



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Réception des soumissions - TPSGC / Bid Receiving
- PWGSC

1550, Avenue d'Estimauville

1550, D'Estimauville Avenue

Québec

Québec

G1J 0C7

REQUEST FOR PROPOSAL DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Vendor/Firm Name and Address

Raison sociale et adresse du

fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

TPSGC-PWGSC

601-1550, Avenue d'Estimauville

Québec

Québec

G1J 0C7

Title - Sujet Étude géo. havre du Cap-des-Rosiers	
Solicitation No. - N° de l'invitation EE519-180604/A	Date 2017-09-20
Client Reference No. - N° de référence du client EE519-180604	
GETS Reference No. - N° de référence de SEAG PW-\$QCM-008-17213	
File No. - N° de dossier QCM-7-40098 (008)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2017-10-31	Time Zone Fuseau horaire Heure Avancée de l'Est HAE
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Rochette, Jean	Buyer Id - Id de l'acheteur qcm008
Telephone No. - N° de téléphone (418) 649-2834 ()	FAX No. - N° de FAX (418) 648-2209
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Havre de Cap-des-Rosiers	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée Voir doc	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

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PART 1 - GENERAL INFORMATION

1.1 Requirement

Le besoin est décrit en détail à l'article 6.2 des clauses du contrat éventuel.

1.2 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.3 Trade Agreements

"The requirement is subject to the provisions of the North American Free Trade Agreement (NAFTA), and the Canadian Free Trade Agreement (CFTA)."

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The [2003](#) (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

2.3 Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the [Financial Administration Act](#), R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the [Public Service Superannuation Act](#) (PSSA), R.S., 1985, c. P-36, and any increases paid pursuant to the [Supplementary Retirement Benefits Act](#), R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the [Canadian Forces Superannuation Act](#), R.S., 1985, c. C-17, the [Defence Services Pension Continuation Act](#), 1970, c. D-3, the [Royal Canadian Mounted Police Pension Continuation Act](#), 1970, c. R-10, and the [Royal Canadian Mounted Police Superannuation Act](#), R.S., 1985, c. R-11, the [Members of Parliament Retiring Allowances Act](#), R.S. 1985, c. M-5, and that portion of pension payable to the [Canada Pension Plan Act](#), R.S., 1985, c. C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension?

Yes () No ()

If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2012-2](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes () No ()**

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority at jean.rochette@tpsgc-pwgsc.gc.ca no later than 5 business days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.5 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Quebec.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that Bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (one hard copies)

Section II: Financial Bid (one hard copies)

Section III: Certifications (one hard copies)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that Bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, Bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment.

Section III: Certifications

Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

The tenderer must be a member of the ACLE.

4.1.2 Financial Evaluation

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included.

4.2 Basis of Selection

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

6.2 Requirement

The Contractor must provide the items detailed under the "Requirement" at Annex "B".

6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

[2010C](#) (2016-04-04), General Conditions - Services (Medium Complexity) apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is 10 weeks from the Contract award date.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Jean Rochette
Title: Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
Address: 1550, avenue D'Estimauville
Québec, QC
G1J 0C7

Telephone: 418-649-2834
Facsimile: 418-648-2209
E-mail address: jean.rochette@tpsgc-pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

6.5.2 Project Authority

The Project Authority for the Contract is: *WILL COMPLETED AT CONTRACT AWARD*

Name:
Title:
Organization:
Address:

Telephone:
Facsimile:
E-mail address:

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority, however the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.3 Contractor's Representative

The contractor's representative for this contract is:

Name: _____
Title: _____

Telephone: _____
Facsimile: _____
E-mail address: _____

6.6 Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](#) (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada.

6.7 Payment

6.7.1 Basis of Payment

The Contractor will be paid for the Work performed, in accordance with the Basis of payment at annex "A".

6.7.2 Limitation of Expenditure

1. Canada's total liability to the Contractor under the Contract must not exceed \$ _____. Applicable Taxes are extra.
2. No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Work, will be authorized or paid to the Contractor

unless these design changes, modifications or interpretations have been approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:

- a. when it is 75% committed, or
- b. four months before the contract expiry date, or
- c. as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work,

whichever comes first.

3. If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

6.7.3 Multiple Payments

Canada will pay the Contractor upon completion and delivery of units in accordance with the payment provisions of the Contract if:

- a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b. all such documents have been verified by Canada;
- c. the Work delivered has been accepted by Canada.

6.7.4 SACC Manual Clauses

[A9117C](#) (2007-11-30), T1204 - Direct Request by Customer Department

6.8 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
 - a. The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.

6.9 Certifications and Additional Information

6.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information

are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.10 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Quebec.

6.11 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the general conditions 2010C (2016-04-04), ;
- (c) Annex A, Requirement;
- (d) the Contractor's bid dated _____, as clarified on _____ " **or** ", as amended on _____ "

ANNEX "A"

COMBINED PRICE FORM

		Estimated	Unit	Total
Item	Description	quantities	price	
1	Mobilization and demobilization	Lump sum		
2	Mobilization and demobilization of floating equipment	Lump sum		
3	Cost of floating equipment on-site	Lump sum		
4	Drilling			
	a) Overburden	60	\$____/l.m.	
	b) Rock	20	\$____/l.m.	
5	Laboratory testing			
	a) Geotechnical (holes)	10	\$____/Hole	
	b) PAH analysis	37	\$____/unit	
	c) Metal analyses (8)	37	\$____/unit	
	d) Hydrocarbons (C ₁₀ -C ₅₀)	37	\$____/unit	
	e) PCB	10	\$____/unit	
6	Miscellaneous costs	Lump sum	\$____	
7	Report	Lump sum	\$____	
	a) Geotechnical	Lump sum	\$____	
	b) Environmental			
8	Payable wait time, as authorized by the departmental representative.	8	\$____/hr	
Total:				

N° de l'invitation - Solicitation No.
EE519-180604/A
N° de réf. du client - Client Ref. No.
EE519-18-0604

N° de la modif - Amd. No.
File No. - N° du dossier
QCM-7-40056

Id de l'acheteur - Buyer ID
qcm008

ANNEX "B"
REQUIREMENT

CAP-DES-ROSIERS — HARBOUR REHABILITATION

GEOTECHNICAL STUDY

PROJECT No. R.044042.001

DESCRIPTION OF REQUIRED SERVICES

I MANDATE, GOALS, CONTEXT AND TESTS TO PERFORM

I.1 Mandate

The mandate consists of performing a drilling program in the existing jetty area. This campaign will require some drilling to be done from a barge. Six (6) boreholes, numbered F1-17 to F6-17 (see figure), will be required. Additionally, drilling at site F1-17 must be performed through the slab and fill of the current jetty.

Boreholes F1-17 and F3-17 must be drilled at a 6 m depth into bedrock. If the parameters are comparable, F2-17 must be drilled at 2.5 m depth into bedrock. If the parameters are significantly different, F2-17 must also be drilled to 6 m. If the rock is poor quality (very weathered - RQD below 30%), drilling must continue until the RQD reaches 50%, up to a maximum of 1.5 additional m, and the departmental representative must be informed quickly.

For boreholes F4 to F6-17, drilling must reach bedrock.

Projected works includes recovery of jetties backfill. Therefore, boreholes F1-17 and F9-17 must provide as much information as possible on this material.

All field work must be directly supervised by a resident intermediate geotechnical engineer.

I.2 Context

The government client, Parks Canada, intends to demolish the existing Berlin wall jetties and build new jetties, partially at the same location as the current structures. Two concepts are possible:

-Preferred: reconstruction of jetties using armor rock stones. According to available data, a clay layer up to 4-5m thick could pose significant stability and/or settlement issues. This study should evaluate the feasibility of implementing this type of project, including a Slope/w slope stability analysis and a full settlement analysis. Recommendations and a discussion must be included in the report.

- Alternative: rebuilding the jetty using an anchored wall (Berlin or sheet piling) This is the technique being used in actual jetties. However, rock data from previous studies indicates that the RQD is very poor at the drilling elevation for several metres.

This study must therefore include rock samples that can allow the necessary parameters for designing anchored sheet piles or soldier piles for Berlin walls.

Recognized references for two calculation methods must be provided. They must include a shearing and bending effort analysis for the base of the piles or sheet piles.

A calculation method and recommended parameters for designing rock-anchored tie-backs to withstand the lateral load of soil shall be provided. For all parameters and calculations, include clear explanations for safety and factors.

Finally, include an actionable procedure that will be applied on-site once construction work begins. This procedure will be included in the tender documents and allow for quality control during work. Note that the dimensions of the current jetties can only serve as a validation base for a projected design, as the calculation method used in 1979 is now considered obsolete.

The calculation methods must be determined and accepted by the departmental representative before field work begins.

1.3 Specific conditions

a) Definition of existing facilities:

The two (2) Berlin wall jetties were built in 1979 and are severely degraded. The structural slab was originally built on steel beams that are completely ruined, which do not allow for machinery circulation. Drilling into the current structure must be done from the adjacent backfilled area. Drilling in navigation channel must be done using a barge.

b) Equipment used:

Where applicable, drilling must be performed using a barge with features and an anchoring system suitable for the area's conditions (surface agitation, water depth, seabed, tides, currents, etc.). Floating equipment must be approved by Transport Canada (TC) for this type of work and for the waterway in question. TC's approval must account for the stability assessment including the drill, if applicable.

c) Coordination with user activities:

The Cap-des-Rosiers harbour is used by two (2) fishing boats and one (1) excursion boat. The chosen company must meet with users before work begins and establish a work schedule that does not interfere with users' activities. Work must be continually coordinated with wharf users.

During drilling, the departmental representative must be advised of any unexpected situations that could affect the work and/or the results.

I.4 Tests

Depending on the geological conditions of the site, the schedule may need to be adapted as drilling and testing progresses. The tests and information required for each drilling site are generally as follows:

I.4.1 On-site testing

- Penetration tests and sampling every metre, on average, and with every soil layer change.
- Vane shear test every metre as above, on average, when there is clay soil.
- If blocks are encountered, gather all relevant data.
- Bedrock: For the sizing of the deadman tiebacks for the rock, a water pressure analysis must be performed in order to determine the rock's permeability.

This analysis can be performed during drill insertion or removal, depending on equipment availability. Testing intervals must be 3 or 5 m in length.

The pressure in the surface pressure gauge for any given test must be equivalent to 1 psi/ft of depth up to the middle of the test interval.

The flowmeter (totalizer) must be precise and legible at 0.1 L. The flowmeter's precision must be checked against a known volume before use.

The pressure gauge must be precise and legible at 1 kPa. Before each test, the current water level must be measured and recorded.

The test is to be performed as follows:

- Pump the water for the test at the specified pressure so that balance is obtained. Ensure that there are no leaks;
- Record the total amount of water pumped into the orifice every minute for 15 minutes, keeping constant pressure throughout;
- Redo the test at the other required depths;
- Calculate the permeability in cm/sec and in Lugeons.

Ensure that the field data collected allows for the calculation of all parameters for the agreed tieback sizing method.

I.4.2 Laboratory testing

a) *Geotechnical*

For each soil layer, perform a sieve analysis and determine the wet and dry unit weights, shear resistance and internal friction angle.

If clay is present, determine the cohesion, void ratio, Atterberg limits, water content, compressibility index and consolidation ratio for every soil layer. Additionally, gather all other data necessary to calculate compaction from a large structure and pressure on a retaining wall, including effective long-term (c') and short-term (c_u) shear resistance and the internal friction angle Φ .

Where sufficient samples are available, the internal friction angle will be determined using triaxial shear tests.

In bedrock, identify the core's rock type, dip angle and direction, as well as the sample's resistance to compression and traction in representative rock cores (as determined with the departmental representative). These tests must follow the most recent CSA/CAN-A23.2 standards. Determine the recuperation and RQD for each rock core taken. Identify the rock's discontinuities (banding, fractures, seams, faults, areas of alteration...). Provide all necessary information for the sizing of the pile sockets and rock embedded tie rods, using the agreed calculation methods.

The schedule shall be modified to adapt to actual site conditions.

1.4.3 Sampling

a) *Clay*

If the drills pass through layers of material containing at least some clay, samples should be taken using a 75 mm Shelby tube with piston removal. Because the goal is to have samples be as intact as possible, the person responsible for drilling will have final say over whether this will improve the sample quality. The contractor must account for potential broken Shelby tubes in their drill costs, particularly when taking samples from mixed soils. In each soil layer containing at least some clay, 2-3 Shelby tube samples must be taken. Indicate the percentage and location of all materials removed.

b) *All other cases (including in rock)*

Core bits must be at least N gauge, particularly for rock, where it is important to gather precise data. The rock coring method must be adapted to the conditions encountered in order to maximize the quality and representativeness of the cores. The contractor must do everything

necessary to meet this requirement. Indicate the percentage and location of all materials removed. The rock's dip direction must be determined.

d) Environmental (boreholes F1-17 and F9-17)

The drill used must keep the soil profile intact. Samples must be taken continuously in order to provide the best possible description of the backfill's stratigraphy (particle size, smell, qualitative texture and density, colour, presence of debris, etc.) in the drill log. Samples must be taken every 50–60 cm (depending on the split spoon samplers used). The spoons must have a large enough diameter to gather the materials needed for analysis. For each 50–60 cm stratum, the sample is to be homogenized. Thus, for an X m drill depth, a maximum of Y samples are to be taken per borehole. Approximately 10% of samples, or at least one (1) sample per hole, must be duplicates.

Initially, three (3) samples and one (1) duplicate will be analyzed per hole: one from the 0–50/0–60 cm stratum (depending on spoon size), a second from the 150–200 cm stratum and a third from the 250–300 cm stratum, near the bottom of the backfill. These samples will be analyzed based on the presence of visual or organoleptic signs of contamination, either on-site or by default. All other samples must be kept at the laboratory for later analysis. If the first set of samples contains contaminations, the company will recommend any necessary additional testing and Departmental representative will confirm, in writing, the need to test additional samples.

Sampling stations are to be located using a DGPS to ensure accuracy of one (1) metre or less. As a control point for the DGPS coordinates, the company must take the coordinates of a specified location on the wharf (for example, the corner of one of the piers) and integrate them into the report.

The company is required to follow the *Guidance manual on sampling, analysis, and data management for contaminated sites, CCME 1993* or the equivalent, updated version of this document. They must also adhere to the fundamental principles of sampling and sample conservation, storage and transport as indicated in the ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC)'s guides. They must also follow equipment cleaning procedures in order to prevent cross-contamination.

The following analytic parameters must be used for all samples chosen for the first set:

- Polycyclic aromatic hydrocarbons (PAHs);
- 8 metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn);
- Petroleum hydrocarbons C₁₀–C₅₀;

- PCBs on 25% of samples chosen for the first sample set.
- In addition, one sample per borehole will be analyzed for particle size and dryness.

The laboratory must be accredited by the MDDELCC. It must also have a quality control program and be able to provide the necessary certificates. The laboratory's detection limits for each parameter must be lower than the strictest criteria for soils. It must use grids for materials similar to those being analyzed as reference materials.

2 ADDITIONAL DRILLING

The departmental representative reserves the right to require additional boreholes in order to more accurately determine the rock profile and overburden characteristics. These additional boreholes will be drilled within the limits of the new planned structures. However, the departmental representative cannot guarantee that additional boreholes and tests will be required for this contract.

3 REFERENCE PLAN

All references to elevation in the report and observations must be calculated from chart datum.

The contractor is responsible for installing their own graded tide markers to determine their drill heights.

In the water, boreholes must be within 1 m of their proposed location on the plan. This limit may not be exceeded unless otherwise authorized by the departmental representative. The exact coordinates for the boreholes should be indicated on the plans provided in the report.

4 TECHNICAL REPORTS

A daily report must be sent to the departmental representative throughout the work period. This report must include preliminary results and project progress. Work must be monitored closely in case additional drilling is required.

Three (3) copies of the preliminary report (which will be in the same format as the final report) must be submitted for comments no more than three (3) weeks after the end of drilling on the site.

Three (3) copies of the final report in french, including comments from the departmental representative, must be provided one (1) week after receiving the departmental

representative's comments. The English version of this report, also in triplicate, must be submitted no more than two weeks later. A CD containing all of these final reports (including the DWG plans) must also be provided.

The technical report must include the following, among others:

1. A precise, accurate bilingual (French-English) location plan for the boreholes at the location where they were actually placed, along with longitudinal and latitudinal (relative to the wharf) stratigraphic views of the terrain near the boreholes. These views must show the various layers and their characteristics, including a profile of the overburden layer and basement rock. The location of each layer must be shown.
2. All laboratory and field test results. Results are to be shown as a table, highlighting the representative values of the perimeters, as determined through tests, for each soil or rock layer encountered. Results of the physicochemical analyses are to be placed in a summary table and compared to applicable Soil Protection and Rehabilitation of Contaminated Sites Policy (MDDEP) criteria, as well as criteria in the St. Lawrence Action Plan's "Criteria for the Assessment of Sediment Quality in Quebec and Application Framework: Prevention, Dredging and Remediation" (MDDEP and Environment Canada, 2007).
3. Photos and descriptions of the equipment used and its location on the site, as well as a description of the methods used on-site and in the laboratory. High-quality photos of the rock cores.
4. A description of the reference plan used, as well as a confirmation that all levels appearing in the report comply with this plan.
5. A boring log for each of the drill operations, including all relevant information.
6. All soil and rock characteristics needed to calculate for the structures described in this contract, as well as a full description of the requested calculation methods.
7. All other relevant information needed to accurately describe the soil and rock encountered. In particular, this should include a short- and long-term shearing assessment for each soil layer and the load-bearing ability of the soil and rock layers encountered relative to the structures planned. All safety factors must be specified in the report.

Geotechnical reports from previous studies will be provided on demand to the chosen contractor.

5 EXECUTION TIME

Drilling work must start once the contract is awarded and be completed on-site within five (5) weeks, unless otherwise indicated by the departmental representative.

Adherence to the deadlines is of utmost importance. In its proposal, the company must provide a detailed schedule that accounts for the nature of drilling work, weather and climate conditions and operating restrictions at the wharf. The departmental representative must be advised of any changes to the schedule as soon as possible.

6 METHOD OF PAYMENT

Payments will be issued as follows. Submitted prices must align with the minimum rates recommended by the Quebec area ACLE.

Item 1: Mobilization and demobilization

This item will be paid as a lump sum and will include setup and takedown of all equipment needed for the geotechnical study described in this document, as well as staff travel, room and board and salaries. These fees will be calculated during the setup and takedown period, as will all other fees not covered in the other items and excluding the fees in Item 2.

- **Item 2: Setup and takedown of floating equipment**

This item will be paid as a lump sum and will include the setup and takedown fees for the floating equipment.

- **Item 3: Cost of floating equipment on-site**

This item will be paid as a lump sum and will include fees related to the use of the floating equipment.

- **Item 4: Boreholes**

- a) In the overburden**

This item will be paid per linear metre drilled in the overburden.

It includes:

- Costs for the drill, driller, driller helper and all other necessary equipment, as well as the salary for an engineer of at least intermediary level, who will be responsible for the mandate, and the salary for a resident engineer, who will oversee the work. These positions may both be occupied by the same person, as long as they are at least an intermediate engineer (8 years of experience in geotechnical engineering).

- Replacement costs for equipment broken during drilling.
- Lost time due to failures, broken machinery, etc.
- The costs for all field tests (article 1.4.1).
- All sampling costs (article 1.4.3)

b) Bed rock

This item will be paid per linear metre drilled in the rock and includes costs indicated for rock drilling, sampling and on-site tests.

“Rock” is defined as any material requiring the use of a core drill over at least 0.6 uninterrupted metres.

- **Item 5: Laboratory testing**

a) Geotechnical

This item will be paid per unit (per hole) and will include all fees incurred for tests described in article 1.4.2 a) Geotechnical, for each layer of soil and rock encountered during the boring of a single hole.

b) Environmental

This item will be paid per unit (per sample) and will include all fees incurred for tests described in article 1.4.3 c) Environment, identified from b) to e) in the table.

- **Item 6: Miscellaneous costs**

This item will be paid as a lump sum and includes:

- Staff room, board and travel other than that described in Item 1.
- Fees for preparing the preliminary and final reports, as well as all other fees related to these projects.
- Surveying fees and cost of placing drills on the site.

- **Item 7: Report**

- a) Geotechnical
- b) Environmental

- **Item 8: Wait time**

This item will be paid per hour (for a maximum of eight (8) hours per day, including worked hours) and includes:

- Staff salaries.
- Team room and board.
- Machinery and equipment costs.

Only adverse weather conditions will be considered a valid reason for waiting fees. It is important that machinery be in good working order, as broken machinery that results in the loss of favourable drill periods will be counted as payable wait time. (Direct and indirect loss of time).

The departmental representative must be advised of all wait times as soon as it is noted that weather conditions will not allow for drilling.

7 ADDITIONAL WORK

All additional tests required by the departmental representative that are not detailed in this submission will be paid according to the ACLE's minimum rates.

8 NOTE

When depth is indicated, this term must be understood to apply to ground that is currently on the site. At no time should depth include backfill that the company deems useful for drilling operations.

9 PROPOSALS

The departmental representative is not required to accept the lowest proposal, or any proposal at all.

10 HEALTH AND SAFETY

The company must ensure that drilling operations are carried out while ensuring that the health and safety of employees, the environment and the general public take priority over cost and scheduling concerns.

By accepting this contract, the company accepts all responsibilities normally given to a head contractor under the *Act respecting occupational health and safety* and agrees to act as the site supervisor. No matter how many workers are on the site, the Departmental

representative must receive a work safety plan and mechanical inspection certificate for each piece of machinery used.

Any workers working on floating equipment or near the edges of the wharf must be wearing a life jacket (PFD) that keeps the head above the water. Ensure that these life jackets comply with standard CAN/CGSB-65.7-2007 Life Jackets.

Before work begins, obtain a Transport Canada letter of compliance for approval of the lifeboat and send it to the departmental representative.

Ensure that the lifeboat is available to workers at all times in case of emergency.

Drilling operations must be compliant with applicable codes, standards and regulations. In particular, work must comply with:

- *Canada Labour Code* - Part II, Canada Occupational Health and Safety Regulations;
- Canadian Standards Association (CSA);
- *Act respecting occupational health and safety*, L.R.Q. Chapter S-2.1 (2010);
- *Safety Code for the construction industry*, Chapter S-2.1, r. 6 (2010) (concerning marine work).

The company must identify the risks and hazards associated with each task that is part of the drilling campaign.

The company must ensure that its workers have received the necessary training and information to perform all tasks safely. They must equally ensure that all necessary tools and protective equipment are available and comply with all laws, standards and regulations.

The company must advise its workers that they have the right to refuse to do any work that puts their health or safety at risk.

Before beginning work, the company must plan and organize drilling operations in a way that minimizes or eliminates identified risks and hazards or that favours collective protection, thus minimizing the use of personal protective equipment. When personal protective equipment is required, workers must ensure that it complies with the laws, standards and regulations in effect.

In the event of an unforeseen incident, take all necessary steps to protect the health and safety of workers and the public, including stopping work if necessary. Contact the departmental representative immediately.