



May 18, 2017

Mr. Bill Neal  
General Manager  
North Beach Water District  
25902 Vernon Avenue, #C  
Ocean Park, WA 98640

**EXHIBIT A**

Subject: Proposal to provide hydrogeologic services at the District's North Wellfield

Dear Bill,

It was good to talk to you again. Robinson Noble is pleased to assist the North Beach Water District (District) with their North Wellfield. We understand that the District wishes to replace Well 7 and evaluate, then potentially rehabilitate or replace Well 6 in the North Wellfield. Additionally, we understand that the District would like to evaluate the performance of the other wells in the North Wellfield.

Based on the information you provided for our review, we understand that the wells in the North Wellfield are either 6-inch or 8-inch diameter, are generally 120 to 130 feet deep, and are completed in a sand aquifer. Well yields currently range from 20 to 80 gallons per minute. We further understand that the District will be contracting the necessary subcontractors directly and will handle the preparation of the drilling site(s).

## Scope of Work

Robinson Noble will provide professional services as detailed in the following scope of work.

### Task 1: Pre-construction activities and project administration

Prior to the start of the field activities, Robinson Noble will be involved with the planning, permitting, and preparation of technical specifications for the Well 7 replacement effort. Based on our review of the information provided by the District, we recommend cable-tool drilling techniques and 8-inch casing, with a target depth of 130 feet. Based on the recent success with the Wiegardt Wellfield, we recommend a gravel-packed 5-inch screen assembly. Once prepared, the technical specifications will be submitted to the District for review, then finalized as the basis for bids or quotes.

As the site is within an existing wellfield, we have not planned on participating in a pre-bid site meeting. We will address technical questions during the bidding process, and will assist the District in evaluating the responses received prior to the District awarding a drilling contract. As the project progresses, we will communicate with District personnel via telephone as needed and provide periodic verbal (or email) progress reports. If desired, we will review the selected drilling contractor's invoices for accuracy before they are forwarded to the District.

**Geotechnical Field and Laboratory Testing Schedule  
January 2017**

<u>Test</u>		<u>Fee</u>
Portable Nuclear Density Gauge	Per Hour	\$5.00
Slope Inclinometer	Per day	\$250
Direct Shear	Point	\$200
Moisture-Density Relationship Curves:	Each	1 pt \$120
	Each	Multiple pts \$200
Sieve Analyses (Gradations-Wet Sieve)	Each	\$150
Hydrometer Analysis	Each	\$175
Falling Head Permeability	Each	\$165
Atterberg Limits (Liquid Limit or Plastic Limit)	Each	\$100
Moisture Content	Each	\$10
Dynamic Cone Penetrometer Points	Day	\$225
	Each	\$20
Resistivity 4-point Gauge	Day	\$300
Consolidation Test Incremental Loading (9 loads, 0.125 TSF to 32 TSF, 4 unloads)		\$550
		\$50/each additional load
Shelby Tube Extrusion/Sample Description		\$40

This fee schedule is subject to change according to contract or Professional Services Agreement conditions.

**Environmental Equipment Rental and Consumable Schedule  
January 2017**

<u>Equipment</u>	<u>Unit</u>	<u>Rate</u>
Water Level Transducer and Data Logger	Per day	\$100
Field Laptop Computer	Per day	\$50
Electronic Water Level Sounder	Per day	\$30
Electronic Interface Probe	Per day	\$75
DC Operated Peristaltic Pump	Per day	\$45
2-inch Gasoline-powered Centrifugal Pump	Per day	\$100
2-inch Submersible Pump + Controller	Per day	\$350
Generator	Per day	\$100
Low-Flow Bladder Pump	Per day	\$175
Photoionization Detector	Per day	\$75
Combustible Gas Indicator	Per day	\$65
Water Quality Meter	Per day	\$200
Teflon Water Bailer	Per day	\$30
Soil Sampling Equipment (manual)	Per day	\$25
Mechanical Sieve Sample Equipment	Flat fee per project	\$25
Survey Gear (laser level & rod)	Per day	\$85
Soil Vapor Extraction System	Per month	\$750
Digital Camera	Per day	\$10
Other Equipment	Negotiated	Negotiated
<b><u>Consumable Items:</u></b>		
Polyethylene Purge/Sampling Tubing	Each 10 feet	\$2.50
DC Submersible Purge Pump (Single stage)	Per pump	List price + 10%
DC Submersible Purge Pump (Dual Stage)	Per pump	List price + 10%
Silicone Peristaltic Pump Head Tubing	Each foot	\$4.00
Bladders for Low-Flow Bladder Pump	Each	\$5.00
Water Sample Bailer	Each	\$10
Bailer Rope/String	Each 10 feet	\$1.00
Personal Protection Equipment	Per day per person	\$50

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EXHIBIT B

General Fee Schedule

January 2017

Professional Positions		Fee per Hour
Principal Engineer, Hydrogeologist or Environmental Scientist		\$176
Associate Engineer, Hydrogeologist or Environmental Scientist		\$161
Senior Engineer, Hydrogeologist or Environmental Scientist		\$136
Senior Project Engineer, Hydrogeologist or Environmental Scientist		\$118
Project Engineer, Hydrogeologist or Environmental Scientist		\$106
Staff Engineer, Hydrogeologist or Environmental Scientist		\$96
Senior Field Staff		\$87
Field Staff		\$70
Legal Support/Expert Witness Services/Testimony		150% of above rates
Support Positions		
Senior GIS/CAD Specialist		\$92
Senior Technician		\$92
Senior Administrator		\$81
GIS/CAD Specialist		\$81
Technician		\$81
Administrator		\$70
Clerical Support		\$70
Other Fees and Costs		
Subcontracts/ Management Fee	Professional services	15%
	Outside laboratory services	15%
	Construction subcontracts	15%
Other Costs	Travel (auto)	\$0.62/mile
	Travel (other)	Cost +10%
	Per diem	Prevailing State rate +10%
	Other direct expenses	Cost +10%
	Field and laboratory testing/equipment rental	See following pages

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the assigned Robinson Noble project manager, please contact Joseph Becker, our company President, and he will make every effort to resolve the issue to your satisfaction.

If you have questions or need additional information, please contact us. Thank you for the opportunity to be of service.

Respectfully submitted,  
Robinson Noble, Inc.

A handwritten signature in blue ink, consisting of several overlapping loops and a final flourish that ends in a small arrowhead pointing to the right.

Michael F. Piechowski, LHG  
Principal Hydrogeologist

attachment

sufficient to characterize the aquifer response. The aquifer testing detailed in Task 8 will provide a longer-term test record.

### Task 6: Prepare well construction and testing report

Following the completion of the drilling and testing program at the North Wellfield, we will prepare a report detailing the construction and testing for the new well. This approach facilitates individual submittals to regulatory entities and allows the District to keep individual source files for the new wells.

Our reports will include: a location map, geologic log of materials penetrated, well completion details, water quality analysis results, and graphic analysis of the well tests along with test data. We will also provide recommendations for well yield, pump placement, and operation. The report will be designed to support the District in gaining source approval for the new wells from the Department of Health. Reports will be delivered as hard copy and electronic PDF files.

### Task 7: (CONTINGENT ITEM) Replacement of Well 6

Should the replacement of Well 6 be recommended at the completion of Task 2, we will work with the District and their selected Contractor to replace Well 6. This scope repeats Tasks 3, 5, and 6 at a second location within the North Wellfield.

### Task 8: Wellfield testing

We presume that the District has not recently performed a long-term monitored wellfield test on the North Wellfield. To complete this testing, we recommend that the new well (or the better of the two new wells) be pumped at its maximum practical rate for a period of not less than 72 hours. Prior to the 72-hour test, we will install datalogging pressure transducers where possible in order to accurately measure the aquifer's response. Field monitoring of specific conductivity will be accomplished throughout the 72-hour test. Results of the wellfield test will be presented in a separate testing report.

## Estimated Project Cost

Based on our understanding of the project and the assumptions and tasks outlined above, we estimate the cost of our services to be \$58,300, including the replacement of Well 6 if required. Should it not be necessary to replace Well 6, our cost estimate decreases to \$35,600. Robinson Noble works on a time-and-expense basis according to the attached General Fee Schedule. This estimate will remain valid for 90 days from the date of this scope.

This project estimate does not include costs for any extra insurance, business licenses or fees, or applicable local taxes that might be necessary to complete the project. We will request that these additional costs be added to the above total estimate when they become known to us. Rental costs for our standard field equipment and any specialized equipment as detailed in this scope are included in the above estimate. Should additional equipment be deemed necessary or warranted in order to properly complete the project, we will submit a change in scope request with estimated costs based on the equipment rental schedule included in the General Fee Schedule.

As we understand that the District wishes to move forward with the scope of work discussed above, we have prepared and attached a Professional Services Agreement for this scope of work. Alternatively, we will gladly review the District's standard contract as applied to this scope of work. We hope this scope of work and cost estimate is adequate for your needs. Please contact us if we can provide additional information or modify the scope of work to better assist the District. If at any time prior to or during this project the District identifies a concern or problem with our work or progress that cannot be resolved by

## Task 2: Evaluation and Rehabilitation of North Well 6

The evaluation of North Well 6 will consist of a review of the video inspection and assessment of the well's current condition once the pump has been removed. Should a cleanout and rehabilitation effort be warranted, we will provide that recommendation as early in the process as possible. We have included three field days for the observation and supervision of the rehabilitation effort if it is warranted, this could be completed during down-time in the project, such as when the screen is being ordered for the Well 7 replacement well. Should the condition of Well 6 preclude a high likelihood of a successful cleanout and redevelopment process, we will recommend that the well be replaced.

## Task 3: Observe well drilling, well screen design, installation, and development

Robinson Noble will serve as the District's representative at the drill site through all phases of the work done by the Contractor for the Well 7 replacement. Our geologist will participate in a pre-construction conference at the project site to identify and discuss the site requirements and the project goals; set up project coordination between the Contractor, Robinson Noble, and the District; and define any issues that might require contingency planning.

A Robinson Noble geologist will observe well drilling activities and keep the District informed of the Contractor's progress. Our geologist will be on site during critical portions of the drilling process to collect representative formation samples and observe drilling rig behavior and water level responses of the target aquifer. We estimate five field days for drilling observation for the production well, although the drilling process may take more or less time based on actual field conditions.

Once drilling has reached the target depth, Robinson Noble personnel will perform sieve analysis of selected aquifer samples in our in-house laboratory. We will prepare a screen design for review and approval by the District before completion materials are purchased and installed by the drilling contractor. Our geologist will be on site to observe the installation of the screen and will monitor and direct the development of the well. Proper development is critical to the success and longevity of a new well. Construction and development is currently assumed to take up to one week of field effort; however, depending on conditions and the well's response, it may require additional time.

## Task 4: Testing and evaluation of North Wellfield wells

While our geologist is on site for the drilling, construction, and development of the new well, it is a fine opportunity to accomplish the North Wellfield testing program that has been discussed. We will assist the District with the testing of the remaining wells in the North Wellfield. As planned, this testing will include a minimum of one monitored pumping and recovery cycle at each of the wells in the wellfield. We will install a data-logging pressure transducer in the well to be tested during the pumping and recovery period, as well as record water levels and pumping rates manually during testing. Following testing, we will analyze the results of the testing and assess well efficiency with the data collected. The results, our analysis, and our conclusions will be presented in a technical memorandum for the District's use.

## Task 5: Variable and constant-rate pumping tests

Our geologist will install datalogging pressure transducers in the new well and other wells within the wellfield that are suitable for use as observation points prior to testing the new well(s). We will direct and observe step-rate pumping tests to evaluate well efficiency and verify the well is sufficiently stable for the subsequent constant-rate testing. Since this work is being conducted in an existing wellfield, a relatively short-duration constant-rate test should be sufficient to evaluate the well and aquifer response during a typical pumping cycle. Based on our observations of this aquifer's response during the testing at the Wiegardt Wellfield several years ago, a constant-rate test duration of six hours should be