

66th Annual Highway Geology Symposium (HGS 2015)

Sturbridge, Massachusetts, USA
14-17 September 2015

ISBN: 978-1-5108-1373-1

Printed from e-media with permission by:

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



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

Copyright© (2015) by Highway Geology Symposium
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact Highway Geology Symposium
at the address below.

Highway Geology Symposium
C/O FR Glass
100 Wolfe Cove Rd
Asheville, NC 28804

Phone: (828) 252-2260
Fax: (828) 299-1273

frgeol@aol.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Paper and Presentation Schedule

Tuesday, September 15—Morning Sessions

8:30 AM – 8:55 AM

High Quality H₂O: Utilizing Horizontal Drains for Landslide Stabilization 1

Author(s): Cory B. Rinehart

8:55 AM – 9:20 AM

A New Simplified Methodology to Design Flexible Debris Flow Barrier 21

Author(s): Marco Cerro, Giorgio Giacchetti, Ghislain Brunet, Alessio Savioli, and Alberto Grimod

9:20 AM – 9:45 AM

Estimation of Cambridge Argillite Strength Based on Drilling Parameters 41

Author(s): Evan Lonstein, Jean Benoit, Stanley Sadkowski, and Kevin Stetson

9:45 AM – 10:05 AM

Red Mountain Pass Rockfall – Multiphase Mitigation of a Unique Rockfall Source Area N/A

Author(s): Nicole Oester (*presentation only*)

Tuesday, September 15—Late Morning Sessions (split sessions)

10:40 AM – 11:00 AM

Geotechnical Solutions for Widening of Interstate 95 70

Author(s): Sarah McInnes, Michael Yang, and Robert Crawford

10:40 AM – 11:00 AM

Telegraph Hill Rock Slope Improvement Project: Construction Challenges and Value Engineering Proposals 90

Author(s): Martin Woodard

11:00 AM – 11:20 AM

A Challenging Emergency Rockfall Project Along the North Cascades Highway, Washington 103

Author(s): Marc Fish and Michael Mulhern

11:00 AM – 11:20 AM

Proactive Interferometry and Point Data Integration – Budge Slide Monitoring 123

Author(s): John S. Metzger, Enrico Boi, Cliff Preston, and Jason Rolfe

11:20 AM – 11:40 AM

Evaluation of D-cracking Durability of Indiana Carbonate Aggregates for Use in Pavement Concrete 148

Author(s): Belayneh Desta, Terry West, Jan Olek, and Nancy Whiting

11:20 – 11:40 AM

Sources of Nitrate in Groundwater Near Roadway Rock Blasting Sites 165

Author(s): Krystle Pelham and David M. Langlais

11:40 AM – 12 PM

Soil and Rock Slope Stabilization for Bridge and Highway Reconstruction, State Routes 9 and 125, Lisbon-Durham, Maine 176

Author(s): Andrew R. Blaisdell and Christopher L. Snow

11:40 AM – 12 PM

A Summary of Technical Safety Training for Slope Access Technicians N/A

Author(s): Jon Tierney (*presentation only*)

Tuesday, September 15—Afternoon Sessions (split sessions)

1:00 PM – 1:20 PM

Slope Stabilization and Scour Protection Using Small Diameter Reticulated Micropiles Along Minisceongo Creek204

Author(s): Nathan Beard

1:00 PM – 1:20 PM

US-12, Greer to Kamiah, Idaho, Rock Slope Assessment and Design 218

Author(s): William C.B. Gates and Brian Bannan

1:20 PM – 1:40 PM

Remediation of Slope Instability in Presumpscot Marine Clay Using Steel H Piles, Mile Brook Bridge Over Outlet Stream, Winslow, Maine 233

Author(s): Erin A. Force and Wayne A. Chadbourne

1:20 PM – 1:40 PM

Installation of Flexible Snow Net Structures for Avalanche Control246

Author(s): Chris G. Ingram

1:40 PM – 2:00 PM

Stabilizing a Slope Using a High Strength Wicking Geotextile259

Author(s): John C. Folts

1:40 PM – 2:00 PM

Icefall Hazards Along U.S. Transportation Corridors—Are Rockfall Catchment Ditches Sufficient?269

Author(s): David J. Scarpato

2:00 PM – 2:20 PM

Stabilization of Paleo Stream Deposits Using High Tensile Steel Mesh284

Author(s): Scott D. Neely

2:00 PM – 2:20 PM

Rock Slope Stability in Karst Terrain297

Author(s): Vanessa C. Bateman

Tuesday, September 15—Late Afternoon Sessions (split sessions)

2:50 PM – 3:10 PM

Geotechnical Designs to Build on Liquefiable and Compressible Soil in Salem, Massachusetts316

Author(s): Tulin Fuselier, Zia Zafir, Jennifer MacGregor, and Stefanie Bridges

2:50 PM – 3:10 PM

Rock Slope Monitoring Using Oblique Aerial Photogrammetry Along Interstate 70 in DeBeque Canyon, Colorado: A CDOT Geotechnical Asset Management Pilot Project331

Author(s): Ty Ortiz, Dave Gauthier, Nicole Oester, and Robert Group

3:10 PM – 3:30 PM

Old Problem Requires Innovative Investigation—Geotechnical Investigations of the Chippewa Power Canal Culvert Foundation332

Author(s): Gabrielle Mellies, Mark Telesnicki, and Tony Sanguiliano

3:10 PM – 3:30 PM

Debris Flood Assessment and Mitigation Design: Trans-Canada Highway, Alberta 351

Author(s): Alex Strouth, Joe Gartner, Kris Holm, and Matthias Jakob

Tuesday, September 15—Late Afternoon Sessions (split sessions) cont.

3:30 PM – 3:50 PM

Bridges in Appalachian-Type Karst: Geotechnical and Design Concerns 369

Author(s): Joseph A. Fischer, William Kochanov, and Joseph J. Fischer

3:30 PM – 3:50 PM

Attenuators for Controlling Rockfalls: Do We Know How They Work? Can We Specify What They Should Do? 381

Author(s): Duncan Wyllie and Tim Shevlin

3:50 PM – 4:10 PM

Louisville Bridges: Then and Now from a Geotechnical Perspective, Louisville, Kentucky 398

Author(s): Mark A. Litkenhus

3:50 PM – 4:10 PM

Trout Brook Landslide Repairs following Tropical Storm Irene N/A

Author(s): Mike Yako, Peter Connors, and Jeanne Lefebvre (*presentation only*)

Thursday, September 17—Morning Sessions

8:00 AM – 8:20 AM

The Importance of Residual Shear Testing in Evaluation of Landslides in Glaciolacustrine Deposits 415

Author(s): Andrew J. Smithmyer, Frank Namatka, and Richard Bohr

8:20 AM – 8:40 AM

Investigation, Design, and Mitigation of a Landslide in Newport, Vermont 438

Author(s): Jay R. Smerekanicz, Jeffrey D. Lloyd, Mark S. Peterson, Peter C. Ingraham, and Christopher C. Benda

8:40 AM – 9:00 AM

Stream Restoration to Improve Slope Stability Along Park Road at Gibsonville, Letchworth State Park, New York 467

Author(s): James J. Janora, Mark D Kenward, and Paula L. Smith

9:00 AM – 9:20 AM

Natural Geologic Controls on Rockfall Hazard and Mitigation on the Niagara Escarpment, King’s Highway 403 at Hamilton, ON, Canada 487

Author(s): Dave Gauthier, David F. Wood, D. Jean Hutchinson, and Stephen Senior

9:20 AM – 9:40 AM

An Innovative Case Study on the Use of Test Section/Design-Build Construction on the Sea-to-Sky Highway Improvement Project, Vancouver, BC, Canada 502

Author(s): Grant A. Lachmuth

9:40 AM – 10:00 AM

Development of Grading Requirements for Drought Weather Conditions 520

Author(s): James B. Nevels, Jr.

10:40 AM – 11:00 AM

Micropiles in Karst – The New Central Utility Plant at Shippensburg University 537

Author(s): Jason M. Gardner

11:00 AM – 11:20 AM

An Improved Calculation Method to Design Flexible Facing System for Soil Nailing 558

Author(s): Marco Cerro, Giorgio Giacchetti, Ghislain Brunet, Alessio Savioli, and Alberto Grimod