Offering an all-in-one solution

When dealing with small-diameter drinking-water pipe inspections, not many technologies exist that offer full-condition assessment capabilities without interrupting water service

Crews were able to complete the surveys in less than a week

In November 2013, GAME Trenchless Consultants was contracted by the Ontario Clean Water Agency (OCWA) Engineering Services, with the Municipality of Southwest Middlesex in the community of Glencoe, to provide a full visual condition assessment and leak-detection survey of the municipal water mains.

A number of 150mm (6in) and 200mm (8in) water mains were selected to be part of a swabbing (pigging) programme.

Given the age of the current system and the amount of information available, GAME's JD7 Investigator+ surveys were able to validate the current documentation as well as provide additional feedback.

Below: the JD7 Investigator+ survey helped validate documentation on the aged water mains

The complete scope of the project included the visual condition assessment of the pipe, the identification of the pipe material, the approximate verification of the pipe sizing, the locating and mapping of the network, and a leak-detection survey.

ACCESS ALL AREAS

Due to the system layout and capabilities of the swabbing process [hydrants being used as entry and exit points for the swabbing], an access point on the

water main to be swabbed was always available. If swabbing could be performed, the Investigator+ would be able to enter and survey the water main. This meant that the effectiveness of the swabbing could be verified by entering the water main before the swabbing as well as after it was completed.

The proposed sites were selected in areas where the pipe material was not entirely known (cast or ductile) and in most instances was assumed to be cast iron. Seven different zones were selected, six of which could be inspected using the Investigator+. Four-and-a-half of the initial six zones were determined to be either PVC or ductile iron and in good condition.

Two instances of varied pipeline configuration were identified and properly mapped out on the field. When it came to the cast-iron water-main sections, surveys were conducted before and after swabbing and analysed.

Visually, it became evident that swabbing had a positive effect on the condition of the pipe, removing a large percentage of the tuberculation and debris present in the water main. The water-main cleaning also translated to an increase in inspection capacity, given that the limiting factor during an inspection is the condition of the pipe.

In a few days, the Investigator+ system was capable of performing a thorough pre- and post-cleaning inspection of the water-main network and validating the location and material of the underground infrastructure.

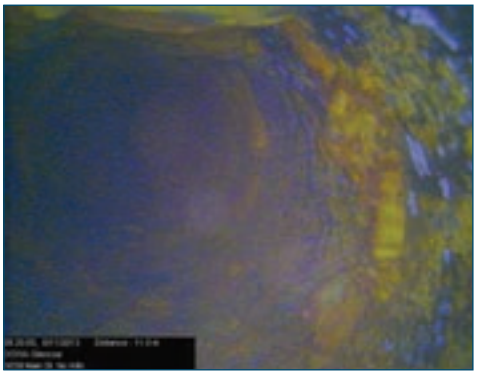
FOCUS ON THE EQUIPMENT

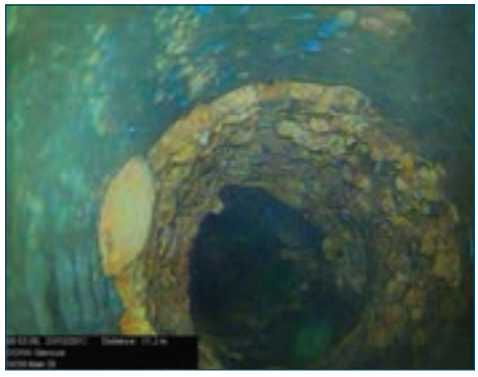
The JD7 Investigator+ allows for a full visual and acoustic inspection of water mains in live systems; while maintaining full, unaltered domestic water and fire-protection supply.

The specialised launch mechanism transforms any common fire hydrant into an access point to the water main while simultaneously allowing disinfection of the cable entering and leaving the water main. The combination of the camera, microphone and locating devices provides live video and audio to the operators.

There are many uses for the Investigator+, whether it is the visual condition assessment of the water main, a leak-detection survey or the locating of an unmarked pipeline. One of the many advantages of the Investigator+ is that, regardless of the primary purpose of the survey, all of the features are utilised simultaneously without requiring any changes to the equipment or the set-up.

Below right: initial view – subsequent swabbing had a positive effect on the condition of the pipe, removing a large amount of debris





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