The project concern was that a soft rock cliff located on the coast of Northern Cyprus has started to erode at an accelerated rate, leading to extensive cracking and collapse. This is due to higher rainfalls and rise of the ground water table. A significant amount of research was carried out to determine the availability and applicability of various design solutions. The constraints and limitations of each proposal were studied, and possible solutions were shortlisted considering cost efficiency as well as environmental impact.

Site Investigation & Soil profile
- Geotechnical design depends on the soil profile
- Soil profile was soil parameters
- Soil parameters obtained from site investigation & laboratory test
- Site investigation performed, SPT
- Laboratory test performed, Atterberg limit test & undrained shear strength test

Ground Anchoring
- Tensile Structural Support
- Premixed Steel, Strand or Rod Type
- Guides loads towards Stable Ground using Free Length & fixation by Grouting

Design Solutions
- Slope stability
- MSE curtain without anchors
- MSE curtain with anchors
- Dimensions
- Analysis
- External and internal stability
- Anchor verification

Applications
- Retaining of Highway Walls
- Truckdown of Uplift Structures
- Retaining of Walls in Deep Excavations & Slope Stabilization

Safety Checks
- Rupture of Tendon Steel
- Pullout through Grout
- Pullout through Ground

Stabilization of Slopes
- Reduced required Depth and Cross section size of wall
- High Resistance against Overturning and Active Pressure
- Prevents Mobilization of Slide by Penetrating Slip Surface

Cost Calculations
- Total Project Cost: $82725.46
- Carbon Emissions:
  - Total CO2: 120558.79 kg
  - Total Embodied Energy: 5826875 MJ

Project Description

Site Location
- Located on the coast in Ozankoy near the city of Gine in The Turkish Republic of Northern Cyprus.
- The site coordinates are latitude 35°20'02" N and longitude 33°22'20" E.
- The site elevation is 35 feet, and it is only 35 meters away from the sea. The width of the cliff face is 55 meters.
- Existing Structures are a two-story house building, and a swimming pool. No megastuctures nearby.

Desk Study
- Gathering of key information related to the site vicinity as well as establishing an idea of the soil formation
- Consisting mainly of calcarenites. Sandstone layer and Claystone with a Marlstone layer
- Kyrenia Range, Middle Miocene formation consisting mainly of Terrace deposits and Fanglomerate formations
- At the footstep of the Kyrenian Mountain Range with peaks of 800 meters
- Ground Water table within 5-meter depth no streams or rivers nearby presence of surface vegetation.