PRILOGA 1C

NASLOVNA STRAN NAČRTA

PODATKI O GRADNJI		
naziv gradnje		**Sanacija mostu čez Bečovnico na LC 410 101 (Strniša)**
kratek opis gradnje		**V sklopu rednega programa po poplavah avgusta 2023 se je izdelala projektna dokumentacija za premostitev vodotoka Bečovnica na LC 410 101. Zaradi dviga nivelete spada je potrebno rekonstruirati tudi cca 70m lokalne ceste.**
VRSTE GRADNJE	☐	**NOVOGRADNJA - NOVOZGRAJEN OBJEKT**
označiti vse ustrezne vrste gradnje	☐	**NOVOGRADNJA - PRIZIDAVA**
	☑	**REKONSTRUKCIJA**
	☐	**SPREMEMBA NAMEMBNOSTI**
	☐	**ODSTRANITEV CELOTNEGA OBJEKTA**
	☐	**LEGALIZACIJA**
	☐	**MANJŠA REKONSTRUKCIJA**
PODATKI O PROJEKTNI DOKUMENTACIJI		
vrsta dokumentacije		**IZN**
številka projekta		**307-1-2024**
PODATKI O NAČRTU		
strokovno področje načrta		**Načrt s področja gradbeništva**
naziv načrta		**Načrt mostu**
številka načrta		**307-1-2024-M**
datum izdelave		**okt.25**
datum spremembe		
PODATKI O PROJEKTANTU NAČRTA		
projektant načrta (naziv družbe)		**Andrejc d.o.o.**
naslov		**Topolšica 199b, 3325 Šoštanj**
odgovorna oseba projektanta načrta		**Vesna ANDREJC univ.dipl.inž.grad.**
podpis odgovorne osebe projektanta načrta		ANDREJC Andrejc d.o.o. Topolšica 199B, 3325 Šoštanj
PODATKI O IZDELOVALCU NAČRTA		
ime in priimek pooblaščenega arhitekta, pooblaščenega inženirja		**Maja VINDIŠ dipl.inž.grad.**
identifikacijska številka		**G-4759**
podpis pooblaščenega arhitekta, pooblaščenega inženirja		MAJA VINDIŠ dipl.inž.grad. IZS PI G-4759

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T.1.2 DOKAZ MEHANSKE ODPORNOSTI IN STABILNOSTI

MOST pri Strnišu

Kazalo vsebine

1. SPLOŠNO

1.1 OPIS

Investitor:	**Občina Šoštanj** **Trg svobode 12** **3325 Šoštanj**
Objekt:	**Rekonstrukcija mostu čez Bečovnico** **Na LC 410 101 (Strniša**
Del objekta:	**Most Strniša**
Št. projekta:	**307-2024**
Vrsta dokumentacije:	**PZI**

1.2 OSNOVE ZA PROJEKTIRANJE

Za projektiranje mostne konstrukcije služijo naslednje podloge:

- Projekt ceste, št. projekta 307-1-2024, Andrejc d.o.o.,
- Geološko geotehnični elaborat, EL-22/22_2, PROVOG, inženirske storitve, d.o.o.
- Hidrološko hidravlična analiza »Preveritev pretočnosti mosta pri Strnišu« št. Elaborata HH188-2024; LAM BIRO d.o.o..

1.2.1 CESTNI PODATKI

Podatki o cestnih elementih so pridobljeni iz: Rekonstrukcija LC 410 100, odsek Škotnik Poštajner; Andrejc d.o.o., št. projekta 028-2016.
Tlorisno gledano poteka trasa v krivini in premi. Začetek objekta je v km 5,5+40,17, konec objekta je v km 5,5+48,17. Kot križanja s potokom je 85,7°.

1.2.2 GEOLOŠKO – GEOTEHNIČNI PODATKI

Geološko – geotehnični podatki za statično presojo so povzeti iz Geološko geotehnični elaborat, EL-22/22_2, PROVOG, inženirske storitve, d.o.o. Geološko geotehnično poročilo je bilo izdelano za potrebe »Izvedba protipoplavnih ukrepov na sotočju Bečovnice in Klančnice; izgradnja suhega visokovodnega zadrževalnika«. Most se nahaja v neposredni bližini suhega zadrževalnika, zato je možno uporabiti podatke.

Teren predstavlja dolino reke Klančnice in Bečovnice, kjer so nakloni terena blagi (do 5°), dolina pa je v tem delu relativno široka (cca 200 m). Območje se nahaja v naselju Ravne (med Šoštanjem in Ravnami) in predstavlja obdelovalne oz. travnate površine. Celotno območje je prekrito z debelejšo plastjo zemljine, na terenu nismo opazili izdankov kompaktnejše podlage. Nagubanost terena je blaga in neizrazita. Ozemlje pripada geotektonski enoti "gorenjsko-šoštanjski blok". Prevladujoče kamnine v tej geotektonski enoti pripadajo delno oligocenski smrekovški seriji (na jugu) in delno oligocenskim klastičnim sedimentom. Na ožjem območju so prisotne kamnine, ki pripadajo "smrekovški seriji", predvsem gre za andezit, andezitni tuf, tufit, andezitne breče, tudi laporovce in vse prehode med njimi.

V hidrogeološkem smislu so te kamnine slabo prepustne in ne predstavljajo omembe vrednega vodonosnika.

Pod sorazmerno tankim humusnim pokrovom opazujemo prehodno plast, ki je nekoliko peščena in zaglinjena ter vsebuje več manjših, slabše preperelih delcev osnovne kamnine. Globlje se nahaja primarna kamnina, predvsem laporovec, ki je ponekod bolj peščen.

Kot merodajne smo uporabili podatke iz Geološka vrtine V3, Geološki profil GG4

Slika 1: Litološki stolpec geotehnične vrtine VS3.

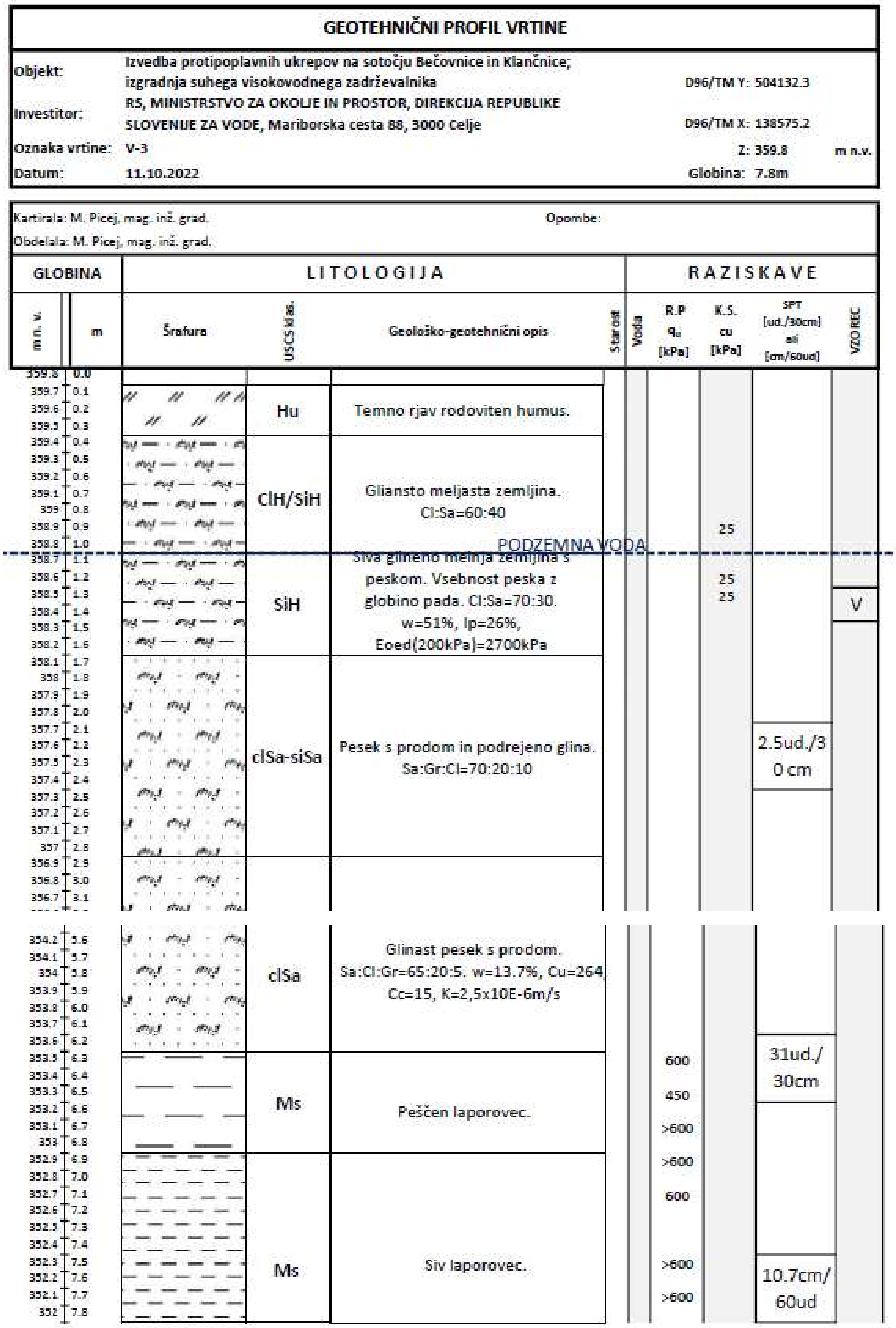


Tabela 1: Karakteristike zemeljskih slojev.

SLOJ	SIST EN ISO 14688-2	Prost. teža	Kohezija	Strižni kot	Nedr. str. Trdnost	Enoosna tlačna trd.	Modul stisljivosti	Koeficient prepustnosti
		γ	c	φ	c_u	q_u	E_{oed}	k
		(kN/m³)	(kPa)	(°)	(kPa)	(kPa)	(MPa)	m/s
1	ClH/SiH (lg)	17-19	0-4	18-22	25-50	50-100	2-4	$1* 10^{-7} – 1* 10^{-9}$
2	ClM/SiM(sg)	17-19	4-8	20-24	50-100	100-200	4-6	$1* 10^{-7} – 1* 10^{-9}$
3	ClL/SiL (tg)	17-19	8-12	22-26	100-200	200-400	6-8	$1* 10^{-7} – 1* 10^{-9}$
4	siSa/clSa (rahel – sr. gost)	18-20	1	26-30	-	-	3-6	$1* 10^{-5} – 1* 10^{-7}$
5	siSa/clSa (sr. gost-gost)	18-20	1	30-34	-	-	6-12	$1* 10^{-5} – 1* 10^{-7}$
6	siGr/clGr	19-21	1	30-34	-	-	7-12	$1* 10^{-5} – 1* 10^{-7}$

SLOJ	SPECIFIČNA TEŽA γ [kN/m³]	STRIŽNI KOT $φ_k$ / $φ_d$ [°]	KOHEZIJA c_k / c_d [kPa]	M. ELASTIČNOSTI E [kPa]
Humus, zarast	20	26 / 21,3	4 / 3,2	/
Glina s peskom	18	20 / 16,2	2 / 1,6	2 500
Pesek z glino – rahel	19	26 / 21,3	0	4 000
Pesek z glino – sr. gost	19	30 / 24,8	0	7 000
Pesek z glino – vgrajeni	22	32 / 26,6	2 / 1,6	20 000
Laporovec	22	35 / 29,3	20 / 16	60 000
Tampon	22	36 / 30,2	0	45 000

Primarna kamnina se nahaja na globini cca 353,80 m.n.v., torej v globini – cca -7m. Hribinsko podlago predvidoma gradijo pewščwn laporovec. Temeljenje objekta se izvede kot globoko temeljenje nauvrtanih AB pilotih premera 60 cm ter dolžine ca. 6,0m. Zgornji nivo pilotov je med seboj povezan s pilotnimi gredami višine 0,6 m in širine 0,9 m. Opornika sta temeljena na treh pilotih v prečni smeri z medsebojnim osnim razmikom 3,95 m.

1.2.3 HIDROLOŠKI PODATKI

Hidrološki podatki so povzeti iz Hidrološko hidravlična analiza »Preveritev pretočnosti mosta pri Strnišu« št. Elaborata HH188-2024; LAM BIRO d.o.o.

Na obravnavani lokaciji se nahaja vodotoka Bečovnica in Klaniča. Za obravnavana vodotoka je bila izdelana hidrološko – hidravlična analiza z naslovom: HH študija in karte poplavne nevarnosti za Občino Šoštanj - Rednik 2: OBSTOJEČE STANJE - TOPLICA, KLANČNICA (BEČOVNICA), VELUNJA; številka H-38/13, EHO projekt d.o.o., Linhartova 9, 1000 Ljubljana, november 2013. Za preveritev pretočnosti mosta smo uporabili izračunane vrednosti visokih vod iz prej omenjene študije.

Izračunani pretoki s 100-letno povratno dobo vodotokov

Vodotok	Pretok Q_{100} (m^3/s)
Klančnica	11.1
Bečovnica	25.1

Zaključek HH Študije:

Obstoječ most je širine 5.2 m in višine 1.25 m. Iz hidrološko – hidravlične analize je razvidno, da ne prepušča pretokov s povratno dobo 100 let. Za mostom se ustvari zajezba vode, ki povzroča dvig gladine vode. Vode se prelivajo preko ceste. Kote mostu in gladina vode Q100 so prikazane na slikah 4 in 5. Kota poplavnih vod s povratno dobo 100 let se nahaja na 360.93 m.n.v.. Obstoječ most naj se zamenja s premostitvijo s svetlo odprtino širine 6.5 m in višino 1.95 m. Takšen most prevaja količine Q100 brez varnostne višine. Kota poplavnih vod s povratno dobo 100 let se nahaja na 360.58 m.n.v.. , kar z upoštevanjem debeline predvidenega mostu (AB plošča debeline 45 cm) pomeni, da je kota zgornjega roba predvidenega mosta za 0.55 m višja od obstoječega mostu. Predlagamo, da se most izvede brez varnostne višine, saj je v nasprotnem primeru potrebno dvigniti cesto za več kot 1m, kar zaradi nivelete ceste in obstoječih priključkov ni mogoče. V primeru takšnega dviga ceste bi lahko prišlo do zajezitve bi poplavne vode, ki se sedaj preliva preko ceste. Voda bi obstala na severni strani ceste, kjer bi poplavila več objektov.

1.3 UPORABLJENI STANDARDI IN LITERATURA

Pri statični analizi so uporabljeni naslednji standardi in literatura:

[1] SIST EN 1990:2004 - Evrokod - Osnove projektiranja konstrukcij in nacionalni dodatek
[2] SIST EN 1991-1-1:2004 - Evrokod 1: Vplivi na konstrukcije - 1-1. del: Splošni vplivi - Prostorninske teže, lastna teža, koristne obtežbe stavb in nacionalni dodatek
[3] SIST EN 1991-1-5:2004 - Evrokod 1: Vplivi na konstrukcije - 1-5. del: Splošni vplivi - Toplotni vplivi
[4] SIST EN 1991-1-5:2004/A101:2009/AC:2011 - Evrokod 1: Vplivi na konstrukcije - 1-5. del: Splošni vplivi - Toplotni vplivi - Nacionalni dodatek - Popravek AC

[5] SIST EN 1991-2:2004 - Evrokod 1: Vplivi na konstrukcije - 2. del: Prometna obtežba mostov
[6] SIST EN 1991-2:2004/AC:2010 - Evrokod 1: Vplivi na konstrukcije - 2. del: Prometna obtežba mostov - Popravek AC
[7] SIST EN 1992-1-1:2005 - Evrokod 2: Projektiranje betonskih konstrukcij - 1-1. del: Splošna pravila in pravila za stavbe
[8] SIST EN 1992-2:2005 - Evrokod 2: Projektiranje betonskih konstrukcij - 2. del: Betonski mostovi - Projektiranje in pravila za konstruiranje
[9] SIST EN 1997-1:2005 - Evrokod 7: Geotehnično projektiranje - 1. del: Splošna pravila
[10] D. Beg, A. Pogačnik - Priročnik za projektiranje gradbenih konstrukcij po Evrokod standardih, 2. izdaja, IZS, Ljubljana, 2017
[11] Bond, A. Harris, Decoding EC-7, Taylor & Francis, 2008
[12] Schneider, Bautabellen für Ingenieure, 23. Auflage
[13] B. Macuh, Zbirka enačb, diagramov in tabel s področja geotehnike, Maribor, FGG, 2007

1.4 ZASNOVA MOSTU

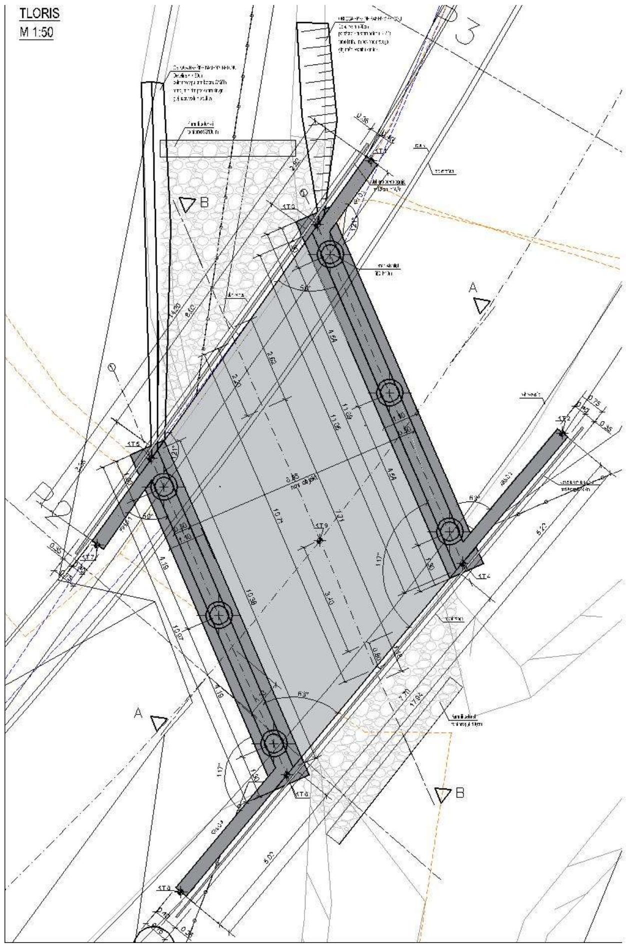
1.4.1 KRATEK OPIS

Most pri Strnišu je zasnovan kot okvirna AB konstrukcija, ki je globoko temeljena. Prekladna konstrukcija je konstante višine 50 cm, širine 10,71 m in svetli razpon v osi ceste znaša 7,80m, medtem pa ko pravokotni svetli razpon objekta znaša 6,85m. Prekladna plošča je togo vpeta v stene opornikov. Stene opornikov so višine 2,66m in dolžine 10,54m v osi 1 in višine 2,61m in dolžine 11,05m v osi 2, debeline obeh opornikov znaša 50cm. Temeljenje je izvedeno na globokih uvrtanih AB pilotih premera d=80cm, dolžine 10m. Pod vsakim opornikom sa nahajajo trije piloti. Piloti so povezani z AB pilotno gredo dimenzij b/h=90/60cm ter dolžine 10,97m in 11,69m. Krila so dolžine od 2,82m do 5,22m in so debeline 40cm. Zgornji rob kril se prilagaja terenu oz. nasipu. Vsa krila so konzolna in so izvedena vzporedno z cesto.

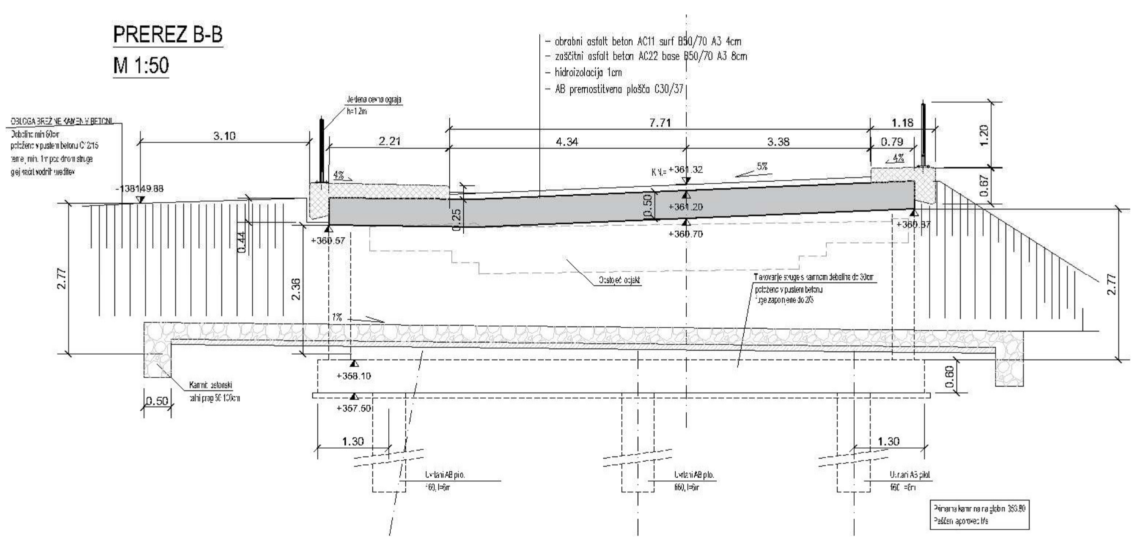
Prekladna konstrukcija, stene opornikov in krila so iz betona kvalitete C30/37. Piloti so iz betona kvalitete C25/30. Za armiranje konstrukcijskih elementov je uporabljena armatura B500 B.

Za prekladno konstrukcija je predvidena stopnja izpostavljenost XC4/XD3/XF3, zato je debelina zaščitnega sloja betona 5,0 cm. Za stene opornikov in krila je predvidena stopnja izpostavljenosti XC4/XD3/XF2, zato je debelina zaščitnega sloja betona 5,0 cm. Za pilote je predvidena stopnja izpostavljenosti XC2, zato je debelina zaščitnega sloja betona 5,0 cm.

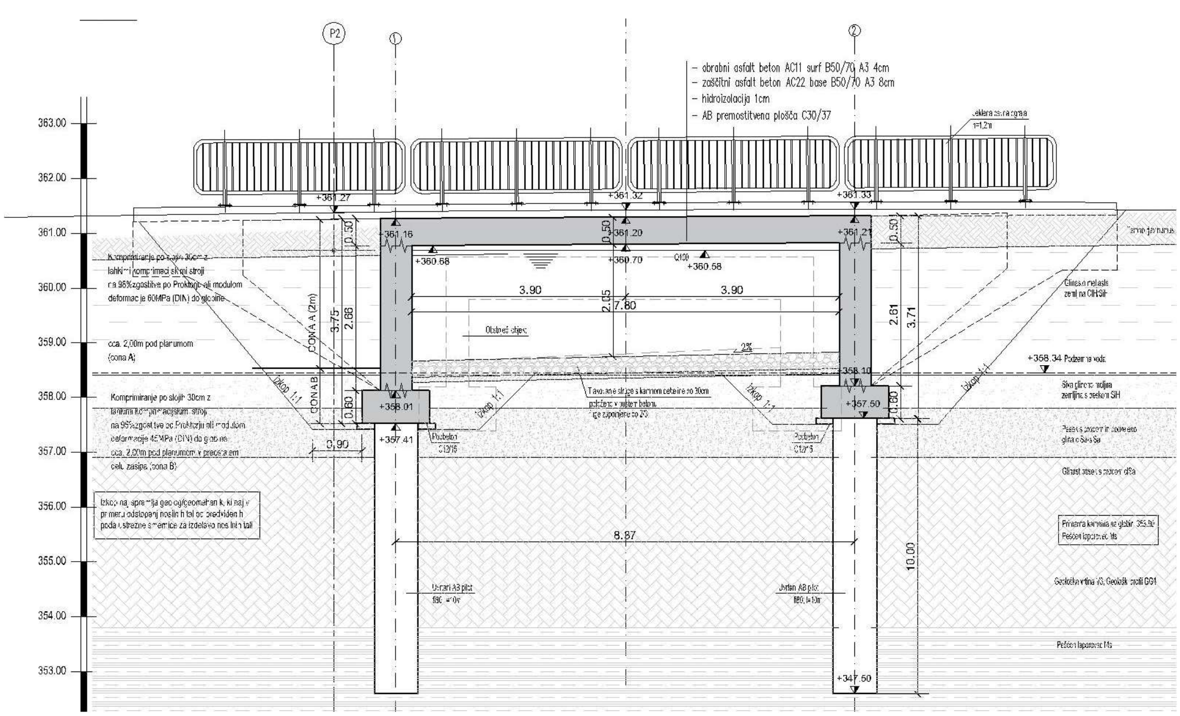
1.4.2 SKICE



Slika 2: Tloris objekta.



Slika 3: Prečni prerez objekta (Prerez B-B).



Slika 4: Vzdolžni prerez objekta (Prerez A-A).

2. ANALIZA OBJEKTA

2.1 Materiali, zaščitni sloji

2.1.1 Zaščitni sloji

Zaščitni sloj armature: ⇒ *5,0 cm*
... pri elementih, ki so v stiku z zemljjino ⇒ *5,5 cm*

2.1.2 Karakteristike materialov

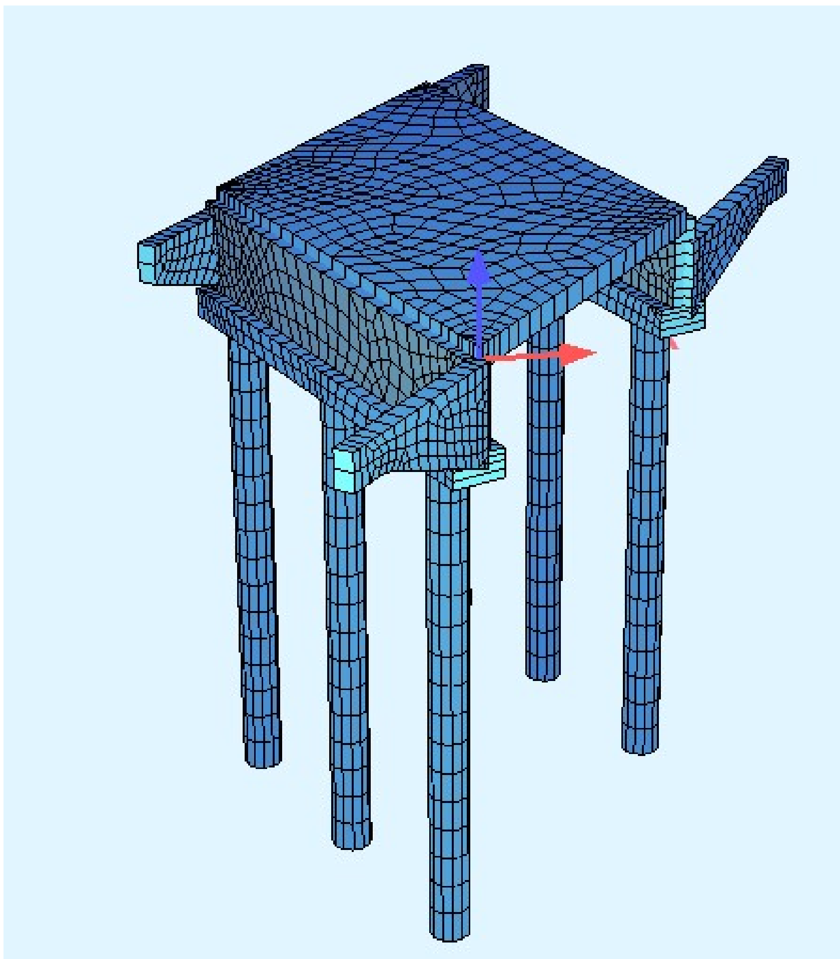
Betoni: prekladna konstrukcija, stene krajnih podpor, piloti, krila:
C30/37, f_{pk} = 30 MN/m^2

Armatura: B500, f_{yk} = 500MN/m^2

2.2 OPIS MATEMATIČNEGA MODELA

Analiza mostu je bila izvedena s pomočjo programa Sofistik Statik 2018, ki deluje na osnovi metode končnih elementov. Za vse konstrukcijske elemente so bili uporabljeni ploskovni elastični končni elementi.

Pri statični analizi objekta je bilo upoštevano globoko temeljenje z vsemi karakteristikami temeljnih tal.



Slika 5: Model konstrukcije.

2.3 OBTEŽBE

2.3.1 SPLOŠNO

Obtežbe delimo glede na trajanje učinkovanja na stalne in spremenljive. Pod stalne obtežbe spadajo lastna teža, teža krova, ograje in zemeljski pritisk za opornikom. Pod spremenljive obtežbe spadajo prometna obtežba mostov, temperatura in dodaten zemeljski pritisk zaradi prometne obtežbe pred in za objektom.

Veter nima bistvenega vpliva na objekt, zato ga ne upoštevamo. Obtežbe snega ne upoštevamo, saj se obtežba snega in prometna obtežba medsebojno izključujeta (merodajna je prometna obtežba, ki je večja od obtežbe snega).

Ker je konstrukcija relativno toga (brez vmesnih podpor), predpostavimo, da se v primeru potresa premakne kot togo telo skupaj z zemljino, zato potresna ne obravnavamo.

Obtežbe ločimo po obtežnih slučajih.

2.3.2 STALNE OBTEŽBE

2.3.2.1 LASTNA TEŽA KONSTRUKCIJE

LC1 – lastna teža konstrukcije

Lastno težo konstrukcije izračuna program samodejno na podlagi površine prereza in specifične teže betona (γ=25 kN/m^3).

2.3.2.2 KROV

LC2 – krov

Krov

asfalt (12 cm):	0,12 x 23,0 kN/m^3	= 2,76 kN/m^2
hidroizolacija:		= 0,10 kN/m^2
skupaj:		**= 1,71 kN/m^2**

Gorvodni robni venec - Obtežba robnega venca (na površino 2,20 cm):

$$q_{R.V.} = \frac{0{,}78\ m^2 \cdot 25\ \frac{kN}{m^3}}{2{,}20\ m} = 8{,}8\ \frac{kN}{m^2}$$

Dolvodni robni venec - Obtežba robnega venca (na površino 0,40 cm):

$$q_{R.V.} = \frac{0{,}32\ m^2 \cdot 25\ \frac{kN}{m^3}}{0{,}4\ m} = 20\ \frac{kN}{m^2}$$

Ograja q_{ograja} = 1,0 kN/m.

2.3.2.3 ZEMELJSKI PRITISK

LC3 – zemeljski pritisk na stene opornikov in temelje

Na stene opornikov in na krila upoštevamo mirni zemeljski pritisk zasipnega materiala (gramoz).

$\gamma_{zem} = 22.0\ kN/m^3$ $\quad$ h1 = 0,15 m $\quad$ h2 = 3,12 m

$\varphi_{zem} = 38°$

$k_0 = 1\text{-}\sin(\varphi_{zem}) = 0.38$ $\quad$ $k_a/k_0 = 0.63$

$k_a = \tan^2(45\text{-}\ \varphi_{zem}/2) = 0.24$

$\sigma_x = \gamma_{zem} \times h \times k_0$ $\quad$ mirni zemeljski pritisk

$\sigma_x = \gamma_{zem} \times h \times k_a$ $\quad$ aktivni zemeljski pritisk

$\sigma_{x(h1)} = 22.0 \times 0{,}15 \times 0.38 =$ **$1{,}254\ kN/m^2$** $\quad$ pritisk na zgornjem robu stene

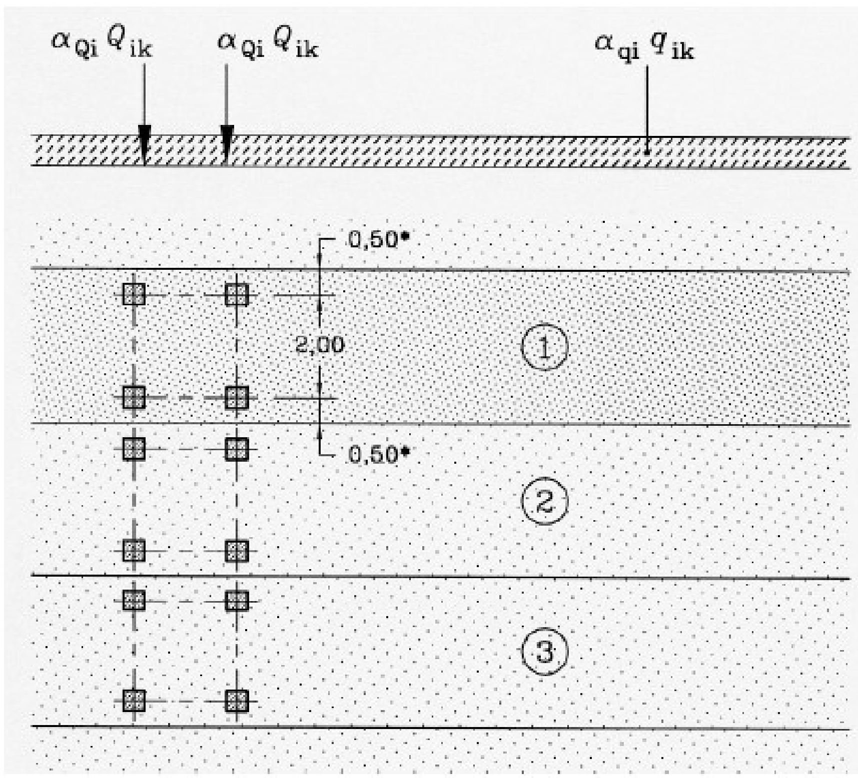
$\sigma_{x(h2)} = 22.0 \times 3{,}12 \times 0.38 =$ **$26{,}08 kN/m^2$** $\quad$ pritisk na spodnjem robu stene

2.3.3 SPREMENLJIVE OBTEŽBE

2.3.3.1 PROMETNA OBTEŽBA

LC 5 – UDL
LC 6-9 – TS

Upoštevali smo obtežbi TS in UDL, obtežni primer LM1.



Load model 1 : characteristic values

Location	Tandem system *TS*	*UDL* system
	Axle loads Q_{ik} (kN)	q_{ik} (or q_{rk}) (kN/m^2)
Lane Number 1	300	9
Lane Number 2	200	2,5
Lane Number 3	100	2,5
Other lanes	0	2,5
Remaining area (q_{rk})	0	2,5

Obtežba UDL je shranjena v obtežnem slučaju LC 101.
Obtežba TS je shranjena v obtežnih slučajih LC 111–121.

V obravnavanem primeru ustreza širina vozišča razdalji med robniki:

$w = 6{,}1m$

Število računskih voznih pasov:

$n_I = Int(w/3) = 2$

Računska preostala površina:

$R = w\text{-}3{\cdot}b_i = 0{,}1m$

Vozni pas 1: (enakomerna obtežba in 2 osni TS)

TS: $\alpha_{Q1}{\cdot}Q_{1k} = 300kN$ UDL: $\alpha_{q1}{\cdot}q_{1k} = 9kN/m^2$

Vozni pas 2: (enakomerna obtežba in 2 osni TS)

TS: $\alpha_{Q1}{\cdot}Q_{1k} = 200kN$ UDL: $\alpha_{q1}{\cdot}q_{1k} = 2{,}5kN/m^2$

Preostala površina: (enakomerna obtežba)

UDL: $\alpha_{qr}{\cdot}q_{rk} = 2{,}5kN/m^2$

Zavorna sila

LC 10 - 11 – zavorna sila

Celoten most je obravnavan kot ena sama zavorna enota dolžine L=8,0 m in z upoštevanjem širine voznega pasu 3,0 m. Zavorna sila je omejena navzgor z 900kN.

$$Q_{lk} = 0{,}6 \cdot \alpha_{Q1} \cdot (2 \cdot Q_{1k}) + 0{,}1 \cdot \alpha_{1k} \cdot q_{1k} \cdot w_l \cdot L < 900\ kN$$

$$Q_{lk} = 0{,}6 \cdot 0{,}8 \cdot (2 \cdot 300\ kN) + 0{,}1 \cdot 0{,}8 \cdot 9{,}0\ \frac{kN}{m^2} \cdot 3{,}0\ m \cdot 8{,}0\ m = 305{,}3\ kN < 900\ kN$$

Upoštevamo enakomerno zvezno obtežbo v težišču prereza in deluje vzdolžno z objektom.

$$q = \frac{305{,}3\ kN}{8{,}0\ m \cdot 3{,}0\ m} = 12{,}7\ \frac{kN}{m^2}$$

Zavorna sila lahko deluje v obe smeri. Obtežba je shranjena v obtežnih slučajih LC 10 in LC 11.

2.3.3.2 TEMPERATURNA OBTEŽBA

LC 12–15 –temperaturna obtežba

Najprej izračunamo osnovne temperature.

....grupa 3

T = -17° ... enakomerno ohlajanje

T = +37° ... enakomerno segrevanje

$\Delta T = 15°$ sp. ... diferencno segrevanje $\gamma = \alpha \times 15 = 15 \times 10^{-5}$

$\Delta T = -8°$ zg. ... diferencno ohlajanje $\gamma = \alpha \times 8 = -8 \times 10^{-5}$

Korektura v odvisnosti od debeline prevleke:

$d_{vrh} = 80$ mm
$K_{sur} = 0{,}82$ …sp. stran toplejša
$K_{sur} = 1$ …zg. stran toplejša

Privzeti je treba linearne temperaturne razlike za končno stanje:

$\Delta T_{M,pos} = 15° \times 0{,}82 = 12{,}3°$ $\gamma = \alpha \times 12{,}3 = 12{,}3 \times 10^{-5}$

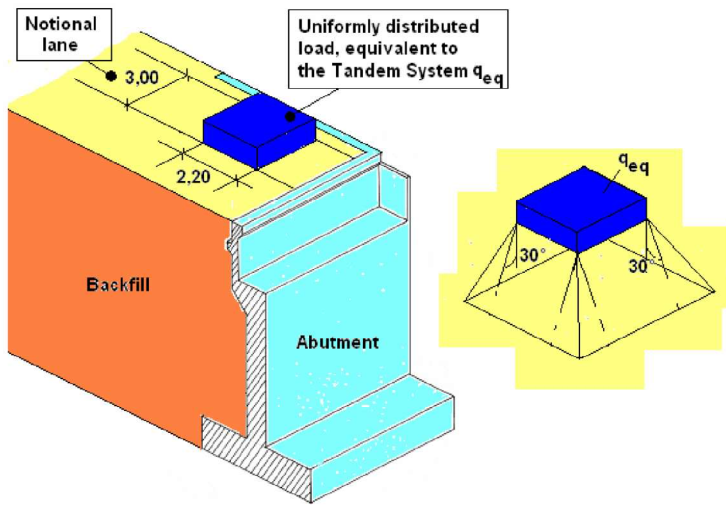
$\Delta T_{M,neg} = -8° \times 1 = -8°$ $\gamma = \alpha \times 8 = -8 \times 10^{-5}$

Neenakomerne spremembe temperature na z zemljo zasutih elementih ne upoštevamo, ker je element na območju konstantne, počasi spreminjajoče se temperature. Kombinacijo enakomerne in neenakomerne temperaturne spremembe upoštevamo samo na prekladni konstrukciji.

2.3.3.3 ZEMELJSKI PRITISK ZARADI PROMETNE OBTEŽBE PRED IN ZA OBJEKTOM

LC 16 -17 – zemeljski pritisk zaradi prometne obtežbe pred in za objektom

Upoštevamo raznos vertikalne obtežbe pod kotom 30° od vertikale.
Obtežba je shranjena v obtežnih slučajih LC 122 (opornik os 1) in LC 123 (opornik os 2).

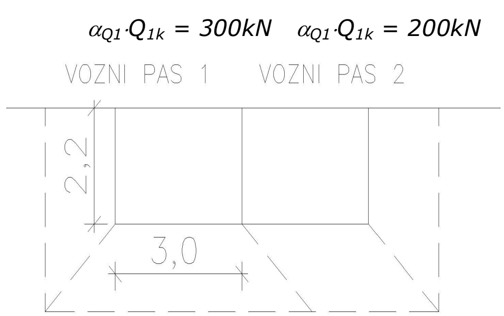


Slika 6: Shema razporeditve sil.

Za horizontalne pritiske upoštevamo koeficient mirnega zemeljskega pritiska zasutega materiala (gramoz: γ=20 kN/m^3; φ=34°; c=0 kPa).

Predpostavimo naslednje karakteristike zasutega materiala (gramoz):

γ = 20 kN/m^3,
γ' = (20 kN/m^3 - 10 kN/m^3) = 10 kN/m^3,
φ = 34°,
c = 0 kPa.



h_1 = 0,5m
h_2 = 3,12m

$\Rightarrow h_1 = 0{,}5$ m

$$A' = L' \cdot b'$$
$$L' = 2{,}2 + \frac{h}{tg60} = 2{,}48m$$
$$b' = 3 + \frac{2 \cdot h}{tg60} = 3{,}57m$$
$$p_1 = \left(\frac{659{,}4}{2{,}48 \cdot 3{,}57}\right) \cdot 0{,}38 = 28{,}47kN/m^2$$

$\Rightarrow h_2 = 3{,}12$ m

$$A' = L' \cdot b'$$
$$L' = 2{,}2 + \frac{h}{tg60} = 4{,}0m$$
$$b' = 3 + \frac{2 \cdot h}{tg60} = 6{,}9m$$
$$p_2 = \left(\frac{659{,}4}{4{,}0 \cdot 6{,}9}\right) \cdot 0{,}38 = 9{,}07kN/m^2$$

2.3.3.4 Krčenje

LC 18

Pri analizi konstrukcije so upoštevane naslednje vrednosti:

RH = 90% …………………relativna vlažnost okolja

h_0 …………………………srednji presek betonskega vzorca

f_{cm} = tlačna trdnost betona

$h_0 = 0.25m \Rightarrow 250mm$

$t = \infty$

Uporabljeni beton C30/37

Pri analizi krčenja so upoštevane naslednje vrednosti:

$t_s = 0$ ....starost betona ko se začač krčrčen

$t = \infty$......starost betona na koncu rača intervala

$\beta_{sc} = 5$

RH……vlažnost zraka (relativna)

$$\beta_s(t - t_s) = \left[\frac{t - t_s}{0.035 \cdot h_0^2 + t - t_s}\right]^{0.5} = \left[\frac{\infty}{0.035 \cdot 250^2 + \infty - 0}\right]^{0.5} \approx 1$$

$$\beta_{RH} = -1.55 \cdot \left(1 - \frac{RH}{100}\right)^3 = -1.55 \cdot \left(1 - \frac{90}{100}\right)^3 = -0.0155$$

$$\varepsilon_s(fcm) = [160 + \beta_{sc} \cdot (90 - f_{cm})] \cdot 10^{-6} = [160 + 5 \cdot (90 - 33)] \cdot 10^{-6} = 0.44$$

$$\varepsilon_{cs,0} = \varepsilon_s(f_{cm}) \cdot \beta_{RH} = 0.44 \cdot (-0.0155) = 0.0069$$
$$\varepsilon_{cs}(t - t_s) = \varepsilon_{cs,0} \cdot \beta_s(t - t_s) = 0.0069 \cdot 1$$

3. DOKAZI

MSN navadna kombinacija

- izračun armature

MSU

- kontrola napetosti v betonu → napetosti v betonu morajo biti manjše od 0,66f_{ck} za karakteristično (redko) kombinacijo
- kontrola napetosti v armaturi → napetosti morajo biti manjše od 0,8f_{yk} za karakteristično (redko) kombinacijo
- kontrola razpok v betonu → razpoke v betonu morajo biti manjše od w_{max} = 0,3 mm za navidezno stalno kombinacijo

Podrobni rezultati analize so prikazani v računalniškem izpisu v prilogi.

3.1 MSU

Tlačne napetosti v betonu morajo biti manjše od 0,66f_{ck}:

- preklada, stene opornikov in krila: 0,66f_{ck} = 0,66 x 30 MPa = 19,8 MPa
- temelji: 0,66f_{ck} = 0,66 x 25 MPa = 16,5 MPa

Kot je razvidno iz rezultatov v računalniškem izpisu v prilogi, so napetosti na vogalih prekoračene, vendar gre za singularne vrednosti v območjih diskontinuitet, kjer nastopajo nerealne ekstremne vrednosti.

Natezne napetosti v jeklu za armiranje morajo biti manjše od 0,8f_{yk} (0,8 x 500 MPa = 400 MPa). Kot je razvidno iz rezultatov v računalniškem izpisu v prilogi, so napetosti v jeklu za armiranje manjše od 400 MPa.

3.2 ARMATURA

V računalniškem izpisu v prilogi je prikazana armatura, ki je ovojnica za MSN in MSU. Pri tem program upošteva minimalno armaturo.

Minimalna armatura za stene opornika

Vertikalna armatura

$$A_{s,vmin} = 0{,}003 \cdot A_c = 0{,}003 \cdot 50\ cm \cdot 100\ cm = 15{,}0\ \frac{cm^2}{m}$$

$$A_{s,vmin,lice} = \frac{A_{s,vmin}}{2} = \frac{15{,}0\ \frac{cm^2}{m}}{2} = 7{,}5\ \frac{cm^2}{m}$$

Horizontalna armatura

$$A_{s,hmin} = max\left\{\frac{0{,}25 \cdot A_{s,vmin} = 0{,}25 \cdot 15{,}0\ \frac{cm^2}{m} = 3{,}75\ \frac{cm^2}{m}}{0{,}002 \cdot A_c = 0{,}002 \cdot 50\ cm \cdot 100\ cm = 10{,}0\ \frac{cm^2}{m}}\right\} = 10{,}0\ \frac{cm^2}{m}$$

$$A_{s,hmin,lice} = \frac{A_{s,hmin}}{2} = \frac{10{,}0\ \frac{cm^2}{m}}{2} = 5{,}0\ \frac{cm^2}{m}$$

Minimalna armatura za krila

Vertikalna armatura

$$A_{s,vmin} = 0{,}003 \cdot A_c = 0{,}003 \cdot 40\ cm \cdot 100\ cm = 12{,}0\ \frac{cm^2}{m}$$

$$A_{s,vmin,lice} = \frac{A_{s,vmin}}{2} = \frac{12{,}0\ \frac{cm^2}{m}}{2} = 6{,}0\ \frac{cm^2}{m}$$

Horizontalna armatura

$$A_{s,hmin} = max\left\{\frac{0{,}25 \cdot A_{s,vmin} = 0{,}25 \cdot 12{,}0\ \frac{cm^2}{m} = 3{,}0\ \frac{cm^2}{m}}{0{,}002 \cdot A_c = 0{,}002 \cdot 40\ cm \cdot 100\ cm = 8{,}0\ \frac{cm^2}{m}}\right\} = 8{,}0\ \frac{cm^2}{m}$$

$$A_{s,hmin,lice} = \frac{A_{s,hmi}}{2} = \frac{8{,}0\ \frac{cm^2}{m}}{2} = 4{,}0\ \frac{cm^2}{m}$$

Minimalna upogibna armatura za preklado

$$A_{s,min} = max\left\{\frac{0{,}26 \cdot \frac{f_{ctm}}{f_{yk}} \cdot b_t \cdot d = 0{,}26 \cdot \frac{2{,}9\ MPa}{500\ MPa} \cdot 100\ cm \cdot 44{,}5\ cm = 6{,}7\ \frac{cm^2}{m}}{0{,}0013 \cdot b_t \cdot d = 0{,}0013 \cdot 100\ cm \cdot 44{,}5\ cm = 5{,}8\ \frac{cm^2}{m}}\right\} = 6{,}7\ \frac{cm^2}{m}$$

4. KONTROLA PILOTOV

Pri izračunu nosilnosti pilotov so bili upoštevane naslednje lastnosti zemljine:

Do 7,4 m:
Glina s peskom in prodom (najslabši pogoji)
φ=26°,
c=0 kPa

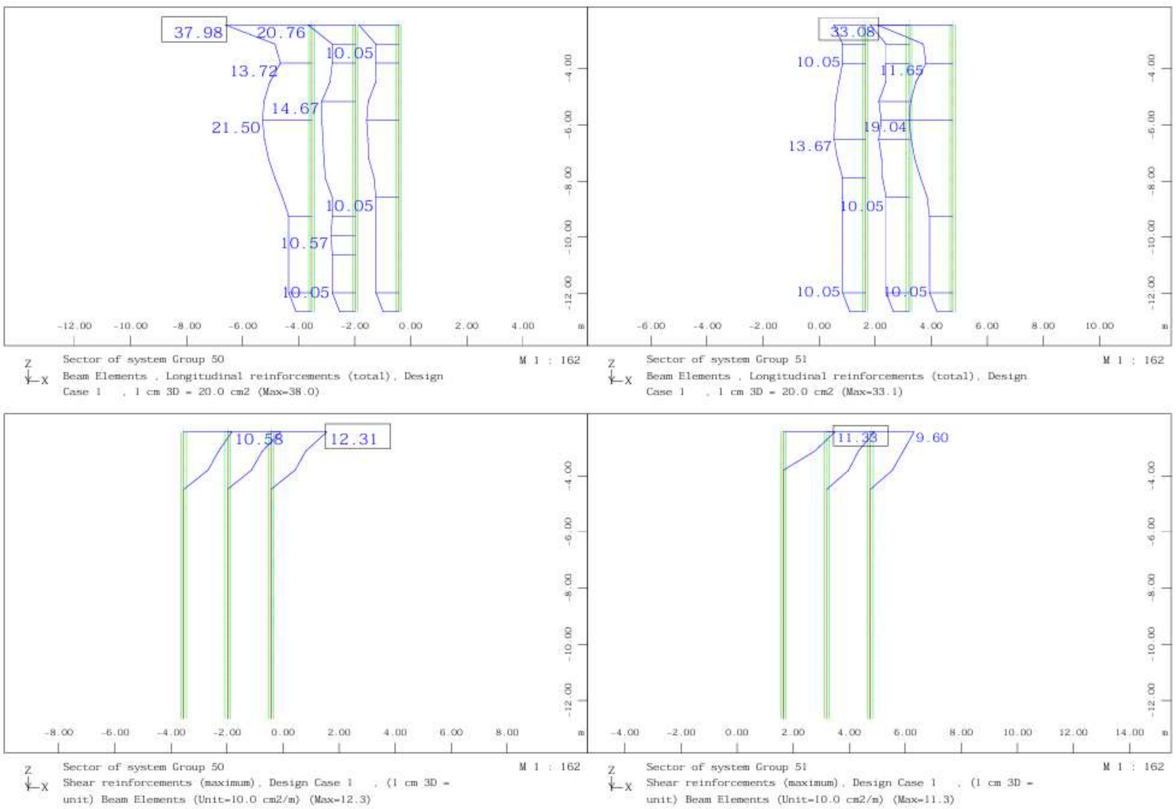
Podlaga
Laporovec
φ=35°
c=20 kPa

Za temeljenje na pilotih je izveden informativni izračun nosilnosti pod piloti (EC 7 projektni pristop 2) za dolžino pilota 10m z vpetjem v podlago Laporovca –
Vpetje pilota je min 3 x premer pilota:

Projektna nosilnost pilota:
Φ60 cm, dolžina = 10.0 m **$R_{c,d}$= 1.8 MN**
Φ80 cm, dolžina = 10.0 m **$R_{c,d}$= 3.2 MN**

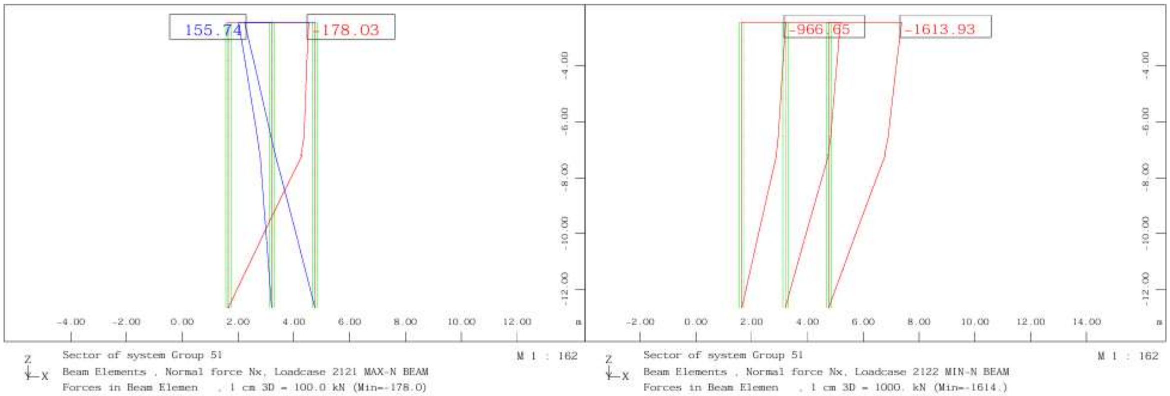
4.1 Armatura pilotov

Analiza mostu je bila izvedena s pomočjo programa Sofistik Statik 2018, ki deluje na osnovi metode končnih elementov. Za vse konstrukcijske elemente so bili uporabljeni ploskovni elastični končni elementi.
Pri statični analizi objekta je bilo upoštevano globoko temeljenje z vsemi karakteristikami temeljnih tal.
Upoštevamo obremenitve iz obtežne kombinacije 1.



Pilot je armiran z minimalnim procentom armature (0,8%). Kar je 100 cm^2.
Izberem armaturo 28 φ 22 (106,4 cm^2)

4.2 Reakcijska sila na dnu pilota



Max obremenjen pilot je obremenjen s silo R=1613,93 kN

R_{max} = 1613,93 kN < N_{dop} = 3200kN

5. ZAKLJUČEK

V analizi je bila dokazana mehanska odpornost in stabilnost mostu Strniša.

Maribor, oktober 2025.

6. RAČUNALNIŠKI IZPIS

6.1 REZULTATI ANALIZE MEHANSKE ODPORNOSTI IN STABILNOSTIMOSTU Strniša

Kazalo vsebine

Most
Materials

Materials

Mat	Classification
1	C 30/37 (EN 1992)
2	B 500 B (EN 1992)
3	SC - sand with clay
4	MH - silt, high plasticity
5	C 25/30 (EN 1992)

Mat 3 SC - sand with clay

Young's modulus	E	300000	[kN/m2]	Safetyfactor	1.00	[-]
Poisson's ratio	μ	0.35	[-]			
Shear modulus	G	111111	[kN/m2]			
Compression modulus	K	333333	[kN/m2]			
Nominal Weight	γ	19.0	[kN/m3]			
Weight buoyancy	γa	9.0	[kN/m3]			
Elongation coefficient	α	0.00E+00	[1/K]			

Mat 4 MH - silt, high plasticity

Young's modulus	E	30000	[kN/m2]	Safetyfactor	1.00	[-]
Poisson's ratio	μ	0.45	[-]			
Shear modulus	G	10345	[kN/m2]			
Compression modulus	K	100000	[kN/m2]			
Nominal Weight	γ	16.0	[kN/m3]			
Weight buoyancy	γa	6.0	[kN/m3]			
Elongation coefficient	α	0.00E+00	[1/K]			

Thermal material constants

Mat	T[°C]	S[kJ/K/m3]	Kxx[W/K/m]	Kyy[W/K/m]	Kzz[W/K/m]	
1	AUTO	2.16E+03	1.951E+00			C 30/37 (EN 1992)
2	AUTO	3.45E+03	5.333E+01			B 500 B (EN 1992)
3	AUTO	2.00E+03	2.000E+00			SC - sand with clay
4	AUTO	3.36E+03	1.500E+00			MH - silt, high plasticity
5	AUTO	2.16E+03	1.951E+00			C 25/30 (EN 1992)

Mat material number S[kJ/K/m3] Heat capacity
T[°C] Temperature Kxx[W/K/m],Kyy[W/K/m],Kzz[W/K/m] Heat conductivity

Most
Sections

Default design code is EuroNorm EN 1992-2:2005 Concrete Structures (Slovenija) V 2018
Structure and Tab.7.1N: B (Road bridges)
Snow load zone : 1

Materials

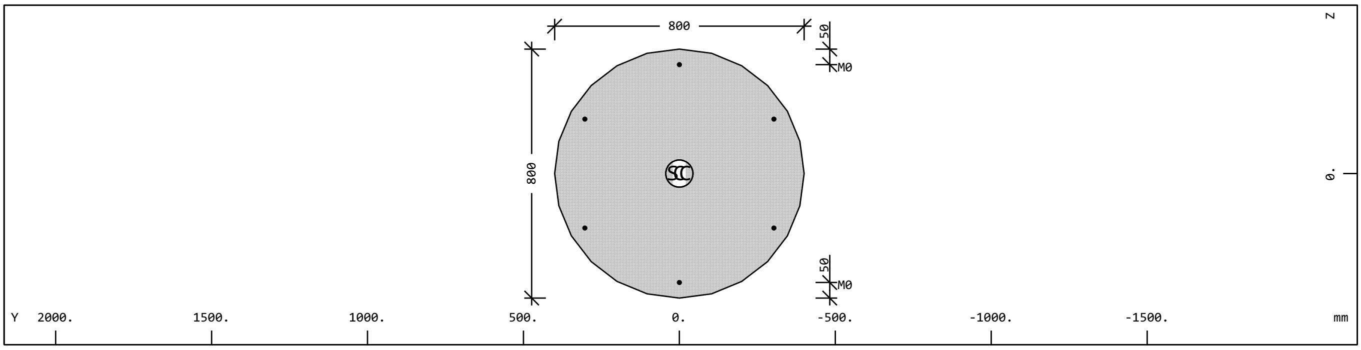
Mat	Classification
1	C 30/37 (EN 1992)
2	B 500 B (EN 1992)
3	SC - sand with clay
4	MH - silt, high plasticity
5	C 25/30 (EN 1992)

Cross-sections static properties

SNo	Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
	MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
			Ayz[m2]	Iyz[m4]					α[°]
1	1	5.0611E-01	4.524E-01	2.032E-02	0.0	0.0	32837	1256.6	
	2	4.021E-02	4.524E-01	2.032E-02	0.0	0.0	13682	(COMPR)	
	= D 800 mm								
	= D 800 mm								

SNo section number | yc[mm],zc[mm] ordinate of elastic centroid
Mat material number | ysc[mm],zsc[mm] ordinate of shear centre
A[m2] sectional area | E[N/mm2] Young's modulus
Ay[m2],Az[m2],Ayz[m2] transverse shear deformation area | g[kg/m] weight per length
Iy[m4],Iz[m4],Iyz[m4] bending moment of inertia
I-1[m4],I-2[m4],α[°] principal moments of inertia and angle of the principal axes
MRf reinforcement material number
It[m4] torsional moment of inertia
G[N/mm2] Shear modulus

Cross section No. 1 - D 800 mm



Cross section No. 1 - D 800 mm

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
1	5.0611E-01	4.524E-01	2.032E-02	0.0	0.0	32837	1256.6	
2	4.021E-02	4.524E-01	2.032E-02	0.0	0.0	13682	(COMPR)	

Mat material number | yc[mm],zc[mm] ordinate of elastic centroid
A[m2] sectional area | ysc[mm],zsc[mm] ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2] transverse shear deformation area | E[N/mm2] Young's modulus
Iy[m4],Iz[m4],Iyz[m4] bending moment of inertia | g[kg/m] weight per length
I-1[m4],I-2[m4],α[°] principal moments of inertia and angle of the principal axes
MRf reinforcement material number
It[m4] torsional moment of inertia
G[N/mm2] Shear modulus

Additional static properties of cross section

α-T[1/K]	ymin[mm]	zmin[mm]	hymin[mm]	AK[m2]	MRs	1/WT[1/m3]	1/WVy[1/m2]
	ymax[mm]	zmax[mm]	hzmin[mm]	AB[m2]		1/WT2[1/m3]	1/WVz[1/m2]
1.0E-05	-400.0	-400.0	471.2	3.848E-01	2	9.947E+00	2.653E+00
	400.0	400.0	471.2	5.027E-01			2.653E+00

α-T[1/K] Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm] extreme coordinates relative to centroid

Most
Sections

hymin[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

Circular/annular cross section

Ra[mm]	Ri[mm]	Rsa[mm]	Rsi[mm]	Asa[cm2]	Asi[cm2]	D[mm]	a[mm]	Ass[cm2/m]
400.0		350.0		6.78		12		

Ra[mm],Ri[mm]	radius	D[mm]	bar diameter
Rsa[mm],Rsi[mm]	radius of reinforcement	a[mm]	distance of bars
Asa[cm2],Asi[cm2]	reinforcement area	Ass[cm2/m]	area of transverse reinforcements

Additional design data

Mat	periphery-O/-I [m2/m]	[m2/m]	deff [mm]	t-min [mm]	t-max [mm]	thet-p [kgm2/m]	thet-y [kgm2/m]	thet-z [kgm2/m]	thet-yz [kgm2/m]	yg [mm]	zg [mm]
	2.513			400.0	400.0	100.531	50.265	50.265		0.0	0.0

Mat	material number	t-min,t-max	thickness
periphery-O/-I	peripheral area per length	thet-p,thet-y,thet-z,thet-yz	rotational mass
deff	effective depth	yg,zg	ordinate of the mass centre

Reinforcement global values

Layer	Mref	Mat	As [cm2]	As-min [cm2]	As-max [cm2]	D [mm]	yr [mm]	zr [mm]	L-tors [mm]	N-p [kN]	My-p [kNm]	Mz-p [kNm]
M0	1	2	6.78	6.78		12	0.0	0.0	2199.1			

Layer	layer of reinforcement	D	bar diameter
Mref	embedding reference material	yr,zr	ordinate of elastic centroid
Mat	material number	L-tors	torsional effective length
As	reinforcement area	N-p	prestress normal force
As-min	minimum reinforcement area	My-p,Mz-p	prestress bending moment
As-max	maximum reinforcement area		

Bore Profile NoP 1 Bore Profile 1

X[m]	Y[m]	Z[m]	dX[-]	dY[-]	dZ[-]	α[°]	Hgwl[m]	Hgwh[m]
0.000	0.000	0.000	0.000	0.000	-1.000	0.0	0.000	0.000

X[m],Y[m],Z[m]	coordinates of the start point	Hgwl[m]	lowest ground water level
dX[-],dY[-],dZ[-]	direction of the bore profile	Hgwh[m]	highest ground water level
α[°]	rotation angle of the local axes		

Soil layer

s [m]	Mat [-]	Es [kN/m2]	dEs [kN/m2]	VARI	MUE [-]	Pmax [kN/m2]	Pmal [kN/m2]	c [kN/m2]	ϕ [°]	γ [kN/m3]	γa [kN/m3]
0.000	3	4000.00		CONS						0.0	0.0
2.000	3	20000.00		CONS						0.0	0.0
7.000	4	60000.00		CONS						0.0	0.0
17.000	4	60000.00		CONS						0.0	0.0

s	ordinate of the profile axis	Pmax	maximum pressure at pile foot
Mat	material number	Pmal	maximum lateral pressure
Es	Oedometer stiffness	c	Cohesion
dEs	increment of the compression modulus	ϕ	Friction angle
VARI	type of the variation of the compression modulus	γ	specific weight
MUE	Poisson's ratio	γa	specific weight under buoyancy

Axial

s [m]	K0-a [kN/m2]	K1-a [kN/m2]	K2-a [kN/m2]	K3-a [kN/m2]	M0 [kN/m]	C0 [kN/m]	tanR [-]	tanD [-]	Ksig [-]	Pmax [kN]
0.000	4000.00						0.00	0.00	0.00	
2.000										0.0
2.000	20000.00						0.00	0.00	0.00	
7.000										0.0
7.000	60000.00						0.00	0.00	0.00	
17.000										0.0

s	ordinate of the profile axis	tanR	tangent of the pile friction angle
K0-a,K1-a,K2-a,K3-a	parameter of the foundation profile	tanD	tangent of the pile dilatancy angle
M0	skin friction	Ksig	lateral pressure coefficient
C0	maximum skin friction	Pmax	maximum pile foot force

Most
Sections

Transverse

s [m]	K0-t [kN/m2]	K1-t [kN/m2]	K2-t [kN/m2]	K3-t [kN/m2]	P0 [-]	P1 [-]	P2 [-]	P3 [-]	Pmax [kN/m]
0.000	4000.00				1.00	1.00	1.00	1.00	0.00
2.000									0.00
2.000	20000.00				1.00	1.00	1.00	1.00	0.00
7.000									0.00
7.000	60000.00				1.00	1.00	1.00	1.00	0.00
17.000									0.00

s ordinate of the profile axis
K0-t,K1-t,K2-t,K3-t parameter of the foundation profile
P0,P1,P2,P3 form factor as variation along periphery
Pmax maximum foundation value

Most
Boreprofile

Bore Profile NoP 1 Bore Profile 1

X[m]	Y[m]	Z[m]	dX[-]	dY[-]	dZ[-]	α[°]	Hgwl[m]	Hgwh[m]
0.000	0.000	0.000	0.000	0.000	-1.000	0.0	0.000	0.000

X[m],Y[m],Z[m] coordinates of the start point
dX[-],dY[-],dZ[-] direction of the bore profile
α[°] rotation angle of the local axes
Hgwl[m] lowest ground water level
Hgwh[m] highest ground water level

Soil layer

s [m]	Mat [-]	Es [kN/m2]	dEs [kN/m2]	VARI	MUE [-]	Pmax [kN/m2]	Pmal [kN/m2]	c [kN/m2]	ϕ [°]	γ [kN/m3]	γa [kN/m3]
0.000	3	4000.00		CONS						0.0	0.0
2.000	3	20000.00		CONS						0.0	0.0
7.000	4	60000.00		CONS						0.0	0.0
17.000	4	60000.00		CONS						0.0	0.0

s ordinate of the profile axis
Mat material number
Es Oedometer stiffness
dEs increment of the compression modulus
VARI type of the variation of the compression modulus
MUE Poisson's ratio
Pmax maximum pressure at pile foot
Pmal maximum lateral pressure
c Cohesion
ϕ Friction angle
γ specific weight
γa specific weight under buoyancy

Axial

s [m]	K0-a [kN/m2]	K1-a [kN/m2]	K2-a [kN/m2]	K3-a [kN/m2]	M0 [kN/m]	C0 [kN/m]	tanR [-]	tanD [-]	Ksig [-]	Pmax [kN]
0.000	4000.00						0.00	0.00	0.00	
2.000										0.0
2.000	20000.00						0.00	0.00	0.00	
7.000										0.0
7.000	60000.00						0.00	0.00	0.00	
17.000										0.0

s ordinate of the profile axis
K0-a,K1-a,K2-a,K3-a parameter of the foundation profile
M0 skin friction
C0 maximum skin friction
tanR tangent of the pile friction angle
tanD tangent of the pile dilatancy angle
Ksig lateral pressure coefficient
Pmax maximum pile foot force

Transverse

s [m]	K0-t [kN/m2]	K1-t [kN/m2]	K2-t [kN/m2]	K3-t [kN/m2]	P0 [-]	P1 [-]	P2 [-]	P3 [-]	Pmax [kN/m]
0.000	4000.00				1.00	1.00	1.00	1.00	0.00
2.000									0.00
2.000	20000.00				1.00	1.00	1.00	1.00	0.00
7.000									0.00
7.000	60000.00				1.00	1.00	1.00	1.00	0.00
17.000									0.00

s ordinate of the profile axis
K0-t,K1-t,K2-t,K3-t parameter of the foundation profile
P0,P1,P2,P3 form factor as variation along periphery
Pmax maximum foundation value

Mesh Generation

Default design code is EuroNorm EN 1992-2:2005 Concrete Structures (Slowenija) V 2018
Structure and Tab.7.1N: B (Road bridges)
Snow load zone : 1

Materials

Mat	Classification
1	C 30/37 (EN 1992)
2	B 500 B (EN 1992)
3	SC - sand with clay
4	MH - silt, high plasticity
5	C 25/30 (EN 1992)

Most
Generation of Node and Element Loads

Actions

type	part	sup	Designation	γ-u	γ-f	γ-a	ψ_0	ψ_1	ψ_2	$\psi_1$inf
G_1	G	perm	dead load g1	1.35	1.00	1.00	1.00	1.00	1.00	1.00
		1	Lastna teža							
		2	krov							
R	G	perm	earth pressure	1.35	1.00	1.00	1.00	1.00	1.00	1.00
		3	zemeljski pritisk							
C	Q	perm	creep + shrinkage	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		18	reologija							
L	Q	excl	live loading	1.50	0.00	1.00	0.75	0.75	0.75	0.80
T	Q	excl	temperature loading	1.50	0.00	1.00	0.60	0.60	0.50	0.80
		12	temp enak -17							
		13	temp enak 37							
		14	temp neenak -8							
		15	temp neenak 15							
GR_T	Q_1	excl	gr1a LM1	1.35	0.00	1.00	0.75	0.75	0.00	0.80
		6	TS1							
		7	TS2							
		8	TS3							
		9	TS4							
		16	vozilo pred 1							
		17	vozilo pred 2							
GR_U	Q_1	excl	gr1a LM1	1.35	0.00	1.00	0.40	0.40	0.00	0.80
		5	UDL							
GR_2	Q_2	exex	gr2 Horizontal forces	1.35	0.00	1.00	0.00	0.00	0.00	1.00
		10	zavorna sila 1							
		11	zavorna sila 2							
			Reliability factor Kfi	1.000						
			Reduction factor xsi	0.850						

type action; γ-u,γ-f,γ-a partial safety factors for unfavourable/favourable/accidental
part partition of the action; $\psi_0,\psi_1,\psi_2,\psi_1$inf combination coefficients
sup superposition type

Load Case 1 (G_1) Lastna teža

Factor forces and moments		1.000
Factor dead weight	DL-ZZ	-1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	$\psi_1$inf	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Load Case 2 (G_1) krov

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	$\psi_1$inf	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Loads

Kind	Reference to	Projection		Coordinates			Type	Load value
		Designation	W[m]	X[m]	Y[m]	Z[m]		
Line	qgrp -mult-			1.219	15.850	-0.001	PG	1.00 [kN/m]
				-3.974	9.285	0.001		1.00 [kN/m]
		ograja				activated	(++)	102.17 percent
Line	qgrp 30			5.192	6.564	0.001	PG	1.00 [kN/m]
				0.000	0.002	0.000		1.00 [kN/m]
		ograja				activated		100.00 percent

Most
Generation of Node and Element Loads

Loads

Kind	Reference to	Projection Designation	W[m]	X[m]	Y[m]	Z[m]	Type	Load value
Line	qgrp 30			5.192	6.564	0.001	PG	8.00 [kN/m]
				0.000	0.002	0.000		8.00 [kN/m]
		robni venec				activated		100.00 percent
Area	sar 3			2.210	13.534	-0.001	PG	7.09 [kN/m2]
				1.219	15.850	-0.001		7.09 [kN/m2]
				-3.974	9.285	0.001		7.09 [kN/m2]
				-3.442	8.042	0.001		7.09 [kN/m2]
				-3.031	7.081	0.001		7.09 [kN/m2]
		hodnik				activated		100.00 percent

Load Case 3 (R) zemeljski pritisk

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	$\psi_1$inf	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	X[m]	Y[m]	Z[m]	Type	Load value
Area	SAR 1			-3.973	9.285	-1.835	Pz	-26.10 [kN/m2]
				0.001	-0.001	-1.835		-26.10 [kN/m2]
				0.000	0.002	0.000		-1.25 [kN/m2]
				-3.974	9.285	0.001		-1.23 [kN/m2]
						activated		100.00 percent
Area	SAR 9			0.000	0.002	0.000	Pz	-1.25 [kN/m2]
				0.000	0.000	-2.076		-26.08 [kN/m2]
				-2.171	-2.745	-0.749		-10.00 [kN/m2]
				-2.792	-3.529	-0.749		-9.94 [kN/m2]
				-2.792	-3.529	0.001		-0.97 [kN/m2]
						activated		100.00 percent
Area	SAR 8			-3.973	9.285	-1.835	Pz	-26.08 [kN/m2]
				-5.525	7.324	-0.998		-26.08 [kN/m2]
				-5.525	7.324	-0.198		-1.25 [kN/m2]
				-3.974	9.285	-0.199		24.70 [kN/m2]
						activated		100.00 percent
Area	SAR 4						Pz	26.80 [kN/m2]
						activated		100.00 percent
Area	SAR 7			1.219	15.850	-1.835	Pz	-26.08 [kN/m2]
				2.770	17.811	-1.000		-26.08 [kN/m2]
				2.770	17.811	-0.000		-1.25 [kN/m2]
				1.219	15.850	-0.001		19.46 [kN/m2]
						activated		100.00 percent
Area	SAR 2			1.219	15.850	-1.835	Pz	26.08 [kN/m2]
				5.193	6.564	-1.835		26.08 [kN/m2]
				5.192	6.564	0.001		1.25 [kN/m2]
				1.219	15.850	-0.001		1.28 [kN/m2]
						activated		100.00 percent
Area	SAR 5						Pz	-26.08 [kN/m2]
						activated		100.00 percent
Area	SAR 6			5.192	6.564	-0.449	Pz	-1.00 [kN/m2]
				7.984	10.094	0.001		-1.00 [kN/m2]
				7.984	10.094	-0.749		-10.00 [kN/m2]
				7.364	9.309	-0.749		-8.80 [kN/m2]
				5.193	6.564	-2.076		-20.52 [kN/m2]

Most
Generation of Node and Element Loads

Loads

Kind	Reference to		Projection Designation	W[m]	X[m]	Coordinates Y[m]	Z[m]	Type	Load value
							activated		100.00 percent

Load Case 5 (GR_U) UDL

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.400 (rare)
Combination coefficient	$\psi_1$inf	0.800 (infrequent)
Combination coefficient	ψ_1	0.400 (frequent)
Combination coefficient	ψ_2	0.000 (permanent)

Loads

Kind	Reference to		Projection Designation	W[m]	X[m]	Coordinates Y[m]	Z[m]	Type	Load value
Area	sar	3			3.525	10.460	0.000	PG	2.50 [kN/m2]
					2.210	13.534	-0.000		2.50 [kN/m2]
					-2.983	6.969	0.002		2.50 [kN/m2]
					-2.451	5.726	0.002		2.50 [kN/m2]
					-1.646	3.848	0.000		2.50 [kN/m2]
			udl				activated		100.00 percent
Area	sar	3			4.808	7.463	0.001	PG	9.00 [kN/m2]
					3.525	10.460	0.000		9.00 [kN/m2]
					-1.646	3.848	0.000		9.00 [kN/m2]
					-0.844	1.970	0.002		9.00 [kN/m2]
					-0.433	1.009	0.002		9.00 [kN/m2]
			udl				activated		99.99 percent

Load Case 6 (GR_T) TS1

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.750 (rare)
Combination coefficient	$\psi_1$inf	0.800 (infrequent)
Combination coefficient	ψ_1	0.750 (frequent)
Combination coefficient	ψ_2	0.000 (permanent)

Loads

Kind	Reference to		Projection Designation	W[m]	X[m]	Coordinates Y[m]	Z[m]	Type	Load value
Point	sar	2			4.600	7.948	0.001	PG	150.0 [kN]
							activated		100.00 percent
Point	sar	2			3.813	9.787	0.000	PG	150.0 [kN]
							activated		100.00 percent
Point	sar	2			3.420	10.706	0.000	PG	100.0 [kN]
							activated		100.00 percent
Point	sar	2			2.633	12.545	-0.000	PG	100.0 [kN]
							activated		100.00 percent
Point	sar	3			3.855	7.007	0.001	PG	150.0 [kN]
							activated		100.00 percent
Point	sar	3			3.069	8.846	0.000	PG	150.0 [kN]
							activated		100.00 percent
Point	sar	3			2.675	9.765	0.000	PG	100.0 [kN]
							activated		100.00 percent
Point	sar	3			1.888	11.604	-0.000	PG	100.0 [kN]
							activated		100.00 percent

Most
Generation of Node and Element Loads

Load Case 7 (GR_T) TS2

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.750 (rare)
Combination coefficient	$\psi_1$inf	0.800 (infrequent)
Combination coefficient	ψ_1	0.750 (frequent)
Combination coefficient	ψ_2	0.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Point	sar 3			3.111	6.066	0.001	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			2.324	7.905	0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			1.931	8.824	0.000	PG	100.0 [kN]
						activated		100.00 percent
Point	sar 3			1.144	10.663	-0.000	PG	100.0 [kN]
						activated		100.00 percent
Point	sar 3			2.367	5.125	0.001	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			1.580	6.964	0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			1.186	7.883	-0.000	PG	100.0 [kN]
						activated		100.00 percent
Point	sar 3			0.399	9.722	-0.001	PG	100.0 [kN]
						activated		100.00 percent

Load Case 8 (GR_T) TS3

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.750 (rare)
Combination coefficient	$\psi_1$inf	0.800 (infrequent)
Combination coefficient	ψ_1	0.750 (frequent)
Combination coefficient	ψ_2	0.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Point	sar 3			1.622	4.184	0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			0.835	6.022	0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			0.442	6.942	-0.000	PG	100.0 [kN]
						activated		100.00 percent
Point	sar 3			-0.345	8.781	-0.001	PG	100.0 [kN]
						activated		100.00 percent
Point	sar 3			0.878	3.243	0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			0.091	5.081	0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			-0.303	6.001	-0.000	PG	100.0 [kN]
						activated		100.00 percent
Point	sar 3			-1.090	7.839	-0.001	PG	100.0 [kN]
						activated		100.00 percent

Most
Generation of Node and Element Loads

Load Case 9 (GR_T) TS4

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.750 (rare)
Combination coefficient	$\psi_1$inf	0.800 (infrequent)
Combination coefficient	ψ_1	0.750 (frequent)
Combination coefficient	ψ_2	0.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Point	sar 3			0.153	2.326	0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			-0.634	4.165	-0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 3			-1.028	5.084	-0.000	PG	100.0 [kN]
						activated		100.00 percent
Point	sar 3			-1.815	6.923	-0.001	PG	100.0 [kN]
						activated		100.00 percent
Point	sar 1			-0.592	1.385	0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 1			-1.379	3.224	-0.000	PG	150.0 [kN]
						activated		100.00 percent
Point	sar 1			-1.772	4.143	-0.000	PG	100.0 [kN]
						activated		100.00 percent
Point	sar 1			-2.559	5.982	-0.001	PG	100.0 [kN]
						activated		100.00 percent

Load Case 10 (GR_2) zavorna sila 1

Factor forces and moments	1.000
unfavourable partial safety factor	1.350
favourable partial safety factor	0.000

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	SAR 3						Px	12.70 [kN/m2]
						activated		100.00 percent

Load Case 11 (GR_2) zavorna sila 2

Factor forces and moments	1.000
unfavourable partial safety factor	1.350
favourable partial safety factor	0.000

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	SAR 3						Px	-12.70 [kN/m2]
						activated		100.00 percent

Load Case 12 (T) temp enak -17

Factor forces and moments		1.000
unfavourable partial safety factor		1.500
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.600 (rare)
Combination coefficient	$\psi_1$inf	0.800 (infrequent)
Combination coefficient	ψ_1	0.600 (frequent)
Combination coefficient	ψ_2	0.500 (permanent)

Most
Generation of Node and Element Loads

Loads

Kind	Reference to		Projection Designation	W[m]	X[m]	Y[m]	Z[m]	Type	Load value
Area	SAR	3						dTxy	-17.00 [°C]
							activated		100.00 percent
Area	SAR	9						dTxy	-17.00 [°C]
							activated		100.00 percent
Area	SAR	1						dTxy	-17.00 [°C]
							activated		100.00 percent
Area	SAR	8						dTxy	-17.00 [°C]
							activated		100.00 percent
Area	SAR	7						dTxy	-17.00 [°C]
							activated		100.00 percent
Area	SAR	2						dTxy	-17.00 [°C]
							activated		100.00 percent
Area	SAR	6						dTxy	-17.00 [°C]
							activated		100.00 percent

Load Case 13 (T) temp enak 37

Factor forces and moments		1.000	
unfavourable partial safety factor		1.500	
favourable partial safety factor		0.000	
Combination coefficient	ψ_0	0.600	(rare)
Combination coefficient	$\psi_1$inf	0.800	(infrequent)
Combination coefficient	ψ_1	0.600	(frequent)
Combination coefficient	ψ_2	0.500	(permanent)

Loads

Kind	Reference to		Projection Designation	W[m]	X[m]	Y[m]	Z[m]	Type	Load value
Area	SAR	9						dTxy	37.00 [°C]
							activated		100.00 percent
Area	SAR	1						dTxy	37.00 [°C]
							activated		100.00 percent
Area	SAR	8						dTxy	37.00 [°C]
							activated		100.00 percent
Area	SAR	7						dTxy	37.00 [°C]
							activated		100.00 percent
Area	SAR	2						dTxy	37.00 [°C]
							activated		100.00 percent
Area	SAR	6						dTxy	37.00 [°C]
							activated		100.00 percent
Area	SAR	3						dTxy	37.00 [°C]
							activated		100.00 percent

Load Case 14 (T) temp neenak -8

Factor forces and moments		1.000	
unfavourable partial safety factor		1.500	
favourable partial safety factor		0.000	
Combination coefficient	ψ_0	0.600	(rare)
Combination coefficient	$\psi_1$inf	0.800	(infrequent)
Combination coefficient	ψ_1	0.600	(frequent)
Combination coefficient	ψ_2	0.500	(permanent)

Loads

Kind	Reference to		Projection Designation	W[m]	X[m]	Y[m]	Z[m]	Type	Load value
Area	SAR	3						dTz	-8.00 [°C]
							activated		100.00 percent

Most
Generation of Node and Element Loads

Load Case 15 (T) temp neenak 15

Factor forces and moments		1.000
unfavourable partial safety factor		1.500
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.600 (rare)
Combination coefficient	$\psi_1$inf	0.800 (infrequent)
Combination coefficient	ψ_1	0.600 (frequent)
Combination coefficient	ψ_2	0.500 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	SAR 3						dTz	15.00 [°C]
						activated		100.00 percent

Load Case 16 (GR_T) vozilo pred 1

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.750 (rare)
Combination coefficient	$\psi_1$inf	0.800 (infrequent)
Combination coefficient	ψ_1	0.750 (frequent)
Combination coefficient	ψ_2	0.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	SAR 2			1.219	15.850	-1.835	Pz	9.07 [kN/m2]
				5.193	6.564	-1.835		9.07 [kN/m2]
				5.192	6.564	0.001		28.47 [kN/m2]
				1.219	15.850	-0.001		28.45 [kN/m2]
						activated		100.00 percent

Load Case 17 (GR_T) vozilo pred 2

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		0.000
Combination coefficient	ψ_0	0.750 (rare)
Combination coefficient	$\psi_1$inf	0.800 (infrequent)
Combination coefficient	ψ_1	0.750 (frequent)
Combination coefficient	ψ_2	0.000 (permanent)

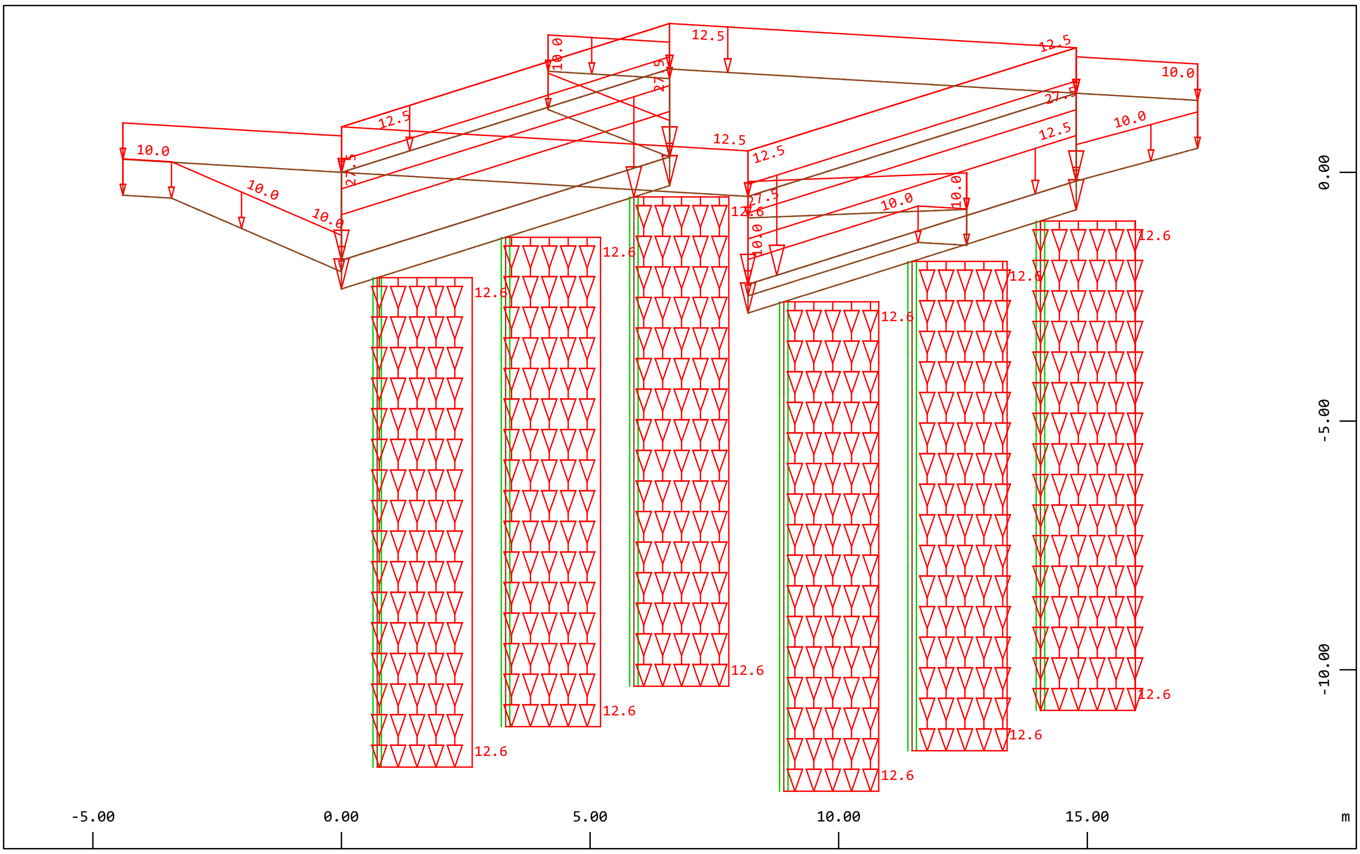
Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates X[m]	Y[m]	Z[m]	Type	Load value
Area	SAR 1			-3.973	9.285	-1.835	Pz	-9.07 [kN/m2]
				0.001	-0.001	-1.835		-9.07 [kN/m2]
				0.000	0.002	0.000		-28.47 [kN/m2]
				-3.974	9.285	0.001		-28.48 [kN/m2]
						activated		100.00 percent

Load Case 18 (C) reologija

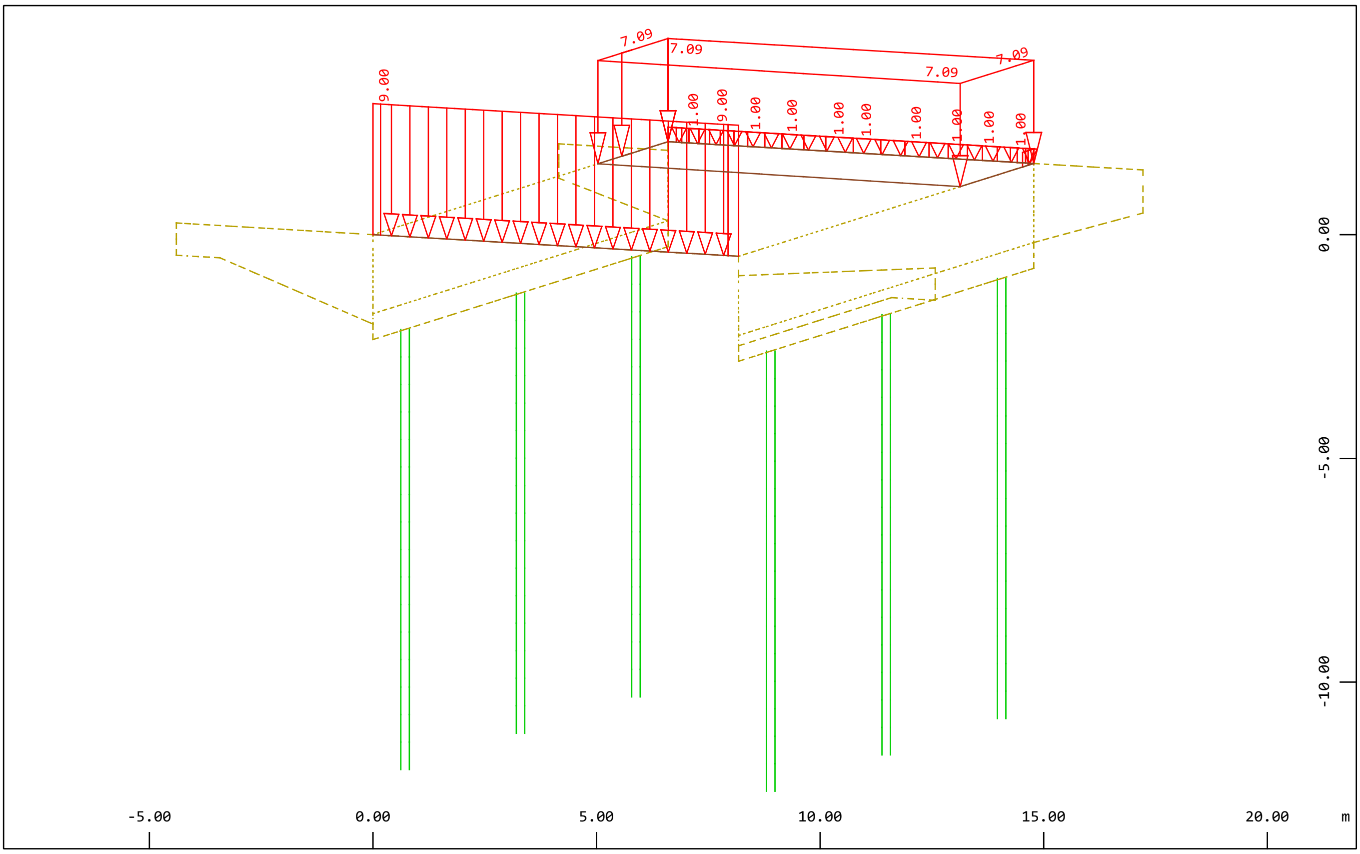
Factor forces and moments		1.000
unfavourable partial safety factor		1.000
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	$\psi_1$inf	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Most
Graphical Output



Z Y X
All loads (in components), Loadcase 1 Lastna teža , (1 cm 3D = unit) QUAD-Area dead load in global Z in Element (Unit=20.0 kN/m2,Min=-27.5 Max=-10.00), Beam dead load in global Z (Unit=10.0 kN/m,Min=-12.6 Max=-12.6)

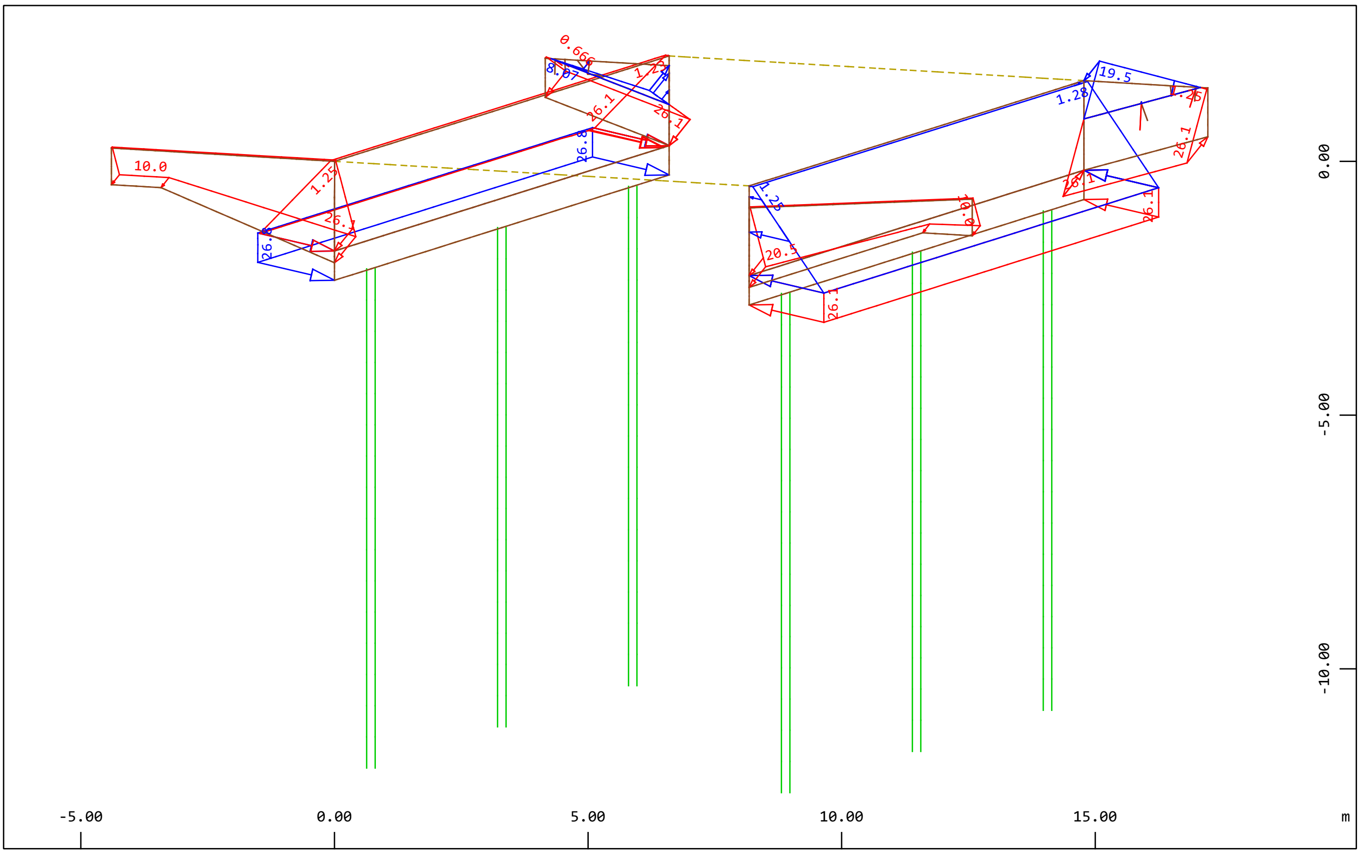
M 1 : 152
X * 0.502
Y * 0.906
Z * 0.962



Z Y X
All loads (in components), Loadcase 2 krov , (1 cm 3D = unit) Free line load (force) in global Z (Unit=5.00 kN/m,Min=-9.00 Max=-1.00), Free area load (force) in global Z (Unit=5.00 kN/m2,Min=-7.09 Max=-7.09)

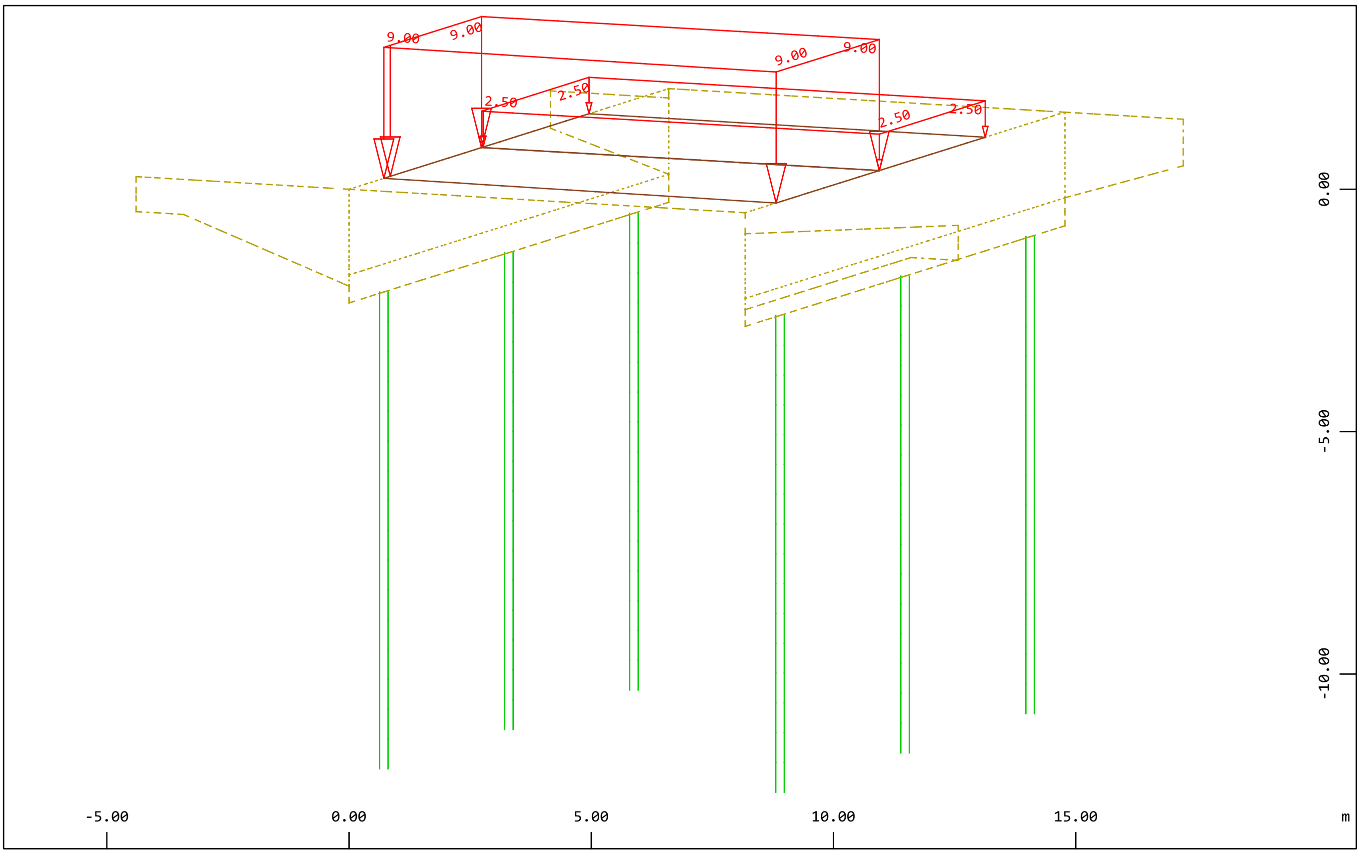
M 1 : 169
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



All loads (in components), Loadcase 3 zemeljski pritisk , (1 cm 3D = unit) Area element load (force) in local z (Unit=20.0 kN/m2,Min=-26.1 Max=26.8), Free area load (force) in local z (Unit=20.0 kN/m2,Min=-26.1 Max=26.1)

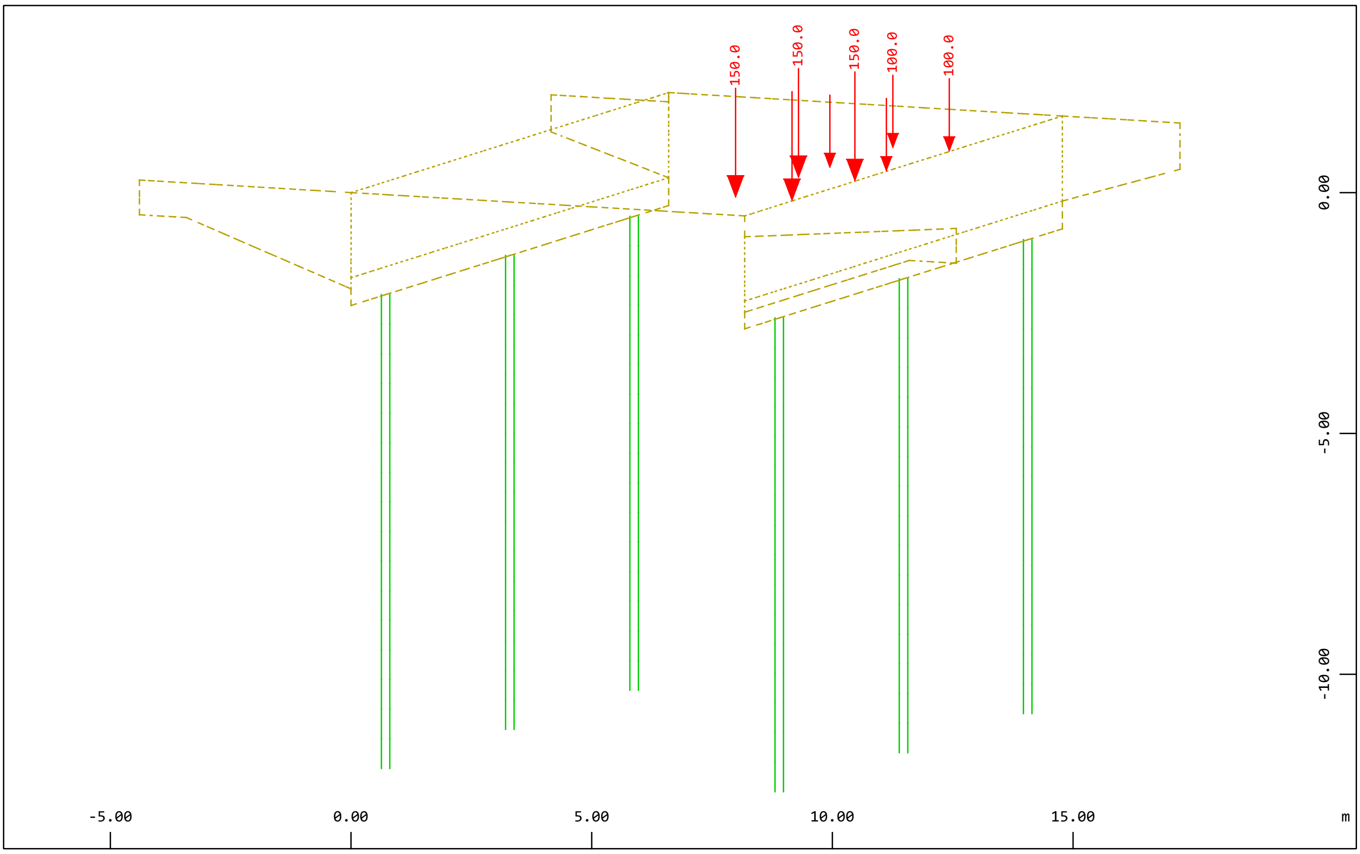
M 1 : 149
X * 0.502
Y * 0.906
Z * 0.962



All loads (in components), Loadcase 5 UDL , (1 cm 3D = unit) Free area load (force) in global Z (Unit=5.00 kN/m2) (Min=-9.00) (Max=-2.50)

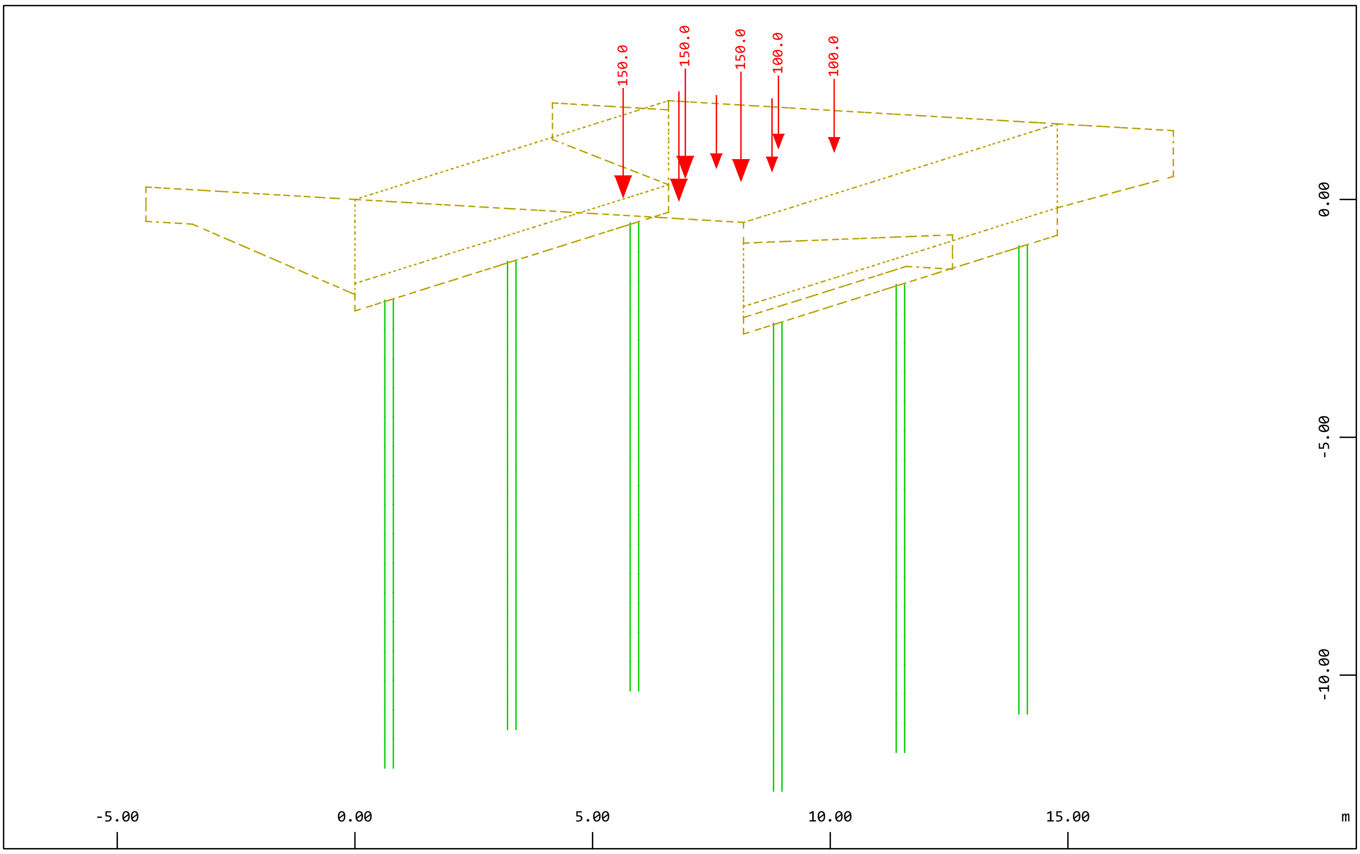
M 1 : 156
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



Z Y X All loads (in components), Loadcase 6 TS1 , (1 cm 3D = unit) Free single load (force) in global Z (Unit=100.0 kN) (Min=-150.0) (Max=-100.0)

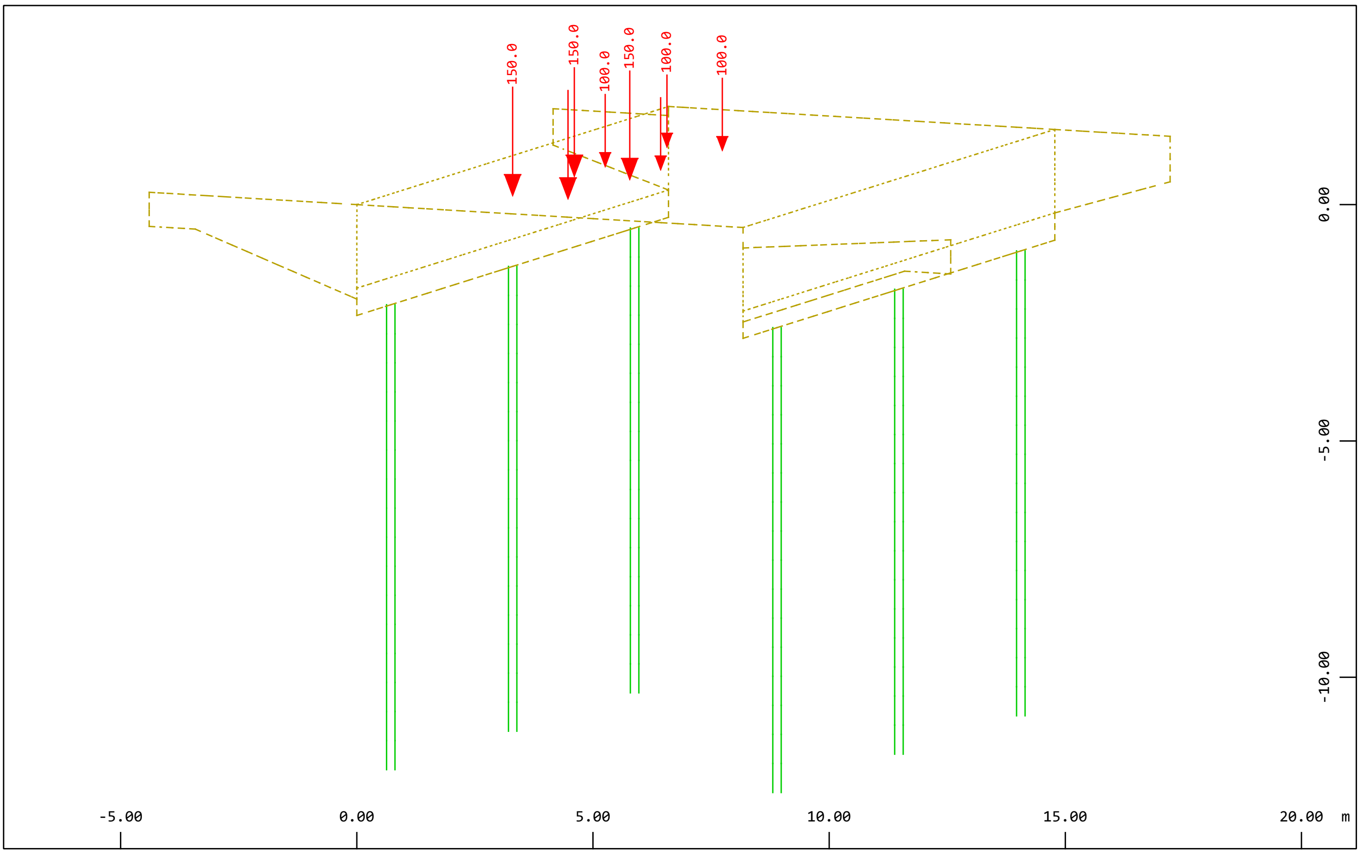
M 1 : 157
X * 0.502
Y * 0.906
Z * 0.962



Z Y X All loads (in components), Loadcase 7 TS2 , (1 cm 3D = unit) Free single load (force) in global Z (Unit=100.0 kN) (Min=-150.0) (Max=-100.0)

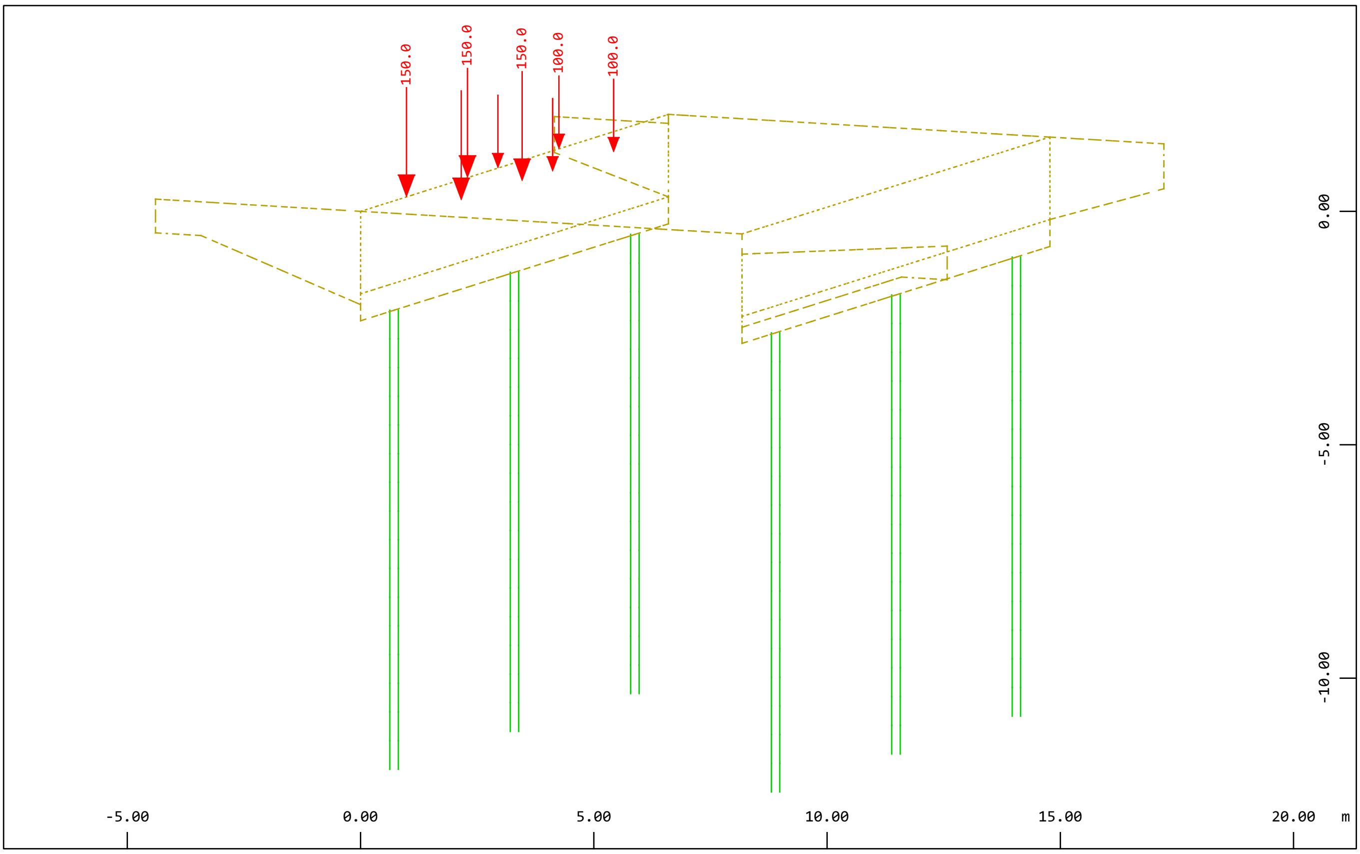
M 1 : 159
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



Z Y X All loads (in components), Loadcase 8 TS3 , (1 cm 3D = unit) Free single load (force) in global Z (Unit=100.0 kN) (Min=-150.0) (Max=-100.0)

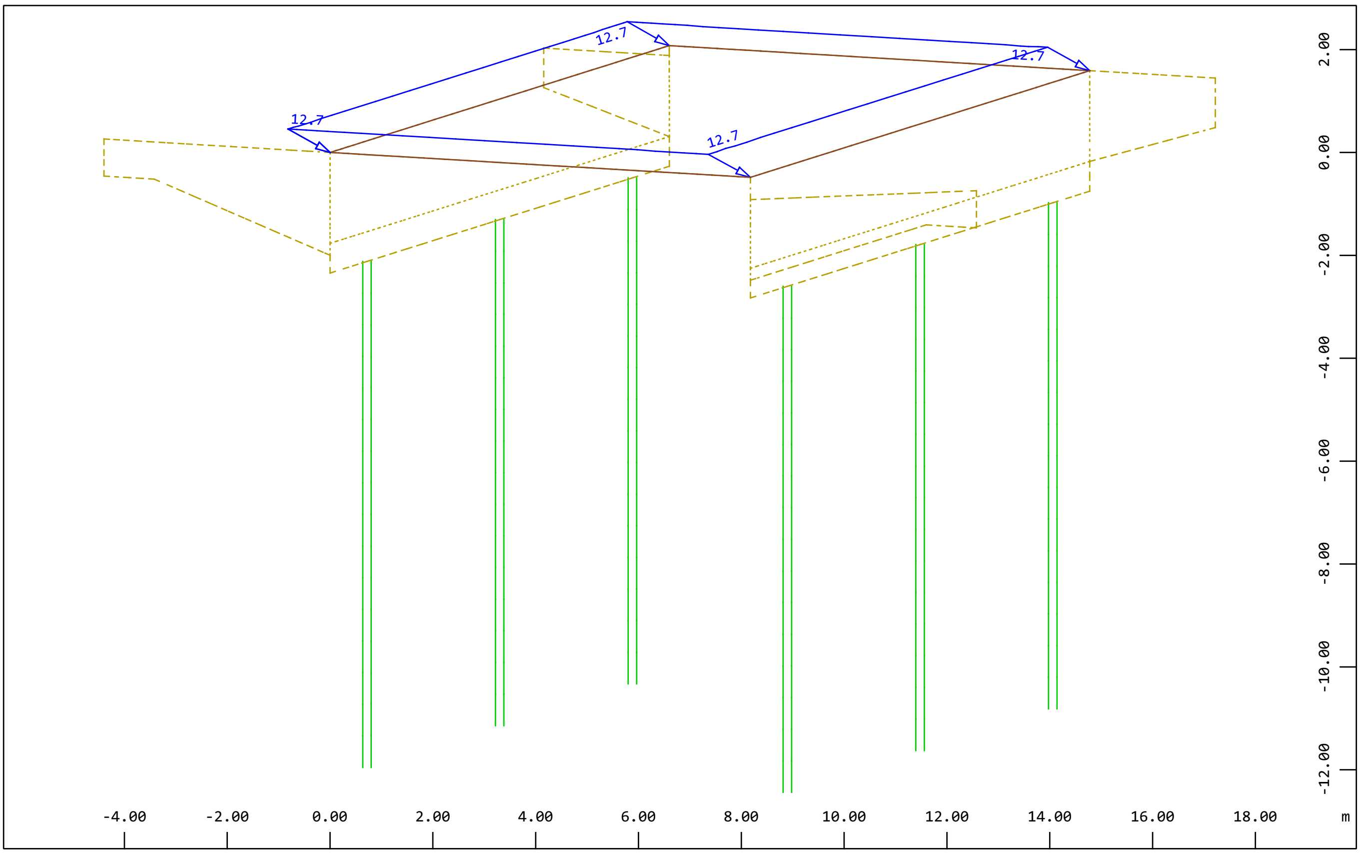
M 1 : 160
X * 0.502
Y * 0.906
Z * 0.962



Z Y X All loads (in components), Loadcase 9 TS4 , (1 cm 3D = unit) Free single load (force) in global Z (Unit=100.0 kN) (Min=-150.0) (Max=-100.0)

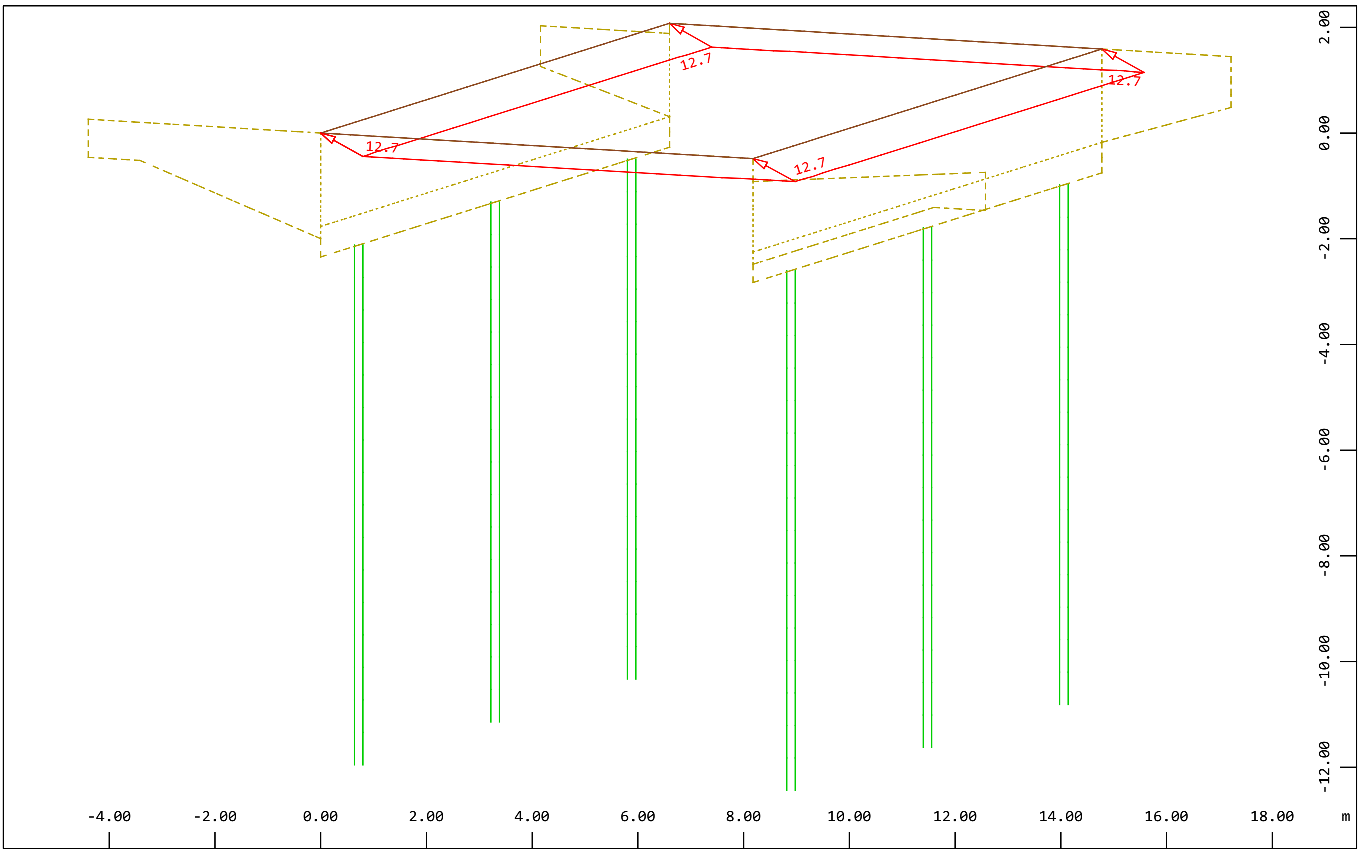
M 1 : 162
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



Z Y X All loads (in components), Loadcase 10 zavorna sila 1 , (1 cm 3D = unit) Area element load (force) in local x (Unit=10.0 kN/m2) (Max=12.7)

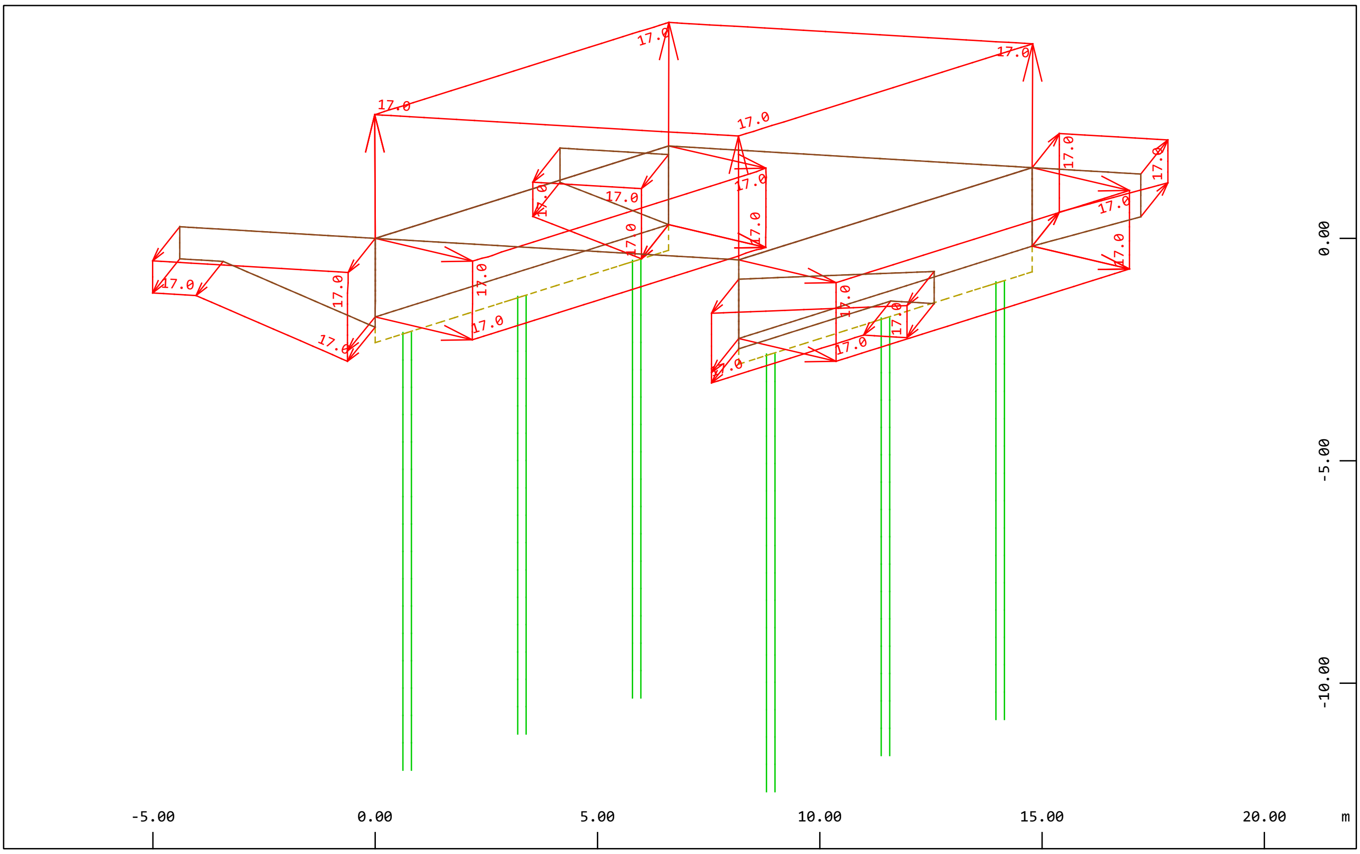
M 1 : 147
X * 0.502
Y * 0.906
Z * 0.962



Z Y X All loads (in components), Loadcase 11 zavorna sila 2 , (1 cm 3D = unit) Area element load (force) in local x (Unit=10.0 kN/m2) (Min=-12.7) (Max=-12.7)

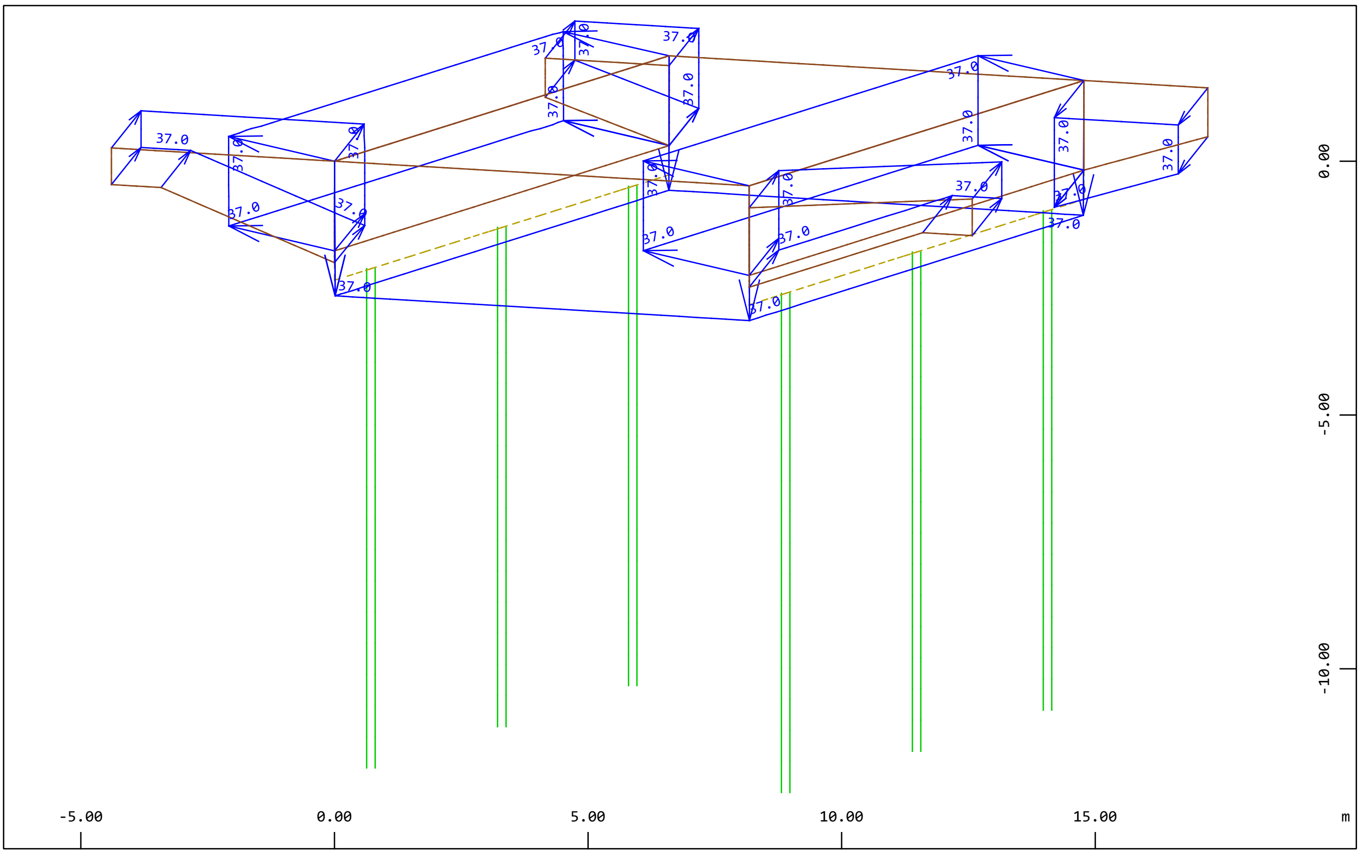
M 1 : 143
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



All loads (in components), Loadcase 12 temp enak -17 , (1 cm 3D = unit) Area element load (uniform temperature change) (Unit=10.0 °C) (Min=-17.0) (Max=-17.0)

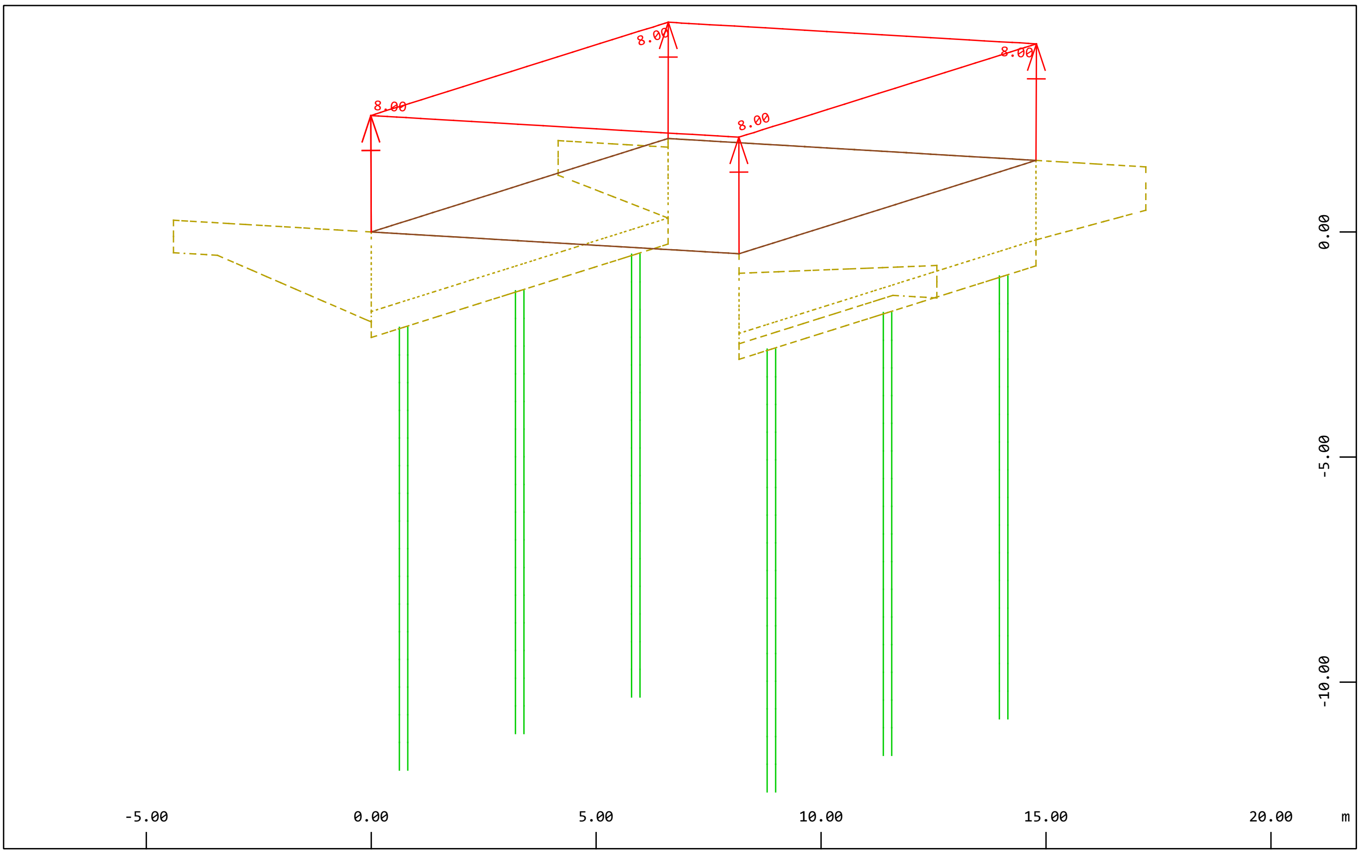
M 1 : 170
X * 0.502
Y * 0.906
Z * 0.962



All loads (in components), Loadcase 13 temp enak 37 , (1 cm 3D = unit) Area element load (uniform temperature change) (Unit=20.0 °C) (Max=37.0)

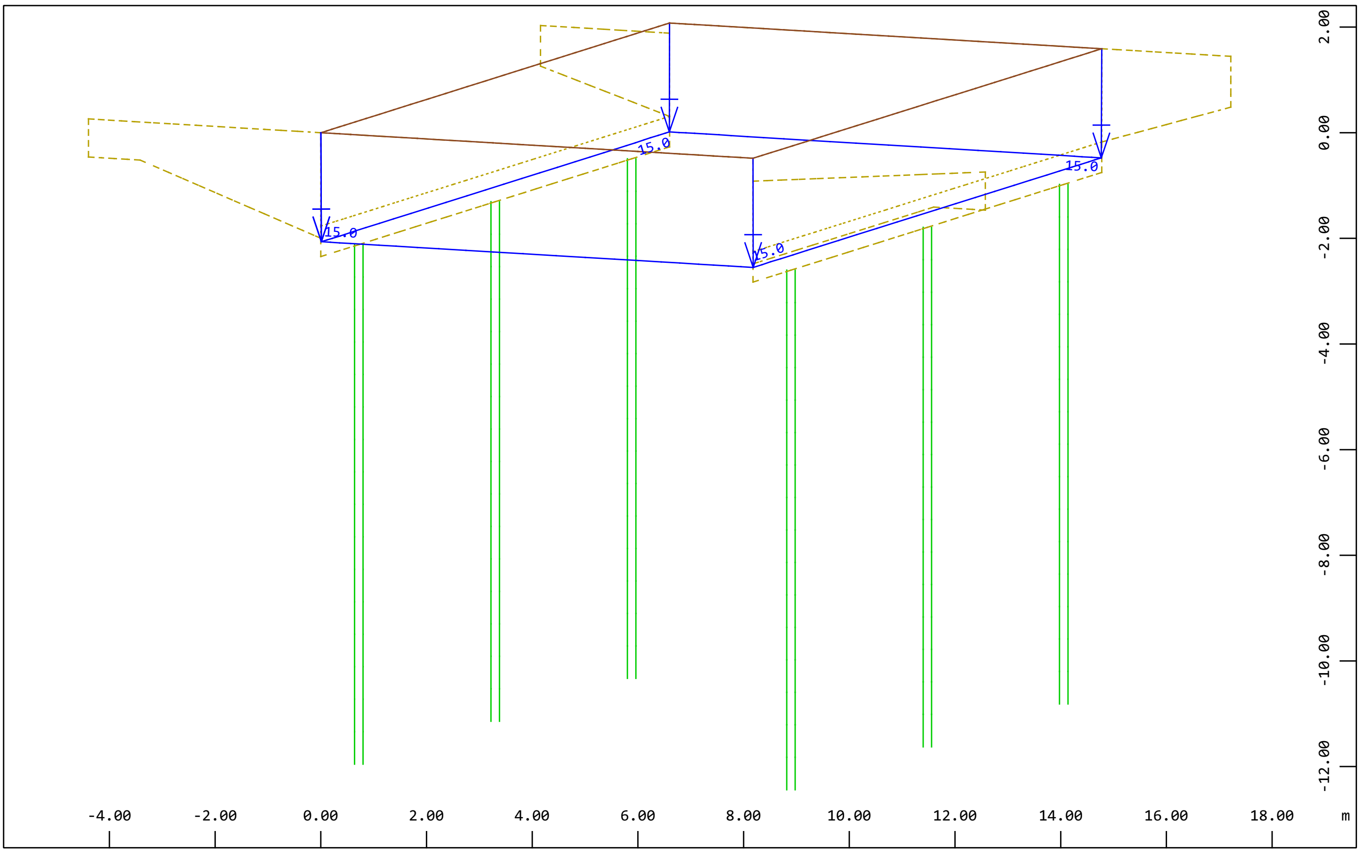
M 1 : 149
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



All loads (in components), Loadcase 14 temp neenak -8 , (1 cm 3D = unit) Area element load (temperature increase) (Unit=5.00 °C) (Min=-8.00) (Max=-8.00)

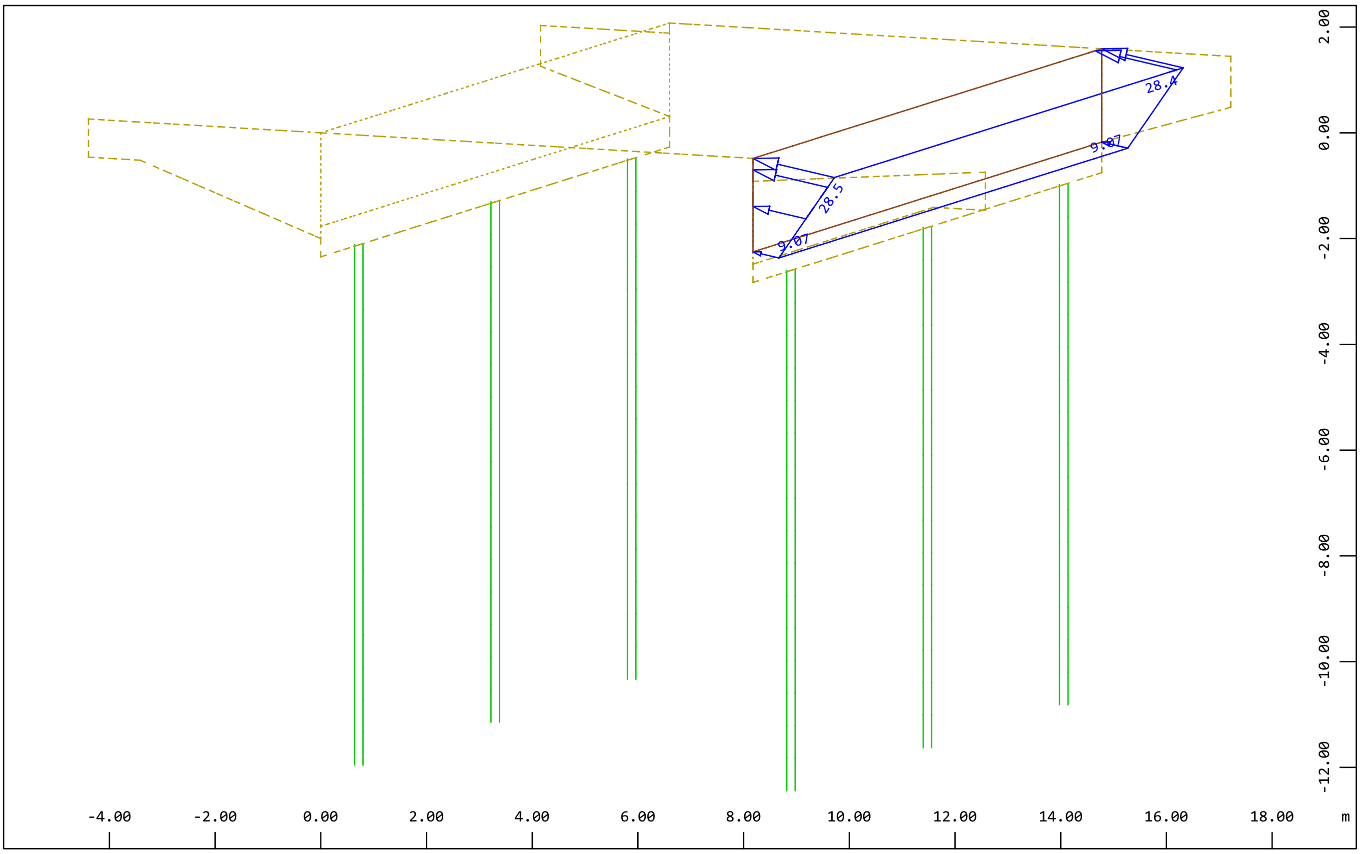
M 1 : 168
X * 0.502
Y * 0.906
Z * 0.962



All loads (in components), Loadcase 15 temp neenak 15 , (1 cm 3D = unit) Area element load (temperature increase) (Unit=10.0 °C) (Max=15.0)

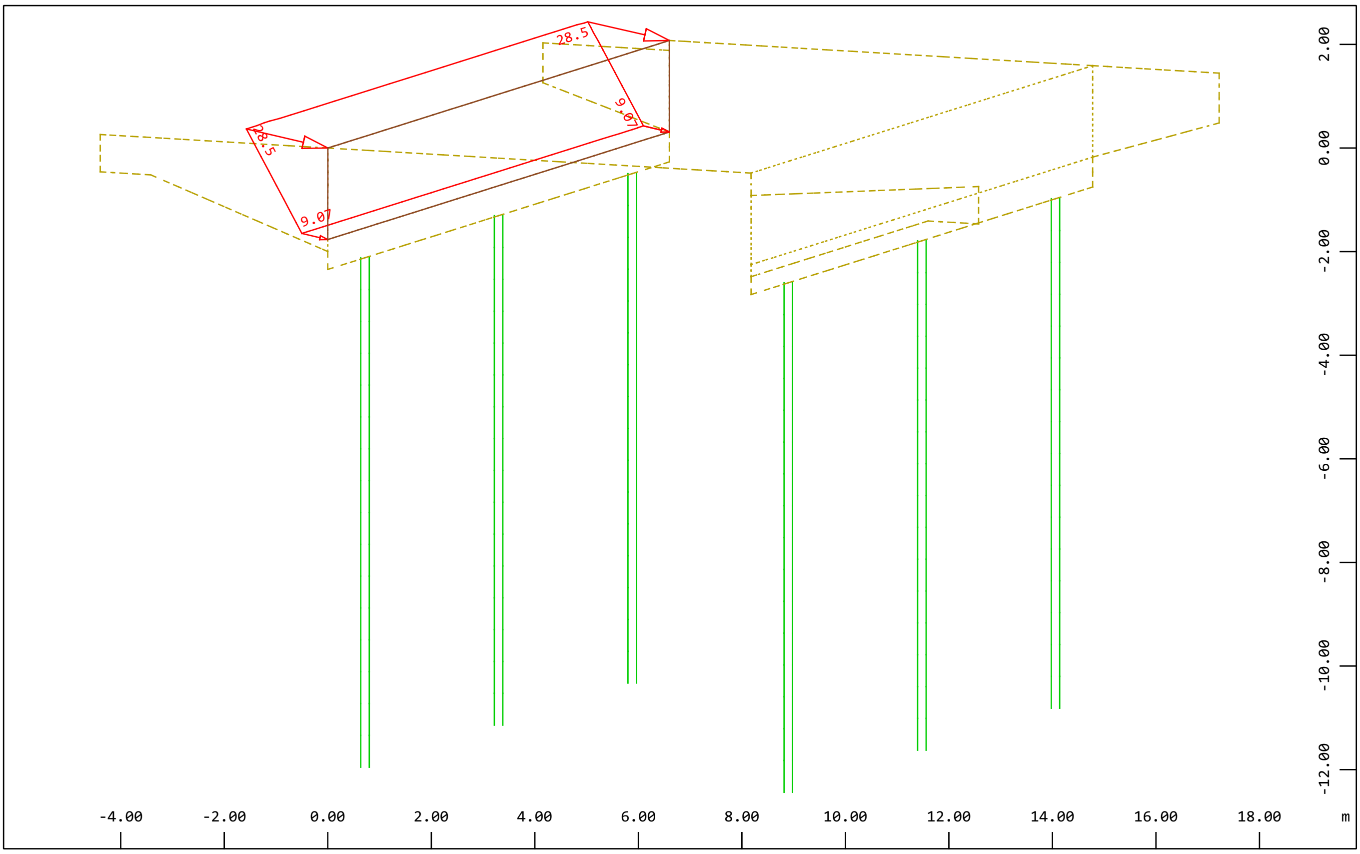
M 1 : 143
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



Z Y X All loads (in components), Loadcase 16 vozilo pred 1 , (1 cm 3D = unit) Free area load (force) in local z (Unit=20.0 kN/m2) (Max=28.5)

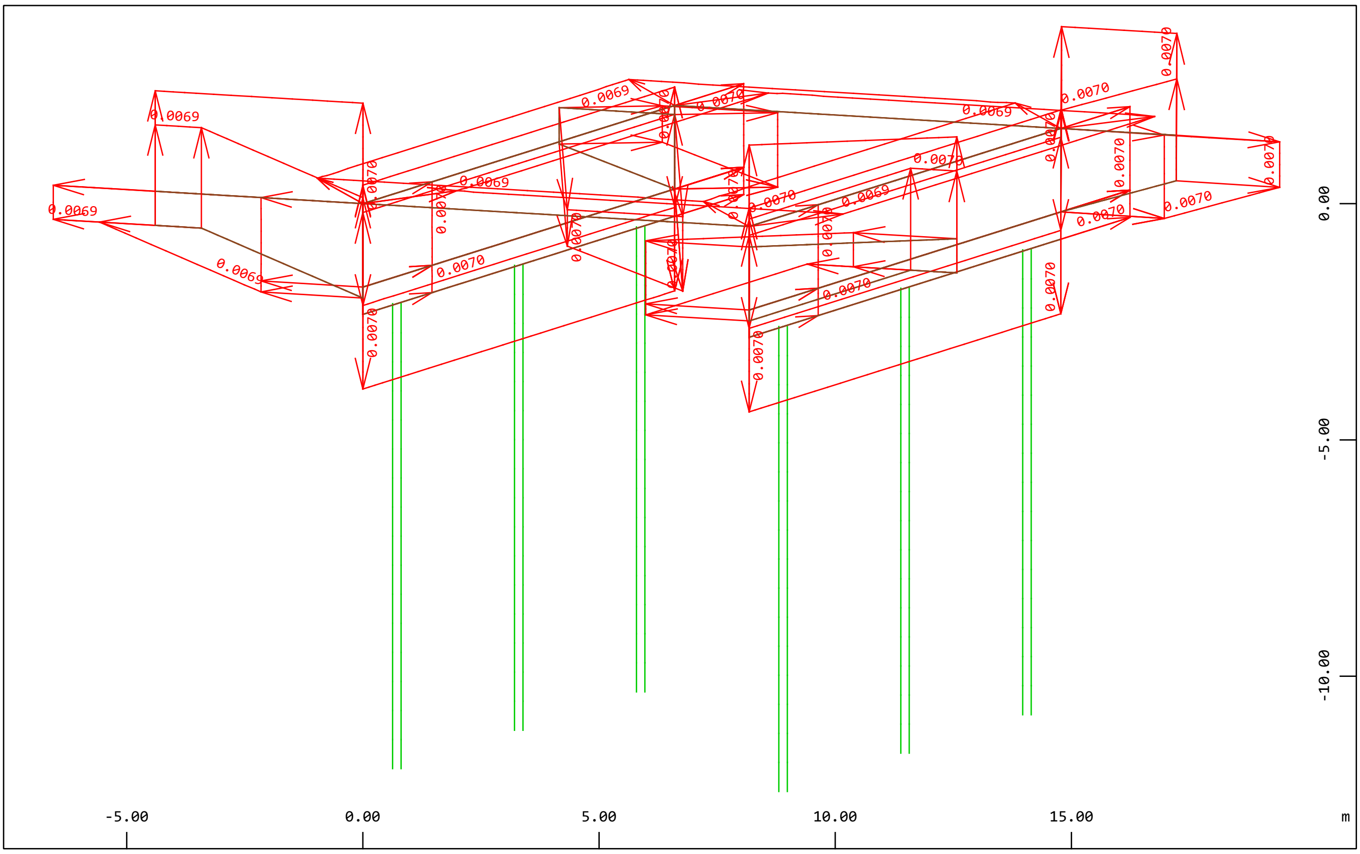
M 1 : 143
X * 0.502
Y * 0.906
Z * 0.962



Z Y X All loads (in components), Loadcase 17 vozilo pred 2 , (1 cm 3D = unit) Free area load (force) in local z (Unit=20.0 kN/m2) (Min=-28.5) (Max=-9.07)

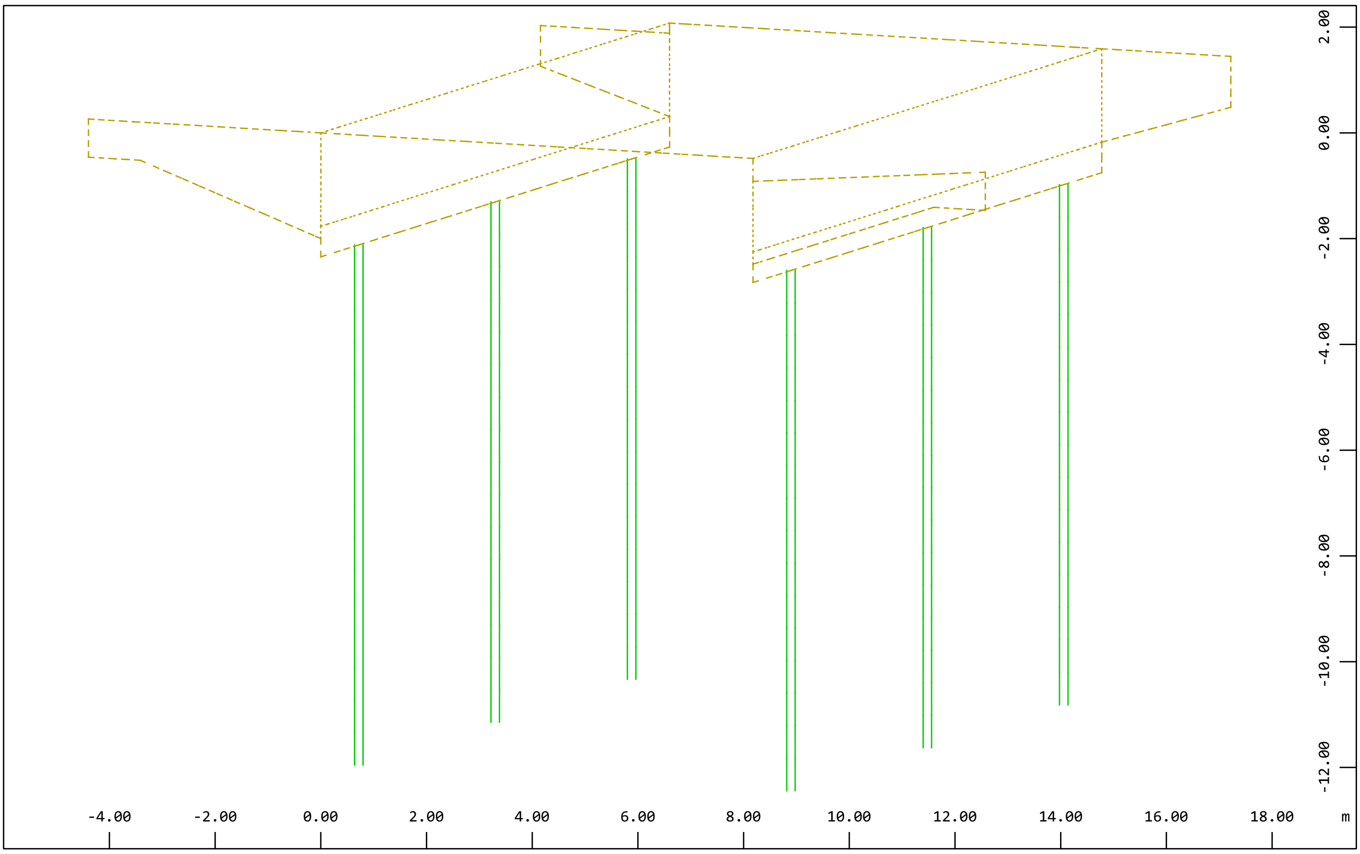
M 1 : 146
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



Z Y X All loads (in components), Loadcase 18 reologija , (1 cm 3D = unit) Area element load
(strain) in local x (Unit=0.0050 o/oo,Min=-0.0070 Max=-0.0069), Area element load
(strain) in local y (Unit=0.0050 o/oo,Min=-0.0070 Max=-0.0069)

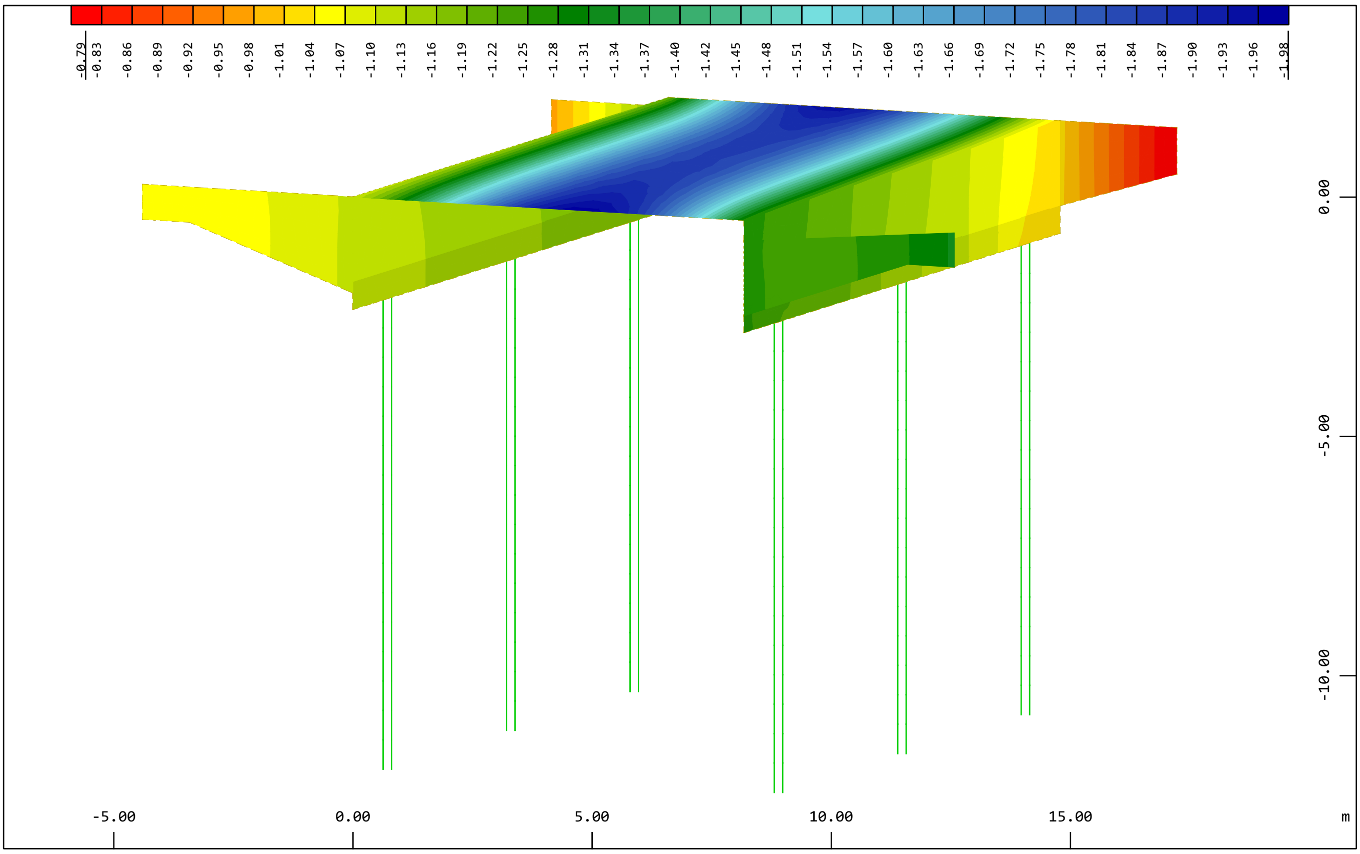
M 1 : 160
X * 0.502
Y * 0.906
Z * 0.962



Z Y X Nodes , Support force vector : NO values found

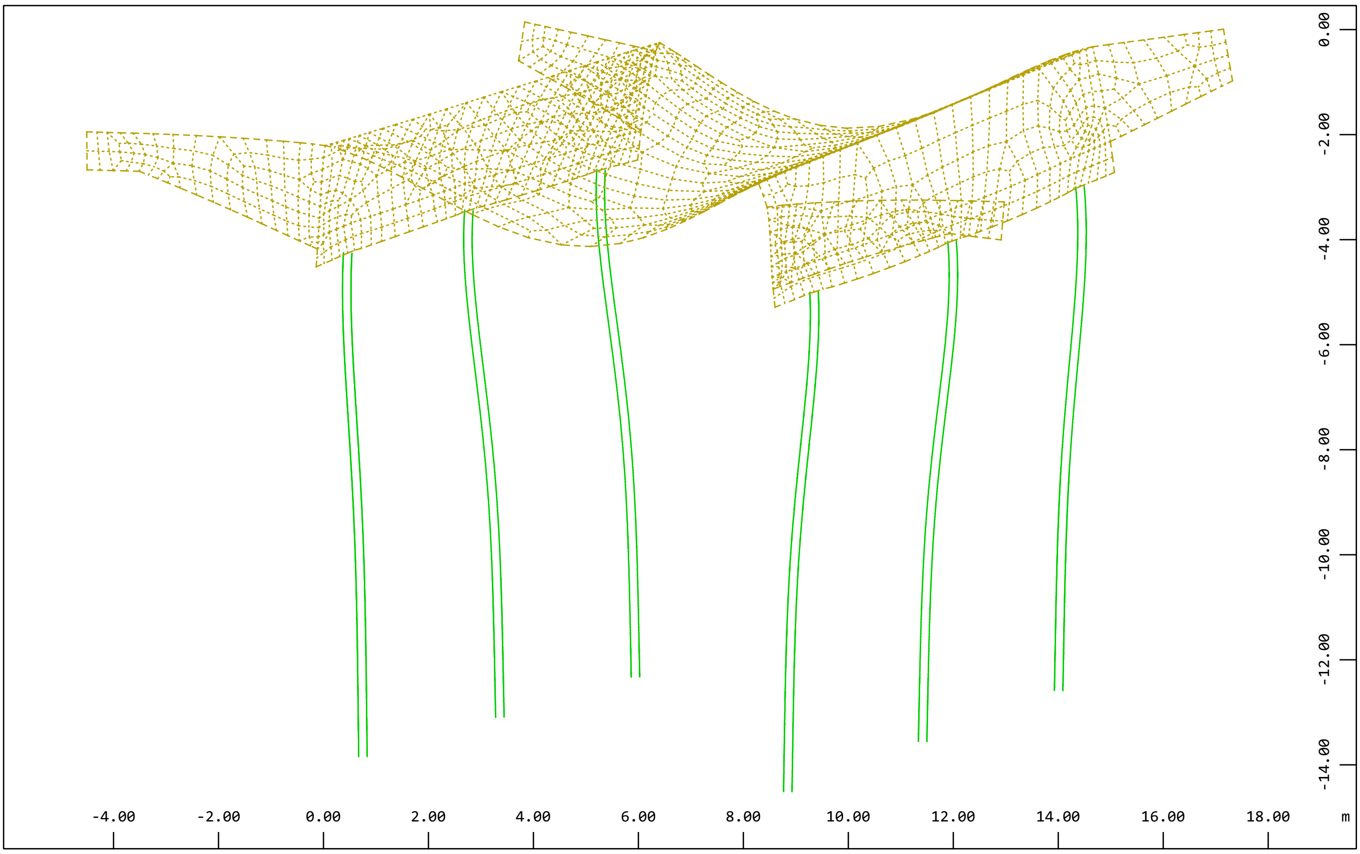
M 1 : 143
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



Z Y X Nodal displacement in global Z in Node ↕ , Loadcase 1 Lastna teža , from -1.98 to -0.788
step 0.0297 mm

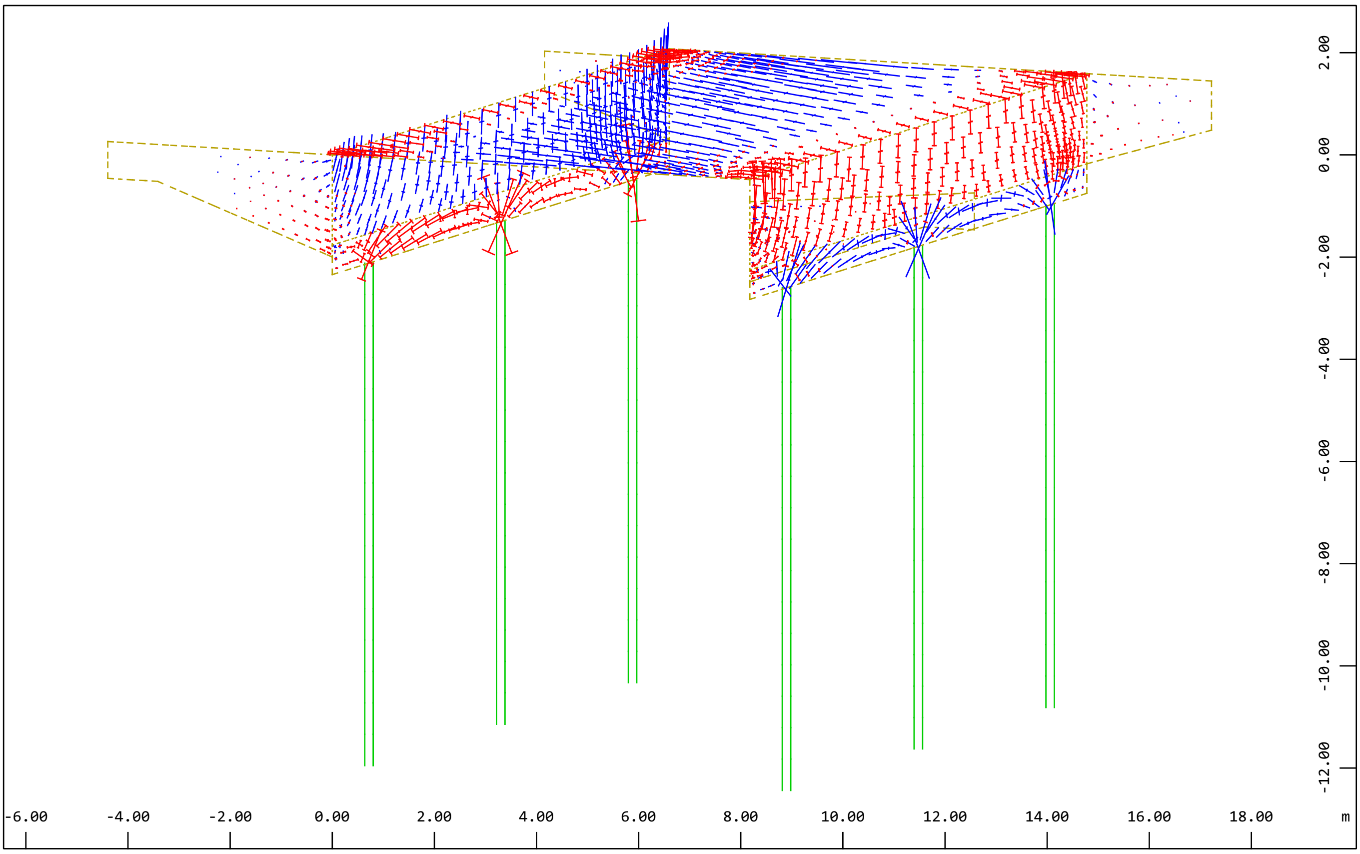
M 1 : 158
X * 0.502
Y * 0.906
Z * 0.962



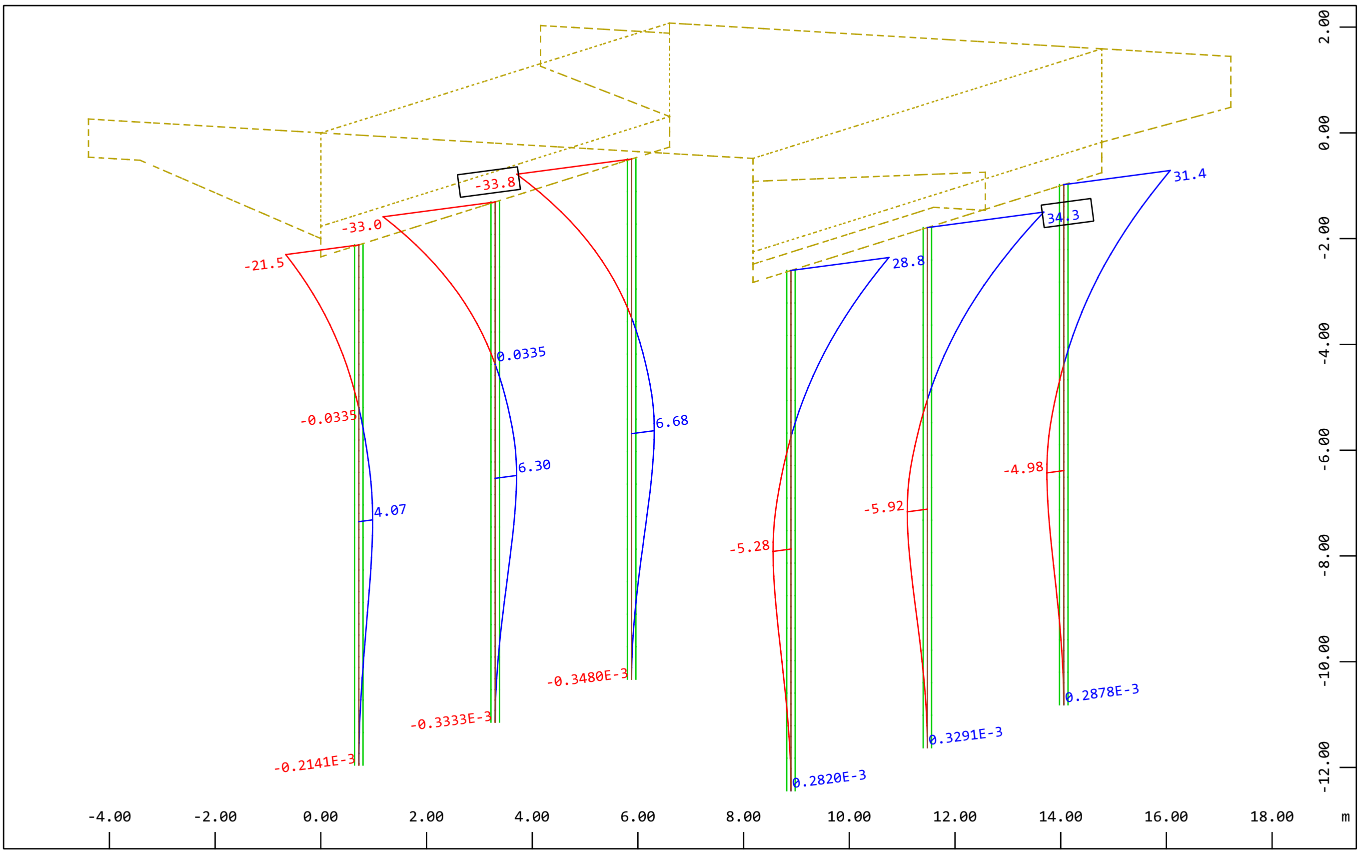
Z Y X Deformed Structure from LC 1 Lastna teža Enlarged by 2000.

M 1 : 144
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output

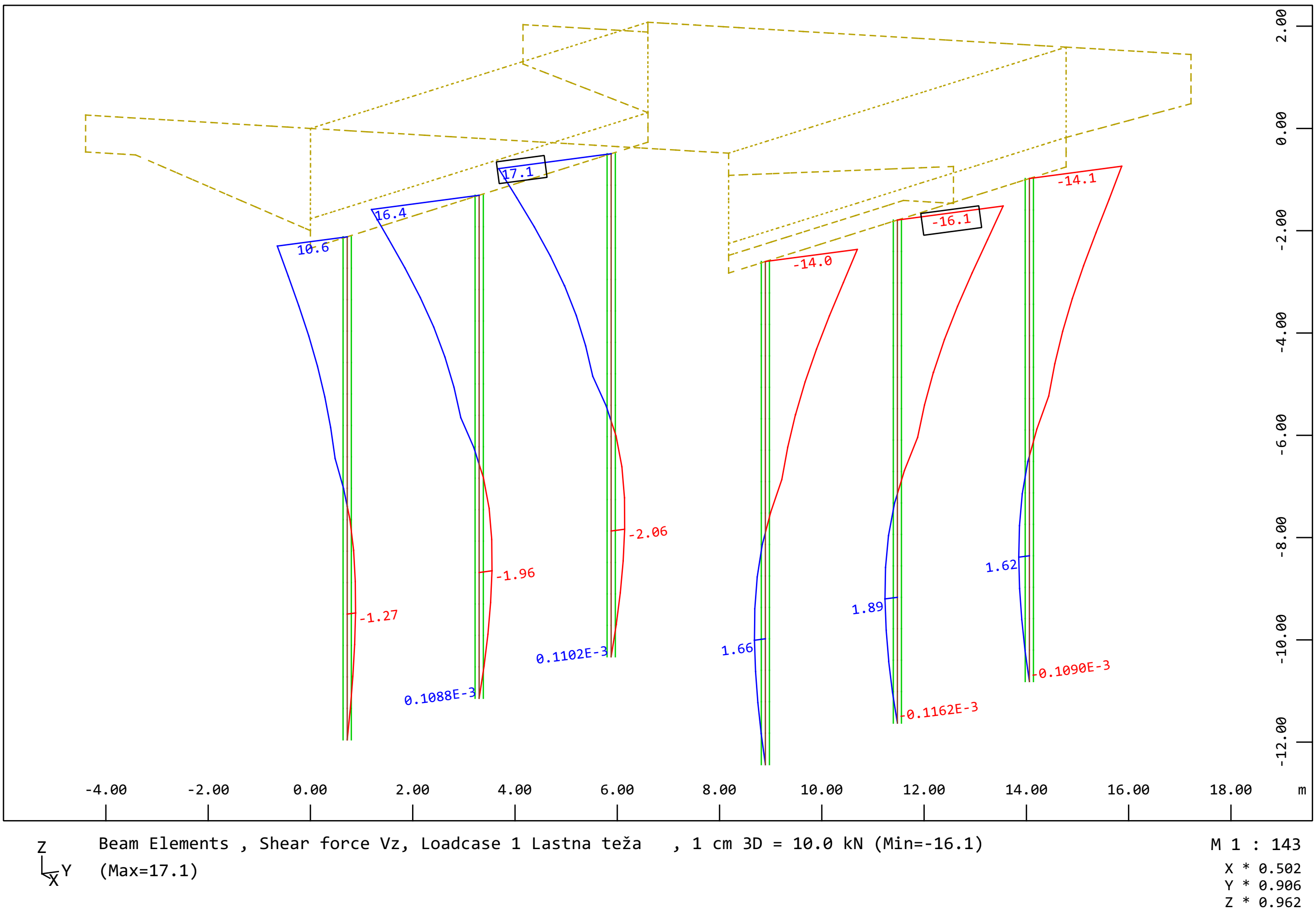


Principal bending moments in Element, Loadcase 1 Lastna teža , 1 cm 3D = 100.0 kNm/m
+= -=
(Min=-139.9) (Max=129.9)
M 1 : 148
X * 0.502
Y * 0.906
Z * 0.962



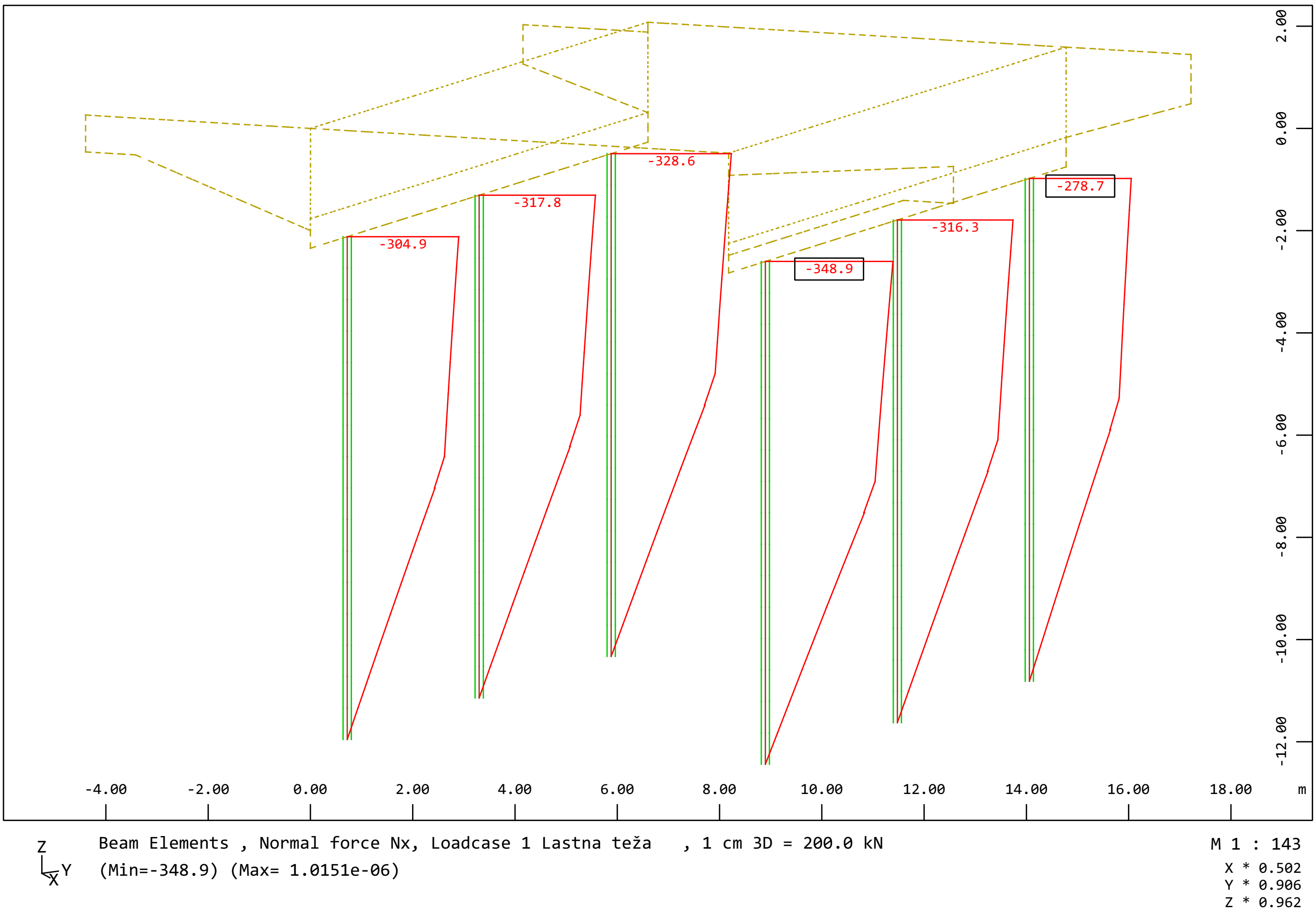
Beam Elements , Bending moment My, Loadcase 1 Lastna teža , 1 cm 3D = 20.0 kNm
(Min=-33.8) (Max=34.3)
M 1 : 143
X * 0.502
Y * 0.906
Z * 0.962

Most
Graphical Output



Beam Elements , Shear force Vz, Loadcase 1 Lastna teža , 1 cm 3D = 10.0 kN (Min=-16.1) (Max=17.1)

M 1 : 143
X * 0.502
Y * 0.906
Z * 0.962



Beam Elements , Normal force Nx, Loadcase 1 Lastna teža , 1 cm 3D = 200.0 kN (Min=-348.9) (Max= 1.0151e-06)

M 1 : 143
X * 0.502
Y * 0.906
Z * 0.962

Most

Superposition according to EuroNorm EN 1992-2:2005 Concrete Structures

Combination rule Number 1

ULS fundamental combination

Superposition according to manual MAXIMA formula 2.1

$$E_d = E\left\{\sum_{j\geq1}\gamma_{G,j}\cdot G_{k,j} \oplus \gamma_P \cdot P_k \oplus \gamma_{Q,1}\cdot Q_{k,1} \oplus \sum_{i>1}\gamma_{Q,i}\cdot\psi_{0,i}\cdot Q_{k,i}\right\}$$

Resulting Load Cases type ULS fundamental combination

Load Case selection and Actions

Act	Part / LC	γ-u	γ-f	γ-a	ψ₀	ψ₁	ψ₂	ψ₁inf	Fact	Type	Designation
C	Q	1.00	1.00	1.00	1.00	1.00	1.00	1.00			creep + shrinkage
	18								1.00	PERM	reologija
G_1	G	1.35	1.00	1.00	1.00	1.00	1.00	1.00			dead load g1
	1								1.00	PERM	Lastna teža
	2								1.00	PERM	krov
GR_2	Q	1.35	0.00	1.00	0.00	0.00	0.00	1.00			gr2 Horizontal forces
	10								1.00	A62	zavorna sila 1
	11								1.00	A62	zavorna sila 2
GR_T	Q	1.35	0.00	1.00	0.75	0.75	0.00	0.80			gr1a LM1
	6								1.00	A8	TS1
	7								1.00	A8	TS2
	8								1.00	A8	TS3
	9								1.00	A8	TS4
	16								1.00	A8	vozilo pred 1
	17								1.00	A8	vozilo pred 2
GR_U	Q	1.35	0.00	1.00	0.40	0.40	0.00	0.80			gr1a LM1
	5								1.00	A9	UDL
R	G	1.35	1.00	1.00	1.00	1.00	1.00	1.00			earth pressure
	3								1.00	PERM	zemeljski pritisk
T	Q	1.50	0.00	1.00	0.60	0.60	0.50	0.80			temperature loading
	12								1.00	A14	temp enak -17
	13								1.00	A14	temp enak 37
	14								1.00	A14	temp neenak -8
	15								1.00	A14	temp neenak 15

Act — action
Part — partition of the action
γ-u,γ-f,γ-a — partial safety factors for unfavourable/favourable/accidental
ψ₀,ψ₁,ψ₂,ψ₁inf — combination coefficients
LC — number of the load case
Fact — factor for load case
Type — type of the load case
PERM — permanent load grouped in actions
A — exclusive load

Combination rule Number 2

SLS quasi-permanent combinatio

Superposition according to manual MAXIMA formula 2.7

$$E_{d,perm} = E\left\{\sum_{j\geq1} G_{k,j} \oplus P_k \oplus \sum_{i\geq1}\psi_{2,i}\cdot Q_{k,i}\right\}$$

Resulting Load Cases type SLS quasi-permanent combination

Load Case selection and Actions

Act	Part / LC	γ-u	γ-f	γ-a	ψ₀	ψ₁	ψ₂	ψ₁inf	Fact	Type	Designation
C	Q	1.00	1.00	1.00	1.00	1.00	1.00	1.00			creep + shrinkage
	18								1.00	PERM	reologija

Most

Load Case selection and Actions

Act	Part	γ-u	γ-f	γ-a	ψ_0	ψ_1	ψ_2	$\psi_1$inf			Designation
	LC								Fact	Type	
G_1	G	1.35	1.00	1.00	1.00	1.00	1.00	1.00			dead load g1
	1								1.00	PERM	Lastna teža
	2								1.00	PERM	krov
GR_2	Q	1.35	0.00	1.00	0.00	0.00	0.00	1.00			gr2 Horizontal forces
	10								1.00	A62	zavorna sila 1
	11								1.00	A62	zavorna sila 2
GR_T	Q	1.35	0.00	1.00	0.75	0.75	0.00	0.80			gr1a LM1
	6								1.00	A8	TS1
	7								1.00	A8	TS2
	8								1.00	A8	TS3
	9								1.00	A8	TS4
	16								1.00	A8	vozilo pred 1
	17								1.00	A8	vozilo pred 2
GR_U	Q	1.35	0.00	1.00	0.40	0.40	0.00	0.80			gr1a LM1
	5								1.00	A9	UDL
R	G	1.35	1.00	1.00	1.00	1.00	1.00	1.00			earth pressure
	3								1.00	PERM	zemeljski pritisk
T	Q	1.50	0.00	1.00	0.60	0.60	0.50	0.80			temperature loading
	12								1.00	A14	temp enak -17
	13								1.00	A14	temp enak 37
	14								1.00	A14	temp neenak -8
	15								1.00	A14	temp neenak 15

Act action
Part partition of the action
γ-u,γ-f,γ-a partial safety factors for unfavourable/favourable/accidental
ψ_0,ψ_1,ψ_2,$\psi_1$inf combination coefficients
LC number of the load case
Fact factor for load case
Type type of the load case
PERM permanent load grouped in actions
A exclusive load

Combination rule Number 3
SLS characteristic combination
Superposition according to manual MAXIMA formula 2.4

$$E_{d,rare} = E\left\{\sum_{j\geq 1} G_{k,j} \oplus P_k \oplus Q_{k,1} \oplus \sum_{i>1} \psi_{0,i} \cdot Q_{k,i}\right\}$$

Resulting Load Cases type SLS characteristic combination

Load Case selection and Actions

Act	Part	γ-u	γ-f	γ-a	ψ_0	ψ_1	ψ_2	$\psi_1$inf			Designation
	LC								Fact	Type	
C	Q	1.00	1.00	1.00	1.00	1.00	1.00	1.00			creep + shrinkage
	18								1.00	PERM	reologija
G_1	G	1.35	1.00	1.00	1.00	1.00	1.00	1.00			dead load g1
	1								1.00	PERM	Lastna teža
	2								1.00	PERM	krov
GR_2	Q	1.35	0.00	1.00	0.00	0.00	0.00	1.00			gr2 Horizontal forces
	10								1.00	A62	zavorna sila 1
	11								1.00	A62	zavorna sila 2
GR_T	Q	1.35	0.00	1.00	0.75	0.75	0.00	0.80			gr1a LM1
	6								1.00	A8	TS1
	7								1.00	A8	TS2
	8								1.00	A8	TS3
	9								1.00	A8	TS4
	16								1.00	A8	vozilo pred 1
	17								1.00	A8	vozilo pred 2
GR_U	Q	1.35	0.00	1.00	0.40	0.40	0.00	0.80			gr1a LM1
	5								1.00	A9	UDL

Most

Load Case selection and Actions

Act	Part	Superposition Factors γ-u	γ-f	γ-a	ψ_0	ψ_1	ψ_2	$\psi_1$inf			Designation
	LC								Fact	Type	
R	G	1.35	1.00	1.00	1.00	1.00	1.00	1.00			earth pressure
	3								1.00	PERM	zemeljski pritisk
T	Q	1.50	0.00	1.00	0.60	0.60	0.50	0.80			temperature loading
	12								1.00	A14	temp enak -17
	13								1.00	A14	temp enak 37
	14								1.00	A14	temp neenak -8
	15								1.00	A14	temp neenak 15

Act action
Part partition of the action
γ-u,γ-f,γ-a partial safety factors for unfavourable/favourable/accidental
ψ_0,ψ_1,ψ_2,$\psi_1$inf combination coefficients
LC number of the load case
Fact factor for load case
Type type of the load case
PERM permanent load grouped in actions
A exclusive load

Generated Load Cases

Number	Combination	Designation
2101	1	MAX-MXX QUAD Forces in Quadrilateral Elements
2102	1	MIN-MXX QUAD Forces in Quadrilateral Elements
2103	1	MAX-MYY QUAD Forces in Quadrilateral Elements
2104	1	MIN-MYY QUAD Forces in Quadrilateral Elements
2105	1	MAX-MXY QUAD Forces in Quadrilateral Elements
2106	1	MIN-MXY QUAD Forces in Quadrilateral Elements
2107	1	MAX-VX QUAD Forces in Quadrilateral Elements
2108	1	MIN-VX QUAD Forces in Quadrilateral Elements
2109	1	MAX-VY QUAD Forces in Quadrilateral Elements
2110	1	MIN-VY QUAD Forces in Quadrilateral Elements
2111	1	MAX-NXX QUAD Forces in Quadrilateral Elements
2112	1	MIN-NXX QUAD Forces in Quadrilateral Elements
2113	1	MAX-NYY QUAD Forces in Quadrilateral Elements
2114	1	MIN-NYY QUAD Forces in Quadrilateral Elements
2115	1	MAX-NXY QUAD Forces in Quadrilateral Elements
2116	1	MIN-NXY QUAD Forces in Quadrilateral Elements
2171	1	MAX-SXT QUAD Forces in Quadrilateral Elements
2172	1	MIN-SXT QUAD Forces in Quadrilateral Elements
2173	1	MAX-SYT QUAD Forces in Quadrilateral Elements
2174	1	MIN-SYT QUAD Forces in Quadrilateral Elements
2175	1	MAXSXYT QUAD Forces in Quadrilateral Elements
2176	1	MINSXYT QUAD Forces in Quadrilateral Elements
2177	1	MAX-SXB QUAD Forces in Quadrilateral Elements
2178	1	MIN-SXB QUAD Forces in Quadrilateral Elements
2179	1	MAX-SYB QUAD Forces in Quadrilateral Elements
2180	1	MIN-SYB QUAD Forces in Quadrilateral Elements
2181	1	MAXSXYB QUAD Forces in Quadrilateral Elements
2182	1	MINSXYB QUAD Forces in Quadrilateral Elements
2121	1	MAX-N BEAM Forces in Beam Elements
2122	1	MIN-N BEAM Forces in Beam Elements
2123	1	MAX-VY BEAM Forces in Beam Elements
2124	1	MIN-VY BEAM Forces in Beam Elements
2125	1	MAX-VZ BEAM Forces in Beam Elements
2126	1	MIN-VZ BEAM Forces in Beam Elements
2127	1	MAX-MT BEAM Forces in Beam Elements
2128	1	MIN-MT BEAM Forces in Beam Elements
2129	1	MAX-MY BEAM Forces in Beam Elements
2130	1	MIN-MY BEAM Forces in Beam Elements
2131	1	MAX-MZ BEAM Forces in Beam Elements
2132	1	MIN-MZ BEAM Forces in Beam Elements
2133	1	MAX-MB BEAM Forces in Beam Elements
2134	1	MIN-MB BEAM Forces in Beam Elements
2151	1	MAX-PX KINE Eliminated Forces from Constraints
2152	1	MIN-PX KINE Eliminated Forces from Constraints

Most

Generated Load Cases

Number	Combination	Designation
2153	1	MAX-PY KINE Eliminated Forces from Constraints
2154	1	MIN-PY KINE Eliminated Forces from Constraints
2155	1	MAX-PZ KINE Eliminated Forces from Constraints
2156	1	MIN-PZ KINE Eliminated Forces from Constraints
2157	1	MAX-MX KINE Eliminated Forces from Constraints
2158	1	MIN-MX KINE Eliminated Forces from Constraints
2159	1	MAX-MY KINE Eliminated Forces from Constraints
2160	1	MIN-MY KINE Eliminated Forces from Constraints
2161	1	MAX-MZ KINE Eliminated Forces from Constraints
2162	1	MIN-MZ KINE Eliminated Forces from Constraints
2171	1	MAX-UX NODE Nodal Displacements
2172	1	MIN-UX NODE Nodal Displacements
2173	1	MAX-UY NODE Nodal Displacements
2174	1	MIN-UY NODE Nodal Displacements
2175	1	MAX-UZ NODE Nodal Displacements
2176	1	MIN-UZ NODE Nodal Displacements
2177	1	MAX-URX NODE Nodal Displacements
2178	1	MIN-URX NODE Nodal Displacements
2179	1	MAX-URY NODE Nodal Displacements
2180	1	MIN-URY NODE Nodal Displacements
2181	1	MAX-URZ NODE Nodal Displacements
2182	1	MIN-URZ NODE Nodal Displacements
2183	1	MAX-URB NODE Nodal Displacements
2184	1	MIN-URB NODE Nodal Displacements
1421	2	MAXP-N BEAM Forces in Beam Elements
1422	2	MINP-N BEAM Forces in Beam Elements
1423	2	MAXP-VY BEAM Forces in Beam Elements
1424	2	MINP-VY BEAM Forces in Beam Elements
1425	2	MAXP-VZ BEAM Forces in Beam Elements
1426	2	MINP-VZ BEAM Forces in Beam Elements
1427	2	MAXP-MT BEAM Forces in Beam Elements
1428	2	MINP-MT BEAM Forces in Beam Elements
1429	2	MAXP-MY BEAM Forces in Beam Elements
1430	2	MINP-MY BEAM Forces in Beam Elements
1431	2	MAXP-MZ BEAM Forces in Beam Elements
1432	2	MINP-MZ BEAM Forces in Beam Elements
1433	2	MAXP-MB BEAM Forces in Beam Elements
1434	2	MINP-MB BEAM Forces in Beam Elements
1401	2	MAXP-MXX QUAD Forces in Quadrilateral Elements
1402	2	MINP-MXX QUAD Forces in Quadrilateral Elements
1403	2	MAXP-MYY QUAD Forces in Quadrilateral Elements
1404	2	MINP-MYY QUAD Forces in Quadrilateral Elements
1405	2	MAXP-MXY QUAD Forces in Quadrilateral Elements
1406	2	MINP-MXY QUAD Forces in Quadrilateral Elements
1407	2	MAXP-VX QUAD Forces in Quadrilateral Elements
1408	2	MINP-VX QUAD Forces in Quadrilateral Elements
1409	2	MAXP-VY QUAD Forces in Quadrilateral Elements
1410	2	MINP-VY QUAD Forces in Quadrilateral Elements
1411	2	MAXP-NXX QUAD Forces in Quadrilateral Elements
1412	2	MINP-NXX QUAD Forces in Quadrilateral Elements
1413	2	MAXP-NYY QUAD Forces in Quadrilateral Elements
1414	2	MINP-NYY QUAD Forces in Quadrilateral Elements
1415	2	MAXP-NXY QUAD Forces in Quadrilateral Elements
1416	2	MINP-NXY QUAD Forces in Quadrilateral Elements
1421	2	MAXP-N BEAM Forces in Beam Elements
1422	2	MINP-N BEAM Forces in Beam Elements
1423	2	MAXP-VY BEAM Forces in Beam Elements
1424	2	MINP-VY BEAM Forces in Beam Elements
1425	2	MAXP-VZ BEAM Forces in Beam Elements

Most

Generated Load Cases

Number	Combination	Designation
1426	2	MINP-VZ BEAM Forces in Beam Elements
1427	2	MAXP-MT BEAM Forces in Beam Elements
1428	2	MINP-MT BEAM Forces in Beam Elements
1429	2	MAXP-MY BEAM Forces in Beam Elements
1430	2	MINP-MY BEAM Forces in Beam Elements
1431	2	MAXP-MZ BEAM Forces in Beam Elements
1432	2	MINP-MZ BEAM Forces in Beam Elements
1471	2	MAXP-UX BEAM Displacements in Beam Elements
1472	2	MINP-UX BEAM Displacements in Beam Elements
1473	2	MAXP-UY BEAM Displacements in Beam Elements
1474	2	MINP-UY BEAM Displacements in Beam Elements
1475	2	MAXP-UZ BEAM Displacements in Beam Elements
1476	2	MINP-UZ BEAM Displacements in Beam Elements
1451	2	MAXP-PX KINE Eliminated Forces from Constraints
1452	2	MINP-PX KINE Eliminated Forces from Constraints
1453	2	MAXP-PY KINE Eliminated Forces from Constraints
1454	2	MINP-PY KINE Eliminated Forces from Constraints
1455	2	MAXP-PZ KINE Eliminated Forces from Constraints
1456	2	MINP-PZ KINE Eliminated Forces from Constraints
1457	2	MAXP-MX KINE Eliminated Forces from Constraints
1458	2	MINP-MX KINE Eliminated Forces from Constraints
1459	2	MAXP-MY KINE Eliminated Forces from Constraints
1460	2	MINP-MY KINE Eliminated Forces from Constraints
1461	2	MAXP-MZ KINE Eliminated Forces from Constraints
1462	2	MINP-MZ KINE Eliminated Forces from Constraints
1471	2	MAXP-UX NODE Nodal Displacements
1472	2	MINP-UX NODE Nodal Displacements
1473	2	MAXP-UY NODE Nodal Displacements
1474	2	MINP-UY NODE Nodal Displacements
1475	2	MAXP-UZ NODE Nodal Displacements
1476	2	MINP-UZ NODE Nodal Displacements
1477	2	MAXP-URX NODE Nodal Displacements
1478	2	MINP-URX NODE Nodal Displacements
1479	2	MAXP-URY NODE Nodal Displacements
1480	2	MINP-URY NODE Nodal Displacements
1481	2	MAXP-URZ NODE Nodal Displacements
1482	2	MINP-URZ NODE Nodal Displacements
1483	2	MAXP-URB NODE Nodal Displacements
1484	2	MINP-URB NODE Nodal Displacements
1101	3	MAXR-MXX QUAD Forces in Quadrilateral Elements
1102	3	MINR-MXX QUAD Forces in Quadrilateral Elements
1103	3	MAXR-MYY QUAD Forces in Quadrilateral Elements
1104	3	MINR-MYY QUAD Forces in Quadrilateral Elements
1105	3	MAXR-MXY QUAD Forces in Quadrilateral Elements
1106	3	MINR-MXY QUAD Forces in Quadrilateral Elements
1107	3	MAXR-VX QUAD Forces in Quadrilateral Elements
1108	3	MINR-VX QUAD Forces in Quadrilateral Elements
1109	3	MAXR-VY QUAD Forces in Quadrilateral Elements
1110	3	MINR-VY QUAD Forces in Quadrilateral Elements
1111	3	MAXR-NXX QUAD Forces in Quadrilateral Elements
1112	3	MINR-NXX QUAD Forces in Quadrilateral Elements
1113	3	MAXR-NYY QUAD Forces in Quadrilateral Elements
1114	3	MINR-NYY QUAD Forces in Quadrilateral Elements
1115	3	MAXR-NXY QUAD Forces in Quadrilateral Elements
1116	3	MINR-NXY QUAD Forces in Quadrilateral Elements
1171	3	MAXR-SXT QUAD Forces in Quadrilateral Elements
1172	3	MINR-SXT QUAD Forces in Quadrilateral Elements
1173	3	MAXR-SYT QUAD Forces in Quadrilateral Elements
1174	3	MINR-SYT QUAD Forces in Quadrilateral Elements

Most

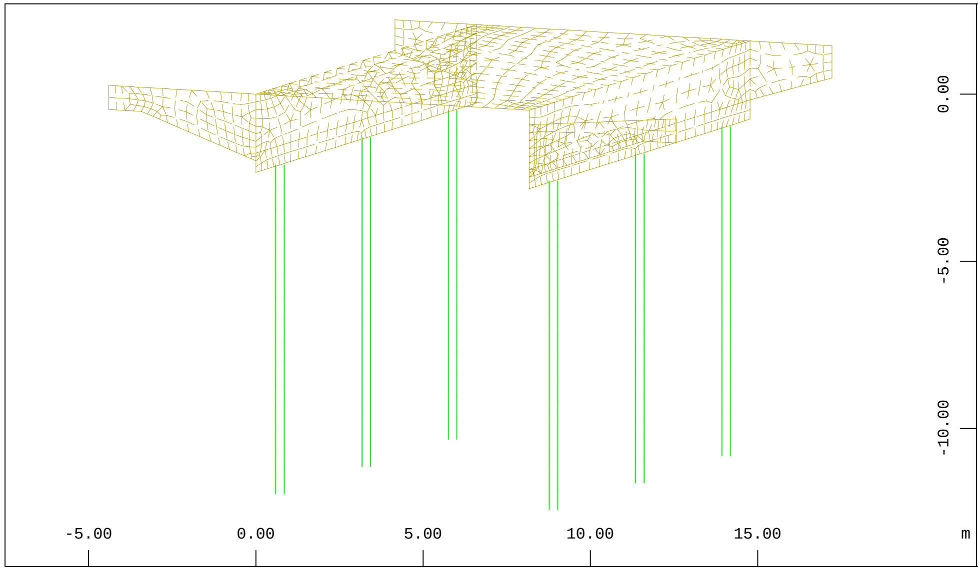
Generated Load Cases

Number	Combination	Designation
1175	3	MAXRSXYT QUAD Forces in Quadrilateral Elements
1176	3	MINRSXYT QUAD Forces in Quadrilateral Elements
1177	3	MAXR-SXB QUAD Forces in Quadrilateral Elements
1178	3	MINR-SXB QUAD Forces in Quadrilateral Elements
1179	3	MAXR-SYB QUAD Forces in Quadrilateral Elements
1180	3	MINR-SYB QUAD Forces in Quadrilateral Elements
1181	3	MAXRSXYB QUAD Forces in Quadrilateral Elements
1182	3	MINRSXYB QUAD Forces in Quadrilateral Elements
1121	3	MAXR-N BEAM Forces in Beam Elements
1122	3	MINR-N BEAM Forces in Beam Elements
1123	3	MAXR-VY BEAM Forces in Beam Elements
1124	3	MINR-VY BEAM Forces in Beam Elements
1125	3	MAXR-VZ BEAM Forces in Beam Elements
1126	3	MINR-VZ BEAM Forces in Beam Elements
1127	3	MAXR-MT BEAM Forces in Beam Elements
1128	3	MINR-MT BEAM Forces in Beam Elements
1129	3	MAXR-MY BEAM Forces in Beam Elements
1130	3	MINR-MY BEAM Forces in Beam Elements
1131	3	MAXR-MZ BEAM Forces in Beam Elements
1132	3	MINR-MZ BEAM Forces in Beam Elements
1171	3	MAXR-UX BEAM Displacements in Beam Elements
1172	3	MINR-UX BEAM Displacements in Beam Elements
1173	3	MAXR-UY BEAM Displacements in Beam Elements
1174	3	MINR-UY BEAM Displacements in Beam Elements
1175	3	MAXR-UZ BEAM Displacements in Beam Elements
1176	3	MINR-UZ BEAM Displacements in Beam Elements
1177	3	MAXR-URX BEAM Displacements in Beam Elements
1178	3	MINR-URX BEAM Displacements in Beam Elements
1179	3	MAXR-URY BEAM Displacements in Beam Elements
1180	3	MINR-URY BEAM Displacements in Beam Elements
1181	3	MAXR-URZ BEAM Displacements in Beam Elements
1182	3	MINR-URZ BEAM Displacements in Beam Elements
1151	3	MAXR-PX KINE Eliminated Forces from Constraints
1152	3	MINR-PX KINE Eliminated Forces from Constraints
1153	3	MAXR-PY KINE Eliminated Forces from Constraints
1154	3	MINR-PY KINE Eliminated Forces from Constraints
1155	3	MAXR-PZ KINE Eliminated Forces from Constraints
1156	3	MINR-PZ KINE Eliminated Forces from Constraints
1157	3	MAXR-MX KINE Eliminated Forces from Constraints
1158	3	MINR-MX KINE Eliminated Forces from Constraints
1159	3	MAXR-MY KINE Eliminated Forces from Constraints
1160	3	MINR-MY KINE Eliminated Forces from Constraints
1161	3	MAXR-MZ KINE Eliminated Forces from Constraints
1162	3	MINR-MZ KINE Eliminated Forces from Constraints
1171	3	MAXR-SXT QUAD Forces in Quadrilateral Elements
1172	3	MINR-SXT QUAD Forces in Quadrilateral Elements
1173	3	MAXR-SYT QUAD Forces in Quadrilateral Elements
1174	3	MINR-SYT QUAD Forces in Quadrilateral Elements
1175	3	MAXRSXYT QUAD Forces in Quadrilateral Elements
1176	3	MINRSXYT QUAD Forces in Quadrilateral Elements
1177	3	MAXR-SXB QUAD Forces in Quadrilateral Elements
1178	3	MINR-SXB QUAD Forces in Quadrilateral Elements
1179	3	MAXR-SYB QUAD Forces in Quadrilateral Elements
1180	3	MINR-SYB QUAD Forces in Quadrilateral Elements
1181	3	MAXRSXYB QUAD Forces in Quadrilateral Elements
1182	3	MINRSXYB QUAD Forces in Quadrilateral Elements
1171	3	MAXR-UX NODE Nodal Displacements
1172	3	MINR-UX NODE Nodal Displacements
1173	3	MAXR-UY NODE Nodal Displacements

Most

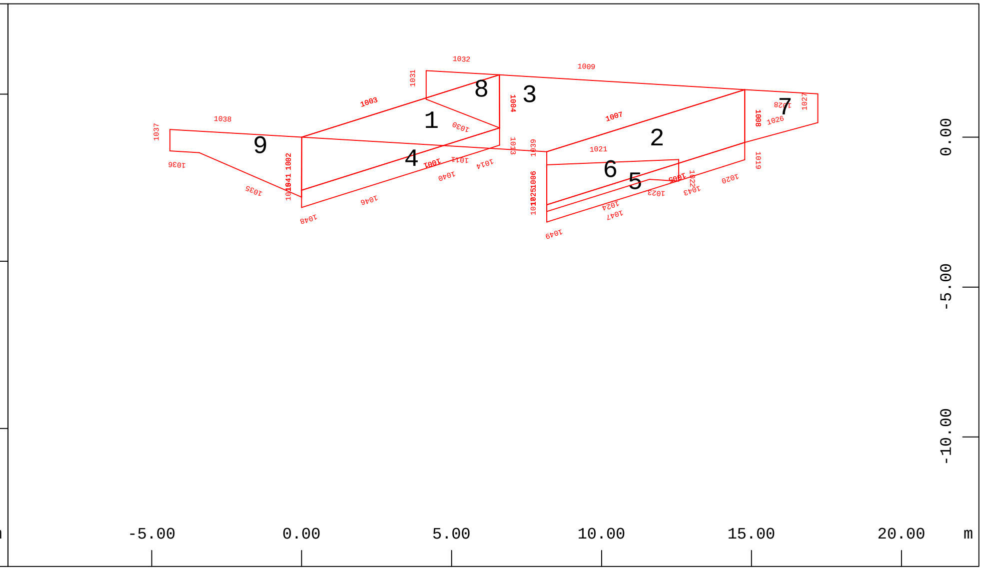
Generated Load Cases

Number	Combination	Designation
1174	3	MINR-UY NODE Nodal Displacements
1175	3	MAXR-UZ NODE Nodal Displacements
1176	3	MINR-UZ NODE Nodal Displacements
1177	3	MAXR-URX NODE Nodal Displacements
1178	3	MINR-URX NODE Nodal Displacements
1179	3	MAXR-URY NODE Nodal Displacements
1180	3	MINR-URY NODE Nodal Displacements
1181	3	MAXR-URZ NODE Nodal Displacements
1182	3	MINR-URZ NODE Nodal Displacements
1183	3	MAXR-URB NODE Nodal Displacements
1184	3	MINR-URB NODE Nodal Displacements



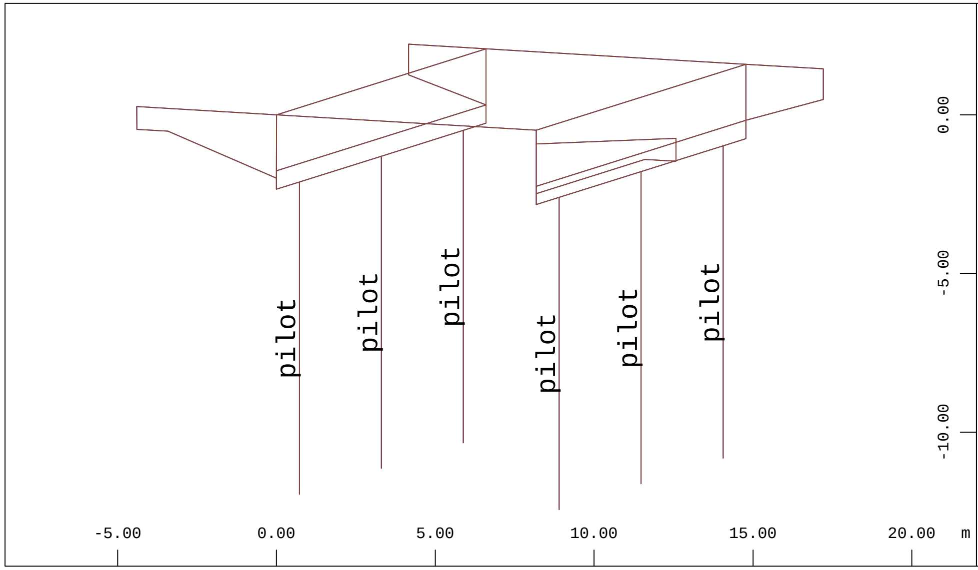
Structure

M 1 : 226
X * 0.502
Y * 0.906
Z * 0.962



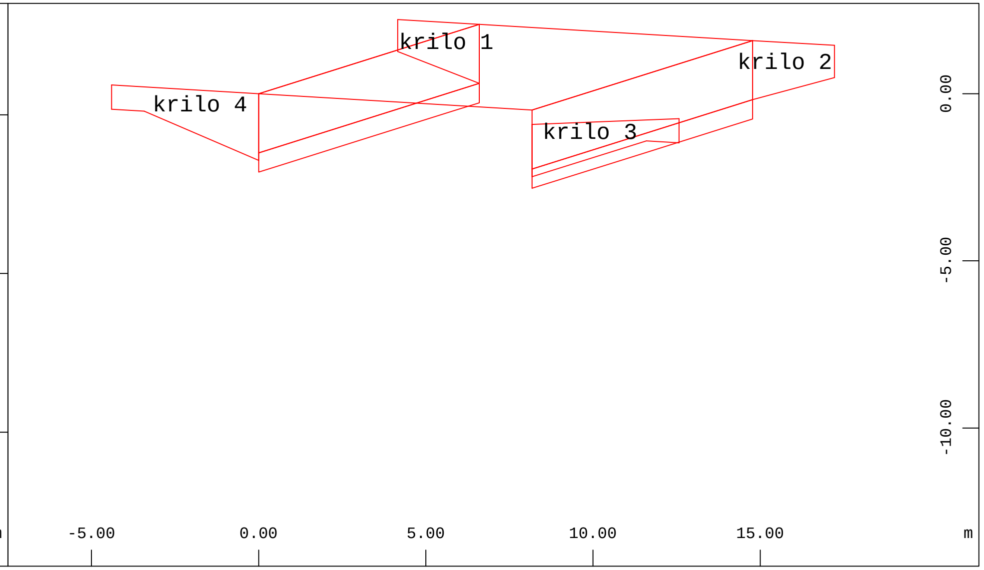
Structural Areas

M 1 : 252
X * 0.502
Y * 0.906
Z * 0.962



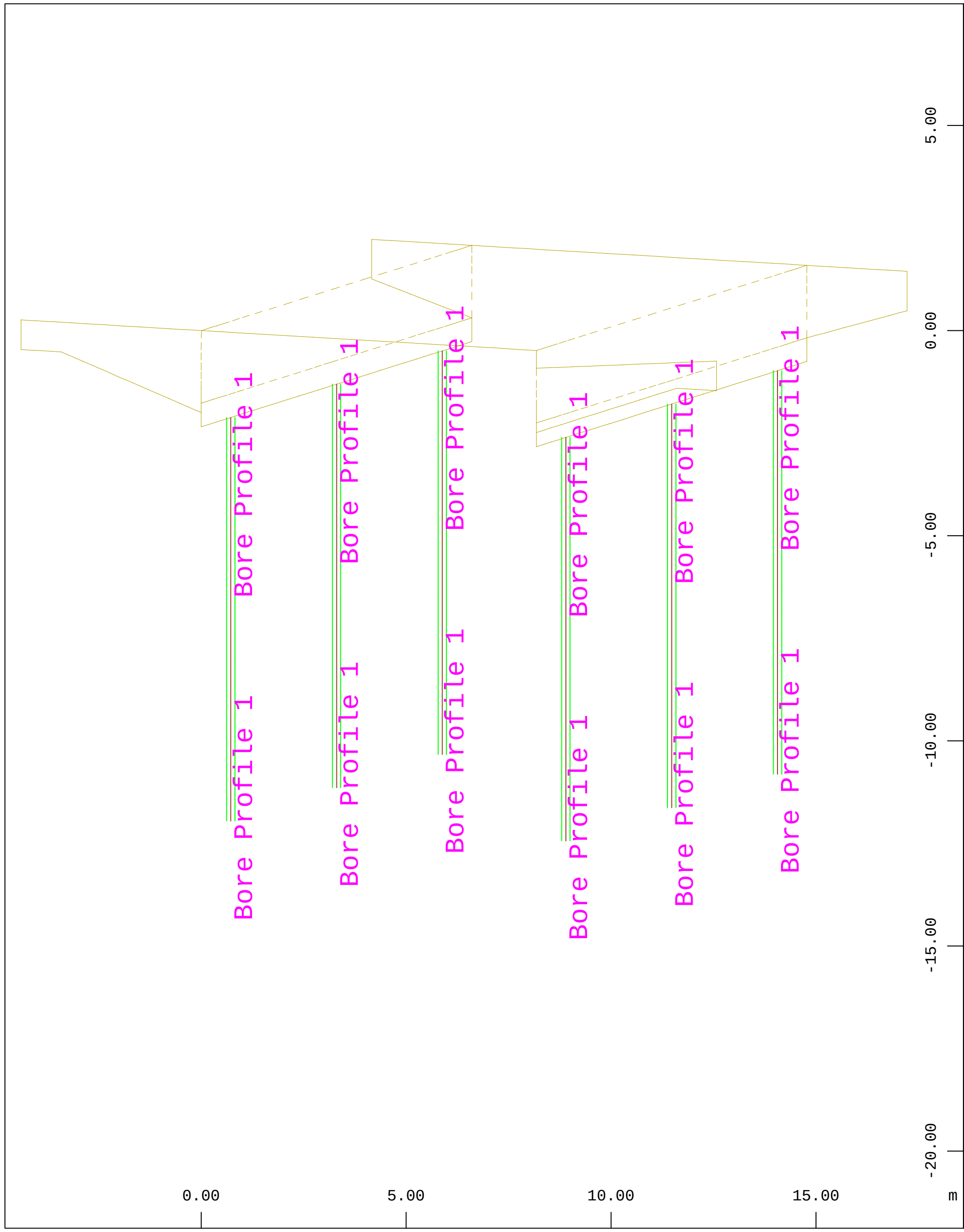
Designation of structural lines

M 1 : 238
X * 0.502
Y * 0.906
Z * 0.962

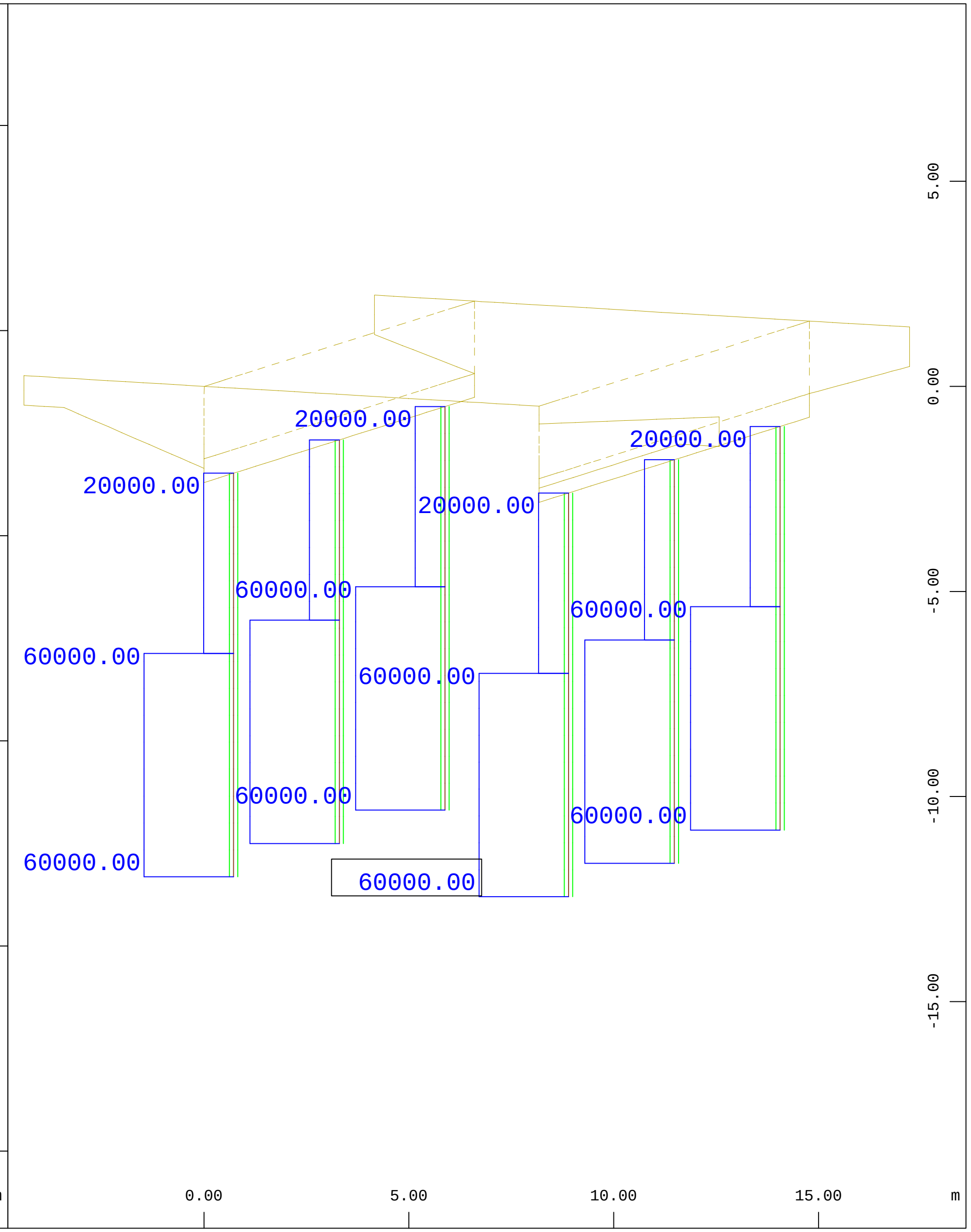


Designation of structural areas

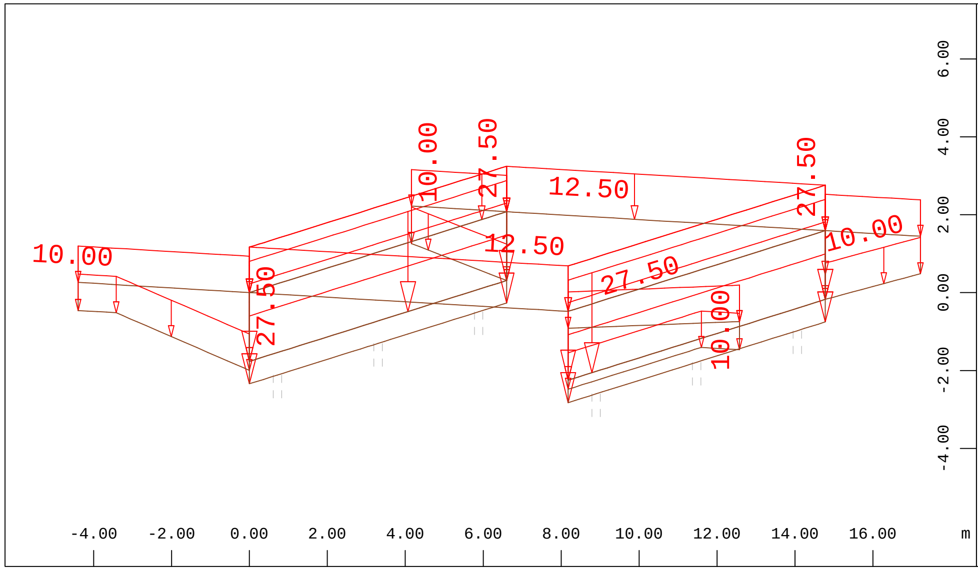
M 1 : 226
X * 0.502
Y * 0.906
Z * 0.962



Designations of bore profile

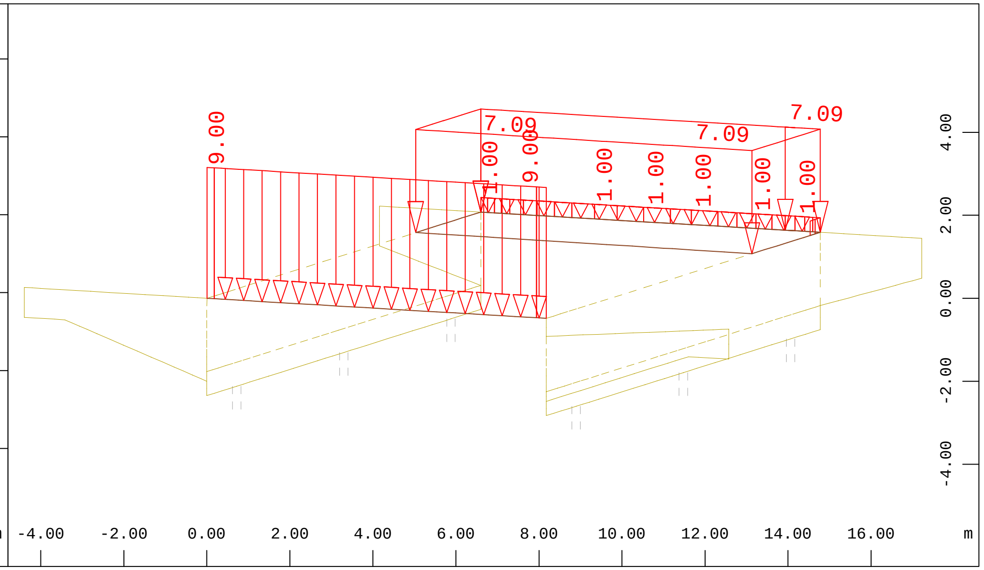


Axial pile modulus, 1 cm 3D = 50000. kN/m2 (Max=60000.)



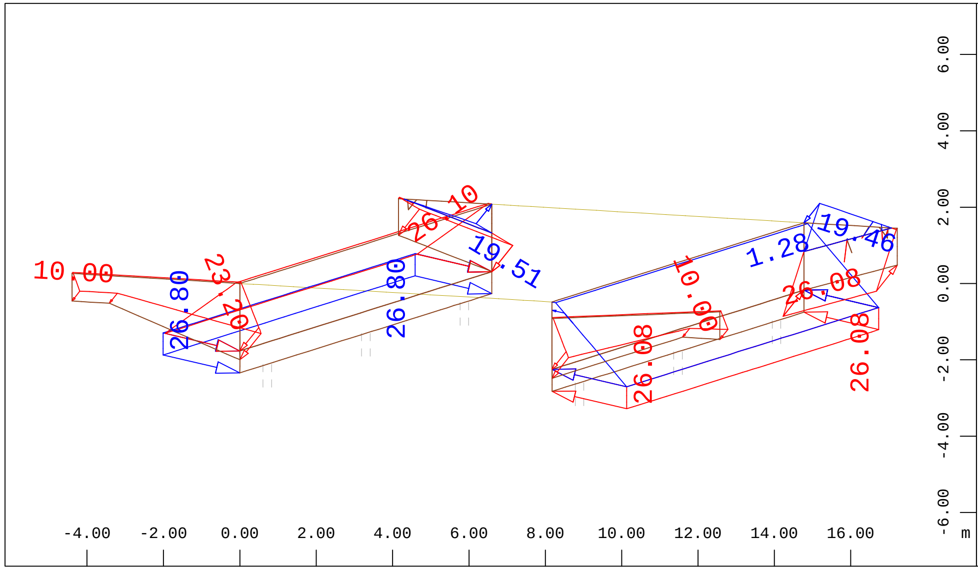
Z Y X Sector of system Quadrilateral Elements
All loads (in components), Loadcase 1 Lastna teža , (1 cm
3D = unit) QUAD-Area dead load in global Z in Element

M 1 : 194
X * 0.502
Y * 0.906
Z * 0.962



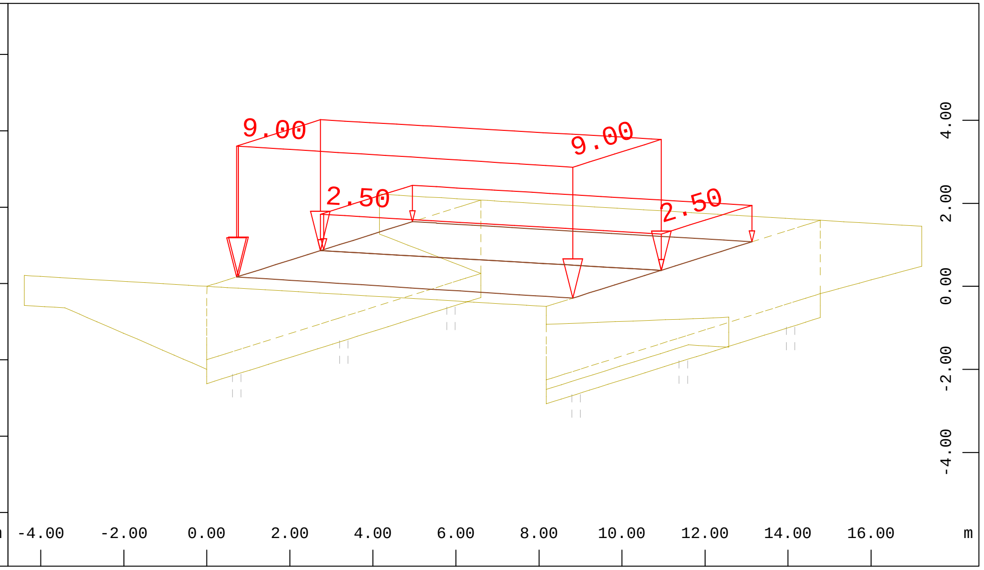
Z Y X Sector of system Quadrilateral Elements
All loads, Loadcase 2 krov , (1 cm 3D = unit) Free line load
(force) in global Z (Unit=5.00 kN/m,Min=-9.00 Max=-1.00),

M 1 : 182
X * 0.502
Y * 0.906
Z * 0.962



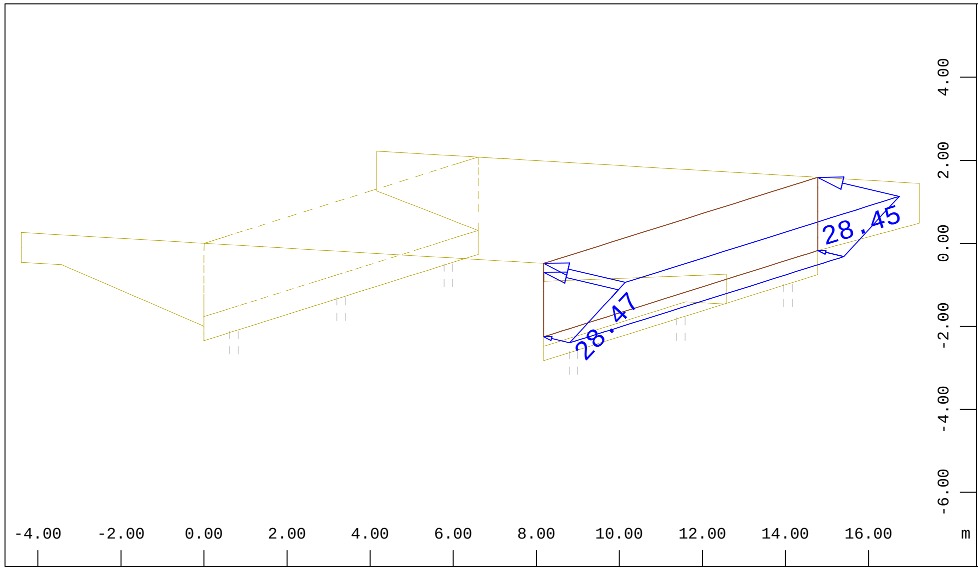
Z Y X Sector of system Quadrilateral Elements
All loads (in components), Loadcase 3 zemeljski pritisk , (1
cm 3D = unit) Area element load (force) in local z (Unit=20.0

M 1 : 198
X * 0.502
Y * 0.906
Z * 0.962



Z Y X Sector of system Quadrilateral Elements
All loads (in components), Loadcase 5 UDL , (1 cm 3D = unit)
Free area load (force) in global Z (Unit=5.00 kN/m2)

M 1 : 182
X * 0.502
Y * 0.906
Z * 0.962

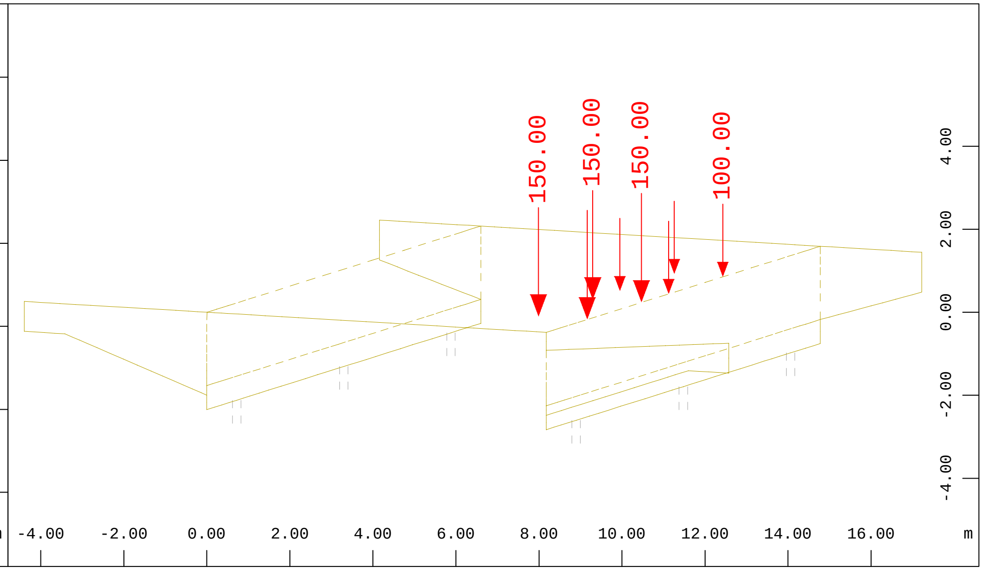


Z Y X

Sector of system Quadrilateral Elements — M 1 : 182

All loads, Loadcase 16 vozilo pred 1 , (1 cm 3D = unit) Free — X * 0.502

area load (force) in local z (Unit=20.0 kN/m2) (Max=28.5) — Y * 0.906, Z * 0.962

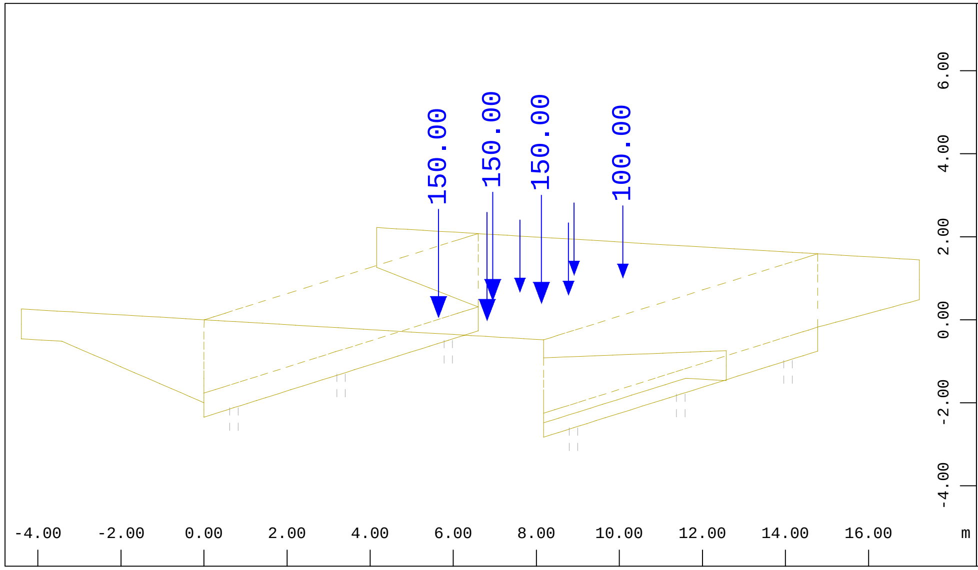


Z Y X

Sector of system Quadrilateral Elements — M 1 : 182

Free load in global Z, Loadcase 6 TS1 , (1 cm 3D = unit) — X * 0.502

Free single load (force) in global Z (Unit=100.0 kN) — Y * 0.906, Z * 0.962

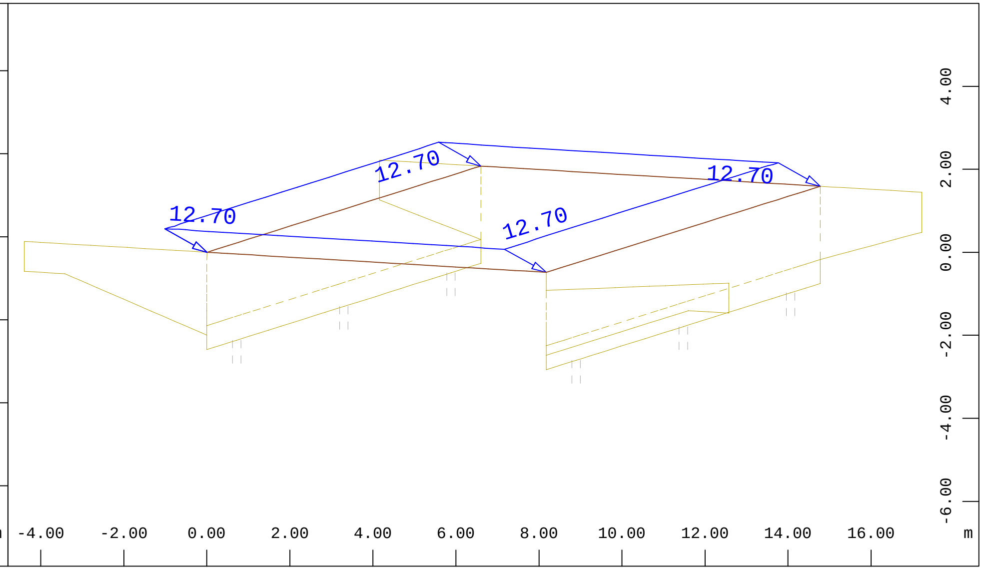


Z Y X

Sector of system Quadrilateral Elements — M 1 : 182

Single load, Loadcase 7 TS2 , (1 cm 3D = unit) (force) — X * 0.502

vector (Unit=100.0 kN) (Max=150.0) — Y * 0.906, Z * 0.962

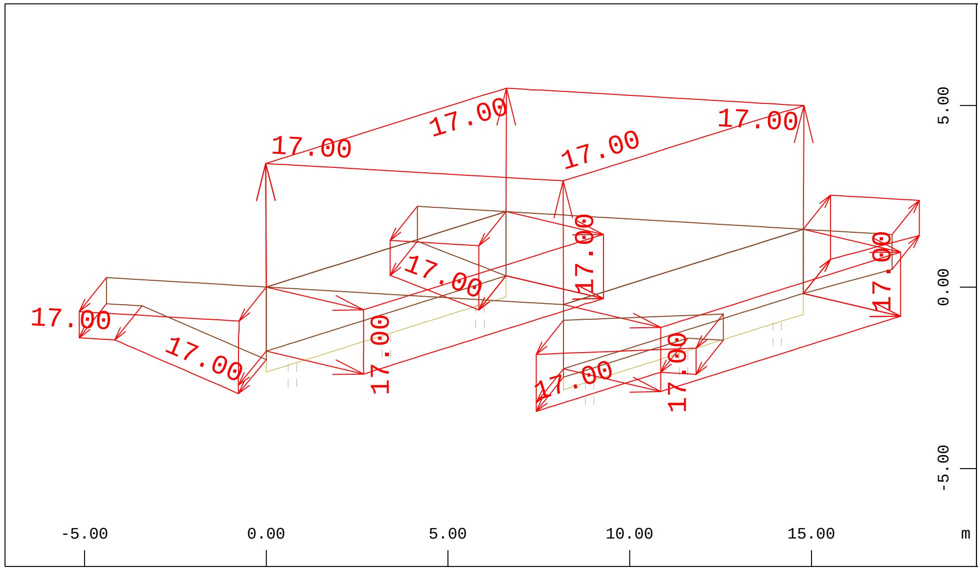


Z Y X

Sector of system Quadrilateral Elements — M 1 : 182

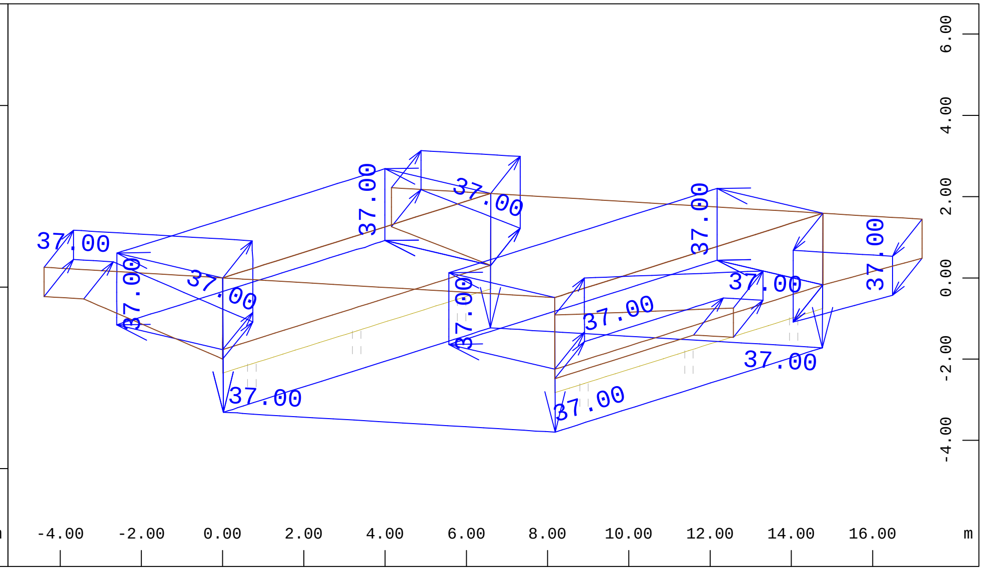
Area load in local directions, Loadcase 10 zavorna sila 1 , — X * 0.502

(1 cm 3D = unit) Area element load (force) in local x — Y * 0.906, Z * 0.962



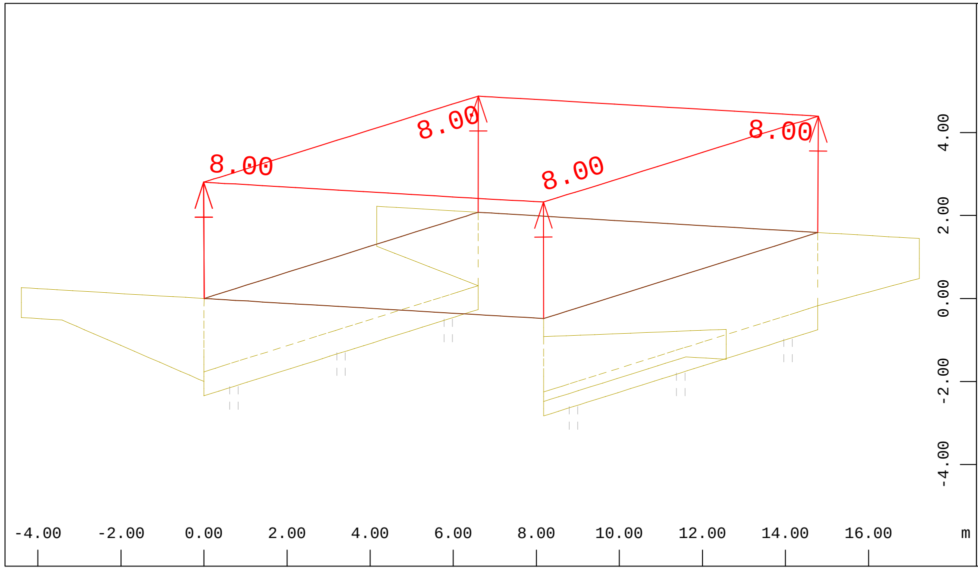
Z Y X
Sector of system Quadrilateral Elements
All loads, Loadcase 12 temp enak -17 , (1 cm 3D = unit) Area element load (uniform temperature change) (Unit=10.0 °C)

M 1 : 208
X * 0.502
Y * 0.906
Z * 0.962



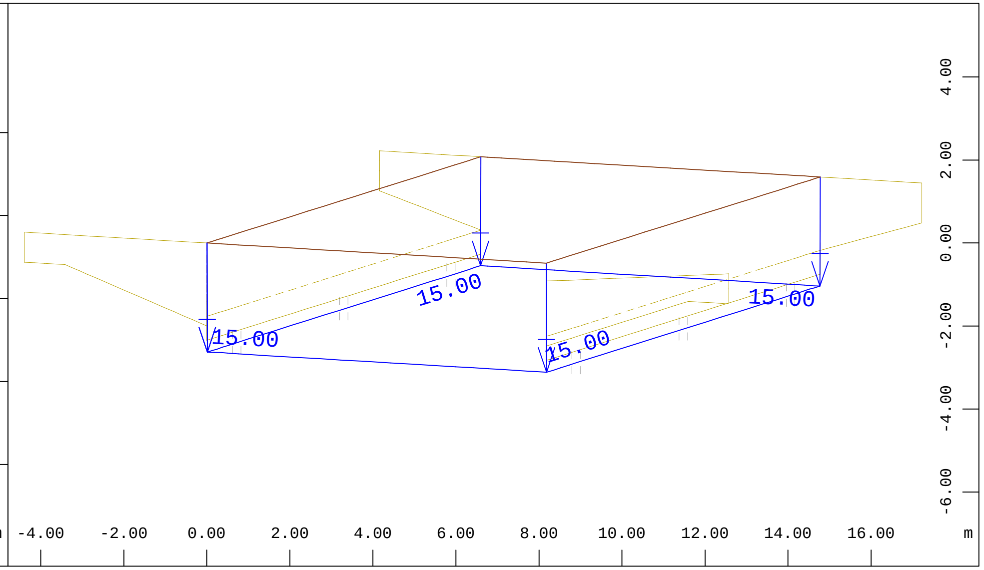
Z Y X
Sector of system Quadrilateral Elements
All loads (in components), Loadcase 13 temp enak 37 , (1 cm 3D = unit) Area element load (uniform temperature change)

M 1 : 186
X * 0.502
Y * 0.906
Z * 0.962



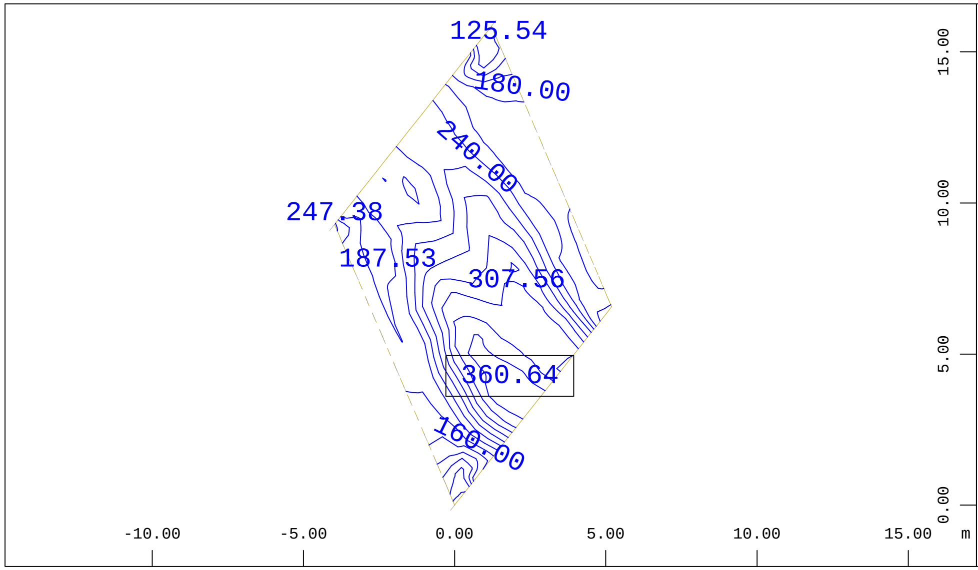
Z Y X
Sector of system Quadrilateral Elements
All loads, Loadcase 14 temp neenak -8 , (1 cm 3D = unit) Area element load (temperature increase) (Unit=5.00 °C)

M 1 : 182
X * 0.502
Y * 0.906
Z * 0.962



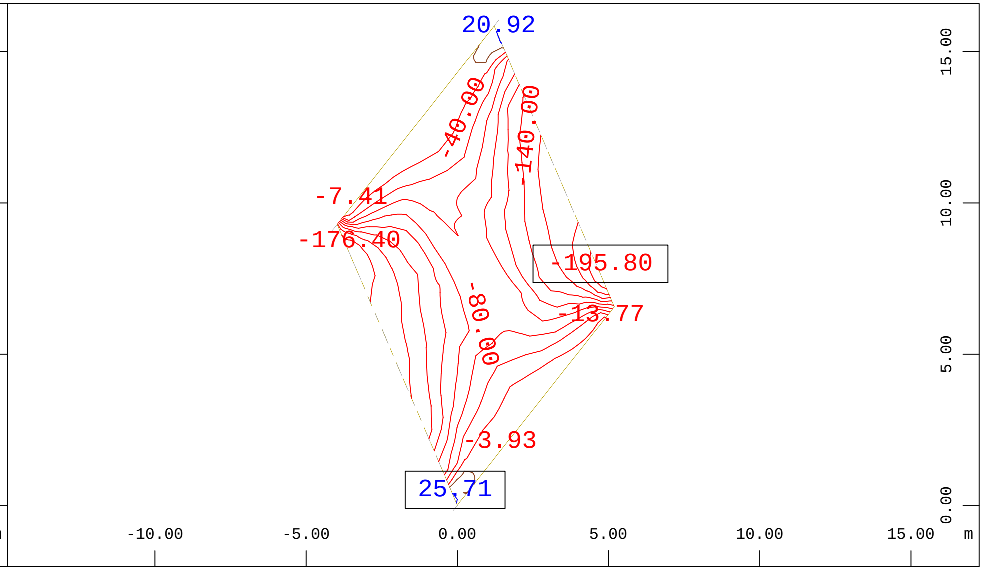
Z Y X
Sector of system Quadrilateral Elements
All loads, Loadcase 15 temp neenak 15 , (1 cm 3D = unit) Area element load (temperature increase) (Unit=10.0 °C)

M 1 : 182
X * 0.502
Y * 0.906
Z * 0.962



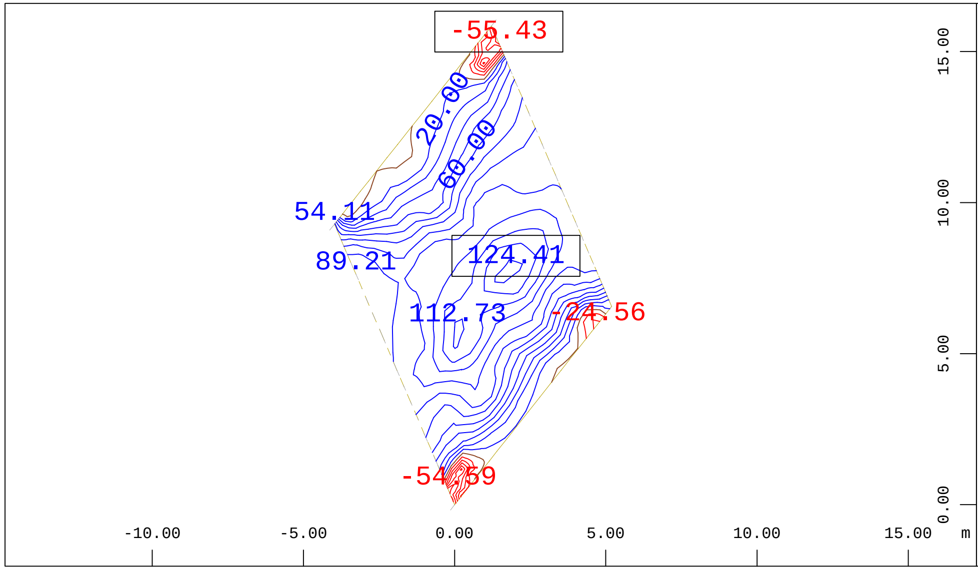
Y Z X

Sector of system Group 30 M 1 : 250
Principal bending moment I from middle of element, Loadcase
2101 MAX-MXX QUAD Forces in Quadrilat , from 88.2 to 360.6



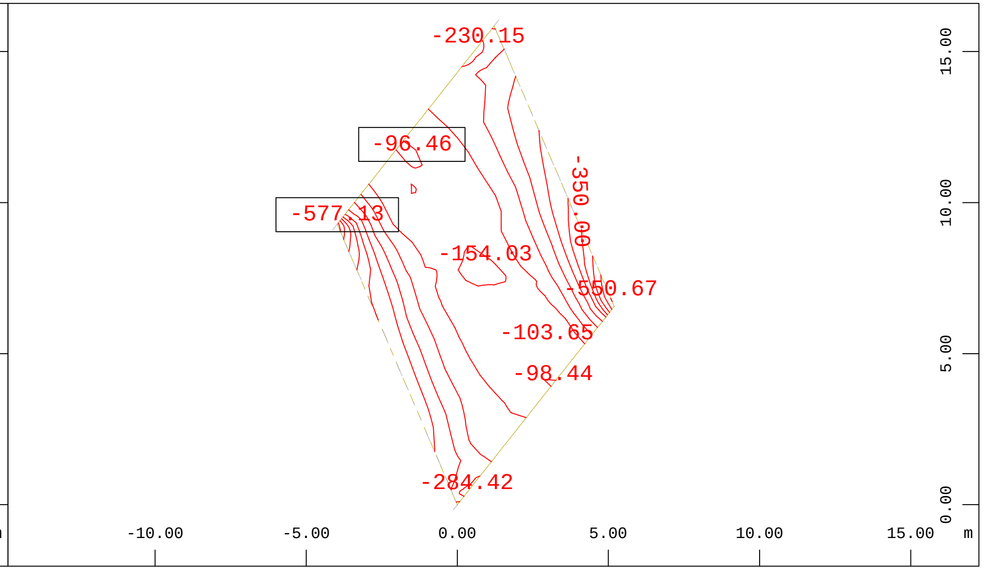
Y Z X

Sector of system Group 30 M 1 : 250
Principal bending moment I from middle of element, Loadcase
2102 MIN-MXX QUAD Forces in Quadrilat , from -195.8 to 25.7



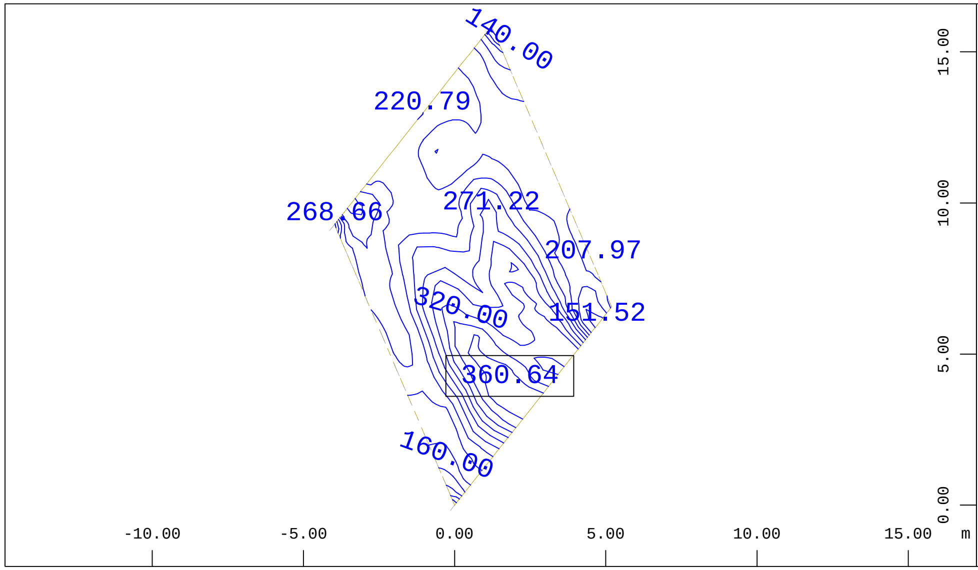
Y Z X

Sector of system Group 30 M 1 : 250
Principal bending moment II from middle of element, Loadcase
2101 MAX-MXX QUAD Forces in Quadrilat , from -55.4 to 124.4



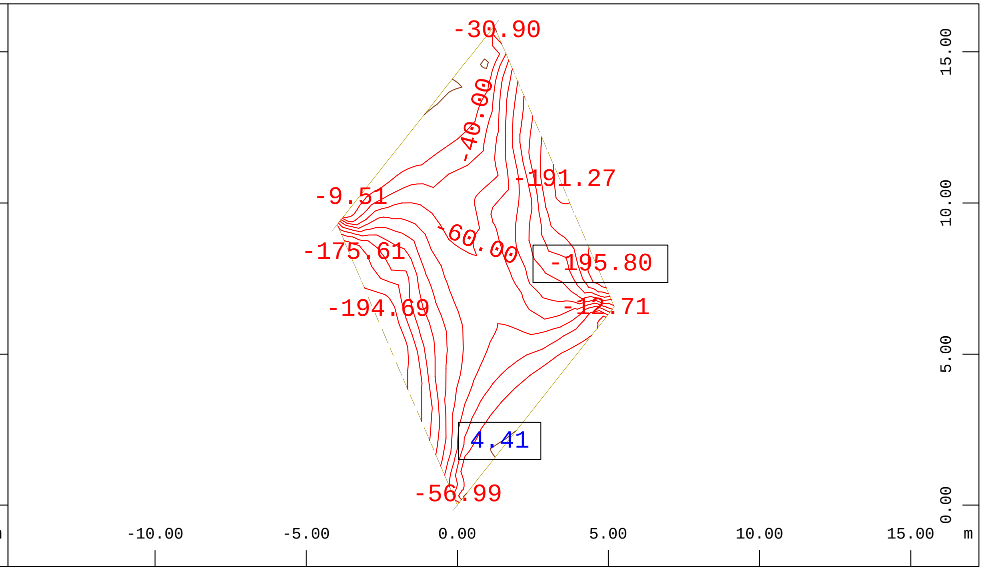
Y Z X

Sector of system Group 30 M 1 : 250
Principal bending moment II from middle of element, Loadcase
2102 MIN-MXX QUAD Forces in Quadrilat , from -577.1 to -96.5



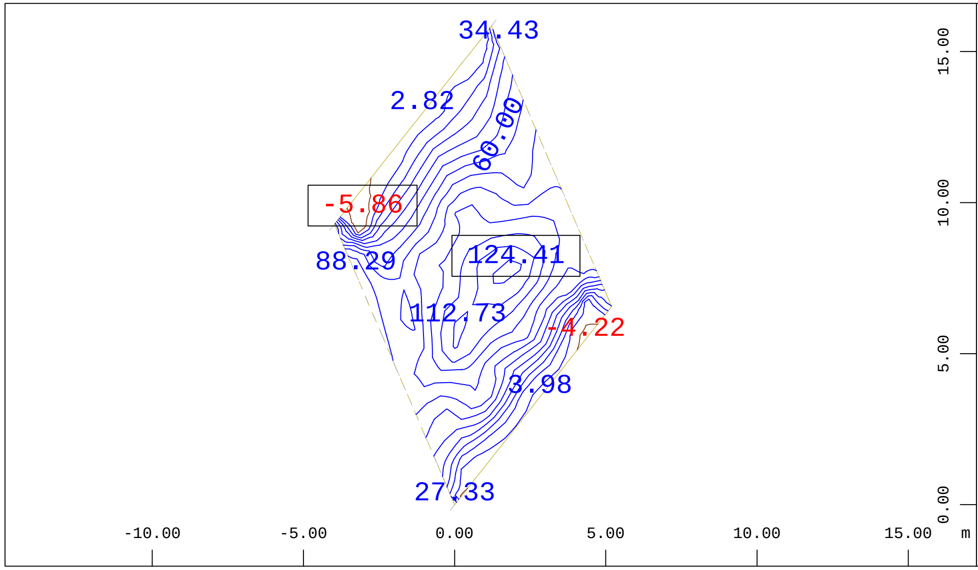
Y
Z—X

Sector of system Group 30 M 1 : 250
Principal bending moment I from middle of element, Loadcase
2103 MAX-MYY QUAD Forces in Quadrilat , from 91.1 to 360.6



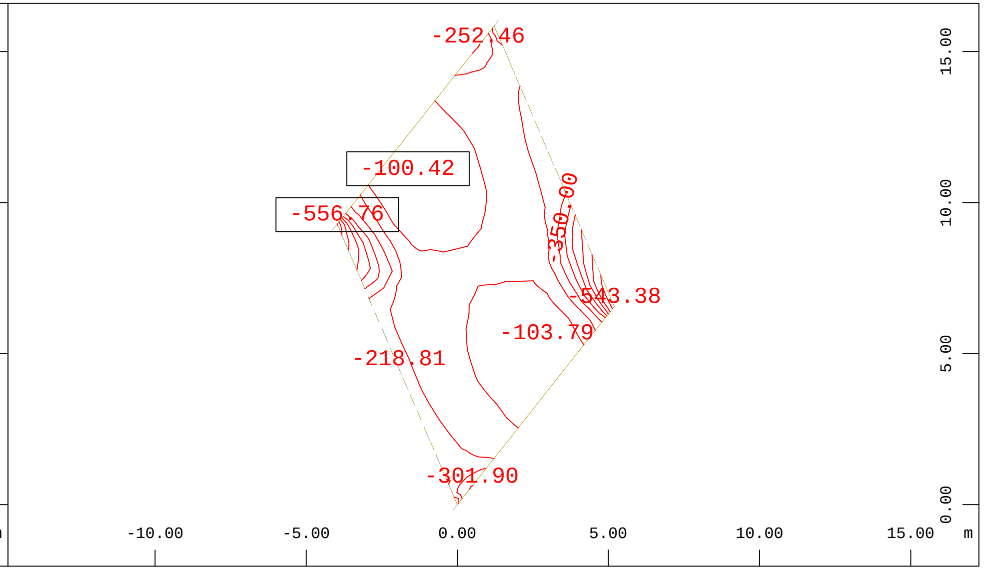
Y
Z—X

Sector of system Group 30 M 1 : 250
Principal bending moment I from middle of element, Loadcase
2104 MIN-MYY QUAD Forces in Quadrilat , from -195.8 to 4.41



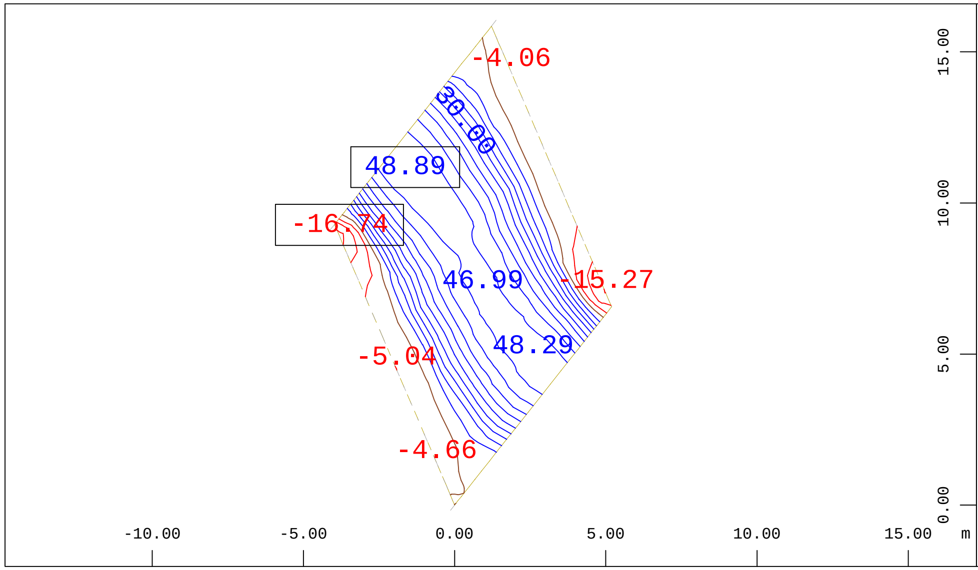
Y
Z—X

Sector of system Group 30 M 1 : 250
Principal bending moment II from middle of element, Loadcase
2103 MAX-MYY QUAD Forces in Quadrilat , from -5.86 to 124.4

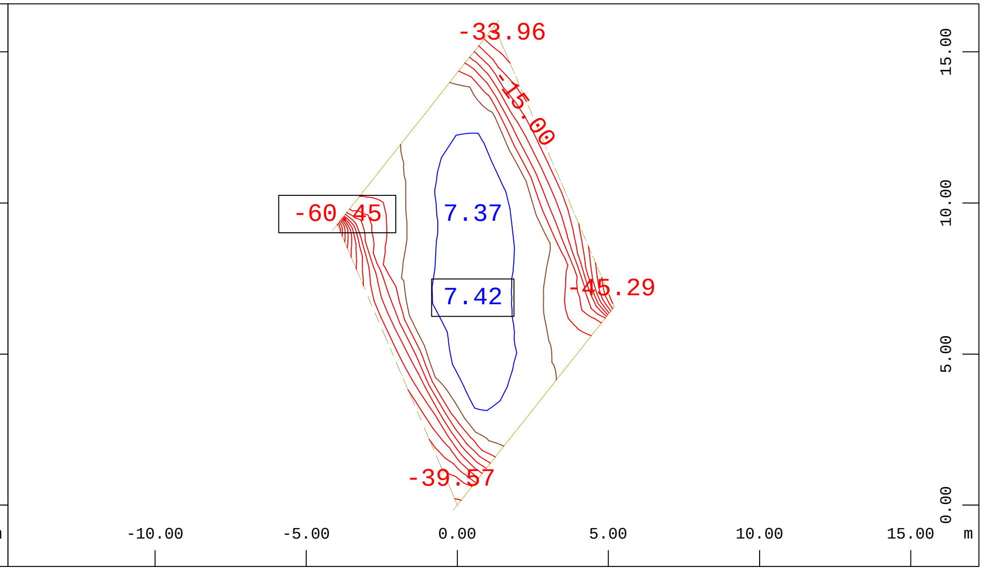


Y
Z—X

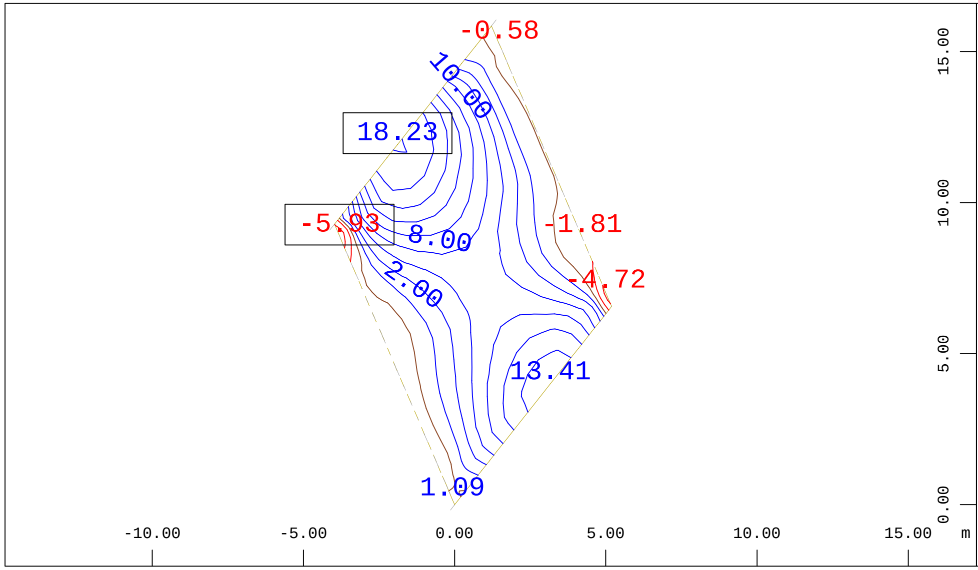
Sector of system Group 30 M 1 : 250
Principal bending moment II from middle of element, Loadcase
2104 MIN-MYY QUAD Forces in Quadrilat , from -556.8 to



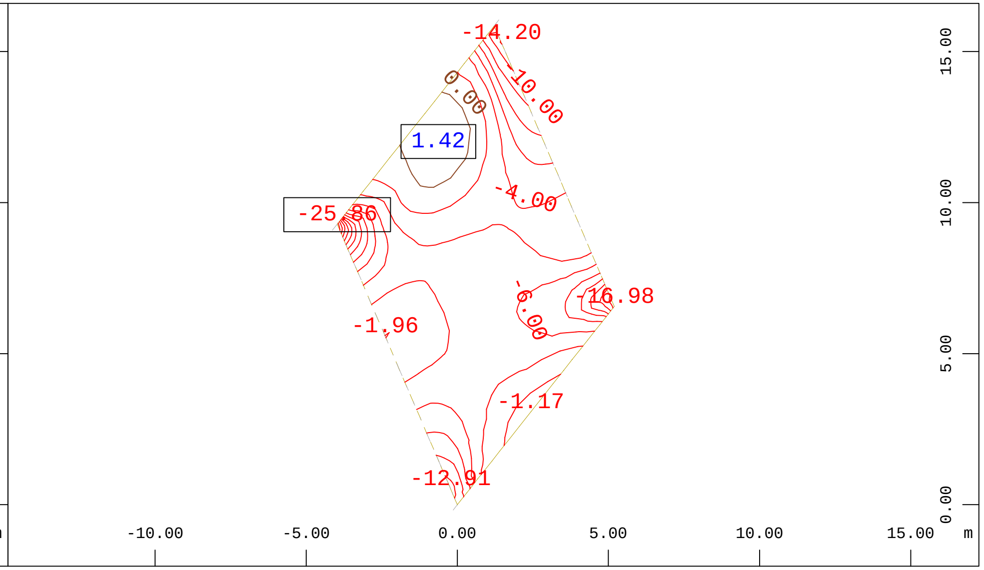
Y
Z—X
Sector of system Group 30 M 1 : 250
Principal bending moment I from middle of element, Loadcase 1
Lastna teža , from -16.7 to 48.9 step 5.00 kNm/m



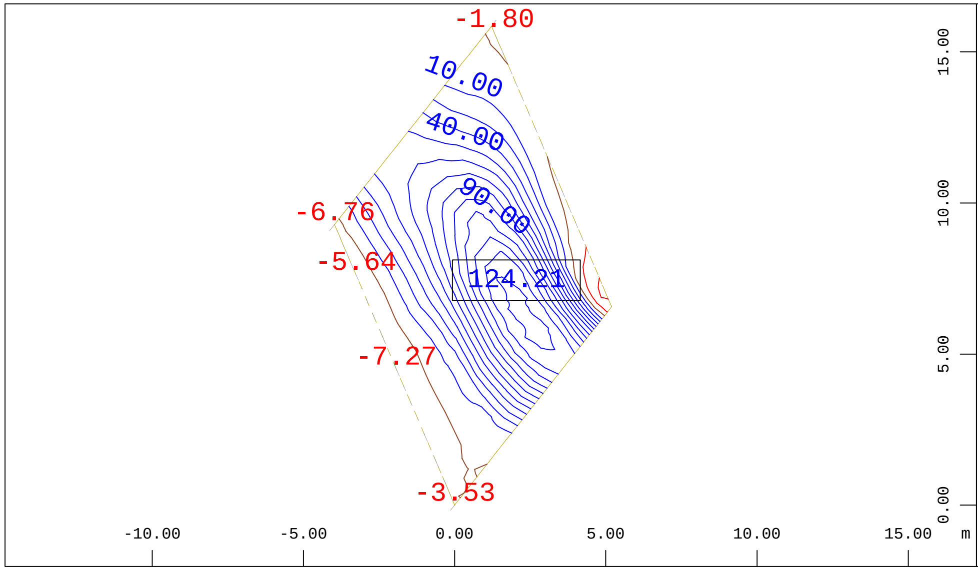
Y
Z—X
Sector of system Group 30 M 1 : 250
Principal bending moment II from middle of element, Loadcase 1
Lastna teža , from -60.5 to 7.42 step 5.00 kNm/m



Y
Z—X
Sector of system Group 30 M 1 : 250
Principal bending moment I from middle of element, Loadcase 2
krov , from -5.93 to 18.2 step 2.00 kNm/m

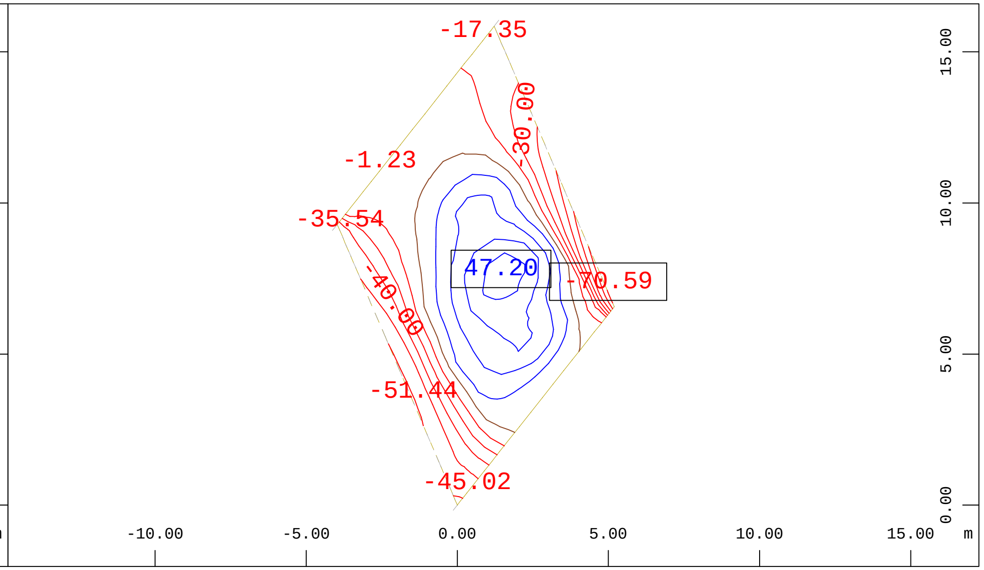


Y
Z—X
Sector of system Group 30 M 1 : 250
Principal bending moment II from middle of element, Loadcase 2
krov , from -25.9 to 1.42 step 2.00 kNm/m



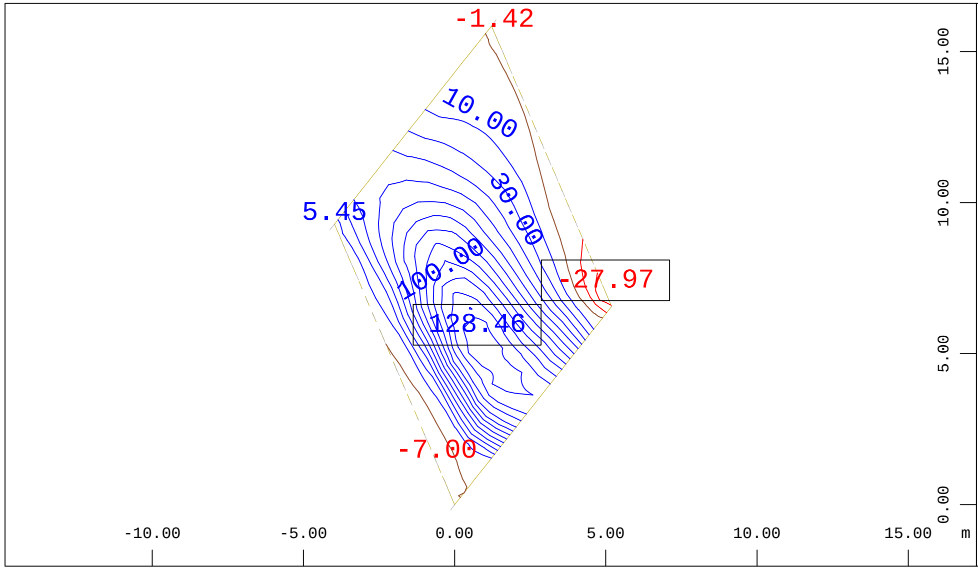
Y
Z—X

Sector of system Group 30 M 1 : 250
Principal bending moment I from middle of element, Loadcase 7
TS2 , from -23.7 to 124.2 step 10.0 kNm/m



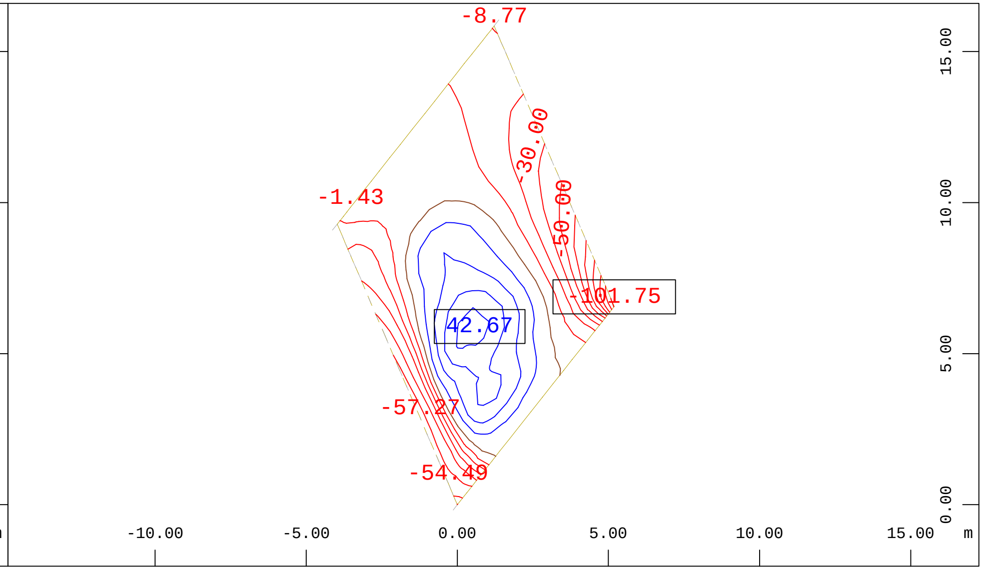
Y
Z—X

Sector of system Group 30 M 1 : 250
Principal bending moment II from middle of element, Loadcase 7
TS2 , from -70.6 to 47.2 step 10.0 kNm/m



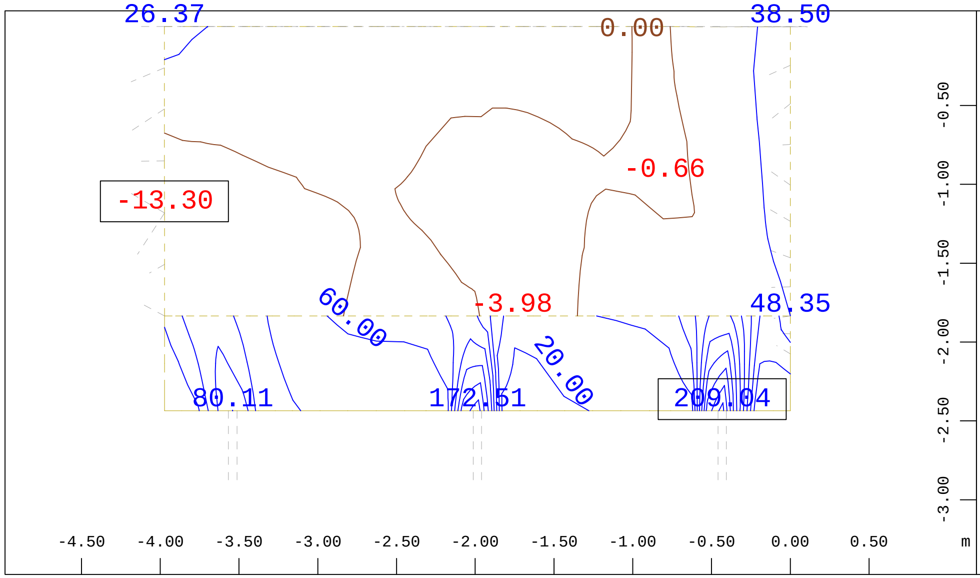
Y
Z—X

Sector of system Group 30 M 1 : 250
Principal bending moment I from middle of element, Loadcase 8
TS3 , from -28.0 to 128.5 step 10.0 kNm/m

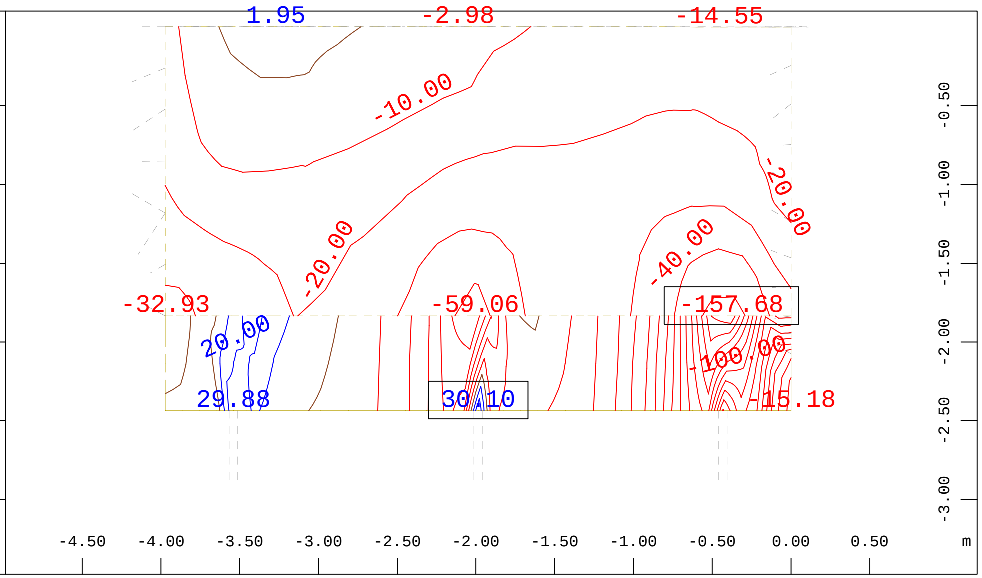


Y
Z—X

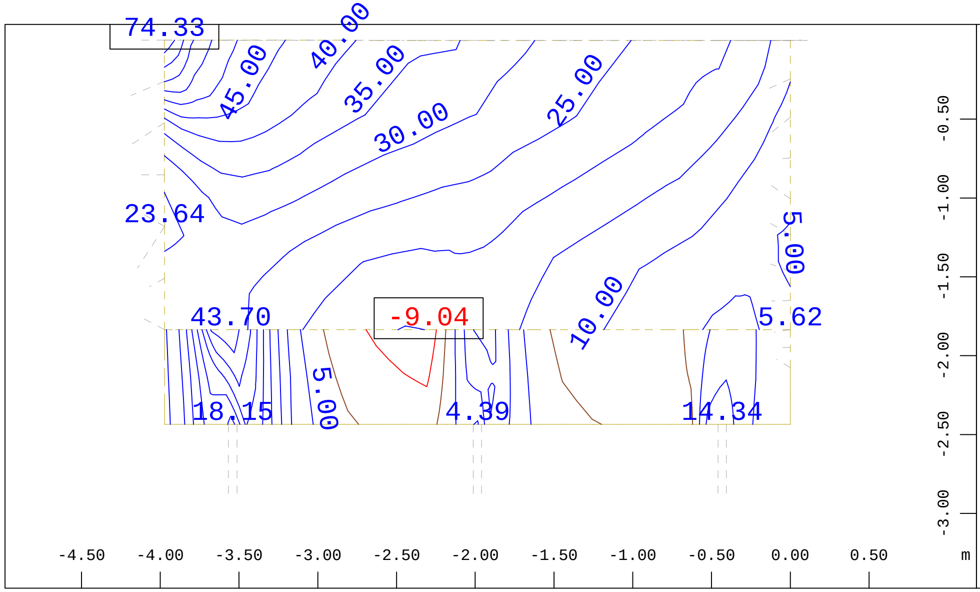
Sector of system Group 30 M 1 : 250
Principal bending moment II from middle of element, Loadcase 8
TS3 , from -101.8 to 42.7 step 10.0 kNm/m



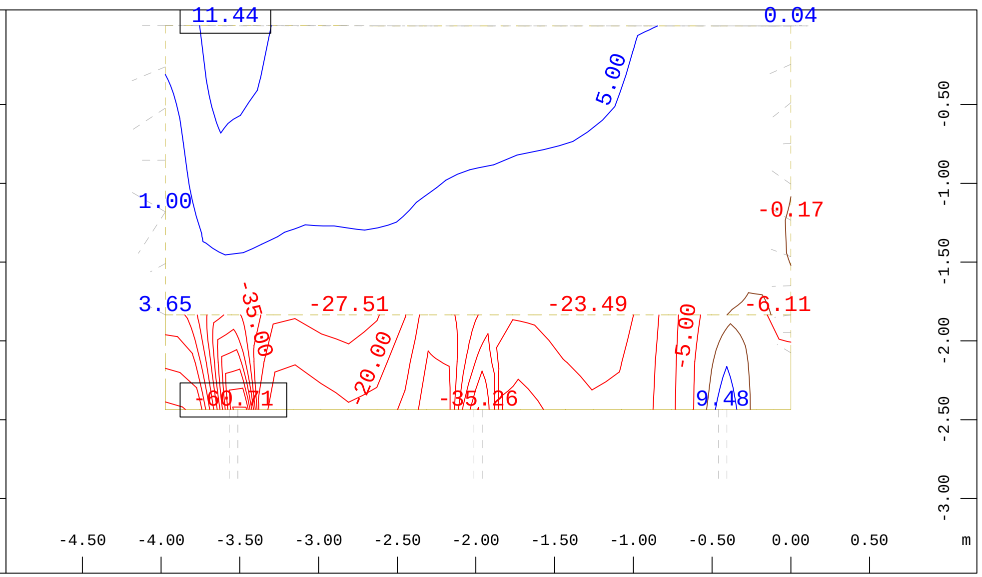
Z X
Sector of system Quadrilateral Elements Group 1 10 M 1 : 48
Principal bending moment I from middle of element, Loadcase 3
zemeljski pritisk , from -13.3 to 209.0 step 20.0 kNm/m



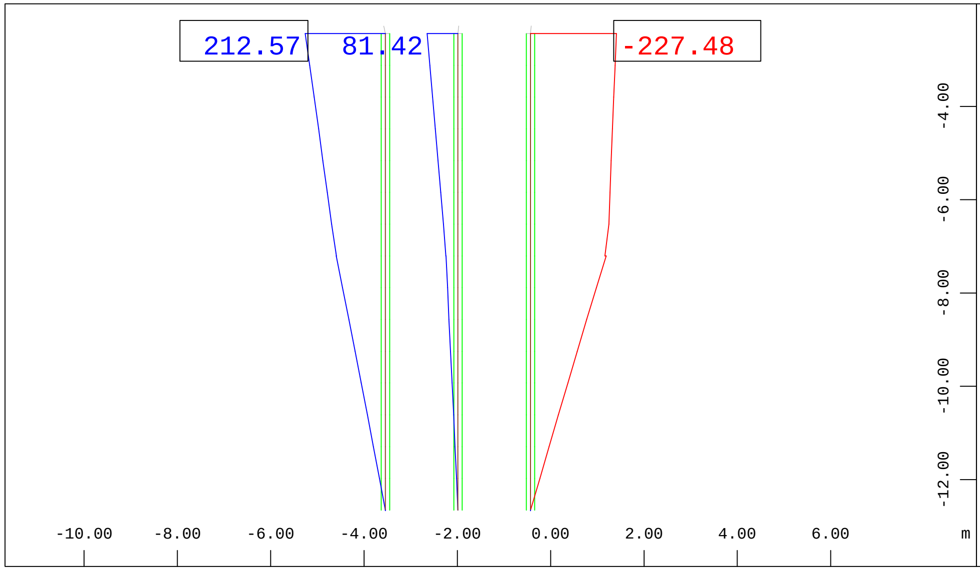
Z X
Sector of system Quadrilateral Elements Group 1 10 M 1 : 48
Principal bending moment II from middle of element, Loadcase 3
zemeljski pritisk , from -157.7 to 30.1 step 10.0 kNm/m



Z X
Sector of system Quadrilateral Elements Group 1 10 M 1 : 48
Principal bending moment I from middle of element, Loadcase 16
vozilo pred 1 , from -9.04 to 74.3 step 5.00 kNm/m



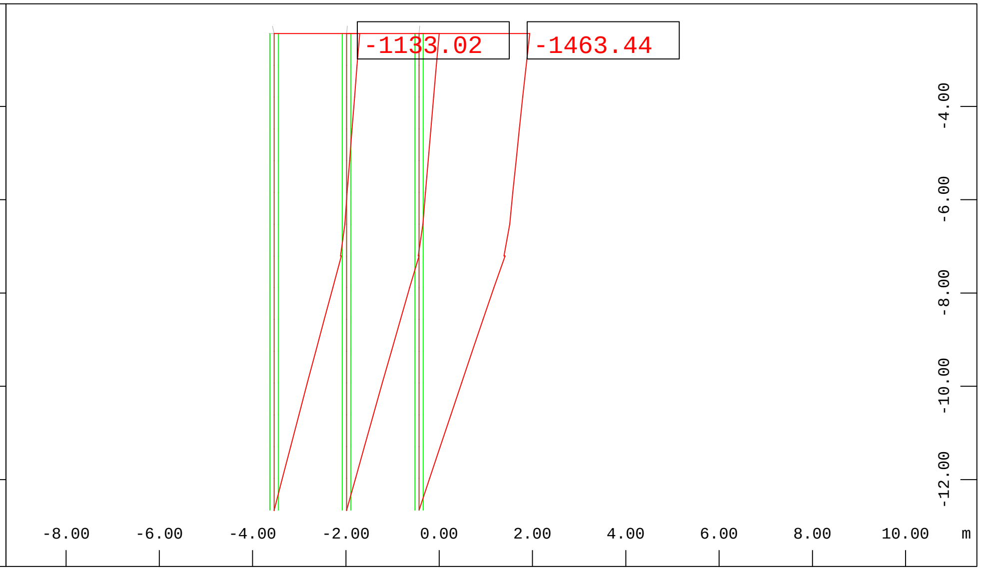
Z X
Sector of system Quadrilateral Elements Group 1 10 M 1 : 48
Principal bending moment II from middle of element, Loadcase 16
vozilo pred 1 , from -60.7 to 11.4 step 5.00 kNm/m



Z ↓—X Sector of system Group 50 M 1 : 162

Beam Elements , Normal force Nx, Loadcase 2121 MAX-N BEAM

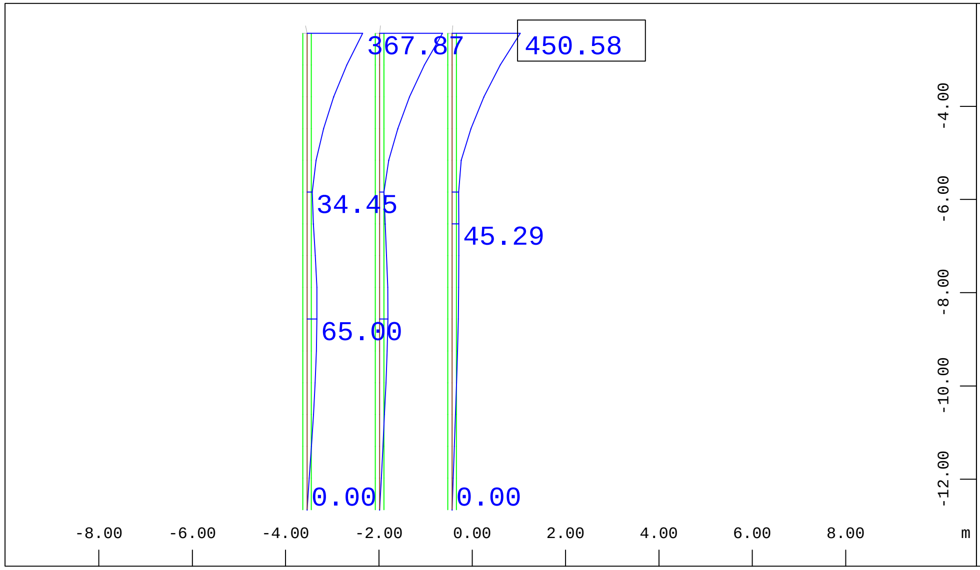
Forces in Beam Elemen , 1 cm 3D = 200.0 kN (Min=-227.5)



Z ↓—X Sector of system Group 50 M 1 : 162

Beam Elements , Normal force Nx, Loadcase 2122 MIN-N BEAM

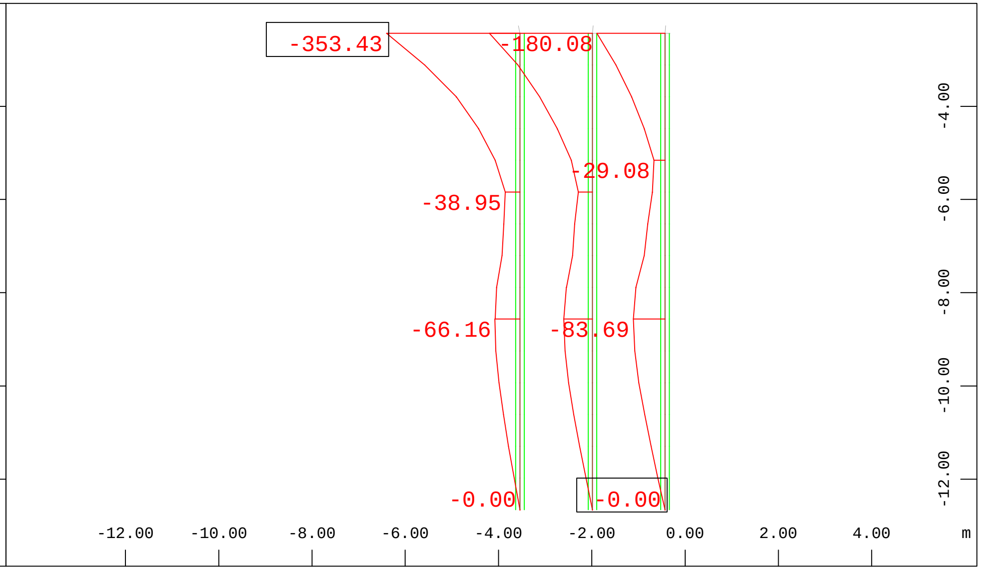
Forces in Beam Elemen , 1 cm 3D = 1000. kN (Min=-1463.)



Z ↓—X Sector of system Group 50 M 1 : 162

Beam Elements , Shear force Vy, Loadcase 2123 MAX-VY BEAM

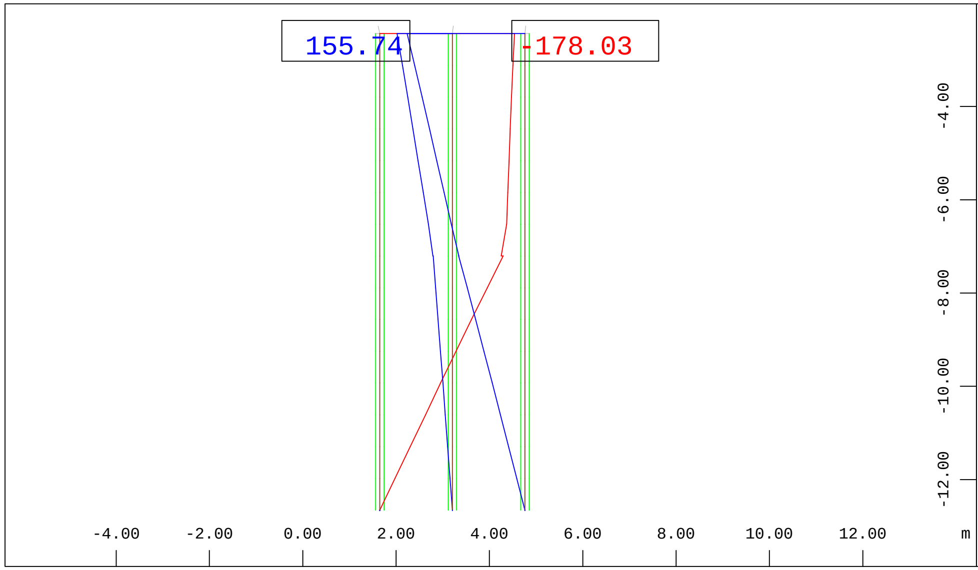
Forces in Beam Eleme , 1 cm 3D = 500.0 kN (Max=450.6)



Z ↓—X Sector of system Group 50 M 1 : 162

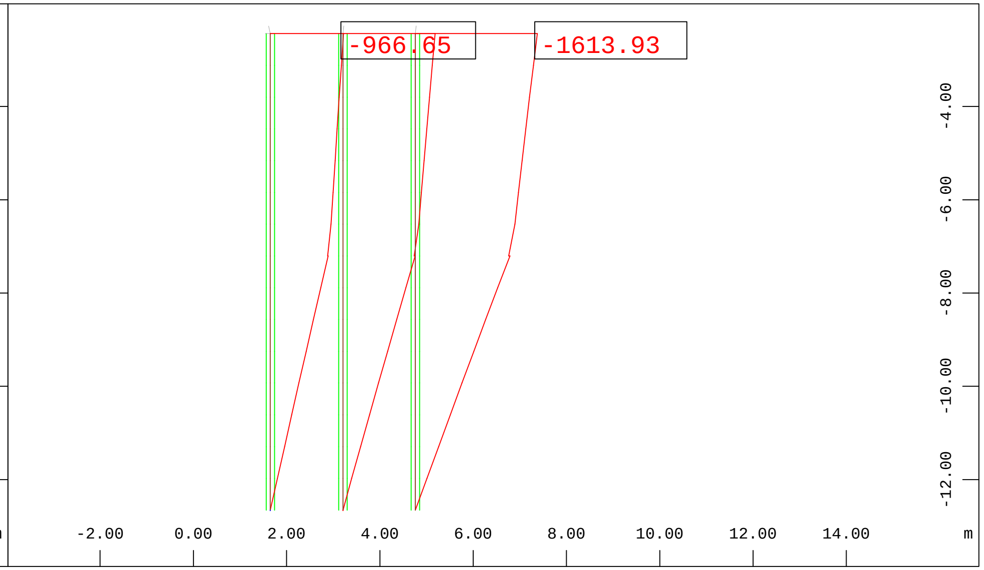
Beam Elements , Shear force Vy, Loadcase 2124 MIN-VY BEAM

Forces in Beam Eleme , 1 cm 3D = 200.0 kN (Min=-353.4)



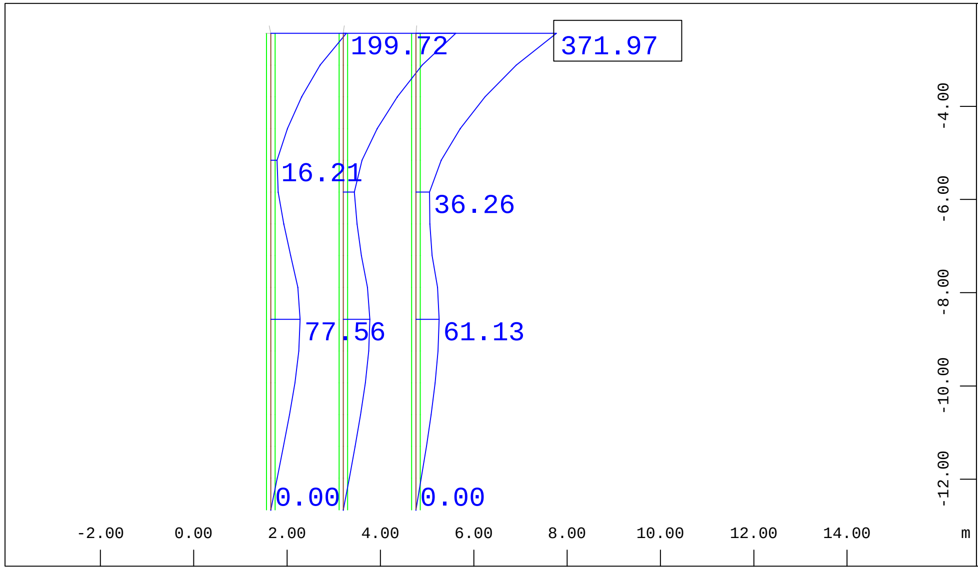
Z ↓—X

Sector of system Group 51 M 1 : 162
Beam Elements , Normal force Nx, Loadcase 2121 MAX-N BEAM
Forces in Beam Elemen , 1 cm 3D = 100.0 kN (Min=-178.0)



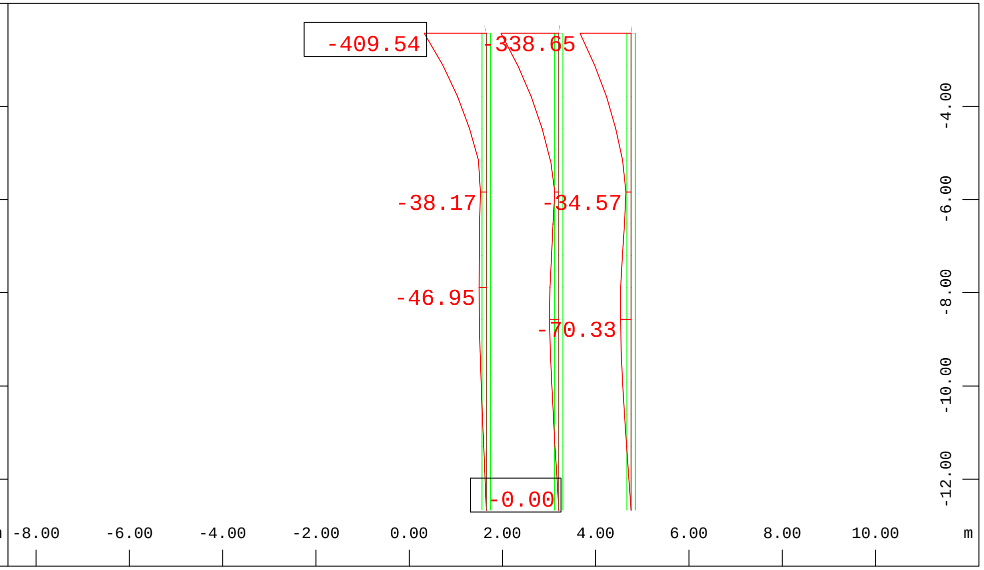
Z ↓—X

Sector of system Group 51 M 1 : 162
Beam Elements , Normal force Nx, Loadcase 2122 MIN-N BEAM
Forces in Beam Elemen , 1 cm 3D = 1000. kN (Min=-1614.)



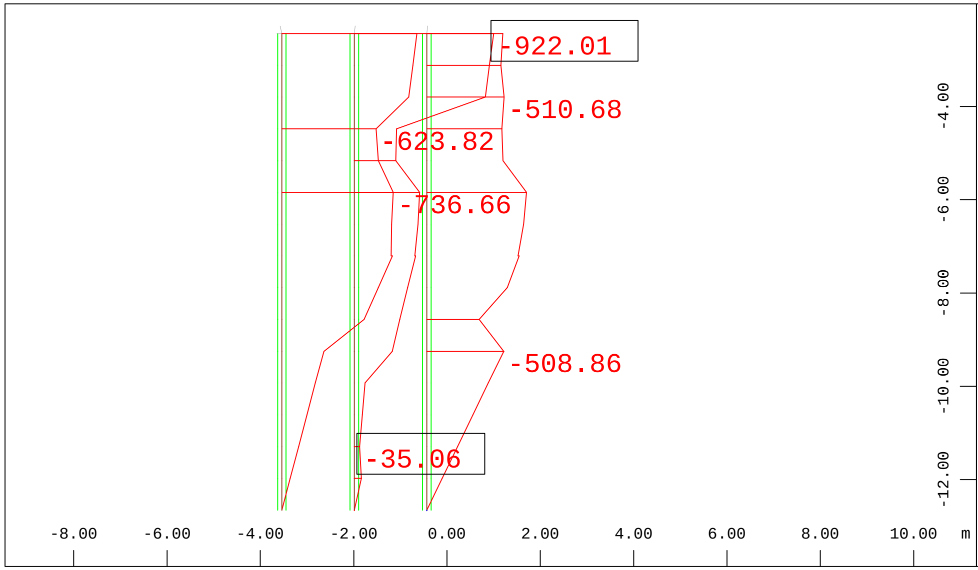
Z ↓—X

Sector of system Group 51 M 1 : 162
Beam Elements , Shear force Vy, Loadcase 2123 MAX-VY BEAM
Forces in Beam Eleme , 1 cm 3D = 200.0 kN (Max=372.0)

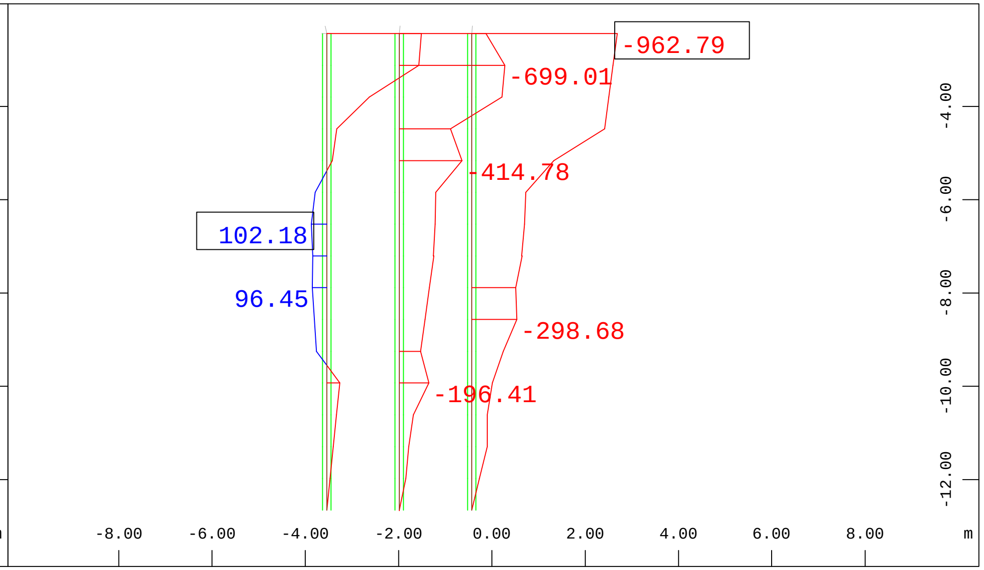


Z ↓—X

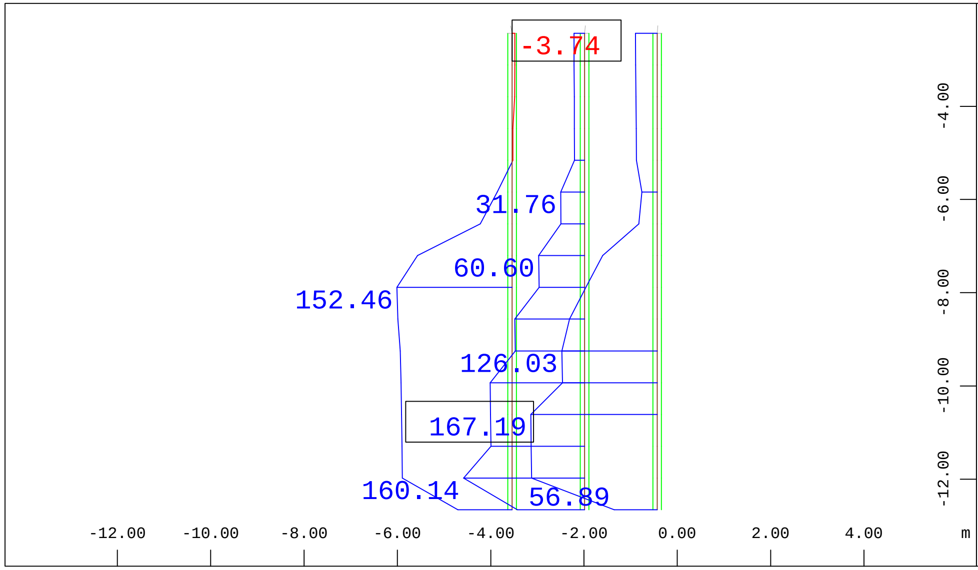
Sector of system Group 51 M 1 : 162
Beam Elements , Shear force Vy, Loadcase 2124 MIN-VY BEAM
Forces in Beam Eleme , 1 cm 3D = 500.0 kN (Min=-409.5)



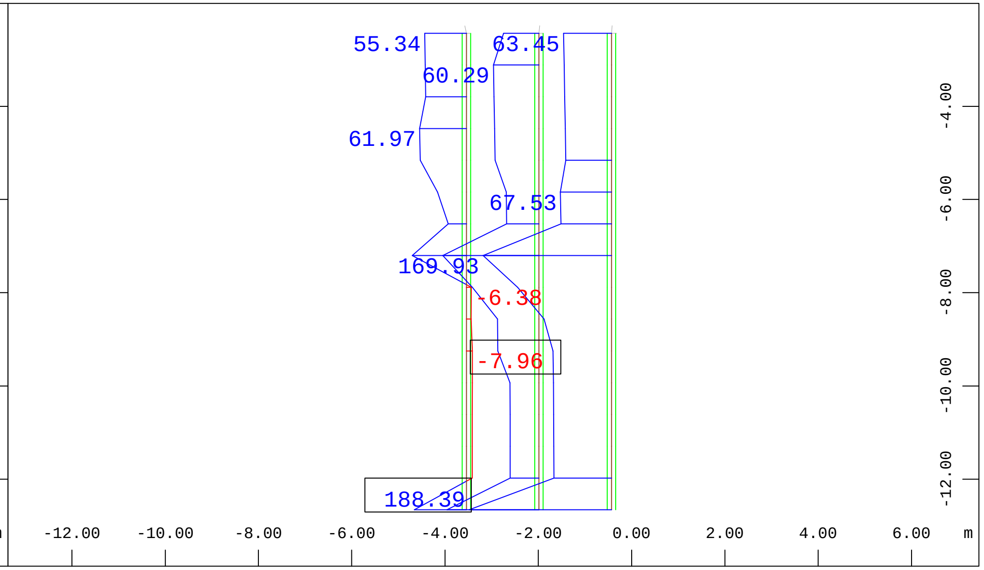
Z X
Sector of system Group 50 M 1 : 162
Beam Elements , Normal force Nx, Loadcase 2129 MAX-MY BEAM
Forces in Beam Eleme , 1 cm 3D = 500.0 kN (Min=-922.0) (Max=



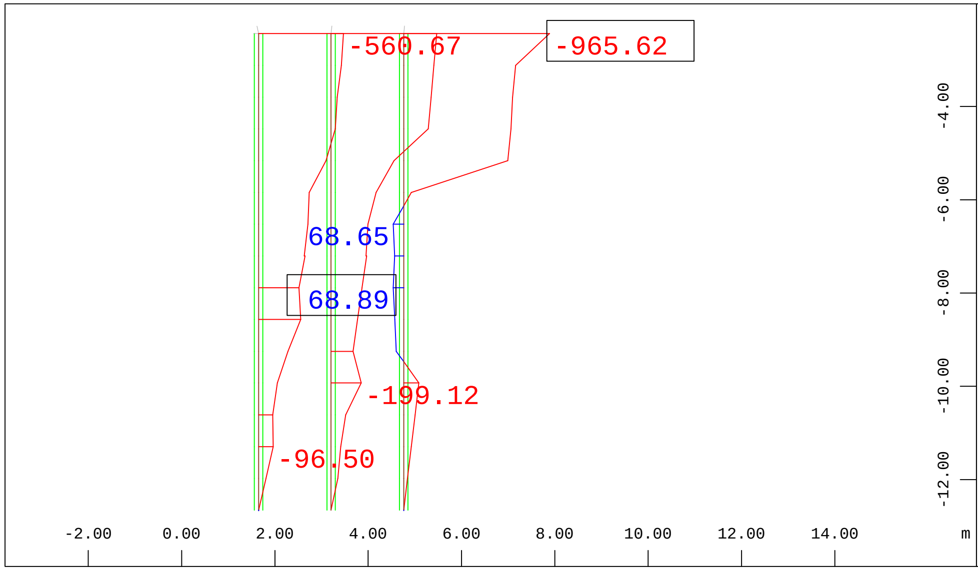
Z X
Sector of system Group 50 M 1 : 162
Beam Elements , Normal force Nx, Loadcase 2130 MIN-MY BEAM
Forces in Beam Eleme , 1 cm 3D = 500.0 kN (Min=-962.8)



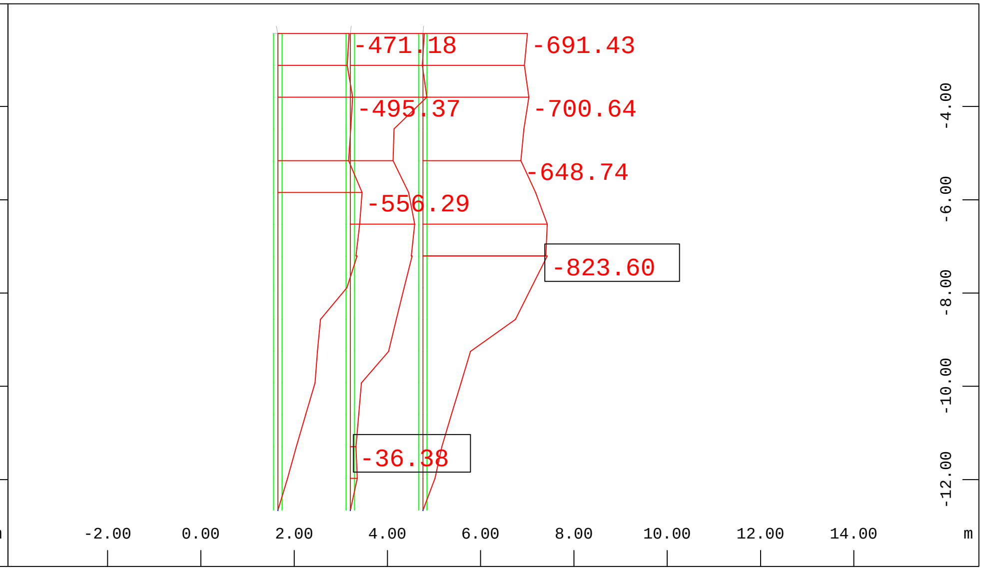
Z X
Sector of system Group 50 M 1 : 162
Pile axial bedding force, Loadcase 2123 MAX-VY BEAM Forces in
Beam Eleme , 1 cm 3D = 100.0 kN/m (Min=-3.74) (Max=167.2)



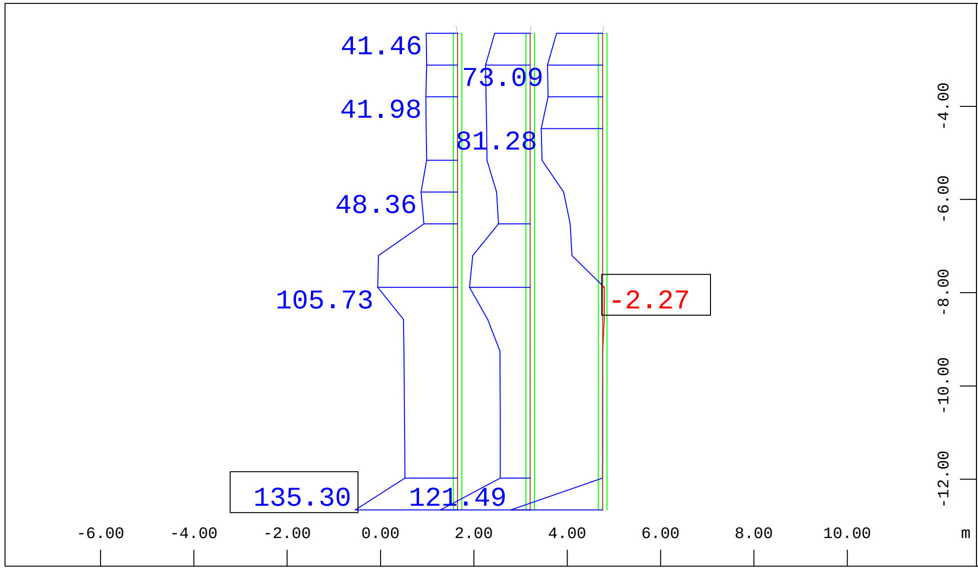
Z X
Sector of system Group 50 M 1 : 162
Pile axial bedding force, Loadcase 2124 MIN-VY BEAM Forces in
Beam Eleme , 1 cm 3D = 100.0 kN/m (Min=-7.96) (Max=188.4)



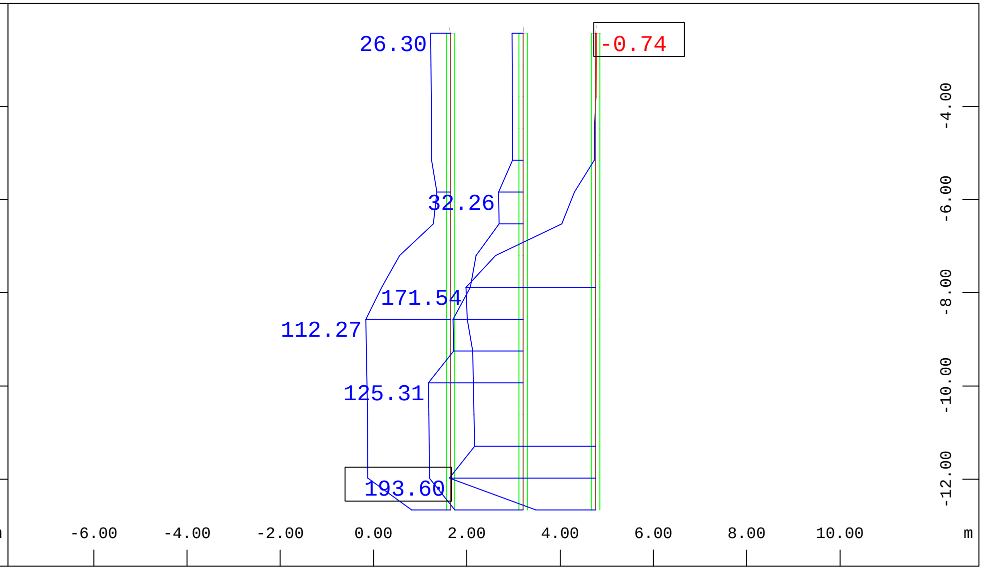
Z X Sector of system Group 51 M 1 : 162
Beam Elements , Normal force Nx, Loadcase 2129 MAX-MY BEAM
Forces in Beam Eleme , 1 cm 3D = 500.0 kN (Min=-965.6)



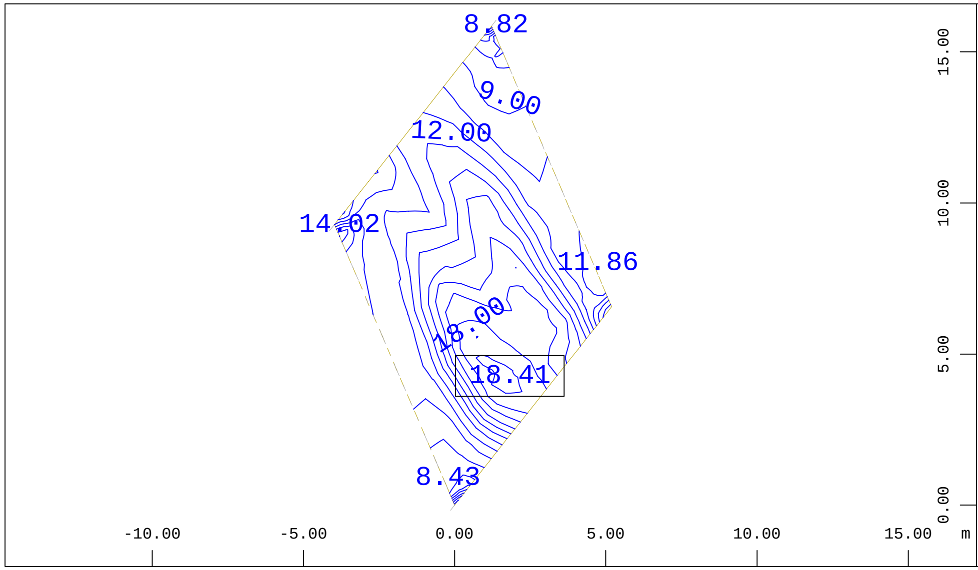
Z X Sector of system Group 51 M 1 : 162
Beam Elements , Normal force Nx, Loadcase 2130 MIN-MY BEAM
Forces in Beam Eleme , 1 cm 3D = 500.0 kN (Min=-823.6) (Max=



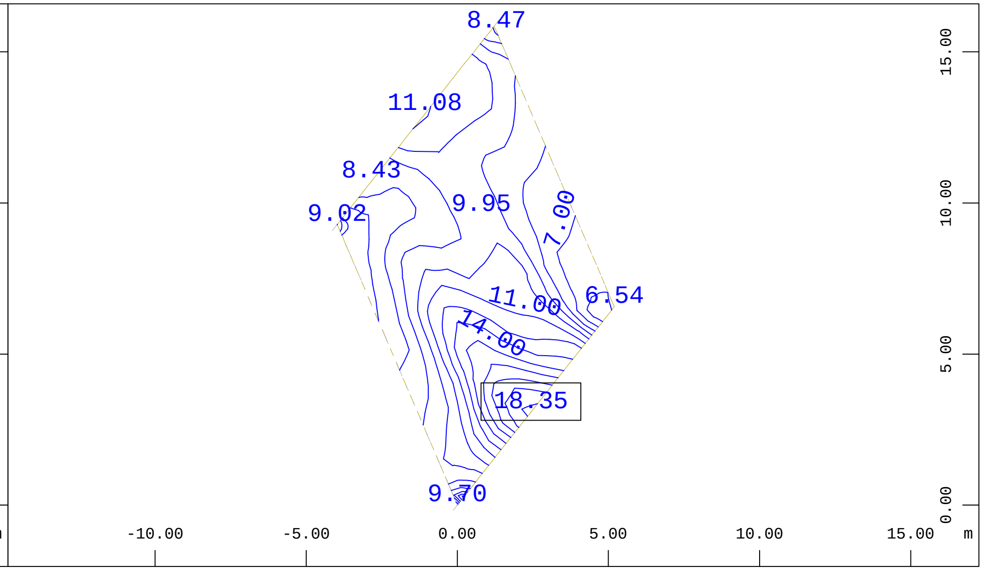
Z X Sector of system Group 51 M 1 : 162
Pile axial bedding force, Loadcase 2123 MAX-VY BEAM Forces in
Beam Eleme , 1 cm 3D = 100.0 kN/m (Min=-2.27) (Max=135.3)



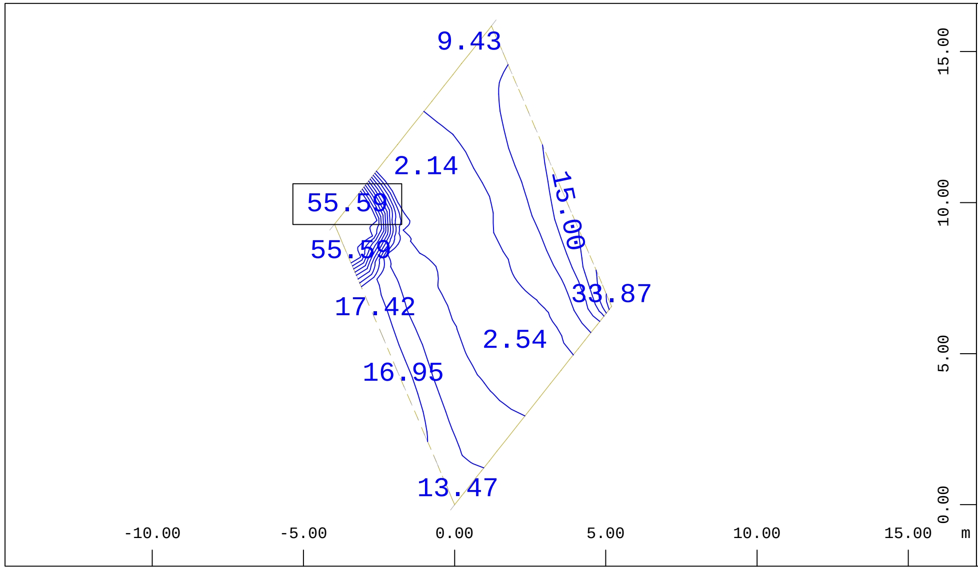
Z X Sector of system Group 51 M 1 : 162
Pile axial bedding force, Loadcase 2124 MIN-VY BEAM Forces in
Beam Eleme , 1 cm 3D = 100.0 kN/m (Min=-0.744) (Max=193.6)



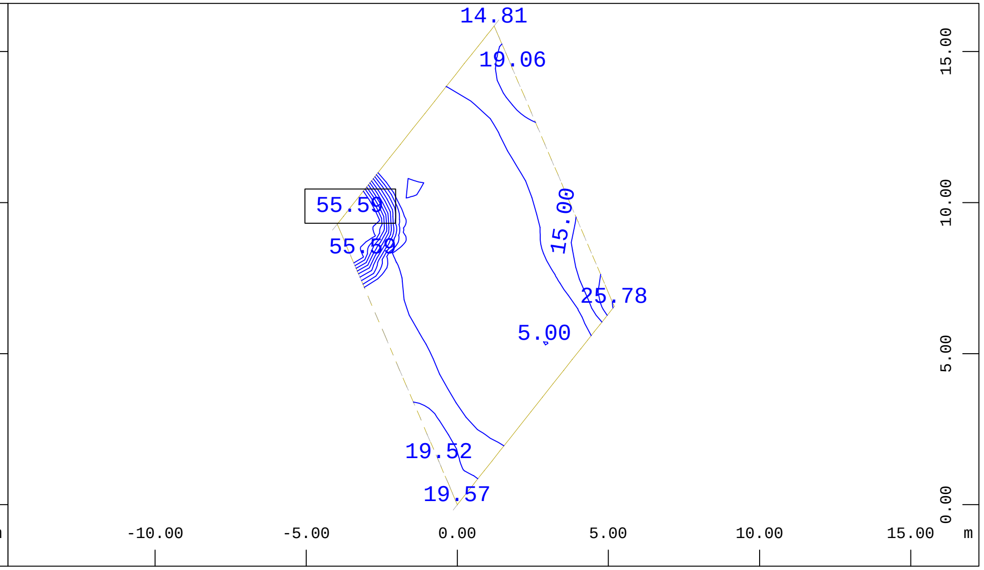
Sector of system Group 30 M 1 : 250
Quadrilateral Elements , lower Principal reinforcements (1st layer), Design Case 1 , from 2.44 to 18.4 step 1.00 cm2/m



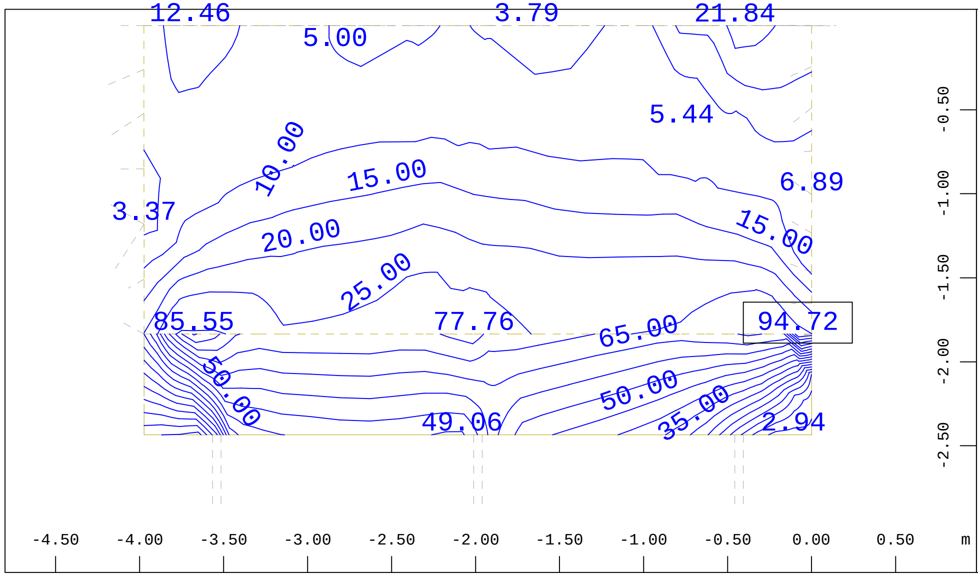
Sector of system Group 30 M 1 : 250
Quadrilateral Elements , lower Cross reinforcements (2nd layer), Design Case 1 , from 4.49 to 18.3 step 1.00 cm2/m



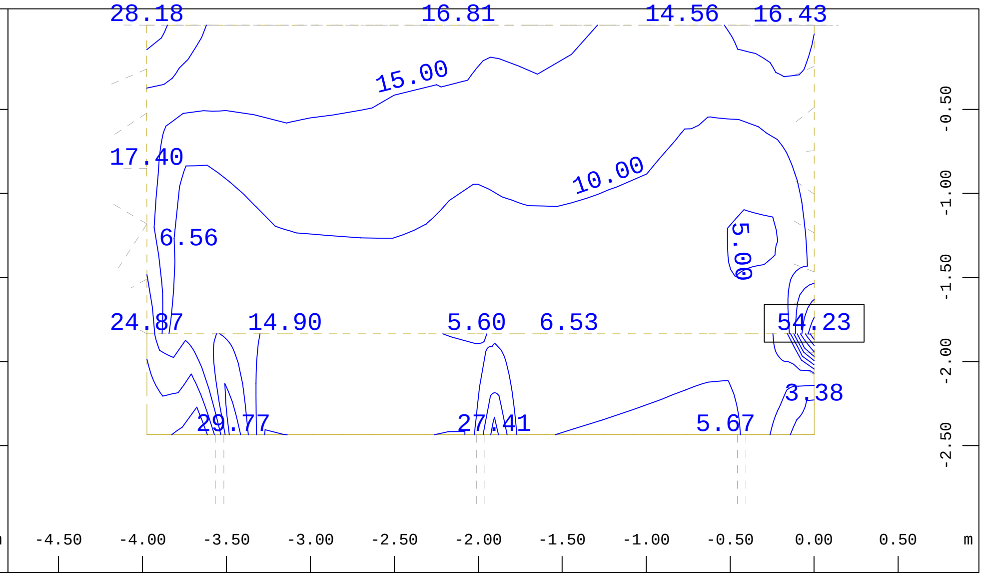
Sector of system Group 30 M 1 : 250
Quadrilateral Elements , upper Principal reinforcements (1st layer), Design Case 1 , from 2.14 to 55.6 step 5.00 cm2/m



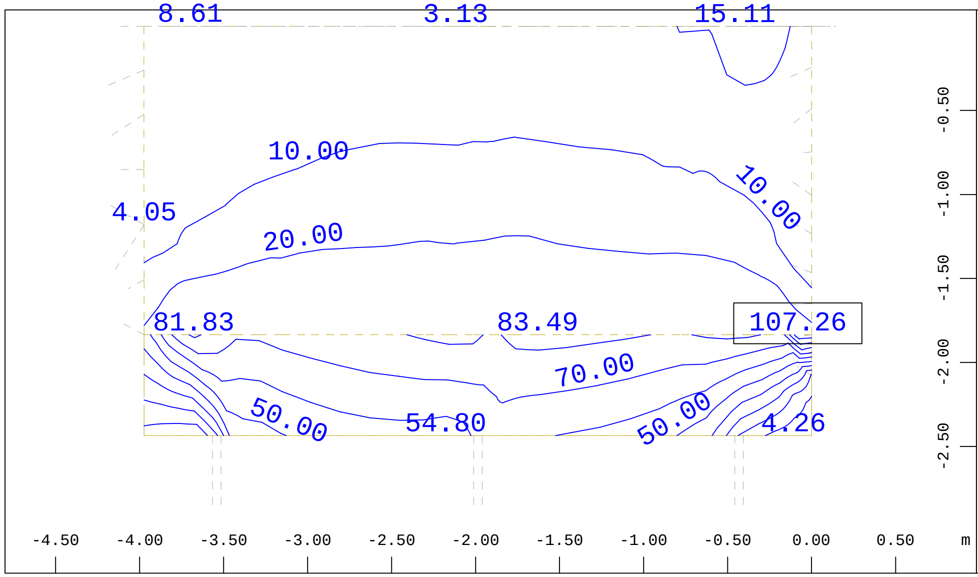
Sector of system Group 30 M 1 : 250
Quadrilateral Elements , upper Cross reinforcements (2nd layer), Design Case 1 , from 4.77 to 55.6 step 5.00 cm2/m



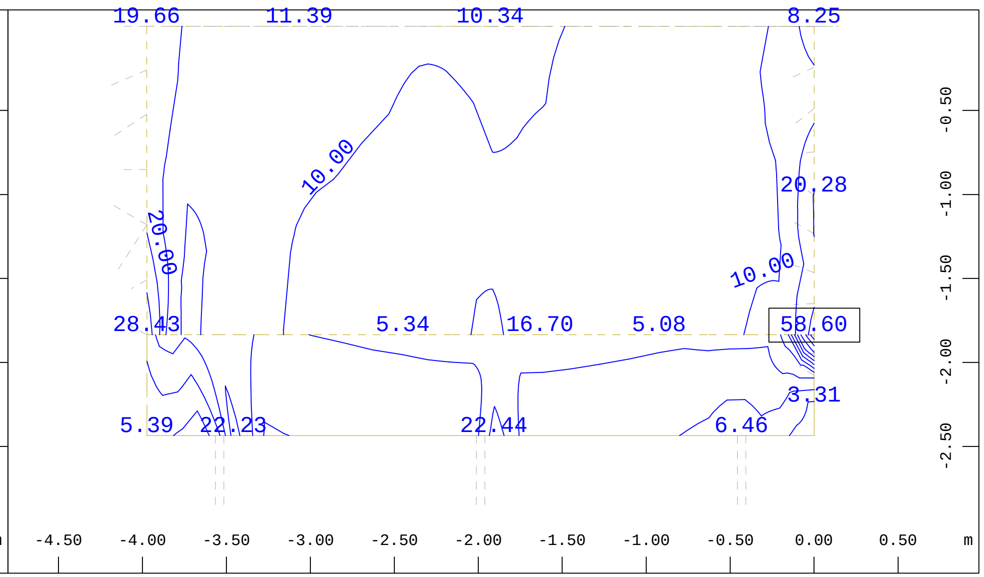
Z X Sector of system Quadrilateral Elements Group 1 10 M 1 : 45
Quadrilateral Elements , lower Principal reinforcements (1st layer), Design Case 1 , from 2.80 to 94.7 step 5.00 cm2/m



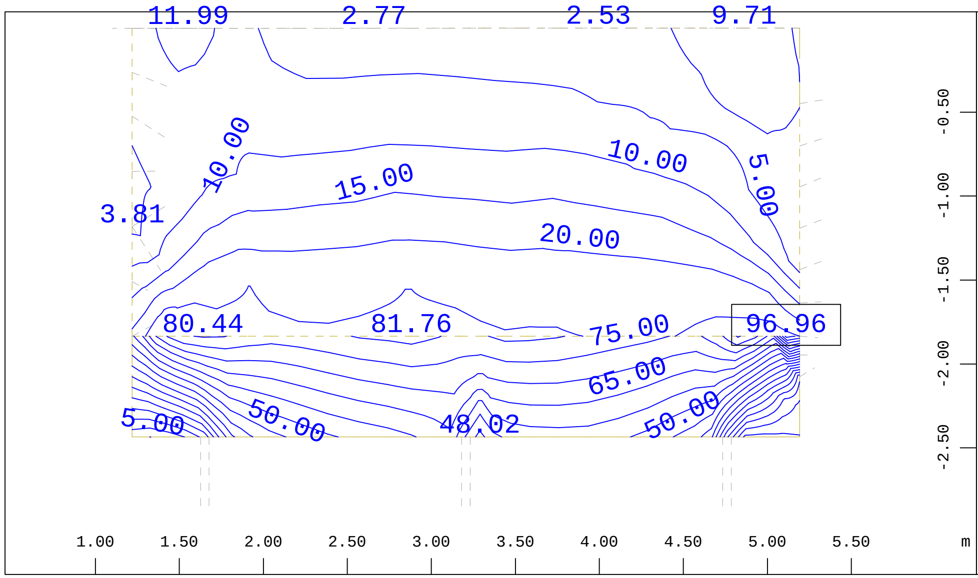
Z X Sector of system Quadrilateral Elements Group 1 10 M 1 : 45
Quadrilateral Elements , lower Cross reinforcements (2nd layer), Design Case 1 , from 0.806 to 54.2 step 5.00 cm2/m



Z X Sector of system Quadrilateral Elements Group 1 10 M 1 : 45
Quadrilateral Elements , upper Principal reinforcements (1st layer), Design Case 1 , from 1.46 to 107.3 step 10.0 cm2/m

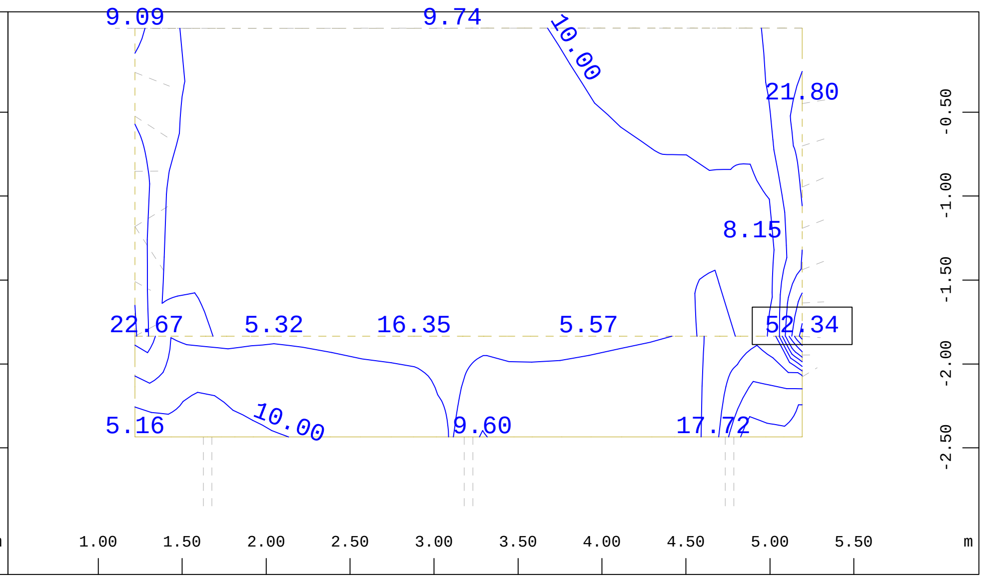


Z X Sector of system Quadrilateral Elements Group 1 10 M 1 : 45
Quadrilateral Elements , upper Cross reinforcements (2nd layer), Design Case 1 , from 1.57 to 58.6 step 5.00 cm2/m



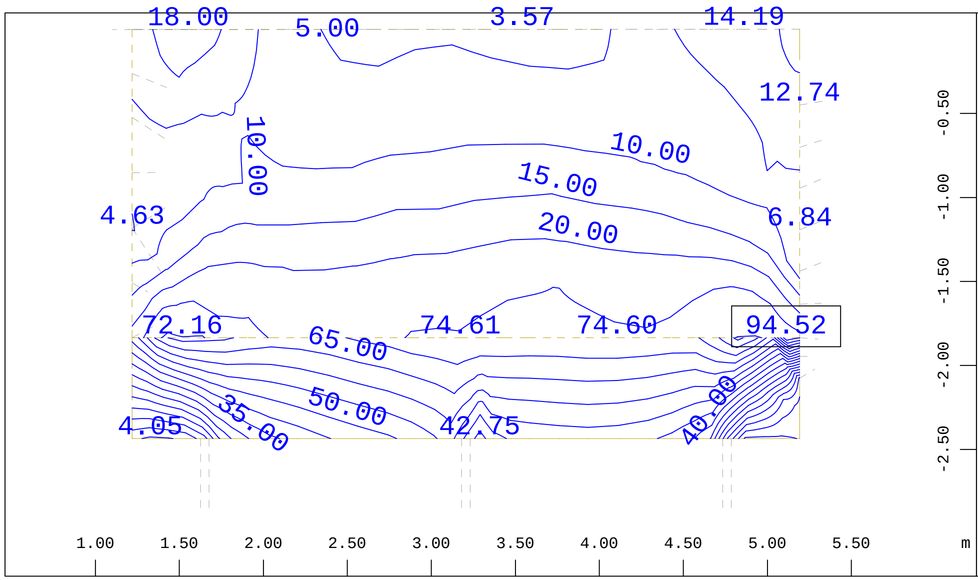
Z
X

Sector of system Group 2 M 1 : 45
Quadrilateral Elements , lower Principal reinforcements (1st layer), Design Case 1 , from 2.53 to 97.0 step 5.00 cm2/m



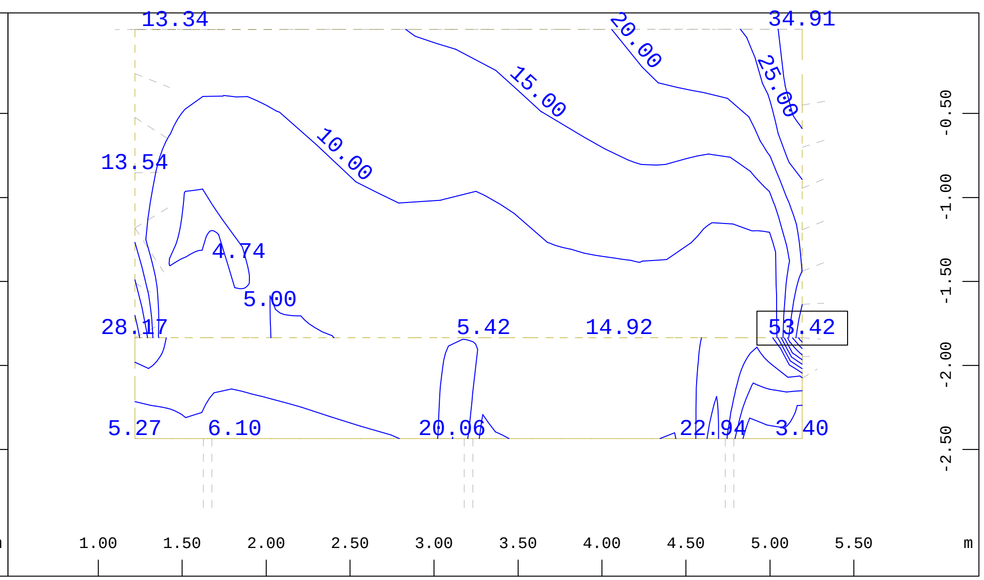
Z
X

Sector of system Group 2 M 1 : 45
Quadrilateral Elements , lower Cross reinforcements (2nd layer), Design Case 1 , from 2.09 to 52.3 step 5.00 cm2/m



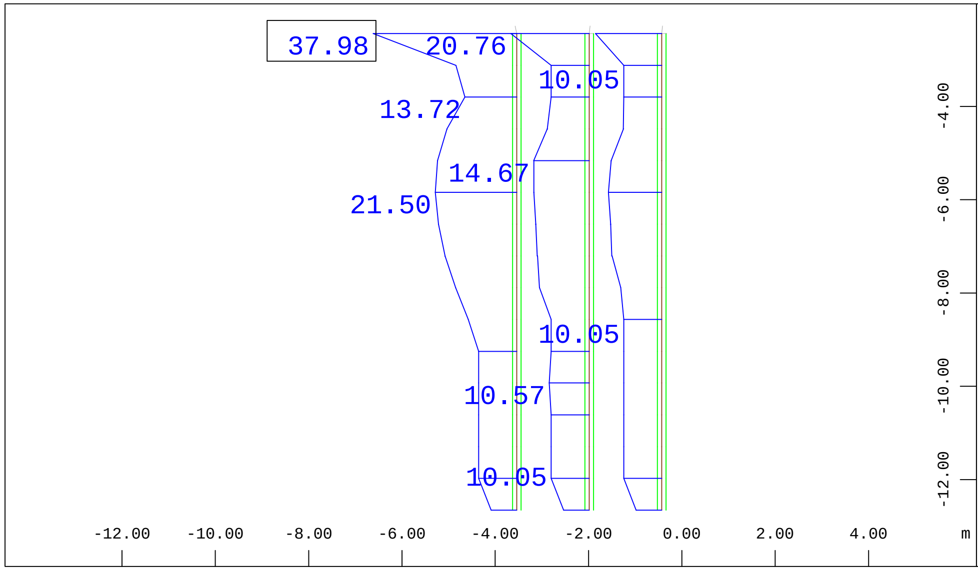
Z
X

Sector of system Group 2 M 1 : 45
Quadrilateral Elements , upper Principal reinforcements (1st layer), Design Case 1 , from 3.57 to 94.5 step 5.00 cm2/m



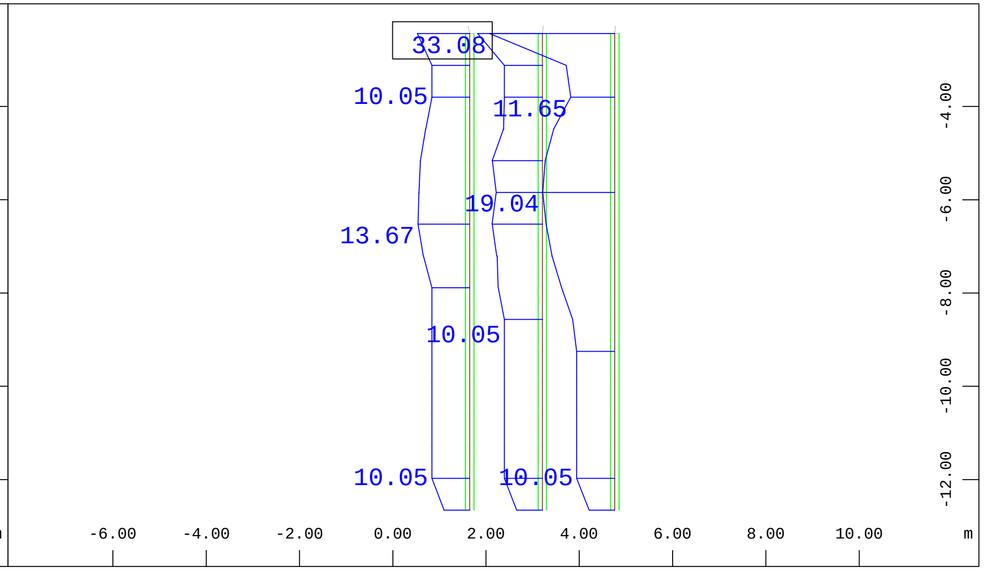
Z
X

Sector of system Group 2 M 1 : 45
Quadrilateral Elements , upper Cross reinforcements (2nd layer), Design Case 1 , from 2.03 to 53.4 step 5.00 cm2/m



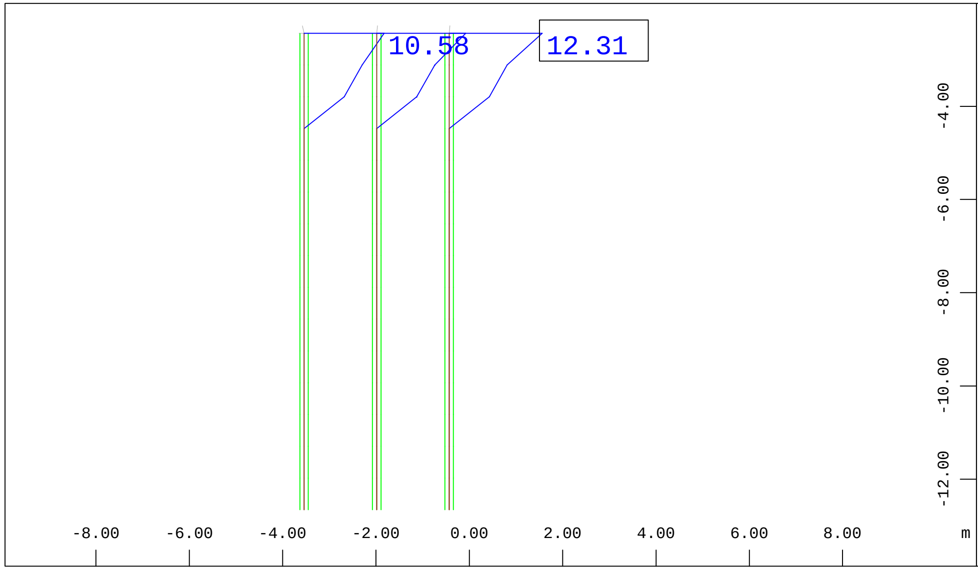
Z
↓—X

Sector of system Group 50 M 1 : 162
Beam Elements , Longitudinal reinforcements (total), Design
Case 1 , 1 cm 3D = 20.0 cm2 (Max=38.0)



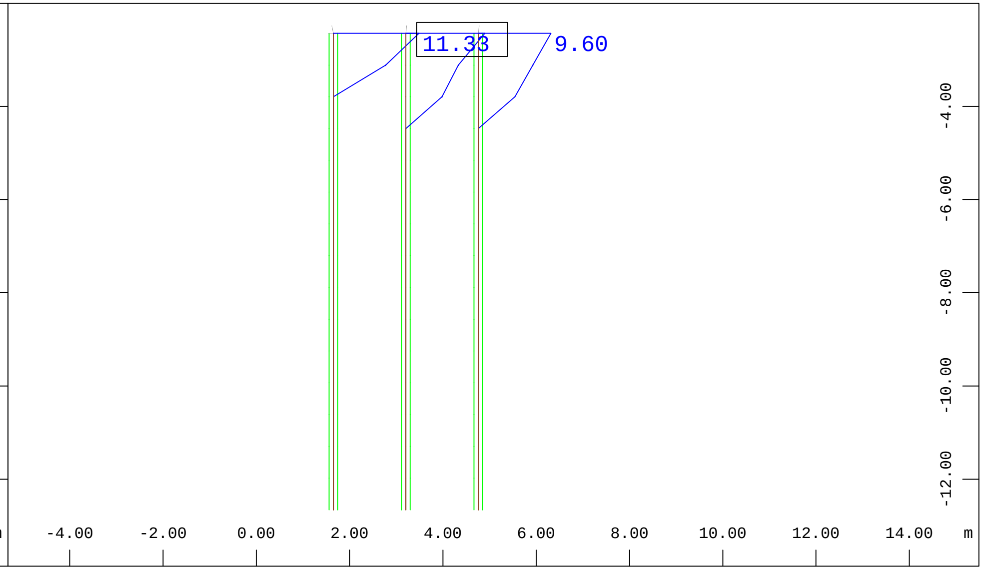
Z
↓—X

Sector of system Group 51 M 1 : 162
Beam Elements , Longitudinal reinforcements (total), Design
Case 1 , 1 cm 3D = 20.0 cm2 (Max=33.1)



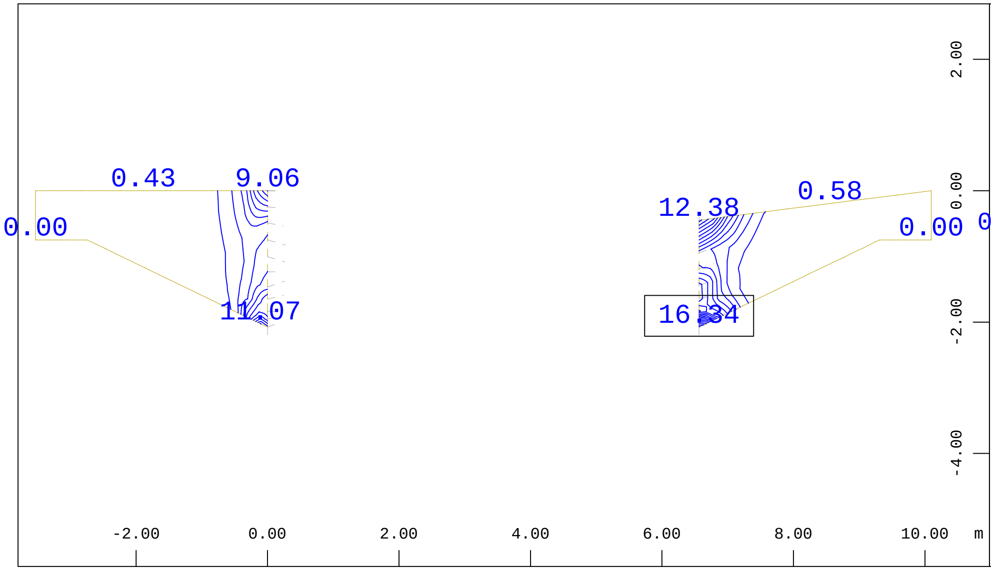
Z
↓—X

Sector of system Group 50 M 1 : 162
Shear reinforcements (maximum), Design Case 1 , (1 cm 3D =
unit) Beam Elements (Unit=10.0 cm2/m) (Max=12.3)



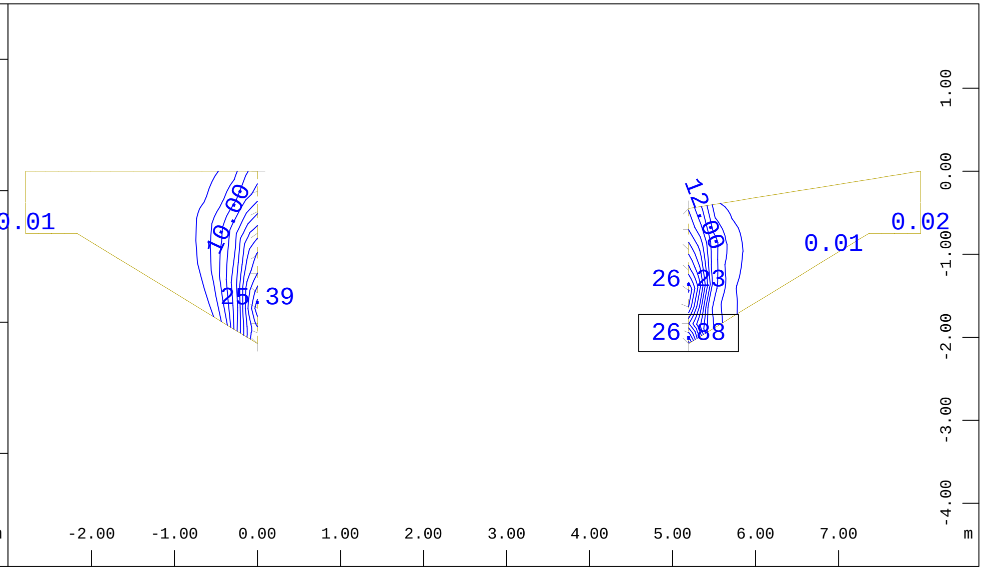
Z
↓—X

Sector of system Group 51 M 1 : 162
Shear reinforcements (maximum), Design Case 1 , (1 cm 3D =
unit) Beam Elements (Unit=10.0 cm2/m) (Max=11.3)



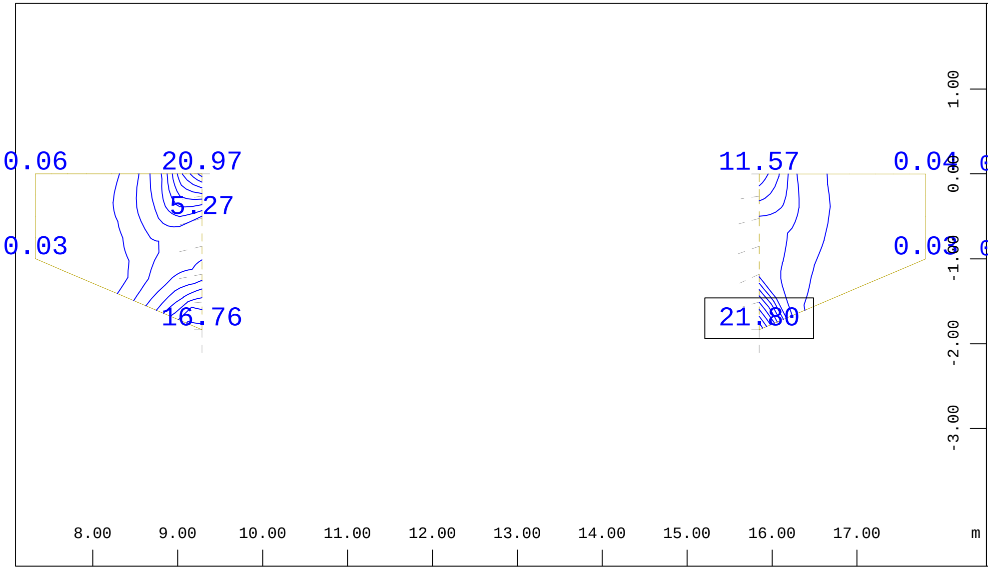
Z
X—Y

Sector of system Quadrilateral Elements Group 12 22 M 1 : 115
Quadrilateral Elements , upper Principal reinforcements (1st layer) <->, Design Case 1 , from 0 to 16.3 step 1.00 cm2/m



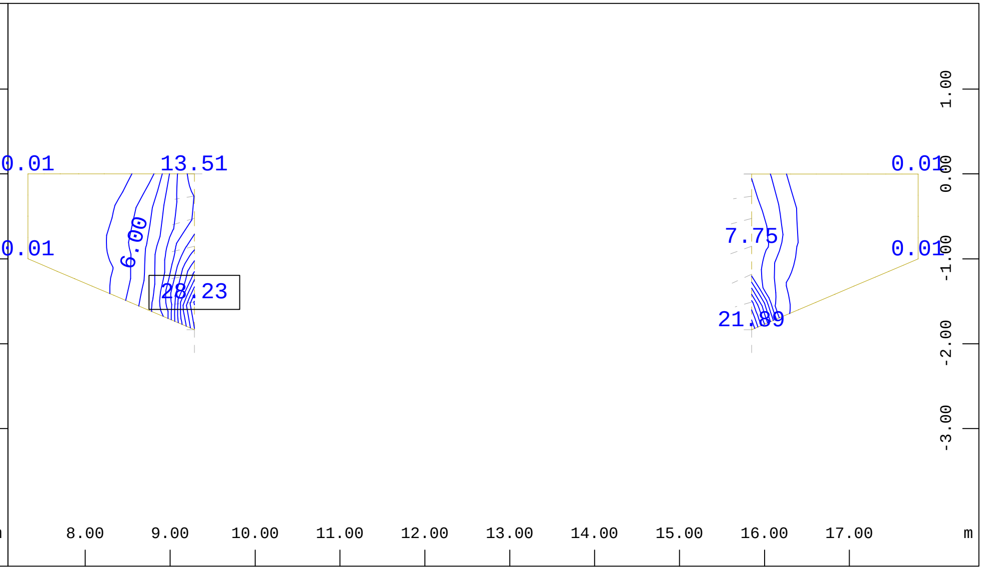
Z
Y—X

Sector of system Quadrilateral Elements Group 12 22 M 1 : 91
Quadrilateral Elements , upper Cross reinforcements (2nd layer), Design Case 1 , from 0 to 26.9 step 2.00 cm2/m



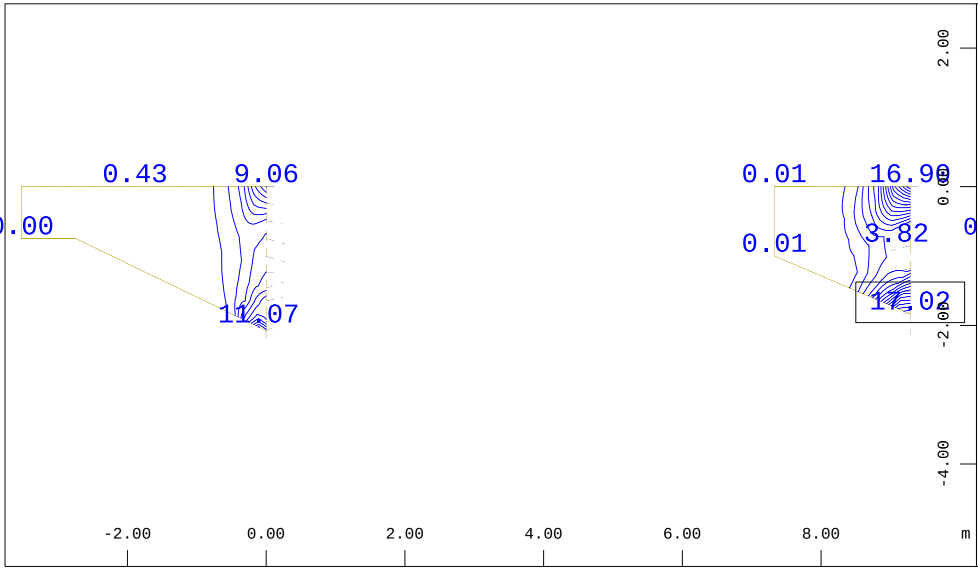
Z
X—Y

Sector of system Quadrilateral Elements Group 11 21 M 1 : 89
Quadrilateral Elements , lower Principal reinforcements (1st layer) <->, Design Case 1 , from 0.0272 to 21.8 step 2.00 cm2/m



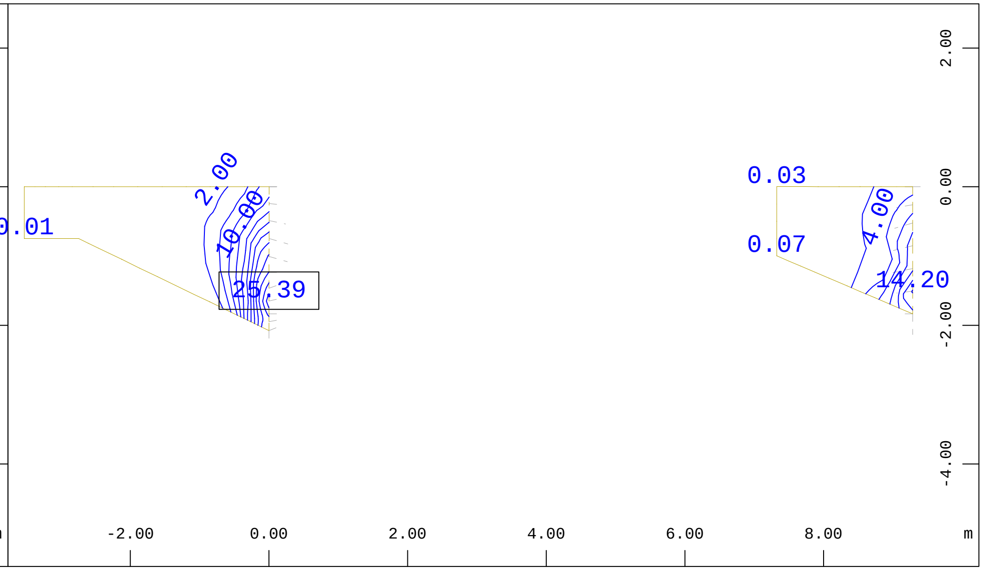
Z
X—Y

Sector of system Quadrilateral Elements Group 11 21 M 1 : 89
Quadrilateral Elements , lower Cross reinforcements (2nd layer), Design Case 1 , from 0.0060 to 28.2 step 2.00 cm2/m



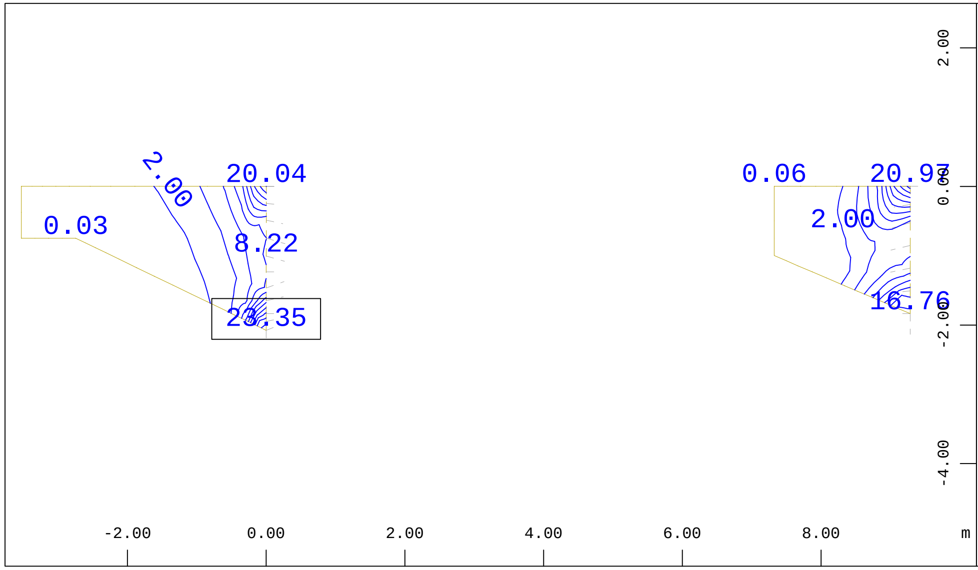
Z X—Y

Sector of system Quadrilateral Elements Group 11 12 M 1 : 109
Quadrilateral Elements , upper Principal reinforcements (1st layer), Design Case 1 , from 0 to 17.0 step 1.00 cm2/m



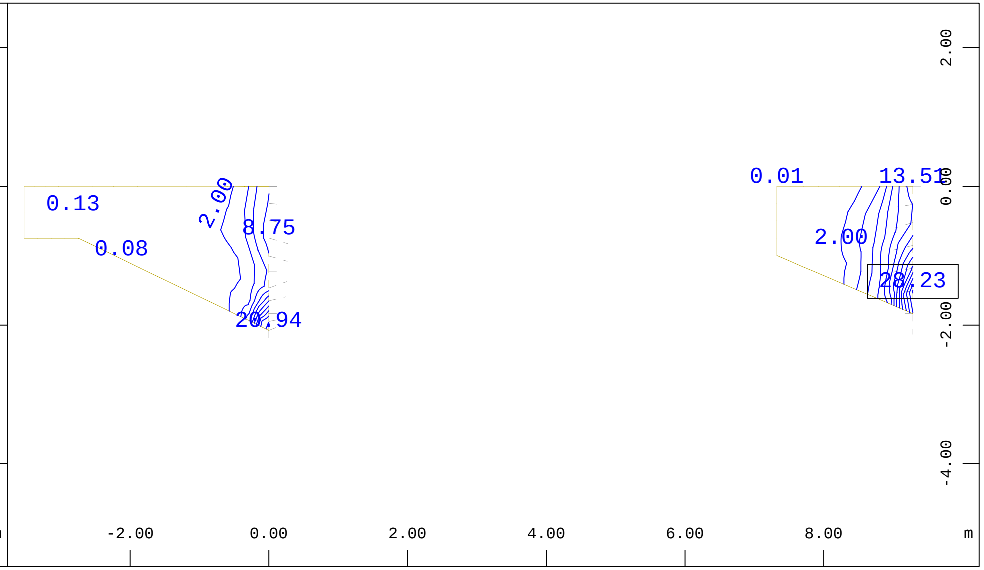
Z X—Y

Sector of system Quadrilateral Elements Group 11 12 M 1 : 109
Quadrilateral Elements , upper Cross reinforcements (2nd layer), Design Case 1 , from 0 to 25.4 step 2.00 cm2/m



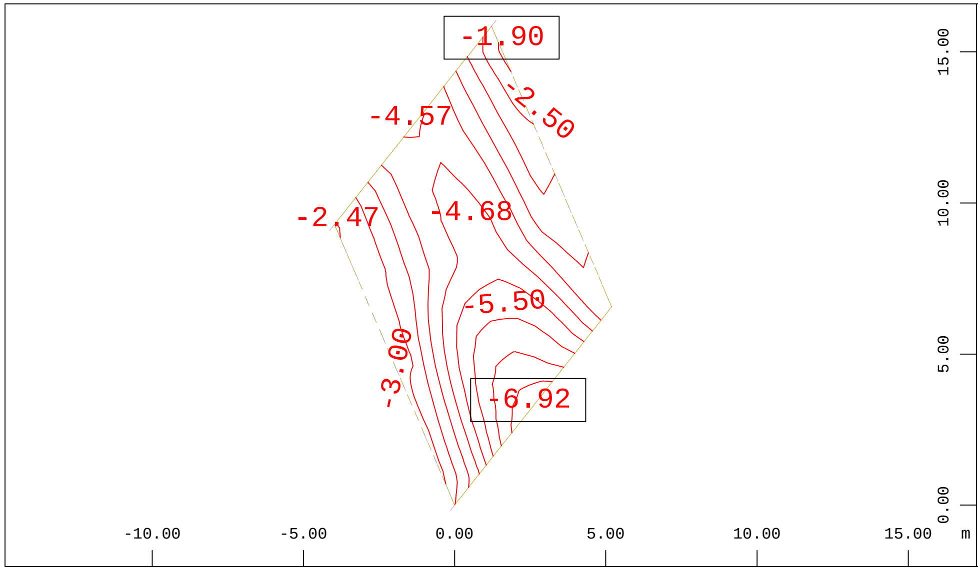
Z X—Y

Sector of system Quadrilateral Elements Group 11 12 M 1 : 109
Quadrilateral Elements , lower Principal reinforcements (1st layer), Design Case 1 , from 0.0184 to 23.3 step 2.00 cm2/m



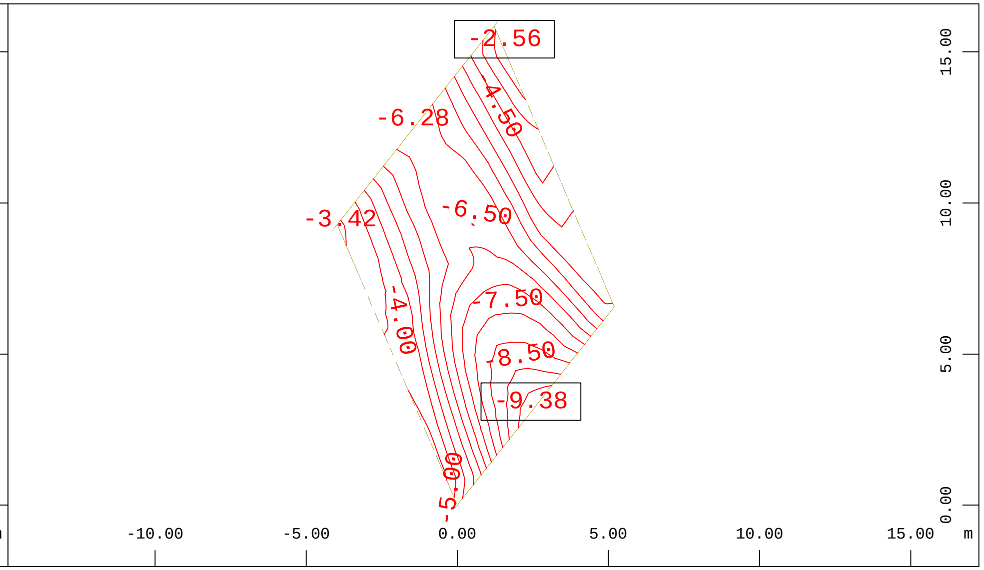
Z X—Y

Sector of system Quadrilateral Elements Group 11 12 M 1 : 109
Quadrilateral Elements , lower Cross reinforcements (2nd layer), Design Case 1 , from 0.0114 to 28.2 step 2.00 cm2/m



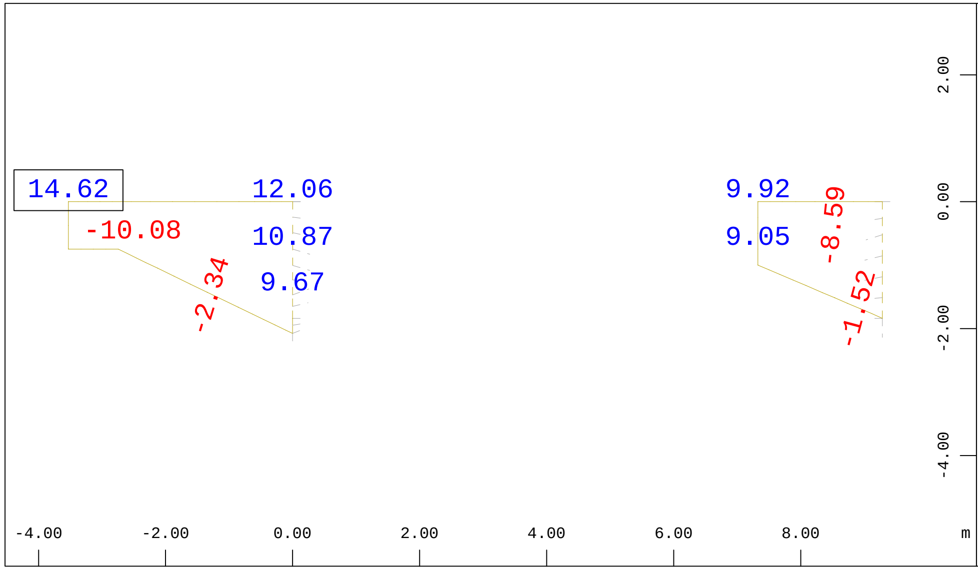
Y
Z—X

Sector of system Group 30 M 1 : 250
Nodal displacement in global Z in Node ⬡, Loadcase 1176
MINR-UZ NODE Nodal Displacements , from -6.92 to -1.90 step



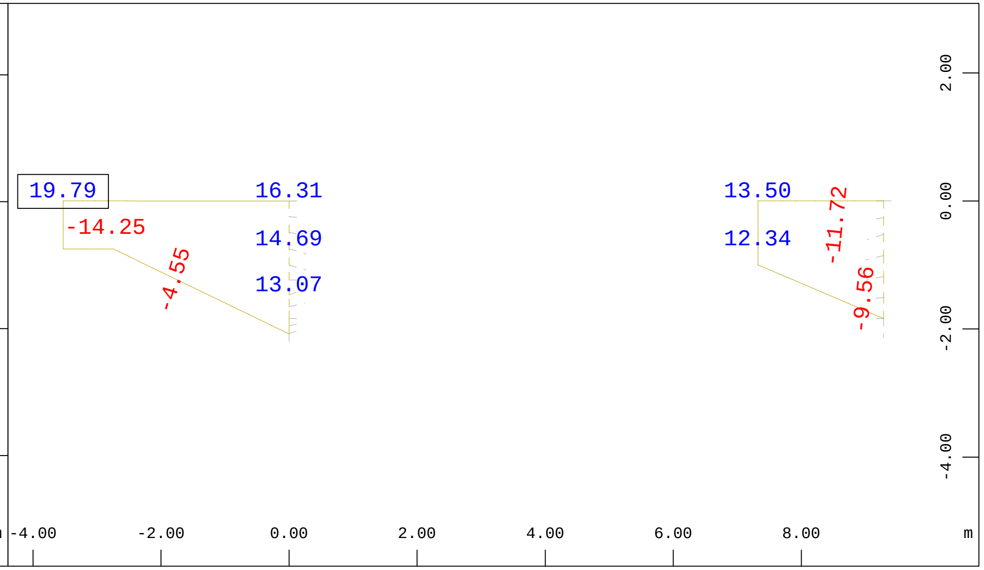
Y
Z—X

Sector of system Group 30 M 1 : 250
Nodal displacement in global Z in Node ⬡, Loadcase 2176 MIN-UZ
NODE Nodal Displacements , from -9.38 to -2.56 step 0.500 mm



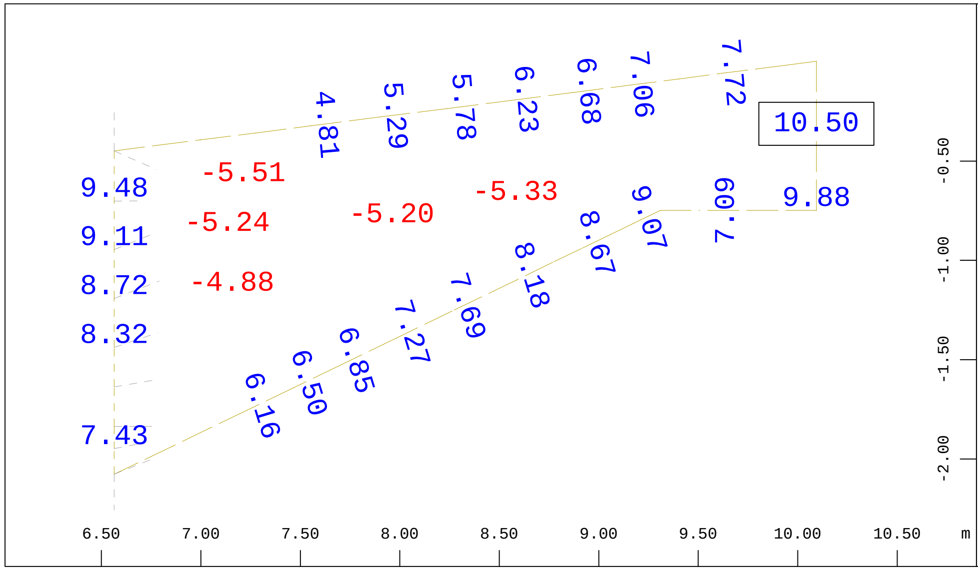
Z
X—Y

Sector of system Quadrilateral Elements Group 11 12 M 1 : 119
Nodal displacement in local z in mm, Loadcase 1171 MAXR-UX
NODE Nodal Displacements (Min=-11.2) (Max=14.6)

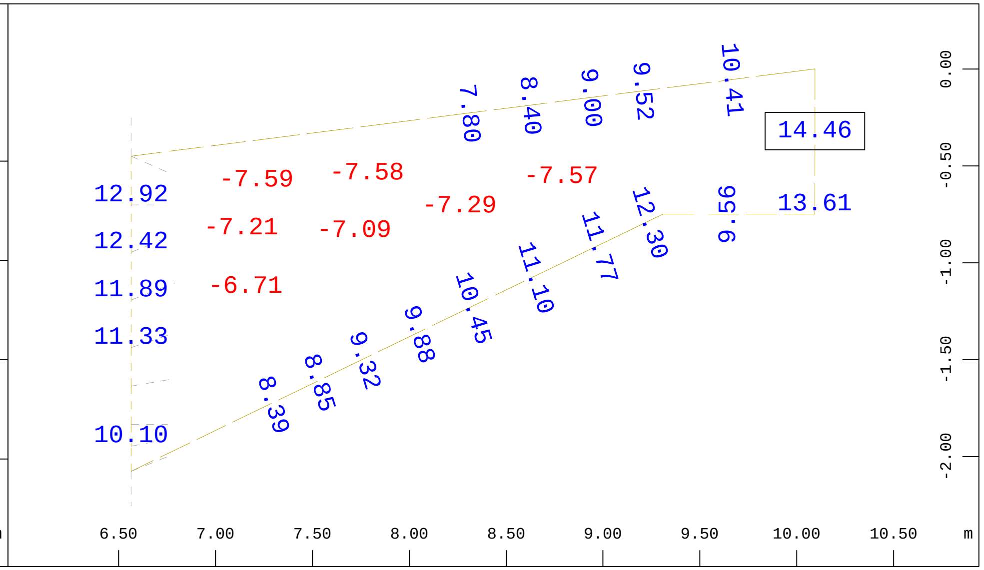


Z
X—Y

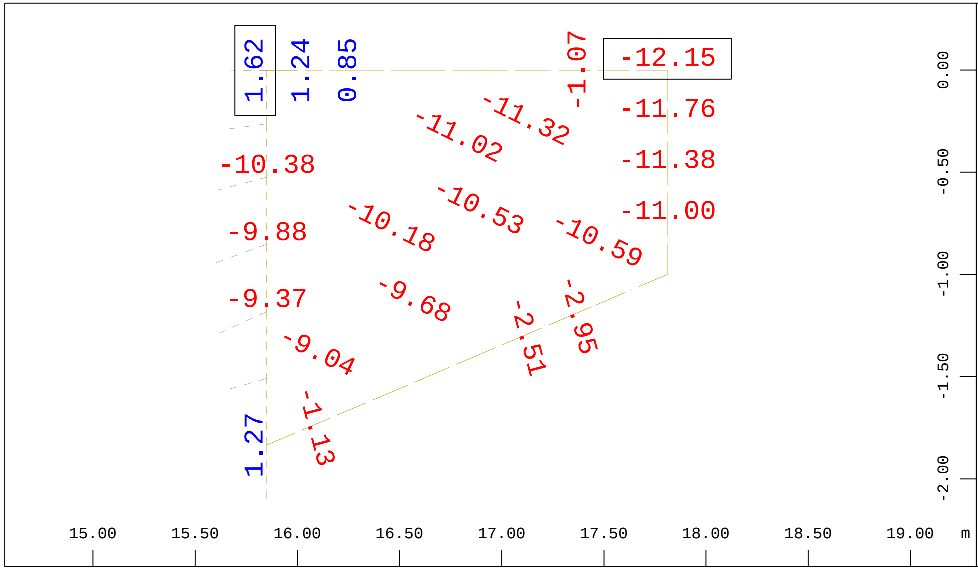
Sector of system Quadrilateral Elements Group 11 12 M 1 : 118
Nodal displacement in local z in mm, Loadcase 2171 MAX-UX NODE
Nodal Displacements (Min=-15.2) (Max=19.8)



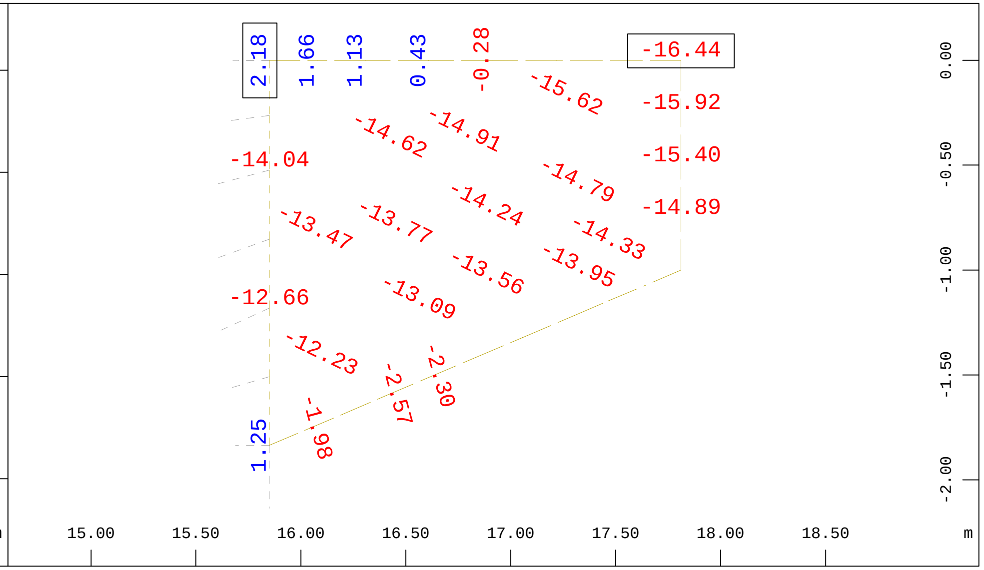
Z
Y
Sector of system Group 22 M 1 : 38
Nodal displacement in local z in mm, Loadcase 1171 MAXR-UX NODE
Nodal Displacements (Min=-5.81) (Max=10.5)



Z
Y
Sector of system Group 22 M 1 : 39
Nodal displacement in local z in mm, Loadcase 2171 MAX-UX NODE
Nodal Displacements (Min=-8.05) (Max=14.5)



Z
Y
Sector of system Group 21 M 1 : 37
Nodal displacement in local z in mm, Loadcase 1172 MINR-UX NODE
Nodal Displacements (Min=-12.1) (Max=1.62)



Z
Y
Sector of system Group 21 M 1 : 36
Nodal displacement in local z in mm, Loadcase 2172 MIN-UX NODE
Nodal Displacements (Min=-16.4) (Max=2.18)