

Vale Malaysia iron ore facility

Perak, Malaysia

Design and build contract on iron ore facility



The project

Vale, a world leader in iron ore mining and distribution, wanted to build a distribution facility in Lumut, Malaysia, with a capacity to handle 200 million tonnes of iron ore per annum. Keller was awarded a design and build contract for the foundation of the iron ore facility.

The challenge

The main challenge was to design a treatment solution to support the 19m high iron ore stockpile and a foundation system for the stacker/reclaimer. The contract milestones were critical. Given the loads, the soft soils were expected to exhibit significant settlement and deformation.

The solution

Keller provided a turnkey design, construction and monitoring solution, executing the works within the time schedule.

The stockpile and stacker/reclaimer berm were treated using stone columns at different spacing. The spacing was determined from the zoning of soil condition, whilst the berm were supported by bored piles. To assist Vale with the stacking and surcharging of the stockpile, a staged loading programme was adopted. The loadings and soil reactions were closely monitored with instrumentation monitoring. With high safety standards, we were recognised with three awards for best safety practice by the client.

Project facts

Owner(s)

Vale Malaysia Minerals Sdn Bhd

Keller business unit(s)

ASEAN

Main contractor(s)

Keller (M) Sdn Bhd

Solutions

Bearing capacity / settlement control

Markets

Industrial

Techniques

Vibro stone columns / Vibro replacement
Bored piles / drilled shafts