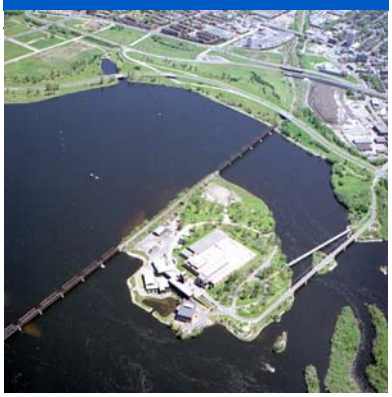

International

Canada

Client

City of Ottawa

Location

Ottawa, Ontario, Canada

Lemieux Island WPP Filter Expansion Project

The overall scope of the project involves the design and construction of upgrades to the Lemieux Island WPP to increase its capacity from 290 ML/d to 400 ML/d. The water purification plant is located on a small island in the Ottawa River, with a single access point to the City of Ottawa.

To increase capacity, this project will add six new filters, using filter bases originally constructed during the 1930s, as a make-work project. Another six filter bases will still be available for a future expansion of the plant.

The Lemieux Island WPP provides water for over half of the City of Ottawa, and therefore, maintaining levels of water production has been a major focus during planning. The Filter Expansion project is being coordinated with a significant repair and upgrade to the plant clearwells by another consultant, upgrades to the high pressure transmission main connecting with the city, and repairs and upgrades to the traffic bridge which is the only access to the island.

The project required almost 60 tie-ins of new structures and systems to the existing plant systems. As the Lemieux WPP provides water to over half of the residents of the City of Ottawa, it would not be possible to shut down water production for lengthy periods to allow for construction. Therefore, the project schedule was designed around winter (off-season) construction, where reductions in water production would be acceptable. The project will require two winter seasons of low-flow demand to accommodate construction activities for all required tie-ins.

To minimize interferences and manage the coordination of these projects, monthly coordination meetings are held with the City of Ottawa, consultants, and contractors on related construction projects.

Other modifications include:

Clearwell: Provision of a new clearwell discharge flow metering and chemical addition facility. This provides for single-point chemical addition and metering for all potable water leaving the plant.

Air Scouring: Air scouring was added to all filters. The existing filter underdrains were upgraded in a previous project; the new underdrains will match that equipment.

Twinning Conduits: All settled water conduits were twinned to improve capacity and delivery to the settled water to the filters.

Pumps: Addition of a new 650-hp 2400-V variable frequency drive low-lift pump. Improvements were also made to the PLC control panels to accomplish changeover without interrupting water production.

Transformer: Replacement of an existing 6-mvA utility power transformer. When required, this equipment can be upgraded to 8-mvA by installing additional fans to dissipate generated heat.

Transmission Mains: Addition of a new raw water transmission main from the low-lift pumps to the existing settling basins.

Architecture: The Lemieux WPP was constructed in the 1930s. The upgrade modifications were required to match the existing 1930s marble flooring and architectural style of the gallery. The existing marble contains a natural gold fleck in its grain which is no longer available; however, a close match to the floor was found which will fit in with the building style. In addition, improvements in lighting and ventilation were made in the existing Filter Building facilities.

Safety: A significant upgrade was made to the fire escape routes for the Filter Building. The fire escape is not compliant with the current building codes as the 1930s-style construction made that impossible, but the improvement in safety is dramatic. The new construction now provides a safe exit from the South End (which did not exist previously).

Planning for Future Upgrades: The design has made provisions for future possible UV (ultra-violet) disinfection equipment in the filter gallery (post-filters) or on new plant effluent lines post-clearwell.