

GRAĐEVINSKI FAKULTET
PODGORICA

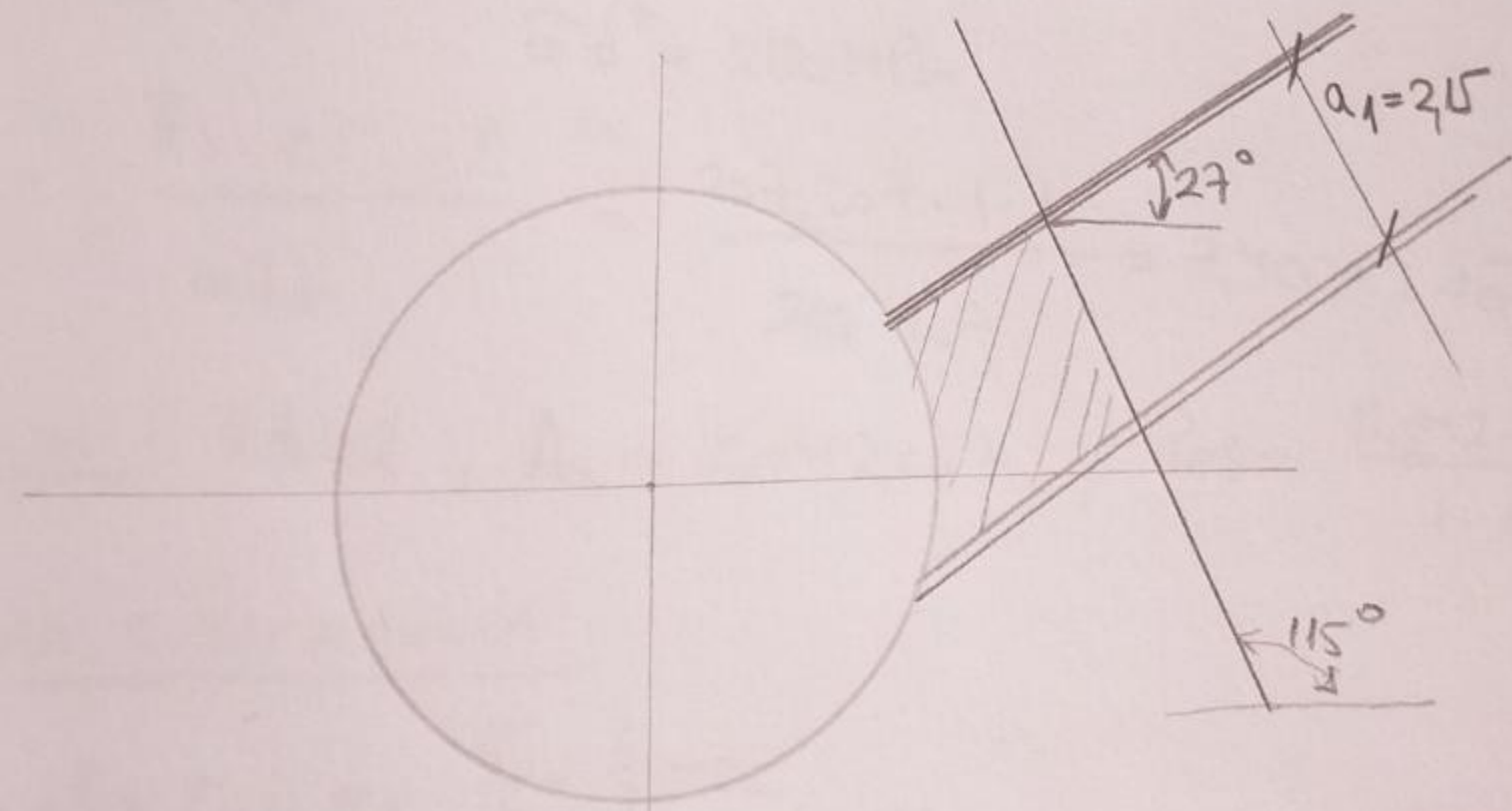
STUDIJSKI PROGRAM
GRAĐEVINARSTVO

Tuneli i podzemne
konstrukcije

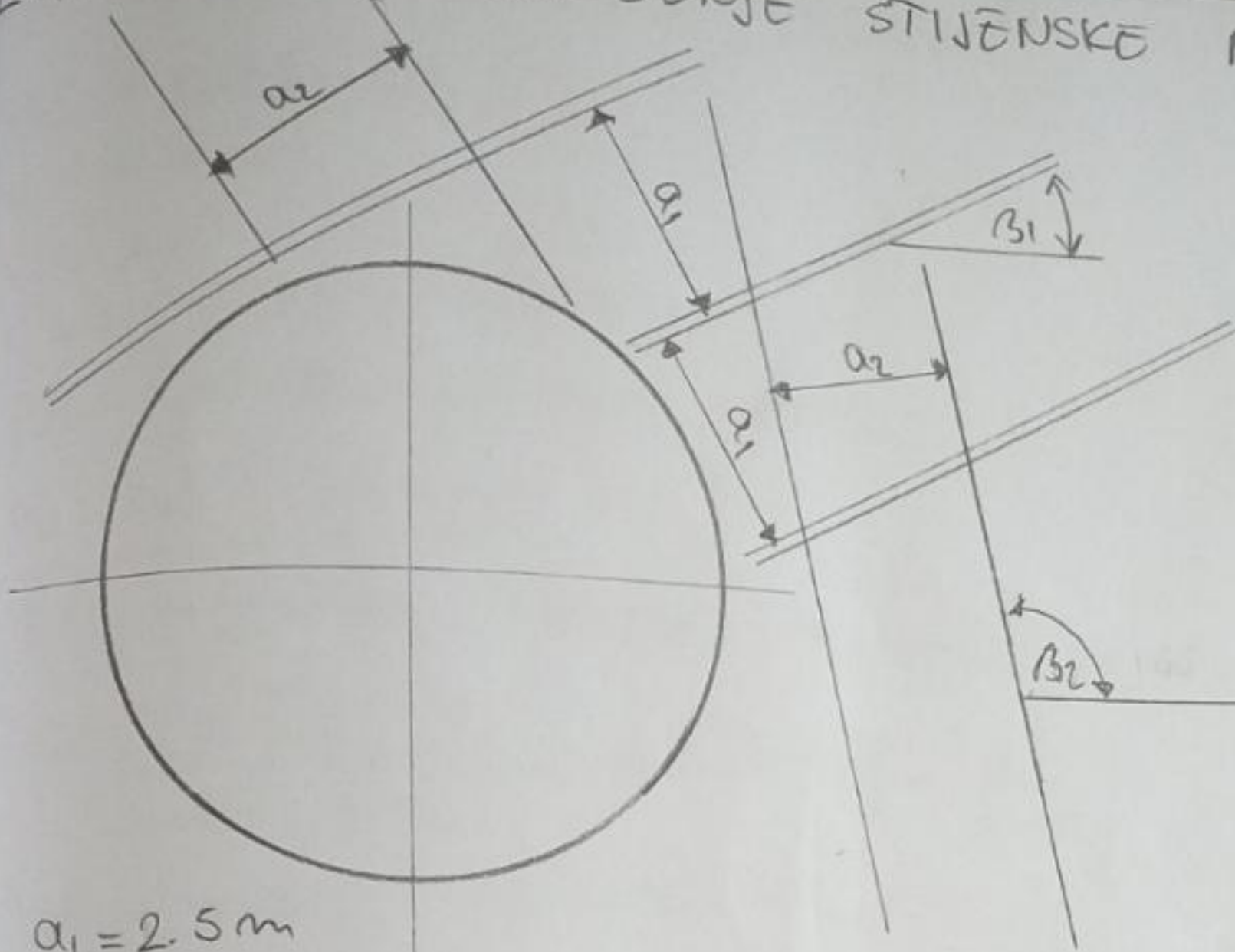
1.4 $W = a_1 \cdot a_2 \cdot \gamma_s = 2,15 \cdot 2,45 \cdot 33 = 173,827 \text{ kH/m}^3$

$F_s = \frac{W \cdot \cos \psi \cdot \frac{1}{2} \phi}{W \cdot \sin \psi} = 2,032 \cong 2 \rightarrow$ otok stabilan

- $a_1 = 2,15 \text{ m}$
- $a_2 = 2,45 \text{ m}$
- $\gamma_s = 33 \text{ kH/m}^3$
- $\phi = 46^\circ$
- $c = 0$
- $\beta_1 = \psi = 27^\circ$



LOKALNO OBEZBEĐENJE STIJEŃSKE MASE SIDRENJEM



$$a_1 = 2.5 \text{ m}$$

$$a_2 = 3.0 \text{ m}$$

$$\beta_1 = 36^\circ$$

$$\beta_2 = 140^\circ \Rightarrow \theta = \beta_2 - 90^\circ = 50^\circ$$

$$W = a_1 \cdot a_2 \cdot \gamma_s = 2.5 \cdot 3.0 \cdot 24 = 180 \text{ kN/m}$$

$$F_s = \frac{W \cdot \cos \beta_1 \cdot \tan \varphi}{W \sin \beta_1} = \frac{180 \cdot \cos 36^\circ \cdot \tan 45^\circ}{180 \cdot \sin 36^\circ} = 1.37 < 2.0 \Rightarrow \text{NE ZADOVOLJAVA}$$

PA JE POTREBNO
LOKALNO OBEZBEĐENJE
SIDRIMA

$$F_s = \frac{c \cdot A + (W \cos \beta_1 + z \cos \theta) \tan \varphi}{W \sin \beta_1 - z \sin \theta} \geq 2.0$$

$$(W \cos \beta_1 + z \cos \theta) \tan \varphi \geq 2 (W \sin \beta_1 - z \sin \theta)$$

$$z \geq \frac{W (2 \sin \beta_1 - \cos \beta_1 \tan \varphi)}{\cos \theta \tan \varphi + 2 \sin \theta}$$

$$z \geq \frac{180 (2 \cdot \sin 36^\circ - \cos 36^\circ \cdot \tan 45^\circ)}{\cos 50^\circ \tan 45^\circ + 2 \sin 50^\circ}$$

$$z \geq 30.34 \text{ kN/m}^2$$