Cairo University

NUMERICAL ANALYSIS OF SOIL NAIL/GEOSYNTHETIC REINFORCED SOIL WALLS ON HYBRID RETAINING WALL SYSTEM

By

Hussein Salah Abbas Madbolly

A Thesis Submitted to the
Faculty of Engineering - Cairo University
In Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
Civil Engineering - Public Works

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Under the Supervision of

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Approved by the Examining Committee

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2019

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Title of Thesis:

Numerical analysis of soil nail/geosynthetic reinforced soil walls on hybrid retaining wall system

Key Words: Hybrid, Nail, Reinforced, Geosynthetic, PLAXIS 2D.

Summary:

This research examines the behaviour of soil nail/geosynthetic reinforced soil walls on hybrid retaining wall system with different soil and geometry parameters. A 2D finite element model was verified against a case history and in a parametric study to simulate the behavior of different wall configurations. The study addressed the effect of different soil nail parameters such as friction angle, nail length to height ratio, set back distance, and reinforcement stiffness. Empirical methods were evaluated.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

Name:

Date:

Signature:

Dedication

To: My Father

Acknowledgments

Foremost, i would like to thank my supervisor, Prof. Dr. Abdelsalam M.Salem, Professor of Geotechnical Engineering and foundations, Faculty of Engineering, Cairo University for the patient guidance, encouragement and advice he has provided throughout my time of research. I have been extremely lucky to have a supervisor who cared so much about my work, and who responded to my questions and queries so promptly.

I would like to express my sincere gratitude to my advisor Prof. Dr. Rami M. El-Sherbiny Professor of Geotechnical Engineering and foundations, Faculty of Engineering, Cairo University, for the continuous support of my master study and research, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisor and mentor for my master study.

The author would like to thank his distinguished supervisors for giving him the chance to work with such eminent professors, rewarding him a priceless experience, both professionally and personally.

High appreciation is expressed to the author's employer "Dar Al-Handasah" for providing the numerous tools to make this work come to a fruitful end. Thanks a million goes specifically to Prof. Dr. Sherif Wissa, Director of Geotechnical and Heavy civil engineering department for the huge motivation that he provided to the author and for giving him the chance to work among a group of minded engineers recognized by their diversified technical backgrounds.

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