



## **ATTACHMENT #1**

### **Technical Memorandum**

Date: February 7, 2006

To: Dan Eisses  
Birch Bay Water & Sewer District

Project Name: Comprehensive Plan  
Amendment

From: Charles S. Lindsay  
Principal Hydrogeologist

Project No: EH05123B

Subject: Task Order No. 2 - Final

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This memorandum outlines our revised proposed services for Task Order No.2 which will be completed under our General Services Contract with Birch Bay Water & Sewer District (District). The General Services Contract between Associated Earth Science Inc. (AESI) and the District was authorized by Roger Brown (District General Manager) on March 3, 2005.

We understand that the District is currently in the process of updating their water system comprehensive plan to account for recent changes in water use within the District's service area. We also understand that the City of Blaine (City) is in the process of updating their water system comprehensive plan and is interested in evaluating the potential for additional ground water rights as well as their water supply production capacity versus water rights for their existing production wells. AESI's scope of services for this project will include evaluating current and potential future ground water resources that may be available to the District and City, evaluating the production capacity versus water rights for the City's production wells, developing a preliminary conceptual groundwater model and preparing scope/budget for developing a future 3-dimensional numerical ground water flow model. A detailed breakdown of our proposed scope of services is provided below. The schedules provided for each task assumes that we will have authorization to proceed by February 14, 2006.

1. Review available geologic/hydrogeologic, water quality/quantity information for northwest Whatcom County and southwestern British Columbia. This data review will also include well pumping capacity information currently available for the City of Blaine's and District's production wells. The information review will include but not be limited to resources obtained from the following sources.
  - Whatcom County Department of Health (WCDH)
  - Whatcom County Planning & Development Services Department (County)
  - Washington State Department of Ecology (Ecology)
  - US Geologic Survey (USGS)
  - City of Blaine (City)
  - Birch Bay Water & Sewer District
  - AESI in-house information
  - Environment Canada.

***(Sub Task Budget \$3,500)***

***Completed by March 3, 2006***

2. Research water rights data bases/information obtained from the City, District, Ecology and County regarding water right claims, applications, permits and certificates for the City's production wells and appropriate sub-basins located in the City's/District service areas. A work product for this task will be a technical memorandum summarizing these results for review by the City and District.

***(Sub Task Budget \$2,000)***

***Completed by March 3, 2006***

3. Review the City's records regarding their existing production wells pumping capacity. Compare the City's pumping capacity with their existing water rights. Develop conclusions, recommendations and schedule for expanding the City's production capacity to meet their existing water rights and projected water needs. We understand that the City/District will provide us with their projected water needs. A work product for this task will be a technical memorandum summarizing these results for review by the City and District.

***(Sub Task Budget \$2,500)***

***Completed by March 3, 2006***

4. Identify potential options for acquiring additional water rights for the future operation of the City's production wells, and/or new City/District production wells. These options will include at a minimum:

- Transferring water right certificate from District Production Well No. 1 (PW-1) to the City's existing production wells, the District's PW-2 well, and/or new City/District production wells.
- Purchasing and transferring water rights from other wells and/or surface sources located within the appropriate sub-basins to the City's existing production wells, the District's PW-2 well, and/or new City/District production wells.
- Acquiring new water right permits for the City's production wells, the current water right application pending on the District's PW-2 well, and/or new City/District production wells.
  - i. Review and evaluate county conservation board process
  - ii. Review and evaluate cost reimbursement program

A work product for this task will be a technical memorandum summarizing these results for review by the City and District.

***(Sub Task Budget \$4,000)***

***Completed by March 17, 2006***

5. Meet with representatives of the City/District to discuss the identified potential water rights options. All previously submitted work product technical memorandums will be discussed in detail.

***(Sub Task Budget \$500)***

***Complete March 10 – 17, 2006***

6. Meet with representatives of Ecology, District and City to discuss the applicability/probability of implementing the identified water right options.

***(Sub Task Budget \$500)***

***Complete March 31 – April 7, 2006***

7. Develop strategies, time lines and cost estimates for implementing the identified water rights options and provide general opinions regarding the potential for successfully implementing each option.

*(Sub Task Budget \$1,500)*

*Completed by March 31*

8. Prepare two short reports outlining the information developed during this evaluation that is pertinent for inclusion in the City's and District's Comprehensive Plans.

*(Sub Task Budget \$2,500)*

*Completed by April 14, 2006*

9. Develop a preliminary conceptual ground water flow model of the aquifer systems that underlie the City's and District's service areas. The preliminary conceptual model will be used to evaluate the following:

- Aerial extent of the aquifer systems.
- Ground water recharge.
- Surface water/ground water interaction.
- Aquifer safe yield.
- Potential new production well locations.
- Scope of work and cost estimate for developing a 3-dimensional numerical ground water flow model of the identified aquifer systems. The ground water flow model will be designed to aid in the evaluation of water rights, surface/ground water interaction, long-term safe yield of the aquifers, future production well locations and wellhead protection issues.

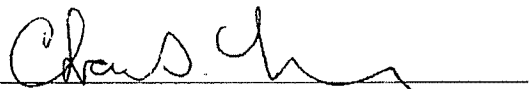
A work product for this task will be a technical memorandum summarizing the preliminary conceptual model and providing a detailed scope/cost estimate for developing the ground water flow model. The technical memorandum will also provide recommendations and cost estimates for collecting additional information that may be needed to construct the ground water flow model.

*(Sub Task Budget \$4,000)*

*Completed by April 14, 2006*

**Our maximum authorized budget for Task Order No. 2 is \$21,000.**

To authorize this task order please return one signed copy of this memorandum.



**ASSOCIATED EARTH SCIENCES, INC.**

**Everett, Washington**

Charles S. Lindsay, P. G., P.H.G.

Principal Hydrogeologist

Birch Bay Water & Sewer District

Authorized Representative

Date