

Justification for Other-than Full and Open Competition

(1) Identification of the agency and the contracting activity, and specific identification of the document as a "Justification for other than full and open competition."

Date: November 2, 2010

Program Office: Region 1 Office of Ecosystem Protection
Water Quality Branch

Project Officer/COR: Steven Winnett
617-918-1687
603-229-4588 alt.

Title: *Assessment of Stormwater Best Management Practices (BMPs) for Nitrogen Removal*

(2) Nature and/or description of the action being approved.

EPA Region 1 has recently funded development of a regionally calibrated model (the BMP Decision Support System (BMPDSS)) for estimating stormwater best management practices' (BMP) removal of total suspended solids (TSS), total phosphorus (TP), and zinc.¹ This tool has already been very useful in addressing BMP design needs for stormwater discharges to freshwaters, where phosphorous is the limiting nutrient. In order to address coastal stormwater issues, where nitrogen is usually the limiting nutrient, there is an urgent need to calibrate the regional stormwater BMP pollutant reduction model for total nitrogen (TN) in order to help develop estuarine watershed management plans and to quantify the impact of the stormwater component of estuarine nitrogen Total Maximum Daily Loads (TMDLs).

Unfortunately, total nitrogen is much more complex to remove than TSS, phosphorus, and metals because it is not tightly bound to particulates, exists in dissolved inorganic forms, can pass through typical stormwater BMPs, and be introduced into groundwater, stream baseflows and estuarine or coastal waterbodies. For these reasons, BMPs have mixed success at removing nitrogen from stormwater. Traditional technologies (ponds, swales, hydrodynamic separators) do little to address nitrogen pollution and have removal efficiencies observed from zero to 33%, at most. Vegetated systems (including gravel wetlands and bioretention basins) are infrequently used, but can have removal performance as high as 40-95%. Tremendous performance variations are observed for different filter medias. Variations in structural design configurations (which develop anaerobic treatment reservoirs) have shown exceptional nitrogen removal performance (>90%) due to microbial conversion to nitrogen gas.

In order to assess BMP performance for nitrogen, the Agency needs a facility designed to test BMP systems in a scientifically controlled manner, to assure comparability of performance results among systems. The facility needs to have existing testing infrastructure plus the

capability to install optimizing designs on selected systems. The facility must be able to simultaneously test multiple systems, and be able to sample influents, effluents, and ground water discharges from the BMPs.

In order to update its existing BMP performance model to include a nitrogen removal estimation component, Region 1 also needs the facility to be located regionally, in an area with climatic conditions typical for New England coastal areas, since stormwater control design depends heavily on precipitation volume, frequency, and duration. Once the Region 1 BMP removal estimation model is updated, the model can be adjusted for other locations by changing the precipitation record input component. In this way, the BMP removal data will be useful input for other EPA stormwater model applications such as the System for Urban Stormwater Treatment and Analysis INtegration Model (SUSTAIN) and Hydrological Simulation Program – FORTRAN (HSPF), as well as many non-EPA models.

The University of New Hampshire Stormwater Center (UNHSC) in Durham, NH, has an existing facility that was planned, designed, and built to conduct just this type of stormwater research, and the facility is located within reasonable proximity to the NH coast. UNHSC also has the proven experience in testing and optimizing BMP systems, and provided to EPA Region 1 their existing data on BMP performance related to TSS, TP, and metals used by (b)(4) to calibrate the Region's BMPDSS model. However, further research is needed for UNHSC to perform new nitrogen removal research, given the complex nature of the testing and optimization tasks. This specialized research and analysis will result in data for further calibration of EPA Region 1's pollutant removal estimation model, as well as in better scientific and engineering understanding essential for the design and optimized performance of stormwater BMPs for nitrogen removal. Therefore, it is imperative that EPA Region 1 award the UNH Stormwater Center a contract to conduct these services.

(3) A description of the supplies or services required to meet the agency's needs (including the estimated value)

The services required to meet the Agency's technical support needs include controlled field research for pre-and-post treatment sample collection at an appropriate geographic location using actual urban stormwater runoff from typical developed areas and impervious surfaces, a variety of BMP systems for assessment, laboratory capability for sample analysis, and technical expertise for data analysis and interpretation. The goal of the project is to evaluate and optimize BMP design for the removal of nitrogen (and other contaminants), focusing on two stormwater system design characteristics: 1) filter media composition, and 2) variations in structural configurations of subsurface drainage.

The project will assess a range of BMPs to support the development of an adaptive, science-based BMP selection approach necessary for the effective control of nitrogen loads to the environment. The project involves testing and optimizing five BMP systems that show both promise for nitrogen removal, and widespread applicability (gravel wetland, bioretention (two types), subsurface infiltration, bioswale). Optimizing designs will be installed on one or two systems. Testing will occur for 12 months over 20 stormwater events (15 events meeting

QA/QC requirements), with two samplers per system, and water quality samples taken for stormwater influent, and both surface and groundwater components of the effluent. Water quality parameters include nutrients (TN, DIN, TP, SRP), metals, sediments, petroleum hydrocarbons, and chlorides. The contractor will submit for EPA approval a quality assurance project plan (QAPP), and will report results as specified in a technical direction document (performance work statement).

Period of Performance: 2 years.

Estimated Contract Amount: Per Independent Government Cost Estimate (IGCE), the estimated cost is \$(b)(5) for a two-year period, to be incrementally funded with \$(b)(4) FY2010 funds, and \$(b)(5) FY2011 funds (when available after 10/1/2010).

Proposed Contractor:

University of New Hampshire Stormwater Center,
Environmental Research Group
Dept. of Civil Engineering
35 Colovos Road
University of New Hampshire
Durham, NH 03824
Phone: 603-862-4024 Fax: 603-862-3957
Web: www.unh.edu/erg/cstev/

Essential Personnel:

Robert M. Roseen, Ph.D., P.E., D.WRE.
Director, University of New Hampshire Stormwater Center

(4) An identification of the statutory authority permitting other than full and open competition.

The statutory authority for this contract being awarded without full and open competition is:

- I. FAR Subpart 6.302-3 (a) (2) (ii) which implements 41 U.S.C. 253(c)(3) – *Industrial mobilization; engineering, developmental, or research capability; or expert services.*

(5) A demonstration that the proposed contractor's unique qualifications or the nature of the acquisition requires use of the authority cited.

The nature of the acquisition supports other than full and open competition, since the requirement involves developmental and research capability, and expert BMP system optimization services that, with the exception of the targeted contractor, are unavailable in an area with climatic conditions applicable to the New England region. Also, the requirement is immediate and any other researcher or research center would have to invest quite a bit of time and money to build a facility suitable for the required research. The funding that is available to Region 1 will only support the use of an existing facility. All of these factors limit prospective

contractors to a select subset of public or academic research facilities. UNH Stormwater Center is the only qualified, existing research facility in the region.

The UNH Stormwater Center has unique qualifications in their stated mission (<http://www.uhn.edu/erg/cstev/>):

- Their research facility allows for thorough and simultaneous analysis and optimization of multiple stormwater BMPs, including existing experimental BMPs and those that can be newly built for their (and this) research; and
- Their directly-related prior research experience for other, less complex, pollutants in stormwater (described above) over the past six years of the facility's full operation.

Whereas most other stormwater treatment researchers monitor and analyze BMPs built for normal use in municipalities and along roads, UNHSC can build BMPs in a research center which uses stormwater runoff from impervious cover (parking lots and roofs) undergoing normal use, in which all BMP design features can be adjusted through the life of the research. Complete water quality monitoring is possible as instruments can be built into the surrounding terrain. Unlike any other research center, UNHSC also provides simultaneous side-by-side evaluation of other BMPs under the same climatic conditions and using the same influent stormwater.

(6) A description of efforts made to ensure that offers are solicited from as many potential sources as is practicable, including whether a notice was or will be publicized as required by Subpart 5.2 and, if not, which exception under 5.202 applies.

In accordance with FAR 5.202 the CO need not submit the required notice by FAR 5.201 when it is determined that one of fourteen exceptions apply. In accordance with FAR 5.202 (a) (10) which states "the proposed contract action is made under conditions described in 6.302-3, or 6.302-5 with regard to brand name commercial items for authorized resale, or 6.302-7, and advance notice is not appropriate or reasonable", see question # 4. The FAR 6.305 states that an award from this JOFOC is not required to be disclosed until 14 days after award to FedBizOpps and the EPA internet website.

(7) A determination by contracting officer that the anticipated cost to the Government will be fair and reasonable.

Based on the Independent Government Cost estimate, it is determined that the anticipated cost to the government is deemed fair and reasonable.

(8) A description of the market research conducted (see Part 10) and the results or a statement of the reason market research was not conducted.

EPA Region 1 staff conducted market research by evaluating publically available information about other stormwater research taking place in the United States. We investigated the organizations and/or researchers responsible for such research, and the facilities at which it is

taking place. In addition, R1 contacted EPA's ORD laboratories in Northeastern US coastal locations to evaluate the capability of their facilities, the technical qualifications of the research staff, and the interest and availability of the labs in doing such work.

No EPA laboratories are currently set up to perform the required research, and none are interested in doing so. The cost of setting up an EPA lab to perform such research would be prohibitive.

Several universities, including the (b)(5) (b)(5) are performing stormwater research. However, none are currently performing, or are capable of performing, such controlled and thorough scientific/engineering research on the environmental impacts of BMP design regarding nitrogen removal. In addition, none are in a region with comparable climate. Considering the existing unique capabilities, qualifications, and availability of the UNHSC to immediately provide the necessary technical support to EPA Region 1, building the capacity elsewhere would not be in the government's best interest.

(9) Any other facts supporting the use of other than full and open competition, such as:

Public and private landowners in coastal areas around the country are now or will soon be facing major investments in stormwater remediation prompted by EPA requirements to control nitrogen loads to estuarine waters, as part of the Agency's task of addressing the adverse effects of nutrient pollution on the nation's coastal ecosystems. In EPA Region 1, excessive nitrogen loads and related impacts on dissolved oxygen have resulted in serious water quality issues documented in estuaries along the coast from Long Island Sound in Connecticut, north to Great Bay in New Hampshire. The Agency's regulatory task will be much less contentious if EPA can provide in the very near future the scientific data and tools for stormwater engineers and managers to use when planning and optimizing their stormwater remediation projects to achieve effective nitrogen removal. It makes sense to contract with an available, suitably located, and highly qualified research facility/laboratory to provide EPA with the necessary technical support for this specialized, targeted, and short-term project.

(10) A listing of the sources, if any, that expressed, in writing, an interest in the acquisition.

There are no listings of sources in this acquisition.

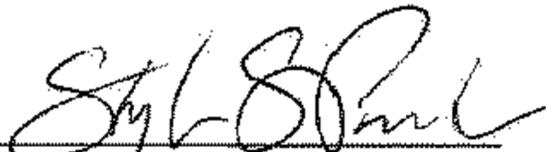
(11) A statement of the actions, if any, the agency may take to remove or overcome any barriers to competition before any subsequent acquisition for the supplies or services required.

Essentially, the barriers to competition exist in the research facility's location in a near-coastal area of New England, the requisite scientific and engineering capability for comparative assessment of stormwater BMPs, and the specialized nature of the research for regulatory

applicability. In the absence of significant agency funding to support and/or build a broader pool of such specialized research facilities, we're not aware of any actions the agency could take to remove or overcome barriers to competition in the future.

(12) Program Office Director's Certification

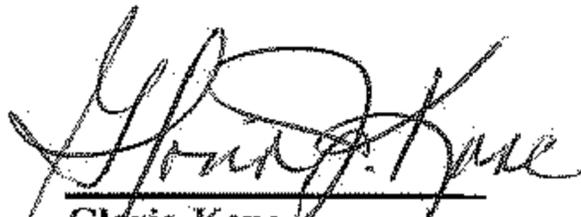
I certify that the supporting data contained in this JOFOC is complete and accurate.


Stephen S. Perkins, Director
Office of Ecosystem Protection
EPA Region 1 – New England

11/3/10
Date

(12) Contracting officer certification that the justification is accurate and complete to the best of the contracting officer's knowledge and belief.

According to the FAR 6.302-3 (a) (2) (i) and as Contracting Officer, I have determined that this requirement is in the best interest of the government. The service being procured is required in order for the Environmental Protection Agency (EPA) to fulfill its mission to assist states and communities in reducing stormwater pollution to the region's impaired water bodies. I am in agreement that the supporting data attached to this file is complete and accurate.

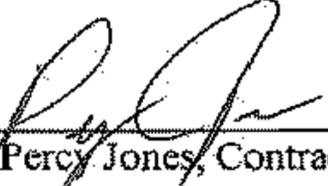

Gloria Kane
Contracting Officer

11/4/10
Date

Signature Page

For

Justification for Other than Full and Open Competition
Assessment of Stormwater Best Management Practices (BMPs) for Nitrogen Removal



Percy Jones, Contract Specialist

11-4-10
Date



Gloria Kane, Contracting Officer

11/4/10
Date