MACCAFERRI

CASE HISTORY

Ref: CH-RWSR-ID–Batu Hijau-Rev:00

MSE WALL - NEWMONT BATU HIJAU

NUSA TENGGARA BARAT, INDONESIA

RETAINING WALLS & SOIL REINFORCEMENT

Product: Terramesh

Problem

PT Newmont Nusa Tenggara is a mining company producing primarily copper. PT Newmont would like to built a concentrator to source the valuable ore from the excavated material. The concentrator, built at Sejorong, required a Mechanical Stabilized Earth (MSE) wall to be constructed as a center piece of the entire facility.

Limited and difficult site access, lack of level ground, hazard earthquake zone, lack of availability of local construction material, shortage of skilled labor, and 25 meter height of verticall wall to kept maximum usage of the area shall be taken into consideartion on the MSE design.

Solution

In early 1997 PT Maccaferri Indonesia proposed Terramesh system to built a 30 m height of vertical MSE wall. Macstar software (Maccaferri inhouse software that use limit equilibrium method) was extensively used during the design process.

PT Fluor Daniel Indonesia were responsible for acting as the Owner Engineer for PT Newmont Nusa Tenggara. PT maccaferri Indonesia worked closely with PT Golder Geotek Utama to evalaluated the design to fine tune the structure. The final designed optimised the reinforcement spacing and tail length based on the material ready at site for backfill in the reinforced zone. Consideration need to be given to an earthquake load acceleration in order of 0.32g.

The structure was completed in less than 12 months. Over 3400 m^2 of wall face was built with the capacity of installation average 50 m^2/day. The teramesh “tail” structure embedded almost 23 m into the soil embankment. Various maintenance tunnels placed in the middle of the wall which required more detailed design and installation.

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Before construction

During construction

After construction

Client:

PT Newmont Nusa Tenggara

Main contractor:

PT John Holland Construction & PT Thiess Contr.

Designer:

PT Fluor Daniel Indonesia/PT. Golder Utama

Products used:

TERRAMESH

Date of construction:

1997 - 1999

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Vertical Wall—Concentrator

Coarse One Conveyor

The coarse One Conveyor required to assist in movement of materials throughout the site at Batu Hijau, has being constructed from mid –1998 until early 1999 through some extremely hilly regions of Sumbawa.

Similar design problems needed to be overcome that had previously been addressed at Concentrator site. This site had an extreme slope both transverse and longitudinal to the direction of the connveyor, challenging construction point of view and access.

The wall tottaled approximately 600 linear meters in length, the average wall height was near 10 meter, varied to suit the grade of the land.

The wall exceeded 5,000 m2 of face area. Over 20,000 m2 of Non-woven Geotextile was also utilized within this structureto prevent fines from permeating into the reinforced zone and contaminating the quality fill.

During construction

After construction

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