City of Portsmouth
Portsmouth, New Hampshire
Public Works Department
RFQ #24-13
REQUEST FOR QUALIFICATIONS

ENGINEERING SERVICES

PEIRCE ISLAND WASTEWATER TREATMENT FACILITY UPGRADE

INVITATION

Sealed Statement of Qualifications (SOQ), plainly marked **"RFQ #24-13, Peirce Island Wastewater Treatment Facility Upgrade – Statement of Qualifications"** on the outside of the mailing envelope, addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, NH 03801 will be accepted until **2:00 pm on January 17, 2013.** In a separate sealed envelope within the SOQ envelope, enclose a cost proposal for the proposed scope of work, plainly marked "RFQ #24-13, Peirce Island Wastewater Treatment Facility Upgrade – Cost Proposal".

This Request for Qualifications (RFQ) can be found on the City's website at http://www.cityofportsmouth.com/finance/purchasing.htm.

MANDATORY PRE-PROPOSAL MEETING

There will be a **mandatory pre-proposal meeting on Tuesday, December 18, 2012** at 1:00 p.m. at the Peirce Island WWTF on Peirce Island Road in Portsmouth, NH. All firms will have an opportunity to ask questions at this meeting.

FUNDING

This effort will be funded by wastewater enterprise revenues.

PROJECT BACKGROUND AND PURPOSE

The City of Portsmouth is a regional provider of wastewater collection and treatment services to the City of Portsmouth, Town of New Castle and portions of the Towns of Greenland and Rye. The City has two wastewater treatment facilities (WWTF), the 4.8 MGD wet weather Peirce Island WWTF and the 1.2 MGD Pease International Tradeport WWTF. The Peirce Island WWTF services downtown Portsmouth and the client communities. The Pease International Tradeport WWTF serves the collection system for the Pease International Tradeport.

The Peirce Island WWTF was originally constructed in the 1964 and included settling and disinfection. The WWTF was upgraded in 1992 to include grit removal, primary clarification, sand filtration and chlorine disinfection. The sand filtration system failed to operate as designed and was taken out of service. The plant was upgraded again in 2002 to provide chemically enhanced primary treatment (CEPT).

The Peirce Island WWTF serves the entire sewered area of Portsmouth except the Pease International Tradeport, which is served by the Pease WWTF. The WWTF also receives flow from the Town of Newcastle. The majority of the wastewater is residential and commercial in nature since there is limited industry in this portion of the City. The WWTF was designed to treat an annual average flow of 4.8 million gallons per day (mgd). Portions of the sewer collection system in downtown Portsmouth were constructed in the late 1800's and is a combined collection system that receives significant stormwater during precipitation events. The plant was designed to treat a peak combined flow of 22 MGD. The majority of the wastewater is pumped to the WWTF from the Mechanic Street pumping station. Newcastle's wastewater is pumped directly to the WWTF from a pump station located on River Rd in Newcastle, which has a capacity of approximately 110,000 gallons per day (gpd).

The 1992 WWTF upgrade added grit removal, primary clarification, and sand filtration to the original WWTF. This upgrade also included sludge handling improvements (thickening, storage and dewatering), disinfections system upgrade, odor control, and a new control building. The WWTF has a single port outfall pipe that discharges to the Piscataqua River. Once the plant was put on-line the City had difficulty operating the sand filtration system as designed and the system was taken off-line. The City put the system back on-line and concurrently conducted a pilot study comparing the performance of the sand filtration system to enhanced primary treatment options. The pilot study showed that by upgrading to CEPT, the WWTF would perform equal to the design basis of the sand filtration system, but without the significant operation and maintenance costs required to run the sand filtration system.

The City operated the WWTF under a 301(h) waiver from 1985 until 2005. The waiver was rescinded and a new permit was issued in 2007 and the EPA issued a NPDES permit requiring secondary treatment standards. The City entered into a Consent Decree in September 2009, which stipulated interim permit limits until the WWTF was upgraded. In response the City completed a Draft Wastewater Master Plan (WWMP) and Long Term Control Plan Update (LTCP). The WWMP took into consideration the requirements of the Consent Decree and the long term treatment needs of the City. The recommendations of this plan included phased expansion of the Pease WWTF for treatment of sanitary (dry weather) wastewater and conversion of the Peirce Island WWTF to a combined sewer overflow (CSO) treatment facility only. The timeline for the implementation of this recommendation was not acceptable to the regulators and a revised plan was agreed upon for achieving secondary treatment at the Peirce Island WWTF. The 2009 Consent Decree was amended and the recorded amendment dated July 2012 required the City complete a pilot program of potential secondary treatment technologies including, but not limited to, Biological Aerated Filter (BAF), Moving Bed Biofilm Reactors (MBBR) with Dissolved Air Flotation (DAF) and Conventional Activated Sludge with BioMag (CASB). The pilot program results were to be used to recommend the design and capacity of secondary treatment capacities. The proposed recommendation was to be followed by design and construction. In July 2012, the City received correspondence from the EPA indicating the likelihood that the new NPDES permit for the Peirce Island WWTF would require a nitrogen removal to 8 mg/L.

The City conducted a pilot program to evaluate the 3 technologies listed above at the WWTF. The pilot study was completed in August 2012 and was completed in two phases as described below.

Phase 1 – Engineering Evaluation: Conceptual level evaluation of eight potential secondary treatment technologies for providing secondary and total nitrogen level treatment. The work included a desktop evaluation of sizing, cost estimates and a weighted criteria matrix ranking of proposed technologies. This work recommended on-site piloting of the BAF, MBBR and DAF and CASB technologies. The final memorandum summarizing this work was completed in September 2011 and submitted to the EPA.

Phase 2 – Initial Piloting: On-site piloting of the BAF, MBBR and DAF and CASB technologies to collect performance and operational data. The pilot program extended for approximately 8 months beginning around January 2011 and extending into August 2012. The pilot systems were operated to confirm the ability to treat to the effluent standards based on design loading rates provided by the vendors. Data was collected with the treatment technologies configured for secondary treatment and for total nitrogen removal to 8 milligrams per liter (mg/L) and 3 mg/L. It was concluded that all treatment technologies could meet effluent requirements for secondary treatment and total nitrogen removal to 8 mg/L consistently and that all three technologies could only intermittently meet the effluent limit of 3 mg/L. The recommended treatment technology for meeting secondary treatment limits at Peirce Island with the ability to treat to total nitrogen of 8 mg/L was the Biological Aerated Filter (BAF) with an average annual design flow treatment capacity of 6.13 mgd. The final memorandum summarizing this work was completed and submitted to the EPA in September 2012.

Additional components of the piloting work included a 42 week wastewater characterization program and a flow and load projection.

The next steps in the project include preliminary design followed by final design and value engineering.

SCOPE OF WORK

The consultant's scope of work shall be sufficient to address the following:

PHASE 1 – PRELIMINARY DESIGN

Task 1: Confirm Technology Selection
The Phase 2 – Initial Piloting Technical Memorandum recommended design and installation of a 6.13 mgd BAF for the biological treatment system. The preliminary design work will include confirmation of the recommendation from piloting. The pilot project had a principal focus to identify the best secondary treatment technology as required in the Consent Decree and a minor goal to consider the ability of the secondary treatment technologies to achieve total nitrogen removal. Since the City has new information indicating the likelihood of draft NPDES permit requiring total nitrogen removal effluent limit of 8 mg/L, it is important to ensure that no potential technology was overlooked.

Task 2: Develop Layout
Following confirmation of the selected technology, the consultant will develop alternative site layouts for the City's consideration. The alternative layouts will include alternative(s) within the existing fence line and extending outside the fence line. Consideration will be given to the cost impacts, site access and other considerations of a layout within the existing fence line. The layouts will be used by City staff in presenting to the City Council for consideration.

Task 3: Develop Preliminary Design Drawings
The selected layout will be advanced to the preliminary design level (30%). In addition to the biological treatment system related improvements, additional facility improvements will include, but may not be limited to, a new headworks, grit removal upgrade, primary clarifier drive replacement, splitter box improvements, disinfection system improvements, and other systems as identified by the City.

Task 4: Recommend Project Delivery Method
The Consent Decree stipulated deadlines for design and construction of the proposed recommendations. In order to meet those deadlines, the City would like a recommendation on a project implementation vehicle such as design – bid – build, design – build, PM/CM or other options. For the purposes of the SOQ and development of level-of-effort and cost proposal for the proposed scope of services, assume the project delivery method will be design-bid-build.

Task 5: Permits
Coordinate, prepare and submit all local, State, and Federal permits necessary to complete this project. This task will include a review of the project as mandated by Section 106 of the Historic Preservation Act related to the historic Fort Washington embattlement. This task will include all meetings and presentations as required.

Task 6: Site Investigations
Conduct land and structure survey necessary to complete the preliminary and final designs. Conduct necessary geotechnical investigations for design of new buildings, tanks and associated equipment.

Task 7: Preliminary Design Report
Prepare and submit a preliminary design report with recommended options to the City for review and comment. The report shall include enough detail for the consultant to adequately develop opinion of costs for each alternative and shall have adequate detail of assumptions made to allow City personnel to document justification of the final design decision.

Task 8: Public Outreach
Assist the City with public outreach. This effort at a minimum shall include preparation of one PowerPoint presentation and one public informational meeting as well as content for the City's Web page.

Task 9: Meetings and Work Sessions
The Consultant shall include in their scope of work an adequate number of meetings and work sessions to satisfactorily perform the proposed scope of work.

PHASE 2 - FINAL DESIGN

The second phase of work will include the final design. A final scope of services will be negotiated during preliminary design and will include, at a minimum, the following:

- Advance the preliminary design to the final design phase to include the following:
    a. 60% design drawings and specifications for review and comment
    b. 90% design drawings and specifications for review and comment
    c. 100% design drawings and specification for review and comment
    d. 60%, 90% and 100% estimate of construction and project costs
- Coordinate all local, State and Federal submittal requirements and incorporate applicable comments as directed by the City.
- Coordinate design workshops with the City and applicable staff of the consultant design team at the 60% and 90% levels.
- Assist the City in conducting a Value Engineering (VE) Study of the 60% Design. The Consultant shall participate in the VE workshop sessions. The Consultant shall incorporate accepted VE changes for cost saving or improved process control into the final design.
- Assist the City with public outreach. This effort at a minimum shall include preparation of two PowerPoint presentations and two public informational meeting as well as content for the City's Web page.
- The Consultant shall include in their scope of work an adequate number of meetings and work sessions to satisfactorily perform the proposed scope of work including at least four meetings with the regulators.

The following tasks do not need to be included in the SOQ man-hour level-of-effort or cost proposal, but the consultant shall indicate their qualifications to provide the following services.

PHASE 3 – BIDDING AND AWARD

Construction phase work will be negotiated during final design and will include, at a minimum, the following:

- Develop and deliver bidding documents for the City's distribution through the Purchasing Agent.
- Attend pre-bid meeting and bid opening. Assist the City in development of pre-bid meeting content and information.
- Develop Addenda as necessary for construction bid documents. Forward addenda to the City for distribution and in a format acceptable for the City's Web page.
- Review bid tabulations and develop a certified bid tab summary.
- Review contractor references and make a recommendation for award.

PHASE 4 – CONSTRUCTION SERVICES

The level of construction services will be dependent upon the final delivery method chosen for construction. A scope will be negotiated during final design.

Project Deliverables for Phases 1, 2 and 3 shall include, at a minimum, the following:

1. Six (6) copies of the Preliminary Design Report.

2. All permits necessary for construction.
3. Three (3) sets of 60% Design Plans, Specifications for City review and comment.
4. Five (5) sets of Value Engineering Design Plans, Specifications for review and comment including all backup necessary to complete VE.
5. Three (3) sets of 90% Design Plans, Specifications for City review and comment.
6. Four (4) sets of 100% Design Plans, Specifications, and Necessary Forms for NHDES to review and comment.
7. Provide one (1) unbound reproducible copy and a Digital copy of the approved design plans and specifications to the City. Provide twenty (20) bound sets of plans and specifications for project bidding.
8. Consultant's opinion of probable construction costs based on the 60%, 90% and 100% Design.

The Consultant shall include in its scope of work the number of site visits and/or meetings with the City or NHDES staff necessary to satisfactorily complete the project. The final scope of work will be negotiated with the selected consultant prior to execution of a contract. The consulting engineering firms must be on the NHDES roster of pre-qualified consulting engineers.

AVAILABLE INFORMATION

The following information will be made available to the consultant(s) for the purpose of developing the Statement of Qualifications (SOQ):

- Record drawings entitled "Wastewater Treatment Facility Portsmouth, New Hampshire, Contract No. 3", Whitman & Howard, Inc., September 1985 Revised September 1989.
- Selected drawings from drawings entitled "City of Portsmouth, New Hampshire, Record Drawings, Portsmouth Wastewater Facilities Upgrade", Underwood Engineers, Inc., Portsmouth, NH, November 25, 2005.
- "Draft Wastewater Master Plan and Long Term Control Plan Update, Volume 1 Wastewater Master Plan Update" and "Draft Wastewater Master Plan and Long Term Control Plan Update", Volumes 1 through 3, Weston & Sampson and Brown and Caldwell, June 4, 2010.
- "Final Supplement to Wastewater Master Plan and Long Term Control Plan Update", Weston & Sampson and Brown and Caldwell, November 15, 2010.
- "Phase 2 Initial Piloting Technical Memorandum", Volumes 1 and 2, AECOM, September 2012, which includes the "Phase 1 Technology Evaluation and Final Technical Memorandum", AECOM, September 26, 2011.

ENGAGEMENT OF THE ENGINEER

A. Required Contents of the Statement of Qualifications (SOQ)

A sealed SOQ, plainly marked **"RFQ #24-13, Peirce Island Wastewater Treatment Facility Upgrade – Statement of Qualifications"** on the outside of the envelope, addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, NH 03801 will be accepted until **2:00 pm on January 17, 2013**. Six (6) copies of the SOQ shall be submitted and include the following information:

1. Firm (team) Experience (for each firm in the team):
Describe relevant experience in each of the following primary areas of focus:

a. Familiarity with the City of Portsmouth's Wastewater Division.
b. Experience with design and construction oversight of high rate treatment technologies.
c. Design and construction oversight/phasing of projects with significant site restrictions.

The firm's experience shall be summarized in a matrix format. In addition, detailed project descriptions of no more than five reference projects containing the majority of the focus areas listed above shall be included. The project descriptions shall be current and limited to a maximum of one full page per project, along with client references and up-to-date contact information (name, title, organization, phone and email).

2. Project Team:
List each member of the proposed Project Team along with their:

a. Firm affiliation
b. Area of specialty
c. Office location
d. Total years of experience
e. Years with current firm
f. Specific involvement/role in projects used as references
g. Specific indolent/role in this project

One member of the Project Team must be assigned as the Project Manager who will act as the primary client contact and be involved in day to day management of the project. All resumes shall be included as attachments and limited to a maximum of two pages per team member.

3. Project Understanding and Approach:
Provide a project understanding and project approach. The approach should include a detailed list of anticipated tasks required to complete the project.

4. Scope of Work:
Provide a proposed scope of work, organized by project task. This should include a detailed list of anticipated tasks required to complete the project.

5. Man-Hour Level of Effort:
Provide a proposed man-hour level of effort in table format coordinated with the anticipated list of tasks to complete the Phase 1 and Phase 2 work. The man-hour level of effort shall be comprehensive and inclusive of the total man-hours to complete the Phase 1 and Phase 2 work of the project. The following can be assumed for the development of the man-hour level of effort:

a. Design of a two stage Biological Aerated Filter to achieve effluent total nitrogen of less than 8 mg/L and BOD and TSS less than 30 mg/L for the proposed flows and loads as indicated in Table ES-7 of the "Phase 2 Initial Piloting Technical Memorandum" completed by AECOM. Design to include ancillary components and systems requiring upgrades to support the proposed biological treatment system (e.g. sludge processing facilities upgrade, new supplemental carbon

facilities, etc.). This will also include any modifications or system changes needed to accommodate the proposed biological treatment system (e.g. replacement of the standby generator and main electrical feed).

b. Additional site and facilities improvements to include a new new headworks, grit removal upgrade, primary clarifier drive replacement, splitter box improvements (2), and disinfection system improvements.
c. Project delivery method to be design-bid-build.

Do not include any fee associated with the level of effort in the Statement of Qualifications.

6. Schedule:
Provide a proposed project schedule coordinated with the anticipated list of tasks to complete the work.

In a separate sealed envelope within the SOQ envelope, enclose a cost proposal for the proposed scope of work, plainly marked "RFQ #24-13, Peirce Island Wastewater Treatment Facility Upgrade – Cost Proposal".

B. Ranking of Qualifications

Each SOQ will be reviewed and ranked according to the following criteria:

a. Firm's experience successfully completing similar projects, which will include consideration of firm's references and reputation
b. Project Team member experience, which will include consideration of member's references and reputation
c. Understanding of the project requirements and City's Needs
d. Description of project approach and scope of services
e. Quality of SOQ

SCHEDULE

Advertise for Request for Qualifications	December 2012
Mandatory Pre-proposal Meeting	December 18, 2012
Open Qualifications	January 17, 2013
Interviews	January, 2013
Select Consultant	January, 2013
Execute Contract	February, 2013
Preliminary Design	February through June 2013
Begin Final Design	July 1, 2013 (Consent Decree Milestone)
Complete Final Design	August 31, 2014 (Consent Decree Milestone)
Begin Construction	March 1, 2015 (Consent Decree Milestone)
Complete Construction	March 1, 2017 (Consent Decree Milestone)
Achieve Compliance	May 1, 2017 (Consent Decree Milestone)

CITY ROLE

City staff will be responsible for administering the project. Representatives of the City's Public Works Department will provide input and assistance with any necessary field work and review all deliverables from the effort. The primary contact at the City will be Terry Desmarais, City Engineer for the Water and Sewer Divisions at (603) 766-1421 or by email at tldesmarais@cityofportsmouth.com.

SELECTION AND CONTRACT DOCUMENT

Upon review of all responsive SOQs using the criteria outlined above, the City may select up to three (3) firms to interview. Following interviews, the Cost Proposal of the highest ranking firm will be opened and reviewed. The highest ranking firm will be invited to negotiate a final Scope of Services and fee with the City. When the contract is executed by both parties, the Consultant will be instructed to commence providing the work outlined in the contract. All information, data, documents, photos, computer records, and other materials of any kind acquired or developed by the consultant pursuant to this project shall be the property of the City of Portsmouth. If the City is unable to reach agreement with the highest ranking firm, the City may enter into negotiations with the next highest ranking firm. The City reserves the right to negotiate directly with the firm(s) selected for additional project work.

RESERVATION OF RIGHTS

The City reserves the right to undertake such investigation as it deems necessary to evaluate the qualifications of the firm and to evaluate the qualifications of individual team members submitted. Firms may be requested to execute releases for information. Failure to provide a release upon request will result in disqualification.

The City of Portsmouth reserves the right to negotiate additional work including, but not limited to studies, design work, construction engineering services, and other related work.

The City of Portsmouth reserves the right to reject any or all statements of qualifications/proposals, to waive technical or legal deficiencies, and to accept any proposal that it may deem to be in the best interest of the City and to negotiate the terms and conditions of any proposal leading to execution of a contract.

ADDITIONAL INFORMATION

Requests for additional information should be directed to Terry Desmarais, City Engineer at (603) 766-1421 or Peter Rice at (603) 766-1416. Purchasing questions shall be directed to Lori MacGinnis at (603) 610-7227. All questions shall be submitted by 4:30 PM on Friday, January 11, 2013. Addenda to this request for qualifications, if any, including written answers to questions, will be posted on the City of Portsmouth website at the City's web site at http://www.cityofportsmouth.com/finance/purchasing.htm under the project heading. Addenda and updates will NOT be sent directly to firms. Firms submitting qualifications should check the web site daily for addenda and updates after the release date. Firms should print out, sign and return addenda with the proposal. Failure to do so may result in disqualification.