The Geo-Institute
Pittsburgh Chapter
is hosting:

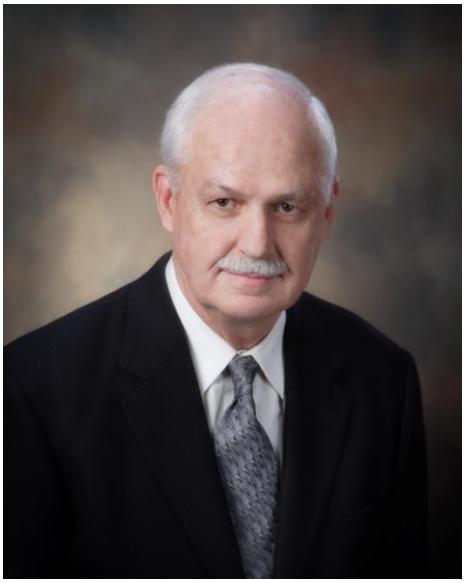
GEO-INSTITUTE Pittsburgh Chapter

The 56th Terzaghi Lecture (Webinar) – November 19th, 2020

OBSERVING AND CONTROLLING GROUND BEHAVIOR DURING TUNNELING

By:
Edward J. Cording

1.0 PDH available



The lecture focuses both on observing ground behavior – displacements and porewater pressures at their source around an advancing tunnel heading, and on observing and correlating the construction process with the ground behavior.

The lecture proceeds (1) from the pioneering observations of Karl Terzaghi and Ralph Peck on the Chicago Subway in 1940 where they linked tunnel construction and ground loss in the soft Chicago clay to surface settlement, (2) to our observations of open face tunnel shields in the 1970's – 2000's where it was often a struggle to minimize ground loss, and (3) to the current fully pressurized tunnel boring machines (TBMs) that have revolutionized our ability to control the ground and to tunnel at shallow depth under urban areas without ground loss or damaging settlement.

In 2016 – 2017, on the Alaskan Way Viaduct Replacement (SR 99) Project, the 57.5-foot-diameter TBM was advanced beneath downtown Seattle using control procedures for pressurizing the TBM face and shield perimeter that prevented ground loss, with a comprehensive monitoring program that demonstrated how the ground behaved and how control was achieved in both granular and cohesive soils at tunnel depths ranging from one-half to three diameters. Lessons learned from that project and current developments in observing and evaluating ground behavior around tunnels are described.

Edward Cording is Professor Emeritus in Department of Civil and Environmental Engineering at the University of Illinois at Urbana Champaign, where he taught rock mechanics and soil-structure interaction for underground structures, excavations, slopes, and tunnels. His laboratory has been in the field observing and analyzing the stability of deep and shallow caverns and tunnels in rock, and ground movements around urban tunnels and excavations in soil and their relation to building distortion and damage.

Some recent projects include the Long Island RR East Side Access to Grand Central, 2nd Avenue Subway, No. 7 Line Extension subway, and Hudson River tunnels for the Gateway Project in New York City. Recent projects with pressurized tunnel boring machines have been in Washington, D.C, Toronto, Cleveland, Vancouver, Seattle, and San Jose. He is a member of the Tunnel Advisory Panel for Los Angeles Metro on the planning, design and construction of subway tunnels and stations.

He is a member of the National Academy of Engineering and received the Moles Award for Outstanding Achievement in Construction, 2003, the Beaver's Engineering Award in 2013, and Geo Institute Harry Schnabel, Jr Award for Career Excellence in Earth Retaining Structures, 2007. The lecture "Observing and Controlling Ground Behavior around Tunnels" was presented as the 2020 Terzaghi Lecture.

WHERE	TIME
Zoom – Webinar Link to Registration: HERE	12:00 PM – 1:00 PM EST

Program Chair: Randall Booker (Email – rbooker@agesinc.com)

PDH POLICY: To receive your PDH you must attend the entire length of the webinar.