In the article the authors present the data of laboratory researches of geosynthetic grid samples based on polyamide-6, taken from the embankment slopes constructions of different light after 9 years of operation. The samples of geosynthetic grid Enkamat-S20 were selected from the ground constructions of Svyataya Kanavka (Holy Groove) in the South of the Nizhny Novgorod region, the village of Diveevo, constructed in 2003 for the erosion preventive fixing of the slopes of the ditch and a shaft. The village of Diveevo is situated in a zone of clearly expressed continental climate, characterized by hot summers and cold winters. In the process of exploitation of ground structures in the period from 2003 to 2012, there was a decline in the protective properties of the lawn and turf, which was reflected in violation of the integrity of cover, including on the slopes of the ditch and of a shaft of a southern exposure, which are not sheltered from the direct streams of the sun. The similar situation was observed on deeply shaded slopes of a Northern exposure covered with trees and shrubs, as well as on the slopes of the bottom of the ditch, where the sun streams didn’t reach. From these mostly unprotected places in 2012 samples of geosynthetic grid Enkamat-S20 were selected in order to define the influence of the lighting conditions of slopes on the operational properties of Enkamat-S20 for 9 years of operation. According to the obtained data the residual tensile strength for each series of samples of geosynthetic grid Enkamat-S20 was identified. The influence of light intensity on the operational properties was evaluated by the highest residual tensile strength of the investigated samples compared to the passport strength value of geosynthetic grid Enkamat-S20. As a result of the research it was established, that the deeply shaded areas for 9 years of operation the reduction of tensile strength for samples of geosynthetic grid Enkamat-S20 amounted to 4.5 % and 6 % respectively. In the intensively lighted area the strength loss amounted to 39.5 % due to destruction of synthetic fiber. In the conditions of partial shadow the strength loss amounted to 25 %. As a result of the studies the authors offer the data on the lighting conditions impact on the operational properties of geosynthetic grid on the example of Enkamat-S20 upon condition disturbing the integrity of the lawn and turf, which are a natural protective shield.

**Key words:** geosynthetic grid, polyamide-6, lighting, destruction, thread, tensile strength.

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