

Project

Job name : Zemeljski plaz nad hišo Fošt 19 ob Muri 76
Part : Pilotna stena
Description : AB zid nad vezno gredo
Client : Občina Oplotnica
Author : GEOING d.o.o.
Date : 11/03/2026

Standard

Standard **EN 1992-1-1/Default EC**.

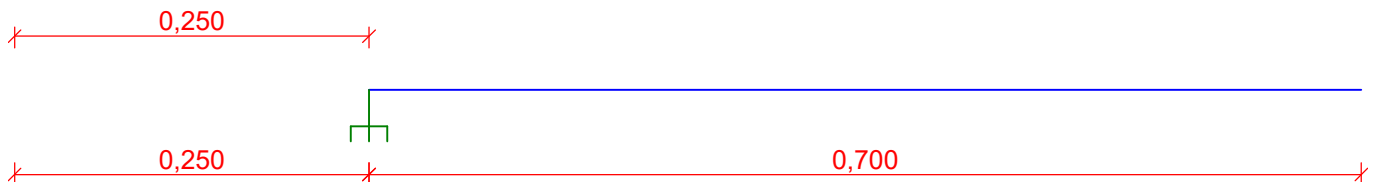
1 Konzola

1.1 Input data

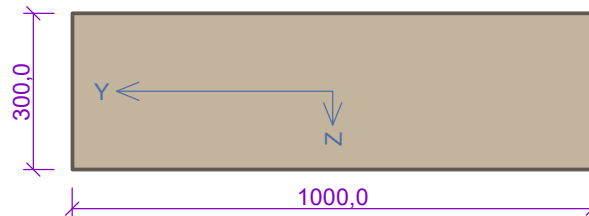
Geometry

Length = 0,70m

x [m]	Point kind	Width [m]	A/L [m]	I/L [m³]	Offset [m]
0,000	fixed support	0,250	-	-	0,250
0,700	free	-	-	-	-



Cross-section



Materials

Concrete: C 30/37

$f_{ck} = 30,0$ MPa; $f_{ctm} = 2,9$ MPa; $E_{cm} = 33000$ MPa

Longitudinal steel: B500B

$f_{yk} = 500,0$ MPa; $E_s = 200000$ MPa

Transverse steel: B500B

$f_{yk} = 500,0$ MPa; $E_s = 200000$ MPa

Load cases

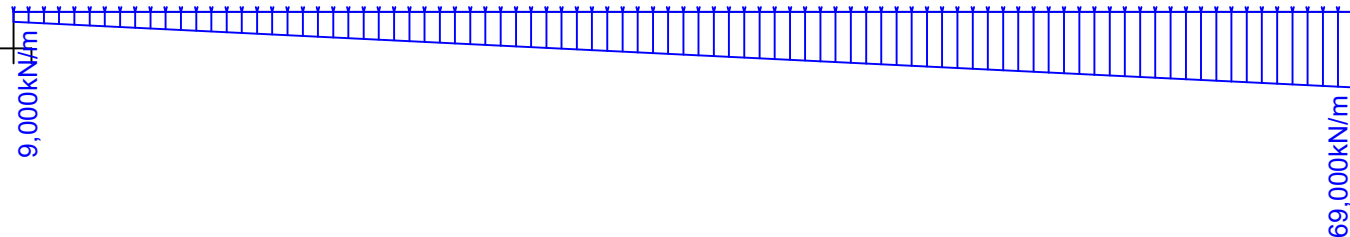
no.	Name	Code	Type	As* main	Y _f (Y _{f,inf})**	Factors for combinations				
						ξ	Categ.***	ψ ₀	ψ ₁	ψ ₂
1	G1 force -pobočje nad zidom	Force	Permanent	-	1,35(0,90)	0,85	-	-	-	-

* load acts in combinations as main variable

** Y_{f,inf} for favourable dead loads

*** Category of live loads according to table A1.1 in EN 1990

G1 force -pobočje nad zidom - load				
Type	Coor.x [m]	Length [m]	Size1	Size2
trapezoid	0,000	0,700	-9,000kN/m	-69,000kN/m



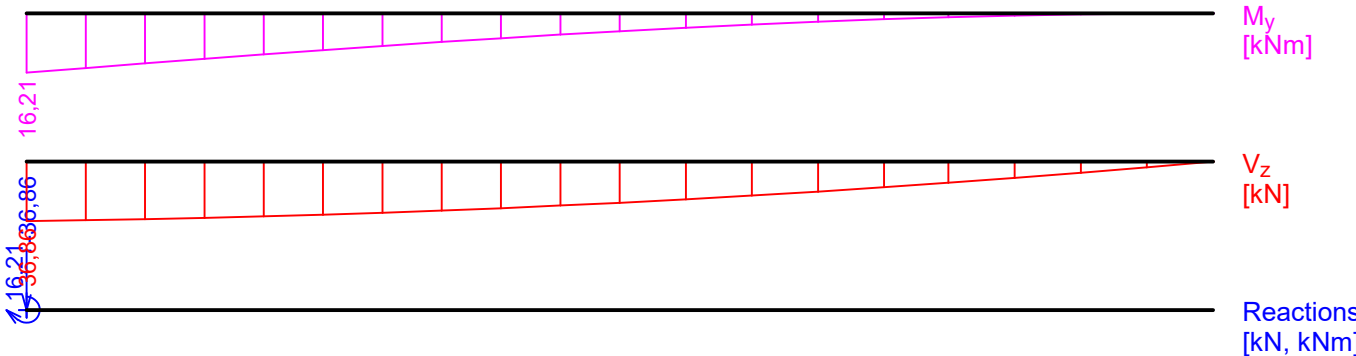
Combinations

Combination for check of ultimate limit state (ULS), 1st order

Number	Comb. name and type
	Composition
1	G1; basic combination
	$\gamma_{f,sup,1}(1,35)*G1$

Internal forces

G1 - basic design (ULS)

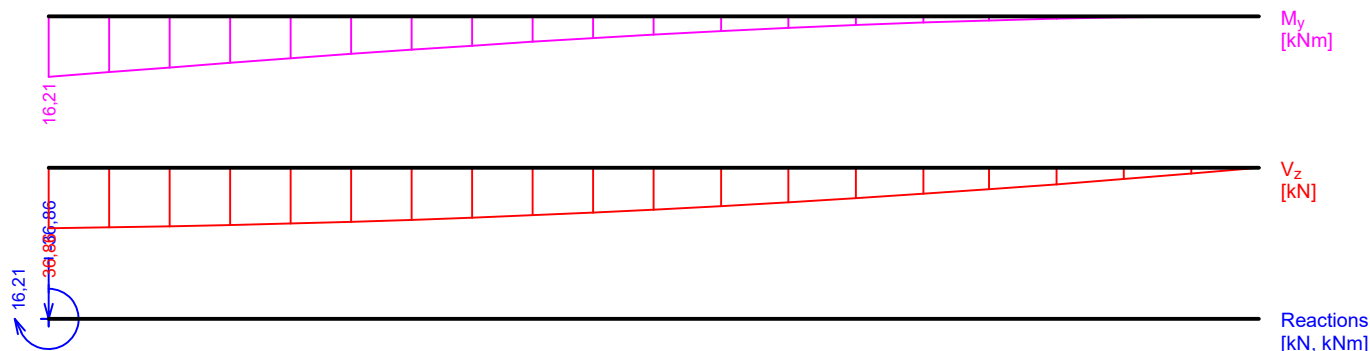


Envelopes

Envelope basic design (ULS)								
x [m]	Max M _{Edy} [kNm]	Min M _{Edy} [kNm]	Max V _{Edz} [kN]	Min V _{Edz} [kN]	Max R _z [kN]	Min R _z [kN]	Max RO _x [kNm]	Min RO _x [kNm]
0,000	16,21	16,21	36,86	36,86	-36,86	-36,86	-16,21	-16,21
0,035	14,93	14,93	36,35	36,35	-	-	-	-
0,070	13,66	13,66	35,72	35,72	-	-	-	-
0,105	12,43	12,43	34,93	34,93	-	-	-	-
0,140	11,22	11,22	34,02	34,02	-	-	-	-
0,175	10,05	10,05	32,95	32,95	-	-	-	-
0,210	8,91	8,91	31,75	31,75	-	-	-	-
0,245	7,83	7,83	30,40	30,40	-	-	-	-
0,280	6,79	6,79	28,92	28,92	-	-	-	-
0,315	5,81	5,81	27,28	27,28	-	-	-	-
0,350	4,88	4,88	25,52	25,52	-	-	-	-
0,389	3,93	3,93	23,37	23,37	-	-	-	-
0,428	3,06	3,06	21,05	21,05	-	-	-	-
0,467	2,28	2,28	18,56	18,56	-	-	-	-
0,506	1,62	1,62	15,89	15,89	-	-	-	-
0,544	1,06	1,06	13,12	13,12	-	-	-	-
0,583	0,61	0,61	10,11	10,11	-	-	-	-

Envelope basic design (ULS)

x [m]	Max M _{Edy} [kNm]	Min M _{Edy} [kNm]	Max V _{Edz} [kN]	Min V _{Edz} [kN]	Max R _z [kN]	Min R _z [kN]	Max RO _x [kNm]	Min RO _x [kNm]
0,622	0,28	0,28	6,91	6,91	-	-	-	-
0,661	0,08	0,08	3,54	3,54	-	-	-	-
0,700	0,00	0,00	0,00	0,00	-	-	-	-



Reactions extremes

Reactions extremes basic design (ULS)

x [m]	Reaction
0,000	Max R _z = -36,86kN - G1
0,000	Min R _z = -36,86kN - G1
0,000	Max RO _x = -16,21kNm - G1
0,000	Min RO _x = -16,21kNm - G1

Longitudinal reinf.

Bar type	Beginning [m]	End [m]	Cover [mm]	Profile [mm]	Count
Upper	0,000	0,700	50,0	16	4
Bottom	0,000	0,700	50,0	16	3

Reinforcement in compression not considered.

Shear reinf.

Sector no.: 1, (0,00m - 0,70m)

Boundary stirrups

Profile: 10 mm; Distance: 200,0 mm

Ties

Profile: 10 mm; Distance: 200,0 mm; Legs: 5

Minimum cover

Structural class: S4

$c_{min} = \max(c_{min,b}; c_{min,dur}; 10) = \max(10; 10; 10) = 10 \text{ mm}$

$c_{nom} = c_{min} + \Delta c_{dev} + \varnothing_s = 10 + 10 + 10 = 30 \text{ mm}$

1.2 Check of ultimate limit state

Ultimate limit state is checked for envelope of extreme loads

Bent-up bar

Reinforcement in compression not considered; moment reduction - no; shear effect considered

Check of bar spacings

Bar spacing pass.

Check of min and max reinforcement level

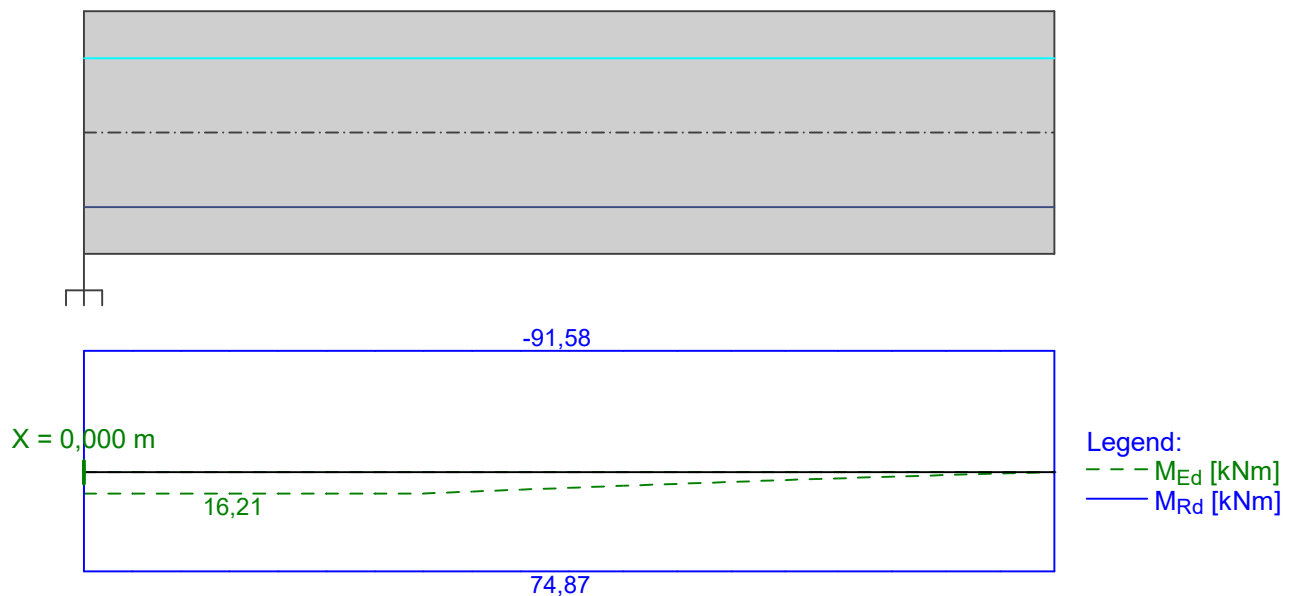
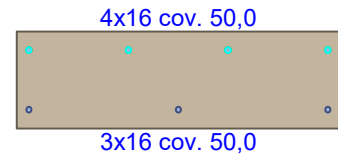
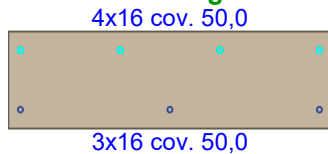
Slab (reinforcement in tension - min, total reinforcement - max):

$$\rho_{s,t} = 0,00249 \geq \rho_{s,min} = 0,00151 \Rightarrow \text{Pass}$$

$$\rho_s = 0,00469 \leq \rho_{s,max} = 0,04 \Rightarrow \text{Pass}$$

Critical cut at point $x = 0,000\text{m}$

$$M_{Ed} = 16,21\text{kNm} \leq M_{Rd} = 74,87\text{kNm} \Rightarrow \text{Pass}$$

Member bending PASS**Shear**

Member type: slab

Critical cut at point $x = 0,000\text{m}$ **Shear reinforcement ratio**

$$\rho_{w,min} = 0,000876 \leq \rho_w = 0,00275 \Rightarrow \text{Pass}$$

$$\text{Max stirrup spacing } s_{l,max} = 181,5 \text{ mm} < 200,0 \text{ mm} \Rightarrow \text{Distance exceeded!}$$

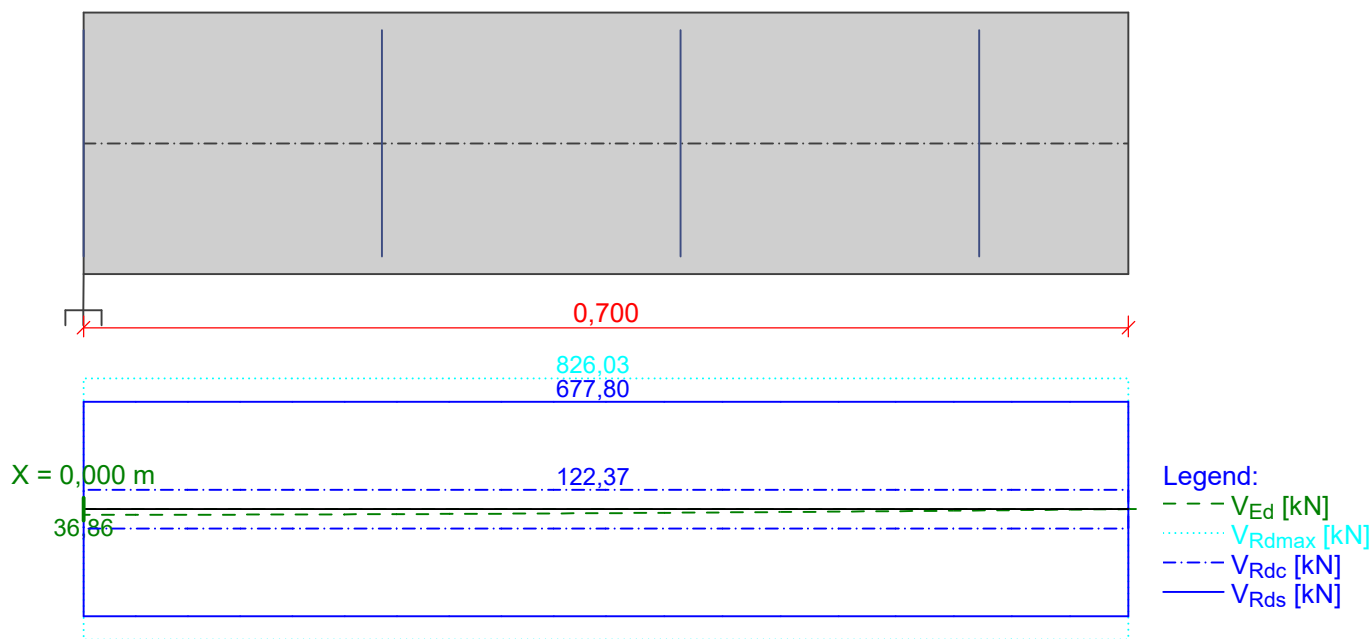
$$\text{Max stirrup legs spacing } s_{t,max} = 363,0 \text{ mm} \geq 158,3 \text{ mm} \Rightarrow \text{Pass}$$

$$V_{Ed} = 36,86\text{kN} \leq V_{Rd} = 677,80\text{kN} \Rightarrow \text{Pass}$$

Member shear PASS



Boundary stirrups: 2x10mm
pc: 3; 0,200m
Ties: 5x10mm
pc: 3; 0,200m



Anchorage

End adjustment of bars - Straight bar

Type	profile [mm]	Beginning		End		Eff. length [m]	Total length [m]
		σ_{sd} [MPa]	l_{bd} [m]	σ_{sd} [MPa]	l_{bd} [m]		
Upper	16	434,78	0,406	434,78	0,406	0,700	1,512
Bottom	16	190,75	0,178	434,78	0,406	0,700	1,284

Ultimate limit state **PASS**

1.3 Check of serviceability limit state

No service loads are set.