Hanlan Water Project

Mississauga, ON, Canada (2017)

PRODUCTS USED:

Krystol Internal Membrane™ (KIM®) Krytonite™ Swelling Waterstop Krystol Waterstop Treatment™ Krystol Waterstop Grout™ Krystol Bari-Cote™ Krystol Repair Grout™

OWNER/ARCHITECT:
Region of Peel

ENGINEER:
AECOM

CONTRACTOR:
Southland Technicore Mole Joint Venture

READY-MIX SUPPLIERS:
TecMix Inc.
Dufferin Concrete

DISTRIBUTOR:
Form & Build Supply

BACKGROUND

The population in the Regional Municipality of Peel in Ontario, Canada, has been steadily growing over the years. It was something that the Region of Peel had expected in 2011, so they knew that they would have to update the existing aging water network for their communities. To that end, they would need to invest in infrastructure that would provide a dependable, safe supply of clean water. That led to one of the largest and most extensive watermain initiatives that the Region of Peel had ever designed and constructed: the Hanlan water project.

This project involved the installation of a 14.5-kilometer (nine-mile) feedermain and a six-kilometer (four-mile) Mississauga City Centre subtransmission watermain. The first of which uses 2.4 m (8 ft) diameter pipes to carry water from the Lakeview Water Treatment Plant to the Hanlan reservoir and pumping station. Meanwhile, the subtransmission watermain uses 1.5 m (5 ft) diameter pipes to run water from the Hanlan reservoir and pumping station to the intersection of Cawthra Road and Burnhamthorpe Road.

During the construction of all those pipes, the Hanlan project team also needed to construct six large shafts nearby, including one particularly deep one that ran 52 m (171 ft). Using the slipform formwork system, the team built the shafts, but they kept in mind that these shafts had zero tolerance for leaks. Moreover, each slipform lift would pour 3 m (10 ft) of concrete, creating multiple construction joints along the shafts, and the project needed to be completed under a tight deadline. So there was a need to find a proven waterproofing system that would be compatible with the slipform construction methodology and could accommodate a fast-paced schedule.

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SOLUTION

Because Kryton's KIM would eliminate the need for a blindside waterproofing membrane, the Southland Technicore Mole Joint Venture chose to use it as part of their waterproofing system.

That way, with KIM, they could waterproof the concrete integrally, saving labor that would have otherwise been needed for the intensive detailing required when using membranes around seams and expediting construction work. It also removed any risk of damage when the slip forms were moved in between concrete pours as KIM self-seals cracks that develop throughout the life of the concrete. This ability of KIM's is also permanent, allowing it to mitigate the risk of future leaks and need for repairs.

To complete their waterproofing system, the Hanlan project team went on to treat construction joints with Kryton's Krytonite Swelling Waterstop and Krystol Waterstop Treatment.

Combined, these two Kryton solutions form part of the Krystol Waterstop System. As the most versatile construction joint waterproofing system available, the Krystol Waterstop System offers different levels of waterproofing protection based on risk and constructability. In this case, both Krytonite Swelling Waterstop and Krystol Waterstop Treatment offer a form of double waterproofing protection, building in redundancy into the construction joint waterproofing to further protect the structure from water ingress.

All of which proved to be successful as Kryton's integrated waterproofing system worked without issue and has kept the Hanlan water project watertight ever since.

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