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SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Travaux publics et Services gouvernementaux Canada
Place Bonaventure, portail Sud-Oue
800, rue de La Gauchetière Ouest
7e étage, suite 7300
Montréal
Québec
H5A 1L6

| | |
|---|--|
| Title - Sujet Laboratory analysis on buoy lantern Laboratory analysis on buoy lanterns | |
| Solicitation No. - N° de l'invitation F7047-200097/A | Amendment No. - N° modif. 003 |
| Client Reference No. - N° de référence du client F7047-200097 | Date 2020-12-03 |
| GETS Reference No. - N° de référence de SEAG PW-SMTB-309-15917 | |
| File No. - N° de dossier MTB-0-43152 (309) | CCC No./N° CCC - FMS No./N° VME |
| Solicitation Closes - L'invitation prend fin at - à 02:00 PM Eastern Standard Time EST on - le 2020-12-21 Heure Normale de l'Est HNE | |
| 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: Paradis, Mary | Buyer Id - Id de l'acheteur mtb309 |
| Telephone No. - N° de téléphone (514) 702-8173 () | FAX No. - N° de FAX () - |
| Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: MINISTÈRE DES PECHES ET DES OCÉANS CANADIAN COAST GUARD 101 BOULEVARD CHAMPLAIN QUÉBEC, P. QUÉBEC G1K 7Y7 | |

Instructions: See Herein

Instructions: Voir aux présentes

| | |
|--|--|
| Delivery Required - Livraison exigée | 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 |

Solicitation No. - N° de l'invitation
F7047-200097/A
Client Ref. No. - N° de réf. du client
F7047-200097

Amd. No. - N° de la modif.
003
File No. - N° du dossier
MTB-0-43152

Buyer ID - Id de l'acheteur
MTB309
CCC No./N° CCC - FMS No./N° VME

THE ABOVE MENTIONED REQUEST FOR PROPOSAL HAS BEEN AMENDED AS FOLLOWS:

DELETE:

ANNEX «A »

STATEMENT OF WORK

The Statement of work will be at the end of this document.

In its entirety

INSERT:

ANNEX « A » - REV. 1

STATEMENT OF WORK

The Statement of work will be at the end of this document.

DELETE:

ANNEX "E"

MANDATORY TECHNICAL CRITERIA

In its entirety

INSERT:

ANNEX "E" - REV 1

MANDATORY TECHNICAL CRITERIA

The information that figures in the tables below must be duly completed and submitted at the closing date and hour of the solicitation document.

All the criteria identified below are MANDATORY. Each criteria must be met and documentation provided in order to demonstrate the degree to which it is met.

Please identify where the substantial document is located in your proposition.

Canada will not evaluate information such as references to a website address where supplementary information can be found.

Only those proposals that meet all the mandatory technical criteria in the table below will be subject to further evaluation.

The offers that fail to meet all these conditions will be rejected.

| MANDATORY EVALUATION CRITERIA | DESCRIPTION | CONFORMANCE METHOD |
|-------------------------------|--|--|
| 1 | <p>The Contractor must provide a Project team that has the knowledge and experience necessary to perform the work described in Table 1 of the Statement of Work: Annex A. This team must include at least the following four (4) persons. Note that these four persons must be employees of the Contractor:</p> <ul style="list-style-type: none"> • Project Manager • Project engineer • Principal investigator • Technician <p>In order to ensure the integrity and transparency of the work to be carried out within the framework of this mandate, the Contractor must resort a third party company to form the Project team (Project Manager, Project Engineer, Principal Investigator and Technician) <u>if and only if</u> this Contractor is a lantern manufacturer or a lantern supplier.</p> | Team Description |
| 2 | The Project Manager of the team must have successfully managed at least four projects with a minimum value of \$ 250,000 in the past 5 years. In addition, the project manager must have a minimum of years in project management related to similar projects in field of optics. | Project Manager's Curriculum vitæ |
| 3 | The Project Engineer of the team must be an active member of the Ordre des Ingénieurs du Québec and have a bachelor's degree in Engineering in a relevant field of study. The project engineer must have work experience on similar projects in the field of optics within the past years. | Project Engineer's Curriculum vitæ AND Engineer's Permit |
| 4 | The Principal Investigator of the team must have a university degree in the field of optics. The Principal Investigator must have work experiences of similar projects in the last 5 years. | Principal Investigator's Curriculum vitæ AND University Degree |
| 5 | The Technician must have a post-secondary degree in a relevant field of study and have a minimum of years of work experience in optical analysis and laboratory testing. | Technician's Curriculum vitæ AND post-secondary degree |
| 6. | The Contractor's Quality Management System must be ISO 9001: 2008 (or ISO 9001: 2015) - Quality Management Systems certified. | Certification |

DELETE:

ANNEX "G"

CERTIFICATIONS

INSERT:

ANNEX "G" – REV 1

CERTIFICATIONS

AT THE CLOSING DATE AND HOUR OF THE INVITATION OR BEFORE THE ISSUANCE OF THE CONTRACT, THE OFFERORS MUST PROVIDE THE FOLLOWING CERTIFICATIONS.

All the criteria identified below are MANDATORY. Each criteria must be met and documentation provided in order to demonstrate the degree to which it is met.

Please identify where the substantial document is located in your offer.

If these documents have not been provided at bid closing, Public services and procurement Canada (PSPC) will notify the bidder that they are required to provide them within **two (2) business days** following a written notification by the PSPC's contracting officer.

(Note: this time requirement reflects PWGSC's expectation that these documents ought to be readily available to a bidder, offeror or supplier.)

The offers that fail to meet all these conditions will be rejected and will be given no further consideration.

| MANDATORY EVALUATION CRITERIA | DESCRIPTION | CONFORMANCE METHOD | SUPPORTING DOCUMENTS REQUIRED Please identify where the substantial document is located in your proposal. |
|--------------------------------------|--|---------------------------|--|
| 1 | The Contractor must provide a Project team that has the knowledge and experience necessary to perform the work described in Table 1 of the Statement of Work: Annex A. This team must include at least the following four (4) persons. Note that these four persons must be employees of the Contractor: <ul style="list-style-type: none"> • Project Manager • Project engineer • Principal investigator • Technician | Team Description | |

| | | | |
|----|--|---|--|
| | In order to ensure the integrity and transparency of the work to be carried out within the framework of this mandate, the Contractor must resort a third party company to form the Project team (Project Manager, Project Engineer, Principal Investigator and Technician) if and only if this Contractor is a lantern manufacturer or a lantern supplier. | | |
| 2 | The Project Manager of the team must have successfully managed at least four projects with a minimum value of \$ 250,000 in the past 5 years. In addition, the project manager must have a minimum of years in project management related to similar projects in field of optics | Project Manager's Curriculum vitæ | |
| 3 | The Project Engineer of the team must be an active member of the Ordre des Ingénieurs du Québec and have a bachelor's degree in Engineering in a relevant field of study. The project engineer must have work experience on similar projects in the field of optics within the past years. | Project Engineer's Curriculum vitæ AND Engineer's Permit. | |
| 4 | The Principal Investigator of the team must have a university degree in the field of optics. The Principal Investigator must have work experiences of similar projects in the last 5 years. | Principal Investigator's Curriculum vitæ AND University Degree. | |
| 5 | The Technician must have a post-secondary degree in a relevant field of study and have a minimum of years of work experience in optical analysis and laboratory testing. | Technician's Curriculum vitæ AND post-secondary degree | |
| 6. | The Contractor's Quality Management System must be ISO 9001: 2008 (or ISO 9001: 2015) - Quality Management Systems certified. | Certification | |

All other terms and conditions remain the same.



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne

Integrated Technical Services



Safety First, Service Always



Lab analysis on buoy lanterns

Smart Lantern Project

ANNEX A –REVISION 1

Statement of Work

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Section 1 MANDATE DESCRIPTION

1.1 PURPOSE

The Canadian Coast Guard (CCG) is responsible for ensuring the safety of mariners on Canada's waterways. To achieve this, the CCG has put in place several aids to navigation systems, including buoys equipped with lanterns. These lanterns must offer different levels of service, including minimum visual range, specific colors, and specific flashing characteristics.

1.2 SPECIFIC OBJECTIVES

The CCG recently acquired a few lanterns from various suppliers.

The specific objectives of this mandate are:

- Perform laboratory tests to validate the technical information provided by the lantern manufacturers;
- Ensure that the lanterns meet the requirements or more specifically the level of service required by the CCG, namely:
 - A light range of at least 4 nm (**effective luminous intensity of 37 candelas**);
 - Meet the colorimetry standards established by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA, 2008a).

1.3 CONTRACTOR'S RESPONSIBILITY

The contractor must provide all services necessary to complete the tasks detailed in this document and undertakes to deliver the work as described in this document on time.

The Contractor's Quality Management System must be ISO 9001: 2008 (or ISO 9001: 2015) - Quality Management Systems certified.

1.4 CCG'S RESPONSIBILITY

The CCG will provide the following:

1. The lanterns under study, and the technical documentation related to these lanterns;
2. Technical support;
3. Reference works (section 1.6);
4. Any other documentation necessary for the performance of the mandate deemed relevant by the CCG.

The contractor is responsible for identifying any other additional documentation that would be necessary to carry out his mandate. In this case, the contractor must inform the CCG as soon as possible, so that arrangements can be made to help meet the needs of the contractor.

At the end of the trial period, the CCG will make the necessary arrangements to recover the lanterns that have been loaned to the contractor. **Please note that these costs will be assumed by the CCG.**

1.5 OTHER RESOURCE

All work is to be performed at the Contractor's normal workplace. The contractor must provide the necessary manpower, administration software, supervision, tools, measuring devices and equipment, supplies and other accessories, services and facilities necessary to meet the defined requirements. in this statement of work.

The Contractor must provide a **Project** team that has the knowledge and required experience to perform the work described in Table 1 (See Section 2 – Task List). This **team** must include at least the following four (4) persons. Note that these four persons must be employees of the Contractor:

Project Manager: The Project Manager of the team must have successfully managed at least four projects with a minimum value of \$ 250,000 in the past 5 years. In addition, the project manager must have a minimum of years in project management related to similar projects in field of optics.

Project Engineer: The Project Engineer of the team must be an active member of the *Ordre des Ingénieurs du Québec* and have a bachelor's degree in Engineering in a relevant field of study. The project engineer must have work experience on similar projects in the field of optics within the past years.

Principal Investigator: The Principal Investigator of the team must have a University degree in the field of optics. The Principal Investigator must have work experience on similar projects within the past 5 years.

Technician: The technician should have a post-secondary degree in a relevant field of study and have a minimum of years of work experience in optical analysis and laboratory testing.

In order to ensure the integrity and transparency of the work to be carried out within the framework of this mandate, the Contractor must resort a third party company to form the Project team (Project Manager, Project Engineer, Principal Investigator and Technician) if and only if this Contractor is a lantern manufacturer or a lantern supplier.

1.6 REFERENCE MANUAL

The Contractor must use the following reference manual to perform all the work requested in Table 1:

- IALA. 2008a. *IALA Recommendation E-200-1 On Marine Signal Lights. Part 1 – Colours*. Edition 1. December 2008. 17 p.
- IALA. 2008b. *IALA Recommendation E-200-2 On Marine Signal Lights. Part 2 - Calculation, Definition and Notation of Luminous Range*. Edition 1. December 2008. 21 p.
- IALA. 2008c. *IALA Recommendation E-200-3 On Marine Signal Lights. Part 3 - Measurement*. Edition 1. December 2008. 21 p.
- IALA. 2008d. *IALA Recommendation E-200-4 On Marine Signal Lights. Part 4 - Determination and Calculation of Effective Intensity*. Edition 1. December 2008. 21 p.
- IALA. 2008e. *IALA Recommendation E-200-5 On Marine Signal Lights. Part 5 - Estimation of the Performance of Optical Apparatus*. Edition 1. December 2008. 21 p.
- MIL-STD-202H (Method 213 - Test condition H).

These documents are available at: <https://www.iala-aism.org/>

1.7 REQUIRED SOFTWARES

The programming of Sealite brand lanterns is carried out using the SealitePro application (version 1.4) available on the Android or Apple platforms.

Programming of Sabik brand lanterns is performed using the Sabik Control application available on Android or Apple platforms.

Any other software required for programming other lanterns will be provided by the CCG.

1.8 EXAMPLE OF LANTERNS

Without being limited to it, here is an exhaustive list of lanterns that the contractor **may** have to analyze as part of this mandate:

- Sealite SL-75 (2.5 kg)
- Sealite SL-510-SA (2.65 kg)
- Sabik VP-LED (3.2 kg)
- Sabik M660 (0.8 kg)

The contractor can find more details on these lanterns at the following addresses:

<https://www.sealite.com/marine-lanterns/>

<https://marine.sabik.com/marine-signals/buoy-lanterns>

Section 2 TASK LIST

At the request of the CCG, the contractor must provide all services necessary to complete the tasks detailed in Table 1.

Table 1 Task Descriptions.

| Task # | Description |
|--------|---|
| 1 | Prepare the Sheet Result Template |
| 1.1 | Prepare the Sheet Result Template – Effective luminous intensity Analysis <i>To be approved by the CCG.</i> |
| 1.2 | Prepare the Sheet Result Template – Horizontal photometric output. <i>To be approved by the CCG.</i> |
| 1.3 | Prepare the Sheet Result Template – Vertical photometric output. <i>To be approved by the CCG.</i> |
| 1.4 | Prepare the Sheet Result Template – Colorimetry. <i>To be approved by the CCG.</i> |
| 1.5 | Prepare the Sheet Result Template – Impact Test. <i>To be approved by the CCG.</i> |
| 2 | Effective luminous intensity Analysis |
| | <p>Measure the effective luminous intensity (in candela) of the lantern at an angle of 0 degree (vertical and horizontal axes) according to the following light cycles:</p> <ol style="list-style-type: none"> 1. Type <i>Quick</i> of 1 second (0.3 s ON et 0.7 s OFF) 2. Type <i>Flash</i> of 4 seconds (0.5 s ON et 3.5 s OFF) <p>During the completion of the task, the Contractor must perform/follow the following:</p> <ul style="list-style-type: none"> • The power of the lantern must be programmed according to CCG’s requirements, and will be dictated at the time of the task authorization. This could be expressed in nominal range, p ex. 4 nm. • The calculation of the effective intensity must be performed using the Schmidt-Clausen and Modified Allard methods, as described by IALA (2008d). • Measure the duration of the lantern flash periods for Flash and Quick modes. • Measure the frequency of the light signal (pulse width modulation). • Evaluate the power of the lantern (Watt) using the voltage (Volt) and current (Ampere) measurements. <p>Prepare the Result Sheet from the template of the task 1.1.</p> |

LAB ANALYSIS ON BUOY LANTERNS

| Task # | Description |
|--------|---|
| 3 | Horizontal photometric profile |
| | <p>Establish the horizontal scanning intensity photometric profile (azimuth). Measure the intensity (in candela) every 15° (at least 24 measurements).</p> <p>Prepare the Result Sheet from the template of the task 1.2.</p> |
| 4 | Vertical photometric profile |
| | <p>Establish the photometric intensity profile in vertical scanning (elevation). Measure the intensity (in candela) at each degree between -15 ° and 15 ° (at least 31 measurements).</p> <p>Prepare the Result Sheet from the template of the task 1.3.</p> |
| 5 | Colorimetry |
| | <p>Perform a colorimetry test (emission spectrum). Measure the x, y and Z coordinates established according to the CIE (International Commission on Illumination) 1931 standard. Check if the results obtained are located within the optimal color regions (Table 2) recommended by IALA (2008a).</p> <p>Prepare the Result Sheet from the template of the task 1.4.</p> |
| 6 | Impact Test |
| | <p>Perform an impact test as described in MIL-STD-202H (Method 213 - Test condition H). Check the functioning of the lantern after the impact test and describe its condition.</p> <p>Prepare the Result Sheet from the template of the task 1.5.</p> |
| 7 | Report |
| | <p>Without limitation, prepare a preliminary report (written in French) containing the following aspects:</p> <ul style="list-style-type: none"> • Methodology (measuring instruments, assembly, photos, etc.); • Results from task 2 to 6 (according to the request), including figures and tables; • Discussion of results and compliance with CCG requirements (section 1.2); • Conclusion and recommendations. <p>Produce a final report, taking into account CCG's comments.</p> |
| 8 | Translation |
| | <p>Translate the report produced during task 7 into English.</p> |

Note that the templates that must be generated from **task 1** must contain, without being limited, the following information:

- The results must be contained on 1 page (2 pages maximum);
- Date of issuance, date of the tests, and location;
- Contractor name, full address and signature;
- Client name, full address and logo;
- Detailed results including relevant graphics;
- The IALA standard used or MIL-STD-202H standard;
- Declaration of conformity;
- Full test conditions and parameters;
- Lantern model name being tested;
- Picture of the lantern;
- PWM profile (task 2 only).

Table 2 x and y coordinates of the optimum chromaticity zones.

| Colour | 1 | | 2 | | 3 | | 4 | | 5 | |
|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | x | y | x | y | x | y | x | y | x | y |
| Red | 0.71 | 0.29 | 0.69 | 0.29 | 0.66 | 0.32 | 0.68 | 0.32 | | |
| Yellow | 0.5865 | 0.413 | 0.581 | 0.411 | 0.555 | 0.435 | 0.56 | 0.44 | | |
| Green | 0.009 | 0.720 | 0.284 | 0.520 | 0.207 | 0.397 | 0.013 | 0.494 | | |
| White | 0.44 | 0.382 | 0.285 | 0.264 | 0.285 | 0.332 | 0.453 | 0.44 | 0.453 | 0.382 |
| Blue | 0.104 | 0.1 | 0.15 | 0.1 | 0.175 | 0.07 | 0.149 | 0.025 | | |

Section 3 DELIVERABLES AND SCHEDULE

3.1 DELIVERABLES

When the task must be done, CCG must receive by email the following deliverables:

1. Templates of the result sheet for approval (**task 1**);
2. Preliminary results and raw data from laboratory tests (**tasks 2 to 6**);
3. Result Sheet for all completed task (**tasks 2 to 6**);
4. Preliminary report in ***.docx** format (**task 7**);
5. Signed final report in **PDF** format which should take into account CCG's comments (**task 7**).
6. Translated report (**task 8**).

The contractor must notify the CCG as soon as possible when the lab tests on the lanterns are completed. The CCG will then collect the lanterns from the contractor's office.

3.2 CONDUCT OF WORK AND COMMUNICATION

During the completion of the mandate, communications between CCG and the Contractor may be oral or by email.

Any communication that requires a decision must be directed to the Technical Authority.

All deliverables listed in Section 3.1 must be sent to the Technical Authority. Acceptance of this work will be ensured by the Technical Authority.

3.3 SCHEDULE

The contractor must provide the CCG with a typical schedule for completing each task listed in Table 1 (See Section 2 – Task List). This schedule must respect the following deadlines:

- Completion of tasks 1 to 6: 2 weeks per task maximum;
- Completion of tasks 7 and 8: 1 month per task maximum.

3.4 WORK PROGRESSION

The contractor must inform the CCG by email of the progress of the work.

3.5 CCG BASE ACCESS

No work will take place at the CCG Quebec Base.

3.6 TRAVEL

No travel is anticipated under this mandate.

3.7 LANGUAGE

All communication, both orally and in writing, must be held in French. Technical documents prepared within this mandate, such as reports, must be written in French.