Fisheries and Oceans Canada | Pêches et Océans Canada

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ADVANCE CONTRACT AWARD NOTICE: (ACAN) #30004836

The purpose of this Advance Contract Award Notice (ACAN) is to signal the government's intention to award a contract to TerrainWorks.

Before awarding a contract, however, the government provides other suppliers with the opportunity to demonstrate that they are capable of satisfying the requirements set out in this Notice, by submitting a statement of capabilities during the fifteen calendar day posting period.

If other potential suppliers submit a statement of capabilities during the fifteen calendar day posting period that meet the requirements set out in the ACAN, the government will proceed to a full tendering process on either the government's electronic tendering service or through traditional means, in order to award the contract.

If no other supplier submits, on or before the closing date, a statement of capabilities meeting the requirements set out in the ACAN, a contract will be awarded to the pre-selected supplier.

1.0 DEFINITION OF THE REQUIREMENT

The Fish and Fish Habitat Protection Program (FFHPP) at Fisheries and Oceans Canada (DFO) has a requirement for geospatial modelling products (NetMap) for the Deadman and Bonaparte River Freshwater Atlas Watershed Groups in British Columbia, that will enable end users to perform integrated analysis of biophysical watershed processes and human interactions.

2.0 OBJECTIVE

The objective of the Contract is to develop virtual watersheds for the Deadman River and Bonaparte River watersheds, that will enable end users to perform integrated analysis of biophysical watershed processes and human interaction. This will help to inform the identification and prioritization of potential actions related to the conservation and restoration of aquatic ecosystems and development of an Integrated Salmon Ecosystem Plan (ISEP) for the Thompson-Shuswap mandated under Pillar 1 of the Pacific Salmon Strategy Initiative (PSSI).

3.0 BACKGROUND

3.1 NetMap Pilot Project

Secwepemc Fisheries Commission (SFC) led a NetMap pilot project in fiscal year 2022-2023, which successfully developed a synthetic river network for the Deadman River watershed. The contractor for this work was TerrainWorks. Creation of the synthetic river network is the first step toward creating a full ‘Virtual Watershed’. Creation of the full ‘Virtual Watershed’ was outside the scope of this pilot project and will be completed through this contract.

3.2 Rationale

A need for a more integrated and sophisticated approach to watershed analysis has been identified through engagement with participants including Indigenous communities, academia, Non-Governmental Organizations, and municipal and provincial governments. A more holistic representation of the interrelation of complex watershed processes is needed in order to coordinate and prioritize action in a more integrated manner. This will enable more efficient use of limited funds

and resources in order to gain the greatest overall benefit for aquatic ecosystems. This Contract will deliver a product that helps address this need.

3.3 Application

NetMap virtual watersheds have been developed throughout the Pacific Northwest in the United States, as well as in Alaska and Alberta, where they are being used to inform watershed planning and guide work to conserve and restore fish habitat.

The scope of potential applications for NetMap is broad. Future applications will be determined by end-users, including DFO and partners dependent on specific need. During engagement activities, the following key potential applications have been identified for the Deadman and Bonaparte River watersheds:

- Identify true floodplain extents and where projects to reconnect aquatic ecosystems may confer the most benefits for salmon
- Indicate areas where improving stream shade would be most effective to mitigate rising stream temperatures
- Identify road segments the could be improved to reduce hydrologic connectivity and sediment delivery
- Identify where fish-passage barrier remediation may confer the greatest benefits for aquatic ecosystems
- Inform prioritization of post-wildfire restoration by identifying where the largest potential for mass erosion and flash floods may occur
- Inform protection measures for post-fire salvage operations to minimize impacts on aquatic ecosystems

4.0 SCOPE OF WORK

4.1 Create a Virtual Watershed for the Deadman River using the synthetic hydrography already developed by TerrainWorks, run NetMap tools and provide outputs for review and acceptance by the Contract Owner. Sub-tasks involved in this scope item are as follows:

- Couple the existing synthetic river network to the DEM via flow routing and accumulation.
- Create five analytical capabilities to support watershed management and restoration:
  i. routing of information up and down networks;
  ii. connecting river networks to all terrestrial and built environments;
  iii. discretizing landscapes and land uses into facets of appropriate scales to identify interactions;
  iv. characterizing landforms; and
  v. attributing river segments with stream and watershed information.
- Run the following NetMap tools:
  i. fluvial processes;
  ii. aquatic habitats (fish and beaver);
  iii. floodplains;
  iv. riparian zone processes (thermal energy, shade, refugia),
  v. forested wetlands;
  vi. erosion processes (landslides, debris flows); and
  vii. road networks.

- Submit draft virtual watershed including all tool outputs to the Contract Owner.
- Attend Technical Review Meetings. Incorporate any agreed changes and re-submit virtual watershed for approval by Contract Owner.

4.2 **Create a synthetic river network for the Bonaparte River watershed** for review and acceptance by the Contract Owner. Sub-tasks involved in this scope item are as follows:

- Build fully routed and attributed NetMap synthetic river networks (hydrography) using available DEMs of the highest resolution, including LiDAR. Merge with other DEMs as necessary to create continuous watershed-wide digital coverage. Hydro-condition the DEM (e.g., adjust to support flow routing and accumulation); the original non-hydro-conditioned DEM will be preserved to develop virtual watersheds (Scope Item 3).
- Build the synthetic hydrography at the scale DEM pixel nodes (2 m); create channel reaches at an approximate 100 m scale. The synthetic stream layer will be seamless and hydro-connected across the project area. Include flow direction and accumulation rasters. If feasible, create water masks using LiDAR intensity data or 4-band ortho-imagery to improve delineation of the synthetic river network.
- Undertake Quality Control including network fidelity (addressing spurious channel patterns and road diversions) and ensure that all channel attributes (stream and watershed data) are within data ranges.
- Build and submit a preliminary stream layer to the Contract Owner.
- Attend Technical Review Meeting. Incorporate any agreed changes and re-submit preliminary stream layer for approval by Contract Owner.

4.3 **Create a Virtual watershed for the Bonaparte River,** run NetMap tools and provide outputs for review and acceptance by the Contract Owner. Sub-tasks involved in this scope item are as follows:

- Couple the synthetic river network to the DEM via flow routing and accumulation.
- Create five analytical capabilities to support watershed management and restoration:
  i. routing of information up and down networks;
  ii. connecting river networks to all terrestrial and built environments;
  iii. discretizing landscapes and land uses into facets of appropriate scales to identify interactions;
  iv. characterizing landforms; and
  v. attributing river segments with stream and watershed information.
- Run the following NetMap tools:
  i. fluvial processes;
  ii. aquatic habitats (fish and beaver);
  iii. floodplains;
  iv. riparian zone processes (thermal energy, shade, refugia),
  v. forested wetlands;
  vi. erosion processes (landslides, debris flows); and
  vii. road networks.
- Submit draft virtual watershed including all NetMap tool outputs to the Contract Owner.
- Attend Technical Review Meeting. Incorporate any agreed changes and re-submit virtual watershed for approval by Contract Owner.

5.0 CRITERIA FOR ASSESSMENT OF THE STATEMENT OF CAPABILITIES (Minimum Essential Requirements)

Any interested supplier must demonstrate by way of a statement of capabilities that it meets the following requirements:

M1 The bidder must demonstrate that they have developed a minimum of three virtual watersheds that have been used to support restoration planning processes for Pacific salmon and their habitats in the Pacific Northwest using NetMap tools (or a suitable equivalent).

M2 The bidder must provide evidence that they have the software available to produce a synthetic hydrography and virtual watershed (e.g. NetMap; an add-in extension for ArcGIS) using:

1- Light Detection and Ranging (LiDAR)

2- Digital Elevation Models (DEMs)

M3 The bidder must demonstrate that they have algorithms/equations already developed for the following watershed parameters in order to create a virtual watershed model:

- Fluvial processes
- Aquatic habitats (fish and beaver)
- Riparian zone processes (thermal energy, shade, refugia)
- Forested wetlands
- Erosion processes (landslides, debris flows)
- Road networks

6.0 CLIENT SUPPORT

The Government of Canada will provide the following information and data to the Contractor in a timely manner:

- Digital elevation data, including LiDAR point clouds, as available;
- A road layer;
- Available vegetation digital information;
- Climate change related data (e.g. modelled projections related to flow, stream temperature, snow pack, etc.);
- Any existing digital hydrography, as available;
- Any existing digital waterbodies, as available.

Other digital data may be added to the NetMap suite of layers as desired, following further consultation and agreement with DFO. No data provided through this contract will be shared beyond the Parties or used for any other purposes without the express consent of DFO.

7.0 APPLICABILITY OF THE TRADE AGREEMENT(S) TO THE PROCUREMENT

This procurement is not subject to any trade agreement.

8.0 LOCATION OF WORK

1. The consultants will work remotely from their premises.
2. The Contractor’s resources are required to meet with stakeholders from Fisheries and Oceans Canada online and will also be required to participate in regular online meetings and conference calls, through Microsoft Teams.

9.0 JUSTIFICATION FOR THE PRE-SELECTED SUPPLIER

1. TerrainWorks is the only known Contractor in North America that develops NetMap “virtual watersheds” for the purposes of directly supporting salmon habitat planning. This has been verified by DFO through online research and conversations with subject matter experts. NetMap tools are proprietary to TerrainWorks. TerrainWorks has completed watershed analyses that have directly supported successful salmon habitat planning efforts throughout the Pacific Northwest of the United States as well as in Alberta.
2. Furthermore, TerrainWorks is an incumbent Contractor for the same project in the Deadman River watershed and have already created the synthetic hydrography under a separate contract administered by the SFC. There are no other known Contractors that would be able to advance this work to completion.

10.0 GOVERNMENT OF CANADA REGULATIONS EXCEPTION

The Treasury Board’s Government Contract Regulations, Part 10.2.1 Section 6 states there are four exceptions that permit the contracting authority to set aside the requirement to solicit bids. This includes:

6(d). “only one supplier person or firm is capable of performing the contract.”

11.0 OWNERSHIP OF INTELLECTUAL PROPERTY

All datafiles will be the property of DFO and its partners. NetMap tools are proprietary to Terrainworks,

12.0 PERIOD OF THE PROPOSED CONTRACT

Contract will commence at contract award to March 31, 2024.

13.0 COST ESTIMATE OF THE PROPOSED CONTRACT

The total value of the contract is $61,130.00 USD + Applicable taxes:

- Deadman River Virtual Watershed: $10,000 USD + Applicable taxes
- Bonaparte River Synthetic Network and Virtual Watershed: $47,830 USD + Applicable taxes
- Technical Review and Coordination: $3,300 USD + Applicable taxes

14.0 NAME AND ADDRESS OF THE PRE-IDENTIFIED SUPPLIER

The purpose of this Advance Contract Award Notice (ACAN) is to signal the government's intention to award a contract to TerrainWorks, 310 N Mt Shasta Blvd #6, Mt Shasta, CA 96067 USA.

15.0 SUPPLIERS RIGHT TO SUBMIT A STATEMENT OF CAPABILITIES

Suppliers who consider themselves fully qualified and available to meet the specified requirements may submit a statement of capabilities in writing to the Contracting Authority identified in this Notice on or before the closing date of this Notice. The statement of capabilities must clearly demonstrate how the supplier meets the advertised requirements.

16.0 CLOSING DATE FOR A SUBMISSION OF A STATEMENT OF CAPABILITIES

The closing date and time for accepting statements of capabilities is:
November 1, 2023 at 2:00 p.m (Eastern Daylight Time (EDT).

17.0 INQUIRIES AND SUBMISSION OF STATEMENTS OF CAPABILITIES

Inquiries and statements of capabilities are to be directed via email to:

email: bassam.el-daya@dfo-mpo.gc.ca
cc: DFO.Tenders-Soumissions.MPO@dfo-mpo.gc.ca
Title: Senior Contracting Officer
Organization: Fisheries and Oceans Canada
Address : 200 Kent Street, Ottawa
Telephone : (343) 571-6911

Statements of capabilities must be sent on or before the closing date/time. Statement of capabilities received on or before the closing date will be considered solely for the purpose of deciding whether or not to conduct a more extensive tendering process. Information provided will be used by the Crown for technical evaluation purposes only with respect to a decision to proceed to a further competitive process.

Suppliers that have submitted a statement of capabilities will be notified in writing of DFO's decision to proceed to award the contract without a further additional tendering process.

Should you have any questions concerning this requirement, contact the contracting officer identified above. The DFO file number, the contracting officer's name and the closing date of the ACAN must appear on the outside of the envelope in block letters or, in the case of facsimile transmission, on the covering page.

The Crown retains the right to negotiate with suppliers on any procurement. Documents may be submitted in either official language of Canada.

18.0 ACRONYMS

- **DFO: Fisheries and Oceans Canada**
- **IPSE: Integrated Planning for Salmon Ecosystems**
- **ISEP: Integrated Salmon Ecosystems Plan**
- **PSSI: Pacific Salmon Strategy Initiative** - $647 million dollar Federal initiative launched in 2021 that aims to stem the historic declines in key Pacific salmon stocks and rebuild these species to a sustainable level
- **SFC: Secwepemc Fisheries Commission** - First Nations fisheries body formed in 1992 that works within the mandate of Shuswap Nation Tribal Council