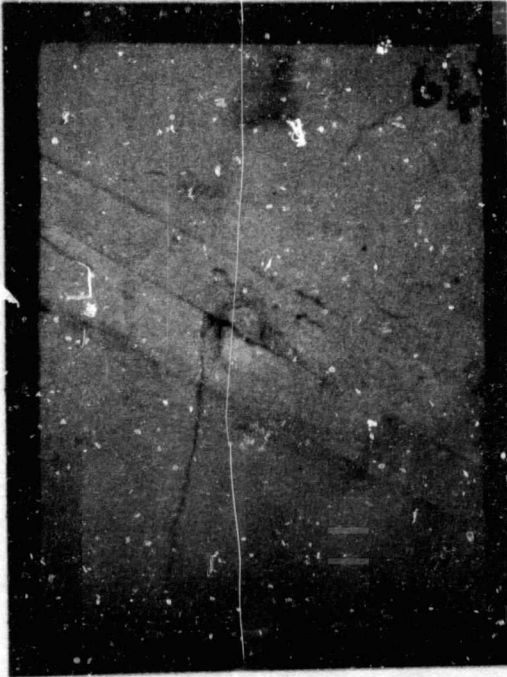


SAMPLE NO. 64

$$\alpha = 30^{\circ}$$

$$k = 0,8$$

$$W = 46,7 \text{ kN}$$

$$L_1 = 0 \text{ mm}$$

$$L_2 = 106 \text{ mm}$$

$$L_3 = 53 \text{ mm}$$

$$L_4 = 106 \text{ mm}$$

$$L_5 = 0 \text{ mm}$$

MODE OF FAILURE

A crack developed downwards from the bottom of the top joint and resulted in a tension failure. Shear occurred along both joint surfaces and through the intact material between the joints, leaving striations on the failure surface through the intact material.

SAMPLE NO. 65

$$\alpha = 49\frac{1}{2}^{\circ}$$

$$k = 0,8$$

$$W = 14,0 \text{ kN}$$

$$L_1 = 0 \text{ mm}$$

$$L_2 = 142 \text{ mm}$$

$$L_3 = 71 \text{ mm}$$

$$L_4 = 142 \text{ mm}$$

$$L_5 = 0 \text{ mm}$$

MODE OF FAILURE .

Shear occurred along both joints and through the intact material between the joints.

MODE OF FAILURE

A branch crack grew upwards from the lower joint and resulted in a tension fracture. Shear occurred along both joint surfaces through the intact material between the joints.

SAMPLE NO. 66

$$\alpha = 30^\circ$$

$$k = 0,8$$

$$W = 45,6 \text{ kN}$$

$$L_1 = 0 \text{ mm}$$

$$L_2 = 106 \text{ mm}$$

$$L_3 = 53 \text{ mm}$$

$$L_4 = 106 \text{ mm}$$

$$L_5 = 0 \text{ mm}$$

MODE OF FAILURE

A branch crack developed downwards from the bottom of the upper crack. Failure occurred by shearing along both joints and through the intact material between the joints.

SAMPLE NO. 67

$$\alpha = 40^\circ$$

$$k = 0,8$$

$$W = 19,2 \text{ kN}$$

$$L_1 = 0 \text{ mm}$$

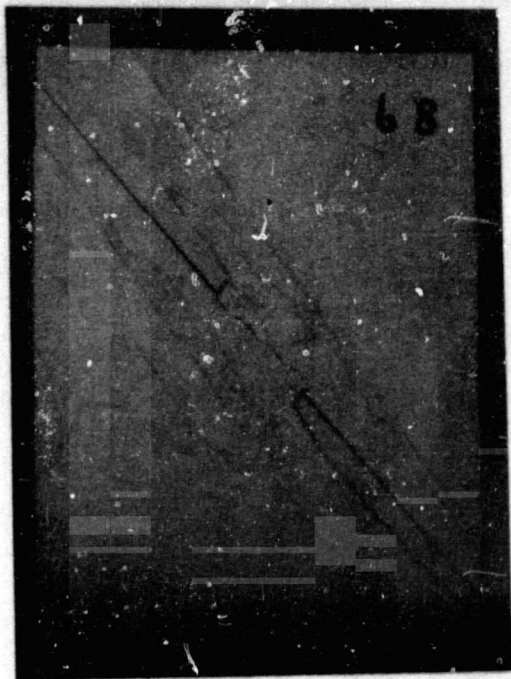
$$L_2 = 119 \text{ mm}$$

$$L_3 = 59 \text{ mm}$$

$$L_4 = 119 \text{ mm}$$

$$L_5 = 0 \text{ mm}$$



SAMPLE NO. 68

$$\alpha = 49\frac{1}{2}^{\circ}$$

$$k = 0,8$$

$$W = 18,2 \text{ kN}$$

$$L_1 = 0 \text{ mm}$$

$$L_2 = 142 \text{ mm}$$

$$L_3 = 71 \text{ mm}$$

$$L_4 = 142 \text{ mm}$$

$$L_5 = 0 \text{ mm}$$

MODE OF FAILURE

Shear movement occurred along both joints and also along the extension of the joints through the intact material.

SAMPLE NO. 69

$$\alpha = 40^\circ$$

$$k = 0,8$$

$$W = 19,5 \text{ kN}$$

$$L_1 = 0 \text{ mm}$$

$$L_2 = 119 \text{ mm}$$

$$L_3 = 59 \text{ mm}$$

$$L_4 = 119 \text{ mm}$$

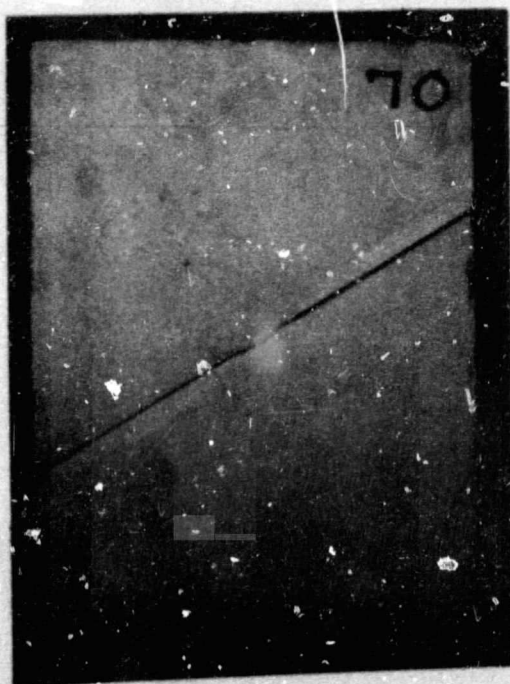
$$L_5 = 0 \text{ mm}$$

MODE OF FAILURE

At maximum load, a branch crack appeared and the load reduced. The jack was pumped, the load increased and further shear movement occurred along the joints and their extensions through the intact material.

MODE OF FAILURE

Shear movement took place along both joint surfaces and on a planar failure surface through the intact material.

SAMPLE NO. 70

$$\alpha = 30^\circ$$

$$k = 0,8$$

$$W = 41,6 \text{ kN}$$

$$L_1 = 0 \text{ mm}$$

$$L_2 = 106 \text{ mm}$$

$$L_3 = 53 \text{ mm}$$

$$L_4 = 106 \text{ mm}$$

$$L_5 = 0 \text{ mm}$$

MODE OF FAILURE

Shear occurred along both joint surfaces and through the intact material between the joints. Striations were left on the failure surface through the intact material.

SAMPLE NO. 71

$\alpha = 50^\circ$

$k = 0,8$

$W = \text{not recorded}$

$L_1 = 0 \text{ mm}$

$L_2 = 142 \text{ mm}$

$L_3 = 71 \text{ mm}$

$L_4 = 142 \text{ mm}$

$L_5 = 0 \text{ mm}$

Author Goodman Hubert John

Name of thesis The Nature Of Failure Through The Intact Materials In The Step Joint Mechanism For Rock Slopes. 1973

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