



Metropolitan Water Reclamation District of Greater Chicago

100 East Erie Street
Chicago, IL 60611

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Title: Issue a purchase order and enter into an agreement with Illinois Sustainable Technology Center, for professional engineering services for Contract 16-078-2C, Development of a Scalable Flow-through Algal Wastewater Treatment System for Sustainable Nutrient Removal, O'Brien Water Reclamation Plant, in an amount not to exceed \$210,831.00, Account 201-50000-612430, Requisition 1432460

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Attachments:

Date	Ver.	Action By	Action	Result
9/1/2016	1	Board of Commissioners	Approved	Pass
9/1/2016	1	Committee of the Whole	Recommended	Pass

TRANSMITTAL LETTER FOR BOARD MEETING OF SEPTEMBER 1, 2016

COMMITTEE ON PROCUREMENT

Mr. David St. Pierre, Executive Director

Issue a purchase order and enter into an agreement with Illinois Sustainable Technology Center, for professional engineering services for Contract 16-078-2C, Development of a Scalable Flow-through Algal Wastewater Treatment System for Sustainable Nutrient Removal, O'Brien Water Reclamation Plant, in an amount not to exceed \$210,831.00, Account 201-50000-612430, Requisition 1432460

Dear Sir:

Authorization is requested to issue a purchase order and enter into an agreement with Illinois Sustainable Technology Center (ISTC), for professional engineering services for Contract 16-078-2C, Development of a Scalable Flow-through Algal Wastewater Treatment System for Sustainable Nutrient Removal, O'Brien Water Reclamation Plant (OWRP).

This project will be conducted under the auspices of the Master Agreement between the University of Illinois and the District, as amended July 17, 2015. ISTC was created in 1984 by the state of Illinois to assist citizens, businesses and government agencies to prevent pollution, conserve natural resources and reduce waste to protect human health and the environment of Illinois and beyond. Since 2008 the ISTC has resided under the Office of the Vice Chancellor for Research within the University of Illinois administration. The District and ISTC have a long history of mutual cooperation for the purpose of reducing waste within the District's jurisdiction. The purpose of the Master Agreement with the University of Illinois is to allow the District to directly take advantage of the expertise offered by the university by providing an umbrella agreement under which research projects may be conducted through individual Research Project Specifications. Each Research Project Specification shall be approved by the Board of Commissioners.

The Research Project Specification, which is the subject of this transmittal letter, will be accomplished in fulfillment of the special provisions of the OWRP's NPDES permit and the District's long-term plan for control of phosphorus discharge in the OWRP effluent. This research project will focus on the design and operation of a pilot-scale, open, flow-through reactor augmented with submerged artificial lighting. The study will include the evaluation of reactor performance enhancements through the incorporation of attached growth media and regenerable adsorbents. Bench-scale evaluation will be done on the mainstream flow and a side stream flow to evaluate the performance of the treatment system on each type of waste stream. The algae biomass will be harvested and analyzed for its commercial value for use in products, such as bioplastics, bioasphalt, biofuels and aquaculture.

The time for completion of the research project is 27 months after award of the contract. There are no provisions in the agreement for the extension of time, except for such reasonable period as may be agreed upon between parties. The deliverables to be provided under this agreement include:

- ☐ Summary report on bench-scale testing to optimize key design and operational criteria for the pilot system
- ☐ Preliminary basis of design report containing design criteria and specifications for the pilot system
- ☐ Summary report on the results of the operation of the pilot system
- ☐ Techno-economic evaluation of a full-scale implementation of the evaluated technology at the OWRP

The pilot facility will be designed in-house by the Engineering Department, using the basis of design provided by ISTC and constructed under a District construction contract. The day-to-day operation of the pilot system will be run by staff from the District's Monitoring and Research (M&R) Department and maintained by the Maintenance and Operations Department on an as-needed basis. The District's M&R Department will perform all laboratory analysis, except for specialty analysis on the algae biomass that may be needed and not normally conducted at District laboratories. ISTC will subcontract with the consulting firm CDM Smith, Inc. to provide expertise on the development of the design criteria and the techno-economic analysis report. Three key personnel, plus a research assistant and 3,300 hours of university time are estimated for this work. The estimated average payroll rate is \$55.00 per hour.

The components of the total fee for the agreement are as follows:

1.	Direct Labor Costs	\$143,792.00	
2.	Subcontractor Costs	\$20,000.00	
3.	Laboratory Equipment, Materials and Travel		\$28,600.00
4.	Indirect Costs	<u>\$18,439.00</u>	

Total Fee (Not to Exceed) \$210,831.00

Inasmuch as the Illinois Sustainable Technology Center possesses a high degree of professional skill, it is recommended that the Director of Procurement and Materials Management be authorized to issue a purchase order and enter into an agreement without advertising, per Section 11.4 of the Purchasing Act, in an amount not to exceed \$210,831.00.

Funds for the 2016 expenditure, in the amount of \$37,758.00, are available in Account 201-50000-612430. The estimated expenditure for 2017 is \$95,823.00, and 2018 is \$77,250.00. Funds for the 2017 and 2018 expenditures are contingent on the Board of Commissioners' approval of the District's budget for those years.

Requested, Catherine A. O'Connor, Director of Engineering, TK
Recommended, Darlene A. LoCascio, Director of Procurement and Materials Management
Respectfully Submitted, Barbara J. McGowan, Chairman Committee on Procurement
Disposition of this agenda item will be documented in the official Regular Board Meeting Minutes of the Board of Commissioners for September 1, 2016