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ESTABLISHMENT OF GEODETIC CONTROLS NETWORK FOR MONITORING OF JIMETA BRIDGE

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ABSTRACT

Bridges and flood control structures are subject to external forces that cause deformation of the structure itself, as well as its foundations. This is as a result of deflection in horizontal axis of the structure and/or settlement in vertical direction. Any indication of abnormal behavior, may threaten the safety of the structure. The need for establishing Geodetic Control Network for bridge deformation monitoring was addressed in this research. A Global Positioning System (GPS) receiver with the capabilities of accurate long-term monitoring was used. The designed scheme, therefore, involved the establishment of the geodetic control network within the study area and monuments on the bridge itself, as well as the sets of observations and adjustments using least squares as standard goal data for deformation monitoring. It also includes the observation procedure, analysis method, mathematical and statistical models for initial deformation monitoring on which subsequent deformation monitoring of the bridge will be based. The results of established monitoring network obtained determined the vector of structural deformation of Jimeta Bridge.

KEYWORDS: Control Network, Deformation, Global Positioning System