A GREENER FUTURE WITH TRENCHLESS TECHNOLOGIES



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Many Underground Utilities



Early Sewer Construction







Installed Using Open Heart Surgery



Otolioads, old pipes ?

- Superb construction
- Little maintenance
- Low operational costs

When to rehabilitate or replace?

JACK

New roads over old pipes?



Jack Comes in Many Colours!



Jack's appearance

Jack needs to be

- Minimized or banished
 - Find other ways of rehabilitation/renovation/replace
 - Less damage to pavement
 - Less inconvenience to customers
 - Less Green House Gas Emissions
 - Less public disruption

Alternative to JACK

Trenchless Construction Methods

Techniques for utility line installation, replacement, rehabilitation, inspection, location and leak detection, with minimum excavation from the ground surface.

North American Society of Trenchless Technology (NASTT)

Microsurgery compared to Open heart

Key Points

Minimal surface excavation

- Alternative to open cut excavation
- Can have entrance and exit surface excavations –
- Considers pipelines usually with diameters less than 900 mm (36 inches) – non-person entry



Key Points (Continued)

Typically considers only urban utilities:

- Water and wastewater systems
- Gas, petroleum and chemical pipelines
- Electrical and communications networks
- Access ways and other small diameter tunnels

Excludes: Large tunnels (< 1%)

World largest tunneling machine (14.2 m in diameter)

Chunnel





people

Trenchless Construction Methods



New Installations



Microtunnelling



Horizontal Directional Drilling (HDD)



On-line Replacement



Pipeline Condition Assessment

What is current condition state and remaining Service Life?





PIPELINE REHABILITATION/RENOVATION



Cured in Place Pipe

Built a new pipe using the old pipe as a form





Before

to the test of tes

After

SLIPLINING





TRENCHLESS TECHNOLOGY VS. OPEN CUT EXCAVATION

Sustainability Triple Bottom Line

- Construction Cost
- Social Cost
- Environmental Cost

Most sustainable method will have the lowest cost combining all three costs

Construction Costs

- Trenchless projects much faster
- Can be done at night when low traffic volumes
- System can remain operational or limited disruption to services



Typical Urban Project Costs



<u>Trenchless will have lower or</u> equal construction cost if designed and bid correctly



Economic:

- Traffic disruption
- Pedestrian disruption
- Commercial and business disruption

Environmental:

Noise and vibration

Typical Urban Project

- Social costs savings
 - Traffic delays (cars & people)
 - Economic loses (business)
- Environmental
 - Noise
 - Greenhouse gases
- Public perception

Social Costs







Social Costs







Social Costs (con't)

Safety

- Worker safety
- Emergency service access

Indirect costs

Loss of residual life of adjacent utilities and pavement structures

Trenchless will have lower or equal construction cost if designed and bid correctly

Environmental Costs



TT Environmental Benefits

Reduced Greenhouse Gas due to reduced fuel consumption from:

- traffic delays and detours
- heavy construction equipment
- Disposal of excavated materials
- Hauling of construction materials to the site; and
- Manufacturer of construction materials
 - i.e. asphaltic concrete, backfill materials, etc.

Reduces Green House Gas Emissions

80 to 100 percent reduction

33





BC Government Approves Trenchless Carbon Credits

At PWT, caring for the environment is a cornerstone of our approach, with reduction of carbon emissions as one of our key goals. Trenchless technologies, in general, offer reductions in carbon emissions of about 75% when compared to traditional open cut. To that end, we have been instrumental in setting up a scientific method for cities to gain carbon offsets/credits from their use of trenchless methodologies. Trenchless construction reduces about 75% of carbon emissions

The City of New Westminster was the first city world wide to gain a carbon offset in June 2016 for their trenchless program. — They used our calculator.

Our carbon calculator has been reviewed and approved by the Province of BC. as of December 2018. We expect to see it in common use across BC in 2019.

We are proud to present a Green Communities Carbon Neutral Framework for Trenchless Technology Capital Projects, including a sample of screenshots taken from our Carbon Calculator.

Download the complete Calculator (Microsoft Excel), and Project Profile (Microsoft Word). Learn more about Trenchless Technology through the BC Climate Action Toolkit website.

Carbon Calculator - PW Trenchless

https://www.pwtrenchless.com/carbon-calculator/

GHG Calculator

□ <u>http://utilitycarboncalculator.com/</u>

NASTT	To watch a screen cast demonstration of how to use the application please <u>click here</u> .		Metric O Imperial Calculate GHG
	Project Info Dimensions Equipment	Vehicles	
Home	Project Details [®]	Trenchless Descriptions (click	to expand)
Calculate GHGs		Trenchless Construction	
Help	Title: Location: Number:	 Sliplining Pipe Bursting CIPP (Cured-in-place-pipe) Pipe Ramming 	
		 Horizontal Directional Drilling (HDD) Microtunneling Swagelining 	
	Project Type [®]		
Email: Password:	 Rehabilitation New Construction Pipe Bursting (Static) Pipe Bursting (Pneumatic) CIPP/Fold & Form Slip-Lining Swage Lining (UK) 		
Login Register			

Go Trenchless and Be Green



CANADA

Metro Vancouver carbon neutral, but goal of regional achievement still 30 years away



By **Amy Smart** The Canadian Press Mon., June 29, 2020 Ö 2 min. read

Go Trenchless and Be Green

metrovancouver ecasts to continue to do so throuseRVICES of ZBOARDS . MEDIA ROOM . EVENTS . DO

GREEN COMMUNITIES COMMITTEE-SUPPORTED GREENHOUSE GAS REDUCTION PROJECTS

Burns Bog Ecological Conservancy Area Restoration

Burns Bog Ecological Conservancy Area (BBECA) is part of a unique raised bog ecosystem, and one of the world's largest protected natural areas in an urban landscape. Metro Vancouver and the City of Delta have jointly managed and implemented extensive restoration efforts at the Bog, which have significantly enhanced its ability to sequester carbon. The project Design Document quantifies the GHG reductions generated by the Bog restoration between 2008 and 2016, some of which will be used to offset in part Metro Vancouver's corporate carbon liability under the Carbon Neutral Local Government Framework.

Burns Bog Ecological Conservancy Area Restoration: Carbon Emissions Reduction Credits Project Plan (Summary)

Burns Bog Ecological Conservancy Area Restoration: Verification Form

Carteria Trenchless Technology Project: South Surrey Interceptor – Johnson Road Section

In 2019, the final section of the twinning of the South Surrey Interceptor sewer pipe was undertaken. The last section to be completed was the Johnson Road Section, which was 800 metres long and over three metres in diameter. The use of trenchless micro-tunneling instead of conventional open trench technology avoided the release of greenhouse gas emissions. These avoided emissions can be used to offset in part Metro Vancouver's corporate carbon liability under the Carbon Neutral Local Government Framework.

Trenchless Technology Project: South Surrey Interceptor 2019 Self-Certification Form

GO Trenchless and Save

- 80 % on Greenhouse Gas Emissions
- Construction Costs
- Disruption to the public and business
- Faster construction
- "Jack" ...so he can retire





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For Additional Information

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