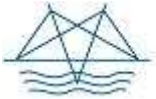


 PROVOG inženirske storitve	Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust	Stran: 1/35
	Investitor: Občina Dobrna	Datum: apr 2026
	STATIČNI IZRAČUN:	

Vsebina

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 PROVOG inženirske storitve	Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust	Stran: 2/35
	Investitor: Občina Dobrna	Datum: apr 2026
	STATIČNI IZRAČUN:	

Osnovni podatki o modelu, Vhodni podatki - Konstrukcija

Projektant: Provog d.o.o.

Datoteka: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje_prepust.twp
Datum preračuna: 10.04.2026

Način preračuna: 3D model

- ☒ Teorija I-ga reda
☒ Modalna analiza
☐ Stabilnost
- ☐ Teorija II-ga reda
☒ Seizmični preračun
☐ Faze gradnje
- ☐ Nelinearen preračun

Velikost modela

Število vozlišč: 624

Število ploskovnih elementov: 575

Število grednih elementov 46

Število robnih elementov 276

Število osnovnih obtežnih primerov: 12

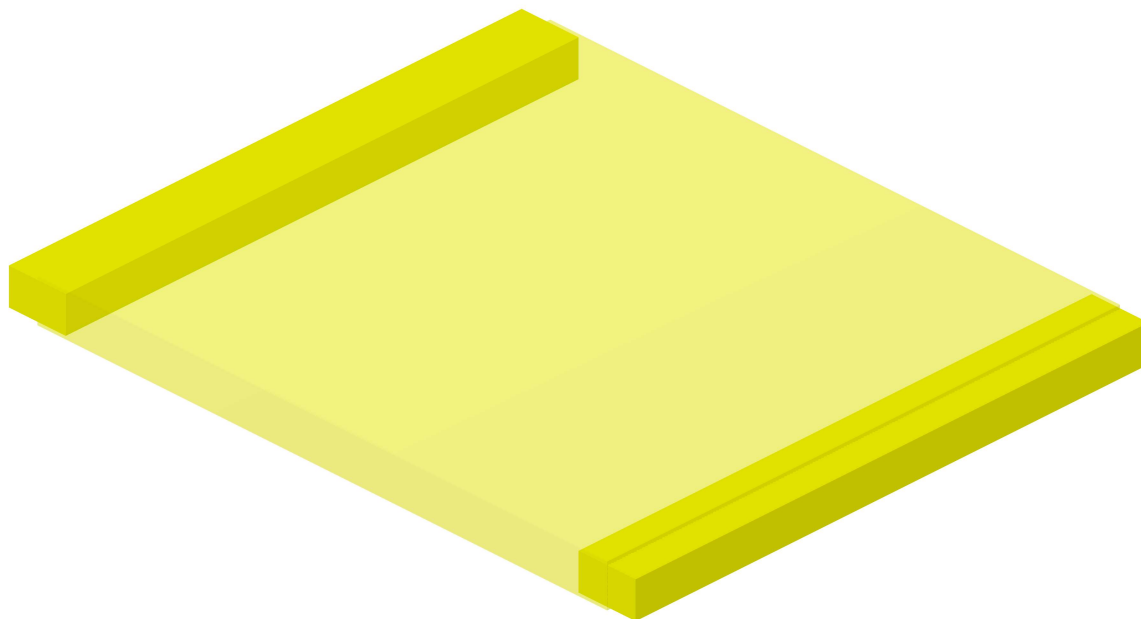
Število kombinacij obtežb: 65

Enote mer

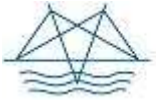
Dolžina: m [cm,mm]

Sila: kN

Temperatura: Celsius



Izometrija

 PROVOG inženirske storitve	Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust	Stran: 3/35
	Investitor: Občina Dobrna	Datum: apr 2026
	STATIČNI IZRAČUN:	

Koordinate vozlišč			
No	X [m]	Y [m]	Z [m]
1	-0.0000	0.0000	0.0000
277	0.0000	4.5000	0.0000

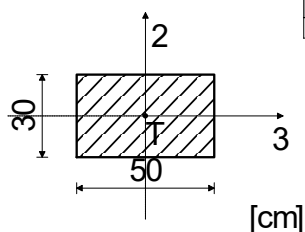
No	X [m]	Y [m]	Z [m]
348	5.0000	-0.0000	0.0000
624	5.0000	4.5000	0.0000

Tabele materialov							
No	Naziv materiala	E[kN/m ²]	μ	γ[kN/m ³]	αt[1/C]	Em[kN/m ²]	μm
1	C 30/37	3.300e+7	0.20	25.00	1.000e-5	3.300e+7	0.20

Seti plošč							
No	d[m]	e[m]	Material	Tip preračuna	Ortotropija	E2[kN/m ²]	G[kN/m ²]
<1>	0.350	0.175	1	Tanka plošča	Izotropna		

Seti gred							
-----------	--	--	--	--	--	--	--

Set: 1 Prerez: b/d=50/30, Fiktivna ekscentričnost							
Mat.	A1	A2	A3	I1	I2	I3	
1 - C 30/37	1.500e-1	1.250e-1	1.250e-1	2.817e-3	3.125e-3	1.125e-3	



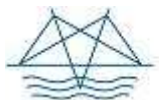
Seti linijskih podpor					
Set	K,R1	K,R2	K,R3	K,M1	Tla [m]
1	1.000e+10	1.000e+10	1.000e+10		

Konture plošč			
No	Konturna vozlišča	Sklop	Set
1	277-624-348-1-277	Nivo: Plosca [0.00 m]	1

Konture gred Set 1. b/d=50/30																	
No	Vozlišče I	Vozlišče J	Sprostitev vplivov												N	Ozn. pozicije	
			Vozlišče I						Vozlišče J								
			M1	M2	M3	P1	P2	P3	M1	M2	M3	P1	P2	P3			
1	1	277															
2	348	624															

Konture linijskih podpor		
No	Konturna vozlišča	Set
1	1-277	1

No	Konturna vozlišča	Set
2	348-624	1



PROVOG
inženirske storitve

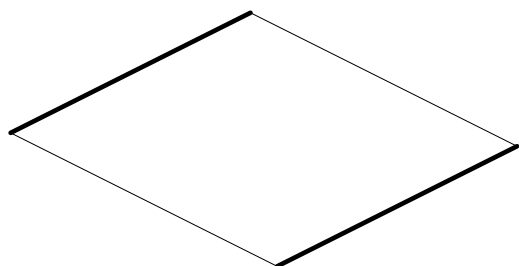
Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust

Stran: 4/35

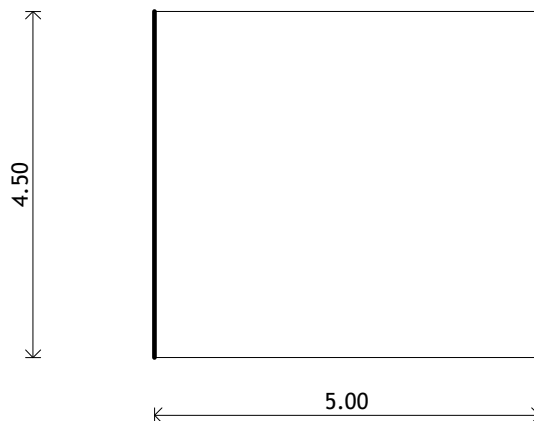
Investitor: Občina Dobrna

Datum: apr 2026

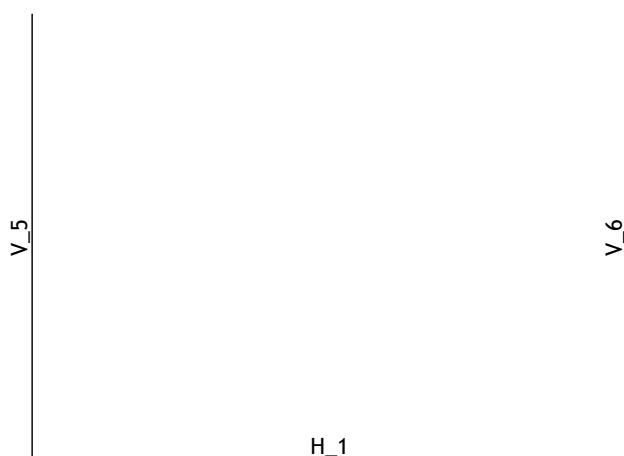
STATIČNI IZRAČUN:



Izometrija



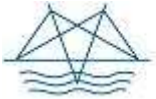
Nivo: Plosca [0.00 m]



Dispozicija okvirjev



Okvir: H_1

 PROVOG inženirske storitve	Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust	Stran: 5/35
	Investitor: Občina Dobrna	Datum: apr 2026
	STATIČNI IZRAČUN:	

Okvir: V_5	Okvir: V_6



STATIČNI IZRAČUN:

Vhodni podatki - Obtežba

Lista obtežnih primerov

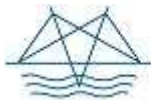
LC	Naziv
1	LT+ST (g)
2	Prometna obtežba 1 - LM1 TS-480 (g)
3	Prometna obtežba 1 - LM1 UDL
4	Prometna obtežba 2 - LM1 TS-480 (g)
5	Prometna obtežba 2 - LM1 UDL
6	Prometna obtežba - Pospeševanje
7	Prometna obtežba - Zaviranje
8	Temperatura - dTm max
9	Temperatura - dTn max
10	Krčenje
11	potres smer x
12	potres smer y
13	Komb.: 1.35xI+1.35xII+1.35xIII+0.6xVIII
14	Komb.: 1.35xI+1.35xII+1.35xIII+0.6xIX
15	Komb.: 1.35xI+1.35xII+1.35xIII+0.6xX
16	Komb.: 1.35xI+1.35xIV+1.35xV+0.6xVIII
17	Komb.: 1.35xI+1.35xIV+1.35xV+0.6xIX
18	Komb.: 1.35xI+1.35xIV+1.35xV+0.6xX
19	Komb.: 1.35xI+1.01xII+0.54xIII+1.35xVI+0.6xVIII
20	Komb.: 1.35xI+1.01xII+0.54xIII+1.35xVI+0.6xIX
21	Komb.: 1.35xI+1.01xII+0.54xIII+1.35xVI+0.6xX
22	Komb.: 1.35xI+1.01xII+0.54xIII+1.35xVII+0.6xVIII
23	Komb.: 1.35xI+1.01xII+0.54xIII+1.35xVII+0.6xIX
24	Komb.: 1.35xI+1.01xII+0.54xIII+1.35xVII+0.6xX
25	Komb.: 1.35xI+1.01xIV+0.54xV+1.35xVI+0.6xVIII
26	Komb.: 1.35xI+1.01xIV+0.54xV+1.35xVI+0.6xIX
27	Komb.: 1.35xI+1.01xIV+0.54xV+1.35xVI+0.6xX
28	Komb.: 1.35xI+1.01xIV+0.54xV+1.35xVII+0.6xVIII
29	Komb.: 1.35xI+1.01xIV+0.54xV+1.35xVII+0.6xIX
30	Komb.: 1.35xI+1.01xIV+0.54xV+1.35xVII+0.6xX
31	Komb.: 1.35xI+1.01xII+0.54xIII+1.5xVIII
32	Komb.: 1.35xI+1.01xII+0.54xIII+1.5xIX
33	Komb.: 1.35xI+1.01xII+0.54xIII+1.5xX
34	Komb.: 1.35xI+1.01xIV+0.54xV+1.5xVIII
35	Komb.: 1.35xI+1.01xIV+0.54xV+1.5xIX
36	Komb.: 1.35xI+1.01xIV+0.54xV+1.5xX
37	Komb.: I+0.5xVIII+XI
38	Komb.: I+0.5xIX+XI
39	Komb.: I+0.5xVIII+XII

Seznam obtežnih primerov ovojnic

LC	Naziv
78	[MSN] 1-40
79	[MSU (Karak)] 41-64

LC	Naziv
40	Komb.: I+0.5xIX+XII
41	Komb.: I+II+III+0.6xVIII
42	Komb.: I+II+III+0.6xIX
43	Komb.: I+II+III+0.6xX
44	Komb.: I+IV+V+0.6xVIII
45	Komb.: I+IV+V+0.6xIX
46	Komb.: I+IV+V+0.6xX
47	Komb.: I+0.75xII+0.54xIII+VI+0.6xVIII
48	Komb.: I+0.75xII+0.54xIII+VI+0.6xIX
49	Komb.: I+0.75xII+0.54xIII+VI+0.6xX
50	Komb.: I+0.75xII+0.54xIII+VII+0.6xVIII
51	Komb.: I+0.75xII+0.54xIII+VII+0.6xIX
52	Komb.: I+0.75xII+0.54xIII+VII+0.6xX
53	Komb.: I+0.75xIV+0.54xV+VI+0.6xVIII
54	Komb.: I+0.75xIV+0.54xV+VI+0.6xIX
55	Komb.: I+0.75xIV+0.54xV+VI+0.6xX
56	Komb.: I+0.75xIV+0.54xV+VII+0.6xVIII
57	Komb.: I+0.75xIV+0.54xV+VII+0.6xIX
58	Komb.: I+0.75xIV+0.54xV+VII+0.6xX
59	Komb.: I+0.75xII+0.54xIII+VIII
60	Komb.: I+0.75xII+0.54xIII+IX
61	Komb.: I+0.75xII+0.54xIII+X
62	Komb.: I+0.75xIV+0.54xV+VIII
63	Komb.: I+0.75xIV+0.54xV+IX
64	Komb.: I+0.75xIV+0.54xV+X
65	Komb.: I+0.75xII+0.54xIII+0.5xVIII
66	Komb.: I+0.75xII+0.54xIII+0.5xIX
67	Komb.: I+0.75xII+0.54xIII+0.5xX
68	Komb.: I+0.75xIV+0.54xV+0.5xVIII
69	Komb.: I+0.75xIV+0.54xV+0.5xIX
70	Komb.: I+0.75xIV+0.54xV+0.5xX
71	Komb.: I+0.6xVIII
72	Komb.: I+0.6xIX
73	Komb.: I+0.6xX
74	Komb.: I
75	Komb.: I+0.5xVIII
76	Komb.: I+0.5xIX
77	Komb.: I+0.5xX

LC	Naziv
80	[MSU (Pogosta)] 65-73
81	[MSU (Kvazi)] 74-77



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust

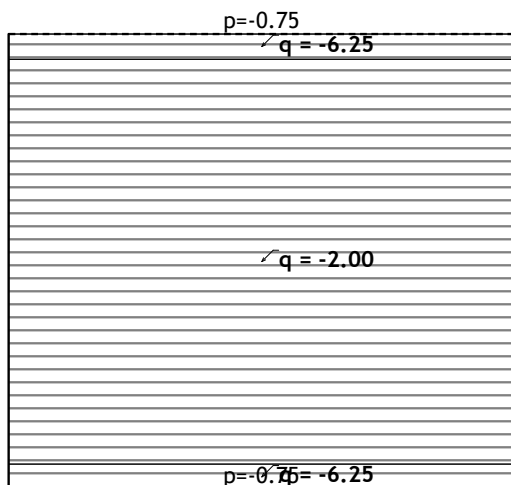
Stran: 7/35

Investitor: Občina Dobrna

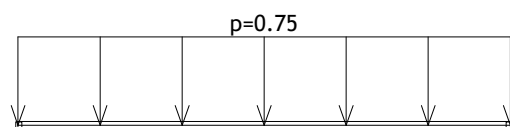
Datum: apr 2026

STATIČNI IZRAČUN:

Obt. 1: LT+ST (g)

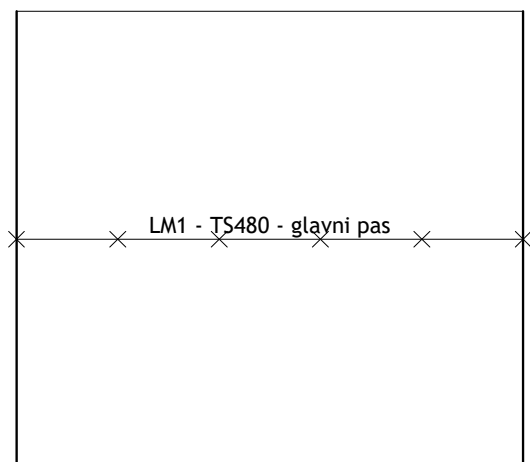


Obt. 1: LT+ST (g)



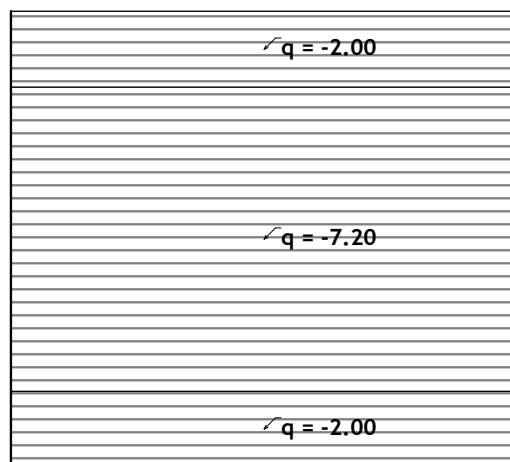
Nivo: Plosca [0.00 m]

Obt. 2: Prometna obtežba 1- LM1 TS-480 (g)



Okvir: H 1

Obt. 3: Prometna obtežba 1 - LM1 UDL



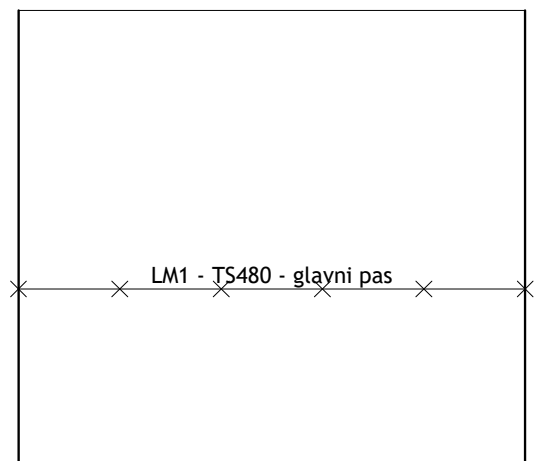
Nivo: Plosca [0.00 m]

Nivo: Plosca [0.00 m]



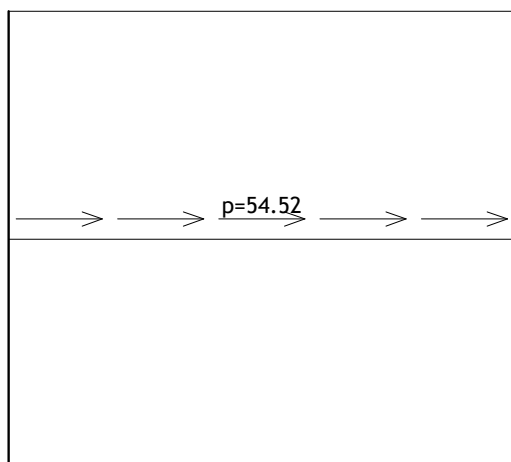
STATIČNI IZRAČUN:

Obt. 4: Prometna obtežba 2 - LM1 TS-480 (g)



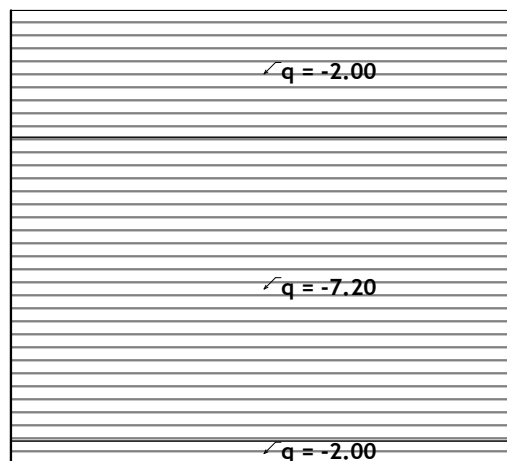
Nivo: Plosca [0.00 m]

Obt. 6: Prometna obtežba - Pospeševanje



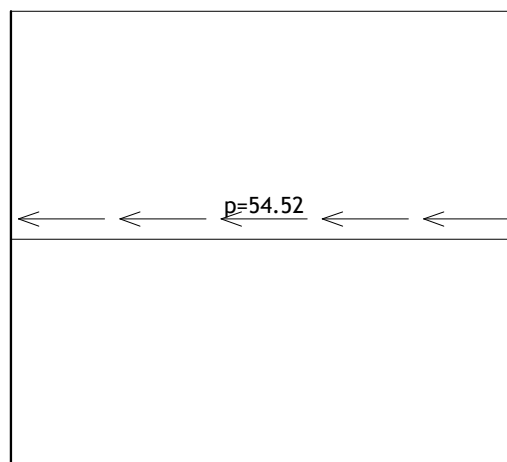
Nivo: Plosca [0.00 m]

Obt. 5: Prometna obtežba 2 - LM1 UDL



Nivo: Plosca [0.00 m]

Obt. 7: Prometna obtežba - Zaviranje



Nivo: Plosca [0.00 m]



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust

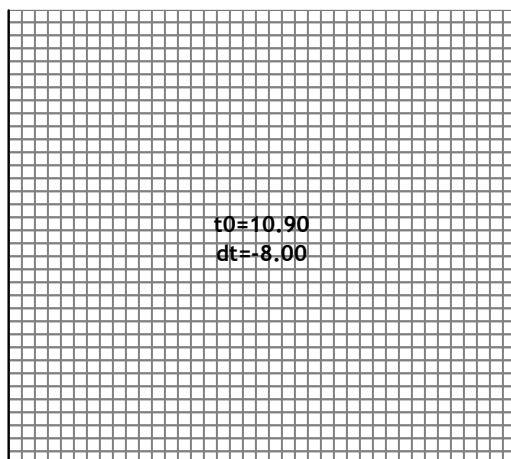
Stran: 9/35

Investitor: Občina Dobrna

Datum: apr 2026

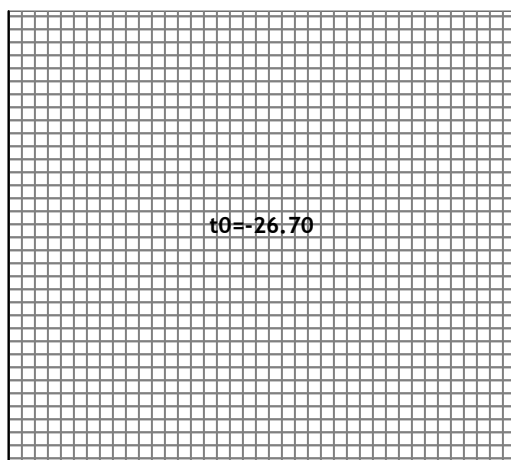
STATIČNI IZRAČUN:

Obt. 8: Temperatura - dTm_max



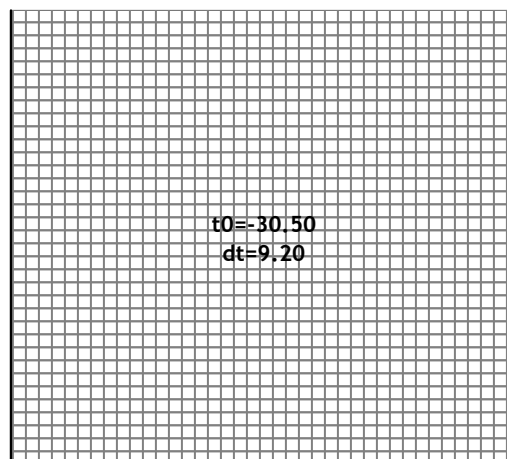
Nivo: Plosca [0.00 m]

Obt. 10: Krčenje



Nivo: Plosca [0.00 m]

Obt. 9: Temperatura - dTn_max



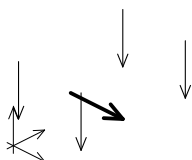
Nivo: Plosca [0.00 m]

	Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust	Stran: 10/35
	Investitor: Občina Dobrna	Datum: apr 2026
	STATIČNI IZRAČUN:	

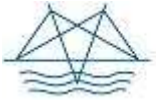
Premična obtežba (LM1 - TS480 - glavni pas)

Obtežba 2: LM1 - TS480 - glavni pas

$\Delta L=1$ m



Koncentrirane sile					
No	Px[kN]	Py[kN]	Pz[kN]	X1[m]	Y1[m]
1	-0.00	-0.00	-120.00	0.00	1.00
2	-0.00	-0.00	-120.00	0.00	-1.00
3	-0.00	-0.00	-120.00	1.20	1.00
4	-0.00	-0.00	-120.00	1.20	-1.00

 PROVOG inženirske storitve	Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust	Stran: 11/35
	Investitor: Občina Dobrna	Datum: apr 2026
	STATIČNI IZRAČUN:	

Modalna analiza

Faktorji obtežb za preračun mas		
No	Naziv	Koeficient
1	LT+ST (g)	1.00
2	Prometna obtežba 1- LM1 TS-480 (g)	0.00
3	Prometna obtežba 1 - LM1 UDL	0.20
4	Prometna obtežba 2 - LM1 TS-480 (g)	0.00
5	Prometna obtežba 2 - LM1 UDL	0.00
6	Prometna obtežba - Pospeševanje	0.00
7	Prometna obtežba - Zaviranje	0.00
8	Temperatura - dTm max	0.00
9	Temperatura - dTn max	0.00
10	Krčenje	0.00

Razporeditev mas po višini objekta					
Nivo	Z [m]	X [m]	Y [m]	Masa [T]	T/m²
Plosca	0.00	2.50	2.25	32.46	1.44
Skupno:	0.00	2.50	2.25	32.46	

Nihajne dobe konstrukcije			
No	T [s]	f [Hz]	m' [T]
1	0.0522	19.1410	12.9055
2	0.0280	35.7641	5.3700
3	0.0130	76.7840	7.1650



STATIČNI IZRAČUN:

Seizmični preračun

Seizmični preračun: EC8 (SIST EN 1998)

Kategorija tal: C
Kategorija pomena: II ($\gamma=1.0$)
Razmerje $a_g R/g$: 0.200
Procent viskoznega dušenja ζ : 5%

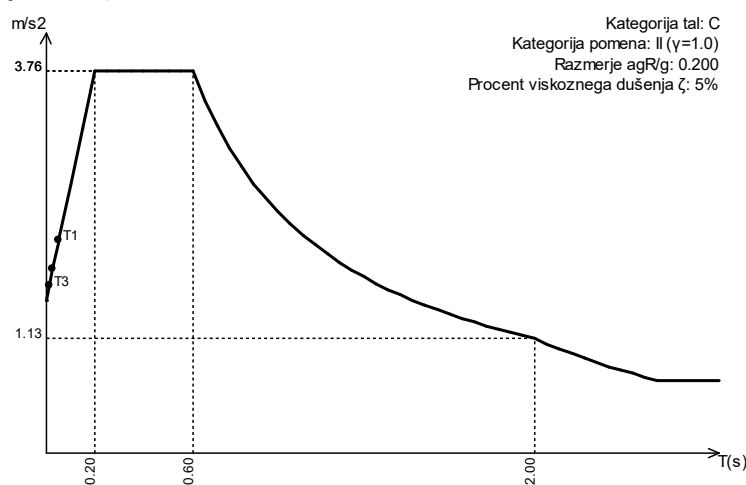
Faktorji smeri potresa:

Obtežni primer	Kot α [°]	k, α	$k, \alpha+90^\circ$	k_z	Faktor O.
potres smer x	0	1.000	0.300	0.000	1.500
potres smer y	90	1.000	0.300	0.000	1.500

Tip spektra

Obtežni primer	S	T_b	T_c	T_d	avg/ a_g
potres smer x	1.150	0.200	0.600	2.000	1.000
potres smer y	1.150	0.200	0.600	2.000	1.000

Projektni spekter



$S=1.15$, $T_b=0.20$, $T_c=0.60$, $T_d=2.00$

Razporeditev potresnih sil po višini objekta - potres smer x

Nivo	Z [m]	Ton 1			Ton 2			Ton 3		
		Px [kN]	Py [kN]	Pz [kN]	Px [kN]	Py [kN]	Pz [kN]	Px [kN]	Py [kN]	Pz [kN]
Plosca	0.00	0.00	-0.00	-0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00
$\Sigma=$		0.00	-0.00	-0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00

Razporeditev potresnih sil po višini objekta - potres smer y

Nivo	Z [m]	Ton 1			Ton 2			Ton 3		
		Px [kN]	Py [kN]	Pz [kN]	Px [kN]	Py [kN]	Pz [kN]	Px [kN]	Py [kN]	Pz [kN]
Plosca	0.00	-0.00	0.00	0.00	-0.00	0.00	-0.00	-0.00	0.00	-0.00
$\Sigma=$		-0.00	0.00	0.00	-0.00	0.00	-0.00	-0.00	0.00	-0.00

Faktorji participacije - relativno sodelovanje

Ton \ Naziv	1. potres smer x	2. potres smer y
1	0.000	0.000
2	0.000	0.000
3	0.000	0.000

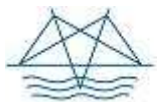
Faktorji participacije - angažiranje mase

Ton	U [$\alpha=0^\circ$]	U [$\alpha=90^\circ$]	U [Z]
Upošteva se samo masa nad koto temelja			
Kota temelja: 0.00 m			
Skupna masa nad temeljem: 0.00 T			
Skupna masa celega objekta: 32.46 T			

Ton	U [$\alpha=0^\circ$]	U [$\alpha=90^\circ$]	U [Z]
1	0.00	0.00	0.00
2	0.00	0.00	0.00
3	0.00	0.00	0.00
ΣU (%)	0.00	0.00	0.00

Prečne sile v osnovi [0.00 m]

Obtežni primer	Kot α [°]	VtB [kN]
potres smer x	0	0.00
potres smer y	90	0.00



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust

Stran: 13/35

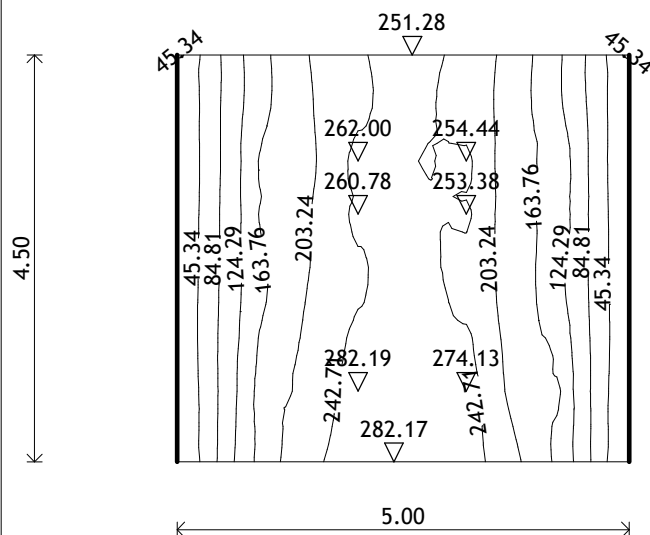
Investitor: Občina Dobrna

Datum: apr 2026

STATIČNI IZRAČUN:

Statični preračun

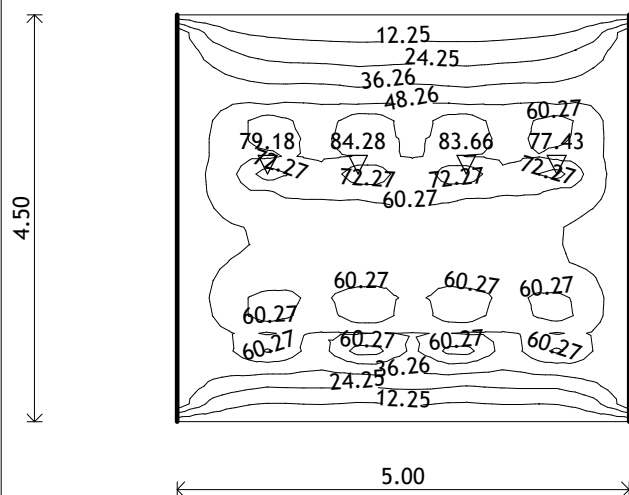
Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]

Vplivi v plošči: max Mx= 282.19 / min Mx= 5.8...

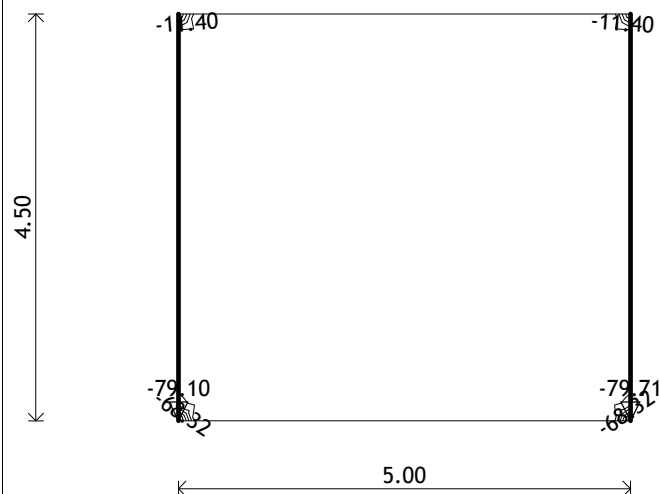
Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]

Vplivi v plošči: max My= 84.28 / min My= 0.24...

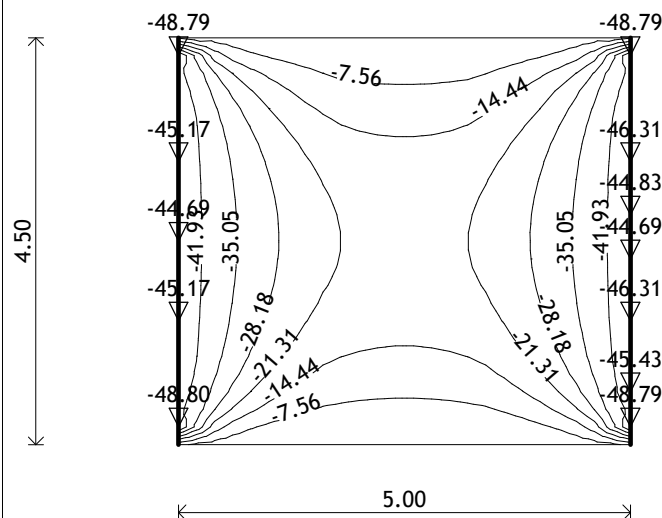
Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]

Vplivi v plošči: max Mx= -0.01 / min Mx= -79.7...

Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]

Vplivi v plošči: max My= -0.70 / min My= -48.8...



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev
graben - Krištaje po poplavih 4.avgust 2023 - prepust

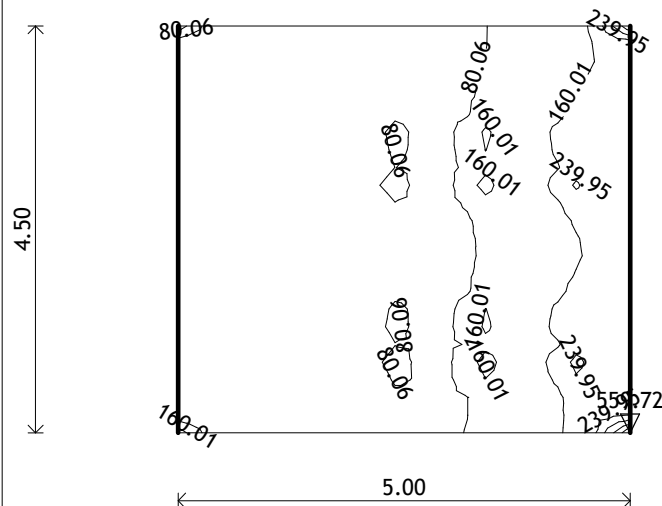
Stran: 14/35

Investitor: Občina Dobrna

Datum: apr 2026

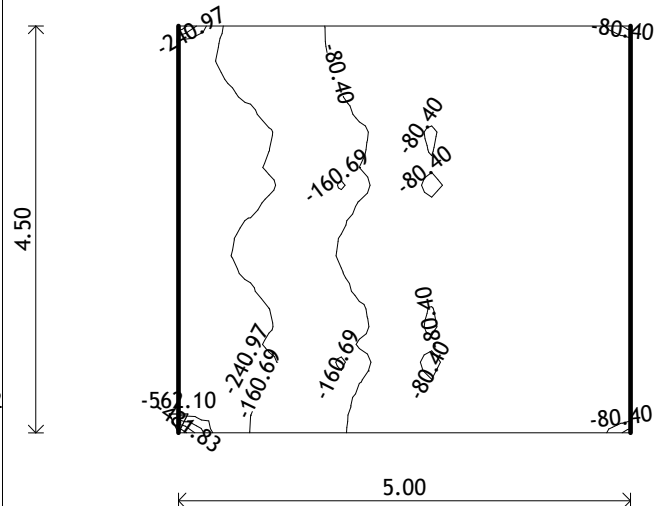
STATIČNI IZRAČUN:

Obt. 78: [MSN] 1-40

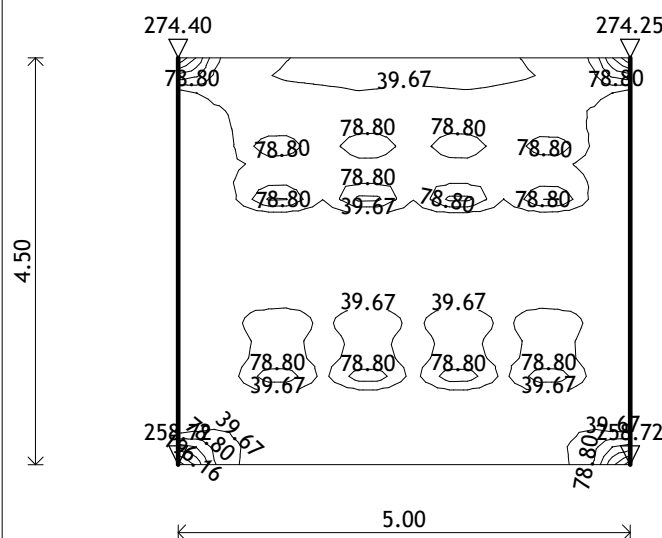


Nivo: Plosca [0.00 m]
Vplivi v plošči: max Vz,x= 559.72 / min Vz,x= ...
Obt. 78: [MSN] 1-40

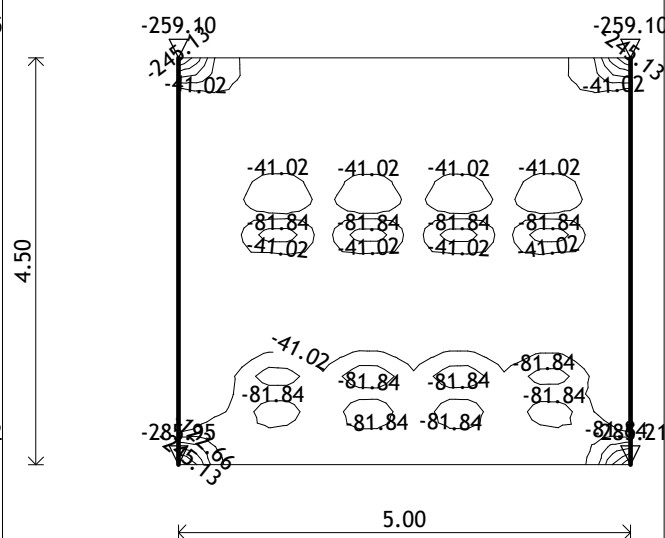
Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]
Vplivi v plošči: max Vz,x= -0.12 / min Vz,x= -5...
Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]
Vplivi v plošči: max Vz,y= 274.40 / min Vz,y= ...



Nivo: Plosca [0.00 m]
Vplivi v plošči: max Vz,y= -0.21 / min Vz,y= -2...



STATIČNI IZRAČUN:

Notranje sile v ploščah - Ekstremne vrednosti - Obtežba: 78. [MSN] 1-40

Oznaka	LC	Mx [kNm/m]	My [kNm/m]	Mxy [kNm/m]	Vz,x [kN/m]	Vz,y [kN/m]
310	A+	260.78	[84.279]	3.004	11.746	11.167
444	A+	253.38	[83.658]	7.146	132.96	11.118
334	A+	254.60	[83.097]	2.301	71.758	11.635
424	A+	244.15	[81.806]	6.076	66.457	11.723
196	A+	188.15	[79.184]	6.084	4.196	8.515
529	A+	162.96	[77.425]	13.258	196.66	7.125
217	A+	184.77	[73.277]	5.243	28.959	9.854
514	A+	161.33	[72.727]	12.394	130.60	8.704
463	A+	215.97	[70.986]	8.135	184.10	10.629
286	A+	226.00	[70.914]	4.634	13.683	11.582
347	A+	39.176	31.119	[57.169]	224.98	117.97
5	A-	-7.148	-32.976	[-56.742]	-218.70	-135.93
300	A+	79.416	3.660	[56.307]	224.91	82.134
6	A-	-2.026	-4.336	[-56.059]	-225.61	-98.946
323	A+	78.950	19.281	[55.038]	210.63	68.747
9	A-	-1.443	-17.921	[-54.664]	-207.50	-83.033
324	A+	35.452	0.244	[54.585]	386.13	185.82
3	A-	-1.712	-5.689	[-54.341]	-386.59	-205.92
299	A+	120.08	14.310	[49.722]	180.28	45.364
276	A+	121.49	3.614	[49.572]	178.67	44.742
1	A-	-79.104	-9.878	-26.730	[-562.10]	-285.95
348	A+	43.725	2.484	26.804	[559.72]	258.72
277	A-	-62.894	-7.153	-21.550	[-472.82]	-259.10
624	A+	51.237	2.989	21.543	[472.23]	274.25
3	A-	-1.712	-5.689	-54.341	[-386.59]	-205.92
324	A+	35.452	0.244	54.585	[386.13]	185.82
301	A-	-1.712	-3.182	-39.129	[-320.75]	-186.12
622	A+	35.612	0.244	39.112	[317.65]	195.18
368	A+	119.15	55.655	30.779	[258.74]	21.233
543	A+	110.19	66.008	13.864	[250.13]	5.270
1	A-	-79.104	-9.878	-26.730	-562.10	[-285.95]
348	A-	-79.707	-9.955	-18.966	-202.41	[-285.21]
277	A+	51.071	2.996	21.545	202.41	[274.40]
624	A+	51.237	2.989	21.543	472.23	[274.25]
624	A-	-62.824	-7.130	-21.590	-202.41	[-259.10]
277	A-	-62.894	-7.153	-21.550	-472.82	[-259.10]
1	A+	42.741	2.484	18.623	202.41	[258.72]
348	A+	43.725	2.484	26.804	559.72	[258.72]
3	A-	-1.712	-5.689	-54.341	-386.59	[-205.92]
324	A-	-1.712	-5.781	-35.487	-113.28	[-205.53]

Deformacija plošč GLO - Ekstremne vrednosti - Obtežba: 78. [MSN] 1-40

Oznaka	LC	Zp [mm]	Zr [mrad]
105	A-	[-4.261]	0.000
91	A-	[-4.256]	0.000
120	A-	[-4.198]	0.000
78	A-	[-4.182]	0.000
119	A-	[-4.178]	0.000

Oznaka	LC	Zp [mm]	Zr [mrad]
119	A-	[-4.178]	0.000
104	A-	[-4.173]	0.000
104	A-	[-4.173]	0.000
135	A-	[-4.117]	0.000
135	A-	[-4.117]	0.000



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust

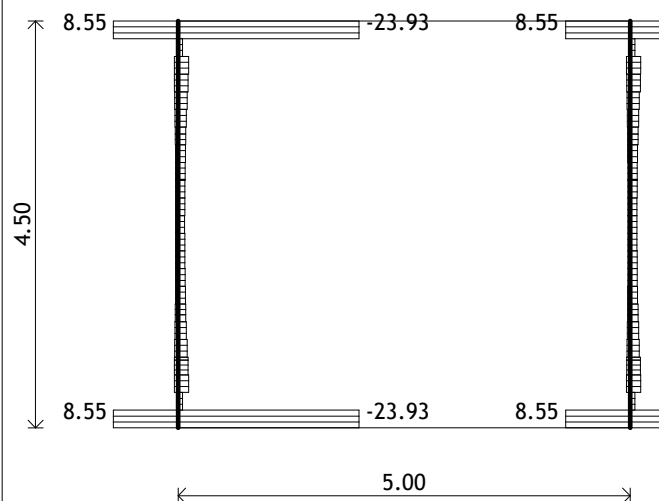
Stran: 16/35

Investitor: Občina Dobrna

Datum: apr 2026

STATIČNI IZRAČUN:

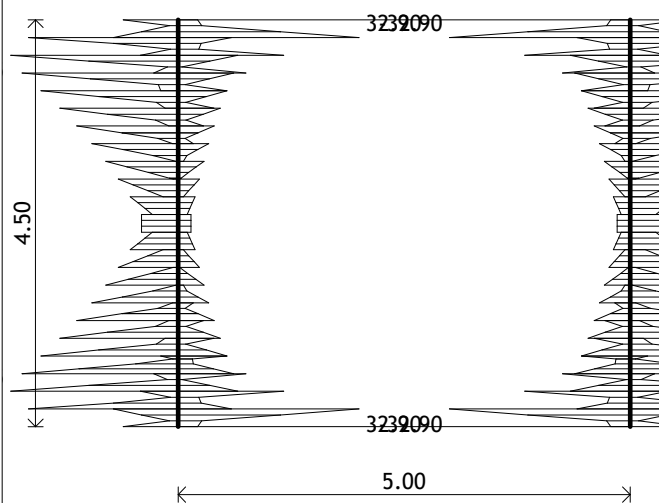
Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]

Vplivi v gredi: max N1= 8.55 / min N1= -23.93 kN

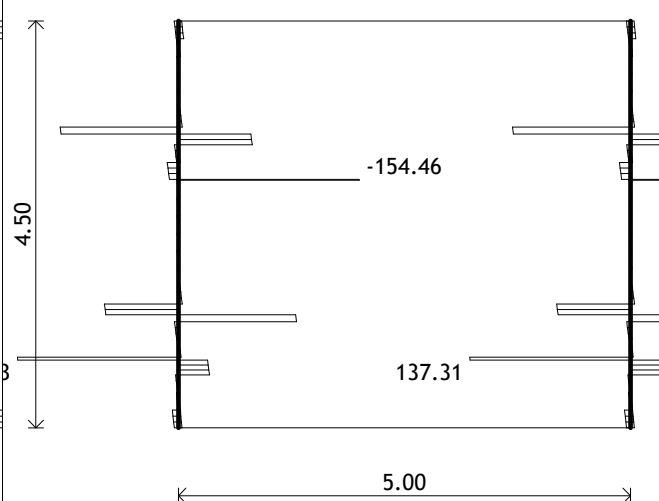
Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]

Vplivi v gredi: max M2= 32.90 / min M2= -32.9...

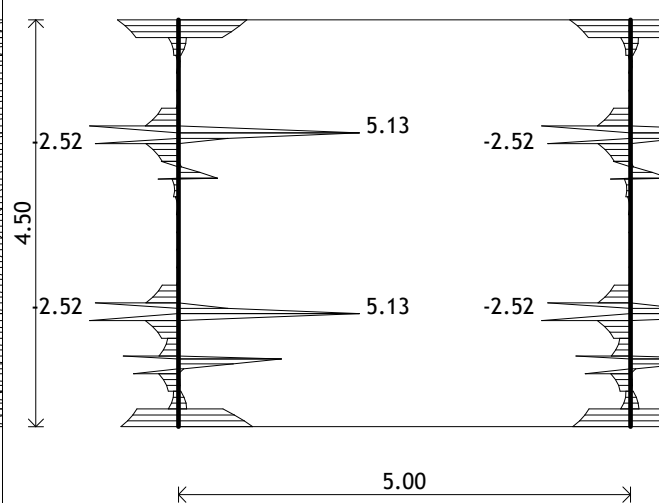
Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]

Vplivi v gredi: max V2= 137.43 / min V2= -154...

Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]

Vplivi v gredi: max M3= 5.13 / min M3= -2.52...

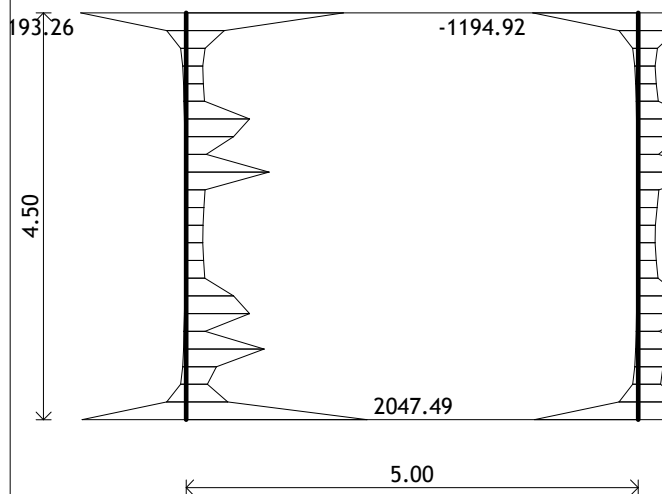


STATIČNI IZRAČUN:

Notranje sile v gredah - Ekstremne vrednosti - Obtežba: 78. [MSN] 1-40

Oznaka	LC	x [m]	N1 [kN]	V2 [kN]	M2 [kNm]	M3 [kNm]
(1 - 277)	A(N1+)	0.196	+8.551	-1.370	-11.758	-1.127
(348 - 624)	A(N1+)	0.196	+8.551	-1.497	11.758	-1.178
(1 - 277)	A(N1-)	0.196	 -23.926 	4.363	32.900	1.237
(348 - 624)	A(N1-)	0.196	 -23.926 	4.236	-32.900	1.187
(1 - 277)	A(N1+)	0.196	 8.551 	-1.370	-11.758	-1.127
(348 - 624)	A(N1+)	0.196	 8.551 	-1.497	11.758	-1.178
(1 - 277)	A(V2-)	2.739	0.132	 -154.46 	0.124	-0.571
(348 - 624)	A(V2-)	2.739	0.132	 -154.45 	-0.124	-0.575
(1 - 277)	A(V2+)	0.783	0.192	 137.43 	-1.261	-1.559
(348 - 624)	A(V2+)	0.783	0.192	 137.31 	1.261	-1.549
(348 - 624)	A(M2-)	0.196	-23.926	4.236	 -32.900 	1.187
(1 - 277)	A(M2+)	0.196	-23.926	4.363	 32.900 	1.237
(1 - 277)	A(M2-)	0.391	-1.391	-0.970	 -30.449 	-0.067
(348 - 624)	A(M2+)	0.391	-1.391	-0.965	 30.449 	-0.065
(1 - 277)	A(M3+)	3.250	0.145	-61.931	1.455	 5.128
(1 - 277)	A(M3+)	1.250	0.145	-100.07	1.455	 5.128
(348 - 624)	A(M3+)	3.250	0.145	-61.933	-1.455	 5.124
(348 - 624)	A(M3+)	1.250	0.145	-100.07	-1.455	 5.124
(348 - 624)	A(M3-)	1.174	-0.406	-100.85	7.373	 -2.520
(1 - 277)	A(M3-)	1.174	-0.406	-100.85	-7.373	 -2.517

Obt. 78: [MSN] 1-40

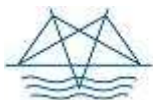


Nivo: Plosca [0.00 m]

Vplivi v lin. podpori: max σ_{tal} = 2047.49 / min ...

Vplivi v linijskih podporah - Ekstremne vrednosti - Obtežba: 78. [MSN] 1-40

Oznaka	LC	σ_{tal} [kN/m ²]	s.tal [mm]
(1-277)	A+	 2047.5 	0.000
(348-624)	A+	 2046.6 	0.000
(348-624)	A-	 -1194.9 	0.000
(1-277)	A-	 -1193.3 	0.000



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust

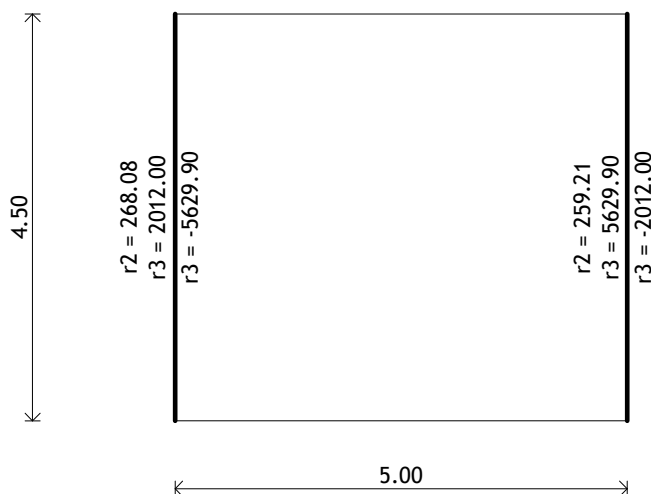
Stran: 18/35

Investitor: Občina Dobrna

Datum: apr 2026

STATIČNI IZRAČUN:

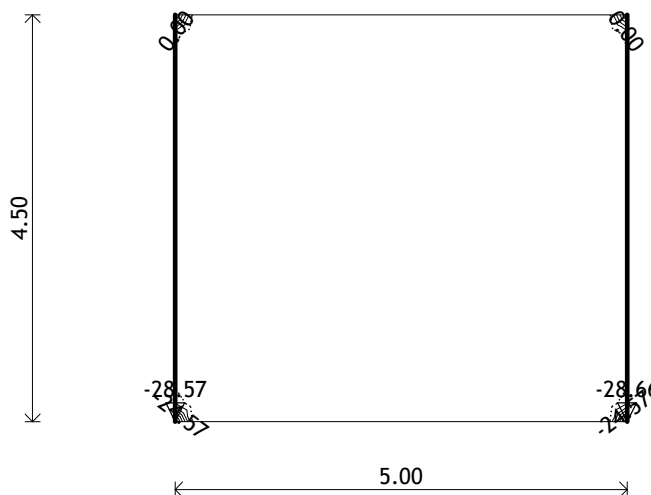
Obt. 78: [MSN] 1-40



Nivo: Plosca [0.00 m]

Reakcije podpor

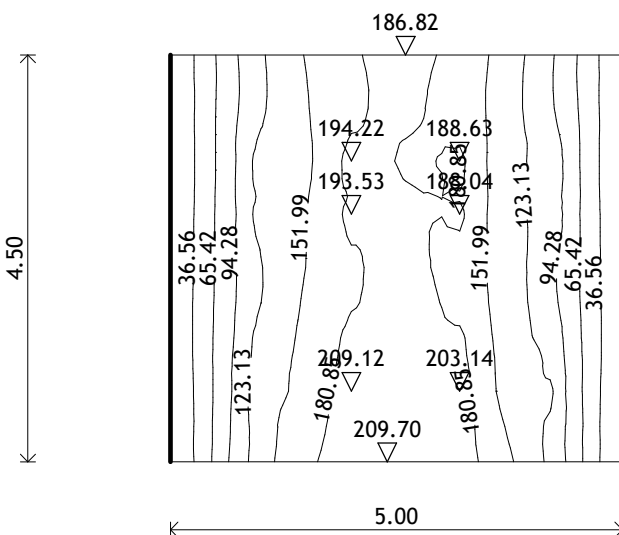
Obt. 79: [MSU (Karak)] 41-64



Nivo: Plosca [0.00 m]

Vplivi v plošči: max Mx= 0.00 / min Mx= -28.6...

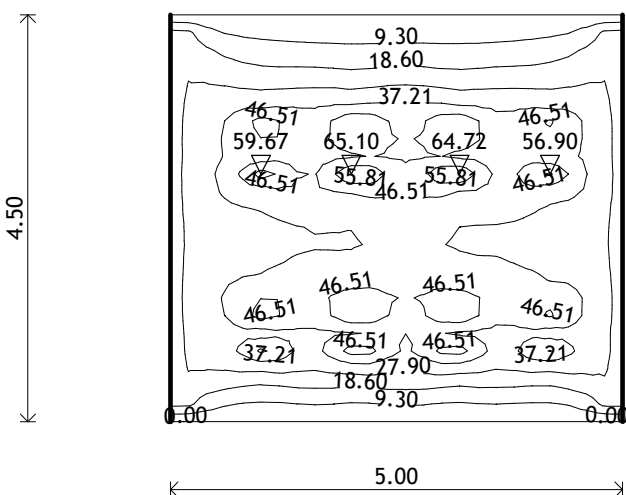
Obt. 79: [MSU (Karak)] 41-64



Nivo: Plosca [0.00 m]

Vplivi v plošči: max Mx= 209.70 / min Mx= 7.7...

Obt. 79: [MSU (Karak)] 41-64



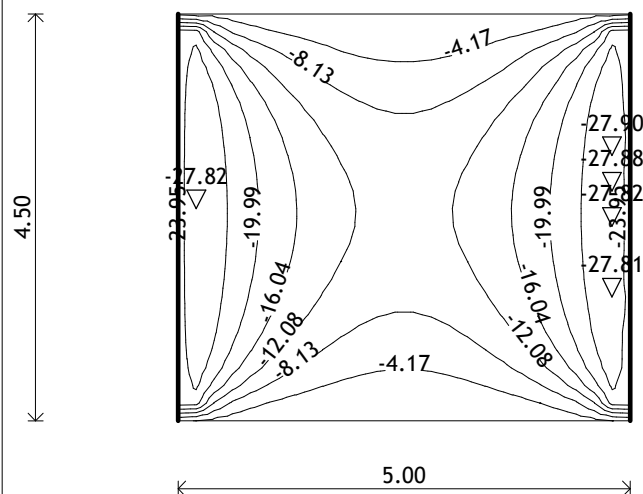
Nivo: Plosca [0.00 m]

Vplivi v plošči: max My= 65.10 / min My= 0.00...



STATIČNI IZRAČUN:

Obt. 79: [MSU (Karakt)] 41-64



Nivo: Plosca [0.00 m]

Vplivi v plošči: max My= -0.23 / min My= -27.9...

Notranje sile v ploščah - Ekstremne vrednosti - Obtežba: 79. [MSU (Karakt)] 41-64

Oznaka	LC	Mx [kNm/m]	My [kNm/m]
310	A+	193.53	[65.101]
444	A+	188.04	[64.720]
334	A+	188.96	[64.172]
424	A+	181.21	[63.269]
196	A+	139.58	[59.668]

Oznaka	LC	Mx [kNm/m]	My [kNm/m]
529	A+	120.84	[56.897]
217	A+	137.13	[54.774]
286	A+	167.75	[54.626]
358	A+	183.57	[54.215]
463	A+	160.31	[54.095]

Deformacija plošč L.K.S. - Ekstremne vrednosti - Obtežba: 79. [MSU (Karakt)] 41-64

Oznaka	LC	u3 [mm]
105	A-	[-3.157]
91	A-	[-3.153]
120	A-	[-3.110]
78	A-	[-3.098]

Oznaka	LC	u3 [mm]
119	A-	[-3.095]
104	A-	[-3.091]
135	A-	[-3.049]
134	A-	[-3.041]

Oznaka	LC	u3 [mm]
90	A-	[-3.038]
118	A-	[-3.038]

Deformacija plošč GLO - Ekstremne vrednosti - Obtežba: 79. [MSU (Karakt)] 41-64

Oznaka	LC	Zp [mm]	Zr [mrad]
105	A-	[-3.157]	0.000
91	A-	[-3.153]	0.000
120	A-	[-3.110]	0.000
78	A-	[-3.098]	0.000
119	A-	[-3.095]	0.000

Oznaka	LC	Zp [mm]	Zr [mrad]
119	A-	[-3.095]	0.000
104	A-	[-3.091]	0.000
104	A-	[-3.091]	0.000
135	A-	[-3.049]	0.000
135	A-	[-3.049]	0.000



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust

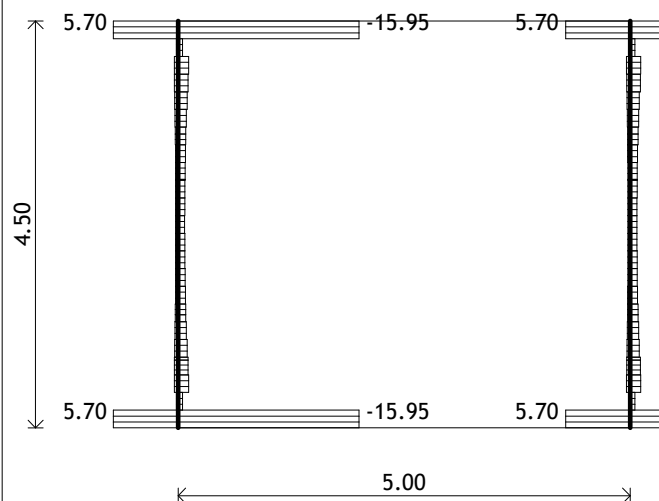
Stran: 20/35

Investitor: Občina Dobrna

Datum: apr 2026

STATIČNI IZRAČUN:

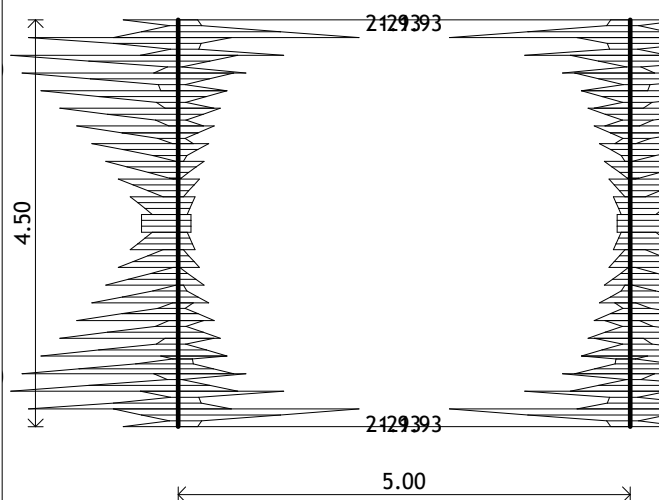
Obt. 79: [MSU (Karak)] 41-64



Nivo: Plosca [0.00 m]

Vplivi v gredi: max N1= 5.70 / min N1= -15.95 kN

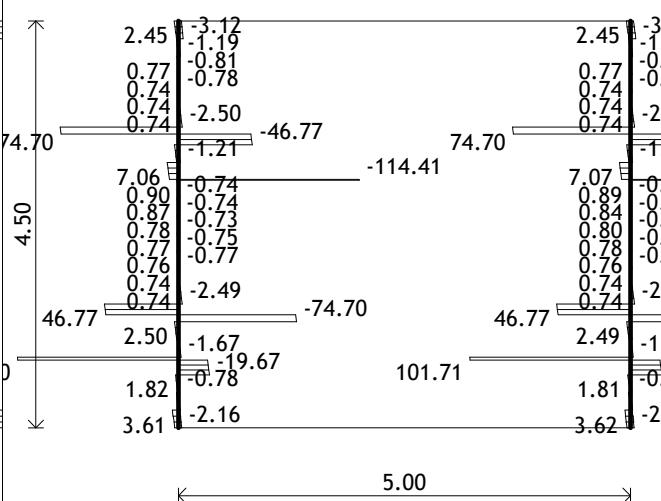
Obt. 79: [MSU (Karak)] 41-64



Nivo: Plosca [0.00 m]

Vplivi v gredi: max M2= 21.93 / min M2= -21.9...

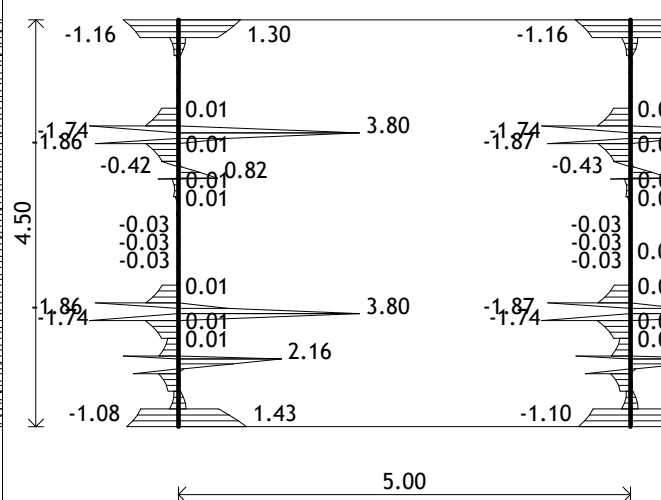
Obt. 79: [MSU (Karak)] 41-64



Nivo: Plosca [0.00 m]

Vplivi v gredi: max V2= 101.80 / min V2= -114...

Obt. 79: [MSU (Karak)] 41-64



Nivo: Plosca [0.00 m]

Vplivi v gredi: max M3= 3.80 / min M3= -1.87...

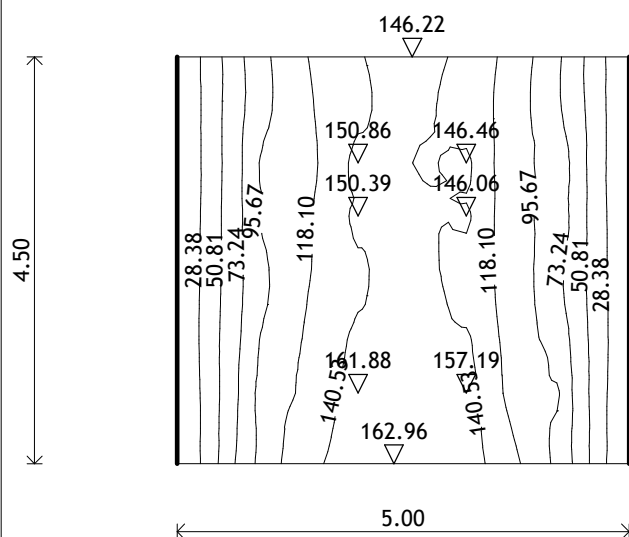


STATIČNI IZRAČUN:

Notranje sile v gredah - Ekstremne vrednosti - Obtežba: 79. [MSU (Karakt)] 41-64

Oznaka	LC	x [m]	N1 [kN]	V2 [kN]	M2 [kNm]	M3 [kNm]
(1 - 277)	A(N1-)	0.196	-15.951	3.008	21.933	0.822
(348 - 624)	A(N1-)	0.196	-15.951	2.914	-21.933	0.785
(1 - 277)	A(N1+)	0.196	5.701	-0.814	-7.838	-0.754
(348 - 624)	A(N1+)	0.196	5.701	-0.908	7.838	-0.792
(1 - 277)	A(V2-)	2.739	0.132	-114.41	0.124	-0.423
(348 - 624)	A(V2-)	2.739	0.132	-114.41	-0.124	-0.426
(1 - 277)	A(V2+)	0.783	0.192	101.80	-1.261	-1.155
(348 - 624)	A(V2+)	0.783	0.192	101.71	1.261	-1.148
(348 - 624)	A(M2-)	0.196	-15.951	2.914	-21.933	0.785
(1 - 277)	A(M2+)	0.196	-15.951	3.008	21.933	0.822
(1 - 277)	A(M2-)	0.391	-0.927	-0.711	-20.299	-0.046
(348 - 624)	A(M2+)	0.391	-0.927	-0.707	20.299	-0.045
(1 - 277)	A(M3+)	3.250	0.145	-45.876	1.455	3.799
(1 - 277)	A(M3+)	1.250	0.145	-74.124	1.455	3.799
(348 - 624)	A(M3+)	3.250	0.145	-45.878	-1.455	3.796
(348 - 624)	A(M3+)	1.250	0.145	-74.122	-1.455	3.796
(348 - 624)	A(M3-)	1.174	-0.406	-74.703	7.373	-1.867
(1 - 277)	A(M3-)	1.174	-0.406	-74.705	-7.373	-1.864

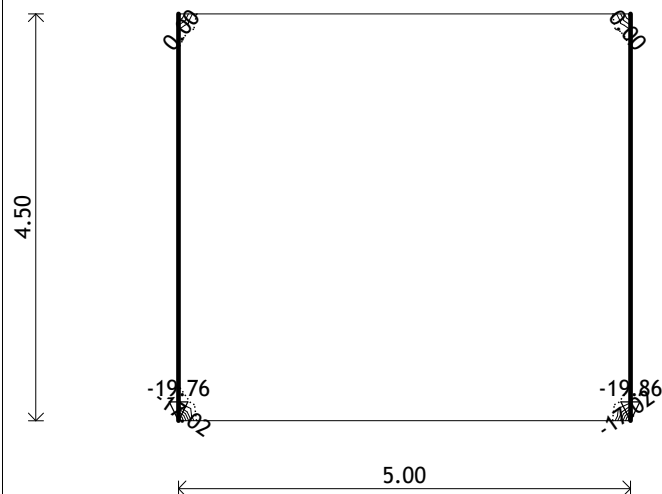
Obt. 80: [MSU (Pogosta)] 65-73



Nivo: Plosca [0.00 m]

Vplivi v plošči: max Mx= 162.96 / min Mx= 5.9...

Obt. 80: [MSU (Pogosta)] 65-73



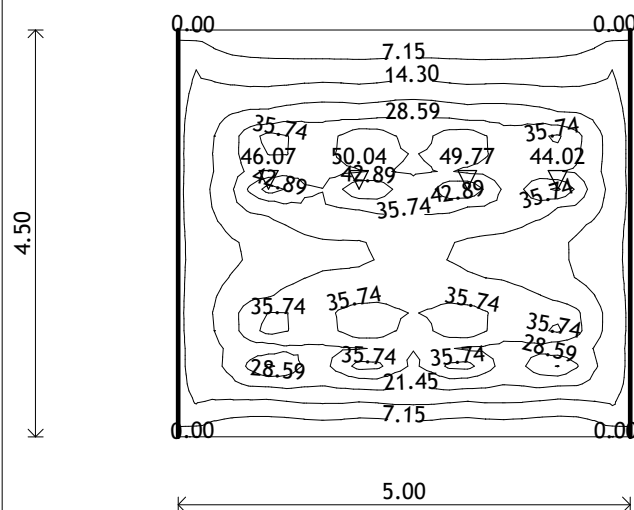
Nivo: Plosca [0.00 m]

Vplivi v plošči: max Mx= 0.00 / min Mx= -19.8...



STATIČNI IZRAČUN:

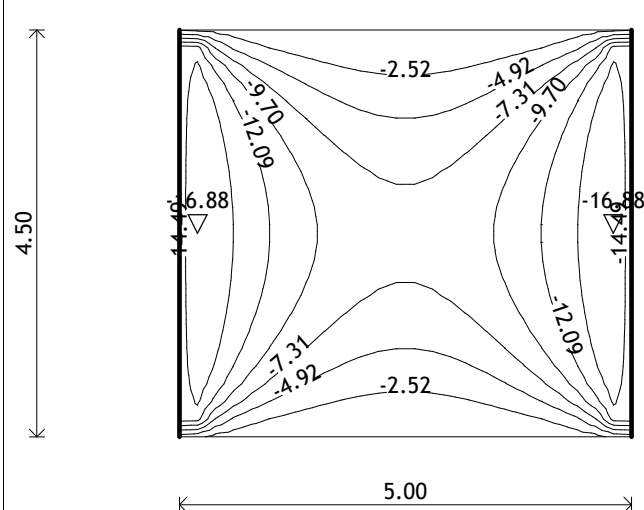
Obt. 80: [MSU (Pogosta)] 65-73



Nivo: Plosca [0.00 m]

Vplivi v plošči: max $M_y = 50.04$ / min $M_y = 0.00...$

Obt. 80: [MSU (Pogosta)] 65-73



Nivo: Plosca [0.00 m]

Vplivi v plošči: max $M_y = -0.13$ / min $M_y = -16.8...$

Notranje sile v ploščah - Ekstremne vrednosti -
Obtežba: 80. [MSU (Pogosta)] 65-73

Oznaka	LC	M_x [kNm/m]	M_y [kNm/m]
310	A+	150.39	50.038
444	A+	146.06	49.768
334	A+	147.10	49.330
424	A+	141.15	48.664
196	A+	108.17	46.074

Oznaka	LC	M_x [kNm/m]	M_y [kNm/m]
529	A+	93.547	44.020
217	A+	106.73	42.377
286	A+	130.73	42.197
358	A+	143.01	41.857
463	A+	124.87	41.819

Deformacija plošč L.K.S. - Ekstremne
vrednosti - Obtežba: 80. [MSU
(Pogosta)] 65-73

Oznaka	LC	u_3 [mm]
105	A-	-2.367
91	A-	-2.364
120	A-	-2.332
78	A-	-2.323

Oznaka	LC	u_3 [mm]
119	A-	-2.321
104	A-	-2.319
135	A-	-2.287
134	A-	-2.281

Oznaka	LC	u_3 [mm]
90	A-	-2.278
118	A-	-2.278

Deformacija plošč GLO - Ekstremne vrednosti -
Obtežba: 80. [MSU (Pogosta)] 65-73

Oznaka	LC	Z_p [mm]	Z_r [mrad]
105	A-	-2.367	0.000
91	A-	-2.364	0.000
120	A-	-2.332	-0.024
78	A-	-2.323	0.000
119	A-	-2.321	0.000

Oznaka	LC	Z_p [mm]	Z_r [mrad]
119	A-	-2.321	0.000
104	A-	-2.319	0.000
104	A-	-2.319	0.000
135	A-	-2.287	-0.024
135	A-	-2.287	-0.024



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust

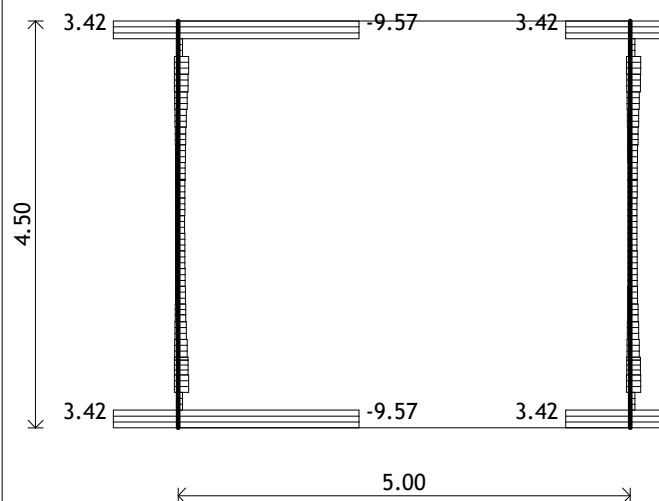
Stran: 23/35

Investitor: Občina Dobrna

Datum: apr 2026

STATIČNI IZRAČUN:

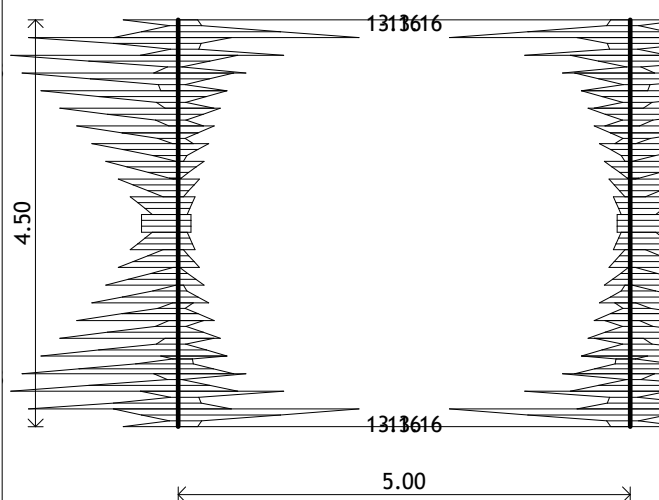
Obt. 80: [MSU (Pogosta)] 65-73



Nivo: Plosca [0.00 m]

Vplivi v gredi: max N1= 3.42 / min N1= -9.57 kN

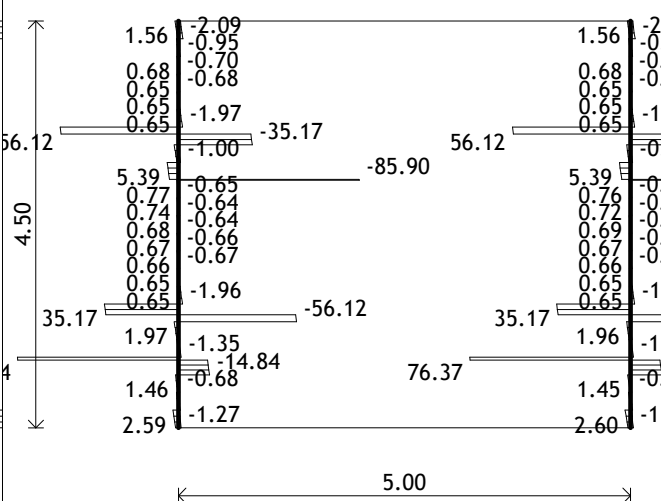
Obt. 80: [MSU (Pogosta)] 65-73



Nivo: Plosca [0.00 m]

Vplivi v gredi: max M2= 13.16 / min M2= -13.16 kNm

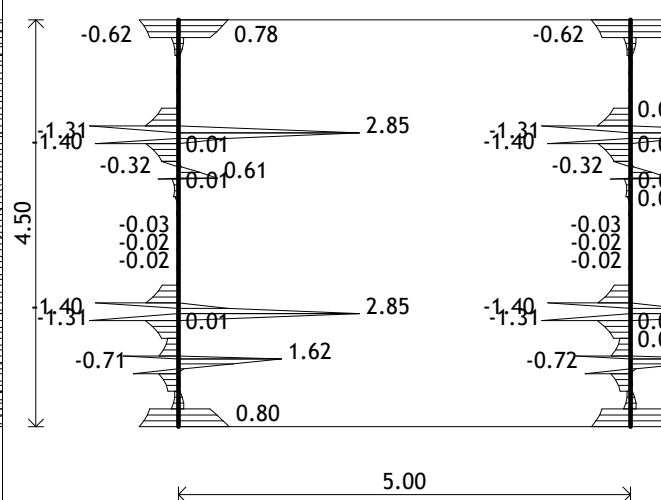
Obt. 80: [MSU (Pogosta)] 65-73



Nivo: Plosca [0.00 m]

Vplivi v gredi: max V2= 76.44 / min V2= -85.90 kN

Obt. 80: [MSU (Pogosta)] 65-73



Nivo: Plosca [0.00 m]

Vplivi v gredi: max M3= 2.85 / min M3= -1.40 kNm

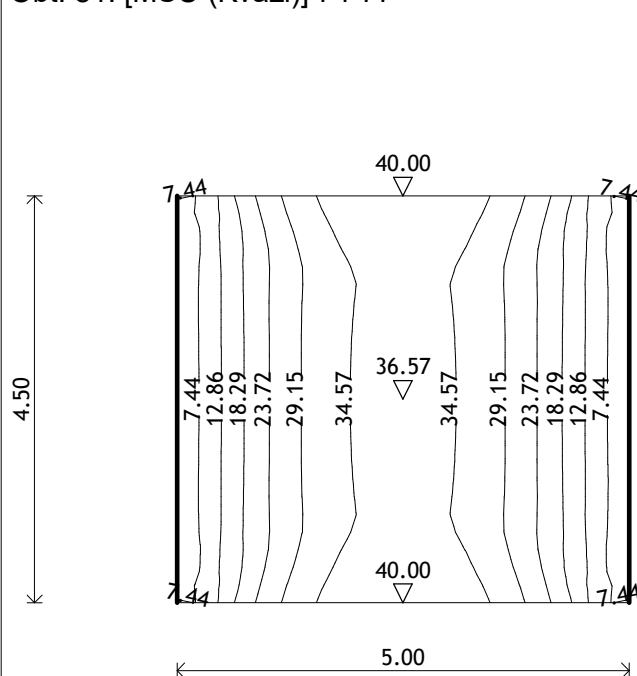


STATIČNI IZRAČUN:

Notranje sile v gredah - Ekstremne vrednosti - Obtežba: 80. [MSU (Pogosta)] 65-73

Oznaka	LC	x [m]	N1 [kN]	V2 [kN]	M2 [kNm]	M3 [kNm]
(1 - 277)	A(N1-)	0.196	[-9.571]	1.808	13.160	0.497
(348 - 624)	A(N1-)	0.196	[-9.571]	1.808	-13.160	0.497
(1 - 277)	A(N1+)	0.196	[3.420]	-0.486	-4.703	-0.449
(348 - 624)	A(N1+)	0.196	[3.420]	-0.486	4.703	-0.449
(1 - 277)	A(V2-)	2.739	0.110	[-85.901]	0.103	-0.321
(348 - 624)	A(V2-)	2.739	0.110	[-85.897]	-0.103	-0.322
(1 - 277)	A(V2+)	0.783	0.160	[76.445]	-1.051	-0.869
(348 - 624)	A(V2+)	0.783	0.160	[76.373]	1.051	-0.864
(348 - 624)	A(M2-)	0.196	-9.571	1.808	[-13.160]	0.497
(1 - 277)	A(M2+)	0.196	-9.571	1.808	[13.160]	0.497
(1 - 277)	A(M2-)	0.391	-0.556	-0.409	[-12.180]	-0.027
(348 - 624)	A(M2+)	0.391	-0.556	-0.409	[12.180]	-0.027
(1 - 277)	A(M3+)	3.250	0.121	-34.387	1.212	[2.850]
(1 - 277)	A(M3+)	1.250	0.121	-55.613	1.212	[2.850]
(348 - 624)	A(M3+)	3.250	0.121	-34.388	-1.212	[2.848]
(348 - 624)	A(M3+)	1.250	0.121	-55.612	-1.212	[2.848]
(348 - 624)	A(M3-)	1.174	-0.339	-56.119	6.144	[-1.403]
(1 - 277)	A(M3-)	1.174	-0.339	-56.121	-6.144	[-1.401]

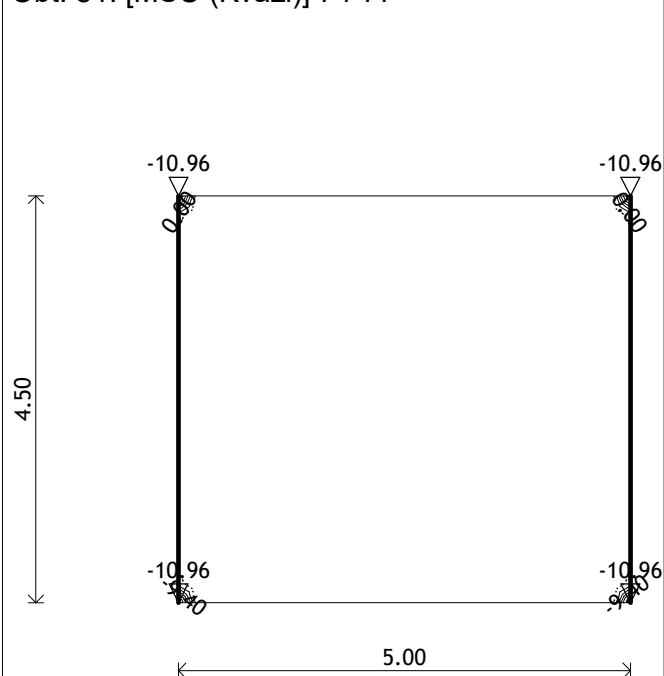
Obt. 81: [MSU (Kvazi)] 74-77



Nivo: Plosca [0.00 m]

Vplivi v plošči: max Mx= 40.00 / min Mx= 2.0...

Obt. 81: [MSU (Kvazi)] 74-77



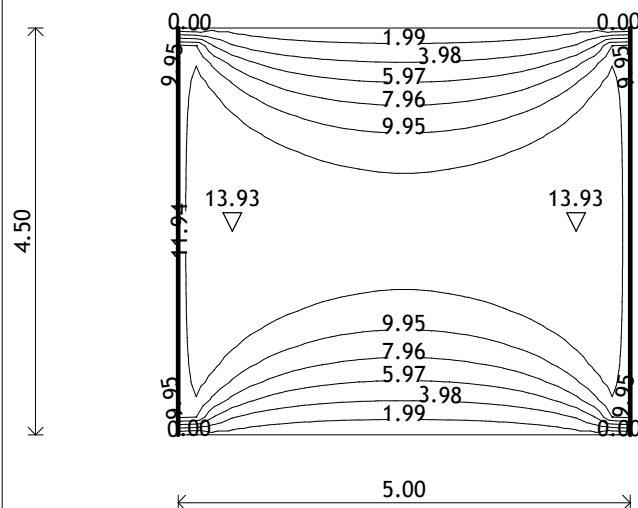
Nivo: Plosca [0.00 m]

Vplivi v plošči: max Mx= 0.00 / min Mx= -10.9...



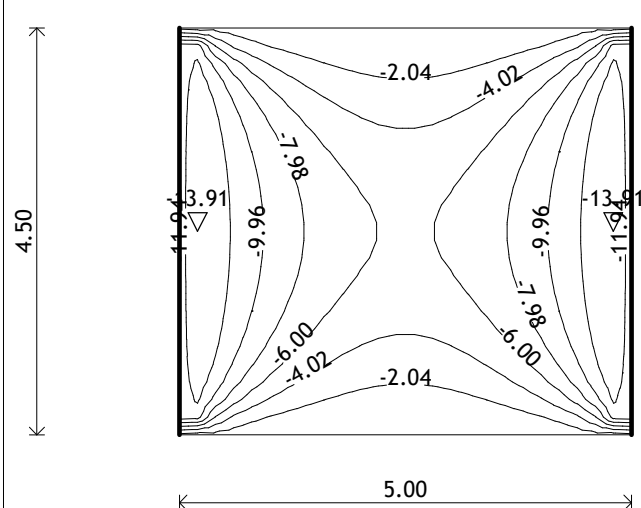
STATIČNI IZRAČUN:

Obt. 81: [MSU (Kvazi)] 74-77



Nivo: Plosca [0.00 m]
Vplivi v plošči: max $M_y = 13.93$ / min $M_y = 0.00$...

Obt. 81: [MSU (Kvazi)] 74-77



Nivo: Plosca [0.00 m]
Vplivi v plošči: max $M_y = -0.06$ / min $M_y = -13.9$...

Notranje sile v ploščah - Ekstremne vrednosti -
Obtežba: 81. [MSU (Kvazi)] 74-77

Oznaka	LC	M_x [kNm/m]	M_y [kNm/m]
371	A-	-3.226	 -16.150
2	A-	-3.226	 -16.150
623	A-	-3.226	 -16.150
254	A-	-3.226	 -16.150
371	A+	0.595	 15.131

Oznaka	LC	M_x [kNm/m]	M_y [kNm/m]
2	A+	0.595	 15.131
623	A+	0.595	 15.131
254	A+	0.595	 15.131
546	A-	-0.242	 -14.752
558	A-	-0.242	 -14.752

Deformacija plošč L.K.S. - Ekstremne
vrednosti - Obtežba: 81. [MSU (Kvazi)]
74-77

Oznaka	LC	u_3 [mm]
313	A-	 -1.256
336	A-	 -1.256
312	A-	 -1.256
289	A-	 -1.256

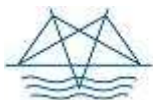
Oznaka	LC	u_3 [mm]
359	A-	 -1.255
335	A-	 -1.255
290	A-	 -1.255
266	A-	 -1.255

Oznaka	LC	u_3 [mm]
381	A-	 -1.253
358	A-	 -1.253

Deformacija plošč GLO - Ekstremne vrednosti -
Obtežba: 81. [MSU (Kvazi)] 74-77

Oznaka	LC	Z_p [mm]	Z_r [mrad]
313	A-	 -1.256 	0.000
336	A-	 -1.256 	0.000
312	A-	 -1.256 	0.000
289	A-	 -1.256 	0.000
359	A-	 -1.255 	0.000

Oznaka	LC	Z_p [mm]	Z_r [mrad]
335	A-	 -1.255 	0.000
290	A-	 -1.255 	0.000
266	A-	 -1.255 	0.000
381	A-	 -1.253 	0.000
358	A-	 -1.253 	0.000



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev
graben - Krištaje po poplavih 4.avgust 2023 - prepust

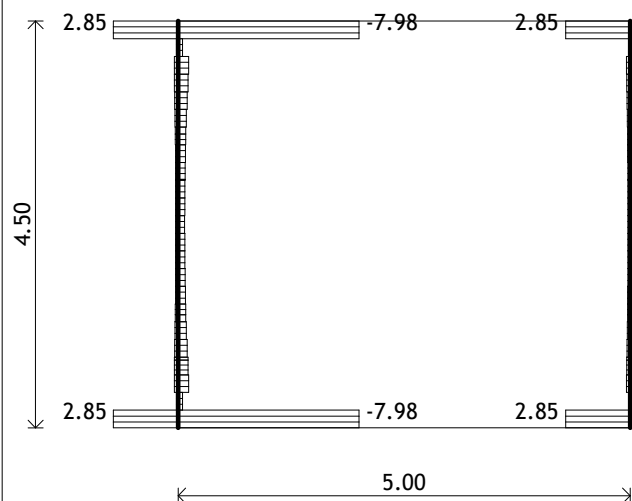
Stran: 26/35

Investitor: Občina Dobrna

Datum: apr 2026

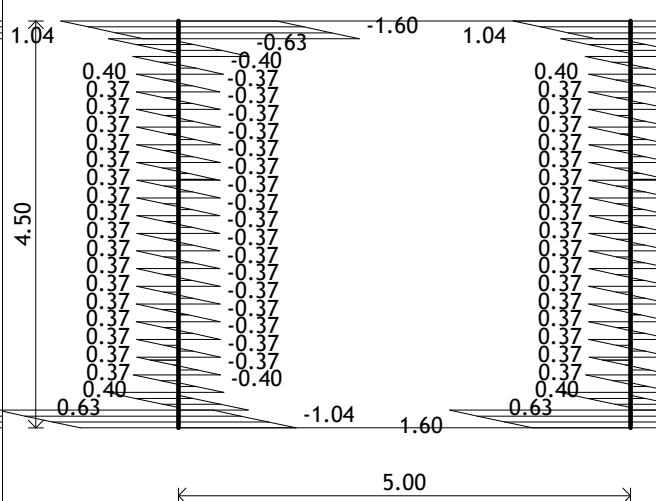
STATIČNI IZRAČUN:

Obt. 81: [MSU (Kvazi)] 74-77

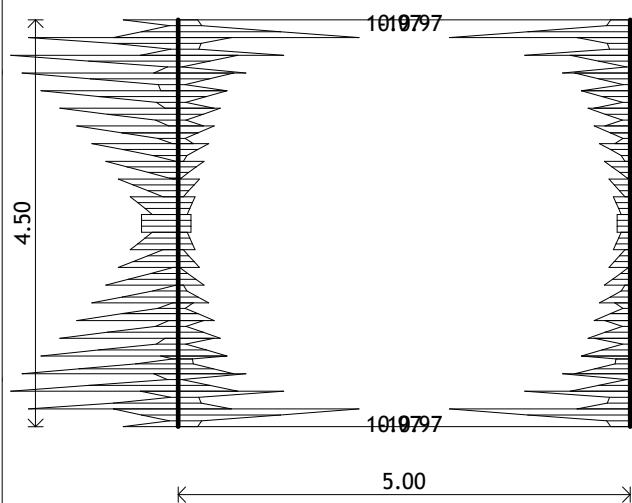


Nivo: Plosca [0.00 m]
Vplivi v gredi: max N1= 2.85 / min N1= -7.98 kN
Obt. 81: [MSU (Kvazi)] 74-77

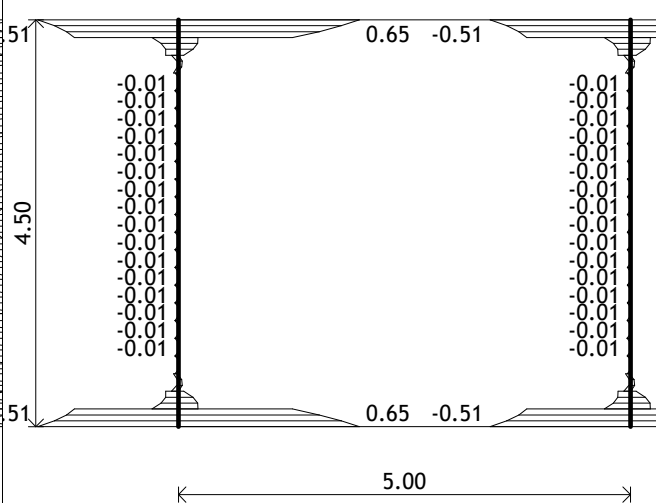
Obt. 81: [MSU (Kvazi)] 74-77



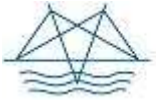
Nivo: Plosca [0.00 m]
Vplivi v gredi: max V2= 1.60 / min V2= -1.60 kN
Obt. 81: [MSU (Kvazi)] 74-77



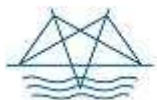
Nivo: Plosca [0.00 m]
Vplivi v gredi: max M2= 10.97 / min M2= -10.97 kNm
Obt. 81: [MSU (Kvazi)] 74-77



Nivo: Plosca [0.00 m]
Vplivi v gredi: max M3= 0.65 / min M3= -0.51 kNm
Obt. 81: [MSU (Kvazi)] 74-77

 PROVOG inženirske storitve	Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust	Stran: 27/35
	Investitor: Občina Dobrna	Datum: apr 2026
	STATIČNI IZRAČUN:	

Notranje sile v gredah - Ekstremne vrednosti - Obtežba: 81. [MSU (Kvazi)] 74-77						
Oznaka	LC	x [m]	N1 [kN]	V2 [kN]	M2 [kNm]	M3 [kNm]
(1 - 277)	A(N1-)	0.196	 -7.975 	1.603	10.967	0.412
(348 - 624)	A(N1-)	0.196	 -7.975 	1.603	-10.967	0.412
(1 - 277)	A(N1+)	0.196	 2.850 	-0.308	-3.919	-0.376
(348 - 624)	A(N1+)	0.196	 2.850 	-0.308	3.919	-0.376
(348 - 624)	A(V2-)	4.304	-7.975	 -1.603 	-10.967	0.412
(1 - 277)	A(V2-)	4.304	-7.975	 -1.603 	10.967	0.412
(1 - 277)	A(V2+)	0.196	-7.975	 1.603 	10.967	0.412
(348 - 624)	A(V2+)	0.196	-7.975	 1.603 	-10.967	0.412
(348 - 624)	A(M2-)	0.196	-7.975	1.603	 -10.967 	0.412
(1 - 277)	A(M2+)	0.196	-7.975	1.603	 10.967 	0.412
(1 - 277)	A(M2-)	0.391	-0.464	-0.402	 -10.150 	-0.025
(348 - 624)	A(M2+)	0.391	-0.464	-0.402	 10.150 	-0.025
(1 - 277)	A(M3+)	0.000	-7.975	0.870	-3.324	 0.654
(348 - 624)	A(M3+)	0.000	-7.975	0.870	3.324	 0.654
(1 - 277)	A(M3-)	0.000	2.850	-1.042	1.188	 -0.508
(348 - 624)	A(M3-)	0.000	2.850	-1.042	-1.188	 -0.508

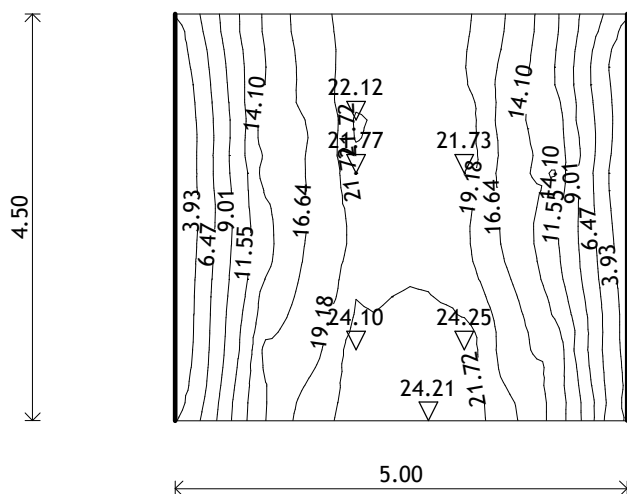


STATIČNI IZRAČUN:

Dimenzioniranje (beton)

Merodajna obtežba: 1-40

EC2 (EN 1992-1-1:2004), C30/37, S500N, a=...

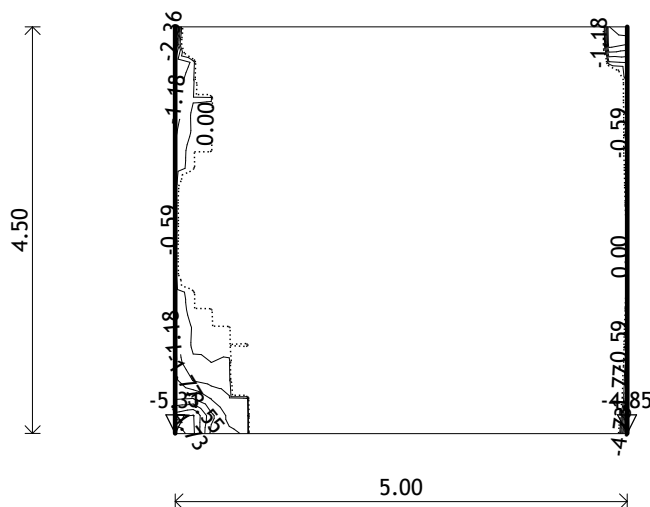


Nivo: Plosca [0.00 m]

Aa - sp.cona - Smer 1 - max Aa1,s= 24.25 c...

Merodajna obtežba: 1-40

EC2 (EN 1992-1-1:2004), C30/37, S500N, a=...

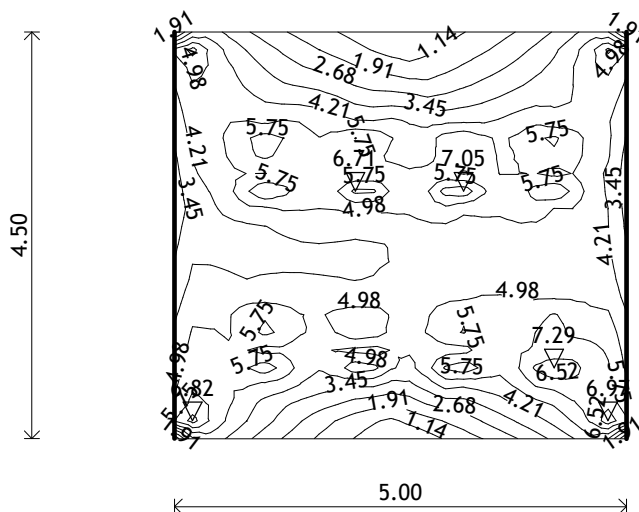


Nivo: Plosca [0.00 m]

Aa - zg.cona - Smer 1 - max Aa1,z= -5.31 cm²/m

Merodajna obtežba: 1-40

EC2 (EN 1992-1-1:2004), C30/37, S500N, a=...

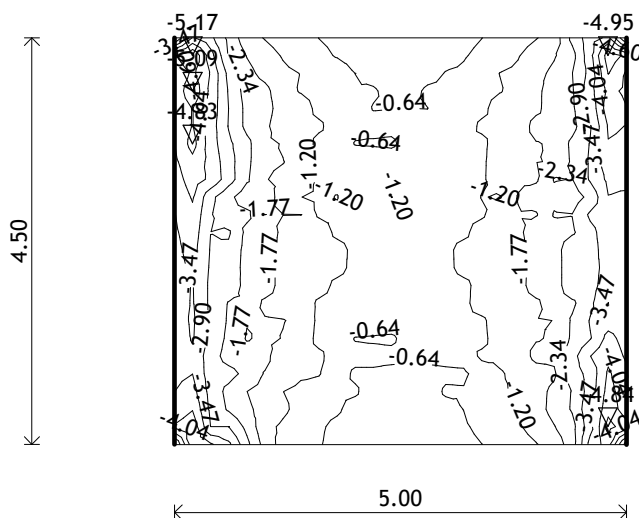


Nivo: Plosca [0.00 m]

Aa - sp.cona - Smer 2 - max Aa2,s= 7.29 cm²/m

Merodajna obtežba: 1-40

EC2 (EN 1992-1-1:2004), C30/37, S500N, a=...



Nivo: Plosca [0.00 m]

Aa - zg.cona - Smer 2 - max Aa2,z= -5.17 cm²/m



PROVOG
inženirske storitve

Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust

Stran: 29/35

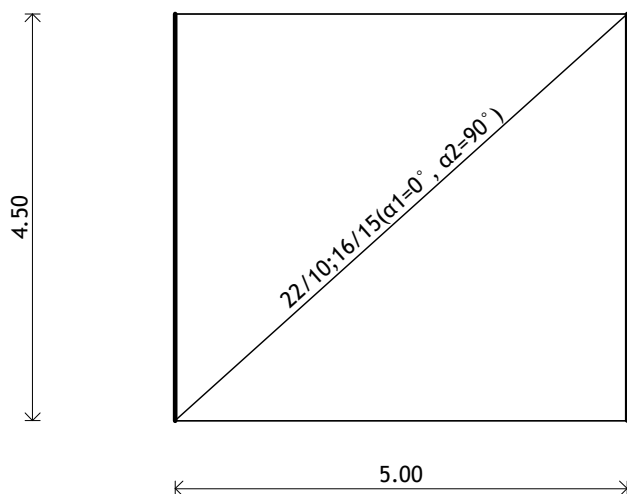
Investitor: Občina Dobrna

Datum: apr 2026

STATIČNI IZRAČUN:

Osvojena armatura

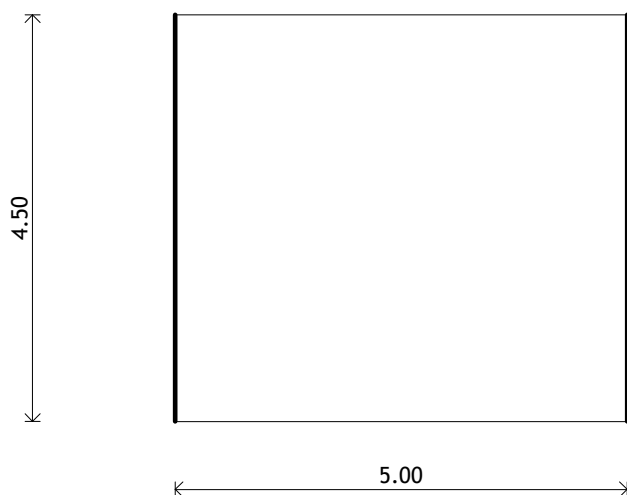
EC2 (EN 1992-1-1:2004), C30/37, S500N, $a=...$



Nivo: Plosca [0.00 m]

Aa - sp.cona

EC2 (EN 1992-1-1:2004), C30/37, S500N, $a=...$

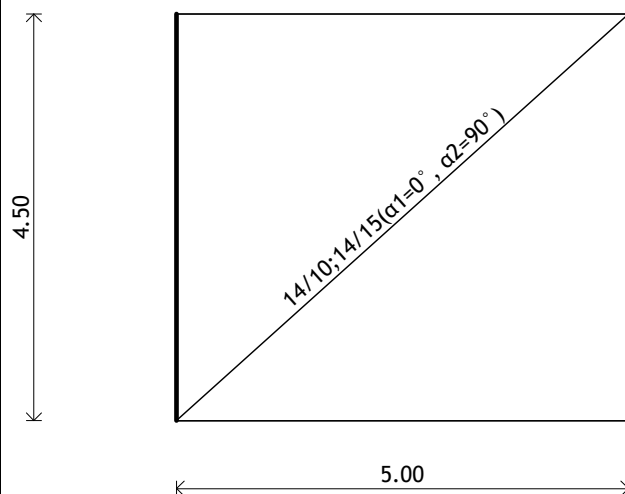


Nivo: Plosca [0.00 m]

Dispozicija plošč

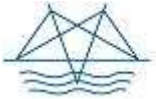
Osvojena armatura

EC2 (EN 1992-1-1:2004), C30/37, S500N, $a=...$



Nivo: Plosca [0.00 m]

Aa - zg.cona

 PROVOG inženirske storitve	Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust	Stran: 30/35
	Investitor: Občina Dobrna	Datum: apr 2026
	STATIČNI IZRAČUN:	

Nivo: Plosca [0.00 m]

EC2 (EN 1992-1-1:2004)

d.pl=35.0 cm

C30/37 ($\gamma_C = 1.50$, $\gamma_S = 1.15$) [SP]

Zgornja cona: S500N (a=5.0 cm)

Spodnja cona: S500N (a=5.0 cm)

Dimenzioniranje skupine obtežnih primerov: 1-40 (MSN)

Točka 1

X=-0.00 m; Y=0.00 m; Z=0.00 m

Spodnja cona

Smer 1: ($\alpha=0^\circ$)

Merodajna kombinacija:

1.35xI+1.01xII+0.54xIII+1.50xIX

M_{Ed} = 47.80 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=29.18 M2=-3.80 Mxy=18.62 [kNm]

ε_b/ε_a = -1.361/25.000 ‰

As1 = 3.73 cm²/m

Osvojeno (spodnja cona) (1.27%):
22/10;16/15 Ø22/10 (38.01 cm²/m)

Smer 2: ($\alpha=90^\circ$)

Merodajna kombinacija:

1.35xI+1.35xIV+1.35xV+0.60xIX

M_{Ed} = -4.13 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=-6.95 M2=-5.99 Mxy=-3.60 [kNm]

ε_b/ε_a = -0.758/25.000 ‰

As2 = 1.22 cm²/m

Osvojeno (spodnja cona) (0.45%):
22/10;16/15 Ø16/15 (13.40 cm²/m)

Zgornja cona

Smer 1: ($\alpha=0^\circ$)

Merodajna kombinacija:

1.35xI+1.01xIV+0.54xV+1.50xVIII

M_{Ed} = -67.74 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=-41.01 M2=-1.66 Mxy=-26.73 [kNm]

ε_b/ε_a = -1.697/25.000 ‰

Az1 = 5.31 cm²/m

Osvojeno (zgornja cona) (0.51%):
14/10;14/15 Ø14/10 (15.39 cm²/m)

Smer 2: ($\alpha=90^\circ$)

Merodajna kombinacija:

1.35xI+1.01xIV+0.54xV+1.50xVIII

M_{Ed} = -28.39 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=-41.01 M2=-1.66 Mxy=-26.73 [kNm]

ε_b/ε_a = -1.001/25.000 ‰

Az2 = 2.20 cm²/m

Osvojeno (zgornja cona) (0.34%):
14/10;14/15 Ø14/15 (10.26 cm²/m)

Točka 2

X=0.20 m; Y=4.30 m; Z=0.00 m

Spodnja cona

Smer 1: ($\alpha=0^\circ$)

Merodajna kombinacija:

1.35xI+1.01xII+0.54xIII+1.50xVIII

M_{Ed} = 64.10 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=18.21 M2=30.64 Mxy=45.89 [kNm]

ε_b/ε_a = -1.637/25.000 ‰

As1 = 5.02 cm²/m

Osvojeno (spodnja cona) (1.27%):
22/10;16/15 Ø22/10 (38.01 cm²/m)

Smer 2: ($\alpha=90^\circ$)

Merodajna kombinacija:

1.35xI+1.01xII+0.54xIII+1.50xVIII

M_{Ed} = 76.53 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=18.21 M2=30.64 Mxy=45.89 [kNm]

ε_b/ε_a = -1.842/25.000 ‰

As2 = 6.02 cm²/m

Osvojeno (spodnja cona) (0.45%):
22/10;16/15 Ø16/15 (13.40 cm²/m)

Zgornja cona

Smer 1: ($\alpha=0^\circ$)

Merodajna kombinacija:

1.00xI

M_{Ed} = 0.00 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=4.52 M2=0.34 Mxy=4.27 [kNm]

Az1 = 0.00 cm²/m

Osvojeno (zgornja cona) (0.51%):
14/10;14/15 Ø14/10 (15.39 cm²/m)

Smer 2: ($\alpha=90^\circ$)

Merodajna kombinacija:

1.35xI+1.01xIV+0.54xV+1.50xIX

M_{Ed} = -65.89 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=20.09 M2=-32.45 Mxy=-33.44 [kNm]

ε_b/ε_a = -1.667/25.000 ‰

Az2 = 5.17 cm²/m

Osvojeno (zgornja cona) (0.34%):
14/10;14/15 Ø14/15 (10.26 cm²/m)

Točka 3

X=3.20 m; Y=0.78 m; Z=0.00 m

Spodnja cona

Smer 1: ($\alpha=0^\circ$)

Merodajna kombinacija:

1.35xI+1.35xIV+1.35xV+0.60xVIII

M_{Ed} = 287.77 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=274.13 M2=65.39 Mxy=13.63 [kNm]

ε_b/ε_a = -3.500/12.653 ‰

As1 = 24.25 cm²/m

Osvojeno (spodnja cona) (1.27%):
22/10;16/15 Ø22/10 (38.01 cm²/m)

Smer 2: ($\alpha=90^\circ$)

Merodajna kombinacija:

1.35xI+1.35xIV+1.35xV+0.60xVIII

M_{Ed} = 79.03 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=274.13 M2=65.39 Mxy=13.63 [kNm]

ε_b/ε_a = -1.884/25.000 ‰

As2 = 6.22 cm²/m

Osvojeno (spodnja cona) (0.45%):
22/10;16/15 Ø16/15 (13.40 cm²/m)

Zgornja cona

Smer 1: ($\alpha=0^\circ$)

Merodajna kombinacija:

1.00xI

M_{Ed} = 0.00 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=33.45 M2=2.48 Mxy=1.13 [kNm]

Az1 = 0.00 cm²/m

Osvojeno (zgornja cona) (0.51%):
14/10;14/15 Ø14/10 (15.39 cm²/m)

Smer 2: ($\alpha=90^\circ$)

Merodajna kombinacija:

1.00xIX

M_{Ed} = -16.41 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=-0.57 M2=-12.16 Mxy=-4.25 [kNm]

ε_b/ε_a = -1.767/25.000 ‰

Az2 = 0.54 cm²/m

Osvojeno (zgornja cona) (0.34%):
14/10;14/15 Ø14/15 (10.26 cm²/m)

Točka 4

X=4.20 m; Y=0.78 m; Z=0.00 m

Spodnja cona

Smer 1: ($\alpha=0^\circ$)

Merodajna kombinacija:

1.35xI+1.35xIV+1.35xV+0.60xVIII

M_{Ed} = 201.56 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=173.98 M2=59.79 Mxy=27.58 [kNm]

ε_b/ε_a = -3.500/20.228 ‰

As1 = 16.46 cm²/m

Osvojeno (spodnja cona) (1.27%):
22/10;16/15 Ø22/10 (38.01 cm²/m)

Smer 2: ($\alpha=90^\circ$)

Merodajna kombinacija:

1.35xI+1.01xIV+0.54xV+1.50xVIII

M_{Ed} = 92.31 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=131.55 M2=62.56 Mxy=29.75 [kNm]

ε_b/ε_a = -2.105/25.000 ‰

As2 = 7.29 cm²/m

Osvojeno (spodnja cona) (0.45%):
22/10;16/15 Ø16/15 (13.40 cm²/m)

Zgornja cona

Smer 1: ($\alpha=0^\circ$)

Merodajna kombinacija:

1.00xI

M_{Ed} = 0.00 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=19.43 M2=1.68 Mxy=2.34 [kNm]

Az1 = 0.00 cm²/m

Osvojeno (zgornja cona) (0.51%):
14/10;14/15 Ø14/10 (15.39 cm²/m)

Smer 2: ($\alpha=90^\circ$)

Merodajna kombinacija:

1.00xIX

M_{Ed} = -29.35 kNm [Mxy]

N_{Ed} = 0.00 kN

[Mxy] M1=0.65 M2=-19.62 Mxy=-9.74 [kNm]

ε_b/ε_a = -1.849/25.000 ‰

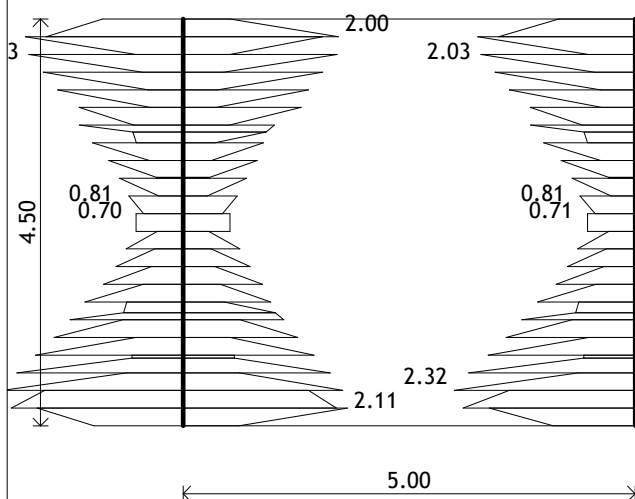
Az2 = 1.67 cm²/m

Osvojeno (zgornja cona) (0.34%):
14/10;14/15 Ø14/15 (10.26 cm²/m)

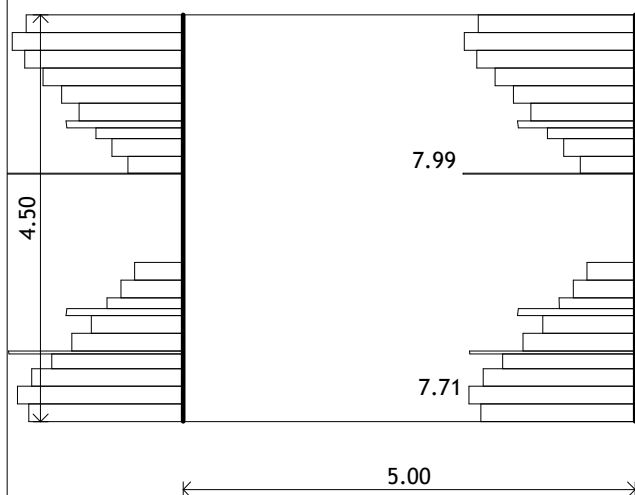


STATIČNI IZRAČUN:

Merodajna obtežba: 1-40
EC2 (EN 1992-1-1:2004), C30/37, S500N

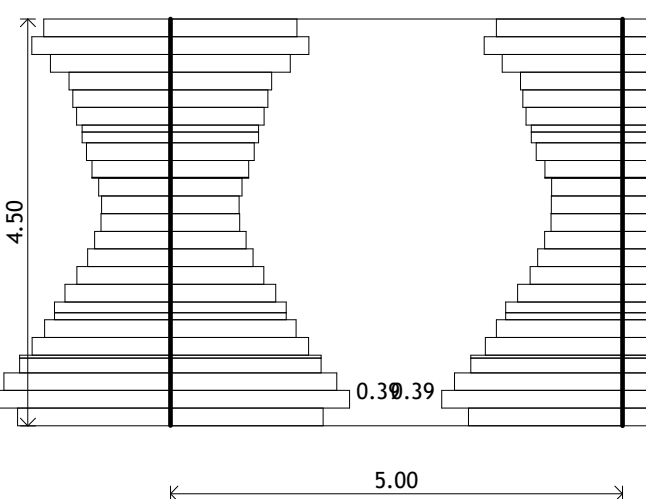


Nivo: Plosca [0.00 m]
Armatura v gredah: max Aa2/Aa1= 2.32 / 2.1...
Merodajna obtežba: 1-40
EC2 (EN 1992-1-1:2004), C30/37, S500N

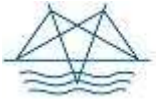


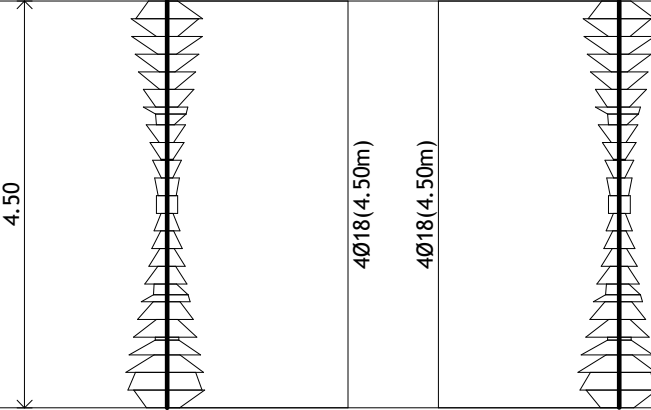
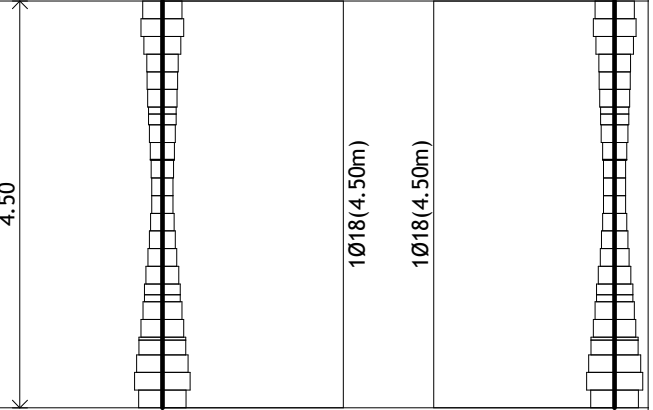
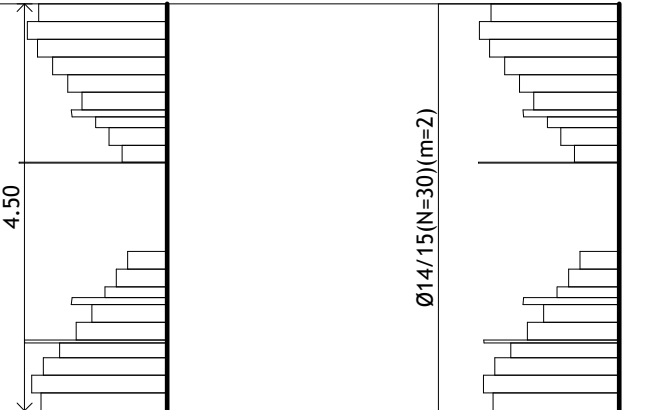
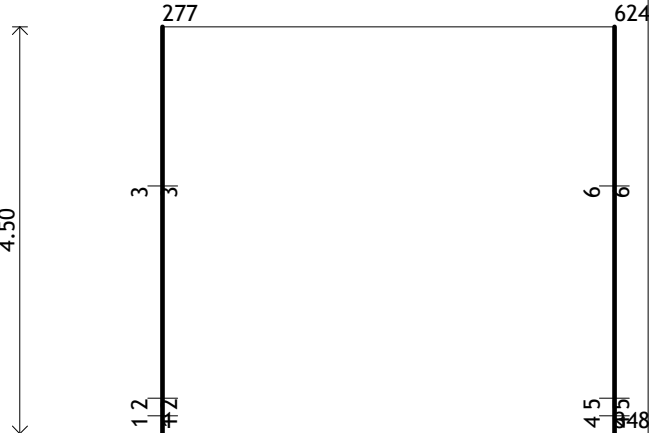
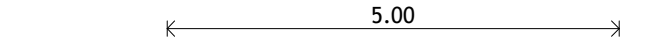
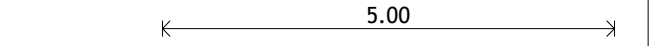
Nivo: Plosca [0.00 m]
Armatura v gredah: max Aa,st= 8.39 cm²

Merodajna obtežba: 1-40
EC2 (EN 1992-1-1:2004), C30/37, S500N



Nivo: Plosca [0.00 m]
Armatura v gredah: max Aa3/Aa4= 0.39 / 0.3...

	Projekt: Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023 - prepust	Stran: 32/35
	Investitor: Občina Dobrna	Datum: apr 2026
	STATIČNI IZRAČUN:	

Osvojena armatura EC2 (EN 1992-1-1:2004), C30/37, S500N 	Osvojena armatura EC2 (EN 1992-1-1:2004), C30/37, S500N 
Nivo: Plosca [0.00 m] Armatura v gredah (osvojena): Aa2/Aa1 Osvojena armatura EC2 (EN 1992-1-1:2004), C30/37, S500N 	Nivo: Plosca [0.00 m] Armatura v gredah (osvojena): Aa3/Aa4 
Nivo: Plosca [0.00 m] Armatura v gredah (osvojena): Aa,st 	Nivo: Plosca [0.00 m] Dispozicija gred 

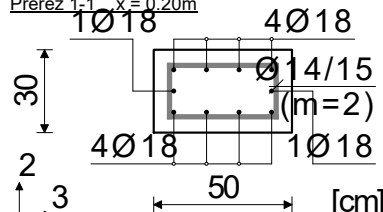


STATIČNI IZRAČUN:

Greda 1-277

EC2 (EN 1992-1-1:2004)
C30/37 ($\gamma_C = 1.50$, $\gamma_S = 1.15$) [SP]
S500N
Dimenzioniranje skupine obtežnih
primerov: 1-40 (MSN)

Prerez 1-1 $x = 0.20m$



Merodajna kombinacija za upogib:
 $1.35xI + 1.01xII + 0.54xIII + 1.50xIX$
 $N1_{Ed} = -23.93 \text{ kN}$
 $M2_{Ed} = 32.90 \text{ kNm}$
 $M3_{Ed} = 1.24 \text{ kNm}$

Merodajna kombinacija za torzijo:
 $1.35xI + 1.01xIV + 0.54xV + 1.50xVIII$
 $M1_{Ed} = -12.15 \text{ kNm}$

Merodajna kombinacija za strig:

$1.35xI + 1.01xII + 0.54xIII + 1.50xIX$
 $V2_{Ed} = 4.36 \text{ kN}$
 $V3_{Ed} = 219.12 \text{ kN}$
 $M1_{Ed} = 6.81 \text{ kNm}$

$V2_{Rd,max} = 594.00 \text{ kN}$

$V3_{Rd,max} = 641.52 \text{ kN}$

$\epsilon_b/\epsilon_a = -2.087/25.000 \text{ ‰}$

$Aa1 = 1.44 + 0.67' = 2.11 \text{ cm}^2$

$Aa2 = 1.21 + 0.67' = 1.87 \text{ cm}^2$

$Aa3 = 0.00 + 0.33' = 0.33 \text{ cm}^2$

$Aa4 = 0.00 + 0.33' = 0.33 \text{ cm}^2$

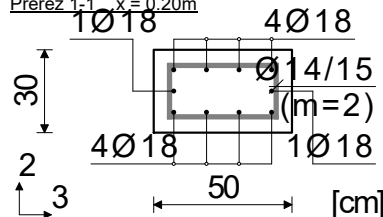
$Aa, st = 7.16 \text{ cm}^2/m \quad (m=2)$

[Osvojeno $Aa, st = \emptyset 14/15(m=2) = 10.26 \text{ cm}^2/m$]

Procent armiranja: 1.70%

*) - dodatna vzdolžna armatura za prevzem torzije.

Prerez 1-1 $x = 0.20m$



Merodajna kombinacija za upogib:
 $1.35xI + 1.01xIV + 0.54xV + 1.50xIX$
 $N1_{Ed} = -0.61 \text{ kN}$
 $M2_{Ed} = -27.19 \text{ kNm}$
 $M3_{Ed} = -0.27 \text{ kNm}$

Merodajna kombinacija za torzijo:
 $1.35xI + 1.01xIV + 0.54xV + 1.50xVIII$
 $M1_{Ed} = -14.25 \text{ kNm}$

Merodajna kombinacija za strig:

$1.35xI + 1.01xII + 0.54xIII + 1.50xIX$
 $V2_{Ed} = -1.61 \text{ kN}$
 $V3_{Ed} = 237.23 \text{ kN}$
 $M1_{Ed} = 6.91 \text{ kNm}$

$V2_{Rd,max} = 594.00 \text{ kN}$

$V3_{Rd,max} = 641.52 \text{ kN}$

$\epsilon_b/\epsilon_a = -1.930/25.000 \text{ ‰}$

$Aa1 = 1.19 + 0.78' = 1.97 \text{ cm}^2$

$Aa2 = 1.42 + 0.78' = 2.21 \text{ cm}^2$

$Aa3 = 0.00 + 0.39' = 0.39 \text{ cm}^2$

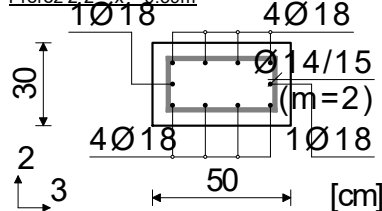
$Aa4 = 0.00 + 0.39' = 0.39 \text{ cm}^2$

$Aa, st = 7.68 \text{ cm}^2/m \quad (m=2)$

[Osvojeno $Aa, st = \emptyset 14/15(m=2) = 10.26 \text{ cm}^2/m$]

Procent armiranja: 1.70%

Prerez 2-2 $x = 0.39m$



Merodajna kombinacija za upogib:
 $1.35xI + 1.01xIV + 0.54xV + 1.50xIX$
 $N1_{Ed} = -1.39 \text{ kN}$
 $M2_{Ed} = -30.45 \text{ kNm}$
 $M3_{Ed} = -0.06 \text{ kNm}$

Merodajna kombinacija za torzijo:
 $1.35xI + 1.01xIV + 0.54xV + 1.50xVIII$
 $M1_{Ed} = -13.22 \text{ kNm}$

Merodajna kombinacija za strig:

$1.35xI + 1.01xII + 0.54xIII + 1.50xIX$
 $V2_{Ed} = -0.95 \text{ kN}$
 $V3_{Ed} = 218.63 \text{ kN}$
 $M1_{Ed} = 5.92 \text{ kNm}$

$V2_{Rd,max} = 594.00 \text{ kN}$

$V3_{Rd,max} = 641.52 \text{ kN}$

$\epsilon_b/\epsilon_a = -2.135/25.000 \text{ ‰}$

$Aa1 = 1.33 + 0.73' = 2.05 \text{ cm}^2$

$Aa2 = 1.59 + 0.73' = 2.32 \text{ cm}^2$

$Aa3 = 0.00 + 0.36' = 0.36 \text{ cm}^2$

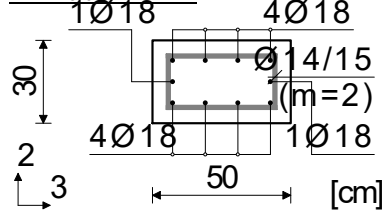
$Aa4 = 0.00 + 0.36' = 0.36 \text{ cm}^2$

$Aa, st = 7.02 \text{ cm}^2/m \quad (m=2)$

[Osvojeno $Aa, st = \emptyset 14/15(m=2) = 10.26 \text{ cm}^2/m$]

Procent armiranja: 1.70%

Prerez 3-3 $x = 2.74m$



Merodajna kombinacija za upogib:
 $1.00xI$
 $N1_{Ed} = 0.00 \text{ kN}$
 $M2_{Ed} = 0.00 \text{ kNm}$
 $M3_{Ed} = -0.01 \text{ kNm}$

Merodajna kombinacija za torzijo:
 $1.35xI + 1.35xIV + 1.35xV + 0.60xIX$
 $M1_{Ed} = -6.23 \text{ kNm}$

Merodajna kombinacija za strig:

$1.35xI + 1.35xIV + 1.35xV + 0.60xIX$
 $V2_{Ed} = -154.45 \text{ kN}$
 $V3_{Ed} = -25.14 \text{ kN}$
 $M1_{Ed} = -3.63 \text{ kNm}$

$V2_{Rd,max} = 594.00 \text{ kN}$

$V3_{Rd,max} = 641.52 \text{ kN}$

$Aa1 = 0.00 + 0.34' = 0.34 \text{ cm}^2$

$Aa2 = 0.00 + 0.34' = 0.34 \text{ cm}^2$

$Aa3 = 0.00 + 0.17' = 0.17 \text{ cm}^2$

$Aa4 = 0.00 + 0.17' = 0.17 \text{ cm}^2$

$Aa, st = 8.39 \text{ cm}^2/m \quad (m=2)$

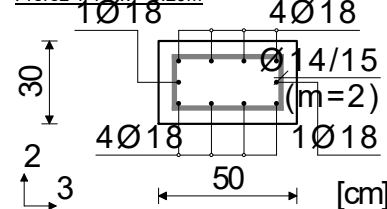
[Osvojeno $Aa, st = \emptyset 14/15(m=2) = 10.26 \text{ cm}^2/m$]

Procent armiranja: 1.70%

Greda 348-624

EC2 (EN 1992-1-1:2004)
C30/37 ($\gamma_C = 1.50$, $\gamma_S = 1.15$) [SP]
S500N
Dimenzioniranje skupine obtežnih
primerov: 1-40 (MSN)

Prerez 4-4 $x = 0.20m$



Merodajna kombinacija za upogib:
 $1.35xI + 1.01xII + 0.54xIII + 1.50xIX$
 $N1_{Ed} = -23.93 \text{ kN}$
 $M2_{Ed} = -32.90 \text{ kNm}$
 $M3_{Ed} = 1.24 \text{ kNm}$

Merodajna kombinacija za torzijo:
 $1.35xI + 1.01xIV + 0.54xV + 1.50xVIII$
 $M1_{Ed} = 12.24 \text{ kNm}$

Merodajna kombinacija za strig:

$1.35xI + 1.01xII + 0.54xIII + 1.50xIX$
 $V2_{Ed} = 4.23 \text{ kN}$
 $V3_{Ed} = -219.12 \text{ kN}$
 $M1_{Ed} = -6.87 \text{ kNm}$

$V2_{Rd,max} = 594.00 \text{ kN}$

$V3_{Rd,max} = 641.52 \text{ kN}$

$\epsilon_b/\epsilon_a = -2.087/25.000 \text{ ‰}$

$Aa1 = 1.44 + 0.67' = 2.12 \text{ cm}^2$

$Aa2 = 1.21 + 0.67' = 1.88 \text{ cm}^2$

$Aa3 = 0.00 + 0.34' = 0.34 \text{ cm}^2$

$Aa4 = 0.00 + 0.34' = 0.34 \text{ cm}^2$

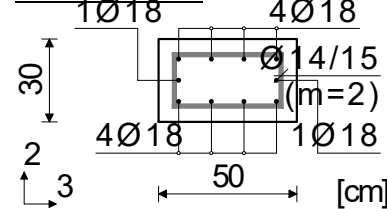
$Aa, st = 7.16 \text{ cm}^2/m \quad (m=2)$

[Osvojeno $Aa, st = \emptyset 14/15(m=2) = 10.26 \text{ cm}^2/m$]

Procent armiranja: 1.70%

*) - dodatna vzdolžna armatura za prevzem torzije.

Prerez 4-4 $x = 0.20m$



Merodajna kombinacija za upogib:
 $1.35xI + 1.01xIV + 0.54xV + 1.50xIX$
 $N1_{Ed} = -0.61 \text{ kN}$
 $M2_{Ed} = 27.19 \text{ kNm}$
 $M3_{Ed} = -0.27 \text{ kNm}$

Merodajna kombinacija za torzijo:
 $1.35xI + 1.01xIV + 0.54xV + 1.50xVIII$
 $M1_{Ed} = 14.37 \text{ kNm}$

Merodajna kombinacija za strig:

$1.35xI + 1.01xII + 0.54xIII + 1.50xIX$
 $V2_{Ed} = -1.62 \text{ kN}$
 $V3_{Ed} = -237.23 \text{ kN}$
 $M1_{Ed} = -7.12 \text{ kNm}$

$V2_{Rd,max} = 594.00 \text{ kN}$

$V3_{Rd,max} = 641.52 \text{ kN}$

$\epsilon_b/\epsilon_a = -1.930/25.000 \text{ ‰}$

$Aa1 = 1.19 + 0.79' = 1.98 \text{ cm}^2$

$Aa2 = 1.42 + 0.79' = 2.21 \text{ cm}^2$

$Aa3 = 0.00 + 0.39' = 0.39 \text{ cm}^2$

$Aa4 = 0.00 + 0.39' = 0.39 \text{ cm}^2$

$Aa, st = 7.71 \text{ cm}^2/m \quad (m=2)$

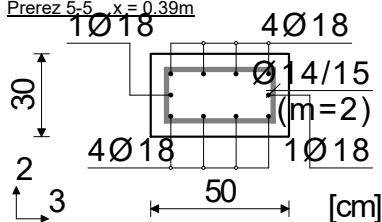
[Osvojeno $Aa, st = \emptyset 14/15(m=2) = 10.26 \text{ cm}^2/m$]

Procent armiranja: 1.70%



STATIČNI IZRAČUN:

Prerez 5-5, $x = 0.39m$



Merodajna kombinacija za upogib:

$1.35xI + 1.01xIV + 0.54xV + 1.50xIX$

$N1_{Ed} = -1.39 \text{ kN}$

$M2_{Ed} = 30.45 \text{ kNm}$

$M3_{Ed} = -0.25 \text{ kNm}$

Merodajna kombinacija za torzijo:

$1.35xI + 1.01xIV + 0.54xV + 1.50xVIII$

$M1_{Ed} = 13.35 \text{ kNm}$

Merodajna kombinacija za strig:

$1.35xI + 1.01xII + 0.54xIII + 1.50xIX$

$V2_{Ed} = -0.94 \text{ kN}$

$V3_{Ed} = -218.63 \text{ kN}$

$M1_{Ed} = -6.18 \text{ kNm}$

$V2_{Rd,max} = 594.00 \text{ kN}$

$V3_{Rd,max} = 641.52 \text{ kN}$

$\epsilon_b/\epsilon_a = -2.095/25.000 \text{ ‰}$

$Aa1 = 1.33 + 0.73' = 2.06 \text{ cm}^2$

$Aa2 = 1.59 + 0.73' = 2.32 \text{ cm}^2$

$Aa3 = 0.00 + 0.37' = 0.37 \text{ cm}^2$

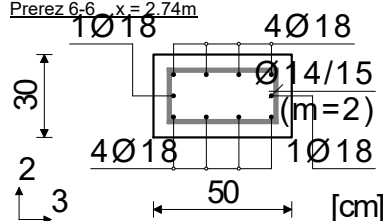
$Aa4 = 0.00 + 0.37' = 0.37 \text{ cm}^2$

$Aa_{st} = 7.06 \text{ cm}^2/m \quad (m=2)$

[Osvojeno $Aa_{st} = \phi 14/15 (m=2) = 10.26 \text{ cm}^2/m$]

Procent armiranja: 1.70%

Prerez 6-6, $x = 2.74m$



Merodajna kombinacija za upogib:

$1.00xI$

$N1_{Ed} = 0.00 \text{ kN}$

$M2_{Ed} = 0.00 \text{ kNm}$

$M3_{Ed} = -0.01 \text{ kNm}$

Merodajna kombinacija za torzijo:

$1.35xI + 1.35xIV + 1.35xV + 0.60xIX$

$M1_{Ed} = 6.18 \text{ kNm}$

Merodajna kombinacija za strig:

$1.35xI + 1.35xIV + 1.35xV + 0.60xVIII$

$V2_{Ed} = -154.45 \text{ kN}$

$V3_{Ed} = -8.98 \text{ kN}$

$M1_{Ed} = -0.70 \text{ kNm}$

$V2_{Rd,max} = 594.00 \text{ kN}$

$V3_{Rd,max} = 641.52 \text{ kN}$

$Aa1 = 0.00 + 0.34' = 0.34 \text{ cm}^2$

$Aa2 = 0.00 + 0.34' = 0.34 \text{ cm}^2$

$Aa3 = 0.00 + 0.17' = 0.17 \text{ cm}^2$

$Aa4 = 0.00 + 0.17' = 0.17 \text{ cm}^2$

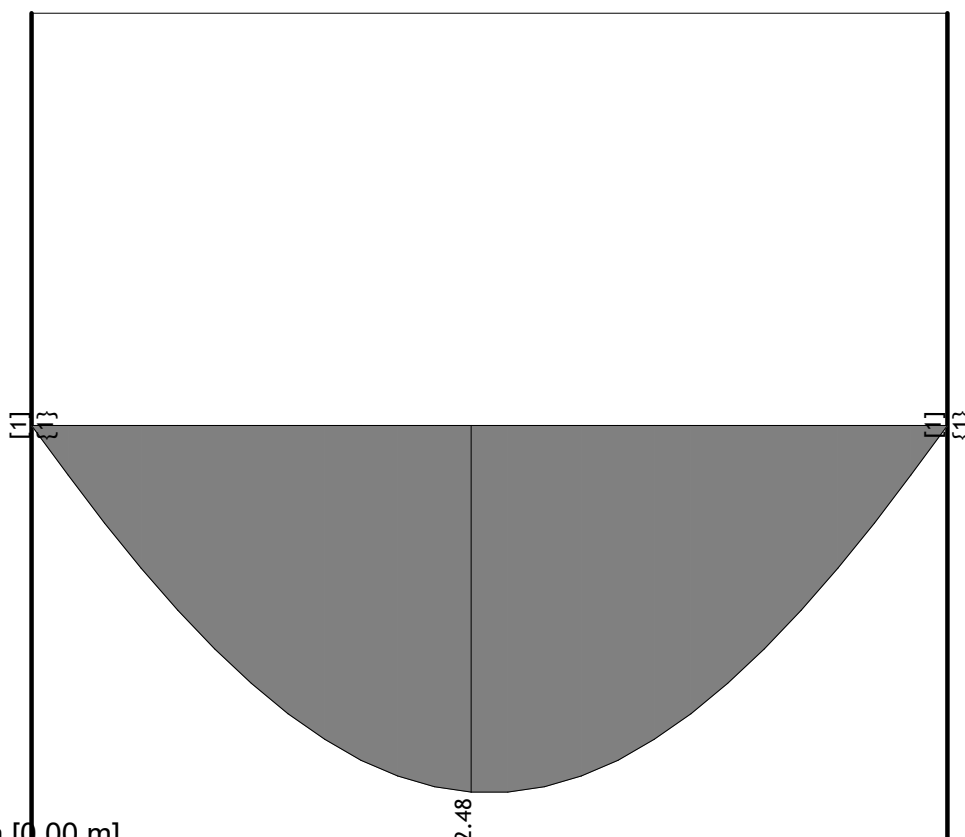
$Aa_{st} = 7.99 \text{ cm}^2/m \quad (m=2)$

[Osvojeno $Aa_{st} = \phi 14/15 (m=2) = 10.26 \text{ cm}^2/m$]

Procent armiranja: 1.70%



STATIČNI IZRAČUN:



Nivo: Plosca [0.00 m]

Diagram pomikov v plošči (T^∞)

Nivo: Plosca [0.00 m] - EC2 (EN 1992-1-1:2004)

C30/37 (d,pl=35.0 cm)
Zgornja cona: S500N (a=5.0 cm)
Spodnja cona: S500N (a=5.0 cm)
Model elastičnosti betona
Natezna trdnost pri upogibu
Modul elastičnosti armature
Koef.vpliva oprijemljivosti arm.

$E_b(t_0) = 33000 \text{ MPa}$
 $f_{bzs} = 2.90 \text{ MPa}$
 $E_a = 2.00 \times 10^5 \text{ MPa}$
 $k_1 = 0.80$

Koeficient lezenja betona
Dilatacija krčenja betona
Kot = 0°

$\varphi^\infty = 1.86$
 $\epsilon_s = 0.32 \text{ ‰}$

Prerez 1-1

X=2.40 m; Y=2.35 m; Z=0.00 m

Zgornja cona
Ø14/10 $\alpha = 0^\circ$
Ø14/15 $\alpha = 90^\circ$

Spodnja cona
Ø22/10 $\alpha = 0^\circ$
Ø16/15 $\alpha = 90^\circ$

$T = 0$
Merodajna kombinacija: 1.00xI+0.50xIX
 $N_1 = 0.00 \text{ kN/m}$
 $M = 36.57 \text{ kNm/m}$
Velikost začetnega upogiba

ug(0)= 0.72 mm

$T = \infty$
Dolgotrajni vplivi
Merodajna kombinacija: 1.00xI+0.50xIX
 $N_1 = 0.00 \text{ kN/m}$
 $M = 36.57 \text{ kNm/m}$
Velikost trajnega upogiba

ug(∞)= 2.48 mm

Gravity wall analysis

Input data

Task :
Part :
Description :
Customer :
Author :
Date :
Project ID :
Project number :

Sanacija lokalne ceste LC464161 Dobrna - Hudičev graben - Krištaje po poplavah 4.avgust 2023
Opornik - prepušt
Priloga 2
Občina Dobrna
PROVOG d.o.o.
21. 05. 2026
26/22
26/22

Settings

Slovenia - EN 1997

Materials and standards

Concrete structures :
Coefficients EN 1992-1-1 :
Masonry (stone) wall :

EN 1992-1-1 (EC2)
standard
EN 1996-1-1 (EC6)

Wall analysis

Verification methodology :
Active earth pressure calculation :
Passive earth pressure calculation :
Earthquake analysis :
Shape of earth wedge :
Allowable eccentricity :
Design approach :

according to EN 1997
Coulomb
Caquot-Kerisel
Mononobe-Okabe
Calculate as skew
0,333
2 - reduction of actions and resistances

Partial factors on actions (A)			
Permanent design situation			
		Unfavourable	Favourable
Permanent actions :	$Y_G =$	1,35 [-]	1,00 [-]
Variable actions :	$Y_Q =$	1,50 [-]	0,00 [-]
Water load :	$Y_w =$	1,35 [-]	

Partial factors for resistances (R)			
Permanent design situation			
Partial factor on overturning :	$Y_{Rv} =$	1,40 [-]	
Partial factor on sliding resistance :	$Y_{Rh} =$	1,10 [-]	
Partial factor on bearing capacity :	$Y_{Re} =$	1,40 [-]	

Partial factors for variable actions			
Permanent design situation			
Factor for combination value :	$\psi_0 =$	0,70 [-]	
Factor for frequent value :	$\psi_1 =$	0,50 [-]	
Factor for quasi-permanent value :	$\psi_2 =$	0,30 [-]	

Anchors

Verification methodology : Limit states (LSD)

Reduction coefficients			
Reduction. coeff of steel strength :	$\gamma_s =$	1,35 [-]	
Reduction coefficient of pull out resistance (soil) :	$\gamma_e =$	1,35 [-]	

Reduction coefficients

Reduction coefficient of pull out resistance (grouting) :

$Y_c =$	1,35	[-]
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Material of structure

Unit weight $\gamma = 24,00 \text{ kN/m}^3$

Masonry : Category I

Mortar origin : Prescribed mortar

Masonry strength $f_b = 2,00 \text{ MPa}$

Mortar strength $f_m = 2,50$ MPa

Parameters

Compressive strength $f_k = 0,96 \text{ MPa}$

Shear strength $f_{yk0} = 0,10 \text{ MPa}$

Flexural tensile strength $f_{xk} = 0,05 \text{ MPa}$

Partial factor	$\gamma_M = 2,20$
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Geometry of structure

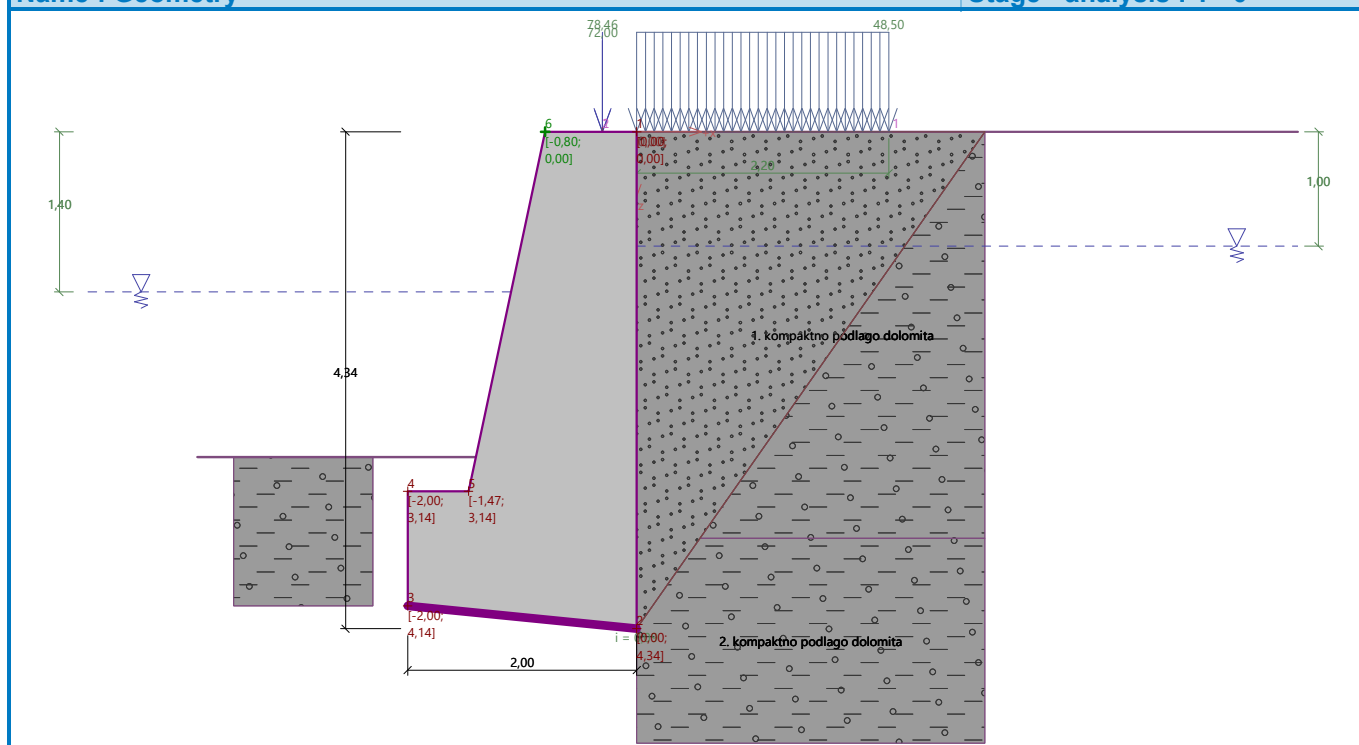
No.	Coordinate X [m]	Depth Z [m]
1	0,00	0,00
2	0,00	4,34
3	-2,00	4,14
4	-2,00	3,14
5	-1,47	3,14
6	-0,80	0,00

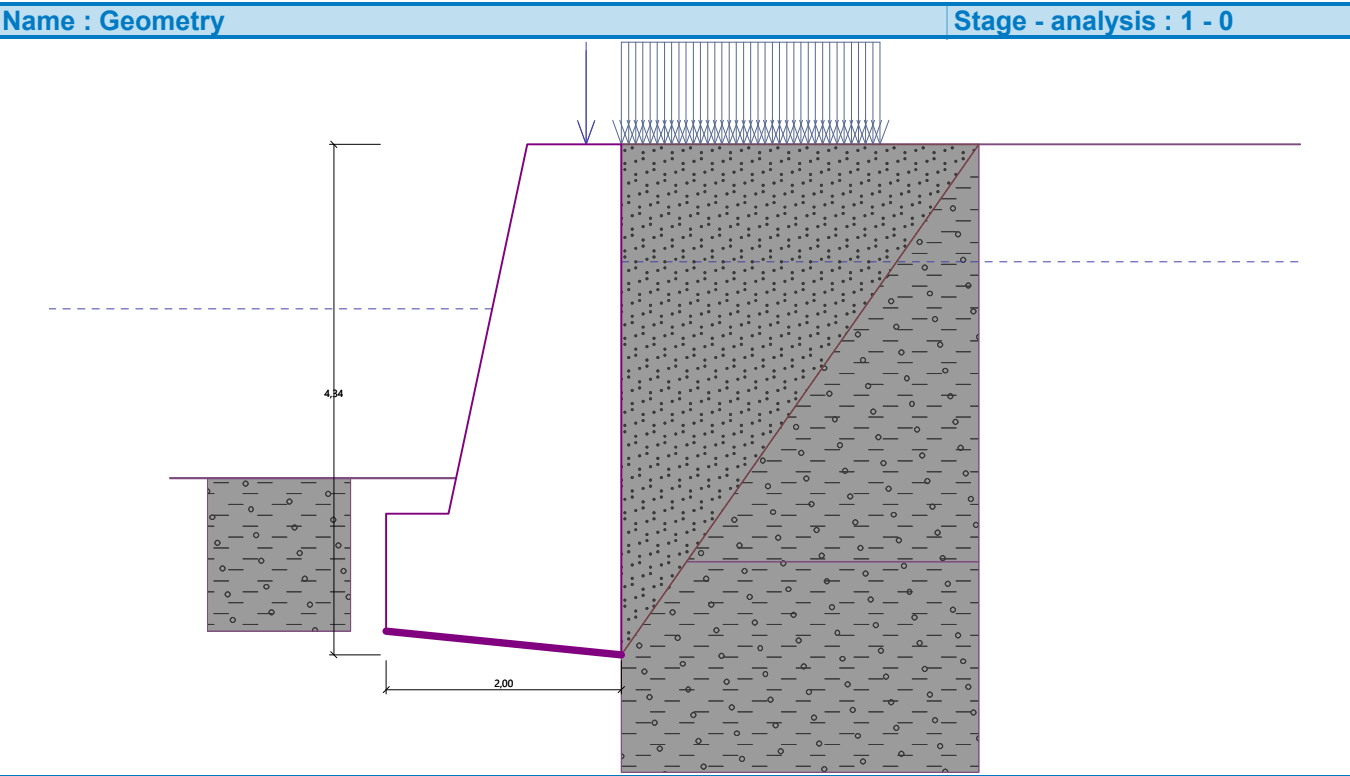
The origin $[0,0]$ is located at the most upper right point of the wall.

Wall section area = 5,76 m².

Name : Geometry

Stage - analysis : 1 - 0





Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [kPa]	γ [kN/m³]	γ_{su} [kN/m³]	δ [°]
1	Tamponsko nasutje		35,00	0,00	22,00	12,50	23,33
2	kompaktno podlago dolomita		35,00	50,00	24,00	14,50	23,33

Soil parameters to compute pressure at rest

No.	Name	Pattern	Type calculation	φ_{ef} [°]	ν [-]	OCR [-]	K_r [-]
1	Tamponsko nasutje		cohesionless	35,00	-	-	-
2	kompaktno podlago dolomita		cohesive	-	0,30	-	-

Soil parameters

Tamponsko nasutje

Unit weight :

Stress-state :

Angle of internal friction :

Cohesion of soil :

Angle of friction struc.-soil :

Soil :

Saturated unit weight :

γ = 22,00 kN/m³

effective

φ_{ef} = 35,00 °

c_{ef} = 0,00 kPa

δ = 23,33 °

cohesionless

γ_{sat} = 22,50 kN/m³

kompaktno podlago dolomita

Unit weight :

Stress-state :

γ = 24,00 kN/m³

effective

Angle of internal friction : $\varphi_{ef} = 35,00^\circ$
 Cohesion of soil : $c_{ef} = 50,00 \text{ kPa}$
 Angle of friction struc.-soil : $\delta = 23,33^\circ$
 Soil : cohesive
 Poisson's ratio : $\nu = 0,30$
 Saturated unit weight : $\gamma_{sat} = 24,50 \text{ kN/m}^3$

Backfill

Assigned soil : Tamponsko nasutje
 Slope = $55,00^\circ$

Geological profile and assigned soils

No.	Thickness of layer t [m]	Depth z [m]	Assigned soil	Pattern
1	3,55	0,00 .. 3,55	kompaktno podlago dolomita	
2	-	3,55 .. ∞	kompaktno podlago dolomita	

Foundation

Type of foundation : soil from geological profile

Terrain profile

Terrain behind the structure is flat.

Water influence

GWT behind the structure lies at a depth of 1,00 m
 GWT in front of the structure lies at a depth of 1,40 m
 Subgrade at the heel is permeable.
 Hydraulic gradient = 0,09

Input surface surcharges

No.	Surcharge		Action	Mag.1 [kN/m ²]	Mag.2 [kN/m ²]	Ord.x x [m]	Length l [m]	Depth z [m]
	new	change						
1	Yes		variable	48,50		0,00	2,20	on terrain

No.	Name
1	Prometna obtežba

Resistance on front face of the structure

Resistance on front face of the structure: 1/3 pass., 2/3 at rest
 Soil on front face of the structure - kompaktno podlago dolomita
 Angle of friction struc.-soil $\delta = 0,00^\circ$
 Soil thickness in front of structure $h = 1,30 \text{ m}$

Terrain in front of structure is flat.

Applied forces acting on the structure

No.	Force		Name	Action	F _x [kN/m]	F _z [kN/m]	M [kNm/m]	x [m]	z [m]
	new	edit							
1	Yes		Obtežba - most stalna teža	permanent	0,00	78,46	0,00	-0,30	0,00
2	Yes		Obtežba - promet	variable	0,00	72,00	0,00	-0,30	0,00

Settings of the stage of construction

Design situation : permanent
 The wall is free to move. Active earth pressure is therefore assumed.
 Reduction of soil/soil friction angle : do not reduce

Verification No. 1

Forces acting on construction

Name	F_{hor} [kN/m]	App.Pt. z [m]	F_{vert} [kN/m]	App.Pt. x [m]	Coeff. overtur.	Coeff. sliding	Coeff. stress
Weight - wall	0,00	-1,91	93,99	1,30	1,000	1,000	1,350
FF resistance	-96,70	-0,59	3,58	-0,04	1,000	1,000	1,350
Active pressure	35,66	-1,35	15,38	2,00	1,350	1,350	1,350
Water pressure	6,68	-1,89	0,00	2,00	1,350	1,350	1,350
Prometna obtežba	38,86	-2,31	16,76	2,00	1,500	1,500	1,500
Obtežba - most stalna teža	0,00	-4,14	78,46	1,70	1,000	1,000	1,350
Obtežba - promet	0,00	-4,14	72,00	1,70	0,000	0,000	1,500

Verification of complete wall

Check for overturning stability

Resisting moment $M_{res} = 248,33$ kNm/m

Overturning moment $M_{ovr} = 159,51$ kNm/m

Wall for overturning is **SATISFACTORY**

Check for slip

Resisting horizontal force $H_{res} = 218,56$ kN/m

Active horizontal force $H_{act} = -3,43$ kN/m

Wall for slip is **SATISFACTORY**

Overall check - **WALL is SATISFACTORY**

Maximum stress in footing bottom : 193,08 kPa

Bearing capacity of foundation soil

Design load acting at the center of footing bottom

No.	Moment [kNm/m]	Norm. force [kN/m]	Shear Force [kN/m]	Eccentricity [-]	Stress [kPa]
1	-89,76	388,09	-53,65	0,000	193,08
2	35,65	222,69	-3,51	0,080	131,79

Service load acting at the center of footing bottom

No.	Moment [kNm/m]	Norm. force [kN/m]	Shear Force [kN/m]
1	-69,00	277,23	-43,02
2	-18,60	205,59	-35,89

Verification of foundation soil

Stress in the footing bottom : rectangle

Eccentricity verification

Max. eccentricity of normal force $e = 0,080$

Maximum allowable eccentricity $e_{alw} = 0,333$

Eccentricity of the normal force is **SATISFACTORY**

Verification of bearing capacity

Bearing capacity of foundation soil $R = 300,00$ kPa

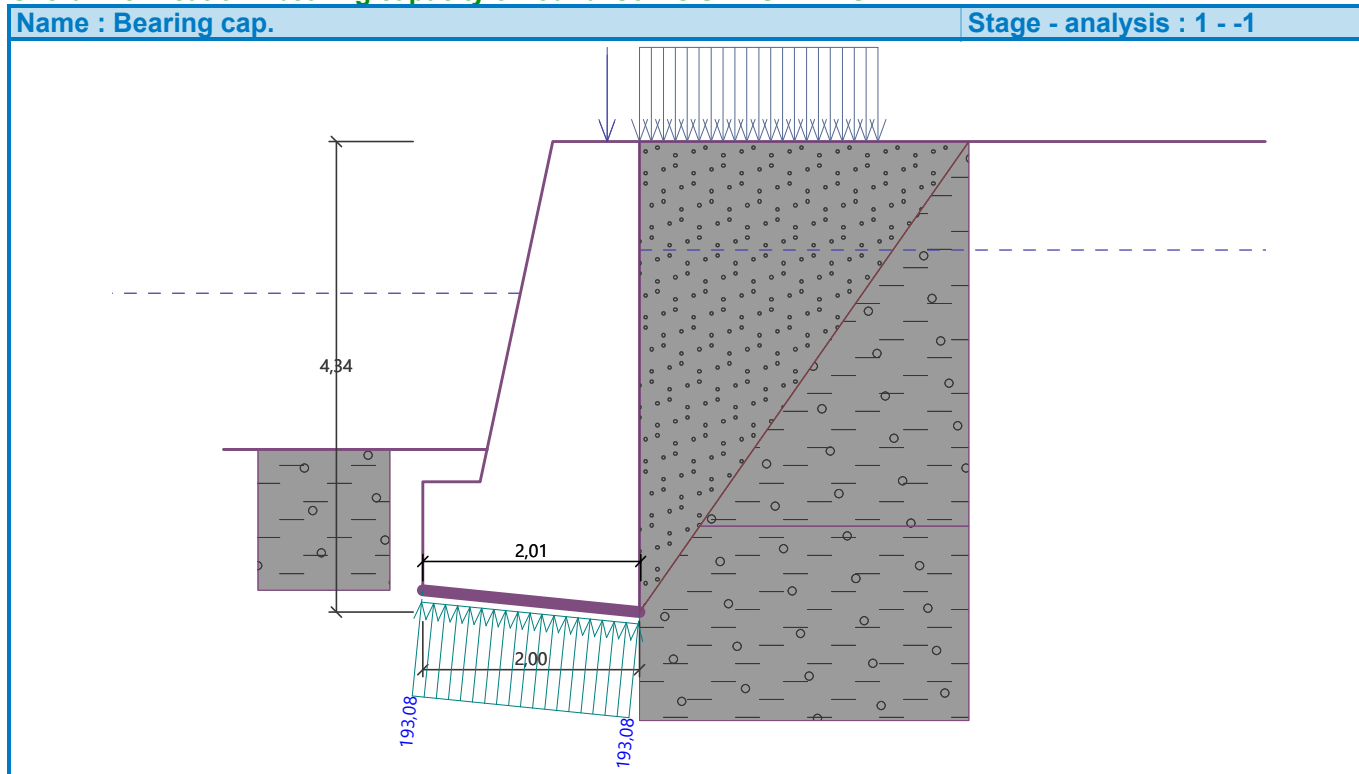
Partial factor on bearing capacity $\gamma_{Rv} = 1,40$

Max. stress at footing bottom $\sigma = 193,08$ kPa

Bearing capacity of foundation soil $R_d = 214,29 \text{ kPa}$

Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY



Dimensioning No. 1

Forces acting on construction

Name	F_{hor} [kN/m]	App.Pt. z [m]	F_{vert} [kN/m]	App.Pt. x [m]	Coeff. moment	Coeff. norm.force	Coeff. shear for.
Weight - wall	0,00	-1,48	57,12	0,86	1,000	1,000	1,000
Active pressure	16,60	-1,01	7,16	1,41	1,350	1,350	1,350
Water pressure	3,68	-1,09	0,00	1,41	1,350	1,350	1,350
Prometna obtežba	30,25	-1,41	13,05	1,41	1,500	1,500	1,500
Obtežba - most stalna teža	0,00	-2,84	78,46	1,11	1,000	1,000	1,000
Obtežba - promet	0,00	-2,84	72,00	1,11	0,000	0,000	0,000

Wall check at the construction joint 2,84 m from the wall crest

Cross-section depth $h = 1,41 \text{ m}$

Ultimate shear force $V_{Rd} = 83,07 \text{ kN/m} > 72,74 \text{ kN/m} = V_{Ed}$

Allowable eccentricity of cross section $e_{lim} = 0,63 \text{ m} > 0,19 \text{ m} = e$

Ultimate compressive force $N_{Rd} = 450,50 \text{ kN/m} > 164,82 \text{ kN/m} = N_{Ed}$

Ultimate moment $M_{Rd} = 84,79 \text{ kNm/m} > 30,97 \text{ kNm/m} = M_{Ed}$

Cross-section bearing capacity is SATISFACTORY

