

## October 26, 2018 - Tomahawk Cleans and Lines Watermains in Sherbrooke, Quebec

### **Pre-Project Condition:**

This project contained 500m of 150mm (6") ductile iron pipe on two residential streets. The pipes were highly tuberculated resulting in very low pressure, flow rates and chlorine residuals.



Pictures: Above left, cleaning and lining watermains in Sherbrooke, Quebec. Above right, initial internal condition of highly restricted, low flow watermain.

### **Project Details:**

**Location:** Rues Blanchard and Brouillette, Sherbrooke, Quebec

**Tomahawk Licensee:** [Logistique Saint-Laurent Inc., Gilbert Group](#)

**Pipe Size, Material:** 150mm (6"), ductile iron, cast iron

**Total Length:** 500m with 49 residential service connections

**Pipe Age:** Approximately 50 years

**Cleaning Technology:** Tomahawk<sup>TM</sup> System

**Lining Technology:** Tomahawk airborne lining, BluKote<sup>TM</sup>

**Results:** The residents on these streets are now enjoying renewed water flow rates and pressure. The C-factor improved from a low of 15 to a high of 111, representing a 755% improvement. Chlorine residuals also improved resulting in higher quality drinking water. The pipe's useable life has been extended by decades.



Pictures: Above left, watermain before cleaning, center, after cleaning with Tomahawk, right, after lining with Tomahawk BluKote™.

## Résultats et validation



### 1- Caractéristiques des conduites à réhabiliter

Rue	Matériaux	Année de construction	Diamètre (mm)	Nombre de fuites
Blanchard	Fonte ductile	1971	150	0
Brouillette	Fonte	1968	150	0

### 2- Mesure de débits, pressions et calcul du coefficient Hazwm-Williams

Rue	Borne d'incendie	Avant la réhabilitation			Après la réhabilitation			Augmentation du CHW (%)
		Pression (psi)	Débit (guSPM)	C HW	Pression (psi)	Débit (guSPM)	C HW	
Blanchard	E0256	36		18	68		98	547%
	E0395	0			58			
	E0377		202			380		

Rue	Borne d'incendie	Avant la réhabilitation			Après la réhabilitation			Augmentation du CHW (%)
		Pression (psi)	Débit (guSPM)	C HW	Pression (psi)	Débit (guSPM)	C HW	
Brouillette	E0377	85		15	90		111	755%
	E0194	22			77			
	E0395		165			344		

Street Name                      Before Pressure      Flow Rate      C-Factor      After Pressure      Flowrate      C-Factor      % Improvement C-Factor

# Résultats et validation



## 3- Analyses physicochimiques avant la réhabilitation

### 3-1 Avant la réhabilitation

Adresse	Date	pH	Chlore Libre	Chlore total	Turbidité	Gout	Couleur
			ppm	ppm	UTN		
1200 Brouillette	14-09-2018	7.71	0.20	0.35	0.081	non	0
1140 Brouillette	14-09-2018	7.7	0.14	0.27	0.093	non	0
1080 Brouillette	14-09-2018	7.65	0.07	0.2	0.066	non	0
1180 Blanchard	14-09-2018	7.07	0.04	0.11	0.150	non	0
1130 Blanchard	14-09-2018	7.67	0.03	0.10	0.098	non	0
1095 Blanchard	04-10-2018	7.65	0.06	0.14	0.088	non	0

### 3-2 Après la réhabilitation

Adresse	Date	pH	Chlore Libre	Chlore total	Turbidité	Gout	Couleur
			ppm	ppm	UTN		
1200 Brouillette	07-11-2018	7.68	0.12	0.23	0.069	non	0
1150 Brouillette	07-11-2018	7.67	0.17	0.27	0.069	non	0
1080 Brouillette	07-11-2018	7.73	0.21	0.34	0.065	non	0
1190 Blanchard	07-11-2018	7.67	0.15	0.27	0.064	non	0
1130 Blanchard	07-11-2018	7.71	0.18	0.27	0.049	non	0
1095 Blanchard	07-11-2018	7.71	0.21	0.34	0.073	non	0

## Testimony:

September 24, 2019

Hello Mr. Joseph;

The purpose of this letter is to certify that we completed the rehabilitation of the drinking water pipe on Blanchard and Brouillette Street in Sherbrooke during the month of October 2018, over a length of 500 m. These works were done by Logistique Saint-Laurent using the Tomahawk method (aerodynamic process).

To be able to validate this new technology, we have focused on four aspects:

**1- Hydraulic:** We proceeded to measurements of flows and pressures in situ before and after the rehabilitation to calculate the coefficient of Hazen-William and to measure the impact hydraulically. The result is edifying where we have an improvement of 547% on the Rue Blanchard and 755% on the rue Brouillette (see document attached).

**2- Water quality:** Parameters were measured before and after the rehabilitation and we found that the pH did not change, an increase in free and total chlorine and a decrease in turbidity (see test results document).

**3- Work:** The rehabilitation of the 500 m of drinking water pipes on Blanchard and Brouillette Street required 7 days of work excluding the excavation, embankment and paving that was done by a team from the city, and this following a pre-established agreement.

**4- Monitoring of the coating medium and long term:** As of today, no anomaly observed following the rehabilitation of the watermain network, realized during this year.

Greetings!  
Talha Hamidi  
Project Engineer  
City of Sherbrooke

For more information about Tomahawk cleaning and lining, contact Envirolomics at [info@envirolomics.ca](mailto:info@envirolomics.ca) or 1-800-267-9810 or in Quebec contact Stephane Joseph at Gilbert Group, (514) 830-1865.