and other external effects and maintenance, taking sufficient number of samples for necessary and adequate tests and execution such tests, any labor, tool and equipment and outages, laboratory expenses for the aforementioned, any vertical and horizontal transport in the work place, loadings and unloading, loading of any granulometric sand, gravel or ballast and cement which is a part of concrete from the place of production, supply or purchase, transport to the concrete facility, unloading from vehicles, stapling, placement into the concrete facility, supply and transport of water for irrigation in the concrete, supply of concrete facility and all other equipment and its amortization expenses, any other expenses, contractor profit and overhead costs MEASUREMENT: To calculated over the dimensions in the project. NOTE: 1) The facility which the concrete is manufactured at or purchased from shall have all certifications required by the TSE and legislation and such documents have to be submitted to the administration before starting the production. Provided that only after it has been identified that the submitted documents are compliant and the use is allowed, such concrete produced or purchased from such facility, with compliance certificate and bearing the conditions of the applicable legislation and market supply terms can be used. 2) If the concrete is supplied by purchase, one copy of the purchase invoices which shall show the name of the works shall be added to the payment documents. 3) The cost of ingredients to be added to the concrete shall be paid separately.

Item no:	**Item**	**Unit**
Civ10	**Concreting of C 25/30 compressive strength class concrete being manufactured at a concrete plant or purchased (including concrete transport)**	**m^3**
Description/ Specifications	Technical Description: 1 m^3 price of concrete with compressive strength C 25/30 being poured at site including: the supply of ready concrete manufactured at a complete concrete facility (minimum 60m3/h capacity, with four unit aggregate bunker compressor, computer controlled with control cabin, min. 50 ton capacity cement silo and conveyor system, recycling unit, laboratory for aggregate and concrete tests, generator, sufficient number of truck mixers and mobile concrete pumps and at least one loader, ingredient tank and ingredient tank bunker, humidity-meter and similar tools and equipment) compliant to the standards and the project, manufactured with washed, screened granulometric sand-gravel and/or ballast, cement, water and ingredients if necessary at C 25 / 30 class or having same characteristics; execution of concrete quality controls, loading to truck mixers, transportation to the work place, pouring by concrete pump to the pouring place, placement, compression with vibrator, irrigation, protection from cold, heat and other external effects and maintenance, taking sufficient number of samples for necessary and adequate tests and execution such tests, any labor, tool and equipment and outages, laboratory expenses for the aforementioned, any vertical and horizontal transport in the work place, loadings and unloading, loading of any granulometric sand, gravel or ballast and cement which is a part of concrete from the place of production, supply or purchase, transport to the concrete facility, unloading from vehicles, stapling, placement into the concrete facility, supply and transport of water for irrigation in the concrete, supply of concrete facility and all other equipment and its amortization expenses, any other expenses, contractor profit and overhead costs MEASUREMENT: To calculated over the dimensions in the project. NOTE: 1) The facility which the concrete is manufactured at or purchased from shall have all certifications required by the TSE and legislation and such documents have to be submitted to the administration before starting the production. Provided that only after it has been identified that the submitted documents are compliant and the use is allowed, such concrete produced or purchased from such facility, with compliance certificate and bearing the conditions of the	

	applicable legislation and market supply terms can be used. 2) If the concrete is supplied by purchase, one copy of the purchase invoices which shall show the name of the works shall be added to the payment documents. 3) The cost of ingredients to be added to the concrete shall be paid separately.

Item no:	**Item**	**Unit**
Civ11	**Wire Mesh Reinforcement for Concrete Ditch 3 kg/m2, 1 Layer**	**kg**
Description/ Specifications	Price per ton for steel mesh including any material and loss, labour, equipment and instrument costs, loading, horizontal vertical carriage, unloading at the work site, installation of wire mesh, joining by overlay as per the specifications and relevant details, and making support.	

Item no:	**Item**	**Unit**
Civ12	**Formwork**	**m^2**
Description/ Specifications	Price per m2 including any material and loss, labour, equipment and instrument cost, loading, horizontal and vertical carriage, unloading at the work site, serially producing formwork made of second class pine lumber with planed and greased interior surfaces, removing and cleaning the formwork, including timbers, supports, square timbers, strips, nails, wires, and similar equipment.	

Item no:	**Item**	**Unit**
Civ13	**Sand Backfilling Including procurement and manual backfilling (Anchorage lean concrete)**	**m3**
Description/ Specifications	Price per m3 including material (sand) and losses, labour, instruments and equipment costs, filling with maximum 30 cm layers to ensure the compaction performance, and final levelling.	

Item no:	**Item**	**Unit**
Civ14	**Anchorage installation works including drilling holes, steel dowel material and installation**	**piece**
Description/ Specifications	Price per piece including material and loss, labour, equipment and instrument cost, loading, horizontal and vertical carriage, unloading at the work site, bending according to Contract design, drilling holes, cleaning the holes, preparation of cement mortar or epoxy, filling the holes by injecting them into the holes using appropriate methods, inserting anchors into the hole, ensuring that the anchors do not play until mortar or epoxy is set.	

Item no:	**Item**	**Unit**
Civ15	**Rebar Installation Works 0.80 kg / m3 including transportation of rebars**	**ton**
Description/ Specifications	Price per ton for iron, attachment wire, any material and loss, labour, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, cutting and bending ribbed concrete steel bars to prepare them as per the relevant detail project design.	

Mechanical and Electrical Works

Item no:	**Item**	**Unit**
Mew01	**Butterfly Valve (Leachate Discharge Valve System for Existing Pond Leachate Control)**	**piece**
Description/ Specifications	The unit price includes the procurement and installation of DN250 mm / PN16 butterfly valve and all necessary consumables for installation according to STATEMENT OF WORKS / TECHNICAL SPECIFICATIONS.	

Item no:	Item	Unit
Mew02	**Flange adaptor (Leachate Discharge Valve System for Existing Pond Leachate Control)**	piece
Description/ Specifications	The unit price includes the procurement and installation of DN250 mm / PN16 flange adaptor and all necessary consumables for installation according to STATEMENT OF WORKS / TECHNICAL SPECIFICATIONS.	

Item no:	Item	Unit
Mew03	**Flange (Leachate Discharge Valve System for Existing Pond Leachate Control)**	piece
Description/ Specifications	The unit price includes the procurement and installation of DN250 mm / PN16 flange and all necessary consumables for installation according to STATEMENT OF WORKS / TECHNICAL SPECIFICATIONS.	

Item no:	Item	Unit
Mew04	**HDPE Manhole 1000 mm h=3 m Including Foundation and Earthworks (Leachate Discharge Valve System for Existing Pond Leachate Control)**	piece
Description/ Specifications	Price per unit item of HDPE Manhole 1000 mm h=3 m installation including foundation, excavation of soil and backfilling.	

Item no:	Item	Unit
Mew05	**Submersible Pump (Submersible Pump and Return Pumping)**	piece
Description/ Specifications	The unit price includes the procurement and trial tests of submersible pumps and all necessary consumables for installation according to STATEMENT OF WORKS / TECHNICAL SPECIFICATIONS.	

Item no:	Item	Unit
Mew06	**External Remote Panel (Submersible Pump and Return Pumping)**	piece
Description/ Specifications	The unit price includes procurement and trial tests of external remote panels with level indicator, electrostatic painted power bank and all necessary consumables for installation according STATEMENT OF WORKS / TECHNICAL SPECIFICATIONS.	

Item no:	Item	Unit
Mew07	**Power Cable for Supply Extension with Plugs (Submersible Pump and Return Pumping)**	m
Description/ Specifications	This lump sum includes supplies and work required for the complete installation of power cables with plugs and sockets inside the cable duct, testing of the determine congestion in pipes and rehabilitation of the cable duct and conduits. The item also includes testing and installing of power cables, socket combination box and its support included in the Contract in accordance with STATEMENT OF WORKS / TECHNICAL SPECIFICATIONS.	

Item no:	Item	Unit
Mew08	**DN 50 mm PN10 HDPE Pipe (Spraying System)**	m
Description/ Specifications	The unit price includes the procurement and installation of DN 50 mm PN10 HDPE Pipe defined by PARTICULAR TECHNICAL SPECIFICATIONS FOR SUPPLY OF PUMPS AND BACK SPRAYING SYSTEMS. All necessary fittings for installation of pipes are included to the price, no extra payment will be made to the contractor for fittings.	

Item no:	Item	Unit

Mew09	**DN 63 mm PN10 HDPE Pipe (Spraying System)**	**m**
Description/ Specifications	The unit price includes the procurement and installation of DN 63 mm PN10 HDPE Pipe defined by PARTICULAR TECHNICAL SPECIFICATIONS FOR SUPPLY OF PUMPS AND BACK SPRAYING SYSTEMS All necessary fittings for installation of pipes are included to the price, no extra payment will be made to the contractor for fittings.	

Item no:	**Item**	**Unit**
Mew010	**DN 75 mm PN10 HDPE Pipe (Spraying System)**	**m**
Description/ Specifications	The unit price includes the procurement and installation of DN 75 mm PN10 HDPE Pipe defined by PARTICULAR TECHNICAL SPECIFICATIONS FOR SUPPLY OF PUMPS AND BACK SPRAYING SYSTEMS All necessary fittings for installation of pipes are included to the price, no extra payment will be made to the contractor for fittings.	

Item no:	**Item**	**Unit**
Mew11	**DN 90 mm PN10 HDPE Pipe (Spraying System)**	**m**
Description/ Specifications	The unit price includes the procurement and installation of DN 90 mm PN10 HDPE Pipe defined by PARTICULAR TECHNICAL SPECIFICATIONS FOR SUPPLY OF PUMPS AND BACK SPRAYING SYSTEMS All necessary fittings for installation of pipes are included to the price, no extra payment will be made to the contractor for fittings.	

Item no:	**Item**	**Unit**
Mew12	**DN 110 mm PN10 HDPE Pipe (Spraying System)**	**m**
Description/ Specifications	The unit price includes the procurement and installation of DN 110 mm PN10 HDPE Pipe defined by PARTICULAR TECHNICAL SPECIFICATIONS FOR SUPPLY OF PUMPS AND BACK SPRAYING SYSTEMS All necessary fittings for installation of pipes are included to the price, no extra payment will be made to the contractor for fittings.	

Item no:	**Item**	**Unit**
Mew13	**Butterfly Valve DN 110 mm (Spraying System)**	**piece**
Description/ Specifications	The unit price includes the procurement and installation of DN 110 mm / PN10 butterfly valve and all necessary consumables for installation defined by PARTICULAR TECHNICAL SPECIFICATIONS FOR SUPPLY OF PUMPS AND BACK SPRAYING SYSTEMS All necessary fittings for installation of valves are included to the price, no extra payment will be made to the contractor for fittings.	

Item no:	**Item**	**Unit**
Mew14	**Sprinkler with Valve and Fittings (Spraying System)**	**set**
Description/ Specifications	The unit price includes the procurement and Installation of Sprinkler with full set of valve and fittings for Cell-1 and only the procurement of Sprinkler with full set of valve and fittings for Cell-2 as defined in PARTICULAR TECHNICAL SPECIFICATIONS FOR SUPPLY OF PUMPS AND BACK SPRAYING SYSTEMS	

Item no:	Item	Unit
Mew15	**Casing Pipes DN 150 mm PE for Road Crossings (Spraying System)**	**m**
Description/ Specifications	The lump sum price includes the procurement and installation of road crossings of Back Spraying Main distribution line installation defined by PARTICULAR TECHNICAL SPECIFICATIONS FOR SUPPLY OF PUMPS AND BACK SPRAYING SYSTEMS	

SECTION 5A.3DESIGN DRAWINGS

No	Drawing No	Drawing Name
1	KLS-LP-01	Kilis Solid Waste Union Landfill – New Leachate Pond Location
2	KLS-LP-02	Kilis Solid Waste Union Landfill – New Leachate Pond Plan, Sections and Detail
3	KLS-LP-03	Kilis Solid Waste Union Landfill – Spraying System Plan
4	KLS-LP-04	Kilis Solid Waste Union Landfill – Power Supply and Cable Duct Plan

SECTION 5B: OTHER RELATED REQUIREMENTS

Further to the SECTION 5A: SCHEDULE OF REQUIREMENTS AND TECHNICAL SPECIFICATIONS/BILL OF QUANTITIES, Bidders are requested to take note of the following additional requirements, conditions, and related services pertaining to the fulfilment of the requirements:

Commencement of work	The Contractor shall commence work within 7 days from the date on which he shall have been given access to the Site and received the notice to commence from the Engineer
Time limit for submission of Programme of Work (Clause 13 of UNDP General Conditions of Contract for Civil Works)	The Contractor shall submit to the Engineer the Programme of Work in 7 days from the contract signature date.
Price and Payment Terms	The contract is based on unit price, and the final price of the Contract will be determined on the basis of actual quantities of work and materials utilized in the complete and satisfactory performance of the Works as certified by the Engineer and the unit prices contained in the Contractor's financial proposal. Such unit prices are fixed and are not subject to any variation whatsoever.
Currency of Payment	United States Dollar If the Contractor is registered and operating in Turkey, the payment shall be realized in Turkish Liras (TRY). Contract price will be converted from United States Dollar (USD) to Turkish Liras (TRY) by the UN operational rate of exchange[4] valid on the date of money transfer. Otherwise, the payments shall be affected in United States Dollar.
Interim Payment	The Contractor shall submit a final invoice for the work performed and materials utilized **following substantial completion of works**.
Insurance of work	For all risks stipulated by Clause 21 of UNDP General Conditions of Contract for Civil Works for the 110 % of the total estimated price of the Contract.
Minimum amount of liability insurance (Clause 23 of UNDP General Conditions of Contract for Civil Works)	15 % of the total estimated price of the Contract

[4] Available at the website: https://treasury.un.org/operationalrates/OperationalRates.php#E

SECTION 6: RETURNABLE BIDDING FORMS / CHECKLIST

This form serves as a checklist for preparation of your Bid. Please complete the Returnable Bidding Forms in accordance with the instructions in the forms and return them as part of your Bid submission. No alteration to format of forms shall be permitted and no substitution shall be accepted.

Before submitting your Bid, please ensure compliance with the Bid Submission instructions of the BDS 22.

Technical Bid:

Have you duly completed all the Returnable Bidding Forms?	
▪ Form A: Bid Submission Form	☐
▪ Form B: Bidder Information Form	☐
▪ Form C: Joint Venture/Consortium/ Association Information Form	☐
▪ Form D: Qualification Form	☐
▪ Form E: Format of Technical Bid/Bill of Quantities	☐
▪ From G: Form of Bid Security	
Have you provided the required documents to establish compliance with the evaluation criteria in Section 4?	☐

Price Schedule:

▪ Form E: Price Schedule Form	☐

Form A: Bid Submission Form

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	UNDP-TUR-ITB(MC2)-2019/07		

We, the undersigned, offer to complete civil works "Construction of Leachate Balancing Pond and Balancing Pump/Back Spraying System" in accordance with your Invitation to Bid No. UNDP-TUR(MC2)-2019/01and our Bid. We hereby submit our Bid, which includes this Technical Bid and Price Schedule.

Our attached Price Schedule is for the sum of [Insert amount in words and figures and indicate currency]

We hereby declare that our firm, its affiliates or subsidiaries or employees, including any JV/Consortium /Association members or subcontractors or suppliers for any part of the contract:

a) is not under procurement prohibition by the United Nations, including but not limited to prohibitions derived from the Compendium of United Nations Security Council Sanctions Lists;

b) have not been suspended, debarred, sanctioned or otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization;

c) have no conflict of interest in accordance with Instruction to Bidders Clause 4;

d) do not employ, or anticipate employing, any person(s) who is, or has been a UN staff member within the last year, if said UN staff member has or had prior professional dealings with our firm in his/her capacity as UN staff member within the last three years of service with the UN (in accordance with UN post-employment restrictions published in ST/SGB/2006/15);

e) have not declared bankruptcy, are not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against them that could impair their operations in the foreseeable future;

f) undertake not to engage in proscribed practices, including but not limited to corruption, fraud, coercion, collusion, obstruction, or any other unethical practice, with the UN or any other party, and to conduct business in a manner that averts any financial, operational, reputational or other undue risk to the UN and we embrace the principles of the United Nations Supplier Code of Conduct and adhere to the principles of the United Nations Global Compact.

We declare that all the information and statements made in this Bid are true and we accept that any misinterpretation or misrepresentation contained in this Bid may lead to our disqualification and/or sanctioning by the UNDP.

We offer to complete works in conformity with the Bidding documents, including the UNDP General Conditions of Contract and in accordance with the Schedule of Requirements and Technical Specifications.

Our Bid shall be valid and remain binding upon us for the period specified in the Bid Data Sheet.

We understand and recognize that you are not bound to accept any Bid you receive.

I, the undersigned, certify that I am duly authorized by [Insert Name of Bidder] to sign this Bid and bind it should UNDP accept this Bid.

Name: _____

Title: _____

Date: _____

Signature: _____

[*Stamp with official stamp of the Bidder*]

Form B: Bidder Information Form

Legal name of Bidder	[Complete]
Legal address	[Complete]
Year of registration	[Complete]
Bidder's Authorized Representative Information	Name and Title: [Complete] Telephone numbers: [Complete] Email: [Complete]
Are you a UNGM registered vendor?	☐ Yes ☐ No If yes, [insert UGNM vendor number]
Are you a UNDP vendor?	☐ Yes ☐ No If yes, [insert UNDP vendor number]
Countries of operation	[Complete]
No. of full-time employees	[Complete]
Quality Assurance Certification (e.g. ISO 9000 or Equivalent) *(If yes, provide a Copy of the valid Certificate):*	[Complete]
Does your Company hold any accreditation such as ISO 14001 or ISO 14064 or equivalent related to the environment? *(If yes, provide a Copy of the valid Certificate):*	[Complete]
Does your Company have a written Statement of its Environmental Policy? *(If yes, provide a Copy)*	[Complete]
Does your organization demonstrate significant commitment to sustainability through some other means, for example internal company policy documents on women empowerment, renewable energies or membership of trade institutions promoting such issues	[Complete]
Is your company a member of the UN Global Compact	[Complete]
Contact person that UNDP may contact for requests for clarifications during Bid evaluation	Name and Title: [Complete] Telephone numbers: [Complete] Email: [Complete]
Please attach the following	▪ Company Profile, which should <u>not</u> exceed fifteen (15) pages,

documents:	▪ Certificate of Incorporation/ Business Registration ▪ Tax Registration/Payment Certificate issued by the Internal Revenue Authority evidencing that the Bidder is updated with its tax payment obligations, or Certificate of Tax exemption, if any such privilege is enjoyed by the Bidder ▪ Trade name registration papers, if applicable ▪ Power of Attorney. ▪ Official Letter of Appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country

Form C: Joint Venture/Consortium/Association Information Form

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	UNDP-TUR-ITB(MC2)-2019/07		

To be completed and returned with your Bid if the Bid is submitted as a Joint Venture/Consortium/Association.

No	**Name of Partner and contact information** *(address, telephone numbers, fax numbers, e-mail address)*	**Proposed proportion of responsibilities (in %) and type of goods and/or services to be performed**
1	[Complete]	[Complete]
2	[Complete]	[Complete]
3	[Complete]	[Complete]

Name of leading partner (with authority to bind the JV, Consortium, Association during the ITB process and, in the event a Contract is awarded, during contract execution)	[Complete]

We have attached a copy of the below the duly notarized JV/Consortium/Association agreement, which details the likely legal structure of and the confirmation of joint and severable liability of the members of the said joint venture:

We hereby confirm that if the contract is awarded, all parties of the Joint Venture/Consortium/Association shall be jointly and severally liable to UNDP for the fulfillment of the provisions of the Contract.

Name of partner: _____

Signature: _____

Date: _____

Name of partner: _____

Signature: _____

Date: _____

Name of partner: _____

Signature: _____

Date: _____

Name of partner: _____

Signature: _____

Date: _____

Form D: Eligibility and Qualification Form

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	UNDP-TUR-ITB(MC2)-2019/07		

History of Non- Performing Contracts

☐Non-performing contracts did not occur during the last 3 years. (reference period to be taken into account: from August 26, 2016 to August 26, 2019)
☐ Contract(s) not performed in the last 3 years. (reference period to be taken into account: from August 26, 2016 to August 26, 2019)

Year	**Non- performed portion of contract**	**Contract Identification**	**Total Contract Amount** (current value in US$)
		Name of Client: Address of Client: Reason(s) for non-performance:	

Litigation History (including pending litigation)

☐ No litigation history for the last 3 years. (reference period to be taken into account: from August 26, 2016 to August 26, 2019)
☐ Litigation History as indicated below

Year of dispute	**Amount in dispute** (in US$)	**Contract Identification**	**Total Contract Amount** (current value in US$)
		Name of Client: Address of Client: Matter in dispute: Party who initiated the dispute: Status of dispute: Party awarded if resolved:	

Previous Relevant Experience

Please list only previous similar assignments successfully completed in the **last 3 years**. (reference period to be taken into account: from August 26, 2016 to August 26, 2019)

List only those assignments for which the Bidder was legally contracted or sub-contracted by the Client as a company or was one of the Consortium/JV partners. Assignments completed by the Bidder's individual experts working privately or through other firms cannot be claimed as the relevant experience of the Bidder, or that of the Bidder's partners or sub-consultants, but can be claimed by the Experts themselves in their CVs. **The Bidder shall provide proof documents for the claimed experience by presenting copies of relevant documents and references with the Bid.**

Project name & Country of Assignment	Client & Reference Contact Details	Contract Value (in USD equivalent*)	Period of activity and status	Types of activities undertaken

- Bidders shall convert the currency quoted in the "Certificate of Completion" into USD, in accordance with the prevailing UN operational rate of exchange on the contract date stated by "Certificate of Completion". UN operational rate of exchange are available at the following website: https://treasury.un.org/operationalrates/OperationalRates.php#E

Bidders may also attach their own Project Data Sheets with more details for assignments above.

☐ Attached are the Statements of Satisfactory Performance / Work Completion Certificates from the Top 3 (three) Clients or more.

Financial Standing

Annual Turnover for the last 3 years (in US$ equivalent[5])	Year 2016 USD Year 2017 USD Year 2018 USD
Latest Credit Rating (if any), indicate the source	

Financial information (in US$ equivalent[6])	**Historic information for the last 3 years**		
	2016	2017	2018
	Information from Balance Sheet		
Total Assets (TA)			
Total Liabilities (TL)			
Current Assets (CA)			
Current Liabilities (CL)			
	Information from Income Statement		
Total / Gross Revenue (TR)			
Profits Before Taxes (PBT)			
Net Profit			
Current Ratio			

☐ Attached are copies of the audited financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following condition:

a) Must reflect the financial situation of the Bidder or party to a JV, and not sister or parent companies;
b) Historic financial statements must be audited by a certified public accountant;

[5] Bidders shall convert the currency into USD by using the UN operational rate of exchange which was effective for December of each corresponding year. UN operational rate of exchange are available at the following website: https://treasury.un.org/operationalrates/OperationalRates.php#E

[6] Bidders shall convert the currency into USD by using the UN operational rate of exchange which was effective for December of each corresponding year. UN operational rate of exchange are available at the following website: https://treasury.un.org/operationalrates/OperationalRates.php#E

c) Historic financial statements must correspond to accounting periods already completed and audited. No statements for partial periods shall be accepted.

Form E: Format of Technical Bid

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	UNDP-TUR-ITB(MC2)-2019/07		

The Bidder's Bid should be organized to follow this format of the Technical Bid. Where the bidder is presented with a requirement or asked to use a specific approach, the bidder must not only state its acceptance, but also describe how it intends to comply with the requirements. **Where a descriptive response is requested, failure to provide the same will be viewed as non-responsive.**

SECTION 1: Bidder's qualification, capacity and expertise

1.1 General organizational capability which is likely to affect implementation: management structure, financial stability and project financing capacity, project management controls, extent to which any work would be subcontracted (if so, provide details).

1.2 Relevance of specialized knowledge and experience on similar engagements done in the region/country.

1.3 Quality assurance procedures and risk mitigation measures.

1.4 Organization's commitment to sustainability.

SECTION 2: Method Statement

This section should demonstrate the Bidder's responsiveness to the specification by identifying the specific components proposed, addressing the requirements, as specified, point by point; providing a detailed description of the essential performance characteristics proposed; and demonstrating how the proposed bid meets or exceeds the requirements/specifications. All important aspects should be addressed in sufficient detail.

2.1 A detailed description of how the Bidder will complete civil works, keeping in mind the appropriateness to local conditions and project environment.

2.2 Explain whether any work would be subcontracted, to whom, how much percentage of the requirements, the rationale for such, and the roles of the proposed sub-contractors and how everyone will function as a team.

2.3 The bid shall also include details of the Bidder's internal technical and quality assurance review mechanisms.

2.4 Implementation plan including a Gantt Chart or Project Schedule indicating the detailed sequence of activities that will be undertaken and their corresponding timing.

2.5 Demonstrate how you plan to integrate sustainability measures in the execution of the contract. (e.g. Environmental Management)

SECTION 3: Management Structure and Key Personnel

3.1 Describe the overall management approach toward planning and implementing the project. Include an organization chart for the management of the project describing the relationship of key positions and designations.

3.2 Provide CVs for key personnel required by technical specifications using the format below. CVs should demonstrate qualifications in areas relevant to the scope of works.

Format for CV of Proposed Key Personnel

Name of Personnel	[Insert]
Position for this assignment	[Insert]
Nationality	[Insert]
Language proficiency	[Insert]
Education/ Qualifications	*[Summarize college/university and other specialized education of personnel member, giving names of schools, dates attended, and degrees/qualifications obtained.]*
	[Insert]
Professional certifications	*[Provide details of professional certifications relevant to the scope of goods and/or services]*
	▪ Name of institution: [Insert] ▪ Date of certification: [Insert]
Employment Record/ Experience	*[List all positions held by personnel (starting with present position, list in reverse order), giving dates, names of employing organization, title of position held and location of employment. For experience in last five years, detail the type of activities performed, degree of responsibilities, location of assignments and any other information or professional experience considered pertinent for this assignment.]*
	[Insert]
References	*[Provide names, addresses, phone and email contact information for two (2) references]*
	Reference 1: [Insert] Reference 2: [Insert]

I, the undersigned, certify that to the best of my knowledge and belief, the data provided above correctly describes my qualifications, my experiences, and other relevant information about myself.

_____ _____

Signature of Personnel Date (Day/Month/Year)

FORM F: Price Schedule Form/Bill of Quantities

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	UNDP-TUR-ITB(MC2)-2019/07		

This Bill of Quantities is an itemized breakdown of the works to be carried out, indicating a quantity for each item and the corresponding unit price. The quantities set out in this Bill of Quantities are estimated quantities.
The amounts due shall be determined through the measurement of the actual quantities of the works executed and by applying the unit rates to the quantities actually executed for the respective items.
The prices inserted in the Bill of Quantities are to be the full inclusive values of the works described under the items, including all costs and expenses which may be required in and for the construction of the works described together with any temporary works and installations which may be necessary, and all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. It will be assumed that establishment charges, profit and allowances for all obligations are spread evenly over all the unit rates.
No specific payment will be made against transportation of materials to the site and from the site.
Unless the technical specifications or the Bill of Quantities specifically and expressly state otherwise, only permanent works are to be measured and paid for by UNDP.
No allowance will be made for loss of materials or volume thereof during installation, transport or compaction.
UN and its subsidiary organs are exempt from all taxes. Therefore, the prices shall exclude Value Added Tax (VAT). The Contractor to be selected shall not be entitled to receive any amount over the prices in relation to VAT, Special Consumption Tax and any other applicable taxes.
In the bill of quantities, rates and prices shall be entered by the Contractor in the appropriate columns in USD. In the Unit Price column in the Bill of Quantities Unit Rates shall include the overheads. "Overheads" shall be deemed to cover:

i. Profit
ii. Head Office charges
iii. Site Supervision and Site Staff costs and expenses
iv. Transport of labour and travelling allowances
v. Use of protective clothing or equipment
vi. Any statutory or incidental charges levied on the employment of labour
vii. Overtime, unless specifically ordered or subsequently sanctioned in writing by the Engineer
viii. Time lost due to inclement weather
ix. Insurances of whatsoever nature
x. Holiday and sickness pay or benefits
xi. Use, repair and sharpening of small tools
xii. All non-mechanically operated equipment, erected scaffolding, staging and trestles, protective clothing, artificial lighting, storage facilities and the like that may be in general use on the site
xiii. All other liabilities and obligations whatsoever

The units of measurement used in the annexed technical documentation are those of the International System of Units (SI). No other units may be used for measurements, pricing, detail drawings etc. (Any units not mentioned in the technical documentation must also be expressed in terms of the SI.) Abbreviations used in the bill of quantities are to be interpreted as follows:

mm	means	millimetre
m	means	metre
da	means	decare
mm^2	means	square millimetre
m^2	means	square metre
m^3	means	cubic metre

kg	means	kilogram
ton	means	tonne (1000 kg)
pcs	means	pieces
h	means	hour
L.s.	means	Lump sum
km	means	kilometre
l	means	litre
kVAR	means	kilovolt ampere reactive
%	means	per cent

Currency of the Bid: United States Dollar, USD

Price Schedule

Item #	Description	Total Price (USD)
1	Civil Works	
2	Electrical and Mechanical Works	
	Total estimated price (item 1 +item 2) (USD)	

Excel format of Bill of Quantities shall also be provided with the Bid. In case of any discrepancy between the excel format and the following formats, the prices given in the below format shall prevail.

BILL OF QUANTITIES FOR CIVIL WORKS:

Pose/ Item No	Pose/Item Definition	Unit	Quantity	Unit Price (USD)	Price (USD)
Civ01	Excavation works	m^3	3,800.00		
Civ02	Backfilling works including Compaction for Bank Protection	m^3	3,250.00		
Civ03	Excavation Works for Anchorage of Liner	m^3	250.00		
Civ04	Geosynthetic Clay 10 mm (sodium-based bentonite and geotextile) supply and installation	m2	3,000.00		
Civ05	Trimming Soft Soil with Machinery and Equipment with 15 cm Sand Filling Including Material 3-32 mm Sand Gravel Mix	m2	3,000.00		
Civ06	Supply and installation of 2 mm HDPE geo-membrane for liner system	m2	3,000.00		
Civ07	Bank Protection with Stones at Site	m^3	225.00		
Civ08	Readymix concrete placement meeting the compressive strength requirements of C 16/20, including procurement, delivery, concrete pump and placement.	m^3	15.00		
Civ09	Concreting of C 20/25 compressive strength class concrete being manufactured at a concrete plant or purchased (including concrete transport)	m^3	40.00		
Civ10	Concreting of C 25/30 compressive strength class concrete being manufactured at a concrete plant or purchased (including concrete transport)	m^3	35.00		

Pose/ Item No	Pose/Item Definition	Unit	Quantity	Unit Price (USD)	Price (USD)
Civ11	Wire Mesh Reinforcement for Concrete Ditch 3 kg/m2, 1 Layer	kg	800.00		
Civ12	Formwork	m2	200.00		
Civ13	Sand Backfilling Including procurement and manual backfilling (Anchorage lean concrete)	m3	65.00		
Civ14	Anchorage installation works including drilling holes, steel dowel material and installation	piece	450.00		
Civ15	Rebar Installation Works 0.80 kg / m3 including transportation of rebars	kg	3,000.00		
				Total for Civil Works	

BILL OF QUANTITIES FOR ELECTRICAL AND MECHANICAL WORKS, LOT 1;

Pose/ Item No	Pose/Item Definition	Unit	Quantity	Unit Price (USD)	Price (USD)
Mew01	Butterfly Valve (Leachate Discharge Valve System for Existing Pond Leachate Control)	piece	1.00		
Mew02	Flange adaptor (Leachate Discharge Valve System for Existing Pond Leachate Control)	piece	1.00		
Mew03	Flange (Leachate Discharge Valve System for Existing Pond Leachate Control)	piece	1.00		
Mew04	HDPE Manhole 1000 mm h=3 m Including Foundation and Earthworks (Leachate Discharge Valve System for Existing Pond Leachate Control)	piece	1.00		
Mew05	Submersible Pump (Submersible Pump and Return Pumping)	piece	2.00		
Mew06	External Remote Panel (Submersible Pump and Return Pumping)	piece	2.00		
Mew07	Power Cable for Supply Extension with Plugs (Submersible Pump and Return Pumping)	m	400.00		
Mew08	DN 50 mm PN10 HDPE Pipe (Spraying System)	m	500.00		
Mew09	DN 63 mm PN10 HDPE Pipe (Spraying System)	m	380.00		
Mew10	DN 75 mm PN10 HDPE Pipe (Spraying System)	m	100.00		

Pose/ Item No	Pose/Item Definition	Unit	Quantity	Unit Price (USD)	Price (USD)
Mew11	DN 90 mm PN10 HDPE Pipe (Spraying System)	m	100.00		
Mew12	DN 110 mm PN10 HDPE Pipe (Spraying System)	m	500.00		
Mew13	Butterfly Valve DN 110 mm (Spraying System)	piece	2.00		
Mew14	Sprinkler with Valve and Fittings (Spraying System)	set	30.00		
Mew15	Casing Pipes DN 150 mm PE for Road Crossings (Spraying System)	m	24.00		
				Total for Mechanical Works	

Name of Bidder: _____

Authorised signature: _____

Name of authorised signatory: _____

Functional Title: _____

FORM G: Form of Bid Security

Bid Security must be issued using the official letterhead of the Issuing Bank.
Except for indicated fields, no changes may be made on this template.

To: UNDP
[Insert contact information as provided in Data Sheet]

WHEREAS [Name and address of Bidder] (hereinafter called "the Bidder") has submitted a Bid to UNDP dated Click here to enter a date. To complete the works stipulated in the ITB with reference UNDP-TUR-ITB(MC2)-2019/07with the title "Construction of Leachate Balancing Pond and Balancing Pump/Back Spraying System" (hereinafter called "the Bid"):

AND WHEREAS it has been stipulated by you that the Bidder shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security if the Bidder:

a) Fails to sign the Contract after UNDP has awarded it;
b) Withdraws its Bid after the date of the opening of the Bids;
c) Fails to comply with UNDP's variation of requirement, as per ITB instructions; or
d) Fails to furnish Performance Security, insurances, or other documents that UNDP may require as a condition to rendering the contract effective.

AND WHEREAS we have agreed to give the Bidder such Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Bidder, up to a total of [*amount of guarantee*] [*in words and numbers*], such sum being payable in the types and proportions of currencies in which the Price Bid is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[amount of guarantee as aforesaid*] without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

This guarantee shall be valid up to 30 days after the final date of validity of bids,

SIGNATURE AND SEAL OF THE GUARANTOR BANK

Signature: _____

Name: _____

Title: _____

Date: _____

Name of Bank _____

Address _____

[Stamp with official stamp of the Bank]