



# No-Dig North

NEWSLETTER OF THE GREAT LAKES AND ST. LAWRENCE CHAPTER OF THE NASTT

## Trenchless Materials - Properties and Performance

by *Tim Dennis, City of Toronto*

The rapid growth in the application of trenchless technologies for the rehabilitation and construction of underground infrastructure has brought about an equally rapid growth in the introduction of materials which can be applied to these technologies. In some cases, these materials are new; in other cases existing materials are being used in new applications. In either case, owners and contractors are faced with several problems:

- *determining what the material properties are;*
- *determining what material properties will be; and*
- *how to ensure materials obtained in the field have the same properties as materials analyzed in the testing lab.*

For many rehabilitation processes, the "pipe" is manufactured in-situ. As in any field-controlled process, the owner must install quality control measures to ensure the final product achieves the design requirements. Unfortunately, for many trenchless materials, standard field testing and quality control protocols do not exist.

Even if the process doesn't involve on-site fabrication, care still must be taken to ensure that materials are properly applied. Although this is not unique to trenchless processes, standards for the application of "trenchless materials" are often not readily available.

Diligence in materials application should help us to ensure that material design properties are achieved, but it won't tell us how long the material will last in the environment in which it is used. Over time, we'll be able to predict the long term performance of these "trenchless materials" with some confidence. However, until we can, their benefits can not be properly evaluated.

Uncertainty regarding the performance of new pipe materials is nothing new. In a City Engineer's report to City of Toronto Council in 1880, it was estimated that new vitrified clay or brick sewers would have a life of 15 to 30 years. The majority of these sewers are still performing well over 100 years later. I hope we do as well with our "trenchless materials."



### Trenchless Materials: A Balanced Perspective

**Learn about the application of Trenchless Technology materials  
and network with the REAL professionals**

**Thursday, November 6, 1997  
Markham, Ontario**

*Gain insight into the types of materials used in trenchless technology applications*

*Meet speakers specially selected for their knowledge and experience*

*Discover how these materials are being used in a variety of TT applications*

**All-inclusive fee of \$65 per participant (members; \$95 for non-members)  
covers all program materials, as well as break refreshments and lunch.**

**Registration Deadline: October 31, 1997**

***Want more information? Call Debbie Geddes at CATT (519) 888-4770***

## Chair's Report

Quality and quantity were key components of the No-Dig '97 conference held this spring in Seattle, Washington, U.S.A. It was a great success, with a good selection of papers and excellent presentations. Over 1600 attendees also thoroughly enjoyed the hospitality offered by Seattle.

The Great Lakes and St. Lawrence Chapter is launching several projects to support the international efforts of NASTT. For example, the Chapter is currently developing sewer and water fact sheets on trenchless technology issues, and will be assuming a lead role in the development of water works rehabilitation guidelines (similar to an AWWA project). This latter project needs your involvement in order to succeed! From research to implementation of available products, the Chapter needs to draw upon the expertise of its members to successfully complete these guidelines - please contact the NASTT Water Committee or myself [(416) 285-2015] if you are interested.

As you may have guessed, our intention is to increase active participation of Chapter members at the international level, increasing the Canadian profile and facilitating peer networking opportunities. *I urge you to consider contributing your expertise to the variety of committees offered by the Chapter and NASTT.*

On April 20<sup>th</sup>, the various Chapters met in Seattle to share ideas and identify the 1997 direction of each group. The meeting focused on membership and broadening member participation in NASTT activities. *One concept revolved around holding informative luncheons sponsored by members, to "spread the word" about trenchless technologies to prospective members. Any member companies interested in this concept should contact a Board member to discuss opportunities.*

Our Chapter is in the final stages of organizing the Fall Workshop "**Trenchless Materials: A Balanced Perspective**" on November 6<sup>th</sup> (see insert); Ernie Ting, Town of Markham, and Bill Garibaldi, City of Waterloo, will be coordinating this event, so if you are interested in helping out give them a call. This workshop will be co-sponsored by CATT and our Chapter. You may have already received a registration package - if so, spread the word! The Chapter is also working on taking our workshop "on the road" - prospective locations include Thunder Bay, Ottawa, Montreal, and Moncton.

Finally, I would once again like to thank our Chapter executive for its support at No-Dig '97 in Seattle. The strong presence of the Canadian contingent provided a powerful voice at committee meetings and workshops. Please remember that you can also provide a presence through membership on the various Chapter committees - help make NASTT a success!

Til next time... Grant

### Great Lakes and St. Lawrence Chapter BOARD OF DIRECTORS

Grant Murphy - Chair (416) 285-2015  
Scarborough PUC  
gmurph@spuc.org

Bill Garibaldi - Treasurer (519) 747-8605  
City of Waterloo

Charles Hamilton - Secretary (416) 675-3293  
LOVAT Tunnel Equipment x273

Harry Baker (613) 993-3807  
National Research Council  
baker@irc.lan.nrc.ca

Ralph Davidson (416) 499-9000  
CH2M Gore and Storrie Ltd x529  
rdavidso@ch2m.com

Tim Dennis (416) 392-6787  
City of Toronto  
tdennis@city.toronto.on.ca

Joe Loiacono (514) 848-9885  
CERIU  
jeanpc@ceriu.inte.rax.net

Ernie Ting (905) 477-7000  
Town of Markham x365  
eting@city.markham.on.ca

### On The Net with Harry Baker

*Linking nationally and internationally...*

**Trenchless Information Centre (TIC)**  
[www.no-dig.com](http://www.no-dig.com)

**ISTT (International Society for TT)**  
[www.wrcplc.co.uk/net/index.htm](http://www.wrcplc.co.uk/net/index.htm)

**Australasian Society for TT**  
[www.wantree.com.au/~astt](http://www.wantree.com.au/~astt)

**U.K. Society for TT**  
[www.ukstt.org.uk](http://www.ukstt.org.uk)

**German Society for TT**  
[www.leitungsbau.de/gstt](http://www.leitungsbau.de/gstt)

*(TT = trenchless technology)*

**MARK YOUR CALENDAR...The North American No-Dig '98 Conference & Exhibition**

**April 5 - 8, 1998**

**Albuquerque, New Mexico, USA**

**Trenchless Technologies and Underground Infrastructure Rehabilitation, Replacement, and New Installation**

## The CATT Report

The Centre for Advancement of Trenchless Technologies (CATT) at Waterloo continues to grow, with membership increasing all across Canada. It is instrumental to the advancement of trenchless technologies to continue to facilitate technology transfer and research between the Canadian municipalities, universities and industry.

The seminar committee had a busy winter, with 2 full seminars and 2 breakfast seminars. Topics included Horizontal Directional Drilling for Environmental and Municipal Applications, Pipebursting in Rehabilitation of Water and Sewer Mains, Bonding Issues in the Trenchless Industry, and Research Activities at NRC.

The seminar series continues this Fall with a focus on Pipe Rehabilitation Methods.

Over the past year, CATT has been featured in a variety of publications, focusing in on its activities in research, technology transfer and education. *Forum Magazine* (Jan 97), *Trenchless Technology Magazine* (May 97), and *Underground Construction* (June 97), all contained articles highlighting CATT's activities.



CATT's multi-year, \$70 000 research project, which is investigating the properties of high density polyethylene (HDPE) pipe when used in horizontal directional drilling (HDD), kept two graduate students challenged through-out the summer. One project component, (HDD trials to collect field data) was planned for late summer; all in all, there were 6 students working on research and related CATT activities.

CATT looks forward to introducing its 1997/98 Board of Directors at the AGM in early November.

Lynette Snelgrove  
Director

**Centre for Advancement of Trenchless Technologies (CATT)**  
(519) 888-4567 (x6189) or lgsnelgr@uwaterloo.ca



The Great Lakes and St. Lawrence Chapter of the NASTT would like to thank CH2M Gore and Storrie Limited for their assistance in printing this newsletter.

## Trenchless News Briefs

### \$ 1.5 MILLION FOR R&D ACTIVITIES

The Minister of Industry, Commerce, Science and Technology recently awarded a \$1.5 million grant to the CERIU; this will allow CERIU to launch R&D activities and encourage partnerships among researchers, corporate and municipal representatives. This will promote R&D in the urban infrastructure field.

Partners will benefit from financial aid up to 50% for all admissible expenses. Projects will be evaluated through specific criteria and must correspond, in priority, to one of the following themes :

- Trench excavation and backfilling techniques in the urban environment
- Diagnostics of water and sewer systems
- Freezing of water services
- Integrated management systems for infrastructures
- Urban butiminous concrete
- Underground drainage
- Utility tunnels

Projects will be evaluated by a committee composed of field experts. If you would like further information regarding this program and admissibility criteria, contact the CERIU at (514) 848-9885.

### RECHERCHE : LE CERIU A LE FEU VERT

Le ministère de l' Industrie, du Commerce, de la Science et de la Technologie a récemment accordé une subvention de 1,5 millions au CERIU dans le cadre du Fonds des priorités gouvernementales. Le centre est maintenant en mesure de lancer les activités du volet recherche qui consistera à favoriser la création de partenariats composés de représentants scientifiques, corporatifs et municipaux et ainsi promouvoir la recherche en infrastructures urbaines.

Grâce à cette subvention, le CERIU fournira une aide financière aux partenaires de projet jusqu' à un maximum de 50% des dépenses admissibles. Les projets seront évalués sur la base de critères clairement établis et devront correspondent, en priorité, à l' un ou l' autre des axes de recherche suivants :

- techniques d' excavation et remplissage de tranchées en milieu urbain
- diagnostic des réseaux d' aqueduc et égouts
- gel des branchements d' aqueduc
- système de gestion intégrée des infrastructures
- enrobés bitumineux urbains
- drainages outerrain
- galerie technique

L' évaluation des projets soumis se fera par l' entremise d' un comité de sélection composé d' experts du domaine.

## CERIU'S URBAN INFRASTRUCTURE WEEK

**It just keeps on growing...**



## LA SEMAINE DES INFRASTRUCTURES URBAINES ÉLARGIT SES HORIZONS

The 3<sup>rd</sup> edition of the **Urban Infrastructure Week**, organized by the Center for Expertise and Research on Infrastructures in Urban Areas (CERIU), will be held November 24-28, 1997 at the Montréal Convention Centre with the theme *Better Knowledge for Better Rehabilitation*.

**Throughout this five day event, conference events will focus on trenchless technology, roads, structures, public utilities, performance-oriented contracts and experimental projects.**

Last year, the Urban Infrastructure Week drew a total of 700 delegates from Québec, other Canadian provinces and speakers from Canada and abroad.

In addition to the conference, delegates will have the opportunity to visit an innovative and creative exhibition entitled *Innova-Tour*. Some 50 exhibitors from trenchless technology and road industries will be on site to display their innovative products and services. With its original concept, *Innova-Tour* will represent urban preoccupations and innovative technologies and will also feature the *Boulevard of Demonstrations*.

Trenchless technology conferences will be presented on November 24 & 25. For exhibits, companies specialized in trenchless technology, roads and structures will be on site from November 24 to 26. During the three day exhibition, various exhibitors will give special presentations, with special time slots oriented towards technicians, superintendents and elected officials.

To receive additional information regarding the event, contact Joseph Loiacono at (514) 848-9885. Early bird registration deadline is set for **October 17, 1997**.

**Note: Simultaneous translation will be available**

C' est sous le thème «Bien connaître pour mieux réhabiliter» que le Centre d' expertise et de recherche en infrastructures urbaines (CERIU) tiendra la troisième édition de la *Semaine des infrastructures urbaines*, du 24 au 28 novembre 1997, au Palais des congrès de Montréal.

**Les technologies sans tranchée, les chaussées, les ouvrages d' art, les réseaux techniques urbains, les contrats à obligation de performance ainsi que la diffusion de projets d' expérimentation seront à l' agenda de cette semaine riche en contenu.**

L' an dernier, la Semaine des infrastructures urbaines a réuni quelque 700 intervenants du Québec, des autres provinces canadiennes, des États-Unis et de l' Europe.

C' est avec une formule dynamique, orientée sur les besoins du marché, que la programmation a été élaborée. Grâce à la présence de quelque 50 exposants, l' exposition *INNOVA-TOUR* permettra de faire connaître de nouvelles façons de faire, des innovations technologiques et des problématiques vécues quotidiennement. Nul doute que le Boulevard des démonstrations, une artère vouée à la démonstration de nouvelles technologies, suscitera un grand intérêt.

Les sessions portant sur les technologies sans tranchée seront présentées les 24 et 25 novembre. Quant à l' exposition, des entreprises provenant du domaine des infrastructures souterraines, des chaussées et des ouvrages d' art seront sur place les 24 - 26 novembre.

Des sessions thématiques s' adressant plus particulièrement aux élus, aux contremaîtres et aux surintendants sont aussi prévues à la programmation. Les exposants auront ainsi l' occasion de présenter des conférences ciblées auprès de cette clientèle.

Pour tout complément d' information, vous pouvez communiquer avec Joseph Loiacono au (514) 848-9885. Les tarifs de pré-inscription sont en vigueur jusqu' au **17 Octobre**.

The **Center for Expertise and Research on Infrastructures in Urban Areas (CERIU)** is a technological transfer center whose mission is to stimulate the application and use of new technologies and materials for urban infrastructure rehabilitation.

Founded in 1994, the CERIU now counts some 120 members from different horizons: cities, research centres, government ministries, consulting engineering firms, contractors and suppliers. With the support of specific committees, the CERIU' s main areas of interest include underground infrastructure, roads and structures. The center is also active in dossiers such as performance-related specifications, professional training, standardization, social costs and research.