

## Edmonds School District: Use of Stormwater Well System at Madrona K-8

- Edmonds School District decided to use stormwater wells for the Madrona K-8 Replacement project because they provide an environmentally safe solution at a significantly lower cost. Also, conventional stormwater detention located under the existing track area would be too low to drain by gravity to 236th Street SW. The decision was based on experience with the stormwater well system at Lynndale Elementary, and discussions with the City of Edmonds and the Washington State Department of Ecology (DOE). Those agencies raised no concerns about impact on drinking water. Use of stormwater wells requires meeting a higher standard of groundwater quality, and complying with much more stringent regulatory procedures than other methods.
- The stormwater system at Madrona cleans the stormwater via biofiltration and an oil/water separator. The plants and sand used in the biofiltration works as a natural filtration system. The clean stormwater then progresses to the stormwater wells where it travels through approximately 65 feet of gravel before reaching the sand layer. This design allows the stormwater to seep into the sand layer more than 50 feet above the aquifer, thus replenishing the groundwater. The Madrona stormwater system design and monitoring plan exceeds environmental regulations.
- The two engineering firms who designed the system, *Shannon and Wilson* and *KPFF*, have national reputations for excellence in hydrogeology, groundwater quality, and stormwater management. *Shannon and Wilson* prepares wellhead protection plans for drinking water agencies. They also worked on the stormwater infiltration system for Edmonds' Hickman Park which is in the Olympic View Water & Sewer District (OVWSD) wellhead protection area, much closer to the water treatment plant than the Madrona site.
- The design process for Madrona K-8 began in summer of 2015, with initial reviews with the City of Edmonds and the Washington State Department of Ecology that winter. The State Environmental Protection Act (SEPA) Determination for the project was issued in June of 2016. The City of Edmonds approved the use of the stormwater well system in August of 2016.
- Olympic View Water & Sewer District (OVWSD) first raised concerns late in 2016 during the final permitting phase, after approval of the stormwater system by City of Edmonds

and review by DOE, and after the State Environmental Policy Act (SEPA) environmental review process was completed. OVWSD did not provide any technical analyses to substantiate their objections.

- Even though OVWSD raised its concerns late in the process, the School District took these concerns seriously. Because the School District is not a water quality expert or an expert in storm drainage systems, we took OVWSD's concerns to *Shannon and Wilson* and *KPFF* and requested a full review and assessment, to be sure that nothing had been overlooked.
- Redesigning the system at the time OVWSD objected would have exceeded the project budget by \$2-3 million without achieving any water quality or environmental benefit. It also would have delayed opening the school by a year or more.
- Based on further review and guidance from *Shannon and Wilson* and *KPFF*, the School District took steps to address all of OVWSD's concerns that were found to be reasonable and appropriate by the experts. We also asked OVWSD to provide any expert studies or analysis that they were relying on to better understand and assess any risk that OVWSD was associating with our system. OVWSD did not then, and has not to date, provided us with anything of a technical nature that suggests our system would pose any risk to drinking water or the environment.
- The School District modified its design and its monitoring and maintenance plans in response to OVWSD concerns. These modifications exceed Dept. of Ecology requirements. However, OVWSD was still not satisfied. The School District attempted to work with OVWSD over the next 18 months to try to reach some better understanding, but OVWSD continued to insist upon expensive concessions that would delay the opening of the new \$50 million school, without substantiation. OVWSD rejected a request to enter formal mediation in December 2017.
- In an effort to try to continue to work with OVWSD to better understand their concerns, and to determine if there were any other reasonable measures that should be incorporated in our design, the School District offered to jointly fund an independent third-party blind study of the system and its potential impacts. No agreement was reached to jointly fund this study. The School District decided to move forward with this independent review, at its own expense, using Pacific Groundwater Group (PGG), a

well-respected consulting firm with expertise in Underground Injection Control (UIC) stormwater well systems and potential water quality issues. OVWSD was provided the proposed scope of work and participated in the kick-off meeting with PGG and presented their concerns and supporting documentation. The School District also agreed to make this blind study available to OVWSD and to the public as soon as it was completed by PGG.

- PGG finished this study on June 1, 2018, and the District promptly sent the study to OVWSD. The study found no issues or concerns with the School District's proposed system, and concluded:
  - "The use of UIC wells, as proposed, is consistent with best management practices. The Project's monitoring plan adds additional protection and is designed to address concerns of the local drinking water purveyor."
  - "The natural, built, and operational features provide a high level of confidence that groundwater will be protected by this system; however, they do not guarantee it."
  - "The five-year monitoring period should be sufficient to identify effects of routine operations..."
  - "The analytes selected for monitoring are appropriate and sufficient to detect potential contamination from the Project."
  - "The Project is consistent with regulations and guidance reviewed."

This study is now publicly available and is posted on the [Edmonds School District website](#).

- The School District believes that it is essential to follow-up with DOH in order to hear and address their concerns. The School District felt that completion of the PGG review of the system and its potential impacts was an essential first step in this process, and that work has been done, as of June 1, 2018. The School District is following up with DOH to share the PGG analysis, and to determine if DOH still has any outstanding concerns that need to be addressed before the system goes into operation.
- According to the Dept. of Ecology database, there are currently 1,245 communities in Washington that use stormwater well systems. The City of Redmond Water Department encourages the use of stormwater wells in their wellhead protection area, provided that they meet Dept. of Ecology standards and procedures. This approach restores the aquifer with clean water. They have told us that they would approve our Madrona project.