Project:	**Amsterdam Industrial - Continuous composite bridge**
Project no:	**20231090**
Author:	**Dave the Engineer**

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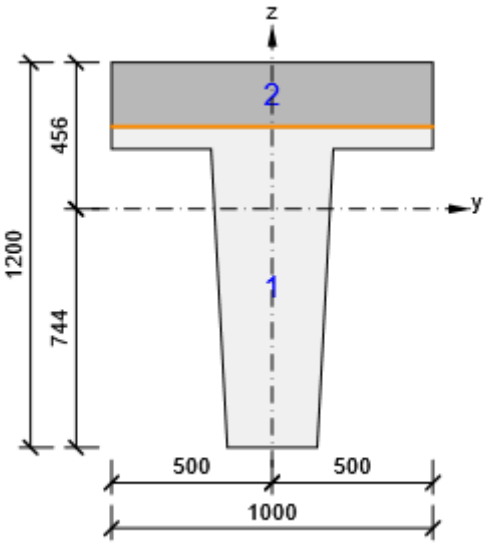
1 Project Data

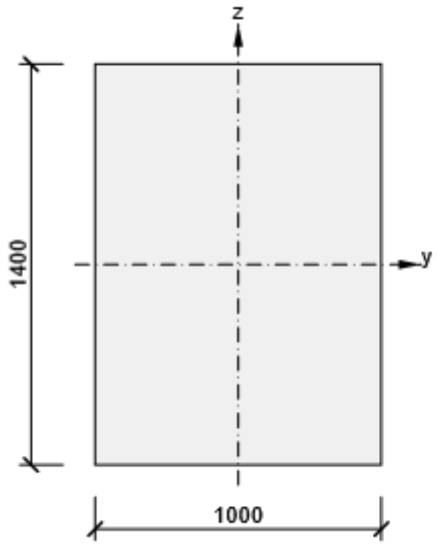
Title of the project	Amsterdam Industrial - Continuous composite bridge
Identification of project	20231090
Author	Dave the Engineer
Description	Continuous composite bridge
Date	03.10.2023
Design code	EN
Type of beam	Pre-fabricated composite pre-tensioned concrete beam
Bridge	Road bridge

2 Cross-Sections

1. General

Symbol	Value	Unit	
Material 1	C50/60		
Material 2	C30/37		
A	553072	[mm^2]	
S_y	0	[mm^3]	
S_z	0	[mm^3]	
I_y	68349356365	[mm^4]	
I_z	23363381298	[mm^4]	
C_{gy}	0	[mm]	
C_{gz}	0	[mm]	
i_y	352	[mm]	
i_z	206	[mm]	

2. Rectangle 1200,1000(Rectangle 1400, 1000)

Symbol	Value	Unit	
Material	C30/37		
A	1400000	[mm^2]	
S_y	0	[mm^3]	
S_z	0	[mm^3]	
I_y	228666666667	[mm^4]	
I_z	116666666667	[mm^4]	
C_{gy}	0	[mm]	
C_{gz}	0	[mm]	
i_y	404	[mm]	
i_z	289	[mm]	

3 Material

Concrete

Name	f_{ck} [MPa]	f_{cm} [MPa]	f_{ctm} [MPa]	E_{cm} [MPa]	v [-]	Unit mass [kg/m^3]
C50/60	50,0	58,0	4,1	37277,9	0,20	2500
	ε_{c2} = 20,0 1e-4, ε_{cu2} = 35,0 1e-4, ε_{c3} = 17,5 1e-4, ε_{cu3} = 35,0 1e-4, Exponent - n: 2,00, Aggregate size = 16 mm, Cement class: R (s = 0,20), Diagram type: Parabolic					
C30/37	30,0	38,0	2,9	32836,6	0,20	2500
	ε_{c2} = 20,0 1e-4, ε_{cu2} = 35,0 1e-4, ε_{c3} = 17,5 1e-4, ε_{cu3} = 35,0 1e-4, Exponent - n: 2,00, Aggregate size = 16 mm, Cement class: R (s = 0,20), Diagram type: Parabolic					

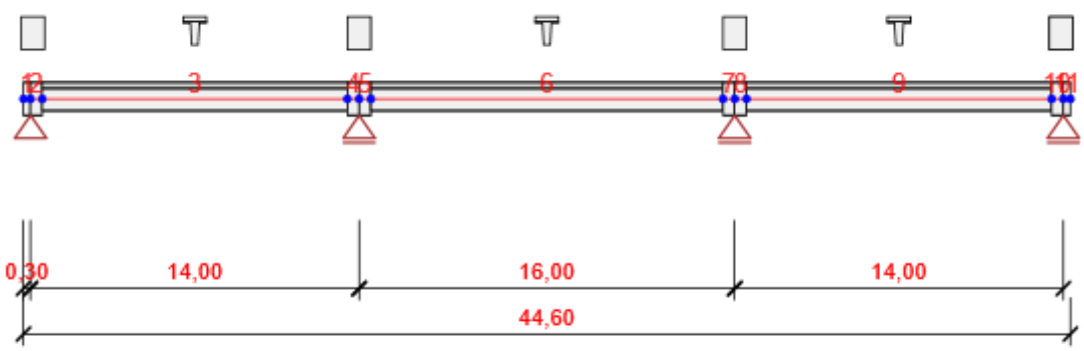
Reinforcement

Name	f_{yk} [MPa]	f_{tk} [MPa]	E [MPa]	v [-]	Unit mass [kg/m^3]
B 500B	500,0	525,0	200000,0	0,20	7850
	f_{tk}/f_{yk} = 1,08, ε_{uk} = 500,0 1e-4, Type: Bars, Bar surface: Ribbed, Class: B, Fabrication: Hot rolled, Diagram type: Bilinear with horizontal top branch				

Prestressing steel

Name	f_{pk} [MPa]	f_{p01k} [MPa]	E [MPa]	Unit mass [kg/m^3]
Y1860S7-12.5	1860,0	1640,0	195000,0	7850
	F_m = 173,0 kN, F_{p01} = 152,2 kN, F_r = 190,0 MPa, ρ_{1000} = 0,03, ρ_∞ = 0,06, Φ = 13 mm, Area = 93 mm2, ε_{uk} = 350,0 1e-4, A_{gt} = 350,0 1e-4, Type: Strand Surface characteristic: Plain, Relaxation class: Class2, Production: Low relaxation, Diagram type: Bilinear with an inclined top branch, Number of wires: 7			

4 Geometry



Structural scheme

Members

Member	Length [m]	End of Member [m]	Cross-Section
1	0,30	0,30	2 - Rectangle 1200,1000 (Rectangle 1400, 1000)
2	0,50	0,80	2 - Rectangle 1200,1000 (Rectangle 1400, 1000)
3	13,00	13,80	1 - General
4	0,50	14,30	2 - Rectangle 1200,1000 (Rectangle 1400, 1000)
5	0,50	14,80	2 - Rectangle 1200,1000 (Rectangle 1400, 1000)
6	15,00	29,80	1 - General
7	0,50	30,30	2 - Rectangle 1200,1000 (Rectangle 1400, 1000)
8	0,50	30,80	2 - Rectangle 1200,1000 (Rectangle 1400, 1000)
9	13,00	43,80	1 - General
10	0,50	44,30	2 - Rectangle 1200,1000 (Rectangle 1400, 1000)
11	0,30	44,60	2 - Rectangle 1200,1000 (Rectangle 1400, 1000)

Nodes

Node	X [m]	Support
1	0,00	
2	0,30	XZ
3	0,80	
4	13,80	
5	14,30	Z
6	14,80	

Node	X [m]	Support
7	29,80	
8	30,30	Z
9	30,80	
10	43,80	
11	44,30	Z
12	44,60	

5 Load Cases

Name	Type	C.Stage	Load Group	Load [kN/m]
SW (1)	Permanent	1	LG1	0,0
R (2)	Permanent	2	LG1	0,0
G (2)	Permanent	2	LG1	0,0
PRE (2)	Permanent	2	LG1	0,0
R (3)	Permanent	3	LG1	0,0
G (3)	Permanent	3	LG1	0,0
SW (4)	Permanent	4	LG1	0,0
R (4)	Permanent	4	LG1	0,0
R (5)	Permanent	5	LG1	0,0
G (5)	Permanent	5	LG1	0,0
PRE (5)	Permanent	5	LG1	0,0
R (6)	Permanent	6	LG1	0,0
G (6)	Permanent	6	LG1	0,0
SW (7)	Permanent	7	LG1	0,0
R (7)	Permanent	7	LG1	0,0
R (8)	Permanent	8	LG1	0,0
G (8)	Permanent	8	LG1	0,0
PRE (8)	Permanent	8	LG1	0,0
R (9)	Permanent	9	LG1	0,0
G (9)	Permanent	9	LG1	0,0
R (10)	Permanent	10	LG1	0,0
G (10)	Permanent	10	LG1	0,0
R (11)	Permanent	11	LG1	0,0
SWS (11)	Permanent	11	LG1	0,0
R (12)	Permanent	12	LG1	0,0
G (12)	Permanent	12	LG1	0,0
POST (12)	Permanent	12	LG1	0,0
R (13)	Permanent	13	LG1	0,0
G (13)	Permanent	13	LG1	-3,0
R (14)	Permanent	14	LG1	0,0
G (14)	Permanent	14	LG1	0,0
V1	Variable		gr1a - UDL	0,0
V2	Variable		gr1a - UDL	0,0

Name	Type	C.Stage	Load Group	Load [kN/m]
V3	Variable		gr1a - UDL	0,0

Permanent load groups

Name	$\gamma_{G,sub}$ [-]	$\gamma_{G,inf}$ [-]	ξ [-]
LG1	1,35	1,00	0,85

Variable load groups

Name	Type	Bridge loading	γ_q [-]	Ψ_0 [-]	Ψ_1 [-]	Ψ_2 [-]
gr1a - UDL	Exclusive	gr1a - UDL	1,35	0,40	0,40	0,00
gr1a - TS	Exclusive	gr1a - TS	1,35	0,75	0,75	0,00
gr1a - Pedestr. + cycle track	Exclusive	gr1a - Pedestr. + cycle track	1,35	0,40	0,40	0,00
gr1b - Single axle	Exclusive	gr1b - Single axle	1,35	0,00	0,75	0,00
gr2 - Horizontal forces	Exclusive	gr2 - Horizontal forces	1,35	0,00	0,00	0,00
gr3 - Pedestrian loads	Exclusive	gr3 - Pedestrian loads	1,35	0,00	0,40	0,00
gr4 - Crowd loading	Exclusive	gr4 - Crowd loading	1,35	0,00	0,00	0,00
gr5 - Special vehicles	Exclusive	gr5 - Special vehicles	1,35	0,00	0,00	0,00
Fwk - Persistent	Exclusive	Fwk - Persistent	1,50	0,60	0,20	0,00
Fwk - Execution	Exclusive	Fwk - Execution	1,50	0,80	0,00	0,00
F**W - Design	Exclusive	F**W - Design	1,50	1,00	0,00	0,00
Thermal - Tk	Exclusive	Thermal - Tk	1,50	0,60	0,60	0,50
QSn,k - Execution	Exclusive	QSn,k - Execution	1,50	0,80	0,00	0,00
Construction - Qc	Exclusive	Construction Qc	1,50	1,00	0,00	1,00

6 Loads

Load Case PRE (2)

Line Loads

Member	Size p1 [kN/m]	Size p2 [kN/m]	X1 [m]	X2 [m]	Direction	Angle [°]	Location
9	-650,3	-650,3	12,50	13,00	Global X	0,0	Length
9	-586,6	-586,6	12,17	12,50	Global X	0,0	Length
9	586,6	586,6	0,50	0,83	Global X	0,0	Length
9	650,3	650,3	0,00	0,50	Global X	0,0	Length

Load Case PRE (5)

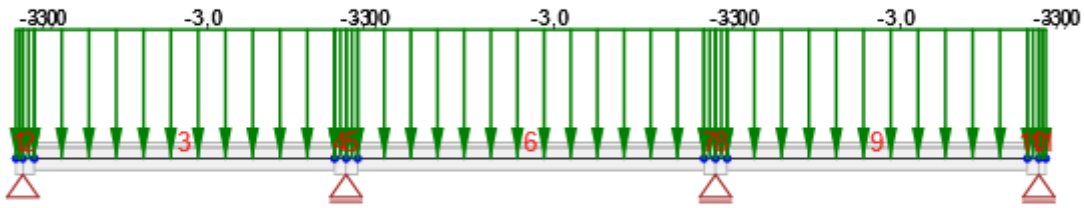
Line Loads

Member	Size p1 [kN/m]	Size p2 [kN/m]	X1 [m]	X2 [m]	Direction	Angle [°]	Location
6	-867,0	-867,0	14,50	15,00	Global X	0,0	Length
6	-862,9	-862,9	14,40	14,50	Global X	0,0	Length
6	862,9	862,9	0,50	0,60	Global X	0,0	Length
6	867,0	867,0	0,00	0,50	Global X	0,0	Length

Load Case PRE (8)

Line Loads

Member	Size p1 [kN/m]	Size p2 [kN/m]	X1 [m]	X2 [m]	Direction	Angle [°]	Location
3	-945,9	-945,9	12,50	13,00	Global X	0,0	Length
3	-1632,9	-1632,9	12,44	12,47	Global X	0,0	Length
3	1632,9	1632,9	0,53	0,56	Global X	0,0	Length
3	945,9	945,9	0,00	0,50	Global X	0,0	Length



Load Case G (13)

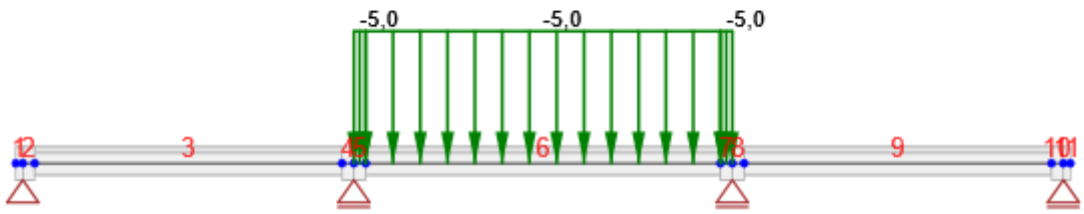
Load Case V1

Load Case V1

Uniform Loads

Member	Size [kN/m]	Direction	Angle [°]	Location
4	-5,0	Global Z	0,0	Length
3	-5,0	Global Z	0,0	Length
2	-5,0	Global Z	0,0	Length

Load Case V2

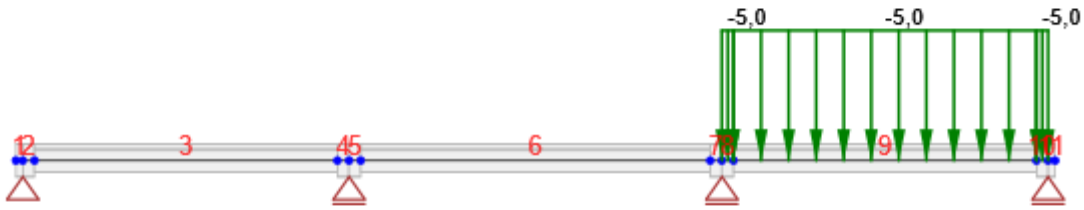


Load Case V2

Uniform Loads

Member	Size [kN/m]	Direction	Angle [°]	Location
6	-5,0	Global Z	0,0	Length
5	-5,0	Global Z	0,0	Length
7	-5,0	Global Z	0,0	Length

Load Case V3



Load Case V3

Uniform Loads

Member	Size [kN/m]	Direction	Angle [°]	Location
10	-5,0	Global Z	0,0	Length
9	-5,0	Global Z	0,0	Length
8	-5,0	Global Z	0,0	Length

7 Load Combinations

Name	Type	C.Stage	Evaluation
ULS Fundamental ST(2)	ULS Fundamental	2	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2)			
SLS Char ST(2)	SLS Char	2	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2)			
SLS Frequent ST(2)	SLS Freq	2	Eurocode, formula 6.15b
SW (1); R (2); G (2); PRE (2)			
SLS Quasi ST(2)	SLS Quasi	2	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2)			
ULS Fundamental ST(3)	ULS Fundamental	3	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3)			
SLS Char ST(3)	SLS Char	3	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3)			
SLS Frequent ST(3)	SLS Freq	3	Eurocode, formula 6.15b
SW (1); R (2); G (2); PRE (2); R (3); G (3)			

Name	Type	C.Stage	Evaluation
SLS Quasi ST(3)	SLS Quasi	3	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3)			
ULS Fundamental ST(5)	ULS Fundamental	5	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5)			
SLS Char ST(5)	SLS Char	5	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5)			
SLS Frequent ST(5)	SLS Freq	5	Eurocode, formula 6.15b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5)			
SLS Quasi ST(5)	SLS Quasi	5	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5)			
ULS Fundamental ST(6)	ULS Fundamental	6	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6)			
SLS Char ST(6)	SLS Char	6	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6)			
SLS Frequent ST(6)	SLS Freq	6	Eurocode, formula 6.15b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6)			
SLS Quasi ST(6)	SLS Quasi	6	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6)			
ULS Fundamental ST(8)	ULS Fundamental	8	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8)			
SLS Char ST(8)	SLS Char	8	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8)			
SLS Frequent ST(8)	SLS Freq	8	Eurocode, formula 6.15b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8)			
SLS Quasi ST(8)	SLS Quasi	8	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8)			
ULS Fundamental ST(9)	ULS Fundamental	9	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9)			
SLS Char ST(9)	SLS Char	9	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9)			
SLS Frequent ST(9)	SLS Freq	9	Eurocode, formula 6.15b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9)			
SLS Quasi ST(9)	SLS Quasi	9	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9)			
ULS Fundamental ST(10)	ULS Fundamental	10	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10)			
SLS Char ST(10)	SLS Char	10	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10)			
SLS Frequent ST(10)	SLS Freq	10	Eurocode, formula 6.15b

Name	Type	C.Stage	Evaluation
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10)			
SLS Quasi ST(10)	SLS Quasi	10	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10)			
ULS Fundamental ST(11)	ULS Fundamental	11	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11)			
SLS Char ST(11)	SLS Char	11	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11)			
SLS Frequent ST(11)	SLS Freq	11	Eurocode, formula 6.15b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11)			
SLS Quasi ST(11)	SLS Quasi	11	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11)			
ULS Fundamental ST(12)	ULS Fundamental	12	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12)			
SLSC ST(12)	SLS Char	12	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12)			
SLSF ST(12)	SLS Freq	12	Eurocode, formula 6.15b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12)			
SLSQ ST(12)	SLS Quasi	12	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12)			
ULS Fundamental ST(13)	ULS Fundamental	13	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12); R (13); G (13)			
SLS Char ST(13)	SLS Char	13	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12); R (13); G (13)			
SLS Frequent ST(13)	SLS Freq	13	Eurocode, formula 6.15b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12); R (13); G (13)			
SLS Quasi ST(13)	SLS Quasi	13	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12); R (13); G (13)			
ULS Fundamental ST(14)	ULS Fundamental	14	Eurocode, formula 6.10
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12); R (13); G (13); R (14); G (14); V1; V2; V3			
SLS Char ST(14)	SLS Char	14	Eurocode, formula 6.14b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12); R (13); G (13); R (14); G (14); V1; V2; V3			
SLS Frequent ST(14)	SLS Freq	14	Eurocode, formula 6.15b

Name	Type	C.Stage	Evaluation
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12); R (13); G (13); R (14); G (14); V1; V2; V3			
SLS Quasi ST(14)	SLS Quasi	14	Eurocode, formula 6.16b
SW (1); R (2); G (2); PRE (2); R (3); G (3); SW (4); R (4); R (5); G (5); PRE (5); R (6); G (6); SW (7); R (7); R (8); G (8); PRE (8); R (9); G (9); R (10); G (10); R (11); SWS (11); R (12); G (12); POST (12); R (13); G (13); R (14); G (14); V1; V2; V3			

8 Construction stages

History of members: 3

	Name	Time [d]	Beam spans [m]
1	Casting	0,0	
2	Transfer of prestressing	2,9	13,00
	Support 0,00 m: to design position Support 13,00 m: to design position User-specified concrete strength f_{ck} = 30,1 MPa		
3	Storage yard	3,0	1,50 - 10,00 - 1,50
	Support 1,50 m: to design position Support 11,50 m: to design position		
4	Temporary supports	26,0	0,50 - 12,00 - 0,50
	Support 0,50 m: to design position Support 12,50 m: to design position		
5	Casting of composite slab	60,0	0,50 - 6,00 - 6,00 - 0,50
	Support 0,50 m: to design position Support 6,50 m: on deformed structure Support 12,50 m: to design position		
6	Final supports	70,0	
7	Superimposed dead load	100,0	
8	End of design working life	18230,0	

History of members: 6

	Name	Time [d]	Beam spans [m]
1	Casting	0,0	
2	Transfer of prestressing	2,9	15,00
	Support 0,00 m: to design position Support 15,00 m: to design position User-specified concrete strength f_{ck} = 30,1 MPa		
3	Storage yard	3,0	1,50 - 12,00 - 1,50
	Support 1,50 m: to design position Support 13,50 m: to design position		
4	Temporary supports	36,0	0,50 - 14,00 - 0,50
	Support 0,50 m: to design position Support 14,50 m: to design position		
5	Casting of composite slab	70,0	0,50 - 7,00 - 7,00 - 0,50
	Support 0,50 m: to design position Support 7,50 m: on deformed structure Support 14,50 m: to design position		
6	Final supports	80,0	
7	Superimposed dead load	110,0	
8	End of design working life	18240,0	

History of members: 9

	Name	Time [d]	Beam spans [m]
1	Casting	0,0	
2	Transfer of prestressing	2,9	13,00
	Support 0,00 m: to design position Support 13,00 m: to design position User-specified concrete strength f_{ck} = 30,1 MPa		
3	Storage yard	3,0	1,50 - 10,00 - 1,50
	Support 1,50 m: to design position Support 11,50 m: to design position		
4	Temporary supports	46,0	0,50 - 12,00 - 0,50
	Support 0,50 m: to design position Support 12,50 m: to design position		
5	Casting of composite slab	80,0	0,50 - 6,00 - 6,00 - 0,50
	Support 0,50 m: to design position Support 6,50 m: on deformed structure Support 12,50 m: to design position		
6	Final supports	90,0	
7	Superimposed dead load	120,0	
8	End of design working life	18250,0	

History of members: 1,2,4,5,7,8,10,11

	Name	Time [d]	Beam spans [m]
1	Casting	0,0	
2	Final supports	10,0	
3	Superimposed dead load	40,0	
4	End of design working life	18170,0	

All diaphragms

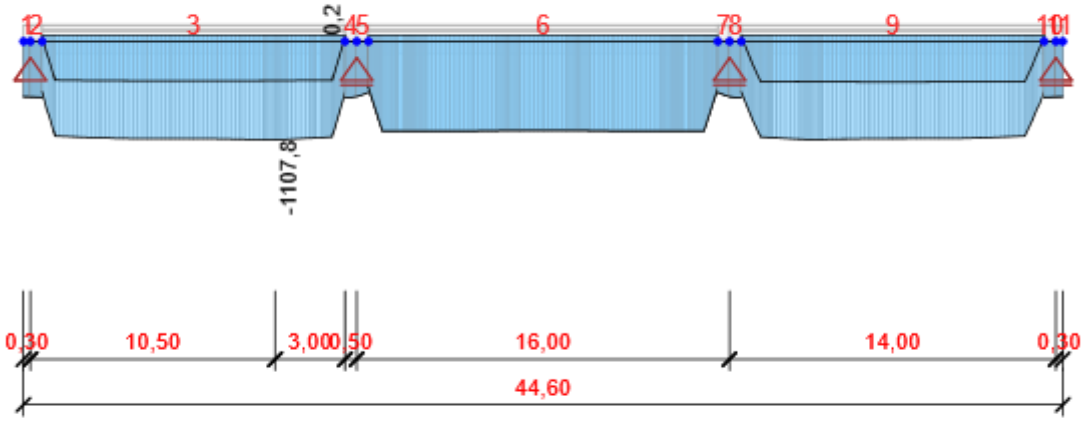
Construction stages

	Name	Time [d]	Load cases, combinations
1	Casting M(9)	0,0	SW (1)
2	Transfer of prestressing M(9)	2,9	R (2), G (2), PRE (2) ULS Fundamental ST(2), SLS Char ST(2), SLS Frequent ST(2), SLS Quasi ST(2)
3	Storage yard M(9)	3,0	R (3), G (3), POST (3) ULS Fundamental ST(3), SLS Char ST(3), SLS Frequent ST(3), SLS Quasi ST(3)
4	Casting M(6)	10,0	SW (4), R (4)
5	Transfer of prestressing M(6)	12,9	R (5), G (5), PRE (5) ULS Fundamental ST(5), SLS Char ST(5), SLS Frequent ST(5), SLS Quasi ST(5)
6	Storage yard M(6)	13,0	R (6), G (6), POST (6) ULS Fundamental ST(6), SLS Char ST(6), SLS Frequent ST(6), SLS Quasi ST(6)
7	Casting M(3)	20,0	SW (7), R (7)
8	Transfer of prestressing M(3)	22,9	R (8), G (8), PRE (8) ULS Fundamental ST(8), SLS Char ST(8), SLS Frequent ST(8), SLS Quasi ST(8)
9	Storage yard M(3)	23,0	R (9), G (9), POST (9) ULS Fundamental ST(9), SLS Char ST(9), SLS Frequent ST(9), SLS Quasi ST(9)
10	Temporary supports M(3,6,9)	46,0	R (10), G (10), POST (10) ULS Fundamental ST(10), SLS Char ST(10), SLS Frequent ST(10), SLS Quasi ST(10)
11	Casting of composite slab M(3,6,9)	80,0	R (11), SWS (11) ULS Fundamental ST(11), SLS Char ST(11), SLS Frequent ST(11), SLS Quasi ST(11)
12	Final supports	90,0	R (12), G (12), POST (12) ULS Fundamental ST(12), SLSC ST(12), SLSF ST(12), SLSQ ST(12)
13	Superimposed dead load	120,0	R (13), G (13) ULS Fundamental ST(13), SLS Char ST(13), SLS Frequent ST(13), SLS Quasi ST(13)
14	End of design working life	18250,0	R (14), G (14) ULS Fundamental ST(14), SLS Char ST(14), SLS Frequent ST(14), SLS Quasi ST(14)

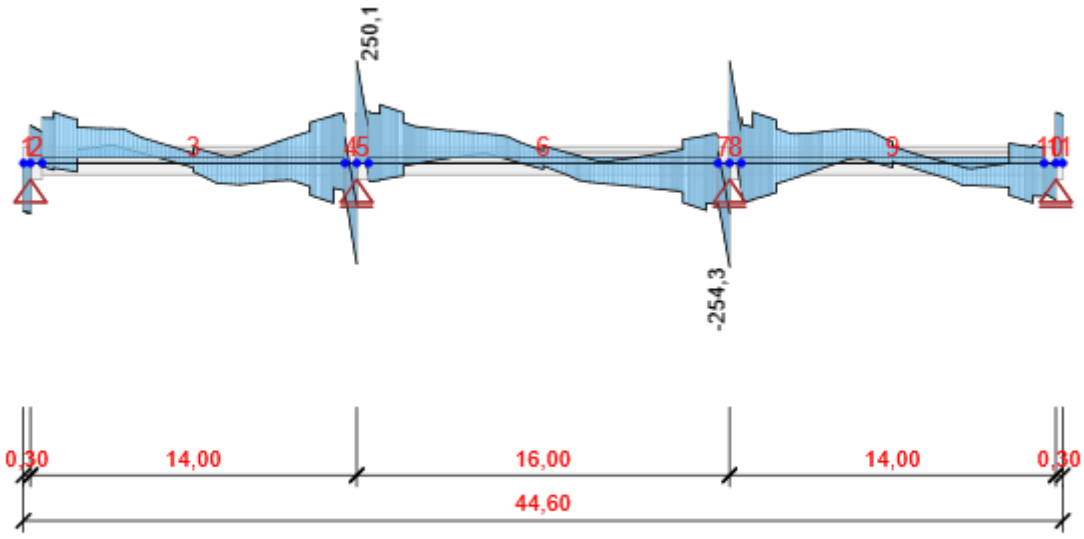
9 Results

Note: Tangential modulus Ec acc. to article 3.1.4(2) EN 1992-1-1 is used in time depend analysis.

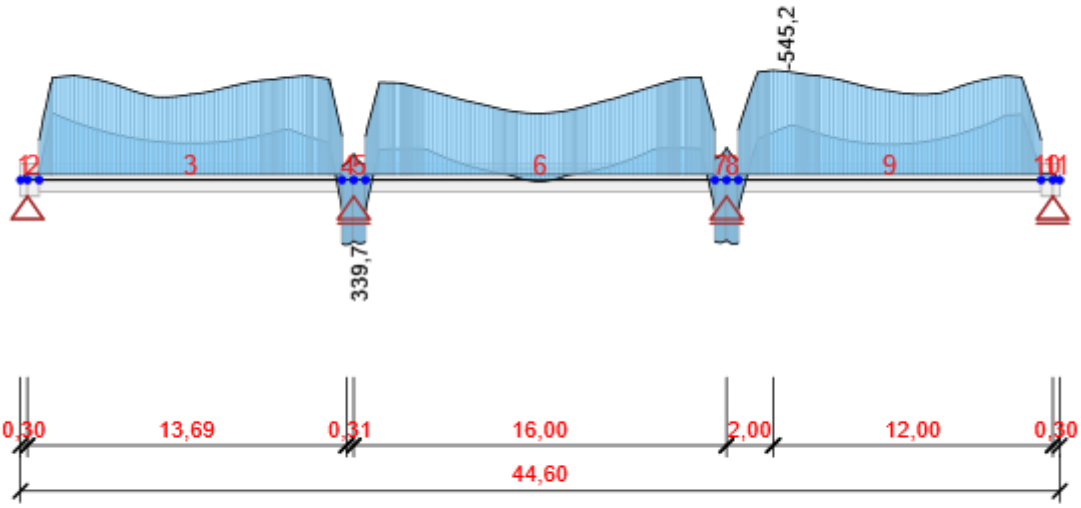
Envelopes



All combinations, N [kN], Centroidal forces



All combinations, Vz [kN], Centroidal forces



All combinations, My [kNm], Centroidal forces

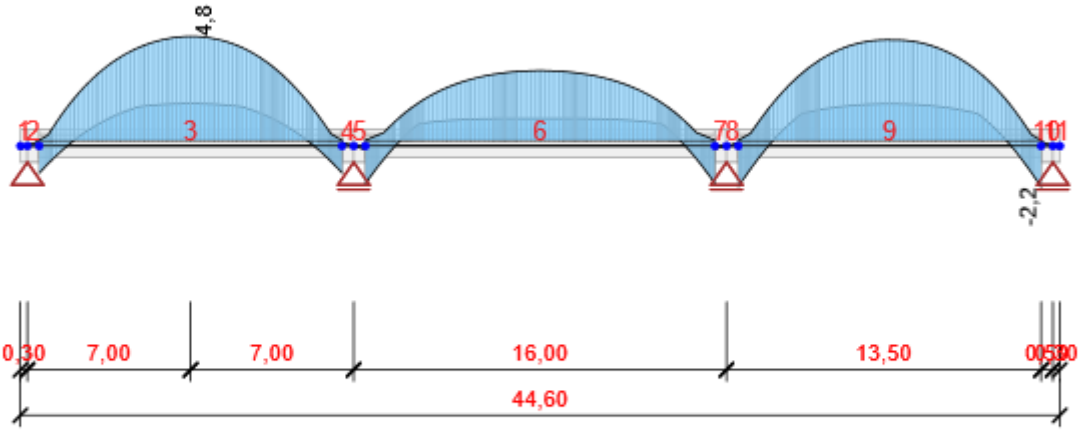
Internal forces, Member Extreme, Centroidal forces, Entire centroid

Member	Combi	Position [m]	N [kN]	V_z [kN]	M_y [kNm]
1	ULS Fundamental ST(12)(158)	0,30	-590,2	-124,4	-36,4
1	ULS Fundamental ST(8)(179)	0,00	0,0	0,0	0,0
1	ULS Fundamental ST(12)(158)	0,00	-587,3	-117,2	0,0
2	ULS Fundamental ST(12)(158)	0,50	-595,5	28,3	-20,8
2	ULS Fundamental ST(8)(179)	0,00	0,0	0,0	0,0
2	ULS Fundamental ST(14)(168)	0,00	-532,8	92,0	-33,3
2	ULS Fundamental ST(12)(158)	0,00	-590,6	37,6	-36,5
2	ULS Fundamental ST(14)(168)	0,50	-537,0	77,0	11,6
3	ULS Fundamental ST(12)(158)	10,00	-1107,8	20,4	-331,5
3	ULS Fundamental ST(11)(219)	13,00	0,2	22,5	0,0
3	ULS Fundamental ST(11)(235)	12,50	-432,7	-111,2	-283,6
3	ULS Fundamental ST(11)(235)	0,50	-432,5	111,2	-283,2
3	ULS Fundamental ST(12)(237)	1,50	-1078,3	20,2	-517,7
3	ULS Fundamental ST(12)(237)	13,00	-598,0	84,8	188,0
4	ULS Fundamental ST(12)(158)	0,09	-599,0	-7,1	275,4
4	ULS Fundamental ST(11)(194)	0,00	0,0	0,0	0,0
4	ULS Fundamental ST(14)(168)	0,50	-528,8	-246,8	-129,9
4	ULS Fundamental ST(12)(159)	0,00	-598,3	62,1	333,7
4	ULS Fundamental ST(14)(174)	0,50	-528,8	-200,0	-136,1
4	ULS Fundamental ST(12)(159)	0,19	-598,1	1,3	339,7
5	ULS Fundamental ST(12)(158)	0,00	-587,1	165,6	239,5
5	ULS Fundamental ST(11)(194)	0,00	0,0	0,0	0,0
5	ULS Fundamental ST(12)(159)	0,50	-542,5	-28,2	325,2
5	ULS Fundamental ST(14)(174)	0,00	-528,6	250,1	-136,1
5	ULS Fundamental ST(12)(159)	0,25	-568,4	43,7	332,8
6	ULS Fundamental ST(12)(160)	2,50	-1015,6	17,7	-157,8
6	ULS Fundamental ST(2)(591)	0,00	0,0	0,0	0,0
6	ULS Fundamental ST(11)(402)	14,50	-396,5	-129,3	-257,5
6	ULS Fundamental ST(11)(402)	0,50	-396,5	129,3	-257,5
6	ULS Fundamental ST(14)(518)	14,40	-932,3	1,0	-509,5
6	ULS Fundamental ST(12)(159)	0,00	-542,3	-29,8	193,0
7	ULS Fundamental ST(12)(160)	0,50	-587,1	-166,3	234,1
7	ULS Fundamental ST(8)(179)	0,00	0,0	0,0	0,0
7	ULS Fundamental ST(14)(174)	0,50	-528,9	-254,3	-169,6
7	ULS Fundamental ST(12)(159)	0,00	-542,5	27,7	321,3
7	ULS Fundamental ST(14)(175)	0,50	-528,9	-254,3	-169,6
7	ULS Fundamental ST(12)(199)	0,25	-568,4	-44,2	328,8
8	ULS Fundamental ST(12)(160)	0,41	-599,0	7,5	270,2
8	ULS Fundamental ST(8)(179)	0,00	0,0	0,0	0,0
8	ULS Fundamental ST(12)(159)	0,50	-598,3	-61,8	329,7
8	ULS Fundamental ST(14)(177)	0,00	-529,1	249,2	-163,2

Member	Combi	Position [m]	N [kN]	V_z [kN]	M_y [kNm]
8	ULS Fundamental ST(14)(175)	0,00	-529,1	202,4	-169,6
8	ULS Fundamental ST(12)(199)	0,31	-598,1	-1,0	335,6
9	ULS Fundamental ST(12)(158)	3,00	-1106,1	-19,5	-332,6
9	ULS Fundamental ST(6)(346)	0,00	0,0	0,0	0,0
9	ULS Fundamental ST(11)(661)	12,50	-300,0	-111,2	-194,2
9	ULS Fundamental ST(11)(661)	0,50	-300,2	111,2	-194,3
9	ULS Fundamental ST(14)(684)	1,50	-997,3	5,5	-545,2
9	ULS Fundamental ST(12)(159)	0,00	-598,3	-63,5	184,0
10	ULS Fundamental ST(12)(158)	0,00	-595,3	-27,9	-20,8
10	ULS Fundamental ST(8)(179)	0,00	0,0	0,0	0,0
10	ULS Fundamental ST(14)(177)	0,50	-532,6	-89,6	-33,2
10	ULS Fundamental ST(14)(173)	0,06	-536,3	1,7	-29,5
10	ULS Fundamental ST(12)(158)	0,50	-590,4	-37,2	-36,4
10	ULS Fundamental ST(14)(177)	0,00	-536,8	-74,6	10,5
11	ULS Fundamental ST(12)(158)	0,00	-590,2	124,4	-36,4
11	ULS Fundamental ST(8)(179)	0,00	0,0	0,0	0,0
11	ULS Fundamental ST(12)(158)	0,30	-587,3	117,2	0,0

Combination	Critical load effect description
ULS Fundamental ST(12)(158)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12)
ULS Fundamental ST(8)(179)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + G (8) + PRE (8)
ULS Fundamental ST(14)(168)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V1 + R (14) + G (14)
ULS Fundamental ST(11)(219)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11)
ULS Fundamental ST(11)(235)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11)
ULS Fundamental ST(12)(237)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12)
ULS Fundamental ST(11)(194)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11)
ULS Fundamental ST(12)(159)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12)
ULS Fundamental ST(14)(174)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V2 + R (14) + G (14)
ULS Fundamental ST(12)(160)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12)
ULS Fundamental ST(2)(591)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2)

Combination	Critical load effect description
ULS Fundamental ST(11)(402)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11)
ULS Fundamental ST(14)(518)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V3 + R (14) + 1,35*G (14)
ULS Fundamental ST(14)(175)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V2 + R (14) + 1,35*G (14)
ULS Fundamental ST(12)(199)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + G (12) + POST (12)
ULS Fundamental ST(14)(177)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V3 + R (14) + G (14)
ULS Fundamental ST(6)(346)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + 1,35*G (6)
ULS Fundamental ST(11)(661)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11)
ULS Fundamental ST(14)(684)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V2 + R (14) + G (14)
ULS Fundamental ST(14)(173)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13) + 1,35*V2 + R (14) + G (14)



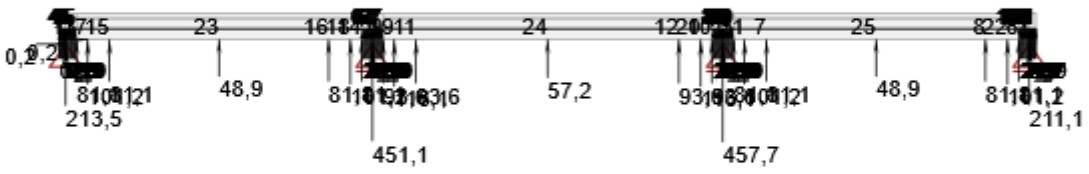
All combinations, Displacement uz [mm]

Deformations, Member Extreme,

Member	Combi	Position [m]	u_x [mm]	u_z [mm]	fi_y [mrad]
1	SLS Char ST(14)(1090)	0,30	-0,3	0,0	-0,4
1	SLS Char ST(8)(1092)	0,00	0,0	0,0	0,0
1	SLS Char ST(14)(1090)	0,00	-0,2	-0,1	-0,4
2	SLS Char ST(14)(1090)	0,50	-0,5	0,2	-0,4
2	SLS Char ST(8)(1092)	0,00	0,0	0,0	0,0
2	SLSC ST(12)(1088)	0,00	-0,3	0,0	-0,4
2	SLS Char ST(14)(1090)	0,00	-0,3	0,0	-0,4
3	SLS Char ST(14)(1090)	13,00	-9,2	-0,5	1,7
3	SLS Char ST(11)(1095)	0,00	0,3	-0,7	-1,4
3	SLS Char ST(9)(1093)	0,00	-0,1	-1,5	-1,1
3	SLS Char ST(14)(1090)	6,50	-4,8	4,8	0,0
3	SLS Char ST(14)(1090)	0,00	-0,4	-0,4	-1,8
3	SLS Char ST(14)(1090)	12,87	-9,2	-0,3	1,7
4	SLS Char ST(14)(1090)	0,50	-6,1	0,0	0,3
4	SLS Char ST(8)(1092)	0,00	0,0	0,0	0,0
4	SLS Char ST(14)(1090)	0,00	-6,1	0,2	0,3
5	SLS Char ST(14)(1090)	0,50	-6,2	-0,2	0,3
5	SLS Char ST(8)(1092)	0,00	0,0	0,0	0,0
5	SLSC ST(12)(1088)	0,00	-1,0	0,0	0,2
5	SLS Char ST(14)(1090)	0,00	-6,1	0,0	0,3
6	SLS Char ST(14)(1090)	15,00	-16,0	-0,7	1,0
6	SLS Char ST(11)(1095)	0,00	0,4	-0,6	-1,3
6	SLS Char ST(9)(1093)	0,00	-0,3	-2,0	-1,5
6	SLS Char ST(10)(1094)	7,50	-1,3	3,2	0,0
6	SLS Char ST(9)(1093)	15,00	-2,2	-2,0	1,5
7	SLS Char ST(14)(1090)	0,50	-12,1	0,0	-0,2
7	SLS Char ST(8)(1092)	0,00	0,0	0,0	0,0
7	SLS Char ST(14)(1090)	0,00	-12,0	-0,1	-0,2
8	SLS Char ST(14)(1090)	0,50	-12,1	0,1	-0,3
8	SLS Char ST(8)(1092)	0,00	0,0	0,0	0,0
8	SLSC ST(12)(1088)	0,00	-1,3	0,0	-0,2
9	SLS Char ST(14)(1090)	13,00	-20,7	-0,5	1,7
9	SLS Char ST(11)(1095)	0,00	0,3	-0,7	-1,4
9	SLS Char ST(9)(1093)	13,00	-2,2	-2,2	1,6
9	SLS Char ST(14)(1090)	6,30	-16,2	4,7	0,0
9	SLS Char ST(14)(1090)	0,25	-12,0	-0,1	-1,7
9	SLSC ST(12)(1088)	13,00	-5,3	-0,5	1,8
10	SLS Char ST(14)(1090)	0,50	-17,5	0,0	0,3
10	SLS Char ST(8)(1092)	0,00	0,0	0,0	0,0
10	SLSC ST(12)(1088)	0,00	-1,9	0,2	0,4
10	SLSC ST(12)(1088)	0,50	-1,9	0,0	0,4

Member	Combi	Position [m]	u_x [mm]	u_z [mm]	fi_y [mrad]
11	SLS Char ST(14)(1090)	0,30	-17,7	-0,1	0,3
11	SLS Char ST(8)(1092)	0,00	0,0	0,0	0,0
11	SLSC ST(12)(1088)	0,30	-1,9	-0,1	0,4
11	SLSC ST(12)(1088)	0,00	-1,9	0,0	0,4

Combination	Critical load effect description
SLS Char ST(14) (1090)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13) + V2 + R (14) + G (14)
SLS Char ST(8) (1092)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8)
SLSC ST(12) (1088)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12)
SLS Char ST(11) (1095)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11)
SLS Char ST(9) (1093)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9)
SLS Char ST(10) (1094)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10)



All combinations, Reactions

Reactions

Node	Combi	R_x [kN]	R_z [kN]	M_y [kNm]
4	ULS Fundamental ST(11)(194)	0,0	0,9	0,0
4	ULS Fundamental ST(11)(1103)	0,0	0,6	0,0
4	ULS Fundamental ST(11)(194)	0,0	2,3	0,0
5	ULS Fundamental ST(11)(194)	0,0	2,3	0,0
5	ULS Fundamental ST(11)(194)	0,0	0,0	0,0
5	ULS Fundamental ST(11)(194)	0,0	2,9	0,0
6	ULS Fundamental ST(11)(194)	0,0	0,0	0,0
6	ULS Fundamental ST(11)(194)	0,0	2,9	0,0
7	ULS Fundamental ST(11)(194)	0,0	2,9	0,0
7	ULS Fundamental ST(11)(194)	0,0	0,0	0,0
8	ULS Fundamental ST(11)(194)	0,0	0,0	0,0
8	ULS Fundamental ST(11)(194)	0,0	2,9	0,0
9	ULS Fundamental ST(11)(194)	0,0	2,9	0,0
9	ULS Fundamental ST(11)(194)	0,0	0,0	0,0
10	ULS Fundamental ST(11)(194)	0,0	0,0	0,0
10	ULS Fundamental ST(11)(194)	0,0	2,9	0,0
11	ULS Fundamental ST(11)(194)	0,0	2,3	0,0
11	ULS Fundamental ST(11)(1103)	0,0	0,6	0,0
1	ULS Fundamental ST(13)(1105)	0,1	137,1	0,0
1	ULS Fundamental ST(14)(171)	0,2	213,5	0,0
1	ULS Fundamental ST(12)(1104)	0,1	125,3	0,0
1	ULS Fundamental ST(12)(160)	0,2	161,5	0,0
2	ULS Fundamental ST(12)(160)	0,0	313,2	0,0
2	ULS Fundamental ST(12)(1104)	0,0	226,2	0,0
2	ULS Fundamental ST(14)(175)	0,0	451,1	0,0
3	ULS Fundamental ST(12)(160)	0,0	314,2	0,0
3	ULS Fundamental ST(12)(1104)	0,0	227,1	0,0
3	ULS Fundamental ST(14)(175)	0,0	457,7	0,0
4	ULS Fundamental ST(12)(160)	0,0	161,1	0,0
4	ULS Fundamental ST(12)(1104)	0,0	125,0	0,0
4	ULS Fundamental ST(14)(590)	0,0	211,1	0,0
5	ULS Fundamental ST(2)(591)	0,0	81,1	0,0
5	ULS Fundamental ST(2)(687)	0,0	60,1	0,0
6	ULS Fundamental ST(2)(591)	0,0	81,1	0,0
6	ULS Fundamental ST(2)(687)	0,0	60,1	0,0
7	ULS Fundamental ST(5)(341)	0,0	81,1	0,0
7	ULS Fundamental ST(3)(688)	0,0	60,1	0,0
7	ULS Fundamental ST(5)(690)	0,0	60,1	0,0
7	ULS Fundamental ST(8)(382)	0,0	81,1	0,0
7	ULS Fundamental ST(3)(593)	0,0	81,1	0,0
8	ULS Fundamental ST(3)(593)	0,0	81,1	0,0

Node	Combi	R_x [kN]	R_z [kN]	M_y [kNm]
8	ULS Fundamental ST(3)(688)	0,0	60,1	0,0
8	ULS Fundamental ST(5)(341)	0,0	81,1	0,0
9	ULS Fundamental ST(5)(690)	0,0	69,3	0,0
9	ULS Fundamental ST(5)(341)	0,0	93,6	0,0
10	ULS Fundamental ST(5)(341)	0,0	93,6	0,0
10	ULS Fundamental ST(5)(690)	0,0	69,3	0,0
11	ULS Fundamental ST(9)(183)	0,0	93,6	0,0
11	ULS Fundamental ST(6)(695)	0,0	69,3	0,0
11	ULS Fundamental ST(8)(605)	0,0	69,3	0,0
11	ULS Fundamental ST(9)(383)	0,0	93,6	0,0
11	ULS Fundamental ST(6)(344)	0,0	93,6	0,0
12	ULS Fundamental ST(6)(344)	0,0	93,6	0,0
12	ULS Fundamental ST(9)(185)	0,0	69,3	0,0
13	ULS Fundamental ST(8)(700)	0,0	60,1	0,0
13	ULS Fundamental ST(8)(180)	0,0	81,1	0,0
14	ULS Fundamental ST(8)(180)	0,0	81,1	0,0
14	ULS Fundamental ST(8)(700)	0,0	60,1	0,0
15	ULS Fundamental ST(9)(183)	0,0	81,1	0,0
15	ULS Fundamental ST(9)(705)	0,0	60,1	0,0
16	ULS Fundamental ST(9)(183)	0,0	81,1	0,0
16	ULS Fundamental ST(9)(705)	0,0	60,1	0,0
17	ULS Fundamental ST(11)(574)	0,1	80,2	0,0
17	ULS Fundamental ST(10)(188)	0,2	81,1	0,0
17	ULS Fundamental ST(10)(1102)	0,1	60,1	0,0
17	ULS Fundamental ST(11)(194)	0,2	101,2	0,0
18	ULS Fundamental ST(10)(188)	0,0	81,1	0,0
18	ULS Fundamental ST(10)(1102)	0,0	60,1	0,0
18	ULS Fundamental ST(11)(194)	0,0	101,2	0,0
19	ULS Fundamental ST(10)(188)	0,0	93,6	0,0
19	ULS Fundamental ST(11)(574)	0,0	91,8	0,0
19	ULS Fundamental ST(10)(1102)	0,0	69,3	0,0
19	ULS Fundamental ST(11)(194)	0,0	116,1	0,0
20	ULS Fundamental ST(10)(188)	0,0	93,6	0,0
20	ULS Fundamental ST(10)(1102)	0,0	69,3	0,0
20	ULS Fundamental ST(11)(194)	0,0	116,1	0,0
21	ULS Fundamental ST(11)(194)	0,0	101,2	0,0
21	ULS Fundamental ST(10)(1102)	0,0	60,1	0,0
21	ULS Fundamental ST(10)(188)	0,0	81,1	0,0
22	ULS Fundamental ST(10)(188)	0,0	81,1	0,0
22	ULS Fundamental ST(10)(1102)	0,0	60,1	0,0
22	ULS Fundamental ST(11)(194)	0,0	101,2	0,0
23	ULS Fundamental ST(11)(194)	0,0	48,9	0,0
23	ULS Fundamental ST(11)(1103)	0,0	36,2	0,0

Node	Combi	R_x [kN]	R_z [kN]	M_y [kNm]
24	ULS Fundamental ST(11)(194)	0,0	57,2	0,0
24	ULS Fundamental ST(11)(1103)	0,0	42,4	0,0
25	ULS Fundamental ST(11)(194)	0,0	48,9	0,0
25	ULS Fundamental ST(11)(1103)	0,0	36,2	0,0

Combination	Critical load effect description
ULS Fundamental ST(11)(194)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11)
ULS Fundamental ST(11)(1103)	1,35*SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11)
ULS Fundamental ST(13)(1105)	1,35*SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13)
ULS Fundamental ST(14)(171)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V1 + R (14) + 1,35*G (14)
ULS Fundamental ST(12)(1104)	1,35*SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12)
ULS Fundamental ST(12)(160)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12)
ULS Fundamental ST(14)(175)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V2 + R (14) + 1,35*G (14)
ULS Fundamental ST(14)(590)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V3 + R (14) + 1,35*G (14)
ULS Fundamental ST(2)(591)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2)
ULS Fundamental ST(2)(687)	1,35*SW (1) + R (2) + G (2) + PRE (2)
ULS Fundamental ST(5)(341)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5)
ULS Fundamental ST(3)(688)	1,35*SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3)
ULS Fundamental ST(5)(690)	1,35*SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5)
ULS Fundamental ST(8)(382)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + G (8) + PRE (8)
ULS Fundamental ST(3)(593)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3)
ULS Fundamental ST(9)(183)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9)
ULS Fundamental ST(6)(695)	1,35*SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6)
ULS Fundamental ST(8)(605)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8)

Combination	Critical load effect description
ULS Fundamental ST(9)(383)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + G (8) + PRE (8) + R (9) + 1,35*G (9)
ULS Fundamental ST(6)(344)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6)
ULS Fundamental ST(9)(185)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + 1,35*G (9)
ULS Fundamental ST(8)(700)	1,35*SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8)
ULS Fundamental ST(8)(180)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8)
ULS Fundamental ST(9)(705)	1,35*SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9)
ULS Fundamental ST(11)(574)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + 1,35*SWS (11)
ULS Fundamental ST(10)(188)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10)
ULS Fundamental ST(10)(1102)	1,35*SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10)

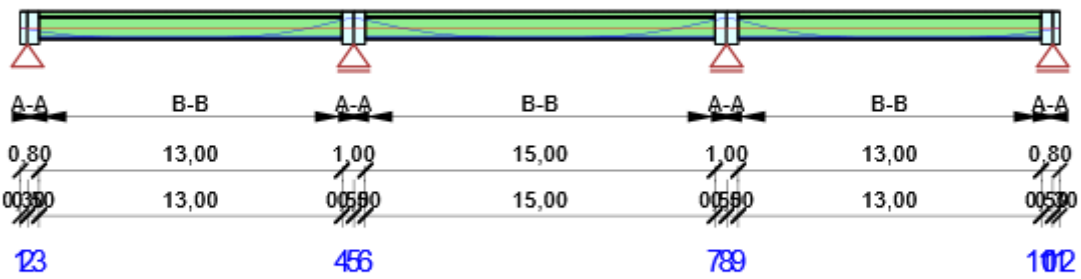
10 Concrete design

National code

National code	EN 1992-1-1:2014-12 EN 1992-2:2008-07
Design working life	50 years

Note:Tangential modulus Ec acc. to article 3.1.4(2) EN 1992-1-1 is used in time dependent analysis.

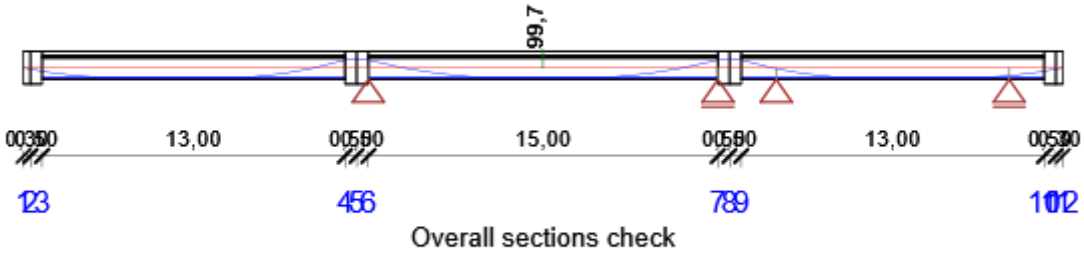
Scheme of reinforcement



Summary of checks

Construction stage	Type of check	Combination	Position	Value [%]	Check
Transfer of prestressing M(6) (12,9d)	Stress Limitation	SLS Char ST(5)(1098)	Section 4 (22,29m)	99,7	OK
Storage yard M(6) (13,0d)	Stress Limitation	SLS Char ST(6)(1099)	Section 4 (22,29m)	97,8	OK
Temporary supports M(3,6,9) (46,0d)	Stress Limitation	SLS Char ST(10)(1094)	Section 4 (22,29m)	94,3	OK
Casting of composite slab M(3,6,9) (80,0d)	Stress Limitation	SLS Char ST(11)(1095)	Section 4 (22,29m)	93,0	OK
Final supports (90,0d)	Stress Limitation	SLSC ST(12)(1088)	Section 4 (22,29m)	92,4	OK
Superimposed dead load (120,0d)	Stress Limitation	SLS Char ST(13)(1089)	Section 4 (22,29m)	91,7	OK
End of design working life (18250,0d)	Stress Limitation	SLS Char ST(14)(1090)	Section 4 (22,29m)	86,8	OK

Construction stage: Transfer of prestressing M(6) (12,9d)



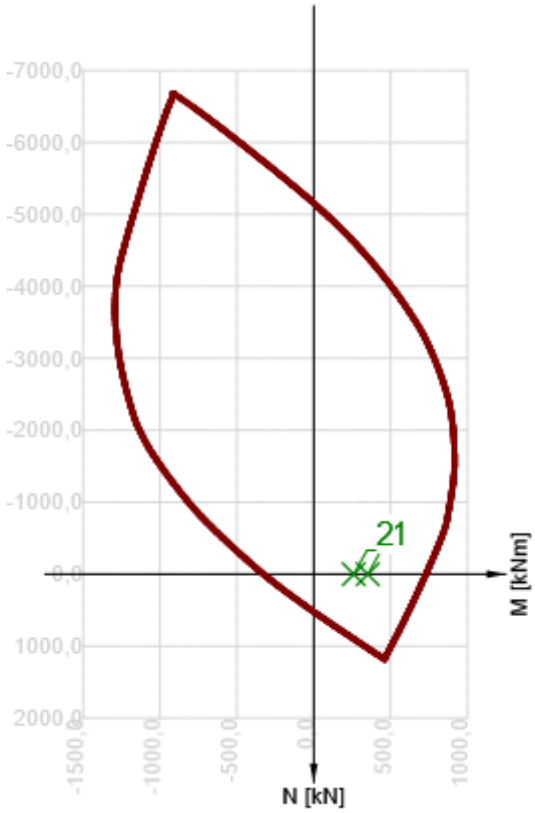
Position	Reinforcement	Governing type of check	Value [%]	Check
Section 4 (22,29m)	B-B	Stress Limitation	99,7	OK

Limit value of the exploitation of the cross-section: 100,0 %

Section check for position: Section 4 (22,29m)

Governing type of check	Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Stress Limitation	SLS Char ST(5)(1098)	-517,2	-87,0	0,1	99,7	OK

Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Capacity N-M-M					
ULS Fundamental ST(5)(341)	0,0	352,0	0,1	48,2	OK
Shear					
ULS Fundamental ST(5)(341)	-517,2	4,2	0,1	0,1	OK
Torsion					
ULS Fundamental ST(5)(341)	-517,2	4,2	0,1	0,0	OK
Interaction					
ULS Fundamental ST(5)(341)	-517,2	4,2	0,1	89,1	OK
Stress Limitation					
SLS Char ST(5)(1098)	-517,2	-87,0	0,1	99,7	OK
Crack Width					
SLS Quasi ST(5)(1715)	-543,1	-104,4	0,1	2,8	OK
Brittle Failure					
SLS Frequent ST(5)(1705)	-517,2	-87,0	0,1	47,0	OK



	Extreme	N [kN]	My [kNm]	Mz [kNm]
1	ULS Fundamental ST(5)(341)	0,0	352,0	0,0
2	ULS Fundamental ST(5)(342)	0,0	260,7	0,0

Nonconformity

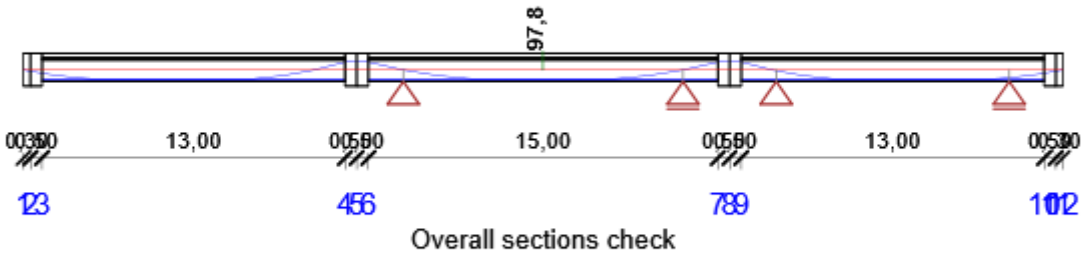
	Type of check	Nonconformities
⚠	Shear, Torsion, Interaction, Stress Limitation, Crack Width, Brittle Failure	The age of concrete in current construction stage is less less or equal 3 days. This situation is allowed as it is assumed that concrete strength is determined by tests, see provision 3.1.2 (5).
⚠	Shear	Default value (from code settings) of effective depth was used for shear calculation
⚠	Shear	Default value (from code settings) of lever arm was used for shear calculation
⚠	Shear	Shear is resisted by concrete, shear reinforcement is required according to detailing provisions, see 6.2.2
⚠	Torsion	It is not possible to create equivalent thin-walled section for torsion check, but it is not necessary because torsional moment is zero.
ℹ	Brittle Failure	Secondary effects of prestressing are recalculated proportionally to reduced area of prestressing reinforcement

Critical combinations selected for section checks

Combination	Critical load effect description
ULS Fundamental ST(12)(5)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + 1,35*G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12)
ULS Fundamental ST(5)(341)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5)
SLS Char ST(5)(1098)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5)

Combination	Critical load effect description
SLS Frequent ST(5)(1705)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5)
SLS Quasi ST(5)(1715)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5)

Construction stage: Storage yard M(6) (13,0d)



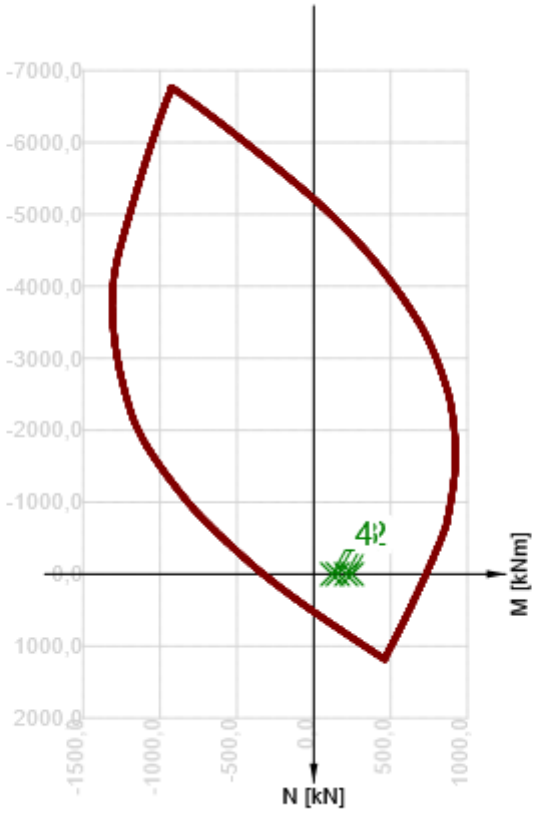
Position	Reinforcement	Governing type of check	Value [%]	Check
Section 4 (22,29m)	B-B	Stress Limitation	97,8	OK

Limit value of the exploitation of the cross-section: 100,0 %

Section check for position: Section 4 (22,29m)

Governing type of check	Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Stress Limitation	SLS Char ST(6)(1099)	-507,5	-184,5	0,1	97,8	OK

Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Capacity N-M-M					
ULS Fundamental ST(6)(347)	0,0	248,0	0,1	34,0	OK
Shear					
ULS Fundamental ST(6)(344)	-507,5	-129,6	0,1	0,1	OK
Torsion					
ULS Fundamental ST(6)(344)	-507,5	-129,6	0,1	0,0	OK
Interaction					
ULS Fundamental ST(6)(347)	-507,5	-93,2	0,1	88,3	OK
Stress Limitation					
SLS Char ST(6)(1099)	-507,5	-184,5	0,1	97,8	OK
Crack Width					
SLS Quasi ST(6)(1716)	-532,9	-201,5	0,1	11,0	OK
Brittle Failure					
SLS Frequent ST(6)(1706)	-507,5	-184,5	0,1	0,0	OK



	Extreme	N [kN]	My [kNm]	Mz [kNm]
1	ULS Fundamental ST(6)(347)	0,0	248,0	0,0
2	ULS Fundamental ST(6)(344)	0,0	211,6	0,0
3	ULS Fundamental ST(6)(345)	0,0	156,7	0,0
4	ULS Fundamental ST(6)(346)	0,0	120,3	0,0

Nonconformity

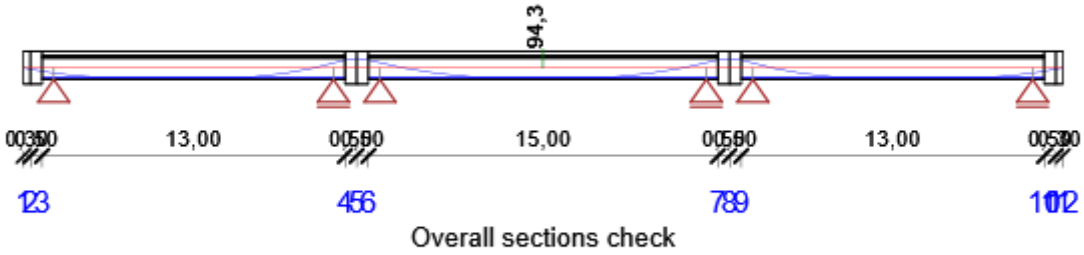
	Type of check	Nonconformities
⚠	Shear, Torsion, Interaction, Stress Limitation, Crack Width, Brittle Failure	The age of concrete in current construction stage is less less or equal 3 days. This situation is allowed as it is assumed that concrete strength is determined by tests, see provision 3.1.2 (5).
⚠	Shear	Default value (from code settings) of effective depth was used for shear calculation
⚠	Shear	Default value (from code settings) of lever arm was used for shear calculation
⚠	Shear	Shear is resisted by concrete, shear reinforcement is required according to detailing provisions, see 6.2.2
⚠	Torsion	It is not possible to create equivalent thin-walled section for torsion check, but it is not necessary because torsional moment is zero.
ℹ	Brittle Failure	Tensile stress caused by frequent load combination in extreme tension fibre doesn't reach the limit value fctm, see 6.1 (109)

Critical combinations selected for section checks

Combination	Critical load effect description
ULS Fundamental ST(12)(6)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12)

Combination	Critical load effect description
ULS Fundamental ST(6)(344)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6)
ULS Fundamental ST(6)(347)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6)
SLS Char ST(6) (1099)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6)
SLS Frequent ST(6)(1706)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6)
SLS Quasi ST(6) (1716)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6)

Construction stage: Temporary supports M(3,6,9) (46,0d)



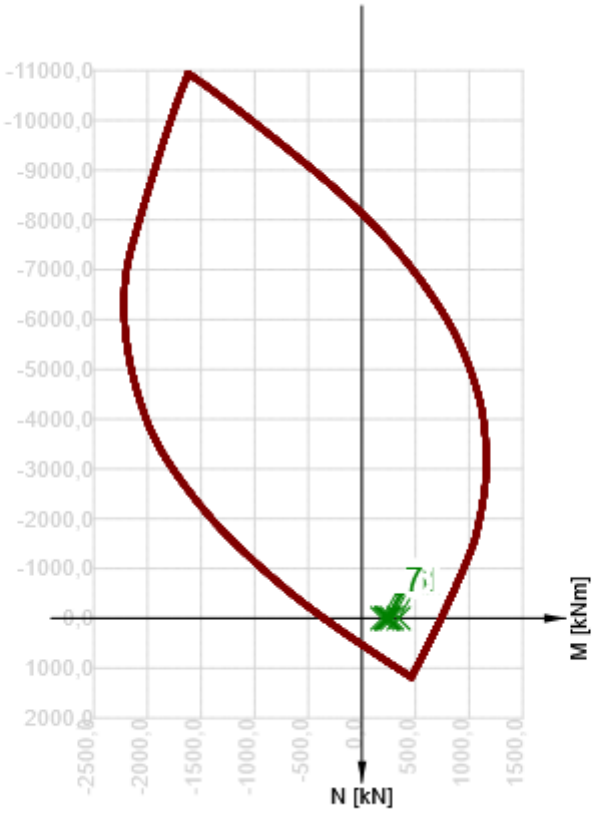
Position	Reinforcement	Governing type of check	Value [%]	Check
Section 4 (22,29m)	B-B	Stress Limitation	94,3	OK

Limit value of the exploitation of the cross-section: 100,0 %

Section check for position: Section 4 (22,29m)

Governing type of check	Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Stress Limitation	SLS Char ST(10)(1094)	-489,1	-102,7	0,1	94,3	OK

Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Capacity N-M-M					
ULS Fundamental ST(10)(475)	0,0	341,6	0,1	46,3	OK
Shear					
ULS Fundamental ST(10)(475)	-489,1	12,8	0,1	0,1	OK
Torsion					
ULS Fundamental ST(10)(218)	-489,1	-102,7	0,1	0,0	OK
Interaction					
ULS Fundamental ST(10)(475)	-489,1	12,8	0,1	83,9	OK
Stress Limitation					
SLS Char ST(10)(1094)	-489,1	-102,7	0,1	94,3	OK
Crack Width					
SLS Quasi ST(10)(1717)	-513,5	-119,2	0,1	5,6	OK
Brittle Failure					
SLS Frequent ST(10)(1707)	-489,1	-102,7	0,1	0,0	OK



	Extreme	N [kN]	My [kNm]	Mz [kNm]
1	ULS Fundamental ST(10)(475)	0,0	341,6	0,0
2	ULS Fundamental ST(10)(228)	0,0	280,9	0,0
3	ULS Fundamental ST(10)(278)	0,0	250,3	0,0
4	ULS Fundamental ST(10)(1296)	0,0	250,3	0,0
5	ULS Fundamental ST(10)(1119)	0,0	226,1	0,0
6	ULS Fundamental ST(10)(218)	0,0	226,1	0,0
7	ULS Fundamental ST(10)(434)	0,0	189,7	0,0

Nonconformity

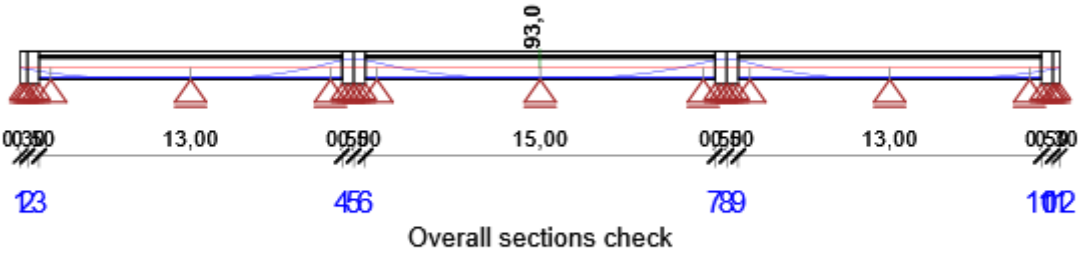
	Type of check	Nonconformities
⚠	Shear	Shear is resisted by concrete, shear reinforcement is required according to detailing provisions, see 6.2.2
⚠	Torsion	It is not possible to create equivalent thin-walled section for torsion check, but it is not necessary because torsional moment is zero.
ℹ	Brittle Failure	Tensile stress caused by frequent load combination in extreme tension fibre doesn't reach the limit value fctm, see 6.1 (109)

Critical combinations selected for section checks

Combination	Critical load effect description
ULS Fundamental ST(12)(10)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12)
ULS Fundamental ST(10)(218)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10)

Combination	Critical load effect description
ULS Fundamental ST(10)(475)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10)
SLS Char ST(10) (1094)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10)
SLS Frequent ST(10)(1707)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10)
SLS Quasi ST(10) (1717)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10)

Construction stage: Casting of composite slab M(3,6,9) (80,0d)



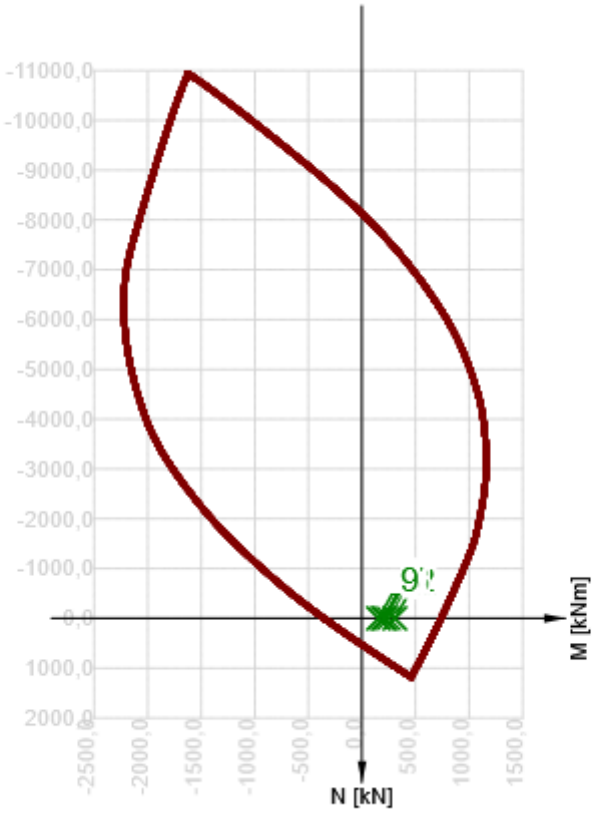
Position	Reinforcement	Governing type of check	Value [%]	Check
Section 4 (22,29m)	B-B	Stress Limitation	93,0	OK

Limit value of the exploitation of the cross-section: 100,0 %

Section check for position: Section 4 (22,29m)

Governing type of check	Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Stress Limitation	SLS Char ST(11)(1095)	-482,6	-127,6	-21,1	93,0	OK

Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Capacity N-M-M					
ULS Fundamental ST(11)(1318)	0,0	312,4	-21,0	42,4	OK
Shear					
ULS Fundamental ST(11)(274)	-482,6	-113,5	-28,5	14,0	OK
Torsion					
ULS Fundamental ST(11)(246)	-482,6	-72,7	-21,0	0,0	OK
Interaction					
ULS Fundamental ST(11)(437)	-482,6	-22,3	-28,4	84,1	OK
Stress Limitation					
SLS Char ST(11)(1095)	-482,6	-127,6	-21,1	93,0	OK
Crack Width					
SLS Quasi ST(11)(1718)	-506,8	-143,8	-21,1	8,1	OK
Brittle Failure					
SLS Frequent ST(11)(1708)	-482,6	-127,6	-21,1	0,0	OK



	Extreme	N [kN]	My [kNm]	Mz [kNm]
1	ULS Fundamental ST(11)(1318)	0,0	312,4	0,0
2	ULS Fundamental ST(11)(437)	0,0	302,2	0,0
3	ULS Fundamental ST(11)(246)	0,0	251,8	0,0
4	ULS Fundamental ST(11)(1297)	0,0	221,2	0,0
5	ULS Fundamental ST(11)(274)	0,0	210,9	0,0
6	ULS Fundamental ST(11)(1120)	0,0	196,9	0,0
7	ULS Fundamental ST(11)(253)	0,0	196,9	0,0
8	ULS Fundamental ST(11)(421)	0,0	160,5	0,0
9	ULS Fundamental ST(11)(466)	0,0	150,3	0,0

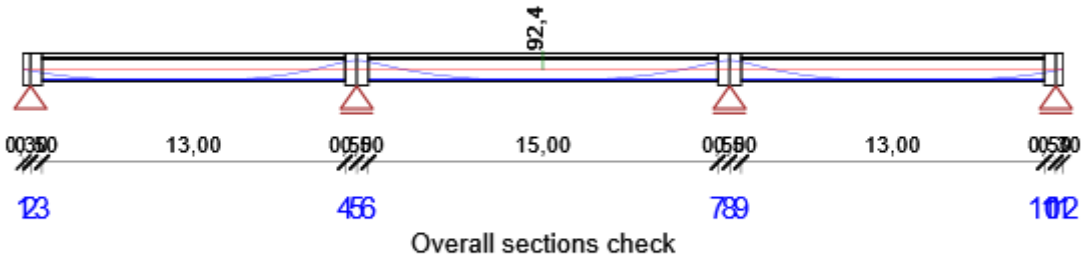
Nonconformity

	Type of check	Nonconformities
⚠	Shear	Default value (from code settings) of effective depth was used for shear calculation
⚠	Shear	Default value (from code settings) of lever arm was used for shear calculation
⚠	Shear	Shear is resisted by concrete, shear reinforcement is required according to detailing provisions, see 6.2.2
⚠	Torsion	It is not possible to create equivalent thin-walled section for torsion check, but it is not necessary because torsional moment is zero.
ℹ	Brittle Failure	Tensile stress caused by frequent load combination in extreme tension fibre doesn't reach the limit value fctm, see 6.1 (109)

Critical combinations selected for section checks

Combination	Critical load effect description
ULS Fundamental ST(12)(11)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12)
ULS Fundamental ST(11)(246)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10) + R (11) + SWS (11)
ULS Fundamental ST(11)(274)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11)
ULS Fundamental ST(11)(437)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11)
SLS Char ST(11) (1095)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11)
ULS Fundamental ST(11)(1318)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + SWS (11)
SLS Frequent ST(11)(1708)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11)
SLS Quasi ST(11) (1718)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11)

Construction stage: Final supports (90,0d)



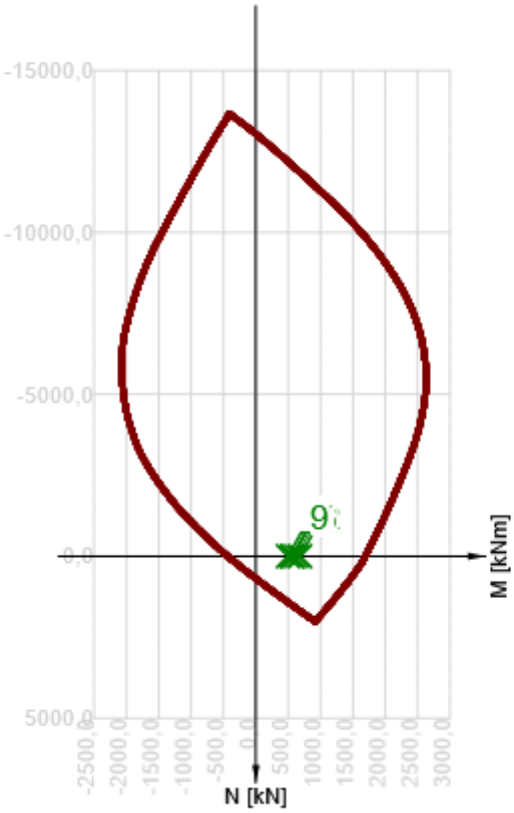
Position	Reinforcement	Governing type of check	Value [%]	Check
Section 4 (22,29m)	B-B	Stress Limitation	92,4	OK

Limit value of the exploitation of the cross-section: 100,0 %

Section check for position: Section 4 (22,29m)

Governing type of check	Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Stress Limitation	SLSC ST(12)(1088)	-1009,1	-140,6	-0,1	92,4	OK

Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Capacity N-M-M					
ULS Fundamental ST(12)(480)	-0,1	690,0	10,9	40,8	OK
Shear					
ULS Fundamental ST(12)(305)	-1009,1	-49,7	10,9	4,5	OK
Torsion					
ULS Fundamental ST(12)(255)	-1009,1	-104,6	10,9	0,0	OK
Interaction					
ULS Fundamental ST(12)(480)	-1009,1	10,9	10,9	83,1	OK
Stress Limitation					
SLSC ST(12)(1088)	-1009,1	-140,6	-0,1	92,4	OK
Crack Width					
SLSQ ST(12)(1719)	-1086,0	-161,1	-0,1	3,7	OK
Brittle Failure					
SLSF ST(12)(1709)	-1009,1	-140,6	-0,1	0,0	OK



	Extreme	N [kN]	My [kNm]	Mz [kNm]
1	ULS Fundamental ST(12)(480)	-0,1	690,0	0,0
2	ULS Fundamental ST(12)(440)	-0,1	679,8	0,0
3	ULS Fundamental ST(12)(305)	-0,1	629,4	0,0
4	ULS Fundamental ST(12)(1299)	-0,1	574,5	0,0
5	ULS Fundamental ST(12)(255)	-0,1	574,5	0,0
6	ULS Fundamental ST(12)(1300)	0,0	562,8	0,0
7	ULS Fundamental ST(12)(304)	0,0	552,6	0,0
8	ULS Fundamental ST(12)(522)	0,0	502,1	0,0
9	ULS Fundamental ST(12)(468)	0,0	491,9	0,0

Nonconformity

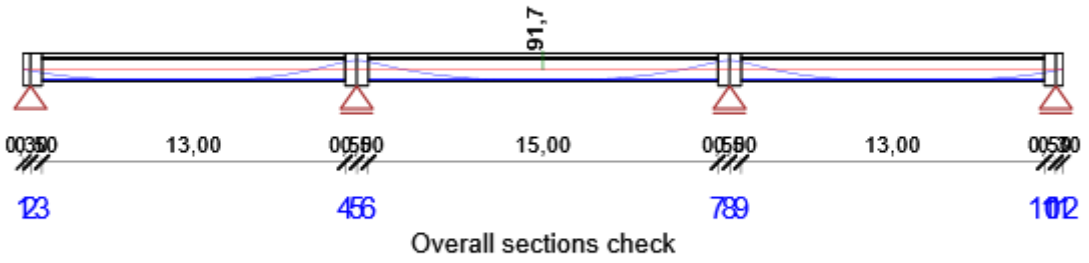
	Type of check	Nonconformities
⚠	Shear	Default value (from code settings) of effective depth was used for shear calculation
⚠	Shear	Default value (from code settings) of lever arm was used for shear calculation
⚠	Shear	Shear is resisted by concrete, shear reinforcement is required according to detailing provisions, see 6.2.2
ℹ	Brittle Failure	Tensile stress caused by frequent load combination in extreme tension fibre doesn't reach the limit value fctm, see 6.1 (109)

Critical combinations selected for section checks

Combination	Critical load effect description
ULS Fundamental ST(12)(12)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12)

Combination	Critical load effect description
ULS Fundamental ST(12)(255)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12)
ULS Fundamental ST(12)(305)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12)
ULS Fundamental ST(12)(480)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12)
SLSC ST(12) (1088)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12)
SLSF ST(12)(1709)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12)
SLSQ ST(12) (1719)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12)

Construction stage: Superimposed dead load (120,0d)



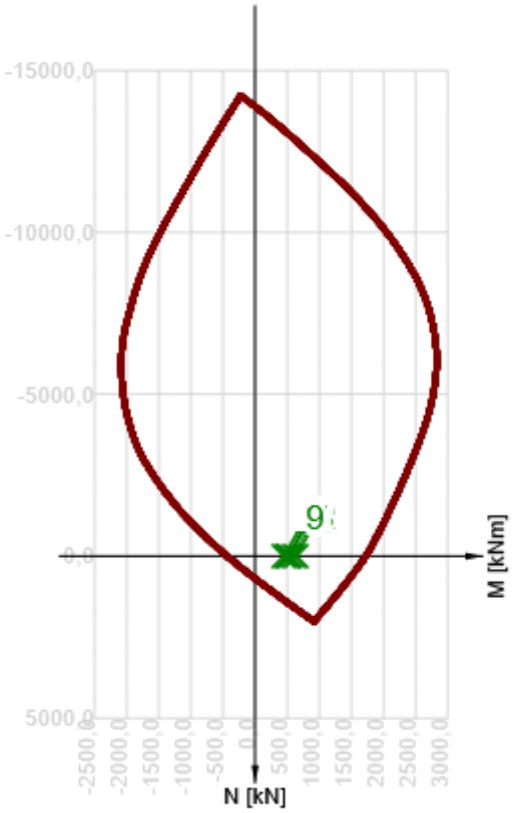
Position	Reinforcement	Governing type of check	Value [%]	Check
Section 4 (22,29m)	B-B	Stress Limitation	91,7	OK

Limit value of the exploitation of the cross-section: 100,0 %

Section check for position: Section 4 (22,29m)

Governing type of check	Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Stress Limitation	SLS Char ST(13)(1089)	-991,4	-180,3	-0,8	91,7	OK

Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Capacity N-M-M					
ULS Fundamental ST(13)(1319)	-0,1	647,1	10,3	37,6	OK
Shear					
ULS Fundamental ST(13)(314)	-991,4	-80,7	10,3	4,2	OK
Torsion					
ULS Fundamental ST(13)(313)	-991,4	-166,3	-8,2	0,0	OK
Interaction					
ULS Fundamental ST(13)(1319)	-991,4	-20,0	10,3	82,6	OK
Stress Limitation					
SLS Char ST(13)(1089)	-991,4	-180,3	-0,8	91,7	OK
Crack Width					
SLS Quasi ST(13)(1720)	-1066,7	-199,8	-0,8	2,7	OK
Brittle Failure					
SLS Frequent ST(13)(1710)	-991,4	-180,3	-0,8	0,0	OK



	Extreme	N [kN]	My [kNm]	Mz [kNm]
1	ULS Fundamental ST(13)(1319)	-0,1	647,1	0,0
2	ULS Fundamental ST(13)(443)	-0,1	628,1	0,0
3	ULS Fundamental ST(13)(314)	-0,1	586,5	0,0
4	ULS Fundamental ST(13)(1303)	-0,1	531,6	0,0
5	ULS Fundamental ST(13)(1309)	-0,1	531,6	0,0
6	ULS Fundamental ST(13)(1304)	0,0	511,1	0,0
7	ULS Fundamental ST(13)(313)	0,0	500,9	0,0
8	ULS Fundamental ST(13)(1302)	0,0	459,3	0,0
9	ULS Fundamental ST(13)(470)	0,0	440,2	0,0

Nonconformity

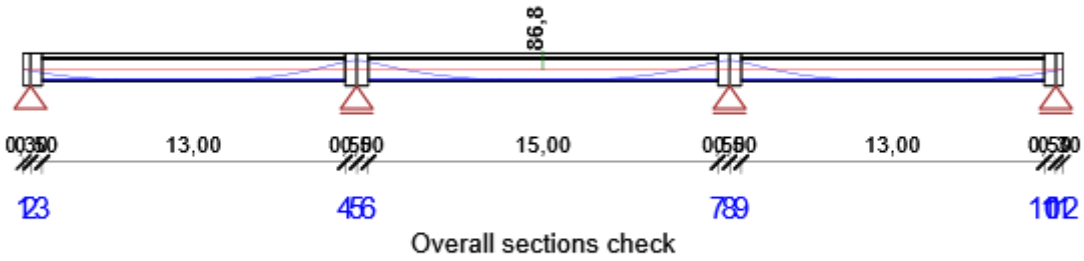
	Type of check	Nonconformities
⚠	Shear	Default value (from code settings) of effective depth was used for shear calculation
⚠	Shear	Default value (from code settings) of lever arm was used for shear calculation
⚠	Shear	Shear is resisted by concrete, shear reinforcement is required according to detailing provisions, see 6.2.2
ℹ	Brittle Failure	Tensile stress caused by frequent load combination in extreme tension fibre doesn't reach the limit value fctm, see 6.1 (109)

Critical combinations selected for section checks

Combination	Critical load effect description
ULS Fundamental ST(12)(13)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12)

Combination	Critical load effect description
ULS Fundamental ST(13)(313)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13)
ULS Fundamental ST(13)(314)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + 1,35*G (6) + R (7) + 1,35*SW (7) + R (8) + G (8) + PRE (8) + R (9) + 1,35*G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13)
SLS Char ST(13) (1089)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13)
ULS Fundamental ST(13)(1319)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13)
SLS Frequent ST(13)(1710)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13)
SLS Quasi ST(13) (1720)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13)

Construction stage: End of design working life (18250,0d)



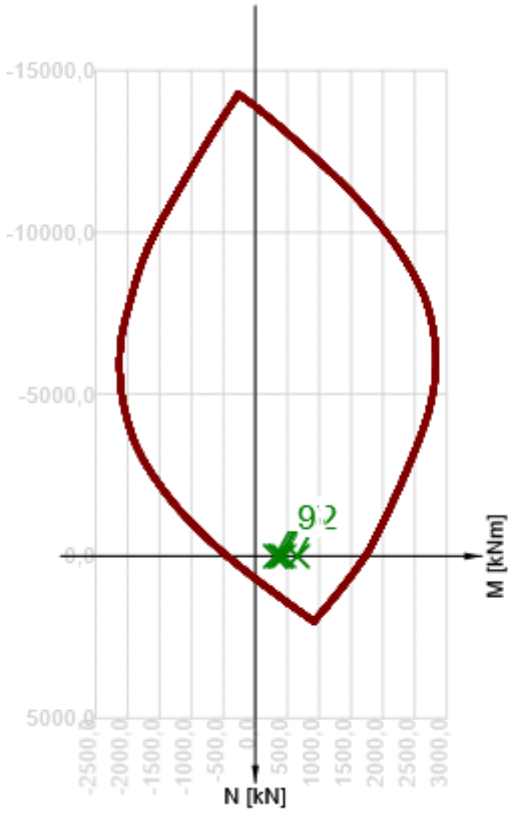
Position	Reinforcement	Governing type of check	Value [%]	Check
Section 4 (22,29m)	B-B	Stress Limitation	86,8	OK

Limit value of the exploitation of the cross-section: 100,0 %

Section check for position: Section 4 (22,29m)

Governing type of check	Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Stress Limitation	SLS Char ST(14)(1090)	-935,2	-152,1	-1,8	86,8	OK

Combination	N_{Ed} [kN]	$M_{Ed,y}$ [kNm]	V_{Ed} [kN]	Value [%]	Check
Capacity N-M-M					
ULS Fundamental ST(14)(478)	-0,1	668,8	9,3	38,8	OK
Shear					
ULS Fundamental ST(14)(479)	-935,2	-259,2	-16,4	6,7	OK
Torsion					
ULS Fundamental ST(14)(446)	-935,2	20,4	1,9	0,0	OK
Interaction					
ULS Fundamental ST(14)(478)	-935,2	39,4	9,3	78,5	OK
Stress Limitation					
SLS Char ST(14)(1090)	-935,2	-152,1	-1,8	86,8	OK
Crack Width					
SLS Frequent ST(14)(1712)	-864,2	-189,1	-1,8	3,8	OK
Brittle Failure					
SLS Frequent ST(14)(1711)	-935,2	-250,9	0,3	0,0	OK



	Extreme	N [kN]	My [kNm]	Mz [kNm]
1	ULS Fundamental ST(14)(478)	-0,1	668,8	0,0
2	ULS Fundamental ST(14)(446)	-0,1	649,8	0,0
3	ULS Fundamental ST(14)(451)	-0,1	455,6	0,0
4	ULS Fundamental ST(14)(1308)	0,0	412,2	0,0
5	ULS Fundamental ST(14)(1307)	-0,1	400,9	0,0
6	ULS Fundamental ST(14)(1310)	-0,1	400,9	0,0
7	ULS Fundamental ST(14)(479)	0,0	370,2	0,0
8	ULS Fundamental ST(14)(1306)	0,0	328,5	0,0
9	ULS Fundamental ST(14)(472)	0,0	309,3	0,0

Nonconformity

	Type of check	Nonconformities
⚠	Shear	Default value (from code settings) of effective depth was used for shear calculation
⚠	Shear	Default value (from code settings) of lever arm was used for shear calculation
⚠	Shear	Shear is resisted by concrete, shear reinforcement is required according to detailing provisions, see 6.2.2
⚠	Crack Width	Loads for quasi-permanent combination have not been input. Check of crack width according to clause 7.3.4 has not been done.
ℹ	Brittle Failure	Tensile stress caused by frequent load combination in extreme tension fibre doesn't reach the limit value fctm, see 6.1 (109)

Critical combinations selected for section checks

Combination	Critical load effect description
ULS Fundamental ST(6)(14)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + G (3) + R (4) + 1,35*SW (4) + R (5) + G (5) + PRE (5) + R (6) + 1,35*G (6)
ULS Fundamental ST(14)(446)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + G (13) + 1,35*V2 + R (14) + G (14)
ULS Fundamental ST(14)(478)	1,35*SW (1) + R (2) + 1,35*G (2) + PRE (2) + R (3) + 1,35*G (3) + R (4) + 1,35*SW (4) + R (5) + 1,35*G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + SWS (11) + R (12) + 1,35*G (12) + POST (12) + R (13) + 1,35*G (13) + 1,35*V2 + R (14) + 1,35*G (14)
ULS Fundamental ST(14)(479)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + 1,35*G (8) + PRE (8) + R (9) + G (9) + R (10) + 1,35*G (10) + R (11) + 1,35*SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13) + 1,35*V3 + R (14) + G (14)
SLS Char ST(14) (1090)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13) + V2 + R (14) + G (14)
SLS Frequent ST(14)(1711)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13) + 0,4*V1 + R (14) + G (14)
SLS Frequent ST(14)(1712)	SW (1) + R (2) + G (2) + PRE (2) + R (3) + G (3) + R (4) + SW (4) + R (5) + G (5) + PRE (5) + R (6) + G (6) + R (7) + SW (7) + R (8) + G (8) + PRE (8) + R (9) + G (9) + R (10) + G (10) + R (11) + SWS (11) + R (12) + G (12) + POST (12) + R (13) + G (13) + 0,4*V2 + R (14) + G (14)

Bill of material

Concrete	[m^3]	[kg]
C30/37	13,24	33100
C50/60	15,45	38632

Length [m]	Concrete [m^3]	Concrete [kg]	Reinforcement [kg]	Total weight [kg]	Reinforcement / m^3 concrete [kg/m^3]
43,80	28,69	71732	1120	72852	39

Φ [mm]	Material	Type of reinforcement	Length [m]	Weight [kg]
16	B 500B	Reinforcement bars	43,20	68
12	B 500B	Reinforcement bars	574,00	510
10	B 500B	Stirrups	879,14	542

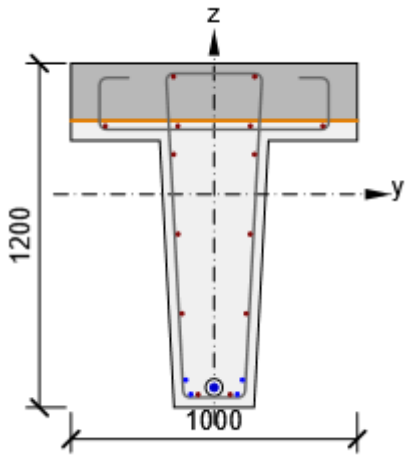
Design member data

Member type	Beam
Exposure class	XC3, XD1
Relative humidity	65,0 %
Creep coeficient	Calculated
Structural member importance	Major
Redistribution of moments	Off
Reduction of moments	Off
Reduction of shear force	Off
Limited interaction check	Off

Reinforcement zones

Zone	Begin [m]	End [m]	Length [m]	Reinforcement
1	0,00	0,80	0,80	A-A
2	0,80	13,80	13,00	B-B
3	13,80	14,80	1,00	A-A
4	14,80	29,80	15,00	B-B
5	29,80	30,80	1,00	A-A
6	30,80	43,80	13,00	B-B
7	43,80	44,60	0,80	A-A

Reinforcement for position

Position	Reinforced cross-section	Reinforcement
Section 4 (22,29m)		Reinforcement: 2ø12 (226mm²) (B 500B), z = 410 mm 4ø12 (452mm²) (B 500B), z = 238 mm 2ø12 (226mm²) (B 500B), z = 139 mm 2ø12 (226mm²) (B 500B), z = -139 mm 2ø12 (226mm²) (B 500B), z = -416 mm 2ø12 (226mm²) (B 500B), z = -698 mm Stirrups: ø10 (B 500B) - 250 mm, closed, for torsion check ø10 (B 500B) - 200 mm Tendons: 2*1ø12,5 (93mm²) (Y1860S7-12.5), z = -647 mm 5ø12,5 (465mm²) (Y1860S7-12.5), Position 0, -674 mm 2*1ø12,5 (93mm²) (Y1860S7-12.5), z = -697 mm

Material of reinforcement

Name	f_{yk} [MPa]	f_{tk} [MPa]	E [MPa]	v [-]	Unit mass [kg/m^3]
B 500B	500,0	525,0	200000,0	0,20	7850
	f_{tk}/f_{yk} = 1,08,ε_{uk} = 500,0 1e-4,Type: Bars,Bar surface: Ribbed,Class: B, Fabrication: Hot rolled,Diagram type: Bilinear with horizontal top branch				