

ICES 2024

TITLE OF PROJECT: Stabilization Of Steep Slopes in Hilly Regions by Soil Nailing – North Bengal

NAME OF ALL AUTHORS: Rajdeep Barai, Samadrita Naskar, Oindrila Das, Shital Kumari

NAME OF YOUR MENTOR: Dr. Dipaloke Majumder

NAME OF YOUR COLLEGE: Indian Institute of Engineering Science and Technology, Shibpur

ABSTRACT (150-300 words):

Soil nailing is one of the engineering techniques commonly employed to stabilize earth structures around the world. One of the most common areas of application of this technique is slope engineering. It is an in-situ ground reinforcement technique that involves the installation of closely spaced slender structural elements, commonly known as soil nails, either by driving, firing, or drill-and-grout method. The present study is focused on preparing a detailed report on the stabilization of the slopes along the roadway to reduce the possibility of landslide, through soil nailing. The approach to this objective involves the analytical and the numerical methods as processes of analysis. The basic engineering properties and the index properties of the soil as collected from previous published papers are to be analyzed under certain conditions in PLAXIS. The outcome of this study aims to determine the optimum parameters of nails concerning length, angle, and diameter depending on the soil properties and also a graph to visualize their relationships with each other. The final result to be obtained from the outcome of this analysis is the Factor of Safety. A design table may be developed at the end to summarize the entire work. Thus, it can serve as a safety measure for travelers against landslides and prevent reconstruction of roads.

KEYWORDS: Soil Nailing, Stability of Slopes, Shear Strength of Soil, Ground Improvement.

CATEGORY: Geotechnical Engineering