

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
**Bid Receiving Public Works and Government
Services Canada/Réception des soumissions
Travaux publics et Services gouvernementaux
Canada**
1713 Bedford Row
Halifax, N.S./Halifax, (N.É.)
B3J 1T3
Bid Fax: (902) 496-5016

**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

THIS DOCUMENT CONTAINS A SECURITY
REQUIREMENT.

Title - Sujet UNDERWATER INVESTIGATION	
Solicitation No. - N° de l'invitation W7707-125498/A	Date 2012-01-18
Client Reference No. - N° de référence du client W7707-12-5498	
GETS Reference No. - N° de référence de SEAG PW-\$HAL-208-8583	
File No. - N° de dossier HAL-1-66686 (208)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2012-02-03	Time Zone Fuseau horaire Atlantic Standard Time AST
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: LeBlanc, JoAnne	Buyer Id - Id de l'acheteur hal208
Telephone No. - N° de téléphone (902) 496-5010 ()	FAX No. - N° de FAX (902) 496-5016
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF NATIONAL DEFENCE 9 GROVE ST DARTMOUTH Nova Scotia B3A3C5 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Acquisitions
1713 Bedford Row
Halifax, N.S./Halifax, (N.É.)
B3J 3C9

Delivery Required - Livraison exigée See Herein	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

TITLE: Investigation and Implementation of Underwater SLAM on-board DRDC Autonomous Marine Vehicles for a Variety of Environments

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Solicitation No. - N° de l'invitation

W7707-125498/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

hal208

Client Ref. No. - N° de réf. du client

W7707-12-5498

File No. - N° du dossier

HAL-1-66686

CCC No./N° CCC - FMS No/ N° VME

List of Annexes:

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PART 1 - GENERAL INFORMATION

1. Security Requirement

There is a security requirement associated with the requirement. For additional information, consult Part 4 - Evaluation Procedures and Basis of Selection, and Part 6 - Resulting Contract Clauses.

2. Statement of Requirement

The work will be performed as per the Statement of Requirement in Annex "A" attached herein.

3. Communications Notification

As a courtesy, the Government of Canada requests that successful bidders notify the Contracting Authority in advance of their intention to make public an announcement related to the award of a contract.

4. Debriefings

After contract award, bidders may request a debriefing on the results of the bid solicitation. Bidders should make the request to the Contracting Authority within 15 working days of receipt of notification that their bid was unsuccessful. The debriefing may be provided in writing, by telephone or in person.

PART 2 - BIDDER INSTRUCTIONS

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 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 (2011-05-16) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: sixty (60) days

Insert: one hundred twenty (120) days

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.

Due to the nature of the bid solicitation, bids transmitted by electronic mail to PWGSC will not be accepted.

3. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than five (5) calendar 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 questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

4. Applicable Laws

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

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

1. Bid Preparation Instructions

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

Section I: Technical Bid (2 hard copies)
Section II: Financial Bid (1 hard copy)
Section III: Certifications (1 hard copy)

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.

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. The total amount of

Goods and Services Tax (GST) or Harmonized Sales Tax (HST) must be shown separately, if applicable.

Section III: Certifications

Bidders must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

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.

(b) An evaluation team composed of representatives of Canada will evaluate the bids.

(c) The evaluation team will determine first if there are three (3) or more bids with a valid Canadian Content certification. In that event, the evaluation process will be limited to the bids with the certification; otherwise, all bids will be evaluated. If some of the bids with a valid certification are declared non-responsive, or are withdrawn, and less than three responsive bids with a valid certification remain, the evaluation will continue among those bids with a valid certification. If all bids with a valid certification are subsequently declared non-responsive, or are withdrawn, then all the other bids received will be evaluated.

1.1 Technical Evaluation - Point Rated Technical Criteria

Point Rated Technical Criteria are listed herein in Annex "C".

2. Basis of Selection

2.1 Highest Rated Within Budget

1. To be declared responsive, a bid must:

(a) comply with all the requirements of the bid solicitation; and

(b) obtain the required minimum of **70** percent overall of the points for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of **400** points. *Refer to Annex C.*

2. Bids not meeting (a) or (b) will be declared non responsive. The responsive bid with the highest number of points will be recommended for award of a contract, provided that the total evaluated price does not exceed the budget available for this requirement. The maximum funding available for the Contract resulting from the bid solicitation is \$25,000.00 (Goods and Services Tax or Harmonized Sales Tax extra, as appropriate). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

3. Security Requirement

1. Before award of a contract, the following conditions must be met:

(a) the Bidder must hold a valid organization security clearance as indicated in Part 6 - Resulting Contract Clauses;

(b) the Bidder's proposed individuals requiring access to classified or protected information, assets

or sensitive work site(s) must meet the security requirement as indicated in Part 6 - Resulting Contract Clauses;

(c) the Bidder must provide the name of all individuals who will require access to classified or protected information, assets or sensitive work sites.

2. Bidders are reminded to obtain the required security clearance promptly. Any delay in the award of a contract to allow the successful bidder to obtain the required clearance will be at the entire discretion of the Contracting Authority.

3. For additional information on security requirements, bidders should consult the "Security Requirements for PWGSC Bid Solicitations - Instructions for Bidders" (<http://www.tpsgc-pwgsc.gc.ca/app-acq/lc-pl/lc-pl-eng.html#a31>) document on the Departmental Standard Procurement Documents Website.

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications to be awarded a contract. Canada will declare a bid non-responsive if the required certifications are not completed and submitted as requested.

Compliance with the certifications bidders provide to Canada is subject to verification by Canada during the bid evaluation period (before award of a contract) and after award of a contract. The Contracting Authority will have the right to ask for additional information to verify bidders' compliance with the certifications before award of a contract. The bid will be declared non-responsive if any certification made by the Bidder is untrue, whether made knowingly or unknowingly. Failure to comply with the certifications or to comply with the request of the Contracting Authority for additional information will also render the bid non-responsive.

Certifications Precedent to Contract Award

Bidders must submit the certificates as provided below.

1. Certifications Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid, but may be submitted afterwards. If any of these required certifications is not completed and submitted as requested, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

1.1 Federal Contractors Program over \$25,000.00 and below \$200,000.00 - Certification

Suppliers who are subject to the Federal Contractors Program (FCP) and have been declared ineligible contractors by Human Resources and Skills Development Canada (HRSDC) are no longer eligible to receive federal government contracts over the threshold for solicitation of bids as set out in the Government Contracts Regulations. Suppliers may be declared ineligible contractors either as a result of a finding of non-compliance by HRSDC, or following their voluntary withdrawal from the FCP for a reason

other than the reduction of their workforce to less than 100 employees. Any bids from ineligible contractors, including a bid from a joint venture that has a member who is an ineligible contractor, will be declared non-responsive.

The Bidder, or, if the Bidder is a joint venture the member of the joint venture, certifies its status with the FCP, as follows:

The Bidder or the member of the joint venture

- (a) () is not subject to the FCP, having a workforce of less than 100 full-time or part-time permanent employees, or temporary employees having worked 12 weeks or more in Canada;
- (b) () is not subject to the FCP, being a regulated employer under the Employment Equity Act, S.C. 1995, c. 44;
- (c) () is subject to the requirements of the FCP, having a workforce of 100 or more full-time or part-time permanent employees, or temporary employees having worked 12 weeks or more in Canada, but has not previously obtained a certificate number from HRSDC, having not bid on requirements of \$200,000 or more;
- (d) () has not been declared an ineligible contractor by HRSDC, and has a valid certificate number as follows: _____.

Further information on the FCP is available on the HRSDC Web site.

1.2 Former Public Servant Certification

Contracts with 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 spending public funds. In order to comply with Treasury Board policies and directives on contracts with FPS, bidders must provide the information required below.

Definitions

For the purposes of this clause,

"former public servant" means a 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 and includes:

- (a) an individual;
- (b) an individual who has incorporated;
- (c) a partnership made up 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 Public Service.

"pension" means a pension payable pursuant to the Public Service Superannuation Act, R.S., 1985, c. P-36, as indexed pursuant to the Supplementary Retirement Benefits Act, R.S., 1985, c. S-24.

Former Public Servant in Receipt of a Pension

Is the Bidder a FPS in receipt of a pension as defined above? YES () NO ()

If so, the Bidder must provide the following information:

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

A contract for the services of a FPS who has been retired for less than one year and who is in receipt of a pension as defined above is subject to a fee reduction (abatement formula) as required by Treasury Board Policy.

Work Force Reduction Program

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of a work force reduction program? 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 reduction program.

For all contracts awarded during the lump sum payment period, the total amount of fee that may be paid to a FPS who received a lump sum payment is \$5,000, including the Goods and Services Tax or Harmonized Sales Tax.

Certification

By submitting a bid, the Bidder certifies that the information submitted by the Bidder in response to the above requirements is accurate and complete.

1.3 Canadian Content Certification

SACC Manual clause A3050T (2010-01-11) Canadian Content Definition

1.3.1 This procurement is limited to Canadian services.

The Bidder certifies that:

- () the service offered is a Canadian service as defined in paragraph 2 of clause A3050T.

Bidders should submit this certification completed with their bid. If the certification is not completed and submitted with the bid, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to submit this completed certification. Failure to comply with the request of the Contracting Authority and submit the completed certification will render the bid non-responsive.

PART 6 - RESULTING CONTRACT CLAUSES

1. Security Requirement

1. The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer, hold a valid Designated Organization Screening (DOS), issued by the Canadian Industrial Security Directorate (CISD), Public Works and Government Services Canada (PWGSC).
2. The Contractor/Offeror personnel requiring access to sensitive work site(s) must EACH hold a valid RELIABILITY STATUS, granted or approved by CISD/PWGSC.
3. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of CISD/PWGSC.
4. The Contractor/Offeror must comply with the provisions of the:
 - (a) Security Requirements Check List and security guide, attached at Annex "D";
 - (b) Industrial Security Manual (Latest Edition).

2. Statement of Work

The work will be completed as detailed in Annex "A" attached herein.

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 issued by Public Works and Government Services Canada.

3.1 General Conditions

2010B (2011-05-16), General Conditions - Professional Services (Medium Complexity) apply to and form part of the Contract.

3.2 Supplemental General Conditions

2040 (2011-05-16) - General Conditions - Research & Development

SACC Manual clause - Basis for Canada's Ownership of Intellectual Property:

This requirement has been reviewed in accordance with "Basis For DRDC Ownership of Intellectual Property Arising From DRDC Contracts" form and it has been determined that the Intellectual Property arising from this requirement should rest with the Crown.

4. Term of Contract

4.1 Period of the Contract

The work will be performed from date of Contract award to March 31, 2012.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

JoAnne LeBlanc
Supply Officer
Public Works and Government Services Canada
Acquisitions Branch
1713 Bedford Row
Halifax, Nova Scotia B3J 3C9
Telephone: 902-496-5010
Facsimile: 902-496-5016
Email: JoAnne.LeBlanc3@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.

5.2 Project Authority

The Project Authority for the Contract is:

Will be completed upon contract award.

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.

5.3 Contractor's Representative (to be completed by supplier)

Contact Name: _____

Phone: _____

Email: _____

6. Payment

6.1 Basis of Payment

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the work, as determined in accordance with Annex "B".

6.2 Limitation of Expenditure

-
- 1) Canada's total liability to the Contractor under the Contract must not exceed \$_____.
- Customs duties are included, and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.
- 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 percent committed, or
 - (b) four (4) 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.

6.3 Method of Payment - Progress Payments

1. Canada will make progress payments in accordance with the payment provisions of the Contract, no more than once a month, for cost incurred in the performance of the Work, up to 90 percent of the amount claimed and approved by Canada if:
- (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
 - (b) the amount claimed is in accordance with the basis of payment;
 - (c) the total amount for all progress payments paid by Canada does not exceed 90 percent of the total amount to be paid under the Contract;
 - (d) all certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives.
2. The balance of the amount payable will be paid in accordance with the payment provisions of the Contract upon completion and delivery of all work required under the Contract if the Work has been accepted by Canada and a final claim for the payment is submitted.
3. Progress payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the rights to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from progress payments or otherwise must be refunded promptly to Canada.

7. Invoicing Instructions - Progress Claims

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111 (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>).

Each claim must show:

- (a) all information required on form PWGSC-TPSGC 1111;
- (b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
- (c) a list of all expenses;
- (d) expenditures plus pro-rated profit or fee;
- (e) the description and value of the milestone claimed as detailed in the Contract.

Each claim must be supported by:

- (a) a copy of time sheets to support the time claimed;
- (b) a copy of the invoices, receipts, vouchers for all direct expenses, travel and living expenses if applicable;
- (c) a copy of the monthly progress report, if applicable.

2. Goods and Services Tax or Harmonized Sales Tax (GST/HST), as applicable, must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no GST/HST payable as it was claimed and payable under the previous claims for progress payments.

3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Project Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

The Project Authority will then forward the original and two (2) copies of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

4. The Contractor must not submit claims until all work identified in the claim is completed.

8. Certifications

8.1 Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

8.2 SACC Manual Clauses

SACC Manual Clause A3060C (2008-05-12) Canadian Content Certification

9. Applicable Laws

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

10. 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) 2010B (2011-05-16), General Conditions - Professional Services (Medium Complexity);
2040 (2011-05-16), General Conditions - Research & Development;
K3200T(2008-12-12), Basis of Canada's Ownership of Intellectual Property;
- (c) Annex A, Statement of Work;
- (d) Annex B, Basis of Payment;
- (e) Annex C, Intellectual Property Disclosure Certification;
- (f) the Contractor's bid dated _____.

11. Defence Contract

SACC Manual clause A9006 (2008-05-12) Defence Contract.

List of Annexs

Annex "A" - Statement of Work
Annex "B" - Basis of Payment
Annex "C" - Security Requirement Check List (SRCL)
Annex "D" - Intellectual Property Disclosure Certification

ANNEX "A"
STATEMENT OF REQUIREMENT

Title *Investigation and Implementation of Underwater SLAM on-board DRDC Autonomous Marine Vehicles for a Variety of Environments*

Requirement

DRDC is studying the utility of underwater Source Localization and Mapping (SLAM), implemented on-board autonomous underwater vehicles (AUV) and unmanned surface vehicles (USV), towards mine counter-measures, intelligence, surveillance and reconnaissance and other missions. Of particular interest is collaborative SLAM between heterogeneous autonomous marine vehicles. Both shallow and deep water environments are to be considered.

This requirement looks at implementing DRDC SLAM (in particular, FastSLAM) algorithms on-board the DRDC AUVs and USVs with both side scan and multi-beam sonar. This includes theoretical simulations, implementation on-board the vehicles, and then in-water testing. See statement of work Appendix A.

Security:

All work is unclassified and the contractor will not have access to any classified information. Contractor will require unescorted onsite access to DND facilities. In order to provide the contractor services, the contractor personnel will require a security clearance of *enhanced reliability* provided by Canadian International Industrial Security Division, Public Works and Government Services Canada. A Security Requirements Check List (SRCL) has been submitted to CFPM DPM Secur 3-4 and, upon authorization, will be forwarded to the PWGSC contracting officer.

Intellectual Property

This requirement has been reviewed in accordance with "Basis For DRDC Ownership of Intellectual Property Arising From DRDC Contracts" form and it has been determined that the Intellectual Property arising from this requirement should rest with the Crown.

Exemption: Organization exempt from IP Policy.

Time Schedule

Phase 1:

Contract Start: Upon contract award

Completion Date: March 31, 2012

Optional Phase 2:

Contract Start: April 1, 2012

Completion Date: March 28, 2013

Deliverables

In addition to the return of all non-expended items (equipment, software, books, etc.) acquired by the contractor in support of this requirement and claimed for against the contract, the deliverables shall be:

1. comprehensive report (1 soft copy on CD and 1 hard copy) detailing the work performed in phase 1;
2. literature review from phase 1 (database and copies of all papers);

-
3. comprehensive report for items 1 - 4 of phase 2;
 4. report on concepts of operation in using SLAM for naval applications;
 5. comprehensive final report;
 6. all software that has been developed and implemented on-board the vehicles (on CD);
 7. SLAM simulator that can stream in sonar data.

Reports

As directed by the Project Authority, DRDC Atlantic requires (1) unbound hard copy and (1) electronic copy of final Contract Report.

Report Standard and Format

Reports will be to a standard acceptable to the Project Authority. Should a report not be in accordance with the requirement of the work, the Project Authority shall have the right to reject it or require its correction.

The Project Authority will provide the Contractor with a CD that contains: 1) a word template of a Contract Report, 2) a PDF file of a sample Contract Report, and 3) a PDF file of the "Requirements for DRDC Atlantic Contractor Reports". The contractor is responsible for delivering a draft copy of the Contract Report to the Technical Authority for review. This review may require the contractor to make changes as directed by the Technical Authority. Also, this review will help to ensure the report is in keeping with contract requirements and that DND interests, including security, are safeguarded. The final report format shall comply with the standards set out in the DRDC Atlantic guide "Requirements for DRDC Atlantic Contractor Reports".

Financial Limitations

FY 11/12: \$25k (Taxes Extra)

Optional:

FY 12/13: \$25k (Taxes Extra) (pending available funds which cannot be confirmed at this point)

Travel and Living

An initial contract kick-off meeting as well as a final meeting to discuss results are required at DRDC Atlantic (#9 Grove St., Dartmouth, NS).

There will also be a requirement for bi-weekly (or more frequent) work periods at DRDC Atlantic since the equipment is at DRDC and cannot be easily taken off site. Such work periods shall take place at DRDC-Atlantic's Grove St installation in Dartmouth, NS.

Costs for all the travel and living arrangement to be itemized and included within the total cost of the contract. All reasonable travel and per diem expenses that follow the Treasury Board guidelines will be reimbursed as part of the contract cost.

Contractor Personnel

All contractor personnel shall be named in the contract. All proposed changes in contractor personnel shall be addressed by the contractor to Public Works and Government Services Canada who in turn will request DRDC Atlantic's approval.

DRDC Atlantic Support, Facilities and Responsibilities

1. access to documentation that describes some of the existing system
2. access to DRDC autonomous underwater vehicles and unmanned surface vehicle
3. algorithms and partial implementation developed to date for the adaptive path-planning of the unmanned surface vehicles
4. access to test facilities like the DRDC Acoustic Calibration Barge or the Fleet Diving Unit (CFB Shearwater)

Control Procedures

Inspection shall be by and to the satisfaction of the Project Authority, Defence R&D Canada – Atlantic.

Progress will be monitored through bi-weekly consultations between the contractor and the Project Authority. The work shall be deemed 100% complete upon receipt and approval of the draft final report by the Project Authority. The contractor must allow time for editorial review of the draft report by the Technical Authority and agree to make minor editorial changes to the report, to print the report, and to deliver the report, at no additional cost. Upon receipt of all bound copies of the Final Report and other deliverables, and upon receipt of a Claim for Holdback, the holdback will be released

Approval Prior To Publication

All manuscripts for publication in scientific journals or the like, abstracts of oral presentations and any releases that describe portions of the contract work or related information shall be submitted to the Technical Authority for approval of release. If the inadvertent presence of either defence classified or proprietary material is determined, the Technical Authority will consult with the contractor to redraft the relevant sections to their joint satisfaction to produce an unclassified text or theme without sensitive information. Review of manuscripts and releases will be completed within two months after receipt. Review of abstracts and any other releases will proceed rapidly and approval of release will follow without delay.

APPENDIX A - STATEMENT OF WORK**Requirement**

DRDC is studying the utility of underwater Source Localization and Mapping (SLAM), implemented on-board autonomous underwater vehicles (AUV) and unmanned surface vehicles (USV), towards mine counter-measures, intelligence, surveillance and reconnaissance and other missions. Of particular interest is collaborative SLAM between heterogeneous autonomous marine vehicles. Both shallow and deep water environments are to be considered.

The Contractor shall:Phase 1:

1. Perform an extensive literature survey on underwater SLAM using side scan sonar and multi-beam echosounder sonars. This should result in a properly organized database of over 150 papers.
2. Develop a hypothesis on the efficacy of self-organizing behaviors in collaborative SLAM with AUVs and a numerical and experimental plan to test and validate it.
3. Support trials (about 4 scheduled sets) in local Halifax waters with the DRDC AUVs and USVs with the aim of becoming familiar with their operations and control architectures
4. Write a detailed report on (1) and (2) above.

Optional Phase 2:

1. Construct a simulator which will investigate different SLAM algorithms within MATLAB and compare their relative merits.
2. Have the simulator stream in DRDC side scan and other data to test the algorithms. This data should be acquired by the contractor through a variety of local trials that he/she plans, organizes, and implements.
3. Implement the chosen algorithm on the DRDC AUVs and USVs. This is to address both shallow and deep water methodologies.
4. Plan and implement in-water trials in local Halifax waters to validate the algorithms under challenging conditions (to be defined in consultation with DRDC Scientific Authority).
5. Write a detailed report on items #1 - 4 in phase 2. Includes thorough analysis of all data acquired.
6. Working with the DRDC Mine and Harbour Defence Group develop concepts of operation for the use of SLAM in a variety of naval missions that includes mine counter-measures.
7. Write separate reports on item (6).
8. Final report covering all aspects of the work performed over the course of the entire contract.

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HAL-1-66686

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W7707-12-5498

CCC No./N° CCC - FMS No/ N° VME

ANNEX "B"
BASIS OF PAYMENT

Your Financial Bid will be used to determine the Basis of Payment. Negotiation of the pricing basis may be required. If the proposed hourly rates are not those negotiated with PWGSC, detailed financial data should be provided if required.

Labour: For each individual and/or labour category to be employed on the project, indicate the proposed hourly rate (including overhead, excluding profit) and the estimated time to be spent by each.

\$ _____

Other Direct Charges:

Equipment: Identify the items required to complete the work and identify the pricing basis inclusive of customs duty. These items will be delivered to Canada upon completion of the project.

Materials, Supplies, Components: Indicate general categories and the pricing basis. Indicate whether the items are likely to be used or consumed during the course of the Work.

Other Charges: Identify any other direct charges anticipated such as long distance communication and rentals and provide the estimated costs and relevance to the proposed work.

\$ _____

Subcontracts: Identify potential subcontractors and provide the same cost breakdown information detailed herein.

\$ _____

Profit: State your proposed profit, if any, and the basis on which it is computed and applied.

\$ _____

Total Estimated Price (excluding HST/GST): _____

Harmonized or Goods and Services Taxes (HST/GST) must be identified separately.

ANNEX "C"
EVALUATION CRITERIA

The Technical and Management proposals will be evaluated and scored in accordance with the following evaluation criteria. It is suggested bidders address these criteria in sufficient depth in their proposals.

TECHNICAL PROPOSAL**200 POINTS MAX / 140 POINTS MINIMUM**

- | | |
|---|-----------|
| (a) Demonstrated understanding of scope and objectives | 40 POINTS |
| (b) History with DRDC underwater vehicle controls and use | 40 POINTS |
| (c) Proposed work feasibility, approach and methodology | 40 POINTS |
| (d) Recognition of direct as well as peripheral problems and solutions proposed | 40 POINTS |
| (e) Adequacy of level of effort, workplan and schedule, deliverables | 40 POINTS |

MANAGEMENT PROPOSAL**200 POINTS MAX / 140 POINTS MINIMUM**

- | | |
|---|-----------|
| (a) key personnel capability – relevant experience, qualifications and competence proven by similar and/or related work in underwater robotics (especially the IVER2 Autonomous Underwater Vehicles and associated systems) in the areas of collaborative/cooperative applications of multiple robots, implementation, testing / trials, etc. | 80 POINTS |
| (b) company capability including subcontractors, if applicable – relevant experience/competence proven by similar or related work for naval clients, and resource capability, risk of non-performance, commitment to this field of work. | 40 POINTS |
| (c) personnel willing to work on-site at DRDC on the underwater robot test platform on a weekly / bi-weekly basis for a few days a week and to work with on-site DRDC Atlantic personnel; as well ability to support a northern trial in summer 2012. | 80 POINTS |

TOTAL POINTS – 400**Basis of Selection:**

1. To be considered responsive, a bid must:
 - (a) meet all the mandatory requirements of the solicitation; and
 - (b) obtain the required minimum of 70 percent of the points for the technical and management criteria specified in the solicitation, which are subject to point rating. The total overall rating is performed on a scale of 400 points.
2. Bids not meeting (a) or (b) above will be given no further consideration. The responsive bid with the

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highest overall points will be recommended for award of a contract. In the case of a tie the bid with the highest technical proposal will be recommended.

3. Contractor selection shall be on the basis of highest rated responsive proposal within a maximum stipulated financial budget of \$ 25K / annum for 2 FY.

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ANNEX "D"

Security Requirements Check List (SRCL)

See attached herein

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ANNEX "E"

Intellectual Property Disclosure Certification

See attached herein



Contract Number / Numéro du contrat W4707-125498
Security Classification / Classification de sécurité UNCLAS

**SECURITY REQUIREMENTS CHECK LIST (SRCL)
LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)**

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE			
1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine DND		2. Branch or Directorate / Direction générale ou Direction	
3. a) Subcontract Number / Numéro du contrat de sous-traitance		3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant	
4. Brief Description of Work / Brève description du travail Investigation and Implementation of Underwater SLAM on-board DRDC Autonomous Marine Vehicles for a Variety of Environments. This contract looks at implementing DRDC SLAM (in particular, FastSLAM) algorithms on-board the DRDC AUVs and USVs with both side scan and multi-beam sonar. This includes theoretical simulations, implementation on-board the vehicles, and then in-water testing.			
5. a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées?		<input checked="" type="checkbox"/> No Non	<input type="checkbox"/> Yes Oui
5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques?		<input checked="" type="checkbox"/> No Non	<input type="checkbox"/> Yes Oui
6. Indicate the type of access required / Indiquer le type d'accès requis			
6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS?		<input checked="" type="checkbox"/> No Non	<input type="checkbox"/> Yes Oui
(Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c)			
6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé.		<input type="checkbox"/> No Non	<input checked="" type="checkbox"/> Yes Oui
6. c) Is this a commercial courier or delivery requirement with no overnight storage? S'agit-il d'un contrat de messagerie ou de livraison commerciale sans entreposage de nuit?		<input checked="" type="checkbox"/> No Non	<input type="checkbox"/> Yes Oui
7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès			
Canada <input type="checkbox"/>	NATO / OTAN <input type="checkbox"/>	Foreign / Étranger <input type="checkbox"/>	
7. b) Release restrictions / Restrictions relatives à la diffusion			
No release restrictions Aucune restriction relative à la diffusion <input type="checkbox"/>	All NATO countries Tous les pays de l'OTAN <input type="checkbox"/>	No release restrictions Aucune restriction relative à la diffusion <input type="checkbox"/>	
Not releasable À ne pas diffuser <input type="checkbox"/>			
Restricted to: / Limité à: <input type="checkbox"/>	Restricted to: / Limité à: <input type="checkbox"/>	Restricted to: / Limité à: <input type="checkbox"/>	
Specify country(ies): / Préciser le(s) pays:	Specify country(ies): / Préciser le(s) pays:	Specify country(ies): / Préciser le(s) pays:	
7. c) Level of information / Niveau d'information			
PROTECTED A PROTÉGÉ A <input type="checkbox"/>	NATO UNCLASSIFIED NATO NON CLASSIFIÉ <input type="checkbox"/>	PROTECTED A PROTÉGÉ A <input type="checkbox"/>	
PROTECTED B PROTÉGÉ B <input type="checkbox"/>	NATO RESTRICTED NATO DIFFUSION RESTREINTE <input type="checkbox"/>	PROTECTED B PROTÉGÉ B <input type="checkbox"/>	
PROTECTED C PROTÉGÉ C <input type="checkbox"/>	NATO CONFIDENTIAL NATO CONFIDENTIEL <input type="checkbox"/>	PROTECTED C PROTÉGÉ C <input type="checkbox"/>	
CONFIDENTIAL CONFIDENTIEL <input type="checkbox"/>	NATO SECRET NATO SECRET <input type="checkbox"/>	CONFIDENTIAL CONFIDENTIEL <input type="checkbox"/>	
SECRET SECRET <input type="checkbox"/>	COSMIC TOP SECRET COSMIC TRÈS SECRET <input type="checkbox"/>	SECRET SECRET <input type="checkbox"/>	
TOP SECRET TRÈS SECRET <input type="checkbox"/>		TOP SECRET TRÈS SECRET <input type="checkbox"/>	
TOP SECRET (SIGINT) TRÈS SECRET (SIGINT) <input type="checkbox"/>		TOP SECRET (SIGINT) TRÈS SECRET (SIGINT) <input type="checkbox"/>	



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PART A (continued) / PARTIE A (suite)

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets? No Yes
 Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS? Non Oui

If Yes, indicate the level of sensitivity:
 Dans l'affirmative, indiquer le niveau de sensibilité :

9. Will the supplier require access to extremely sensitive INFOSEC information or assets? No Yes
 Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate? Non Oui

Short Title(s) of material / Titre(s) abrégé(s) du matériel :
 Document Number / Numéro du document :

PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)

10. a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

- | | | | |
|---|---|---|--|
| <input checked="" type="checkbox"/> RELIABILITY STATUS
COTE DE FIABILITÉ | <input type="checkbox"/> CONFIDENTIAL
CONFIDENTIEL | <input type="checkbox"/> SECRET
SECRET | <input type="checkbox"/> TOP SECRET
TRÈS SECRET |
| <input type="checkbox"/> TOP SECRET-SIGINT
TRÈS SECRET - SIGINT | <input type="checkbox"/> NATO CONFIDENTIAL
NATO CONFIDENTIEL | <input type="checkbox"/> NATO SECRET
NATO SECRET | <input type="checkbox"/> COSMIC TOP SECRET
COSMIC TRÈS SECRET |
| <input type="checkbox"/> SITE ACCESS
ACCÈS AUX EMPLACEMENTS | | | |

Special comments:
 Commentaires spéciaux : _____

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.
 REMARQUE : Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work? No Yes
 Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail? Non Oui

If Yes, will unscreened personnel be escorted? No Yes
 Dans l'affirmative, le personnel en question sera-t-il escorté? Non Oui

PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises? No Yes
 Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS? Non Oui

11. b) Will the supplier be required to safeguard COMSEC information or assets? No Yes
 Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC? Non Oui

PRODUCTION

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises? No Yes
 Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ? Non Oui

INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data? No Yes
 Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS? Non Oui

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency? No Yes
 Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale? Non Oui



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PART C - (continued) / PARTIE C - (suite)

For users completing the form manually use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.

Les utilisateurs qui remplissent le formulaire manuellement doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form online (via the Internet), the summary chart is automatically populated by your responses to previous questions.

Dans le cas des utilisateurs qui remplissent le formulaire en ligne (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif.

SUMMARY CHART / TABLEAU RÉCAPITULATIF

Category / Catégorie	PROTECTED / PROTÉGÉ			CLASSIFIED / CLASSIFIÉ		NATO					COMSEC					
	A	B	C	CONFIDENTIAL / CONFIDENTIEL	SECRET	TOP SECRET / TRÈS SECRET	NATO RESTRICTED / NATO DIFFUSION RESTREINTE	NATO CONFIDENTIAL / NATO CONFIDENTIEL	NATO SECRET	COSMIC TOP SECRET / COSMIC TRÈS SECRET	PROTECTED / PROTÉGÉ			CONFIDENTIAL / CONFIDENTIEL	SECRET	TOP SECRET / TRÈS SECRET
											A	B	C			
Information / Assets / Renseignements / Biens / Production																
IT Media / Support TI																
IT Link / Lien électronique																

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED? / La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE? No / Non Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification". / Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire.

12. b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED? / La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE? No / Non Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments). / Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquez qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).

ANNEX "E"
INTELLECTUAL PROPERTY DISCLOSURE CERTIFICATION -
CERTIFICAT DE DIVULGATION DE LA PROPRIÉTÉ INTELLECTUELLE

This form is to be completed and signed by the contractor upon completion of the contract and returned to:

JoAnne LeBlanc
 Science and Professional Services
 Public Works and Government Services Canada
 1713 Bedford Row, PO Box 2247
 Halifax, Nova Scotia
 B3J 3C9
 Tel: (902) 496-5010
 Fax: (902) 496-5016

Contract Title: Investigation and implementation of Underwater SLAM on-board DRDC Autonomous Marine Vehicles for a Variety of Environments

PWGSC File number - **W7707-125498/001/HAL**

It is a term of the referenced contract that, regardless of its ownership, all Foreground Information¹ that could be Inventions¹ and all other Foreground Information, shall be promptly and fully disclosed to Canada.

Tel que stipulé dans le contrat mentionné ci-dessus, et peu importe à qui sont dévolus les droits de propriété intellectuelle, tous les renseignements originaux * susceptibles de constituer des inventions*, de même que tous les autres renseignements originaux découlant de ce contrat, devront être divulgués pleinement et sans délai au Canada.

¹ - defined in the General Conditions identified in the Contract

* - tels que définis dans les conditions générales identifiées dans le contrat.

Consequently, the undersigned, being a duly authorized officer of the Contractor, certifies that during the tenure of the contract

Par conséquent, le soussigné, étant un agent dûment autorisé de l'Entrepreneur, certifie que durant la période du contrat

(mark appropriate box):

(cochez la case appropriée):

No Foreground Information was conceived, developed or produced as part of the Work and, therefore the Contractor has nothing to disclose.

Aucun renseignement original n'a été conçu, développé ou produit pendant l'exécution des travaux; l'entrepreneur n'a donc aucun renseignement original à divulguer.

All Foreground Information which was conceived, developed or produced as part of the Work was fully disclosed and documented in the technical reports delivered by the Contractor to the Technical Authority designated in the Contract, and the Contractor has nothing further to disclose.

Tous les renseignements originaux conçus, développés ou produits pendant l'exécution des travaux ont été entièrement divulgués et documentés dans les rapports techniques livrés par l'Entrepreneur à l'autorité technique indiquée dans le contrat, et l'Entrepreneur certifie qu'il n'existe aucune information supplémentaire à divulguer.

All Foreground Information conceived, developed or produced as part of the Work by the Contractor is hereby fully disclosed in the attached document.

Tous les renseignements originaux conçus, développés ou produits pendant l'exécution des travaux par l'Entrepreneur sont entièrement divulgués dans le document ci-joint.

Signature - Signature: _____

Print Name - Nom en caractère imprimé: _____

Title - Titre: _____

Company Name - Entrepreneur: _____

Date - Date: _____