

| | | |
|---|---|---------------|
|  <div>DETAJL INFRASTRUKTURA</div> | Hidrološke izboljšave vodovodnega sistema Hubelj - VH izvir Hubelj Vodohran VH 1000 | list 1 /21 |
| Vsebina | | |
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Osnovni podatki o modelu, Vhodni podatki - Konstrukcija

Datoteka: vodihran VH1000 objekt A z vrati- H2.twp
Datum preračuna: 20.5.2021

Način preračuna: 3D model

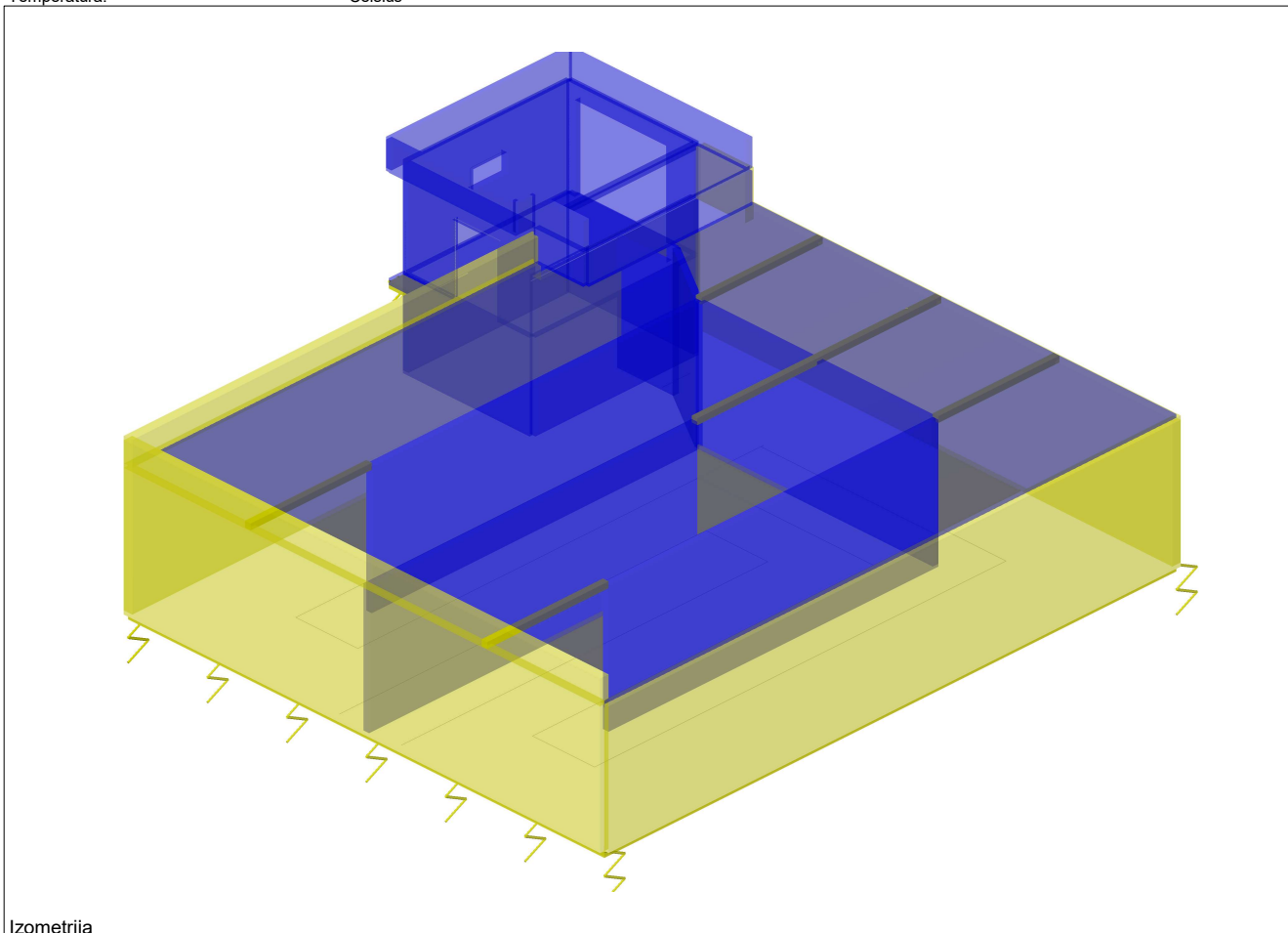
- ☒ Teorija I-ga reda ☐ Modalna analiza ☐ Stabilnost
☐ Teorija II-ga reda ☐ Seizmični preračun ☐ Faze gradnje
☐ Nelinearen preračun

Velikost modela

Število vozlišč: 8940
Število ploskovnih elementov: 9048
Število grednih elementov: 66
Število robnih elementov: 28518
Število osnovnih obtežnih primerov: 10
Število kombinacij obtežb: 17

Enote mer

Dolžina: m [cm,mm]
Sila: kN
Temperatura: Celsius



Izometrija

Schema nivojev

| Naziv | z [m] | h [m] |
|---------------|-------|-------|
| streha objekt | 5.10 | 1.00 |
| streha bazen | 4.10 | 2.25 |
| medetaza | 1.85 | 2.00 |

| Naziv | z [m] | h [m] |
|------------|-------|-------|
| dno bazen | -0.15 | 0.85 |
| dno objekt | -1.00 | |

Tabele materialov

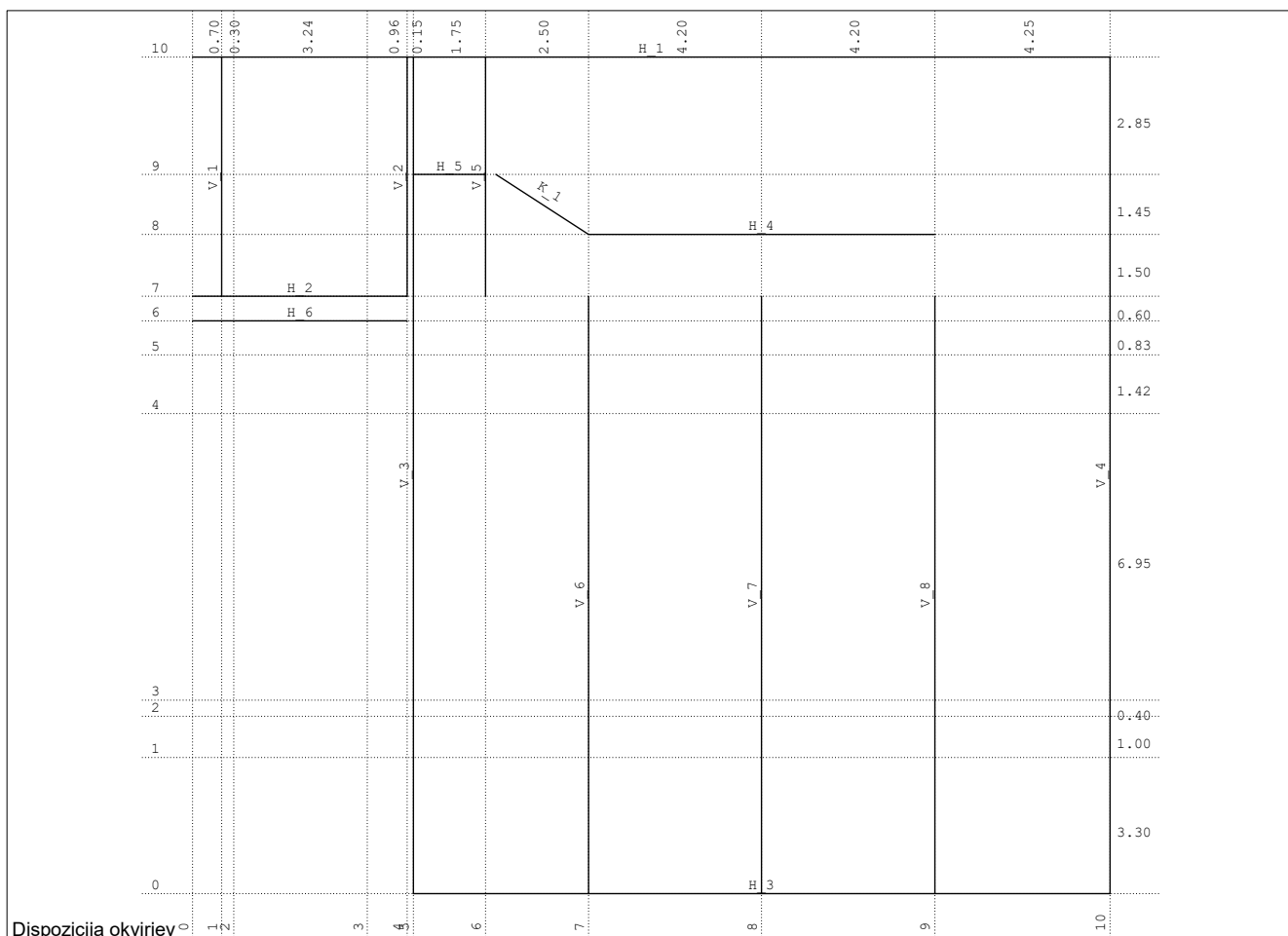
| No | Naziv materiala | E[kN/m ²] | μ | γ[kN/m ³] | α[t/°C] | Em[kN/m ²] | μm |
|----|-----------------|-----------------------|------|-----------------------|----------|------------------------|------|
| 1 | C 30/37 | 3.300e+7 | 0.20 | 25.00 | 1.000e-5 | 3.300e+7 | 0.20 |

Seti plošč

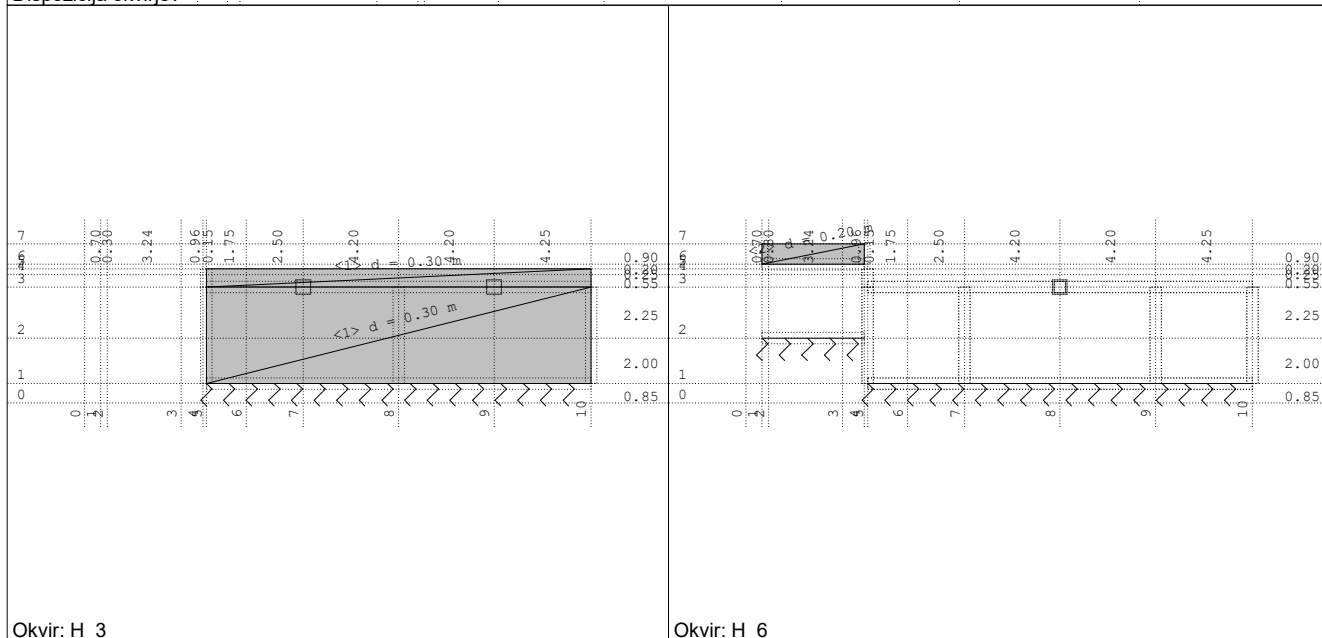
| No | d[m] | e[m] | Material | Tip preračuna | Ortotropija | E2[kN/m ²] | G[kN/m ²] | α |
|-----|-------|-------|----------|---------------|-------------|------------------------|-----------------------|---|
| <1> | 0.300 | 0.150 | 1 | Tanka plošča | Izotropna | | | |
| <2> | 0.200 | 0.100 | 1 | Tanka plošča | Izotropna | | | |

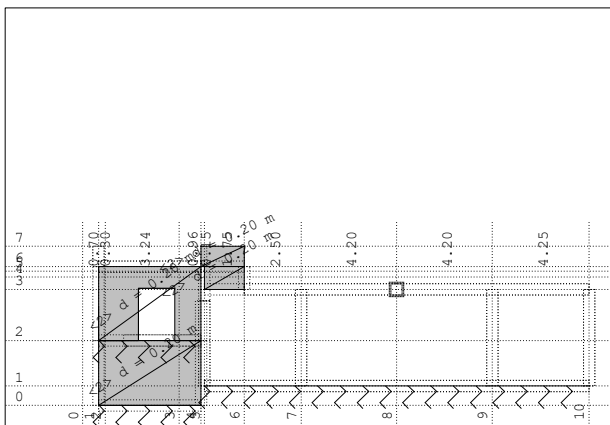
Seti površinskih podpor

| Set | K,R1 | K,R2 | K,R3 |
|-----|----------|----------|----------|
| 1 | 5.000e+3 | 1.000e+4 | 5.000e+3 |

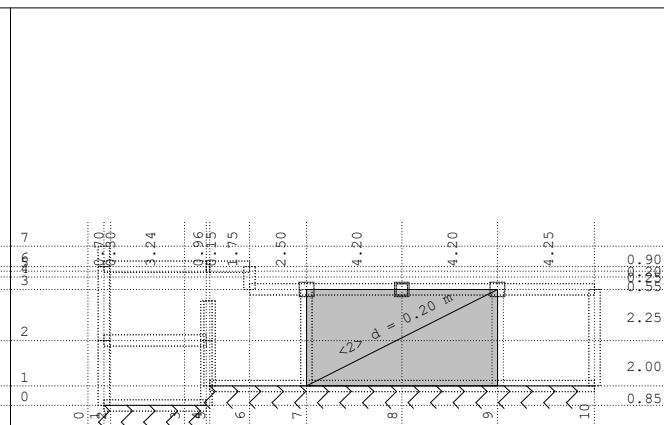


Dispozicija okvirjev

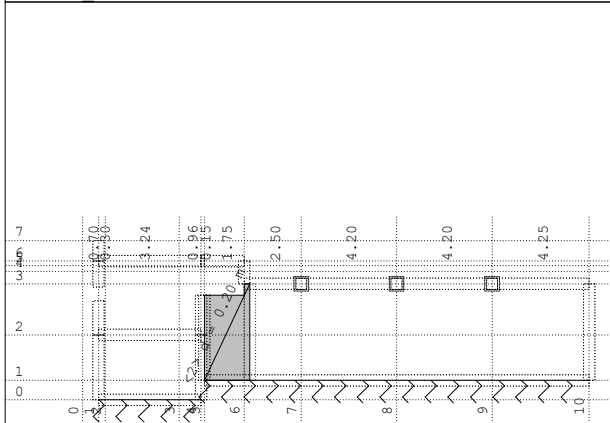




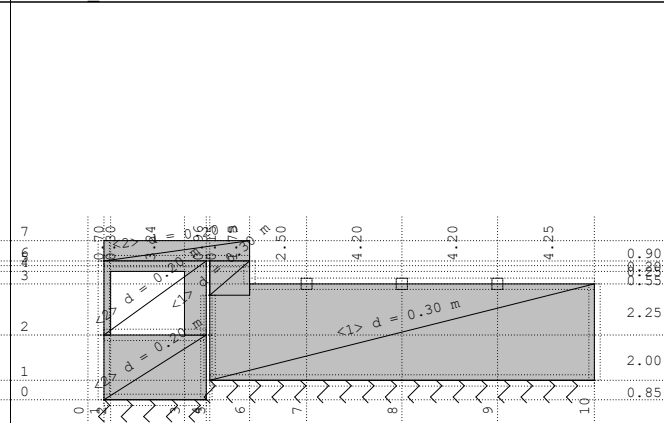
Okvir: H 2



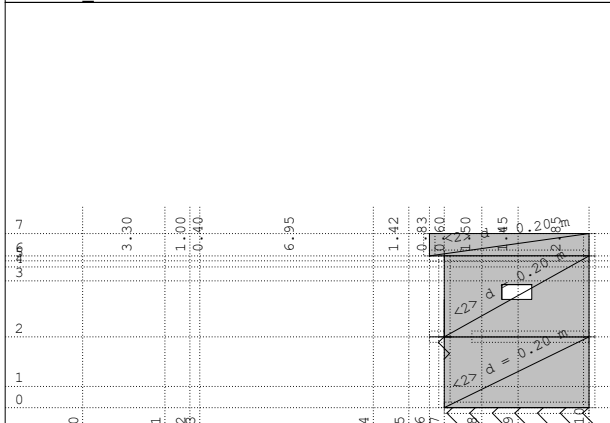
Okvir: H 4



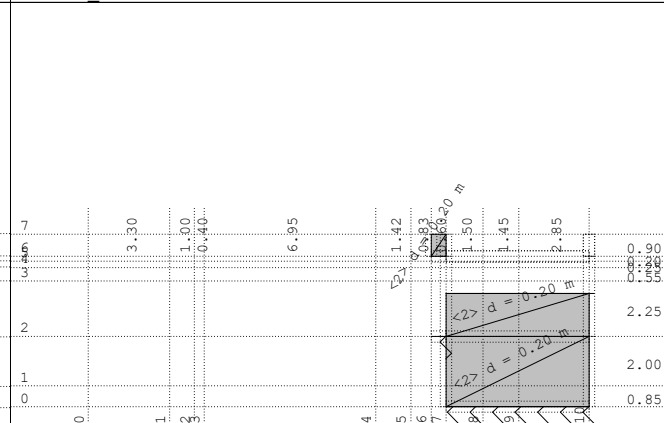
Okvir: H 5



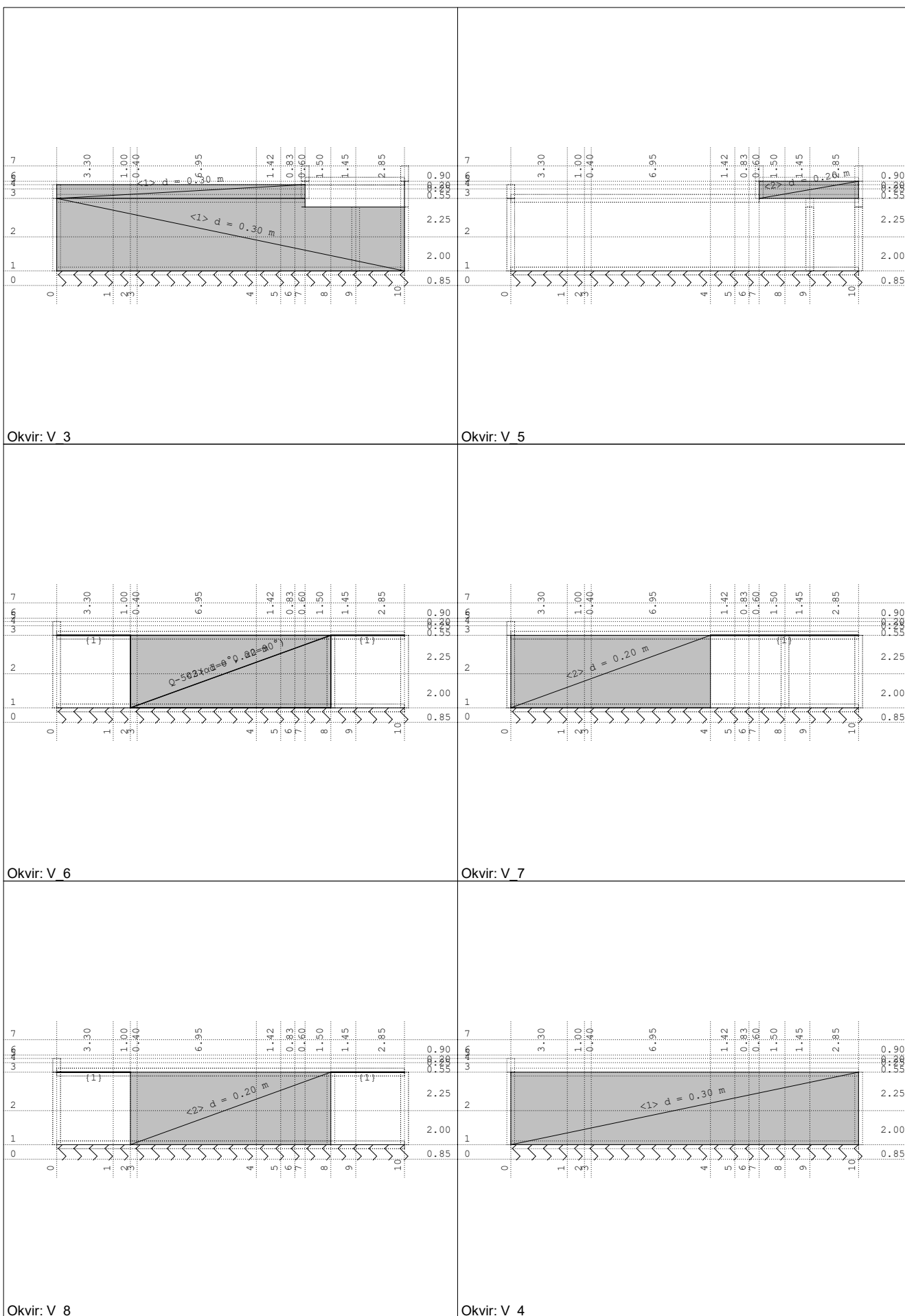
Okvir: H 1

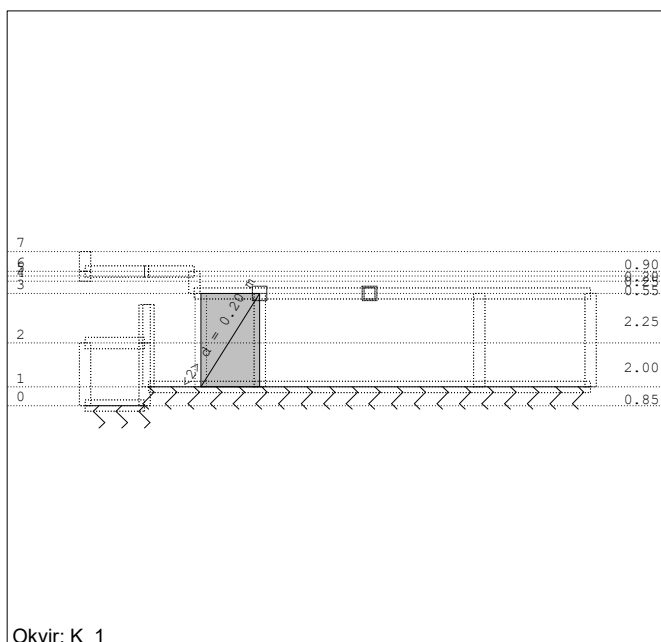


Okvir: V 1



Okvir: V 2





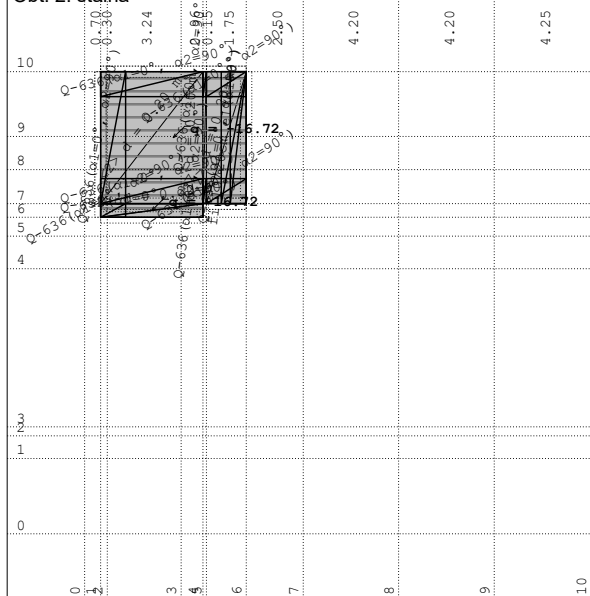
Vhodni podatki - Obtežba

Lista obtežnih primerov

| LC | Naziv |
|----|--|
| 1 | lastna (g) |
| 2 | stalna |
| 3 | stalna voda |
| 4 | koristna |
| 5 | sneg |
| 6 | veter |
| 7 | zemljina x1 |
| 8 | zemljina x2 |
| 9 | zemljina y1 |
| 10 | zemljina y2 |
| 11 | Komb.: 1.35xI+1.35xII+1.35xIII+1.5xIV |
| 12 | Komb.: 1.35xI+1.35xII+1.5xIV |
| 13 | Komb.: 1.35xI+1.35xII+1.35xIII+1.5xIV+0.75xV |
| 14 | Komb.: 1.35xI+1.35xII+1.5xIV+0.75xV |

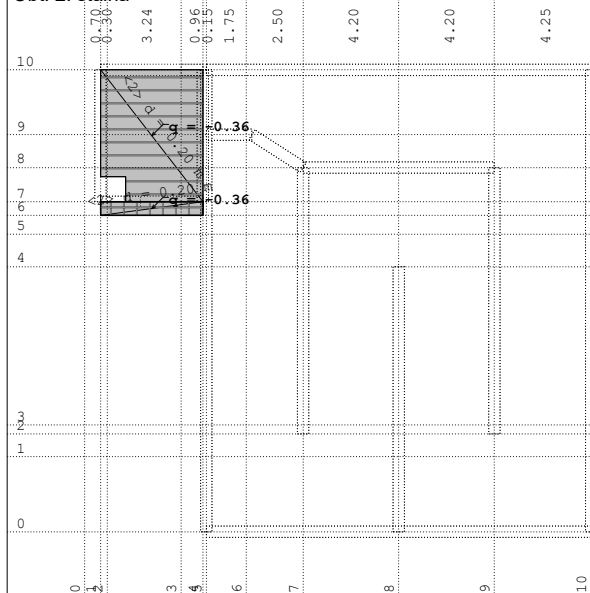
| LC | Naziv |
|----|--|
| 15 | Komb.: 1.35xI+1.35xII+1.35xIII+1.5xIV+0.9xVI |
| 16 | Komb.: 1.35xI+1.35xII+1.5xIV+0.9xVI |
| 17 | Komb.: 1.35xI+1.35xII+1.35xIII+1.05xIV+1.5xV |
| 18 | Komb.: 1.35xI+1.35xII+1.05xIV+1.5xV |
| 19 | Komb.: 1.35xI+1.35xII+1.35xIII+1.05xIV+1.5xVI |
| 20 | Komb.: 1.35xI+1.35xII+1.05xIV+1.5xVI |
| 21 | Komb.: 1.35xI+1.35xVII+1.5xIV (1.35xI+1.5xIV+1.35xVII) |
| 22 | Komb.: 1.35xI+1.5xIV+1.35xVIII |
| 23 | Komb.: 1.35xI+1.5xIV+1.35xIX (1.35xI+1.5xIV+1.35xIX) |
| 24 | Komb.: 1.35xI+1.5xIV+1.35xX (1.35xI+1.5xIV+1.35xX) |
| 25 | Komb.: Karakteristična MSU (I+II+III+V+0.6xVI) |
| 26 | Komb.: Pogosta MSU (I+II+III+0.2xV) |
| 27 | Komb.: Navidežno stalna MSU (I+II+III) |

Obt. 2: stalna



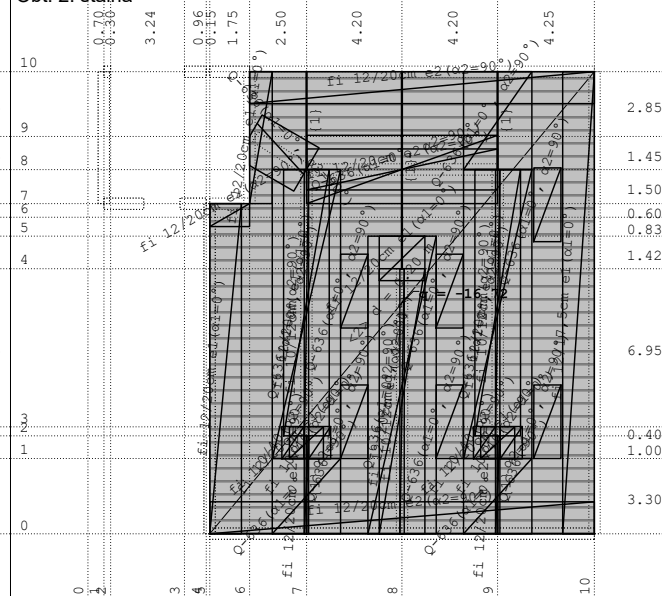
Nivo: streha objekt [5.10 m]

Obt. 2: stalna



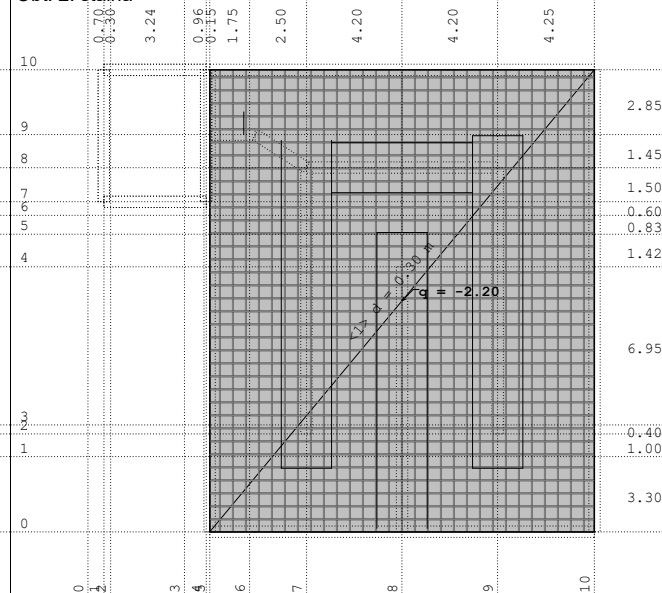
Nivo: medetaza [1.85 m]

Obt. 2: stalna



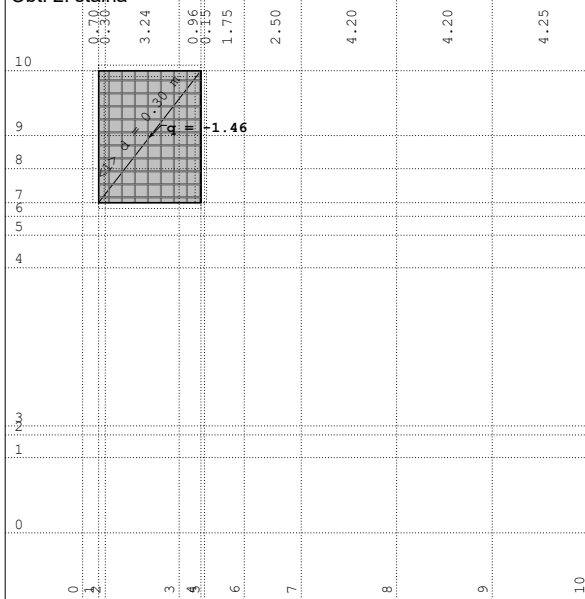
Nivo: streha bazen [4.10 m]

Obt. 2: stalna



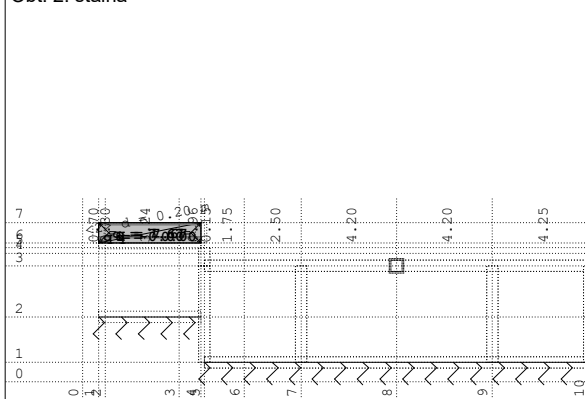
Nivo: dno bazen [-0.15 m]

Obt. 2: stalna



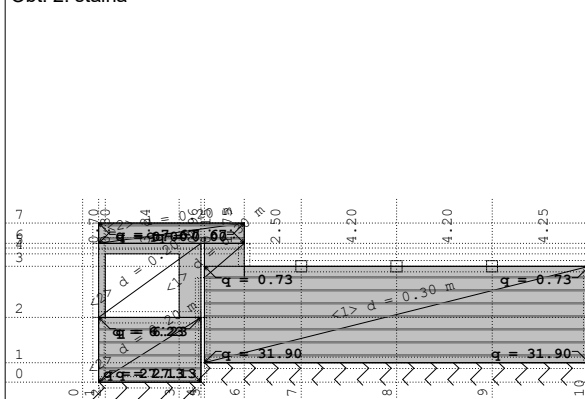
Nivo: dno objekt [-1.00 m]

Obt. 2: stalna



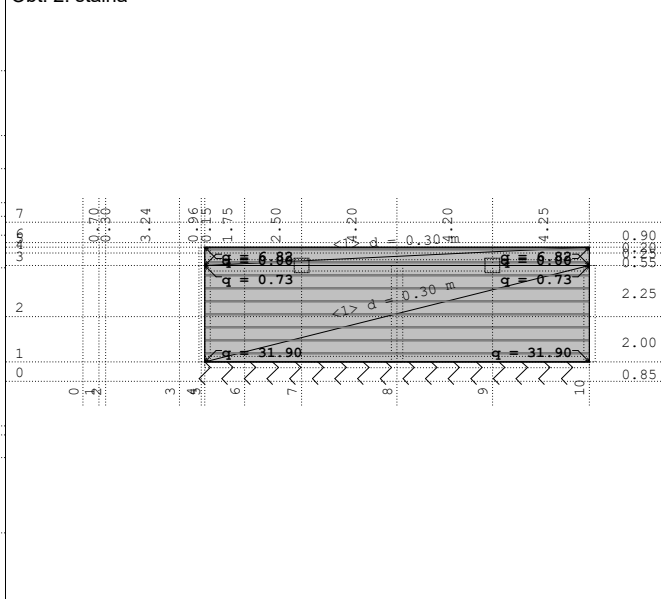
Okvir: H 6

Obt. 2: stalna



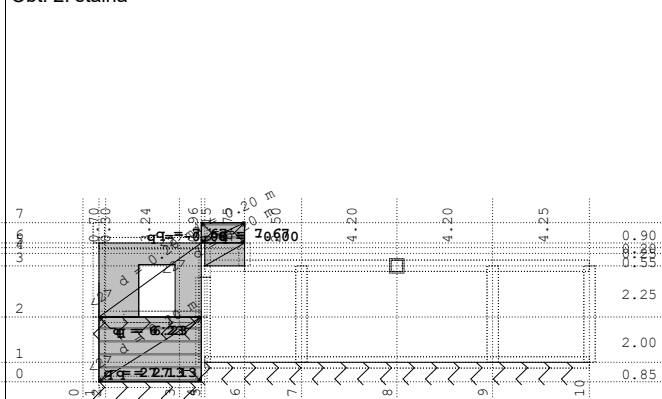
Okvir: H 1

Obt. 2: stalna



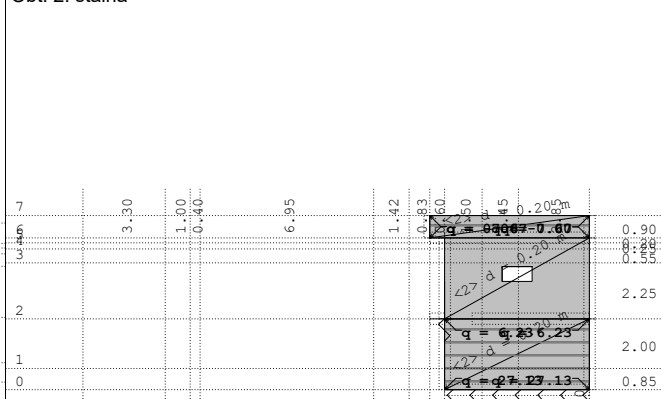
Okvir: H 3

Obt. 2: stalna



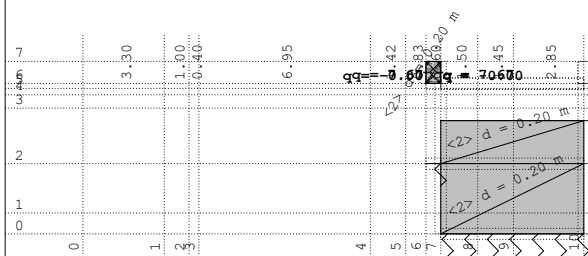
Okvir: H 2

Obt. 2: stalna

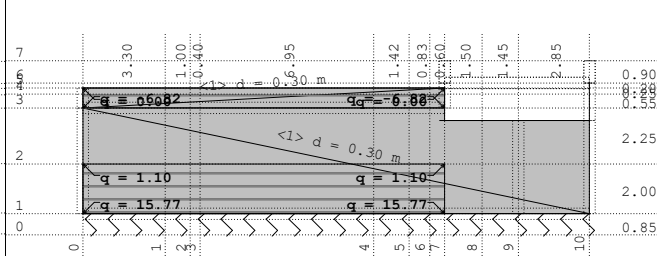


Okvir: V 1

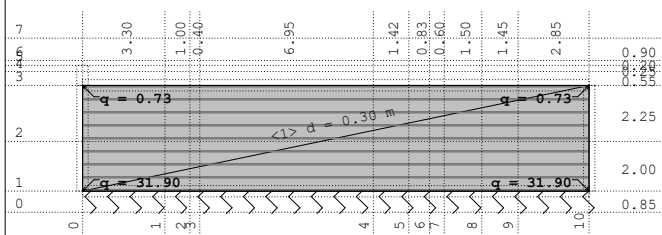
Obt. 2: stalna



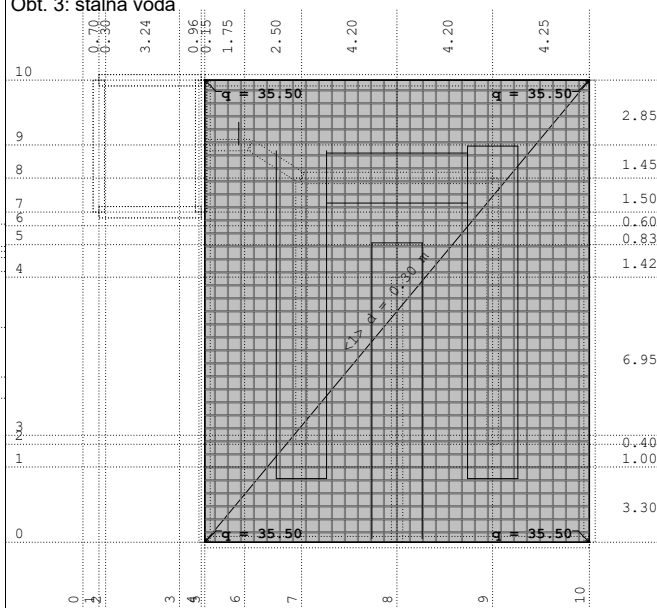
Obt. 2: stalna



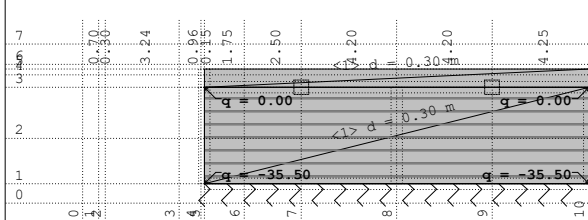
Okvir: V 2
Obt. 2: stalna



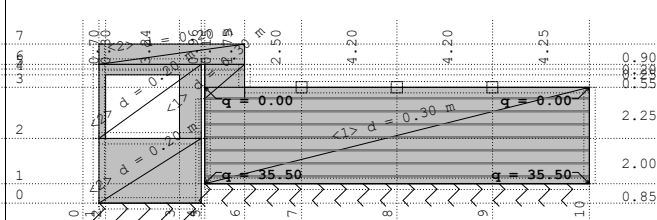
Okvir: V 3
Obt. 3: stalna voda



Okvir: V 4
Obt. 3: stalna voda



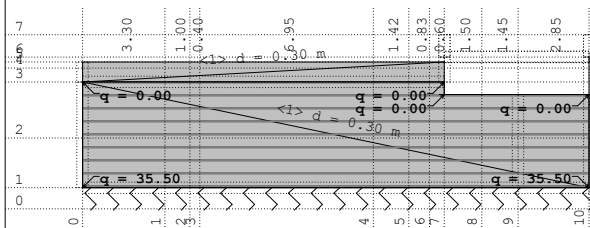
Nivo: dno bazen [-0.15 m]
Obt. 3: stalna voda



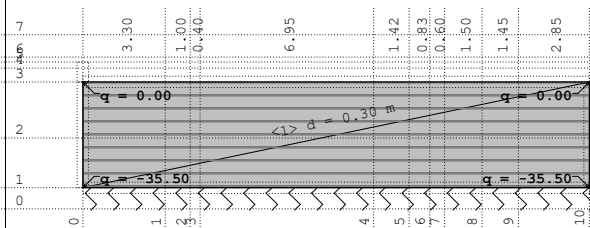
Okvir: H 3

Okvir: H 1

Obt. 3: stalna voda

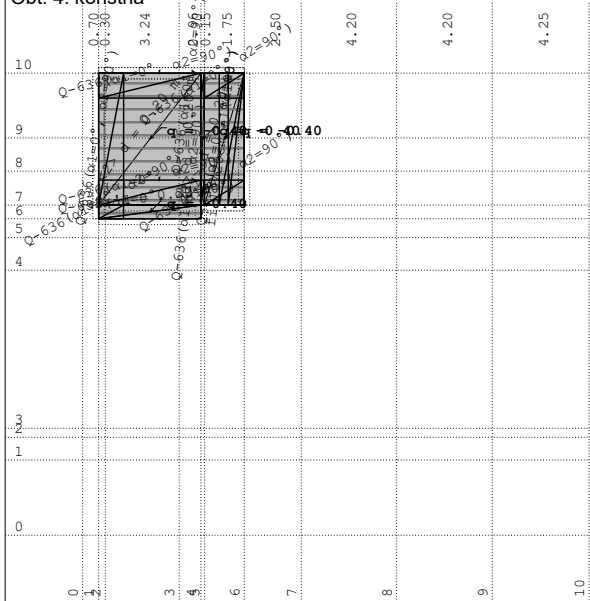


Obt. 3: stalna voda



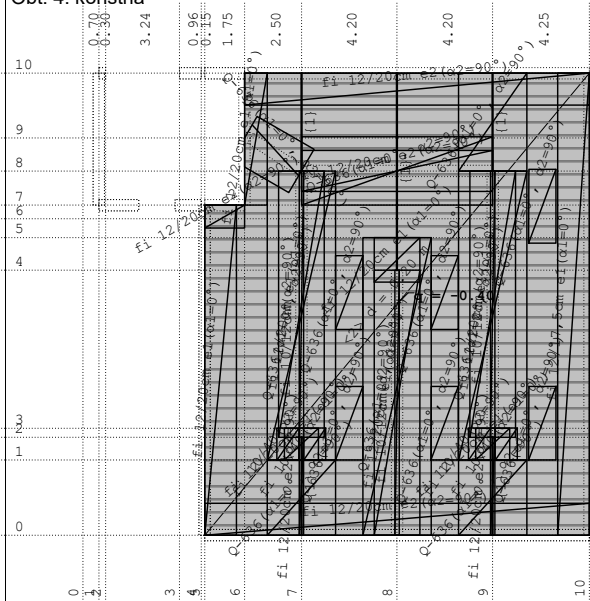
Okvir: V 3

Obt. 4: koristna



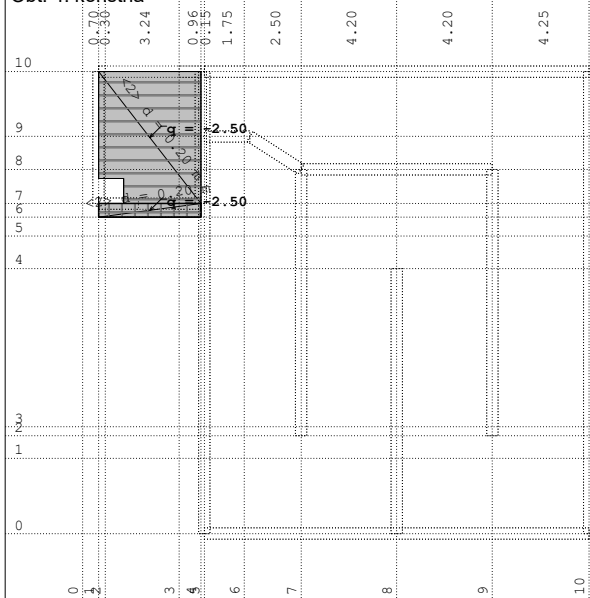
Okvir: V 4

Obt. 4: koristna



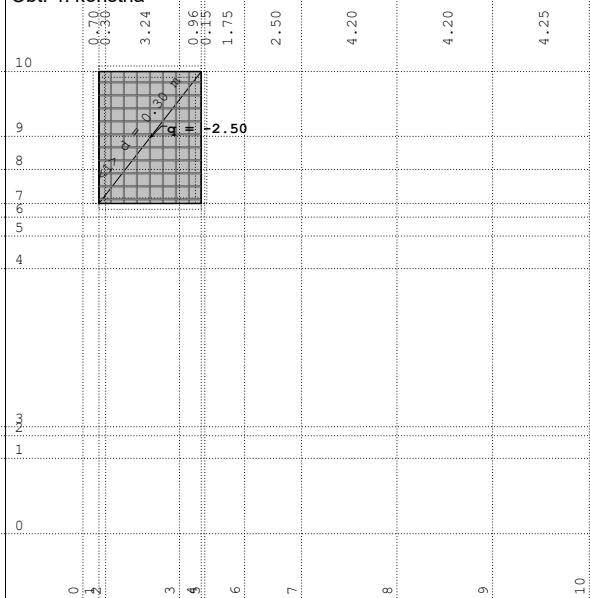
Nivo: streha objekt [5.10 m]

Obt. 4: koristna



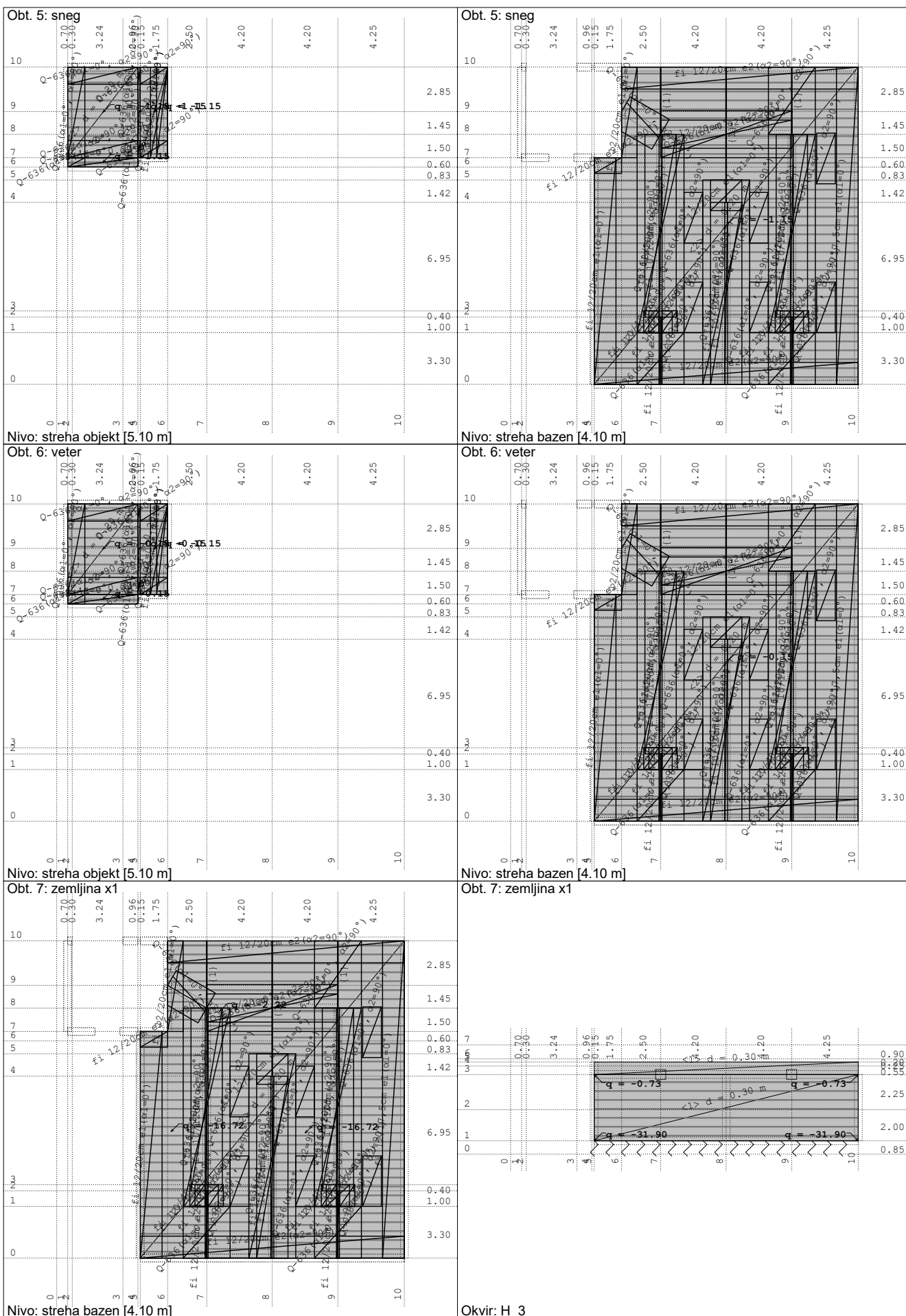
Nivo: streha bazen [4.10 m]

Obt. 4: koristna

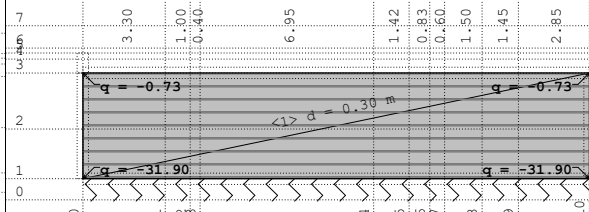


Nivo: medetaza [1.85 m]

Nivo: dno objekt [-1.00 m]

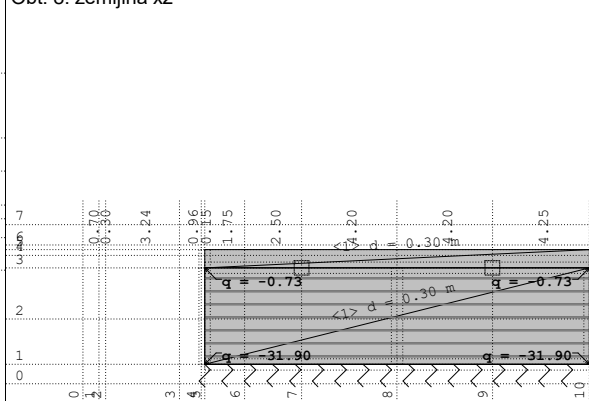


| |
|---------------------|
| Obt. 7: zemljina x1 |
|---------------------|



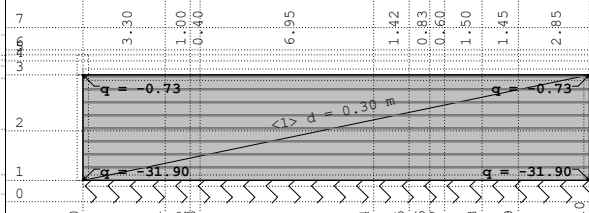
Okvir: V_4

| |
|---------------------|
| Obt. 8: zemljina x2 |
|---------------------|



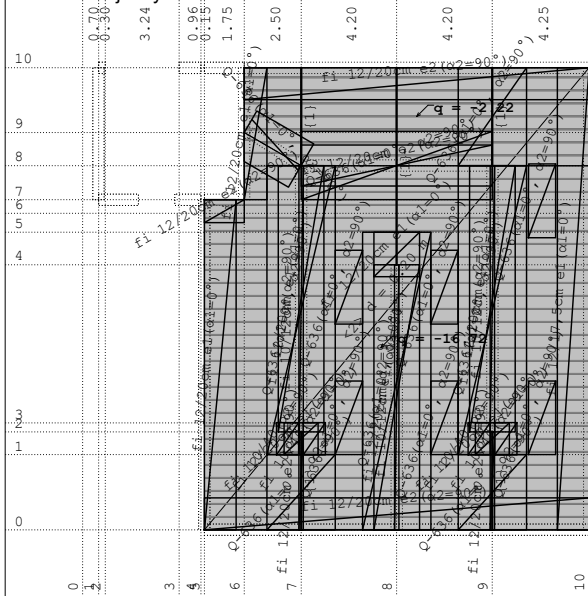
Okvir: H 3

| |
|---------------------|
| Obt. 8: zemljina x2 |
|---------------------|



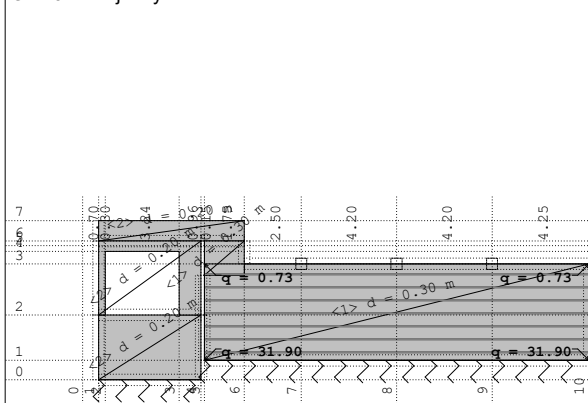
Okvir: V_4

Obt. 9: zemljina y1



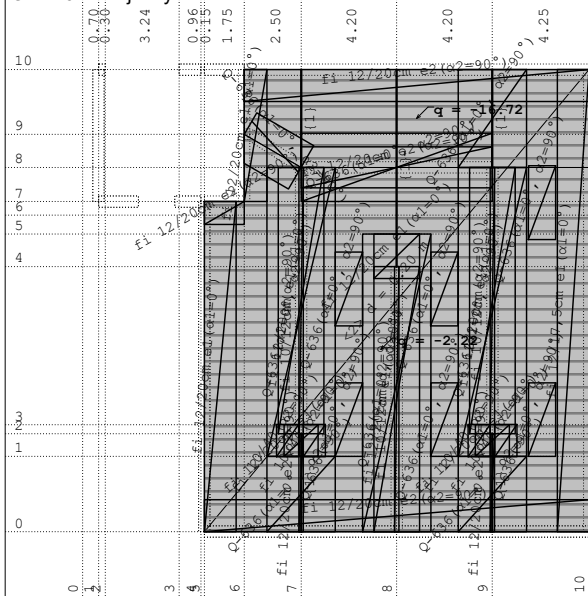
Nivo: streha bazen [4.10 m]

Obt. 9: zemljina y1



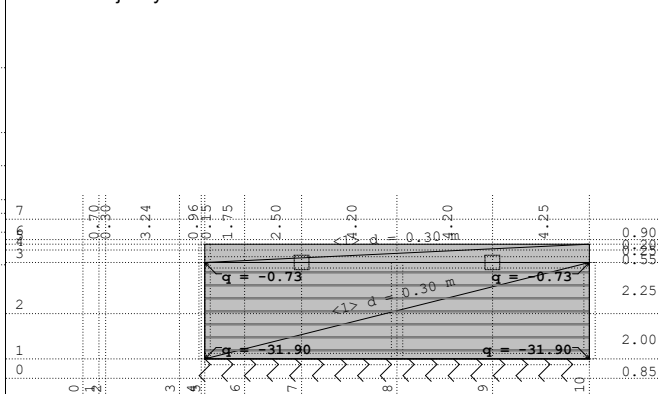
Okvir: H 1

Obt. 10: zemljina y2



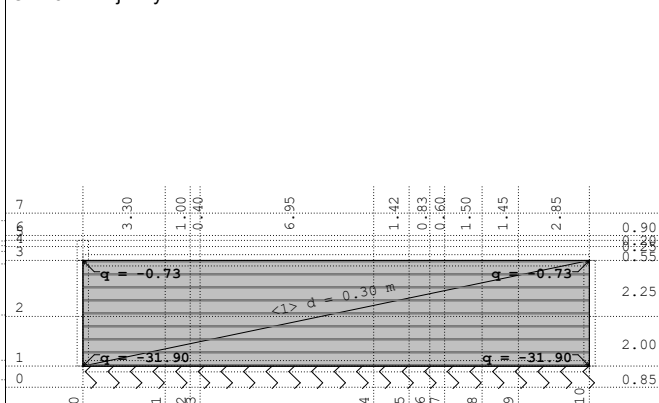
Nivo: streha bazen [4.10 m]

Obt. 9: zemljina y1



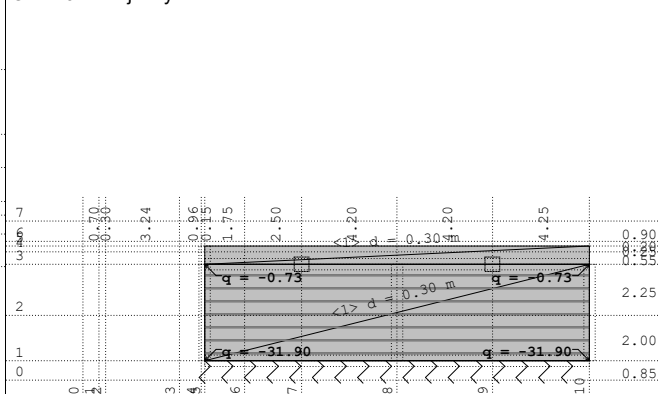
Okvir: H 3

Obt. 9: zemljina y1



Okvir: V 4

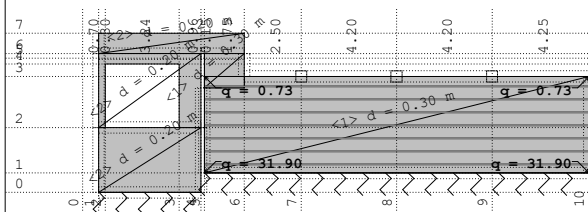
Obt. 10: zemljina y2



Okvir: H 3

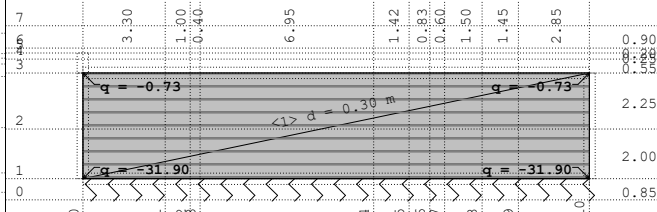
Statični preračun

Obt. 10: zemljina y2



Okvir: H 1

Obt. 10: zemljina y2



Okvir: V 4

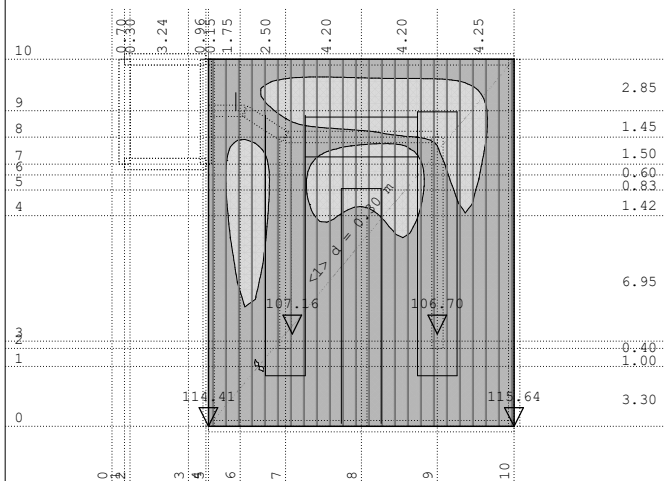
Vplivi v površinskih podporah - Ekstremne vrednosti - Obtežba: 29. [Ovo]
11-24

| Oznaka | LC | σ_{tal} [kN/m ²] | s.tal [mm] |
|--------|----|-------------------------------------|------------|
| 3197 | A+ | 115.64 | -5.902 |
| 3366 | A+ | 115.49 | -5.980 |
| 3027 | A+ | 115.48 | -5.935 |
| 3539 | A+ | 115.36 | -6.058 |
| 2862 | A+ | 115.34 | -5.966 |
| 3708 | A+ | 115.25 | -6.134 |
| 2699 | A+ | 115.22 | -5.996 |
| 3877 | A+ | 115.15 | -6.209 |
| 3198 | A+ | 115.13 | -6.011 |
| 2544 | A+ | 115.11 | -6.026 |
| 3197 | A- | 29.510 | -23.127 |
| 3366 | A- | 29.902 | -23.097 |
| 3027 | A- | 29.675 | -23.095 |
| 3539 | A- | 30.288 | -23.072 |
| 2862 | A- | 29.831 | -23.068 |
| 3708 | A- | 30.668 | -23.050 |
| 2699 | A- | 29.982 | -23.044 |
| 3877 | A- | 31.045 | -23.029 |
| 3198 | A- | 30.053 | -23.026 |
| 2544 | A- | 30.132 | -23.022 |

Obt. 29: [Ovo] 11-24

σ, tal [kN/m²]

28.36
40.83
53.30
65.77
78.23
90.70
103.17
115.64



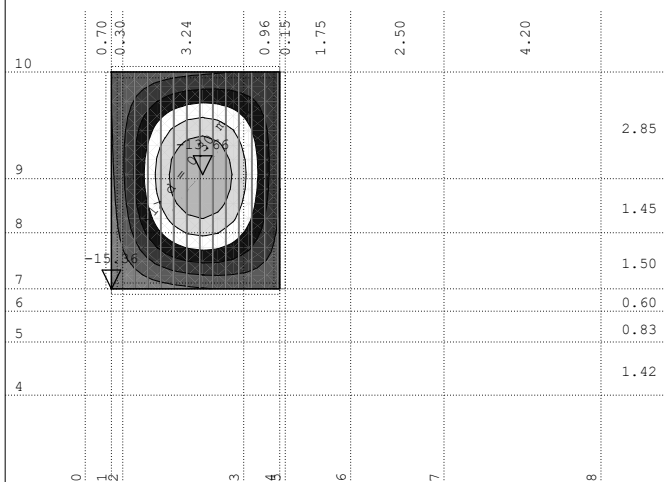
Nivo: dno bazen [-0.15 m]

Vplivi v pov.podpori: max σ, tal = 115.64 / min σ, tal = 28.36 kN/m²

Obt. 25: Karakteristična MSU

s, tal [m]/1000

-15.36
-15.12
-14.87
-14.63
-14.39
-14.15
-13.90
-13.66



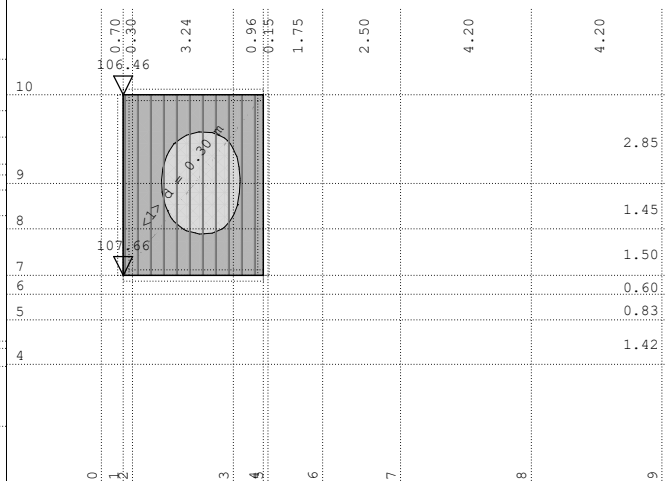
Nivo: dno objekt [-1.00 m]

Vplivi v pov.podpori: max s, tal = -13.66 / min s, tal = -15.36 m / 1000

Obt. 29: [Ovo] 11-24

σ, tal [kN/m²]

46.54
55.27
64.01
72.74
81.47
90.20
98.94
107.67



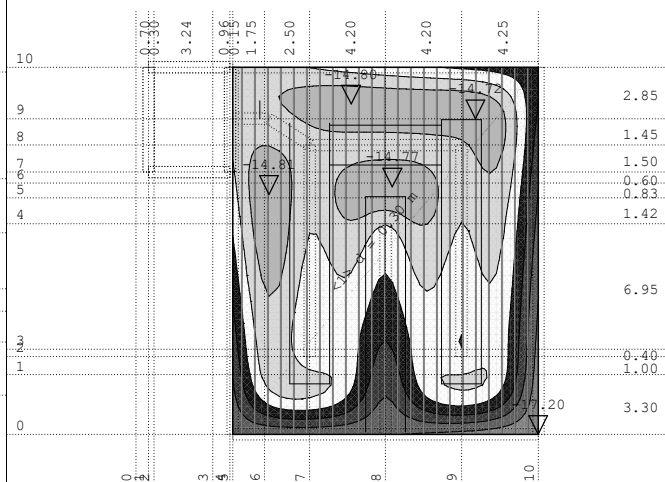
Nivo: dno objekt [-1.00 m]

Vplivi v pov.podpori: max σ, tal = 107.66 / min σ, tal = 46.55 kN/m²

Obt. 25: Karakteristična MSU

s, tal [m]/1000

-17.21
-16.85
-16.50
-16.14
-15.78
-15.42
-15.07
-14.71



Nivo: dno bazen [-0.15 m]

Vplivi v pov.podpori: max s, tal = -14.72 / min s, tal = -17.20 m / 1000

Dimenzioniranje (beton)

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, $a=4.50$ cm

Aa - sp.cona [cm^2/m]

0.00

4.43

8.85

Merodajna obtežba: 11-24

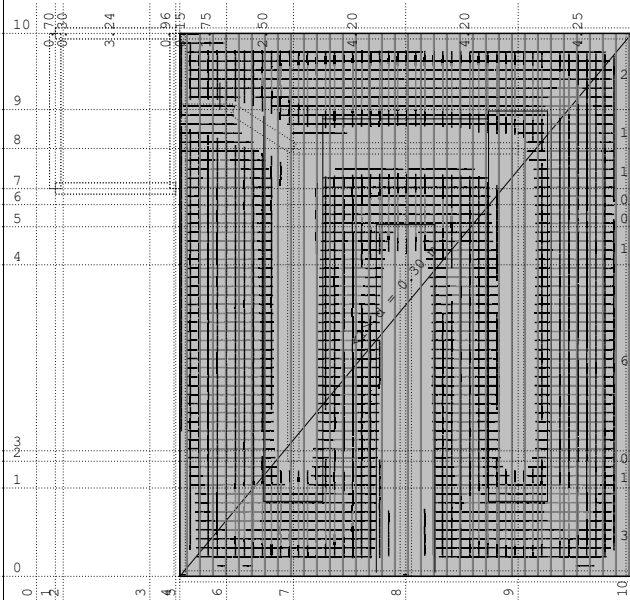
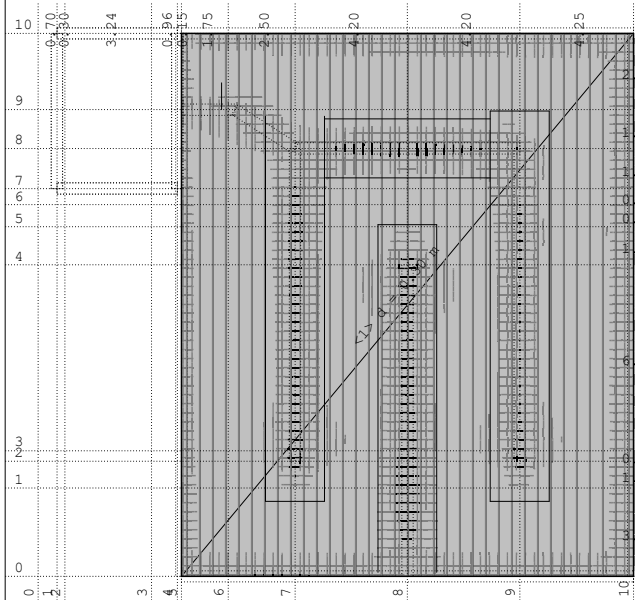
EC 2 (EN 1992-1-1:2004), C 30, S500H, $a=4.50$ cm

Aa - zg.cona [cm^2/m]

-5.34

-2.67

0.00



Nivo: dno bazen [-0.15 m]

Aa - sp.cona - max Aa,s= 8.84 cm^2/m

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, $a=4.50$ cm

Aa - zg.cona [cm^2/m]

-7.60

-3.80

0.00

Nivo: dno bazen [-0.15 m]

Aa - zg.cona - max Aa,z= -5.34 cm^2/m

Merodajna obtežba: 11-24

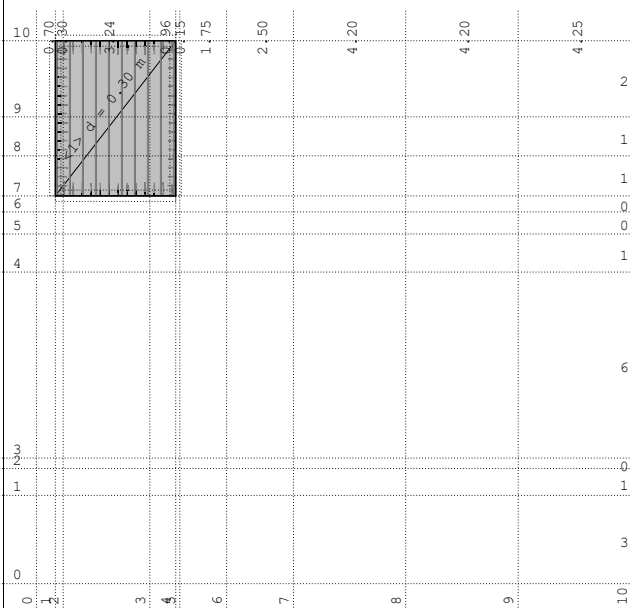
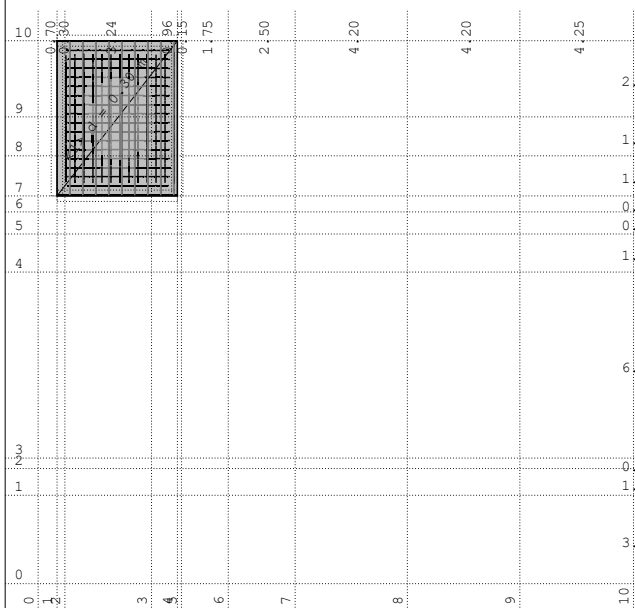
EC 2 (EN 1992-1-1:2004), C 30, S500H, $a=4.50$ cm

Aa - sp.cona [cm^2/m]

0.00

1.68

3.36



Nivo: dno objekt [-1.00 m]

Aa - zg.cona - max Aa,z= -7.60 cm^2/m

Nivo: dno objekt [-1.00 m]

Aa - sp.cona - max Aa,s= 3.35 cm^2/m

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - sp.cona [cm²/m]

0.00

2.44

4.88

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - zg.cona [cm²/m]

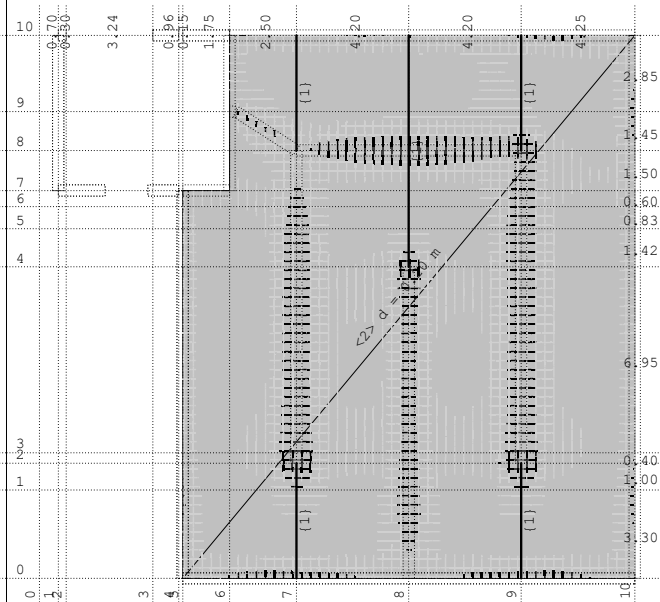
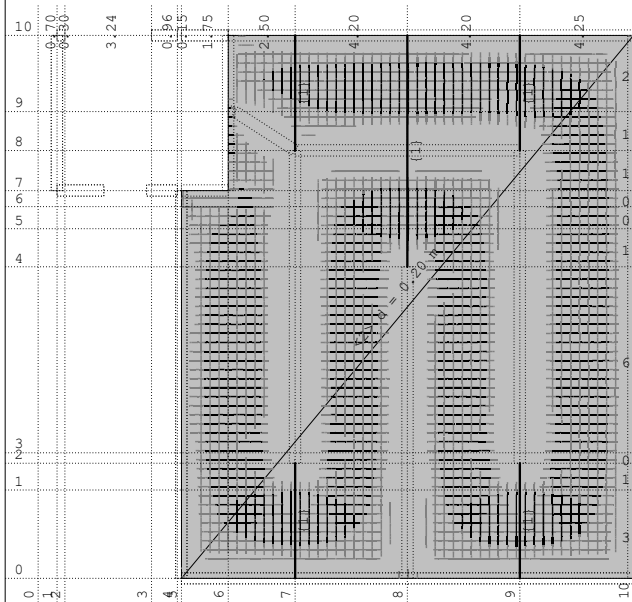
-14.49

-10.87

-7.25

-3.62

0.00



Nivo: streha bazen [4.10 m]

Aa - sp.cona - max Aa,s= 4.87 cm²/m

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - sp.cona [cm²/m]

0.00

2.43

4.85

Nivo: streha bazen [4.10 m]

Aa - zg.cona - max Aa,z= -15.29 cm²/m

Merodajna obtežba: 11-24

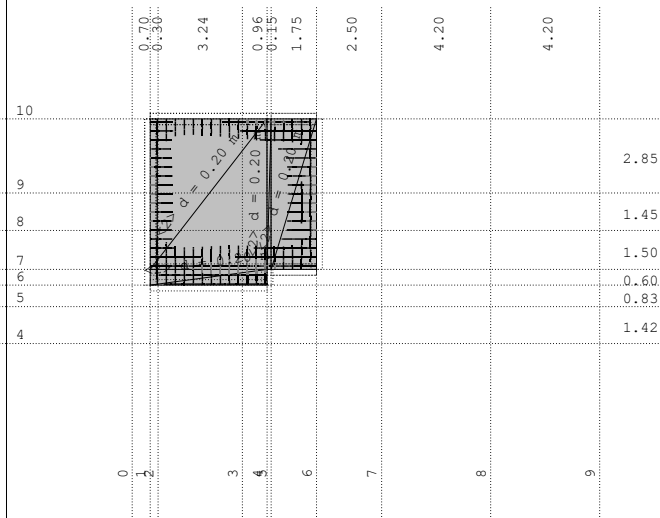
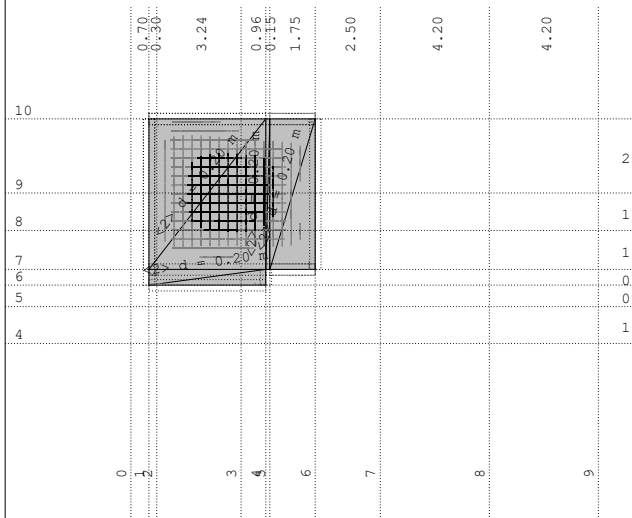
EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - zg.cona [cm²/m]

-6.84

-3.42

0.00



Nivo: streha objekt [5.10 m]

Aa - sp.cona - max Aa,s= 4.85 cm²/m

Nivo: streha objekt [5.10 m]

Aa - zg.cona - max Aa,z= -6.83 cm²/m

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - sp.cona [cm²/m]

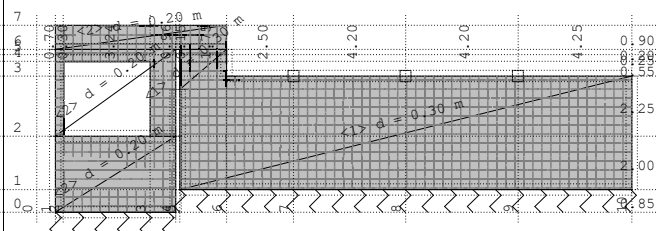
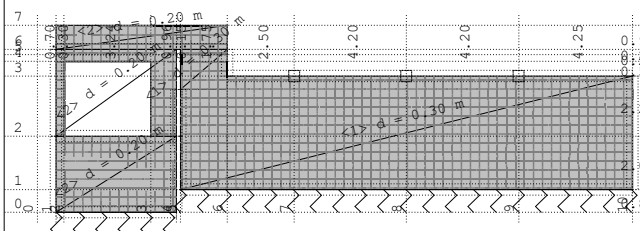
0.00
6.33
12.66

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - sp.cona [cm²/m]

0.00
3.08
7.98



Okvir: H_1

Aa - sp.cona - max Aa,s= 12.66 cm²/m

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - sp.cona [cm²/m]

0.00
1.35
2.70

Okvir: H_1

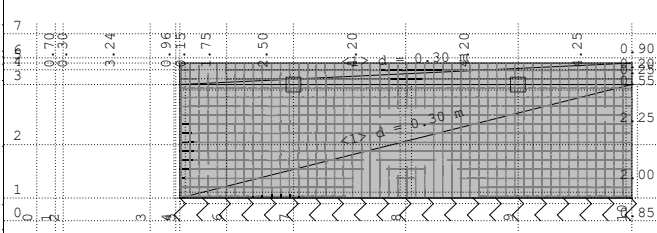
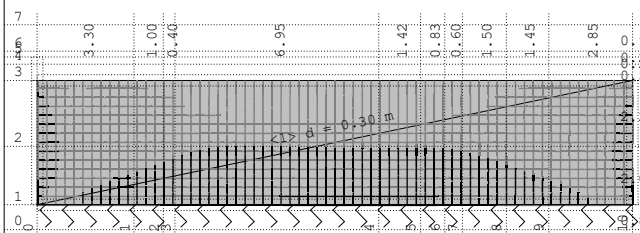
Aa - sp.cona - max Aa,s= 12.66 cm²/m

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - sp.cona [cm²/m]

0.00
2.65
5.30



Okvir: V_4

Aa - sp.cona - max Aa,s= 2.70 cm²/m

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - sp.cona [cm²/m]

0.00
3.08
6.40

Okvir: H_3

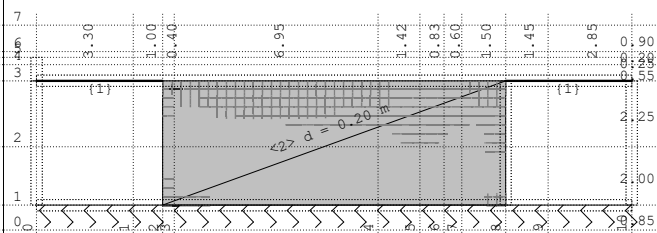
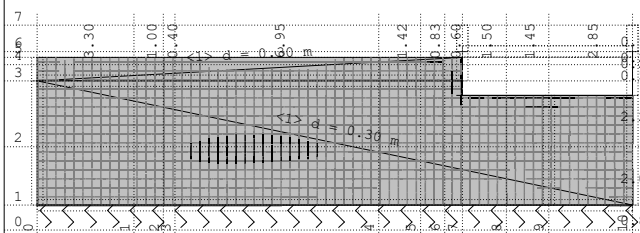
Aa - sp.cona - max Aa,s= 5.29 cm²/m

Merodajna obtežba: 11-24

EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm

Aa - sp.cona [cm²/m]

0.00
3.08
6.96
10.83



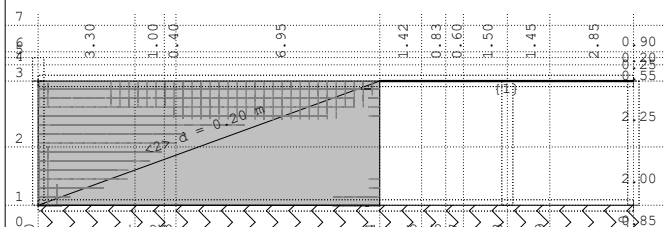
Okvir: V_3

Aa - sp.cona - max Aa,s= 15.30 cm²/m

Okvir: V_6

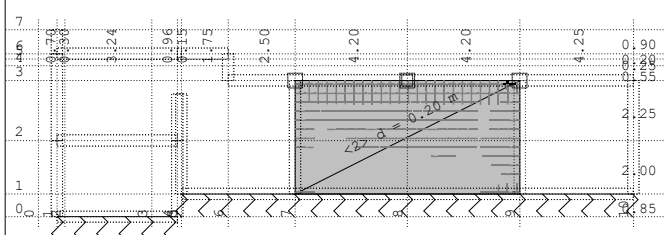
Aa - sp.cona - max Aa,s= 11.66 cm²/m

| | |
|---|-----------------------------------|
| Merodajna obtežba: 11-24 EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm | Aa - sp.cona [cm ² /m] |
| | 0.00 |
| | 3.08 |
| | 6.00 |
| | 8.91 |



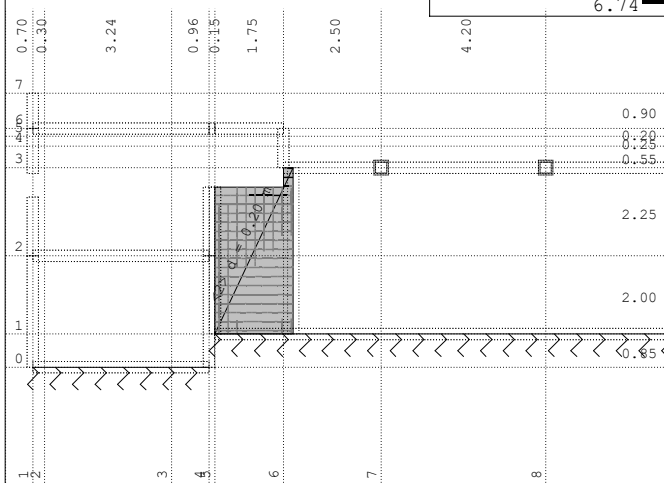
Okvir: V_7
 Aa - sp.cona - max Aa,s= 9.31 cm²/m

| | |
|---|-----------------------------------|
| Merodajna obtežba: 11-24 EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm | Aa - sp.cona [cm ² /m] |
| | 0.00 |
| | 3.08 |
| | 6.69 |



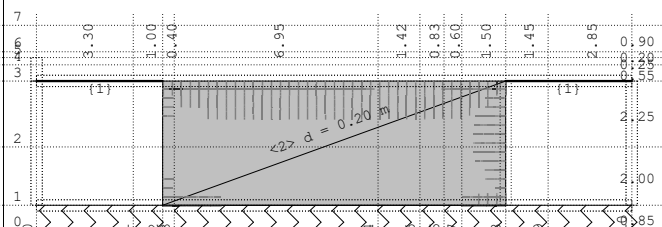
Okvir: H_4
 Aa - sp.cona - max Aa,s= 7.74 cm²/m

| | |
|---|-----------------------------------|
| Merodajna obtežba: 11-24 EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm | Aa - sp.cona [cm ² /m] |
| | 0.00 |
| | 3.08 |
| | 6.74 |



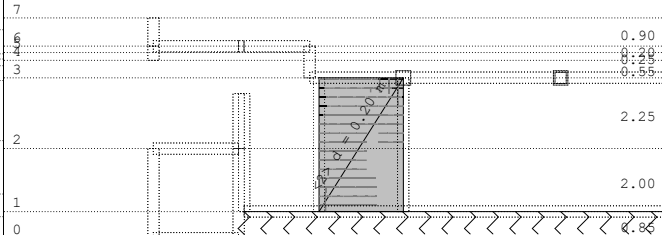
Okvir: H_5
 Aa - sp.cona - max Aa,s= 9.15 cm²/m

| | |
|---|-----------------------------------|
| Merodajna obtežba: 11-24 EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm | Aa - sp.cona [cm ² /m] |
| | 0.00 |
| | 3.08 |
| | 6.73 |
| | 10.38 |



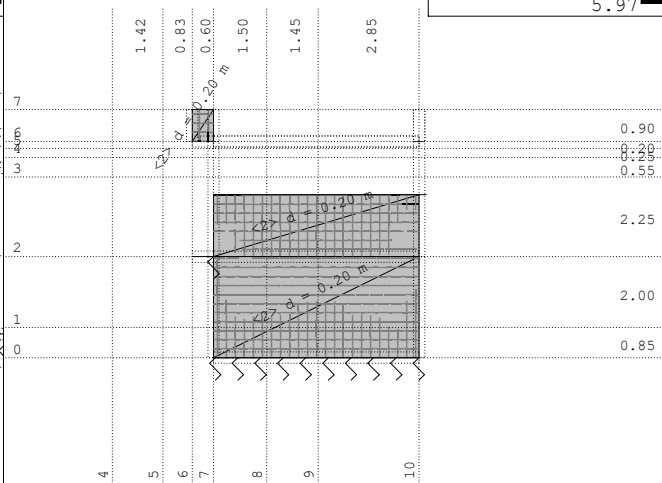
Okvir: V_8
 Aa - sp.cona - max Aa,s= 11.53 cm²/m

| | |
|---|-----------------------------------|
| Merodajna obtežba: 11-24 EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm | Aa - sp.cona [cm ² /m] |
| | 0.00 |
| | 1.23 |
| | 2.46 |

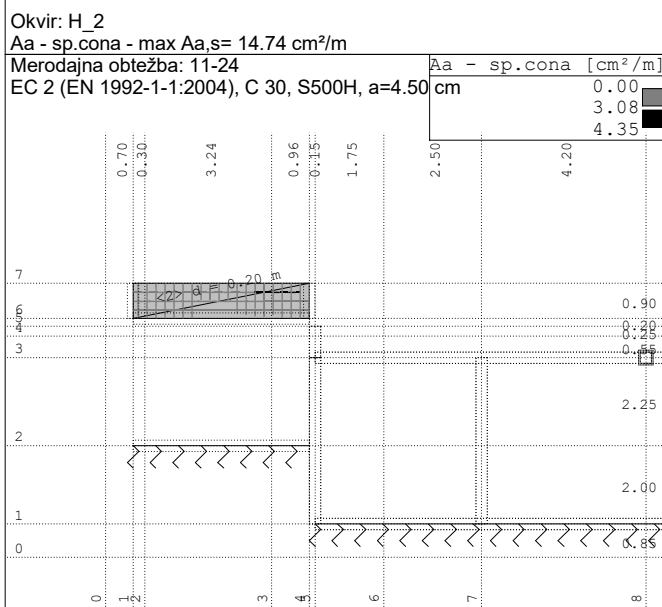
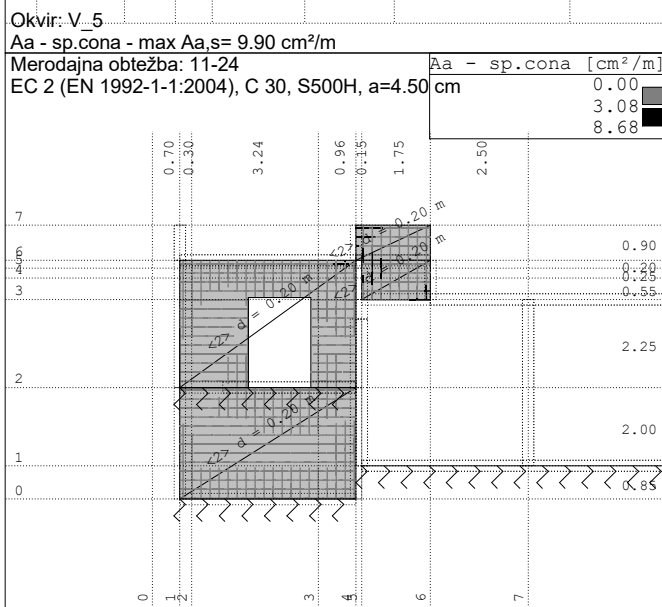
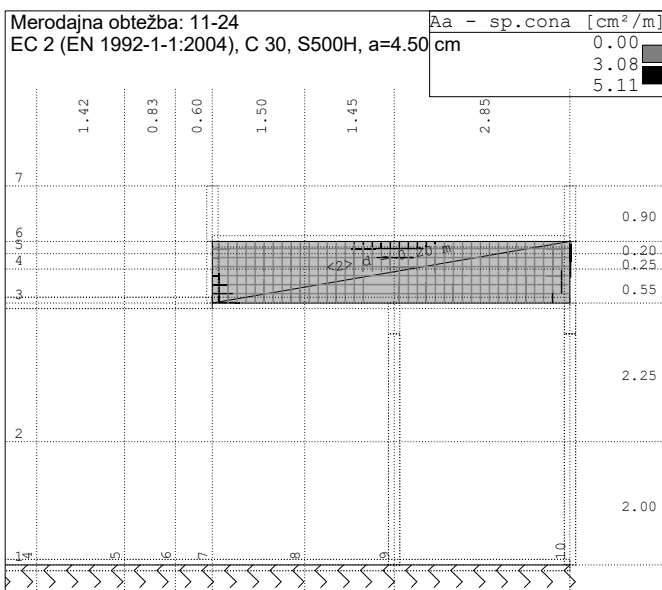


Okvir: K_1
 Aa - sp.cona - max Aa,s= 2.46 cm²/m

| | |
|---|-----------------------------------|
| Merodajna obtežba: 11-24 EC 2 (EN 1992-1-1:2004), C 30, S500H, a=4.50 cm | Aa - sp.cona [cm ² /m] |
| | 0.00 |
| | 3.08 |
| | 5.97 |



Okvir: V_2
 Aa - sp.cona - max Aa,s= 7.73 cm²/m



Okvir: H_6
Aa - sp.cona - max Aa,s= 7.41 cm²/m

