

ADVANCE CONTRACT AWARD NOTICE (ACAN)

1. Advance Contract Award Notice (ACAN)

An ACAN is a public notice indicating to the supplier community that a department or agency intends to award a contract for goods, services or construction to a pre-identified supplier, thereby allowing other suppliers to signal their interest in bidding, by submitting a statement of capabilities. If no supplier submits a statement of capabilities that meets the requirements set out in the ACAN, on or before the closing date stated in the ACAN, the contracting officer may then proceed with the award to the pre-identified supplier.

2. Definition of Requirements

The department of Natural Resources Canada (NRCan) has a requirement to assist in the management of natural geological hazards (i.e. geohazards) and associated hazards. More specifically, the Geoscience for Public Safety program conducts targeted research to reduce the risks associated with space weather, earthquakes, tsunamis, volcanoes and landslides. One such research concerns the Beaufort Sea in the Canadian Arctic, where a targeted geohazard assessment is underway. The main objective of this project is to provide basic geoscience information to stakeholders and decision-makers, particularly in the event of the installation of subsea structures such as oil pipelines, drilling rig docking, drilling for oil and gas exploration and exploitation, and the construction of deep-water ports. One of the risk factors for the stability of the seabed and the triggering of submarine landslides is the presence of permafrost and its degradation under the effect of sea level rise, the temperature of seawater and the migration to the seabed of hot fluids from deep geological environments.

Geophysical methods such as seismic reflection and seismic refraction are the most widely used to detect the presence of subsea permafrost over large areas. NRCan has access to 25,660 linear km of 2-D seismic data and 23,912 km² of modern 3-D seismic data acquired in the Beaufort Sea between 2006 and 2017. This dataset represents a huge potential and a unique opportunity for characterizing the state of permafrost in this Canadian region. Nevertheless, although seismic permafrost detection is popular, it often produces mixed results because conventional processing and analysis of marine seismic surveys is not fully adapted to the physical properties of permafrost, which has high attenuation and very variable velocities. To maximize the use of seismic data from the Beaufort Sea for the detection and characterization of subsea permafrost and to help meet the main objective of the "Beaufort Sea Geohazards" project, a better understanding of the seismic properties of permafrost is required.

NRCan requires the contractor to perform the following tasks:

- a) Construct four synthetic geological media with the following characteristics:
- partially frozen sands with interstitial water of intermediate salinity,
 - partially frozen silts with interstitial water of intermediate salinity,
 - frozen sands with interstitial water with low salinity,
 - silts frozen with interstitial water with low salinity.
- (b) Direct modeling of the propagation of a viscoelastic wave for the four media specified in (a)
- c) Perform viscoelastic full waveform inversion of the results obtained in b).
- d) Prepare a report outlining the limits of exploration seismology to detect and characterize the state of the subsea permafrost according to the different case studies specified in a).

3. Criteria for Assessment of the Statement of Capabilities

Any interested supplier must demonstrate by way of a statement of capabilities that it meets the following requirements. The supplier must demonstrate that he has experience in the following areas / activities:

- Providing scientific articles and / or scientific reports demonstrating experience in the field of full waveform inversion including seismic attenuation as well as advanced knowledge in computer programming.
- Have one or more diplomas and / or certificates demonstrating a thorough knowledge of exploration seismology.
- have provided a diagram of the computer architecture allowing the realization of the requested work.

4. Trade Agreements

Not applicable

5. Justification for the Pre-Identified Supplier

We intend to deal directly with the supplier mentioned in section 9 below as, it is the only known supplier that meets the mandatory criteria set out in section 3 above and also able to meet the expectations described in Article 2.

Should Canada receive a statement of capabilities from a supplier that contains sufficient information to indicate that it meets the requirements set forth in this ACAN, a competitive process will be triggered with a technical and financial evaluation methodology of the bids proposed by the potential bidders

6. Exception to the Government Contracts Regulations

The following exception(s) to the Government Contracts Regulations is (are) invoked for this procurement under subsection 6(d) –“only one person is capable of performing the work.

The identified provider, École Polytechnique (*Pr. Gabriel Fabien-Ouellet*), is the only one able to meet all of the criteria identified in paragraph 3 above.

7. Contract Period

The contract period will be from October 10th 2018 to March 29, 2019.

8. Estimated Cost

The estimated maximum value of the contract is \$50,000.00 CAD taxes none application.

9. Name and Address of the Proposed Contractor

École Polytechnique de Montréal
2900, boul. Édouard-Montpetit
Campus de l'Université de Montréal
2500, chemin de Polytechnique
Montréal (Québec)
H3T 1J4

Gabriel Fabien-Ouellet, Ph.D.
Professeur adjoint
Département des génies civil, géologique et des mines
Pavillon Principal
Tél : (514) 340-4711 poste 4800
Local : B-650
gabriel.fabien-ouellet@polymtl.ca

10. Suppliers' right to submit a statement of capabilities

Suppliers who consider themselves fully qualified and available to provide the services/goods described herein, may submit a Statement of Capabilities in writing, preferably by e-mail, to the contact person identified in this Notice on or before the closing date and time of this Notice. The Statement of Capabilities must clearly demonstrate how the supplier meets the advertised requirements.

11. Closing Date

The closing date for a submission of a Statement of Capabilities is October 10th, 2018 at 14:00 Eastern Daylight Time.

12. Contract Authority

France Bolduc
1055, rue du P.E.P.S., C.P. 10380
Quebec, QC G1V 4C7
418 648-5043
france.bolduc@canada.ca