

Port of Camas/Washougal
Levee Recertification and Engineering Analysis
Request for Proposal May 3, 2011

I. Project Summary

As part of their Map Modernization Program, FEMA has initiated a countywide Flood Insurance Study (FIS) and Digital Flood Insurance Rate Map (DFIRM) for the Port of Camas/Washougal. FEMA has implemented a policy to recertify all levees currently depicted on the effective FIRM as providing protection from the base flood. The regulatory requirements for accrediting levees as providing base flood protection on FIRMs is found in Title 44 of the Code of Federal Regulations, Section 65.10 (44 CFR 65.10) (see Attachment B). These criteria include design criteria (e.g. freeboard, closures, embankment protection, embankment and foundation stability, settlement, and interior drainage), operation, and maintenance. This FEMA requirement is not federally funded; thus, the Port must use its general fund resources. As such, the project deliverable is to be the minimal required for FEMA compliance.

The Port of Camas/Washougal invites Proposals from Professional Engineers, Geotechnical Engineers and Geologists to complete an analysis and certificate document of the Washougal Flood Damage Reduction Levees in Clark County, within the city of Washougal, south of SR-14 beginning at MP 14 and continuing easterly along the northerly banks of the Columbia River approximately 5.5 miles.

The recertification document must meet the requirements of the Code of Federal Regulations, Title 44, Chapter 1, Section 65.10 (44 CFR 65.10). Elements within the levee system found to not meet or exceed the requirements of 44CFR 65.10 are to be identified in the preliminary review stage of the project.

The purpose of this project is to allow the existing levees to be recertified which will allow FEMA to continue accepting the levees as provided protection of area within the City of Washougal and Port of Camas/Washougal. Existing levee maps are available for review included in attachment C.

FEMA requires the Port of Camas/Washougal levee recertification documents be submitted no later than January, 2012. Early submission of the documents will provided a better chance for project success.

The Port has numerous resources and existing original design, testing, construction and inspection documents for this project. These documents will greatly assist the consultant efforts and hopefully reduce the projects costs.

Some relatively recent work was done that will either address or provided significant assistance in address several of the 44CFR65.10 requirements. Specifically this includes;

1. Freeboard The corps of engineers surveyed in September, 2007 the top of the levees. The elevations and required levee heights were reviewed recently and the information can be made available.

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2. Interior Drainage: There is a new hydrology study being conducted at this time to provide an accurate description of the current conditions of the interior drainage area. The project is being completed by the corps of engineers and local engineering consultant. The project is expected to be completed in latter October, 2011.

3. USACE Levee Inspection: The USACE conducted a periodic inspection of the Ports Levee on March,1 and 2 of 2010 and completed the report in August, 2010. Copies are available for review.

A team approach is a must for this project. The Port is prepared to assist with any background levee information at hand.

These and other documents will be presented for review during the suggested pre-proposal meeting on May 16th, 2011 @ 1:30 p.m.

II. Minimum Required Phases

Phase 1 – Preliminary Assessment: shall include but not limited to the following:

- Site visit and meeting with Port staff to review available reports, documents and current levee improvement projects.
- Review of existing survey data of the levee system and freeboard evaluation.
- Complete a field inspection of the levee system with the recently completed Portland District USACE periodic inspection report.
- Identify specific concerns identified in the Phase 1 assessment.

Phase 2 – Engineer and Geotechnical Analysis of Levees:

Per Requirements of 44 CFR 65.10, Specifically:

- (a) General
- (b) Design criteria;
 - (1)Freeboard
 - (2)Closures
 - (3)Embankment protection
 - (4)Embankment and foundation stability
 - (5)Settlement
 - (6)Interior drainage
 - (7)Other design criteria
- (c) Operation plans and criteria;
 - (1)Closures
 - (2)Interior drainage systems
 - (3)Other operation plans and criteria
- At the end of phase 2: Identify-specific elements that will prevent accreditation of the under 44 CFR 65.10.

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- Summarize and present to Larry Connolly, Project Manager

Phase 3 – Project Recertification Documentation/Deliverables:

- Prepare and present the Project Recertification Documentation to the Port Staff.
- Provide 3 copies of the final draft document to the Port for review and comment.
- Make final corrections and prepare and submit five full, hard copies and two digital engineer report documents to the Port for submission to FEMA Region X in accordance with 44 CFR 65.10 standards.

III. Recertification Documents Submittal

The Submittal Documents must meet the requirements of Code of Federal Regulations, Title 44, Chapter 1, Section 65.10 (44 CFR 65.10). The Documents need to be submitted to meet the FEMA time schedule for levee recertification. The timeline provided from FEMA requested information by January of 2012. From recent information we understand that these delivery schedules may be changing. However, it is clear that early submittal of the documents will be advantageous to the success of the project.

IV. Proposal Contents

The Proposal shall be prepared and presented using the following outline and should include, at a minimum, the following information:

A. Letter of Transmittal:

- Brief description of your firm and your interest in our project. Address and phone number of the office from which the project will be managed.
- Name of Project Manager, Project Engineer and Geologist.

B. Project Understanding and Approach:

- Provide a brief description of your team's unique engineer and Geologist skills and capabilities to complete this project on schedule.
- Provide a discussion of your understanding of the existing information and reports that can be utilized in the final recertification documents.
- What information and reports are lacking and will become part of your scope of work.
- Describe your team approach to the project and ability to work as a team with the Port staff to complete the mission.

C. Experience and References:

- Provide the name and professional credentials of each individual on the proposed design team; including your Washington licensed Professional Engineer and Geologist. Describe team member's specific assignments for our project and the special expertise they bring.

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- Include a brief description of past relevant engineer experience along with relevant reference contacts. Provide descriptions of at least 3 projects of a similar nature by the project personnel within the last 5 years. Include project contacts and their respective phone numbers.

D. Proposed Project Schedule:

- Provide a project schedule with an estimate of hours to complete each element of the schedule.
- Format the schedule based on each proposed phase of the project.
- Provide recommended schedule for milestone meetings.

E. Project Team Resumes: Provide resumes for each project member.

F. Estimated Fee Schedule: *Please include ALL fees in a separate envelope.*

- Please provide your estimated fees, itemized per each of the three (3) design phases described in the Scope of Services.

VI. Proposal Instructions

There will be a pre-proposal meeting and site visit held for interested proposers on May 16th, 2011 at the Port offices, 24 So. "A" Street, Washougal, WA. 98671.

The Port invites all qualified Consultants to submit proposals for this project.

Proposals not received in the Port's Administrative office at 24 South "A" Street, Washougal, WA. 97671, by 3:00 p.m. June 10th, 2011 Pacific Daylight Time, will not be opened.

Submit one (1) original Proposal including the Estimated Fee Schedule and nine (9) copies excluding the Estimated Fee Schedule to:

Port of Camas/Washougal
David Ripp
Executive Director
24 South "A" Street
Washougal, WA. 98671

Mark envelopes with: Proposal for POCW Levee Recertification and Engineering Analysis

VII. Proposal Selection Criteria

The Port of Camas/Washougal, at its sole discretion, will select an Consultant to complete this work based on the submitted proposals and any other criteria deemed necessary by the Port.

The Port reserves the right to reject all proposals. The Port may, if it deems necessary, determine a short list of firms that in the sole discretion of the Port, are best and uniquely qualified to

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perform all items in the Scope of Services, and then, conduct interviews and then select a firm or reject all firms on the basis of the interviews.

100 points are available, the Port will award points based on how well the submittal addresses the following criteria:

- A. Forty Five (45) points are possible for the project understanding, technical approach, competition and presentation of the recertification documents.
- B. Thirty (30) points are possible for the demonstrated consultant teams experience on similar type of projects. This will include but is not limited to:
 - Successful completion of similar projects.
 - Work on similar project with FEMA of Corp of Engineers.
- C. Fifteen (15) points are possible for the Consultants ability to address the project in a timely manner.
- D. Ten (10) points will be awarded for inclusion of “letters of reference” from previous project clients and current resumes of the proposed team members.

VIII. Selection and Notification

The Port will contact the successful consultant as soon as a selection has been made. All firms submitting proposals will be contacted when the process is complete.

Thank you for your interest in our Levee Engineer Analysis Project.

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ATTACHMENTS

Attachment A –Cover page

Attachment B – 44 CFR 65.10

Attachment C –Washougal FDR Levee map

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ATTACHMENT A – COVER PAGE

| | |
|--|--------------|
| FIRM'S NAME <i>(name of firm, entity or organization):</i> | |
| | |
| | |
| FEDERAL EMPLOYER IDENTIFICATION NUMBER: | |
| NAME AND TITLE OF FIRM'S CONTACT PERSON: | |
| | |
| MAILING ADDRESS: | |
| Street Address: | |
| Port, State, Zip: | |
| | |
| TELEPHONE NUMBER: | |
| FAX NUMBER: | |
| EMAIL ADDRESS: | |
| FIRM'S ORGANIZATIONAL STRUCTURE | |
| ___ Corporation ___ Partnership ___ Proprietorship ___ Joint Venture | |
| ___ Other (explain): | |
| If Corporation, Date Incorporated: State Incorporated: | |
| States Registered in as foreign corporation: | |
| | |
| FIRM'S SERVICES OR BUSINESS ACTIVITES OTHER THAN WHAT THIS RFP REQUESTS: | |
| | |
| FIRM'S AUTHORIZED SIGNATURE: | |
| The undersigned hereby certifies that this proposal is submitted in response to this solicitation. | |
| SIGNED: | DATE: |
| PRINT NAME: | |
| TITLE: | |

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ATTACHMENT B - 44 CFR 65.10

65.10 Mapping of areas protected by levee systems.

(a) *General.* For purposes of the NFIP, FEMA will only recognize in its flood hazard and risk mapping effort those levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with the level of protection sought through the comprehensive flood plain management criteria established by §60.3 of this subchapter. Accordingly, this section describes the types of information FEMA needs to recognize, on NFIP maps, that a levee system provides protection from the base flood. This information must be supplied to USACE by the community or other party seeking recognition of such a levee system at the time a flood risk study or restudy is conducted, when a map revision under the provisions of part 65 of this subchapter is sought based on a levee system, and upon request by the Administrator during the review of previously recognized structures. The USACE review will be for the sole purpose of establishing appropriate risk zone determinations for NFIP maps and shall not constitute a determination by USACE as to how a structure or system will perform in a flood event.

(b) *Design criteria.* For levees to be recognized by FEMA, evidence that adequate design and operation and maintenance systems are in place to provide reasonable assurance that protection from the base flood exists must be provided. The following requirements must be met:

(1) *Freeboard.* (i) Riverine levees must provide a minimum freeboard of three feet above the water-surface level of the base flood. An additional one foot above the minimum is required within 100 feet in either side of structures (such as bridges) riverward of the levee or wherever the flow is constricted. An additional one-half foot above the minimum at the upstream end of the levee, tapering to not less than the minimum at the downstream end of the levee, is also required.

(ii) Occasionally, exceptions to the minimum riverine freeboard requirement described in paragraph (b)(1)(i) of this section, may be approved. Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request for such an exception. The material presented must evaluate the uncertainty in the estimated base flood elevation profile and include, but not necessarily be limited to an assessment of statistical confidence limits of the 100-year discharge; changes in stage-discharge relationships; and the sources, potential, and magnitude of debris, sediment, and ice accumulation. It must be also shown that the levee will remain structurally stable during the base flood when such additional loading considerations are imposed. Under no circumstances will freeboard of less than two feet be accepted.

(iii) For coastal levees, the freeboard must be established at one foot above the height of the one percent wave or the maximum wave runup (whichever is greater) associated with the 100-year stillwater surge elevation at the site.

(iv) Occasionally, exceptions to the minimum coastal levee freeboard requirement described in paragraph (b)(1)(iii) of this section, may be approved. Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request

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for such an exception. The material presented must evaluate the uncertainty in the estimated base flood loading conditions. Particular emphasis must be placed on the effects of wave attack and overtopping on the stability of the levee. Under no circumstances, however, will a freeboard of less than two feet above the 100-year stillwater surge elevation be accepted.

(2) *Closures.* All openings must be provided with closure devices that are structural parts of the system during operation and design according to sound engineering practice.

(3) *Embankment protection.* Engineering analyses must be submitted that demonstrate that no appreciable erosion of the levee embankment can be expected during the base flood, as a result of either currents or waves, and that anticipated erosion will not result in failure of the levee embankment or foundation directly or indirectly through reduction of the seepage path and subsequent instability. The factors to be addressed in such analyses include, but are not limited to: Expected flow velocities (especially in constricted areas); expected wind and wave action; ice loading; impact of debris; slope protection techniques; duration of flooding at various stages and velocities; embankment and foundation materials; levee alignment, bends, and transitions; and levee side slopes.

(4) *Embankment and foundation stability.* Engineering analyses that evaluate levee embankment stability must be submitted. The analyses provided shall evaluate expected seepage during loading conditions associated with the base flood and shall demonstrate that seepage into or through the levee foundation and embankment will not jeopardize embankment or foundation stability. An alternative analysis demonstrating that the levee is designed and constructed for stability against loading conditions for Case IV as defined in the U.S. Army Corps of Engineers (COE) manual, “Design and Construction of Levees” (EM 1110–2–1913, Chapter 6, Section II), may be used. The factors that shall be addressed in the analyses include: Depth of flooding, duration of flooding, embankment geometry and length of seepage path at critical locations, embankment and foundation materials, embankment compaction, penetrations, other design factors affecting seepage (such as drainage layers), and other design factors affecting embankment and foundation stability (such as berms).

(5) *Settlement.* Engineering analyses must be submitted that assess the potential and magnitude of future losses of freeboard as a result of levee settlement and demonstrate that freeboard will be maintained within the minimum standards set forth in paragraph (b)(1) of this section. This analysis must address embankment loads, compressibility of embankment soils, compressibility of foundation soils, age of the levee system, and construction compaction methods. In addition, detailed settlement analysis using procedures such as those described in the COE manual, “Soil Mechanics Design—Settlement Analysis” (EM 1100–2–1904) must be submitted.

(6) *Interior drainage.* An analysis must be submitted that identifies the source(s) of such flooding, the extent of the flooded area, and, if the average depth is greater than one foot, the water-surface elevation(s) of the base flood. This analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities (such as drainage lines and pumps) for evacuating interior floodwaters.

(7) *Other design criteria.* In unique situations, such as those where the levee system has relatively high vulnerability, USACE may require that other design criteria and analyses be

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submitted to show that the levees provide adequate protection. In such situations, sound engineering practice will be the standard on which USACE will base its determinations. USACE will also provide the rationale for requiring this additional information.

(c) *Operation plans and criteria.* For a levee system to be recognized, the operational criteria must be as described below. All closure devices or mechanical systems for internal drainage, whether manual or automatic, must be operated in accordance with an officially adopted operation manual, a copy of which must be provided to USACE by the operator when levee or drainage system recognition is being sought or when the manual for a previously recognized system is revised in any manner. All operations must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP.

(1) *Closures.* Operation plans for closures must include the following:

(i) Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists for the completed operation of all closure structures, including necessary sealing, before floodwaters reach the base of the closure.

(ii) A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

(iii) Provisions for periodic operation, at not less than one-year intervals, of the closure structure for testing and training purposes.

(2) *Interior drainage systems.* Interior drainage systems associated with levee systems usually include storage areas, gravity outlets, pumping stations, or a combination thereof. These drainage systems will be recognized by USACE on NFIP maps for flood protection purposes only if the following minimum criteria are included in the operation plan:

(i) Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists to permit activation of mechanized portions of the drainage system.

(ii) A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

(iii) Provision for manual backup for the activation of automatic systems.

(iv) Provisions for periodic inspection of interior drainage systems and periodic operation of any mechanized portions for testing and training purposes. No more than one year shall elapse between either the inspections or the operations.

(3) *Other operation plans and criteria.* Other operating plans and criteria may be required by USACE to ensure that adequate protection is provided in specific situations. In such cases, sound

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emergency management practice will be the standard upon which USACE determinations will be based.

(d) *Maintenance plans and criteria.* For levee systems to be recognized as providing protection from the base flood, the maintenance criteria must be as described herein. Levee systems must be maintained in accordance with an officially adopted maintenance plan, and a copy of this plan must be provided to USACE by the owner of the levee system when recognition is being sought or when the plan for a previously recognized system is revised in any manner. All maintenance activities must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP that must assume ultimate responsibility for maintenance. This plan must document the formal procedure that ensures that the stability, height, and overall integrity of the levee and its associated structures and systems are maintained. At a minimum, maintenance plans shall specify the maintenance activities to be performed, the frequency of their performance, and the person by name or title responsible for their performance.

(e) *Recertification requirements.* Data submitted to support that a given levee system complies with the structural requirements set forth in paragraphs (b)(1) through (7) of this section must be certified by a registered professional engineer. Also, certified as-built plans of the levee must be submitted. Recertifications are subject to the definition given at §65.2 of this subchapter. In lieu of these structural requirements, a Federal agency with responsibility for levee design may certify that the levee has been adequately designed and constructed to provide protection against the base flood.

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ATTACHMENT C - Washougal FDR Levee Map

