

Dr Tetiana KRIL

Institute of Geological Sciences of NAS of Ukraine, Kyiv

Engineering protection of the territory Kiev-Pechersk Reserve and it's buffer zone

Streszczenie

Kiev-Pechersk Lavra is one of the largest holies places in Ukraine, remarkable monument of history and architecture, acting monastery, Reserve and World Heritage object protected by UNESCO.

Lavra (24 ha) and its buffer zone (107.7 ha) are located on slopes of the Dnieper. Engineering-geological conditions of the Reserve and its buffer zone on the area of the slopes from Park "Askold's Grave" to Navodnitsky beams are regarded as difficult. There are developed three large gully slope systems – Zalavrskaya, Lavrskaya and Spasskaya.

In the natural state, before the slope had planned for the monastery complex (1050), here, according to the chronicle data was the high forest that provided the natural stability of the area. In XII-XIII centuries the cutting of forest and excavation work on the slopes caused activation of erosion and gravitational processes, gully erosion and landslide displacement and all this were in close paragenesis.

The engineering protection of the Dnieper slopes performs by periodic planning, landscaping, building of retaining walls, and drainage of different designs during the last centuries. Currently such drains and underground drainage systems have been built hundreds of kilometers.

The drainage systems as the shallow mine workings in loose sandy-clay soils, over time have caused significant reductions of the stability of soil masses, such as subsidence of the surface (in the Near caves in 2006), landslides and the leakage of soil particles (suffosion) from the drainage systems.

Calculations the stability of existing retaining structures and underground drainage systems have been made, also taking into account the dynamic loads generated by the movement of vehicles at the bottom of the slope.

The recommendations for the elimination of damaged sections on the landslide retaining walls and drainage systems and for the prevention of emergency are given.