

Geotechnical evaluation of effectiveness a place and a number of layers of geogrid soil reinforcement in mitigating crack phenomenon in irrigation service roads in Al-Ghab area *

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Abstract

Cracks of irrigation channel's service roads are becoming a significant feature in Al-Ghab region. All information indicates that lateral spreading of stresses in slope vicinity induced cracks in the side parts of roads. These cracks resulted from lateral displacements, which could dominate total displacements. This paper presents a geotechnical evaluation of the possibility to mitigate this phenomena by using geogrid soil reinforcement. Finite elements numerical model analysis is performed to calculate total, horizontal and vertical displacements at road side near channel's slope. Numerical models include different cases of un-reinforced soil and geogrid reinforced soils at different locations. Locations of geogrid were chosen carefully to attain the best effectiveness. Beneficial factor and coefficient of efficiency were determined for reinforced road.

Keywords: Geotechnical Engineering, slope stability, soil reinforcement, Geogrid, finite element

* For The paper in Arabic see pages (11-27)

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