

International Society for Trenchless Technology

19th No-Dig International Conference and Exhibition

PRAGUE 2001

September 10-13, 2001
Prague, Czech Republic

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60423-874-7

Some format issues inherent in the e-media version may also appear in this print version.

International Society of Trenchless Technology
19th No-Dig International Conference and Exhibition
2001

TABLE OF CONTENTS

Microtunnelling Innovations	1
<i>E. Adams</i>	
Safety and Risk Using Trenchless Drilling Techniques.....	13
<i>G. Arends</i>	
Educational and Training Necessities for HDD-Specialists in Middle Europe	21
<i>H-J. Bayer</i>	
Cables in Sewers Using the STAR Technique: Now in North America Too!	25
<i>K. Beyer</i>	
Future Perspectives for Trenchless Technology	31
<i>R. Bielecki</i>	
The Association for Chemical and Metallurgical Production Usti nad Labem Stock Company On-Site Sewerage System: Systematic Redevelopment.....	36
<i>Author Unknown</i>	
Systematika Rekonstrukce Kanalizacni Site v Arealu Akciové Společnosti Spolek pro Chemickou a Hutni Vyrobu Usti nad Labem	41
<i>Author Unknown</i>	
The Development of the Optimum Pipe for Pipe Jacking Purposes – GRP/FRP Polymer Concrete	46
<i>P. Boatman, S. Orchard</i>	
Innovative Methods for Sewer Inspection	50
<i>B. Bosseler, A. Redmann</i>	
Jacking of Rectangular Reinforced Concrete Pipes	53
<i>B. Bosseler, M. Liebscher</i>	
The Benefits of Lining Large Diameter Pipes with Polyurethane	66
<i>D. Brown, K. Jennings, P. Oram</i>	
Joining Process for Reinforced Thermoplastic Pipe in Trenchless Technologies.....	77
<i>A. Bruzzone, D. Lagostena, P. Lonardo</i>	
End of the Century Drilling Record	85
<i>S. Eger</i>	
Trenchless Technology Standards: The Need in Developing Countries	89
<i>G. Goyns</i>	
Training as an Important Tool to Implement Successful NO-DIG Projects: Lessons Learnt and Future Perspectives.....	97
<i>B. Hagelskjær</i>	
Application Oriented Material Development for Close-Fit-Relining Pipes	103
<i>J. Brunecker</i>	

Large HDD Crossings	110
<i>G. Hoogveld</i>	
Horizontal Directional Drilling with Construction of the PanEuropean Fibre-Optic Cable Routes in the Czech Republic.....	117
<i>Z. Hradil, J. Svach, P. Balcarék</i>	
Multi-Station Traversing: A New Way of Surveying for Pipe-Jacking	127
<i>M. Tushi, T. Inaba, M. Fujii</i>	
A New Design Method for Large Non-Circular GRP Prefabricated Linings.....	132
<i>J. M. Joussin, O. Thépot</i>	
Navigation System in NO-DIG Microtunneling Method.....	140
<i>T. Kawai, K. Sasaki</i>	
Control of Technical Risks in Horizontal Directional Drilling Focused on Borehole Pressures	148
<i>B. Keulen, R. Vos, G. Arends, D. Mastbergen</i>	
Historical Development of Trenchless Methods of Underground Pipeline Construction	156
<i>F. Klepsatél</i>	
Building a Main Sewer P in Prague	164
<i>A. Adamek, J. Kunc</i>	
Structural Assessment of a Glass-Fibre Reinforced Pipe with Interpretation of On-Site Measurement Results	169
<i>J. Kunc</i>	
Needs and Requirements of Operators for No-Dig Rehabilitation of Sewer Network	176
<i>O. Kura, S. Absolon, M. Helcelet, M. Karasek</i>	
MA WAN ISLAND Projects in Hong Kong - Largest Contract and Most Difficult Crossings by Horizontal Directional Drilling	183
<i>A. Lukas</i>	
F + E - Project: Securing and Improving the Jacking Technique as an Ecologically Sound Construction Method for Installation of New Sewerage Pipes and Rehabilitation	193
<i>O. Špinka</i>	
The Conception of Tutorial-Instructional Process in the Field of No-Dig Technologies at the Brno University of Technology.....	202
<i>J. Micin, J. Raclavský</i>	
10 YEARS OF EXPERIENCE.....	209
<i>I. Steinerová</i>	
Sewer Rehabilitation For A Clean And Worth Living Environment	213
<i>C. Mühlhöfer</i>	
Finite Element Method (FEM) Model Analysis of Joint Behavior in Driving Pipes When Executing Acute Curves	226
<i>S. Nakahira, Y. Tamai, K. Honda, T. Mizukami</i>	
Microtunneling with Auger Drills for Small Tunnels	234
<i>G. Nieder</i>	
Development of Remote Support System for Micro-tunnelling	248
<i>M. Fujii, T. Ochi</i>	

Navigation System in No-Dig Microtunneling Method	257
<i>T. Kawai, K. Exeo</i>	
Development of Dynamic Press-Insertion Technology Enabling High-Speed Driving in Hard Soil and Robotization Technology for Driving Pipe and Cable Connection	265
<i>T. Takanashi, K. Goto, M. Tanaka, H. Hino</i>	
Multi-Station Traversing: A New Way of Surveying for Pipe-Jacking	276
<i>M. Tushi, T. Inaba, M. Fujii</i>	
Trenchless Technologies in Korea	281
<i>T. Park, J. Nam</i>	
CIPP - Advanced Composites and its Environmental Benefits	286
<i>B. Persson</i>	
PC-Supported Planning of Rehabilitation Measures Based on the Multimedia Technical Information System for the "Maintenance of Drains and Sewers"	294
<i>R. Stein, G. Prinz</i>	
Project V4 - "Effective Application of Trenchless Methods for Construction and Reconstruction of Underground Lines"	301
<i>J. Raclavsky, J. Chabronova</i>	
Geo-Radar & No Dig Technologies	305
<i>J. Steinbruch, N. Seesaram</i>	
Estimation of Thrust in the Construction of Underground Pipelines in Curved Area Using Slurry Pipe-jacking	N/A
<i>H. Shimada, T. Sasaoka, M. Inoue, S. Kubota, K. Matsui</i>	
Transforming "Old Fashioned" City Utility Maintenance into Interactive Asset Management Systems for the Future	311
<i>T. Simic, V. Mlinaric</i>	
"Prymasa" Sewer in Warsaw Built of Hobas. Most Advanced Piping System by Microtunneling	N/A
<i>H. Skomorowski, R. Walczak</i>	
Go2Learning - Web-based Teaching, Learning and Working Platform for Construction, Operation and Rehabilitation of Utility Services	318
<i>R. Stein</i>	
Research Directions in Trenchless Technology	326
<i>R. Sterling</i>	
Development of Dynamic Press-Insertion Technology Enabling High-Speed Driving in Hard Soil and Robotization Technology for Driving Pipe and Cable Connection	331
<i>T. Takanashi, K. Goto, M. Tanaka, H. Hino</i>	
CARE-W Computer Aided REhabilitation of Water Networks	342
<i>S. Seargrov, J. Rostum, L. Tuhovcak, P. Eisenbeis, R. Herz, P. Le Gauffre, J. Baptista, P. Conroy, V. Di Federico</i>	
Author Index	