

## SUMMARY

The Master thesis includes: pages – 123, pictures – 52, tables – 30, annexes – 5, drawings - 6.

The existing methods of drainage systems, used at quarries, are analyzed, and the optimal option is chosen to meet local conditions.

The analysis of the possibility and feasibility of application of the frequency controlled asynchronous electrical drive, to improve energy efficiency, is provided.

The pump electrical drive is developed. The pump, electric motor and other equipment are selected. The functional diagram of the electromechanical system to stabilize a water level in reservoir is developed, which ensures operation of the electrical drive with a maximum efficiency coefficient.

The block diagrams of the linear and nonlinear electromechanical systems are provided. The dynamics of the electrical drive was studied, using the MATLAB modelling tools; the obtained transients are analyzed. The workability and effectiveness of the developed electrical drive were confirmed.

DRAINAGE, PUMP STATION, ELECTRIC DRIVE, INDUCTION MOTOR,  
FREQUENCY CONTROL, FUNCTIONAL DIAGRAM, BLOCK DIAGRAM,  
MODELLING, TRANSIENTS

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