

**INTERNATIONAL WORKSHOP ON MICROPILES  
DOUBLETREE INN, SEATTLE, WASHINGTON  
SEPTEMBER 26-28, 1997**

**INTRODUCTORY REMARKS FROM DR. AL DIMILLIO  
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FEDERAL HIGHWAY ADMINISTRATION**

Good morning, everyone, and welcome to this important micropile workshop here in lovely Seattle. As one of the official hosts of this international meeting, I want to thank all of you for taking time out of your busy schedules to participate in our planned events. From what I have seen so far, Don Bruce has done a great job to make this a very productive meeting. It was less than a year ago, when Don approached me with an idea to establish an open dialogue with Japanese micropile specialists to explore the possibility of a formal agreement between Japan and the U.S. similar to the French-U.S. agreement to do cooperative research in a program which is called FOREVER (Foundations Reinforced Vertically). Don arranged a meeting between Japanese representatives from the Fujita Corporation and myself and Jim Cooper, who is the Chief of FHWA's Structures Research Division. Fujita was acting as an agent of the Japanese Public Works Research Institute (PWRI). We met at the ASCE National Convention in Washington, D.C., in November of last year. At this meeting, we agreed to develop a mechanism to facilitate further communication and exchange of information on micropiles. We met again in January at TRB to discuss details of contract between FHWA and ECO Geosystems, with Don Bruce as the facilitator and, in conjunction with the Deep Foundations Institute (DFI) where they would organize this international workshop; and also establish an International Micropile Coordination Group.

We met again in March in Washington, D.C. to review progress, and to discuss the progress for the establishment of the Japanese Association for Micropiles (JAMP). We met again in April in Tokyo at the opening ceremony for the new Association. In July, Don and I again met with a group of Japanese officials from JAMP at the Geo-Logan Conference at Utah State University to finalize

arrangements for today's meeting here in Seattle. Don Bruce and Keith Kimura did a tremendous job to pull of this together in such a short time.

In addition to celebrating our new found micropile friends from Japan, I would like also to acknowledge our long term partnership with France in the FOREVER project; and if I may, I would like to re-visit some of our early history for the development of that partnership. In the Fall of 1991, François Schlosser and Ilan Juran approached me with an offer to join forces with the French National Project on Micropiles. We had been conducting cooperative research with them since the middle 1980s on Reinforced Soil and Soil Nailing and other ground improvement technologies, so this was nothing new, except that it was to become much more formal and significantly larger in extent. Our first meeting to discuss FOREVER occurred in February, 1992 at the ASCE Ground Improvement Conference in New Orleans. The next two meetings were in Paris in June and September to finalize the details, and the agreement was finally signed in Paris in September, 1993.

François and Roger Frank will talk to us later today about the major elements of their FOREVER project, so I will only highlight the U.S. contributions for you now. As all of our know the initial and key contribution from the U.S. was started in 1994 with the Nicholson Construction Company (NCC) study on the State-of-the-Practice in the U.S. and Europe plus selected other parts of the world. Don Bruce was the Principal Investigator for NCC at that time, and his team developed a draft report and presented it to FHWA and a select group of expert reviewers from Europe at the Turner-Fairbank Highway Research Center (TFHRC). The team received an enormous amount of feedback from this first meeting and returned to their drawing boards to revise their report.

A second meeting was also convened at TFHRC to again review the draft report and discuss ways to improve it. Again the team received significant input for revising the report. It was then decided to hold a third meeting of the group in San Francisco to be hosted by Caltrans. This location would allow increased participation by Caltrans who had been previously represented at the TFHRC meetings by James Mason and Ray Zelinsky. It also made it easier for FHWA West Coast personnel to attend and contribute to the meetings, especially Ron Chassie and Tom Armour who were responsible for developing the FHWA Manual of Guidance for Micropile Design and Construction. Ron and Tom will give a progress report on the Manual on Saturday.

The NCC report was finally finished in 1996 and printed in 1997. It was printed in four volumes because of the huge mass of information collected. The report was dedicated to Dr. Fernando Lizzi, who was also a member of the expert review group from Europe. Unfortunately, Dr. Lizzi could not be here this week, but I saw him in Hamburg, Germany earlier this month at the International Society meeting, and he told me to send his best regards to all of our. He told me that he has fond memories of the three meetings here in the U.S. and also of the opening ceremonies in Tokyo. We are very pleased that the other members of the European review group (Mike Turner of England, François and Roger from France, and Thomas Herbst of Germany) are all with us today. Their efforts have been a tremendous help to all of us.

In addition to the NCC study, the U.S. is also making significant contributions to two other major areas: seismic and construction site monitoring. We have already completed one major field instrumentation project in Alabama, and we are progressing nicely on a major seismic research study, which will be described by Ilan on Saturday. Prof. Juran and Prof. Fred Kulhawy also deserve a lot of credit for their contributions to the State-of-the-Practice reports, and for their continuing research efforts on seismic design.

In conclusion, I would like to say that FHWA is very pleased with the combined efforts of the entire group. We are strongly committed to honor our obligations to the FOREVER program and beyond, if necessary, to insure that micropile technology is fully investigated and utilized. The new FHWA Manual that will be coming out soon is certainly not the last step in our program. It is an interim manual that will serve to educate our practitioners on current best methods. It will be periodically updated as the future results of FOREVER studies and other major contributions are obtained from all over the world. We are especially in need of better information on seismic practices.

Again I would like to thank Don Bruce and Keith Kimura for their hard work and efforts to make our visit here successful, and I hope you find your efforts here to be mostly enjoyable and rewarding.