



Transportation Literature Search

Prepared by
CTC & Associates LLC

Wisconsin Department of Transportation Research and Communication Services

Testing a Plate Anchor System for Post and Panel Walls

Prepared for
Wisconsin Highway Research Program
Geotechnics Technical Oversight Committee

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Transportation Literature Searches are prepared for WisDOT staff and principal investigators to heighten awareness of completed research in areas of current interest. The citations below are representative, rather than exhaustive, of available studies on the topic. Primary online resources for the literature searches are the Transportation Libraries Catalog ([TLCat](#)), the Transportation Research Information Service ([TRIS Online](#)), and various academic and scientific databases. Online copies of publications are noted when available. Hard copies of cited literature may be obtained through the WisDOT Library; contact John Cherney at john.cherney@dot.state.wi.us or 608-266-0724.

KEYWORDS

post and panel, post, panel, plate, test, lateral, load, retaining, wall

CITATIONS

Title: The use of in-situ testing to optimize retaining wall design in the Marquette Interchange Project

Author(s): Emad Farouz, Jiun-Yih Chen, Therese E. Koutnik, Brian L. Powell

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Doc ID/URL: *Geotechnical Practice Publication*, 13th Great Lakes Geotechnical and Geoenvironmental Conference, May 13, 2005, Milwaukee, Wisc., publ. 2006 by ASCE: 13-27.

Description: 15 pp.

Contents: This paper presents the practical use of in-situ testing to optimize retaining wall design of the \$810 Million Marquette Interchange Project in Milwaukee, Wisconsin. Approximately 42 retaining walls will be constructed between 2004 and 2008, of which the majority are cut walls up to 12.2-meter (40-foot) high. The in-situ testing performed for this project supplemented a conventional geotechnical investigation and included pressuremeter tests, dilatometer tests, and piezometric cone penetration tests with soil electrical conductivity measurements. Pressuremeter and dilatometer test results were used to develop categorized p-y curves in modeling passive soil resistance and to estimate undrained shear strengths and anchor bond strengths of clayey soils. Sounding results from cone penetration tests with soil electrical conductivity measurements were used to evaluate the groundwater conditions, estimate the in-situ soil properties, and perform direct settlement analyses of fill walls on soft ground conditions. In-situ testing results were compared with soil parameters developed from Standard Penetration Tests and laboratory tests. Results were also validated from three full-scale lateral pile load tests conducted during the design phase and from anchor load tests conducted as part of construction quality control/quality assurance. This paper illustrates how the in-situ testing results were incorporated to optimize the retaining wall design and reduce overall construction costs.