WATER DEPARTMENT

REQUEST FOR FINANCIAL AND TECHNICAL PROPOSALS FOR FEASIBILITY STUDY FOR A WASTE WATER RECYCLING PLANT AT MAGADI

JULY 2017

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2. GENERAL INFORMATION

2.1. MAGADI WASTE WATER RECYCLING PLANT

Tata Chemicals Magadi Ltd is accepting proposals from qualified engineering firms to work with the water section team to develop and design a plan for a potential recycled water treatment and distribution system. The activity is expected to take three Calendar Months, to be finalized 15th October 2017.

TCML intends to award a contract for professional services for the development of the Feasibility Study and Detailed Design. TCML reserves the right not to award any contract. The scope of work is outlined in Section II, "SCOPE OF SERVICES," of this RFP.

Proposals shall be submitted by firms that have a capable and demonstrable background in the type of work described in Section II, "SCOPE OF SERVICES," of this RFP. In addition, all interested firms shall have sufficient, readily available resources in the form of trained personnel, support services, specialized consultants and financial resources to carry out the work without delay or shortcomings. Firms interested in design and build are also encouraged to submit their technical and financial proposals.

The proposals shall be submitted to the Tata Chemicals Magadi Ltd, Procurement Department as per instructions contained in the newspaper advertisement for this RFP.

2.2. INTRODUCTION

2.2.1. BACKGROUND

TCML intends to conduct a study for a potential recycled water treatment and distribution system to serve recycled water users within Magadi. Key uses are irrigation, cleaning and flushing of toilets

TCML owns and operates the existing storm and wastewater collection systems, which collects and conveys wastewater. The average flows at the septic tanks discharge point was measured to be 1000.6 m3/day. The consultant will be expected to conduct his own wet weather and dry weather measurements and/calculated estimations.

TCML conducted a water demand assessment and established short term, medium and long term water supply demand deficit solutions. Key among them was a water recycling plant of high conversion factor that could enable maximum recycling of the effluent currently released into the environment.

TCML wishes to obtain professional engineering services from water recycling construction and/or consulting firms or teams that have demonstrated background in planning and designing advanced treatment options and that are familiar with preparing a design report of using recycled water specific to TCML needs.

The Consultant will be expected to conduct a detailed feasibility and produce a technical proposal for procurement of waste water treatment plant recycling plant supply, installation and commissioning.

2.3. SCOPE OF SERVICES

TCML reserves the right to discontinue or postpone services at any time, any remedies thereto shall be refunded.

2.3.1. PART I – PROJECT MANAGEMENT AND COORDINATION

2.3.1.1. Project Management

A kick-off meeting with the TCML and Consultant to review and refine the work program and schedule, identify critical milestones, and determine appropriate paths of communication will be held prior to beginning work.

Consultant shall produce a baseline schedule of work and conduct periodic meetings (on site,phone conference and internal coordination meetings as per needs of the client define) with the TCML Water Engineer to discuss progress. The proposed schedule must show completion of work for milestones. Meeting minutes for all meetings will be provided by the Consultant.

An updated schedule of work and progress report shall be submitted.

2.3.1.2. Deliverables

- Monthly Progress Reports with sufficient detail to monitor and demonstrate progress

2.3.1.3. Project coordination

Consultant shall schedule, prepare for, and attend a review meeting with the TCML Engineering team before the recommended alternative project is chosen and before he finalizes the Final Feasibility.

Throughout the duration of the project, there will be coordination and communication between the consultant team and Water Engineer from TCML. Consultant shall schedule, prepare for, and attend up to three (3) internal meetings over the course of the project (kick off meeting, progress meeting #1 and progress meeting #2).

2.3.1.4. Deliverables

- Review meeting agendas and minutes
- Progress meeting agendas and minutes

2.4. COMPLIANCE

The consultant shall conduct an environmental impact assessment and a social impact assessment for the project

2.4.1. DELIVERABLES

- Environmental Impact and Social Impact Assessment Report

2.5. PART II – PREPARATION OF WATER RECYCLING PLANT FEASIBILITY STUDY

Consultant will prepare a waste water recycling ETP (Effluent Treatment Plant) feasibility study in accordance with existing government regulations for discharging waste water into the environment. The feasibility study shall take into consideration the Water Act 2016 and The EMCA ACT 1999

2.5.1. SUPPLY AVAILABILITY

The recycled water is intended for use within Magadi Township for non-potable consumption this assessment will be expanded to include environmental uses for recycled water. Strategies to acquire acceptability will be developed and a connection schedule will be prepared including distribution systems design for storage, piping, fittings and ancillaries needed.

Other tasks to include:

- Refine demand estimates, based on coordinated measurements at effluent discharge points and take note of Peak Hour flowrates in the design
- Confirm types of demand and users' willingness to use recycled water
- Conduct additional interviews with potential users to confirm interest and preferences
- Confirm users' water quality requirements

2.5.1.1. Deliverables

- Summary of Recycled Water Supply to be incorporated into the Project Report
- Summary of Recycled Water Users to be incorporated into the Project Report
- Updated Produce a Preliminary Design report 14 days after Meeting #1 of waste water and distributed recycled water system map updated on the existing TCML water assets GIS
- Estimated capital cost of the above

2.5.2. ALTERNATIVES ANALYSIS AND RECOMMENDED PROJECT

Where applicable and if necessary the Consultants shall develop two conceptual design alternatives for TCML to select and give No Objection for the detailed design of one of the alternatives. The two conceptual projects identified in the recycled water proposals will be reexamined and further analyzed to identify the objectives met, quantitative and qualitative benefits of each project, facilities needed to fulfill each project and preliminary cost estimate to allow for comparison between the alternatives. This shall be in the preliminary design report mentioned above and discussed in meeting #1

Preliminary Alternatives will be refined to include evaluation of multiple recycled water pipeline alignments, pumping and storage alternatives, tertiary treatment technologies, purchase of recycled water from alternate sources, and development of a no project alternatives.

If determined as necessary, the treatment alternatives analysis will require evaluation of the need for reverse osmosis (or other technology to lower total dissolved solids [TDS]) due to the relatively high levels of TDS in the influent wastewater to the WWTP.

Hydraulic Modelling Software, WaterGEMS, EPANET or excel spreadsheet will be used to determine required pumping capacity and pipeline diameters for the distribution system and collections pipeline alternatives. In addition to other parameters to be taken, alternatives will be evaluated on how well they apply a Magadi's watershed perspective to water resources management. TCML will provide the necessary TIN and DEM data but consultant is advised to conduct necessary engineering surveys for all structures civil and hydraulic required for the successful design and operation of the project.

Cost estimates will be based on a feasibility-level, and will be used to compare the relative costs of each alternative and select the most cost effective alternative. The economic analysis and development of unit cost of recycled water based on the economic analysis will be calculated by the Consultant and presented in meeting #1.

The consultant will select one of the conceptual projects to recommend for further development and evaluation; formal selection of the recommended project will require review by the TCML Management. The Consultant will be expected to present both cases to the TCML management giving sufficient details to advise the choice taken if he offers two different alternatives.

The Consultant will be expected to present this for further consideration. The detailed review of distribution configuration (including easement, right-of-way, critical crossings, traffic issues, etc.), preliminary siting and layouts of facilities required as per TCML development plans and urban township plans, and siting recycled water storage within the distribution system (or booster pumping as required).

A refined capital cost estimate and O&M cost estimate on electrical power, SCADA if necessary, solids disposal, chemical storage and consumption, staffing and assumptions for land acquisitions for each project phase will be provided. Phasing of the project implementation in up to three phases (based on location of demands, timing of new demands, etc.) will also be assessed.

2.6. EXPECTED OUTPUT FOR THE FEASIBILITY STUDY

- Detailed Design (All detailed Working Drawings AND Bills of Quantities) of waste water plant including collection, transmission, treatment, chemical analysis of effluent, storage, pumping and recycled water distribution system as per field data collection and consumption end points.
- Cost Estimate for each Alternatives in Excel spreadsheet format
- GIS based mapping ArcGIS Arcmap 10.1 format for all above design Recommended project facilities
- Summary of Alternatives Descriptions and Economic Analysis to be incorporated into the Project Report
- Summary of Recommended Project to be incorporated into the Project Report
- Detailed Cost Estimate for Recommended Project in Excel spreadsheet format including all known energy costs, operational costs, consumables needs, repair kits and any other operational costs not mentioned here.

2.6.1. ENVIRONMENTAL CHECKLIST

The Recommended Project will be evaluated for effect on physical factors (including natural resources and the local watershed), biological (including impacts to endanger or threatened

species), social (including public safety and health), historical/cultural resources, and economic factors, including the levels of significance.

Analyze the project for the following potential:

i. Impact on current water supply and demand
ii. Effect of recycled water on soil and plumbing systems
iii. Impact of recycled water on natural ecosystem when used for irrigation

Specific issues that are anticipated to be reviewed in the feasibility study include the benefits of offsetting groundwater and surface water use with recycled water, and the benefits of any environmental uses of recycled water.

2.6.2. DELIVERABLES AS PER EMCA 1999 AND WATER ACT 2016

- Environmental Impact Assessment Report
- Environmental checklist (Table in Word Document format), included in the Project Report as key items considered with respect to EMCA 1999 and Water Act 2016
- Summary of Environmental Checklist to be incorporated into the Project Report

2.7. LEGAL AND INSTITUTIONAL ISSUES

Look for potential water rights issues, legal and institutional requirements for implementation need for, permits needed for implementation, potential unresolved issues that could delay or impede implementation.

A plan will be devised for resolving any identified issues.

2.7.1. DELIVERABLES

- Summary of Legal and Institutional Issues to be incorporated into the Project Report and that need urgent attention from TCML before commencement of the project

2.7.2. IMPLEMENTATION / FINANCING PLAN

Develop an implementation schedule for the Recommended Project and a Construction Financing Plan to demonstrate cash flow over the implementation of the Recommended Project.

2.7.3. DELIVERABLES

- Summary of Financial projections as per project implementation plan incorporated into the Project Report
- Construction Financing Plan as an Excel Worksheet or MS Project Gant Chart

- Detailed Implementation schedule/Gant Chart showing sequence of key milestones with sufficient details

2.8. REPORT PREPARATION

A Preliminary Design Report will be prepared to organize and document the information developed in the above tasks in a Project Report – an Preliminary Design Report will be submitted to TCML staff for review and comment 14 days after meeting #1; a Revised Design Report incorporating or addressing all comments from staff will be sent to the TCML Board for review.

The Final Report will incorporate comments from TCML Board and any other agencies as necessary.

2.8.1. DELIVERABLES

i. Preliminary Design Report (one electronic copy)
ii. Revised Preliminary Design Report (one electronic copy)
iii. Final Detailed Design Report (3 hardcopies, one electronic copy)

2.9. PROPOSAL REQUIREMENTS:

TCML requests that the Consultant submit a concise proposal clearly addressing all of the requirements outlined in the RFP. The intent of the RFP is to encourage responses that clearly communicate the Proposer's understanding of the Magadi's requirements and its approach to successfully provide the products and/or services on time and within budget.

Proposer shall submit one (1) electronic copy of its proposal. Proposals shall be no more than 6 pages, coupled with resumes and the cover letter. The proposal must include, at a minimum, the following information:

a) A summary of the consultant's understanding of the project as a whole and the unique capabilities to perform the services required. The summary shall establish that the Consultant understands the TCML's objectives and work requirements and the Consultant's ability to satisfy those objectives and requirements.

b) The consultant's implementation plan with a project schedule including a list of tasks and any additional field investigation or exploratory work to be performed and proposed deliverables. Proposal may also include technical or procedural innovations, or specific new concepts that have been used successfully on other projects and which may benefit the Magadi with better service delivery.

c) The consultant's experience and history in performing this type of work on projects similar to the Magadi Water Recycling Project including the consultant's ability to provide prioritized project recommendations and scheduling based on an aggressive timeline. Include references of persons, firms, or agencies that TCML may contact to verify the experience of the Consultant.

d) A brief description of the Consultant's firm (firm size, financial stability, capacity and resources) as well as the proposed local organization structure shall be included. Similar information about other firms participating in the Proposal shall be included. An organization chart setting forth the project manager, supporting staff, and sub-consultants. Key project team members shall be identified by name, title and specific responsibilities on the project

e) A statement of qualifications and experience for each licensed individual or certified individual proposed to perform responsible portions of the work. Firms must be able to provide sufficient staffing with qualified individuals throughout the contract.

f) Consultant fee schedule for the duration of the project, including 2017 rates for key staff, proposed level of effort (in hours and cost). For each major task, and total cost is preferred but not necessary.

Proposals shall remain effective for ninety (90) days beyond the submittal date.

2.10. CONSULTANT SELECTION PROCEDURE

2.10.1. EVALUATION CRITERIA:

Proposals received will be reviewed by the Selection Committee, the committee will comprise as a minimum an electrical engineer, a civil engineer, a water engineer and a procurement specialist, the team leader of the procurement process will be the TCML Development Engineer, the selection committee will make the final selection based on the following factors.

i. Quality of Proposal: Proposal is concise, well written, and organized. The proposal addresses the items specified in Section III, "Proposal Requirements" (20 Marks)
ii. Firm Qualifications: Technical experience in performing work of a closely similar nature, experience working with public agencies, record of completing work on schedule, strength and stability of the firm, and assessments by client references (40 marks)
iii. Staff and Project Organization: Qualifications of project staff, key personnel's level of involvement in performing related work, logic of project organization, adequacy of labor commitment; concurrence in the restriction on changes in key personnel (40 Marks)

The team will review each submitted bid and based on the above three criteria award marks on the responsiveness of the bid to the above.

2.10.2. EVALUATION PROCEDURE:

The evaluation will be conducted by TCML Engineering team panel constituting diverse capability to assess the proposals technical and financial offers as mentioned above.

Each proposer should be prepared to clarify and elaborate on the details set forth in their proposal.

The Selection Committee will review the proposals submitted, establish a list of finalists based on pre-established review criteria, interview the finalist firms, if necessary, and determine the successful Proposer. The individual or composite rating and evaluation forms prepared by the Selection Committee will not be revealed.

Sixty minutes will be allowed for the oral interview if TCML deems it necessary.