ASSESSMENT OF SOCIAL COST FACTORS FOR UNDERGROUND UTILITY PROJECTS IN THE COLOMBO MUNICIPAL AREA USING CONVENTIONAL TRENCHING AND TRENCHLESS TECHNOLOGY

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Master of Science in Construction Project Management

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Thesis submitted in partial fulfillment of the requirements for the Master of Science in Construction Project Management

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DECLARATION

I certify that this report does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any other university or institute of higher learning, and to the best of my knowledge and belief, it does not contain any material previously published, written, or orally communicated by another person or myself except where due reference is made in the text.

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188700 J

The above particulars are correct, to the best of my knowledge.

……. …….....

Signature of Supervisor Date

Dr. Lesly Ekanayake

DEDICATION

This report is dedicated to all my teachers, loving parents, husband, two sons, and family,

and particularly to

all the construction workers in the Sri Lankan CMC for their hard work to build their motherland, Sri Lanka.

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ABSTRACT

A reliable underground utility is necessary given the recent urbanization and development. To meet this demand, utility providers, including those for water supply, drainage, electricity, and telecom, upgrade their systems by laying new lines. The majority of these projects cannot be completed on time due to a variety of issues that affect all parties.

In this study, the nature and seriousness of the social cost factors and their impacts on the nearby community were analyzed. The research found that residents view traffic jams and delays as more obtrusive inconveniences than nonresidents do, while customer loss and financial loss are two of the biggest social costs that businesses face. The results also emphasize the gravity of those social cost factors and impacts, such as how accidents, air and noise pollution, a decline in business revenue, and annoyances impact the neighborhood and businesses.

The project owner and his experts should choose the best option based on this study to reduce social costs. This option should consider workspace roads, pipes, force mains, gravity utility pipes, trench or trenchless technology, or a combination of trench and trenchless technology that can be applied. Underground utility tunnels have developed into a sustainable, long-term problem-solving technique that is used all over the world. Using an open-cut methodology, a perspective-based approach is taken to address all current issues.

Keywords: trenchless technology, open cut, rehabilitation, cost comparison, social cost, emissions, underground utility.

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