

# GRL NEWSLETTER

Information Gathered by  
the Engineers of  
Goble Rausche Likins and Associates, Inc.

NUMBER 6  
NOVEMBER 1987

## SEASON'S GREETINGS FROM GRL

The staff at GRL and PDI wish their readers a happy and healthy Holiday Season and a prosperous New Year.

### Research Continues at University of Colorado

G. G. Goble has received a grant from Colorado Division of Highways to study various SPT tests used by CDH. The work includes Pile Driving Analyzer and Hammer Performance Analyzer measurements. The project goals are as follows:

- o test each SPT and determine the kinetic energy at impact and the maximum energy transmitted to the rod. Efficiencies will be calculated for all cathead-and-rope and automatic hammers.
- o compare CAPWAP results from SPT and piles in same soil to improve capacity and driveability predictions by determining dynamic soil constants for Wave Equation Analysis inputs.

### News from Pile Dynamics, Inc.

PIT, Pile Integrity Tester was developed and has been shipped to users in five countries and three continents. Two versions are available

- o an attachment to the PDA
- o an attachment to a portable PC-compatible computer

The basis of these tests is a low strain stress wave generated by a small hand-held hammer.

AA, the Angle Analyzer consists of angle sensors attached to the leads and a read-out box mounted in the crane cabin. Read-outs of angles in x and y-direction and the compound angle assists accurate pile placement and eliminates the slow process using carpenter levels. This development was in cooperation with the Foundation Equipment Corp. of Dover, Ohio.

#### Seminar Activities

Two PDA Users Days were held this year. The first one was conducted in Cleveland in June, the second in Kungsbacka, Sweden in August. G. G. Goble and G. E. Likins participated in Sweden.

During the past 4 months, GRL engineers gave lectures and seminars in Baltimore, Louisville, Mexico City,

Orlando, Rio de Janeiro, Tallahassee, Tampa, Toronto, and other locations.

### WEAP86 News

A comprehensive study of 57 tests with diesel hammers was performed for the FHWA. The results are presented in the 1987 version of the WEAP86 manual which includes new data and a table for batter pile analysis. WEAP86 was also made about 40% faster for diesels.

In another development, blow count vs depth and stroke vs blow count for fixed capacity options were built into WEAP86 and tested. The new, larger program is called GRLWEAP and may now be used in either SI or English units.

### Calendar of Events

- o DFI plans conferences in Raleigh, NC and New Orleans, LA in spring of 1988. Contact Bob Compton of DFI at 201 729-9679 for further details.
- o GRL and PDI plan a Users Day in connection with the 1988 Stress Wave Conference (see below).
- o A GRL/PDI Users Day is planned for the first week of November 1988 in Hong Kong. We hope that this event will strengthen our ties with the many active PDA users in the Far East and South Pacific regions.
- o Third International Conference on the Application of Stress Wave Theory on Piles.

Professor Bengt Fellenius reports that 114 abstracts for papers were received which promise well-balanced presentation of theoretical developments and practical experiences. Over 200 persons from 35 countries have sent preliminary registrations. The conference chairman promises good weather, a black bear promenade and singing Royal Canadian Mounted Police.

Please mark on your calendar May 25, 26 and 27, 1988 for this important event and send your preliminary registration or request for information to:

Dr. Bengt Fellenius, Chairman  
Third Int'l Conference on Stress Waves in Piles  
University of Ottawa  
770 King Edward St.  
Ottawa, Ontario Canada K1N, 6N5

### Sergio Roberto Beim

A tragic accident occurred on a construction site during the last days of August taking the life of Sergio Beim of PDI Engenharia in Rio de Janeiro. We at GRL and



Sergio R. Beim

Pile Dynamics are all very saddened by this loss of a very good friend who cheered us up even in difficult times. He was a gifted and capable engineer. Sergio is survived by his wife Gina and

daughter Deborah, his parents and two brothers. We are sharing their sorrow.

Sergio had received a Bachelor of Science Degree in Structural Engineering at the State University in Rio de Janeiro in 1980 and a Masters of Science at Case Western University in Cleveland, Ohio in 1986. He was the recipient of the Jorge Dias de Oliva Prize. Between 1981 and 1984 Sergio worked first for Geotecnica and then Antonio A. Noronha in Rio de Janeiro in the monitoring and dynamic analysis of offshore piles. At that time he became acquainted with the Pile Driving Analyzer and CAPWAP.

After having completed his masters thesis on the "Behavior of Reinforced Concrete Bridge Decks" at Case, Sergio worked with GRL for several months in preparation of the founding of PDI Engenharia. PDI Engenharia was very successful, primarily, because of his personal involvement, hard and precise work, and last not least, because of his winning personality.

Gina and Sergio's brothers, Jorge and Andre, are all accomplished engineers and have begun to continue Sergio's work. We wish them the best of success and promise to support them to the best of our abilities.

### **Visiting Engineers Train in Cleveland**

Gorazd Strnisa, PDA engineer with Gradis Construction Co. in Ljubljana, Yugoslavia, spent nearly 3 months in Cleveland with his charming wife Majda. We all enjoyed having them here and we were sad to see them leave. Fortunately, Jon Cannon joined us soon thereafter for a 5-week visit. Jon is in charge of dynamic testing at Maunsell & Partners, Ltd. in Melbourne, Australia.

### **DFI Annual Meeting Draws Crowd**

Nearly 200 Deep Foundations Institute members met in Hamilton, Ontario on October 14-16 for their annual meeting. Seminar topics included hydraulic impact and resonant vibratory hammer developments, driven mini piles and drilled caissons, shoring cofferdams and slurry walls. Chris Thompson of Trow spoke on using the PDA for construction control and hammer monitoring to justify higher design loads. Bill Birmingham should be commended for his efforts in hosting this successful meeting. Clyde Baker of STS received the annual Distinguished Service Award. PDI's Gariand Likins exhibited the new Angle Analyzer<sup>TM</sup> and PIT (see also news from PDI) together with the PDA, HPA and Saximeter II.

#### Florida

Mohamad Husseln from GRL's Orlando office has started training for the Florida DOT and Taylor Brothers Construction Company in preparation of the Howard Frankland Bridge production pile driving. Mohamad also scored near perfect correlations with class A predictions of load tests in marl and limestone.

#### Colorado

Jay Berger of GRL Colorado has completed training for the Colorado Division of Highways (CDH) on a job in Colorado Springs. Bert Miner couldn't resist involving himself in a North Canadian offshore pile test even though he has started graduate studies in Austin, Texas.

#### North Carolina

Gariand Likins completed PDA and CAPWAP training with the North Carolina DOT in Raleigh.

#### Brazil

GRL and PDI have started a test series on 7 offshore oil platforms in Brazil. The PDA monitoring and CAPWAP analysis work is being conducted together with Antonio Noronha Engineers and SUPORTE, both of Rio de Janeiro.

#### Louisiana

Wondem Teferra from GRL's Philadelphia office reports several pile monitoring activities on timber, steel and concrete piles. He coordinated tests for the Louisiana DOT which developed set-up characteristics of piles driven in the New Orleans area. Good load test correlations with CAPWAP were obtained considering the difficulty of the job which involved fine grained, dynamically sensitive soils and piles with splices.

#### Mexico

Antonio Mendez of Pruebas Dinamicas de Pilotes, with the assistance of Frank Rausche, tested 12 drilled shafts at a hotel construction site in Cancun, Quintana Roo, Mexico. The piles were of 60 cm (24 in.) diameter and 10 m (33 ft.) long. Initial concerns about the small hammer size vanished when pile sets of up to 10 mm (.4 in.) per blow were achieved. CAPWAP analyses indicated predominately end bearing. Test loads were applied through a steel-box shaped follower to accommodate reinforcement and strain measurements were taken on that follower for reason of reliability of force measurement and speed of testing.

#### **We Need Your Help!**

We appreciate your interest and would like to continue to send our newsletter to you. However, we realize people and companies move so we are constantly updating our mail list. If we have not heard from you in the last year, your name may be removed from our list. Check the envelope address for the year after your name. Also return the enclosed card if the name or address has changed, or if you know of someone to be added to our list.

### **Goble Rausche Likins and Associates, Inc.**

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