

July 20, 2023

Jesse Winterowd
Winterbrook Planning
610 SW Alder Street, Suite 810
Portland, OR 97205

Subject: Supplemental information regarding use of concrete backfill in the finished water pipelines

Dear Jesse:

Jacobs was requested to provide additional information related to testimony about cellular concrete backfill and grout backfill that could be used during the construction of the finished water pipelines that will deliver filtered water from the Portland Water Bureau filtration facility site. We understand that there were concerns about the potential for those materials to contaminate or otherwise interfere with groundwater.

In the case of the open cut installation (as compared to the Tunnel description provided by Delve), there is only one area where the pipe is to be installed that a lean mix concrete, known as Controlled Low Strength Material (CLSM), might be used as a bedding material around the pipe(s). CLSM pipe bedding would only be required for a total length of 109' at a depth of 11' to 15' below the ground for a section of the pipeline route west of the Finish Water Intertie along SE Lusted Road. CLSM is similar to concrete where the material would set fairly rapidly once placed in the pipe trench and would not migrate out of the trench. Migration of the CLSM into the sides of the trench would not occur due to the shoring of the trench walls and would not escape the ends of trench due to the forms that would be installed on the ends. Therefore, the means of placing the CLSM would be contained and not provide contamination of the soil, similar to a house foundation. The use of the CLSM would be in the same elevation of the Pipeline and would not disturb/disrupt the deep groundwater in the area.

For a portion of the Cottrell Road Transmission Main (CRTM) where much of the installation is using trenchless technologies, one of the methods will be using grout. In using a Guided Boring installation, a steel casing is installed behind the boring machine, and followed by inserted a smaller diameter High Density Polyethylene (HDPE) pipe into the casing. The annulus space between the HDPE and steel casing is then filled with grout. The steel casing acts as a form, controlling the grout from entering into the ground.

Regards,



Brad Phelps, PE
Principal Portfolio Manager