CASE STUDY

SOLMAX

CENTRAL LUZON LINK EXPRESSWAY, PHILIPPINES

Accelerated soft foundation consolidation

Industry: Transportation
Application: Roadways
Location: Philippines
Product: **Alidrain**®

Overview

The Central Luzon Link Expressway (CLLEx) is currently being constructed in the Central Luzon region of the Philippines. It will connect the Subic–Clark–Tarlac Expressway (SCTEx) and Tarlac-Pangasinan-La Union Expressway (TPLEx) to the North Luzon East Expressway, which is under construction in Cabanatuan, heading towards San Jose, Nueva Ecija.

The project aims to provide faster access from Metro Manila to Cabanatuan City, which serves as the hub city for Pacific Ocean Coastal Area Development. Additionally, it will alleviate traffic congestion on the Pan-Philippine Highway (Daang Maharlika).

The soil conditions in the area where the expressway will be built consist of soft clay foundations. The natural consolidation process for surcharge loading is excessively time-consuming, and there is a significant concern regarding foundation instability.

Challenge

Alidrain Prefabricated Vertical Drains (PVDs) have been selected to address the consolidation of soft soil in this expressway project. By using **Alidrain** PVDs, the settlement of soft clay foundation layers is accelerated, and the undrained shear strength of the soft clay foundation is increased. These improvements enhance the stability of the soft clay material.

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Solution

The initial phase of the project involved installing **Alidrain** PVDs. This process began by constructing a stable working platform on top of the soft clay foundation. Then, the **Alidrain** PVDs were installed by vertically vibrating a hollow steel mandrel containing the prefabricated vertical drains into the soft clay foundation. The spacing between the drains was 1 m^2 (10.76 ft^2). The installation depth ranged from 2 to 7.5 m^2 (6.56 to 24.61 ft^2), depending on the thickness of the soft clay foundation.

The use of **Alidrain** PVDs significantly reduced consolidation time and improved the stability of the soft clay foundation.