

MACCAFERRI

case (law)

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Slope protection works

Fengshan County Liangli and Po
Xiongbao Mine Rehabilitation Project

Hechi, Guangxi, China

concern

Project Background: Guangxi Fengshan County Liangli and Po Xiongbao Mining Area. The project is located in the scope of the protection zone. Cutting and excavation of the mountains on the south side of the mine. In addition to the 44 acres of construction land left over from the past, the area of land damaged by the current situation is about 0.05km² (75 acres), and the area of land damaged by the current situation is about 0.05km² (75 acres), and the area of land damaged by the current situation is about 0.05km² (75 acres). The expansion of the site will change the infiltration conditions of surface water runoff, which is not conducive to the protection of stalactites in the caves below, and the vibration generated by human engineering activities will increase the risk of collapse geological disasters in the caves. In view of the fact that the site is directly located in the scope of the World Geopark Nature Reserve (Level 1 Core Protection Zone) and above the national geological relics protection site, it is necessary to carry out ecological restoration in the area according to the "Planning of Guangxi Fenshan Karst National Geopark (2020-2030)" and "Regulations on the Protection of Stalactites Resources of the Guangxi Zhuang Autonomous Region (Revised in 2020)", etc. The site is located in the natural reserve of the World Geopark (Level 1 Core Protection Zone).

Description of mining environmental problems: Zone I : high and steep rocky slopes formed by excavation, with slope heights exceeding 20m and slopes above 50°; Zone II : gentle slopes formed by excavation, with slope heights not exceeding 20m and slopes of 45° and below; or terrace-like slopes formed by excavation; Zone III: flat land and platforms after mining; and the surface of the slopes are covered by rocks and stones, and the surface of the slopes is extensively damaged by dumping of waste ore along the original slopes. The surface layer of the slope is covered by rocks and the native vegetation is extensively damaged.

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pre-construction



under construction



Construction completed

prescription

Program description: According to the local management concept, basically adopts the way of "changing steep slope to gentle slope, soil and water conservation on gentle slope, covering soil and planting greening and natural restoration" to deal with. 1, for the quarry steep face, mainly take measures to eliminate hidden geological hazards, rock wall natural restoration; 2, for mining open platform and mining area flat land, take soil backfill planting greening measures; 3, for mining slope slope gradient greater than 30 ° slope, take ecological grid retaining wall

+ spray coating substrate + hanging reinforced Mac mats re-greening measures to repair. Slope gradient greater than 30 ° damaged slope, soil and water loss, not conducive to the growth of vegetation, the bottom of the slope to take the ecological grid retaining wall, can support the blocking of stable overlying planting soil; hanging reinforced mike mats can maintain soil and water to reduce the rainfall scouring of slopes; spraying substrate can enhance the vitality of the soil to promote the rapid growth of vegetation to provide an environment for the growth of vegetation to provide the carrier for the restoration of the ecology.

According to different working conditions, choose different treatment measures:

. Open holes in the gap of the cliff wall to plant climbing vines and other vegetation; Zone II: slopes with gentle gradient, adopt the engineering management measures of mulching + spray-coated substrate/substrate + reinforced mike mats; at the same time, build short retaining walls at the foot of the slope to reduce the slope rate of the mulched slopes and to increase the stability of the mulch; Zone III: adopt the artificial mulching and planting shrubs to realize the regreening measures Advantageous description of the program: spray-coated substrates

/substrate + reinforced mike mat slope protection, the foot of the slope is supported by a short gabion retaining wall; safety and stability: the current situation of the slope is mostly a loose soil and stone or rubble accumulation of the slope, for the mining process of the random pile of abandoned waste rock slopes, once it rains, it is very prone to landslides. Eliminating the potential danger of ground disaster is an important goal.

(1) Reinforcement of the slope: After the slope is cleared and backfilled with soil, the slope will be lowered, and the use of reinforced microphone mats to cover the slope can largely resist the scouring of the slope by rainwater, greatly reducing the possibility of landslides and maintaining the safety and stability of the slope.



pre-construction



under construction



Construction completed

Owner: Fengshan County Government

Design Institute: Guangxi Zhuang Autonomous Region Geological Environment Monitoring Station

Construction unit: None

Products used (number)

- Reinforced MacMat	55000 square meters
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Construction date: 2021/09 - 2022/01