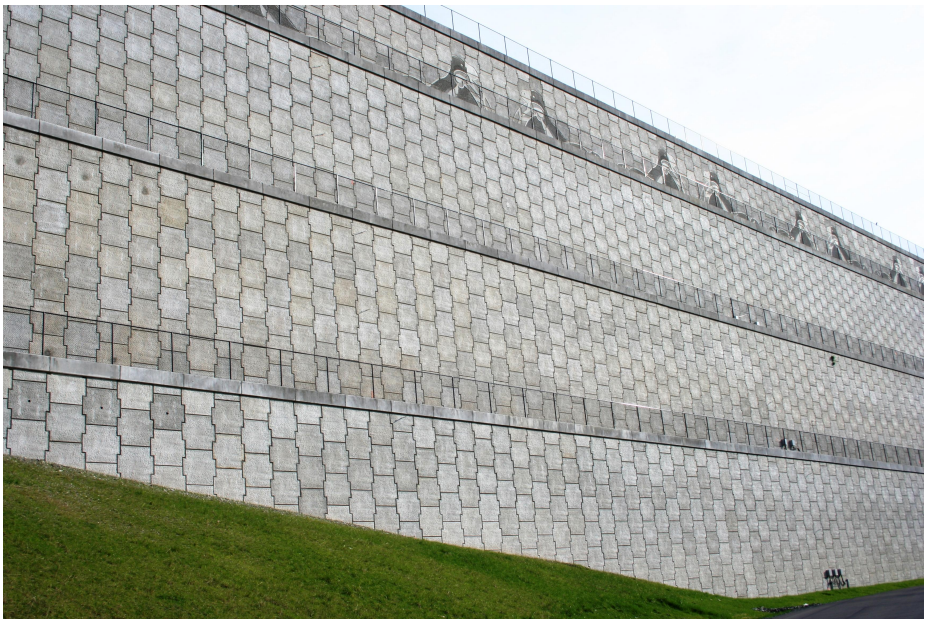
SEATAC AIRPORT

Airports

Retaining walls, Embankments

United States, Washington, Seattle



Owner / Client :
Seattle Tacoma (SeaTac) International Airport

Engineer :
HNTB

Main contractor :
N/A

Terre Armée entity :
The Reinforced Earth Company (United States)

Date :
2015

Activity :
Reinforced Earth

System :
TA "Classic"

Reinforcement :
HA / HAR steel strips

Key figures :
Area : 20000 m2
Rise: 45 m

The Project

Expansion of the SeaTac International Airport included construction of a third runway, which required a series of single face and multi-tiered Mechanically Stabilized Earth (MSE) wall structures. The tallest (West Wall) of these walls consisted of a four-tier structure with a total exposed height of approximately 43 meters (45 meters with wall base embedment). Space limitations for the wall limited setbacks to approximately 2 m between terrace levels. The ratio of the minor setbacks in the tiers compared to the overall wall height dictated that the lines of maximum tension within the RE volume be evaluated as a single structure. In other words, the limited setbacks pro

The Solution

The West Wall for the SeaTac Airport represents the tallest MSE structure built in the United States and one of the tallest walls in the world. With the use of increasing wall heights comes the need to incorporate both the standard codes used in typical MSE wall design along with numerical modeling tools for detailed evaluations. Instrumentation and monitoring during construction may be compared to the design evaluations for verification of stability.

The Advantages

An extensive instrumentation and monitoring system was provided during construction. Instrumentation included survey points on selected panel faces, strain gages attached along the length of selected reinforcing strips, piezometers and inclinometers. Monitoring of the instrumentation was conducted during wall construction to confirm tolerances established during design. In addition to the instrumentation, bearing pads at selected joints were also measured for compression. As a final measure, durability samples were installed in the select fill volume to monitor the integrity of the reinforcing strips over the 100 year design life of the structure.