New Bay Pond

Cottage Development

Terms of Reference

for

Level 1

Groundwater Assessment

Contract No. 002-18-C
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Attachments: Maps 1-5
Call for Proposal

New Bay Pond Cottage Development

Level 1 Groundwater Assessment

1.0 Invitation to Bid

1.1 Government of Newfoundland and Labrador, Department of Fisheries and Land Resources, Agriculture and Lands Branch - Land Management Division, invites proposals on the following:

Level 1 Ground Water Assessment at New Bay Pond

Contract No. 002-18-C

1.2 Proposal Closing Time: 4:30 Pm., Friday, October 19, 2018.

1.3 Proposal Opening Time: 10:30 a.m., Tuesday, October 23, 2018.
Land Management Division
First Floor, Fortis Building, 4 Herald Avenue
Corner Brook, NL

1.4 Proposals may be e-mailed, mailed, hand delivered or faxed to:

Department of Fisheries and Land Resources
Agriculture & Lands Branch
Land Management Division
Fortis Building, 4 Herald Avenue
P. O. Box 2006
Corner Brook, NL
A2H 6J8
Fax: 709-637-2586
Email: Lmdproposals@gov.nl.ca

Enquiries to: Mr. David Delaney, Planner IIIA
Telephone: 709-637-2081
ddelaney@gov.nl.ca

Proposals must be submitted on the attached form and received no later than the proposal closing time. The outside of the proposal package must clearly display the words “Level 1 Groundwater Assessment at New Bay Pond, Contract No. 002-18-C.”
2.0 Proposal Offer

2.1 Proposal to: Department of Fisheries and Land Resources

We hereby offer:

To complete work as specified and described in the Contract Specifications and to enter into a formal agreement to complete said work.

2.2 Contract Number: 002-18-C

2.3 General Description: Level 1 Groundwater Assessment at New Bay Pond (Grand Falls - Windsor Area)

2.4 Completion Time: Four weeks from the date the contract is awarded by the Department.

Note: If both parties agree, this date may be extended to allow for weather related delays.

2.5 This is a Firm Price Proposal.

2.6 Full payment shall be made upon presentation of the final report by the completion date noted in Section 2.4. Failure to submit a final report by the completion date will result in a 20% contract price penalty.

2.7 The contract will be awarded on the Contract Bid amount only. Failure to indicate the Contract Bid amount (i), HST (ii) and Total Cost amount (iii) shall result in cancellation of the bid.

\[\begin{align*}
\text{i) } & \quad \text{Contract Bid: } \underline{\text{____________________}} \\
\text{ii) } & \quad \text{HST: } \underline{\text{______________________________}} \\
\text{iii) } & \quad \text{Total Cost (Contract Bid + HST): } \underline{\text{______________________________}} \\
\end{align*}\]

2.8 Name of Company
Or Authorized Bidder: \underline{______________________________________}

Signature: \underline{______________________________________}

Date: \underline{______________________________________}
3.0 Introduction

The approval of the New Bay Pond Cottage Development Plan requires that a Level 1 Groundwater Assessment be done to determine with high probability that acceptable quality and quantity drinking water will be available to cottage owners for both the short and long term. These Terms of Reference (TOR) provide administrative and technical guidance to consultants undertaking a Groundwater Assessment (Level 1) for cottage development approval and ensure that the proposals are submitted with the required technical components.

4.0 Contract Specifications

4.1 Objectives

To undertake a Level 1 Groundwater Assessment in the proposed New Bay Pond Cottage Development Area prior to cottage construction. The objectives of these Terms of Reference are as follows:

- To ensure that future owners of cottage lots have a high probability of obtaining adequate quantities of potable water for domestic consumption for short- and long-term use.
- To identify and minimize potential impacts the proposed development may have on existing groundwater users and sensitive features (e.g. groundwater-recharge areas, wetlands, and groundwater-fed streams).
- To ensure that a qualified person (See 4.3) applies a consistent approach with the necessary technical information when undertaking a water-supply study.

4.2 Study Components for Level 1 Groundwater Assessment

4.2.1 Description of Hydrogeology

The objective of this work component is to characterize the local geology and hydrogeology and will include, but is not limited to, the following:

- Review and compile local well records from the most recent version of the province's Drilled Well Database.
- Review and compile pumping test results from the most recent version of the province’s Pumping Test Database for the proposed aquifer source.
- Review and summarize available water quality analyses for the proposed aquifer source (Appendix A).
• Review of available groundwater studies and/or literature on the area.

• Consult with all appropriate provincial agencies and well contractors familiar with the area to obtain information on local groundwater resources.

• Assess local bedrock and surficial geology, including stratigraphy, depth, thickness, composition, texture, known relevant weathering/alteration/structural features (i.e., joints, fractures, faults, or bedding planes), water-bearing potential, and lateral continuity based on existing information.

• Assess local hydrogeology, including identification of hydrostratigraphic units and the hydraulic and hydrochemical characteristics of each unit based on existing information.

• Identify primary, secondary and tertiary sub-watersheds of the proposed development site and assess surface-water features within 500 metres of the site boundaries, including the types of surface-water features and the location of surface-water features relative to the site. Providing the information is available, surface-water features should also be assessed for water levels, flow rates, seasonal variation, surface-water quality, drainage patterns, flood risk and annual precipitation rates.

• If the data are available, review subdivision Stormwater Management Plans with respect to water-budget information and the potential for water quality impacts to local aquifers.

4.2.2 Site Characterization

The objective of this work component is to identify existing water users and site characterization work will include, but is not limited to, the following:

• Identify wells and springs within the assumed groundwater influence area, which will be a minimum of 500 metres from the site boundaries, and discuss any water shortage/well interference problems experienced at existing wells in the area. The extent of the assumed groundwater influence area should be determined based on the site geological and hydrogeological conditions, the quantity of groundwater required, and the potential for impacts.

• Document any permitted water withdrawal approvals within the assumed groundwater influence area through Provincial Water Rights Registry request.

• Determine if there are, or have been, any land uses or activities in the assumed groundwater influence areas that may potentially contaminate, or have contaminated, groundwater resources (e.g., landfills, gas stations, dry cleaners, other commercial/industrial facilities, etc.).
- Identify land uses and large water users in at 1: 10,000 scale mapping within the assumed groundwater influence area.

4.3 Qualifications of Consultants

A qualified person means either a professional Hydrogeologist or Professional Engineer with formal training in groundwater science, and who is a member of Professional Engineers and Geoscientists of Newfoundland and Labrador (PEGNL).

4.4 Reporting Procedure

A report must be prepared that provides an overall assessment of the source to provide adequate quantities of potable quality groundwater for domestic consumption over both the short-term and long-term, without causing unacceptable impacts to existing water users and the environment. The methods of analysis used by the qualified person must be documented and justified in the Department of Fisheries and Land Resources, Land Management Division at the completion of the assessment.

4.4.1 Report Conclusions

The report must identify the future use of test wells and must provide, as a minimum, the following conclusions:

- State the expected range of well yields and aquifer properties in the proposed subdivision.
- State whether or not the groundwater source can provide a sustainable water supply to homeowners in the proposed subdivision based on projected needs for all water users and for peak demands.
- State the expected effects of groundwater withdrawals associated with the proposed subdivision on any existing water wells and the environment.
- State whether or not water wells in the proposed subdivision are expected to meet the Health Canada Guidelines for Canadian Drinking Water Quality, and whether groundwater quality is expected to change over time.
- If groundwater quality is not expected to meet the GCDWQ, list the parameters that are expected to exceed the guidelines and the long-term viability of the required treatment to meet the GCDWQ.
4.4.2 Report Conclusions

The report must provide, as a minimum, the following recommendations:

- Minimum lot sizes.
- Well construction with respect to well depth, casing length and grouting.
- Well spacing to minimize well interference problems.
- Lot yield (estimated recharge) and sustainable pumping rate.
- Phasing of development, including the necessity and scope of supplemental reports to update hydrogeological information from previous phases.
- If applicable, a description of the recommended water-storage system(s) and any special water treatment devices that may be necessary for their proper functioning.
- Mitigation measures, including contingency plans where applicable, to address any identified water quality or quantity concerns

4.5 Proposal Details

Proposals should clearly identify the following:

a) Personnel assigned to scheduled tasks.

b) Start-up to completion of contract activities (travel days, field work, library/archival research, report writing etc.).

c) The proposed methodology to be employed in the contract.

4.6 Fees

Proposals should set out details of fee structure, staff costs, overheads etc. The proponent should clearly indicate the maximum prices for:

a) Professional services

b) Expenses (accommodations, food, mileage, boat/ATV rental etc.)

4.7 Scheduling

The background research, field survey, and preliminary report are to be completed within four weeks from the date the contract is awarded by the Department.
APPENDIX A

General Water Quality Parameter List for Groundwater:

Alkalinity
Aluminum
Ammonia
Antimony
Arsenic
Barium
Boron
Bromide
Cadmium
Calcium
Chloride
Chromium
Color (true)
Conductivity
Copper
Dissolved Organic Content
Fluoride
Hardness
Iron
Nitrogen
Lead
Magnesium
Manganese
Mercury
Nickel
Nitrate/Nitrite
pH
Potassium
Selenium
Sodium
Sulphate
Total Dissolved Solids
Total Phosphorus
Turbidity
Uranium
Zinc