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# **Statement of Work**

**Engineering Inspection of Dams in Haliburton Sector**

**Ontario Waterways – Trent-Severn Waterway**

**Date:**

**September 2018**



## 1.0 PROJECT SCOPE OF WORK AND OBJECTIVES

- 1.1 Background: Parks Canada wishes to obtain the services of an engineering firm to conduct Engineering Inspections on a number of dams in the Haliburton area of the Trent Severn Waterway as part of the Ontario Waterways Dam Safety Program. The Engineering Inspection shall primarily focus on structural deficiencies while providing a general deficiency list on Public Safety aspects such as signage, access, booms, etc.
- 1.2 Objective: Parks Canada would like to evaluate the performance of each dam and to have mitigating measures identified for each dam as this information is necessary for Parks Canada to maintain an effective surveillance program of its assets.
- 1.3 Scope of Work: The work will involve the review of relevant information on all 39 dams identified by Parks Canada. Provide on-site visual inspection and subsequent engineering inspection reports based on Canadian Dam Association requirements and Parks Canada's Dam Safety Directive for all 39 dams. The report shall include inspection results, condition rating, proposed mitigation measures that can be employed to minimize or eliminate the overall risk. Provide Class D cost estimates of each proposed mitigating measure. Present any urgent situations to Parks Canada's Project Manager immediately.

Successful bidder's work will include all resources (human, material and tools) to complete the inspections of the proposed dams upon written approval to proceed.

## 2.0 SCOPE INSTRUCTIONS:

### 2.1 Review of existing documentation and field work preparation

2.1.1 Prior to undertaking the field work portion of this project, the consultant shall:

- a) Review and assess the existing documentation and other relevant data, and determine what additional information will be required and extent of effort that will be required to meet the goals of this project.
- b) Review the required services for this project with Parks Canada and advise on the appropriateness of the stated scope of services and deliverables.
- c) Provide Parks Canada with a review and recommendations of the issues mentioned above. The recommendations may be used to supplement or modify the project brief before the final submission of the consultant's proposal and fee proposal.

2.1.2 Review and assess the existing documentation, drawings and dam technical data sheets (those that will have been received before the start of the inspection process).

2.1.3 Be familiar with the Directive for Dam Safety Program of Parks Canada Dams and Water-Retaining Structures and act in accordance.

2.1.4 The consultant will be responsible to obtain / assess missing information on any dam required in order to complete this project.



2.1.5 Prior to undertaking the field work portion of this project, provide the Project Manager with:

- a) A detailed field work schedule
- b) A health and safety plan for the field work; and
- c) Required coordination / assistance required from Parks Canada

2.1.6 The existing drawings and documents that will be provided by PCA for this project are to be treated as reference material only. PCA cannot ensure their completeness and accuracy. As such the consultant is responsible to review and confirm all information and inform PCA of any discrepancies.

## **2.2 Field inspection of required dams**

2.2.1 The consultant is required to conduct a visual inspection of all 39 dams at the locations listed in Appendix A, within the first 8 weeks of the contract being awarded. It is not anticipated that any field testing or coring will be required as part of this inspection program. However, if the inspecting engineers discover issues that may need testing to further assess the deficiency they should present that to the Project Manager. In such a case, the engineers shall develop a short report identifying the issue, the type of testing required, why the issue requires further testing and how the testing will provide the relevant information. As part of this short report engineers shall provide a cost estimate for the required testing.

2.2.2 Each of the 39 dams must be inspected in its entirety by a P.ENG or by a CET or EIT supervised by a P.ENG.

2.2.3 During these inspections, the contractor shall compile / list all deficiencies found on all 39 dams, particularly deficiencies related to the dam structure and general public safety around dams such as deficiencies regarding access, signage, guardrails, booms, etc.

2.2.4 Assess those deficiencies that are considered to be urgent that could result in a dam failure.

2.2.5 Review dam data sheets that were provided by Parks Canada and identify any obvious wrong data.

## **1.2 Identify mitigating measures for high risk dams and provide reports for each dam and one final summation report**

2.3.1 Create technical reports for each individual dam including:

- a) Structure name (as identified by Parks Canada)
- b) A description of the dam, including its location
- c) The list of deficiencies found during the inspection process
- d) The assessment results of those deficiencies that could result in a dam failure
- e) A general description of those mitigating measures, including the list of benefits and adverse effects of implementation and a class D estimate of each measure



- f) Updated Dam Data Sheet
- g) Field Notes from Engineering Inspection Checklist
- h) Dam Sketches / Visual Condition Survey of each component included in the Engineering Inspection Checklist
- i) Inspection Photographs showing condition and deficiencies of the dam

2.3.2 Create one final summation report for all dams which includes:

- a) For each mitigation measure:
  - i. The benefits to be obtained with this measure.
  - ii. A Class D estimate of the direct costs associated with this measure.
  - iii. The negative consequences of implementation of this measure.
- b) Prioritize all mitigating measures and indicate a timeline for which the consultant recommends these measures be put in place (for example: Immediate = within 1 year, Short Term = 1-2 years and Long Term = 3-5 years).
- c) Identify the most urgent dams for which a preliminary action plan would be required (cannot wait for DSR to be completed)
- d) The report shall include but is not limited to the following:
  - i. A title page which will identify the project title, the client (PCA), the date at which the report was submitted and the signatures of the consulting engineers who prepared and reviewed the report.
  - ii. A page presenting the team who executed this project: including those employed by the consultant, by Parks Canada who participated actively in completing the project.
  - iii. Table of Contents.
  - iv. Introduction / Executive summary: will include the project history, project objectives, overall description of sites and dam characteristics.
  - v. A complete list of deficiencies found during the inspection process.
  - vi. The assessment results of those deficiencies that could result in a dam failure.
  - vii. A general description of those mitigating measures, including the list of benefits and adverse effects of implementation and a class D estimate of each measure.
  - viii. Identify the priority of those mitigating measures with a timeline for putting them in place.
  - ix. Identify those dams for which a preliminary emergency action plan would be required as soon as possible.
  - x. At the end of the report, identify overall recommendations for future work or studies to be completed.
  - xi. Conclusion.



**3.0 DELIVERABLES**

- 3.1 Supply all resources (human, material, tools) to complete the inspections of the proposed dams.
- 3.2 Provide all documentation.
- 3.3 Provide reports for each of the 39 dams and one final summation report as outlined in the scope instructions.
- 3.4 Provide schedule.
- 3.5 Provide a general safety plan in compliance with the Canadian Labour Code.

**4.0 SCHEDULE**

- 4.1 Project award and kick off meeting – Base Line
- 4.2 Review of existing documentation and Preliminary work – Two Weeks
- 4.3 Site visits and Inspection – Four to Six Weeks
- 4.4 Final Reports – Six to Eight Weeks

**5.0 COST ESTIMATE**

The Total Cost shall include all disbursements to be paid to the Consultant for the services shall be in accordance with the following fee arrangement:

SERVICES	FIXED FEE
(1) Review of existing documentation and field work preparation	\$ -
(2) Dam Inspections	\$ -
(3) Final reports	<u>\$ -</u>
<b>TOTAL COST</b>	<b>\$ -</b>

**6.0 COMMUNICATIONS / CONSULTATION**

- 6.1 Coordinate to gain access to the dams with the Project Manager.
- 6.2 If any further information is required, communicate with the Project Manager.
- 6.3 Invoices to be submitted at the end each month for work submitted, as approved and accepted by the Project Manager.

**7.0 RESPONSIBILITIES**

- 7.1 Contractor is responsible for:
  - 7.1.1 Documents to be signed and sealed by an engineer licensed in the province of Ontario.
  - 7.1.2 No claims for extras will be considered without written approval of Departmental Representative.
  - 7.1.3 Provide a delivery date.
  - 7.1.4 Contractor required to follow all provincial regulation.



7.2 Parks Canada is responsible for:

- 7.2.1 Providing access to sites.
- 7.2.2 Approving all work.
- 7.2.3 Payment for project upon completion.

## **8.0 CONSTRAINTS**

- 8.1 Needs to coordinate with project manager before conducting site visits.
- 8.2 Direct road access not available for all dams, arrange with Project Manager.
- 8.3 If the contract is not completed in full, PCA shall not be liable to give the contractor any payment for which they did not complete.