

Exhibit 1



ROBINSON
NOBLE

December 5, 2016

Lynn Danielson, General Manager
Olympic View Water and Sewer District
8128 - 228th Street SW
Edmonds, WA 98026

Subject: Discussion of the proposed Underground Injection Control (UIC) wells to receive stormwater from the planned Madrona School Complex

Dear Lynn,

Max Wills and I have been reviewing documents regarding the proposed use of injection wells to escort the stormwater generated on the Madrona School site below the glacial till to discharge into the underlying Vashon Advance Sands (Qva). Max asked that I provide you with a letter summarizing our findings from that review.

The project as proposed intends to drill up to 24 injection wells to depths of approximately 120 feet in order to be able to discharge stormwater from the site into the Vashon Advance sands that exist beneath the glacial till that regionally protects the aquifer. Since this system will be located up-gradient from your Deer Creek Springs source, there is naturally a concern that bypassing the protections afforded by the till might represent a threat to the water quality of that source. These concerns are associated with two contamination scenarios made possible by the installation of the injection wells. The first is the gradual accumulation of low concentration contaminants inherently contained in the storm water. The second is the rapid introduction of high concentration contamination in a short-term catastrophic event. This could be a spill event at or near the school site or something less detectable like an aerosol event that deposits contaminants on the roofs and impervious cover of the site that would then be concentrated into a first flush stormwater response.

In reviewing the SEPA check list statements, there appears to be an awareness of the need to monitor and treat the background stormwater quality. It is not clear what is to be monitored or treated but the School District's consultants should be able to readily provide those details. The issue of more exotic contamination being introduced by either an event on the school grounds or a regional event depositing such contamination within the capture zone of the UIC wells does not appear to be discussed. A plan that would shut the UIC system down were such an event to occur is the minimum protection that should be offered. We have not reviewed any such plan (which does not mean there has been no consideration given this by the School District). The till is not present over all of the capture zone areas defined in the spring version of a Wellhead Protection Plan developed for the Deer Creek Springs Facility in 1999. Advance sands are exposed less than a half mile to the west of the Madrona School site where the till has been removed by natural processes. This means some vulnerability to regional contamination events may already exist. However, the existence of an 80,000-square-foot stormwater basin that quickly escorts water to within 40 feet of the water table creates a much more serious situation.

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The by-passing of an 80-foot thick protective till layer within one mile of a spring source is on its face dangerous. The need for appropriate recognition of that fact in the planning of a UIC program is essential. It seems inappropriate to rely on simplistic assertions that the 40 feet of non-saturated aquifer sand will provide sufficient protection because general policy toward such systems can be quoted. It would seem that the creation of a capture system that automatically escorts potentially deleterious constituents past the normal protective till directly into the aquifer that supplies municipal water a mere one mile down-gradient bears a responsibility to monitor and have emergency response plans in place to accommodate an unexpected contamination event. Though there is an implication in the school's SEPA documentation that the stormwater will be analyzed before it is injected, there does not appear to be an intent to monitor the resultant water quality after injection. Typically, monitoring of an injection field employs one up-gradient and two down-gradient monitor wells. Other approaches may be appropriate, but at any rate some discussion of monitoring should be offered before Olympic View Water and Sewer District (OVWSD) buys off on the plan.

If the School District can offer satisfactory evidence that protections are in place to preclude the introduction of contaminants through their UIC stormwater system and verify that the operation does not have an adverse effect on the groundwater quality, then OVWSD might reasonably accept this project. Without such a program and assurances from the School District, we have serious concerns that the system could threaten the water quality of the Deer Creek Springs Facility.

We hope that this review is satisfactory to OVWSD needs in this matter. If there are questions or as we can be of further service, please contact us.

Respectfully submitted,
Robinson Noble, Inc.



F. Michael Krautkramer, LHG, RG, CPG,
Principal Hydrogeologist

