Statens vegvesen

Ferry free E39 –Fjord crossings Bjørnafjorden | 304624

Rev.	Publish date	Description	Made by	Checked by	Project appro.	Client appro.
1	15.08.2019	Final issue	PSU	PNL	SEJ	
0	30.06.2019	Final issue	PSU	PNL	SEJ	

Client

Statens vegvesen

Contractor

AAS-JAKOBSEN COWI Multiconsult

JOHN HOLT AkerSolutions entail NGI DISSING+WEITLING architecture as mossmaritime

Contract no.:

18/91094

Document name:

Preferred solution, K12 – Appendix A

Drawings binder

Document no.:	Rev.:	Pages:
SBJ-33-C5-AMC-90-RE-101	1	74

CONCEPT DEVELOPMENT, FLOATING BRIDGE E39 BJØRNAFJORDEN

Preferred solution, K12

Appendix A – Drawings binder

CLIENT

Statens vegvesen

DATE: / REVISION: 15.08.2019 / 1

DOCUMENT CODE: SBJ-33-C5-AMC-90-RE-101

AAS-JAKOBSEN COWI Multiconsult

JOHS HOLT AkerSolutions entail NGI DISSING+WEITLING architecture a|s mossmaritime

REPORT

PROJECT	Concept development, floating bridge E39 Bjørnafjorden	DOCUMENT CODE	SBJ-33-C5-AMC-90-RE-101
SUBJECT	Appendix A – Drawings binder – K12	ACCESSIBILITY	Restricted
CLIENT	Statens vegvesen	PROJECT MANAGER	Svein Erik Jakobsen
CONTACT	Øyvind Kongsvik Nedrebø	PREPARED BY	Petter Sundquist
		RESPONSIBLE UNIT	AMC

SUMMARY

This appendix is a drawings binder, containing all drawings related to the following document:

- SBJ-33-C5-AMC-90-RE-100 Preferred solution, K12

1	15.08.2019	Final issue	P. Sundquist	P. N. Larsen	S. E. Jakobsen
0	30.06.2019	Final issue	P. Sundquist	P. N. Larsen	S. E. Jakobsen
REV.	DATE	DESCRIPTION	PREPARED BY	CHECKED BY	APPROVED BY

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SBJ-33-C5-AMC-22-DR-102	Cable stayed bridge, K12 - Tower, elevation and sections
SBJ-33-C5-AMC-22-DR-103	Cable stayed bridge, K12 - Steel box girder, section and details
SBJ-33-C5-AMC-22-DR-104	Cable stayed bridge, K12 - Concrete box girder, section and details
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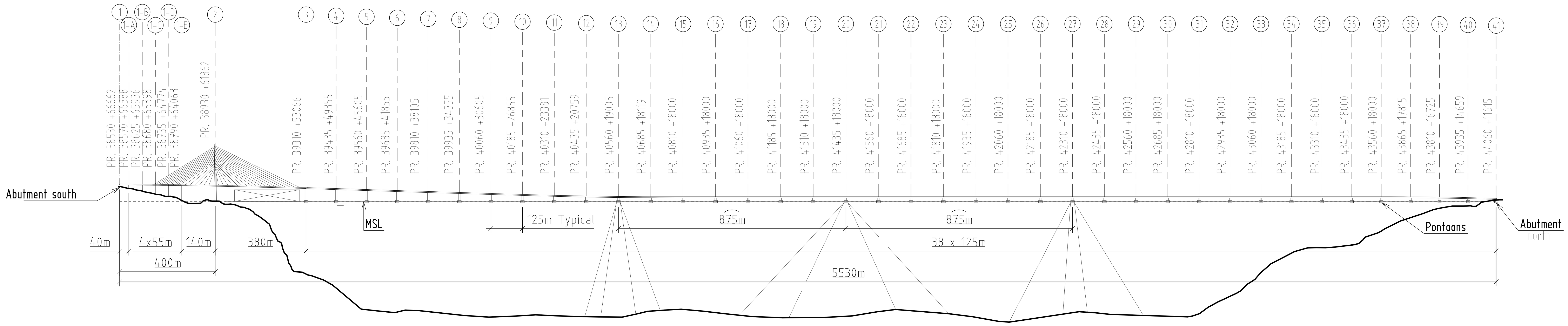
STATIONING	EXISTING GROUND LEVEL
38530	
38570	+49480
38625	+39697
38680	+28180
38735	+19530
38790	+4260
38930	+1870
39310	
39359.716	
39435	-435510
39560	-495100
39685	-511265
39810	-545545
39935	-545419
40060	-542000
40185	-542337
40210.344	
40310	-555387
40435	-558120
40560	-555116
40685	-558227
40750.101	
40810	-562143
40935	-556889
41060	-539686
41185	-522046
41310	-491265
41435	-489000
41560	-489000
41685	-487349
41810	-467000
41935	-446230
42060	-402895
42185	-367507
42310	-313213
42435	-238067
42560	-238067
42685	-198646
42810	-202762
42935	-182640
43060	-180150
43185	-179540
43310	-177640
43435	-173460
43560	-138880
43602.855	
43685	-101790
43810	-51890
43935	-20380
44060	+4419

VERTICAL CURVATURE: R= 35000 | S= -3.00% | R= 18000 | S= 0.00% | R= 16000

PLAN CURVATURE: R= ∞ | R= 5000

CROSS FALL: 3,0%



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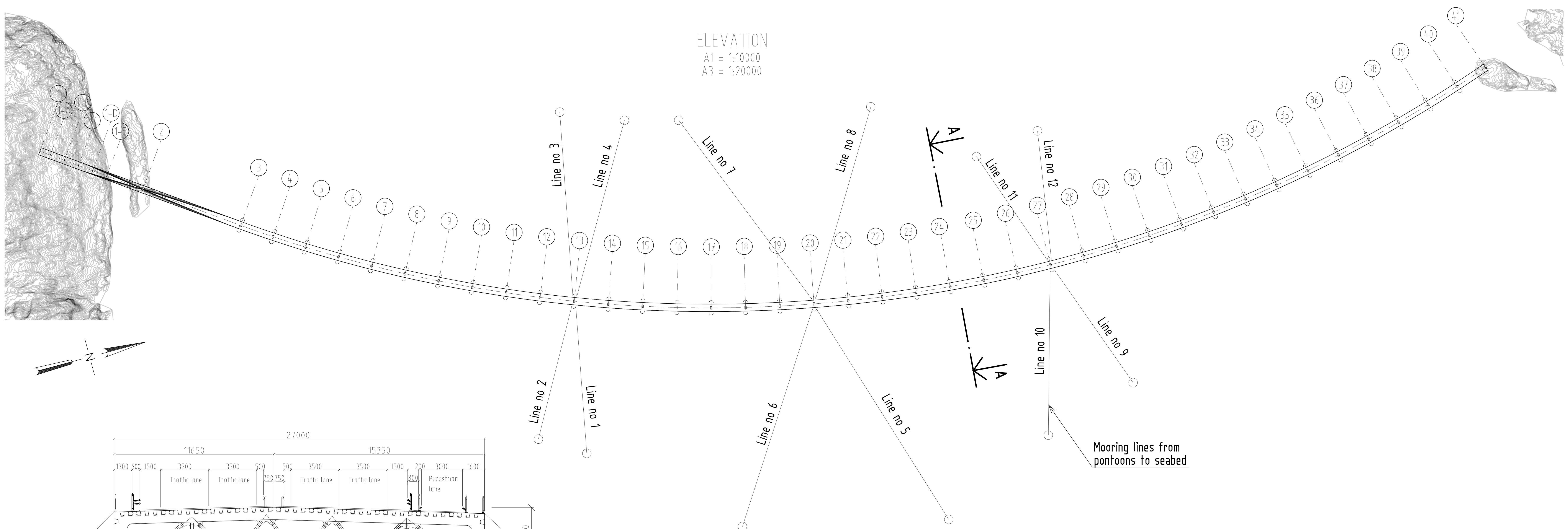

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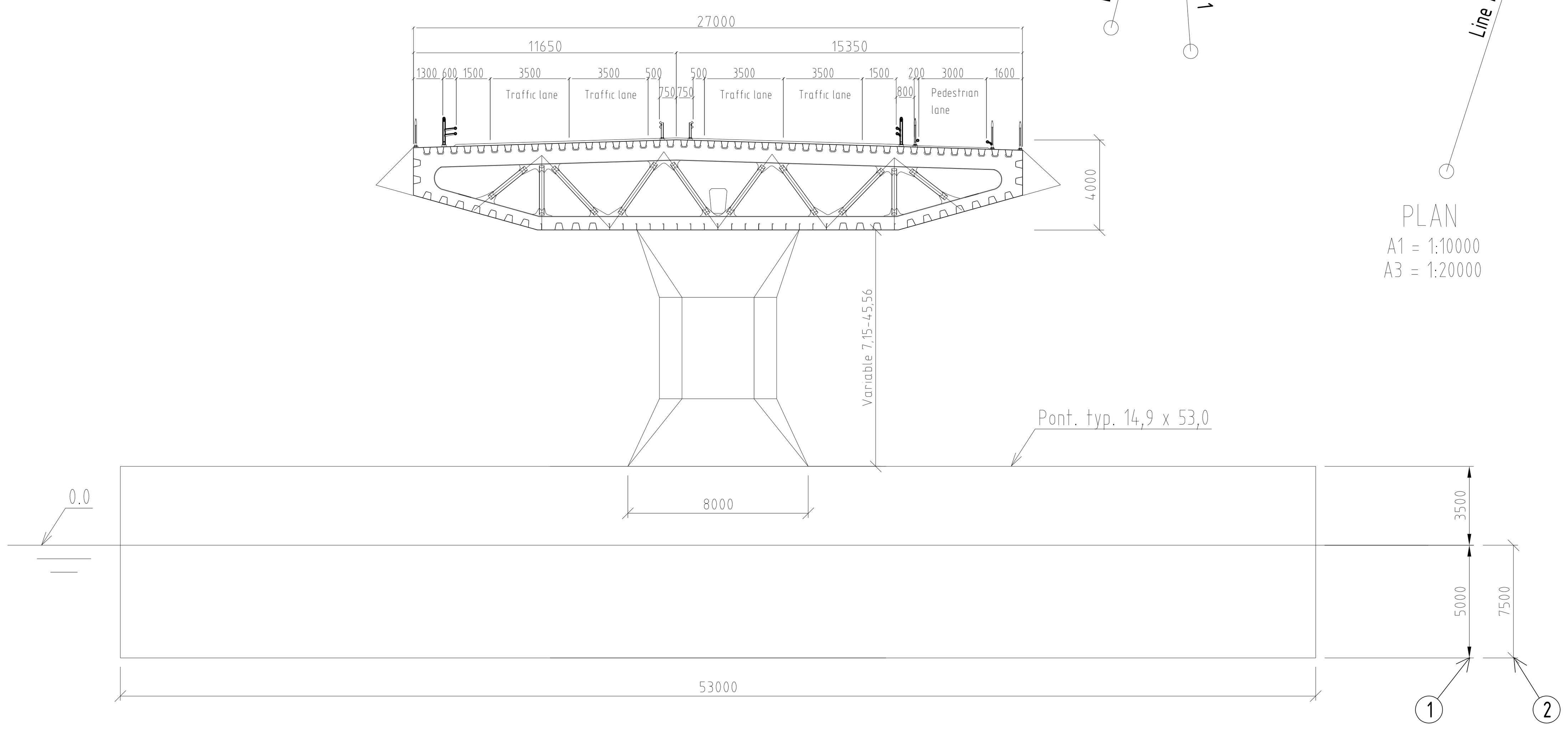


SECTION A-A, steel
A1 = 1:200
A3 = 1:400
DR-433

REMARKS:

1. General:

- Road class: H8
- Speed limit: 110 km/h
- Coordinate system NN200 EUREF89 UTM32N
- Measurement elevation in m following roadline
- Measurement plan in m
- Measurement section in mm

REMARKS:

○ Suction anchor

K12 anchor	UTM coordinates		Water depth [m]	Anchor type	Pretension [MN]
	N	E			
1	6 667 803	299 528	466	Suction	1,98
2	6 667 646	299 432	449	Suction	2,00
3	6 668 030	298 300	559	Suction	2,08
4	6 668 250	298 390	560	Suction	1,93
5	6 669 015	300 102	491	Suction	2,59
6	6 668 282	299 932	491	Suction	2,28
7	6 668 441	298 441	560	Suction	2,54
8	6 669 130	298 575	485	Suction	2,63
9	6 669 793	299 794	485	Suction	2,17
10	6 669 445	299 899	388	Suction	1,69
11	6 669 455	298 850	442	Suction	2,09
12	6 669 694	298 817	360	Suction	2,04

NOTES:

(1) Pontoons without anchor points/fairlead

(2) Pontoons with anchor points/fairlead, axis 13, 20 and 27

AAS-JAKOBSEN COWI Multiconsult
JOHS HOLT, AkerSolutions, entail, NGI, DISSING+WEITLING architecture a/s, mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
1	Final issue	AS/RML	PNL	SEJ	30.06.2019
0	Final issue	AS/RML	PNL	SEJ	24.05.2019

Statens vegvesen

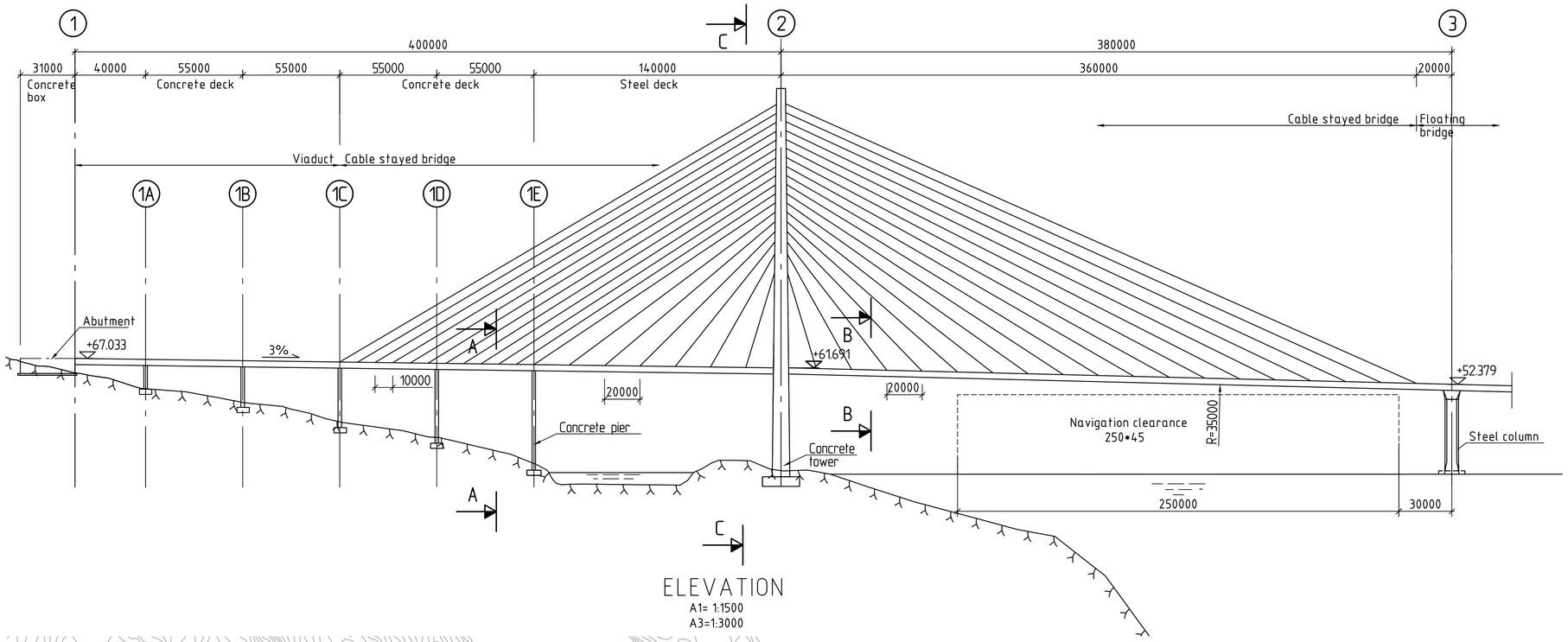
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

General view K12

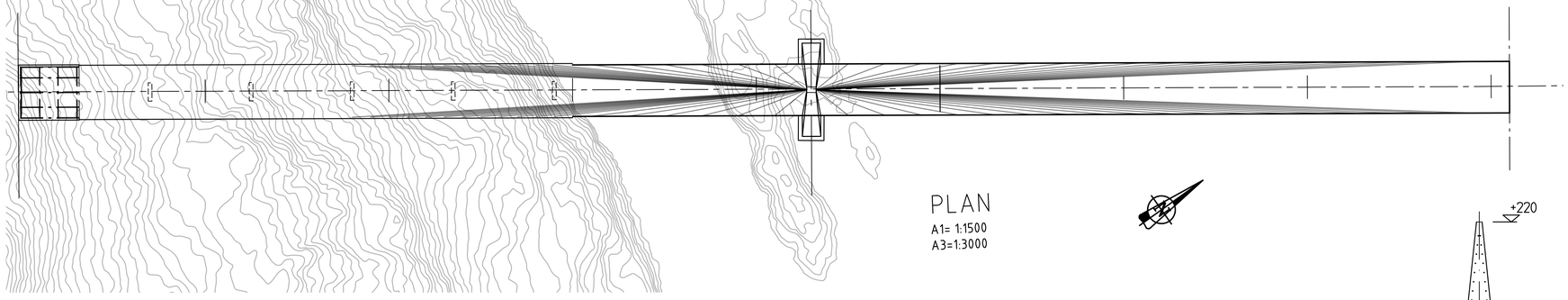
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:10000 / 1:200

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
AS/RML	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-012	1



ELEVATION

A1= 1:1500
A3=1:3000



PLAN

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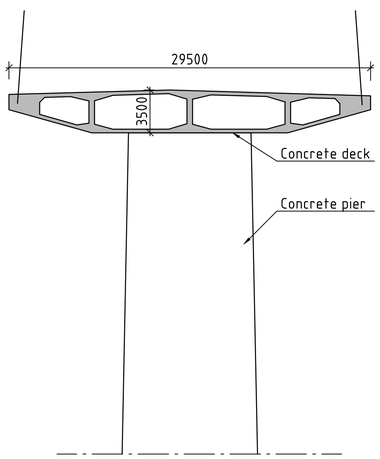

SECTION A-A

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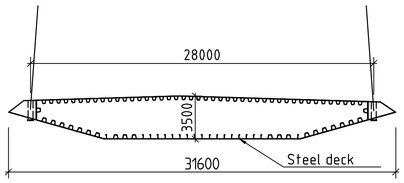
A3=1:500



SECTION B-B

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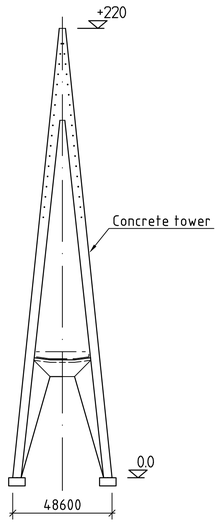
A3=1:500



SECTION C-C

A1= 1:1500
A3=1:3000

REMARKS:

1. General:
- All measurements in mm

REFERENCES:

DR-102	Cable stayed bridge	Tower, elevation and sections
DR-103	Cable stayed bridge	Steel box girder, section and details
DR-104	Cable stayed bridge	Concrete box girder, section and details
DR-105	Cable stayed bridge	Stay cable system
DR-106	Cable stayed bridge	Piers in side span
DR-813	Cable stayed bridge	Assembly and installation
DR-201	Abutments	South, layout and sections
DR-202	Abutments	North, layout and sections
DR-203	Abutments	South and north, details

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Rev.	Description	Drawn	Checked	Approved	Rev. date
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Statens vegvesen

E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

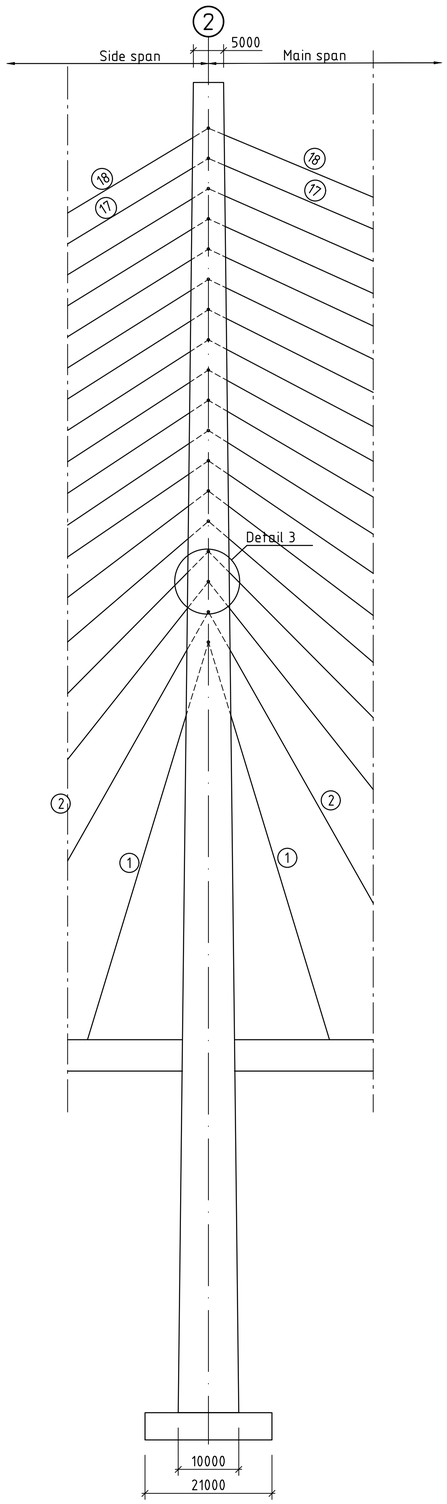
Cable stayed bridge, K12

Base case layout, plan and elevation

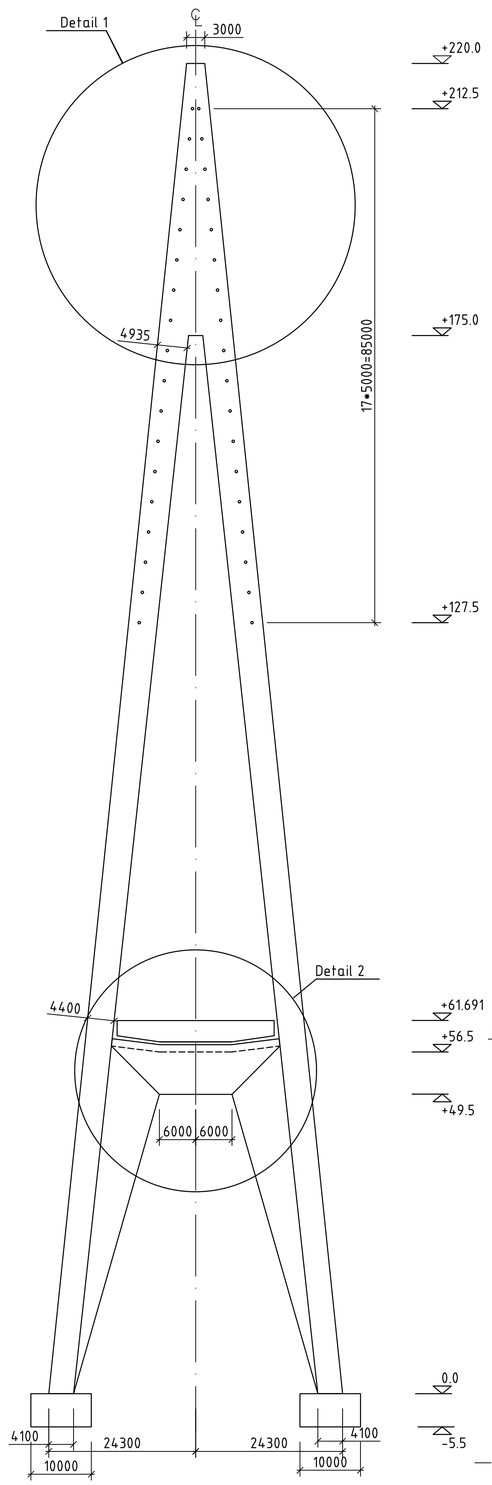
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:1500/1:250

Drawn by:	Checked by:	Approved by:	Project no.
IKO/HPO	AN	SEJ	10205546-01

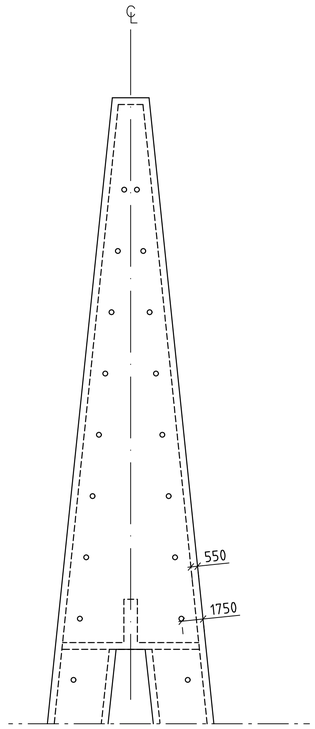
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-101 0



SIDE VIEW
A1=1:500
A3=1:1000



FRONT VIEW
A1=1:500
A3=1:1000



DETAIL 1
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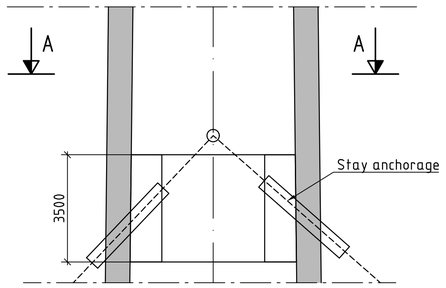
A3= 1:500



DETAIL 3
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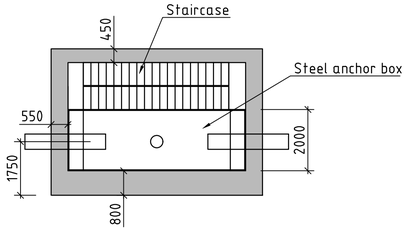
A3=1:200



SECTION A-A
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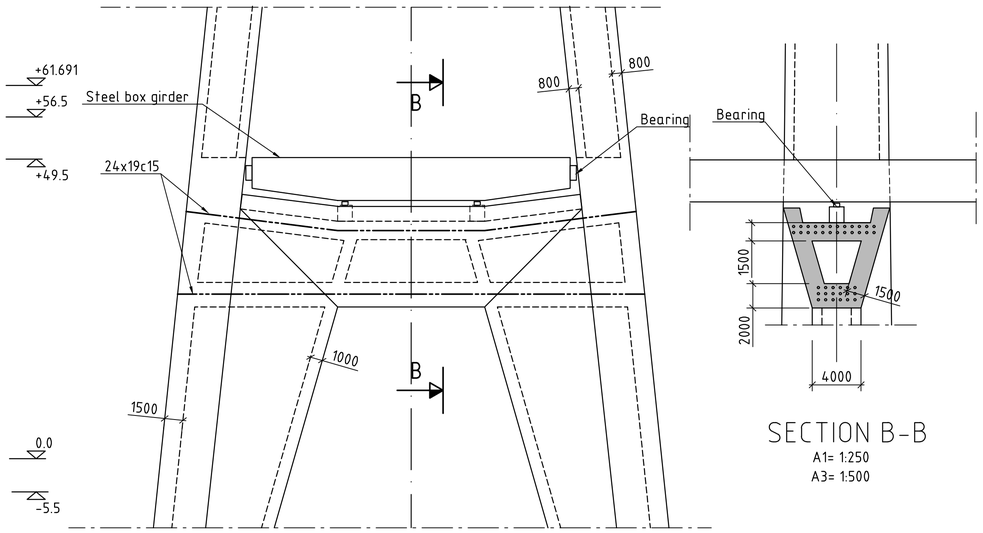
A3=1:200



DETAIL 2
A1= 1:250
A3= 1:500

SECTION B-B
A1= 1:250
A3= 1:500

REMARKS:

1. General:
- All measurements in mm.
2. Material:
- Concrete: B45

REFERENCES:

DR-101 Cable stayed bridge Layout, plan and elevation

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JOHNS HOLT AkerSolutions entail NGI DISSING+WEITLING architecture a/s mossmaritime

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Statens vegvesen

E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Cable stayed bridge, K12
Tower, elevation and sections

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:500/1:250/1:100

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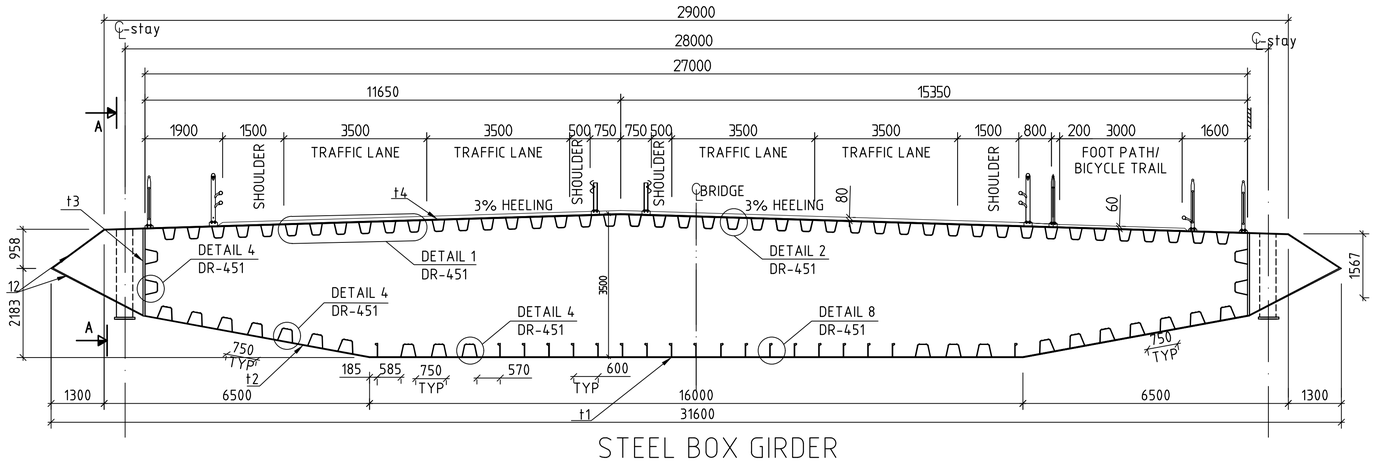
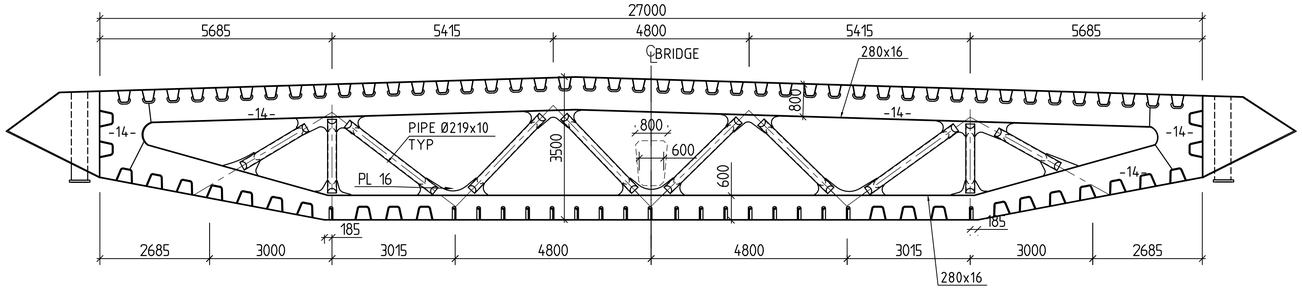
IKO/TOF	AN	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-102	0



STEEL BOX GIRDER

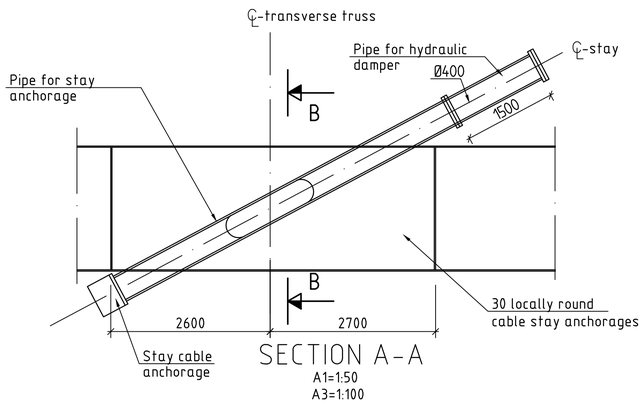
A1=1:75
A3=1:150

Trough and bulb arrangement see drawing DR-451



STEEL BOX GIRDER WITH TRANSVERSE TRUSS

A1=1:75
A3=1:150



SECTION A-A

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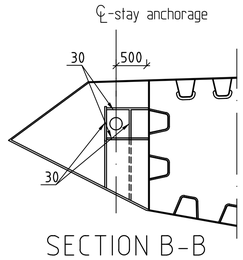
A3=1:100



SECTION B-B

A1=1:50
A3=1:100

Box girder type	t1 [mm]	t2 [mm]	t3 [mm]	t4 [mm]
H1	12	12	25	16
H2	20	20	30	20

Table 1: Plate thickness for cross-section type H1 and H2

Side span		Tower	Main span		
H1 [m]	H2[m]		H2[m]	H1[m]	H2[m]
55	80		110	230	20

Table 2: Length of cross-section types H1 and H2

REMARKS:

1. General:
- All measurements in mm
2. Material:
- Steel: S420 N/NL

REFERENCES:

DR-101	Cable stayed bridge	Layout, plan and elevation
DR-451	Bridge girder	Structural arrangement - Stiffeners

AAS-JAKOBSEN COWI Multiconsult
JOHN HOLT AkerSolutions entail NGI DISSING+WEITLING architecture a/s mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IKO/HPO	AN	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

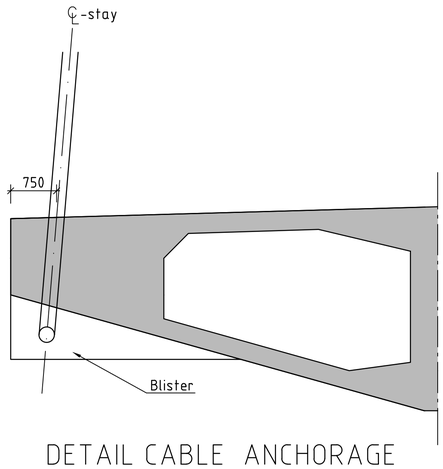
Concept development, floating bridge E39 Bjørnafjorden

Cable stayed bridge, K12
Steel box girder, section and details

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75/1:50

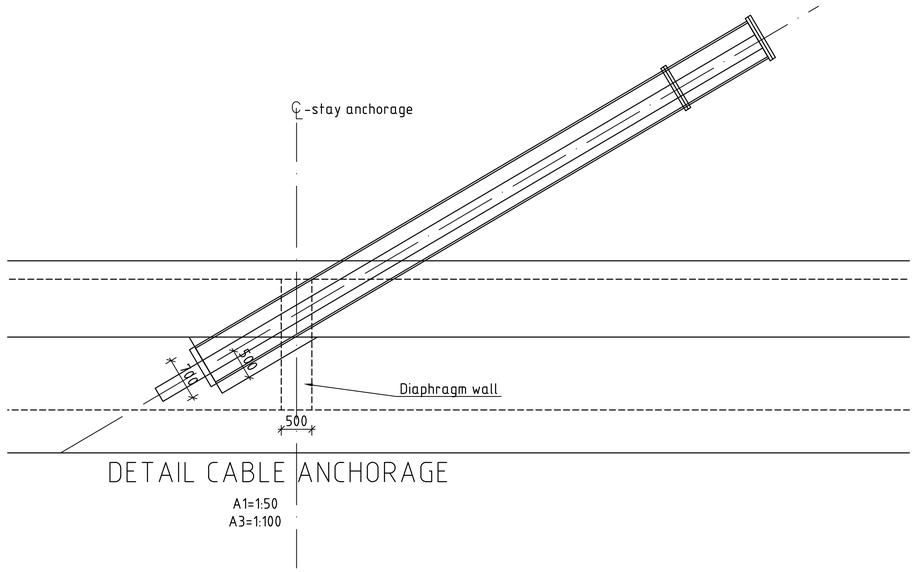
Drawn by:	Checked by:	Approved by:	Project no.
IKO/HPO	AN	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-103 0



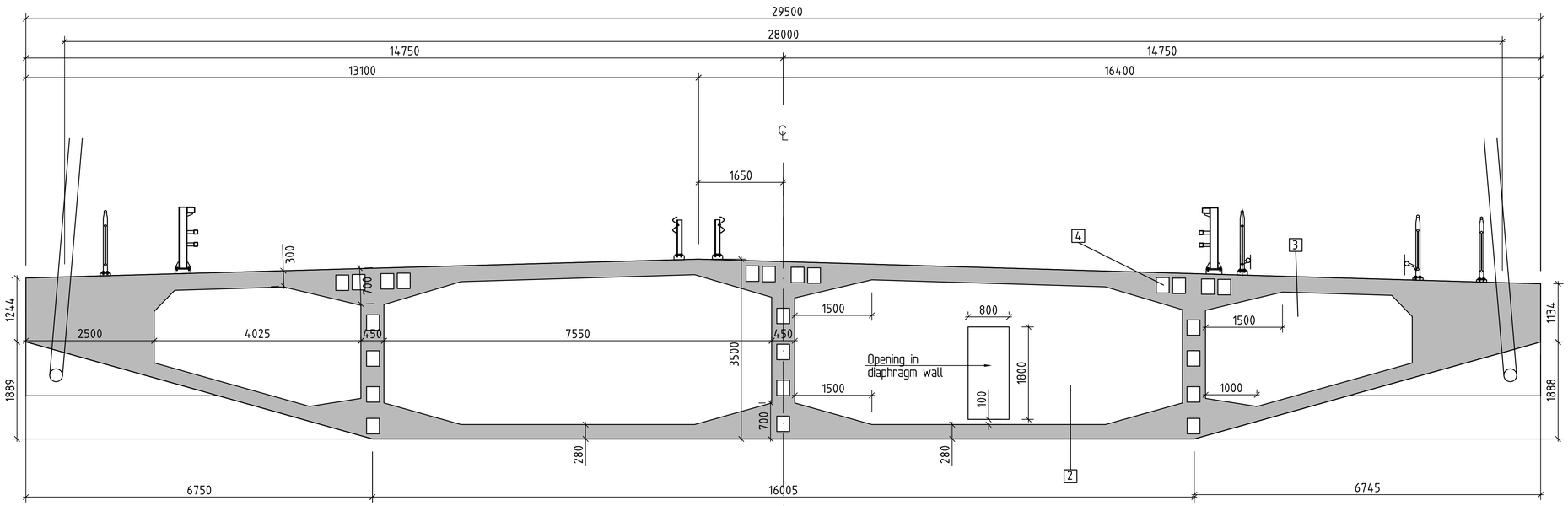
DETAIL CABLE ANCHORAGE

A1=1:50
A3=1:100



DETAIL CABLE ANCHORAGE

A1=1:50
A3=1:100



CONCRETE BOX GIRDER

A1=1:50
A3=1:100

REMARKS:

1. General:

- All measurements in mm

2. Material:

- Concrete: B45

3. Diaphragm t=500 mm at cable stay anchorages. Diaphragm t=3000 at pier axis.
4. A total of 12 prestressing tendons in general and 12 extra prestressing tendon at pier axis. Spk = 5300 kN/tendon.

REFERENCES:

DR-101 Cable stayed bridge Layout, plan and elevation

AAS-JAKOBSEN COWI Multiconsult

JOHN HOLT · AkerSolutions · entail · NGI · DISSING+WEITLING architecture a/s · mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IKO/AMU	AN	SEJ	30.06.2019

Statens vegvesen

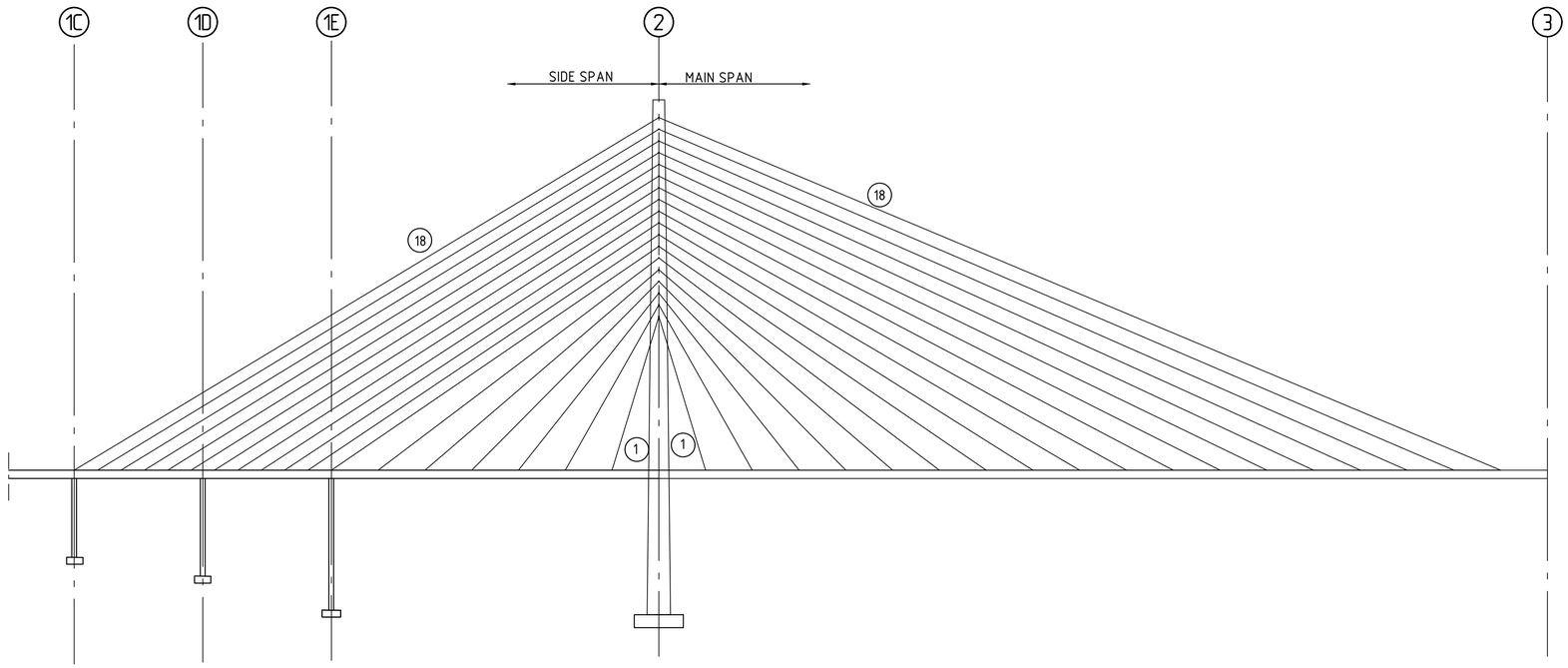
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Cable stayed bridge, K12
Concrete box girder, section and details

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IKO/AMU	AN	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-104	0



ELEVATION
A1=1:1250
A3=1:2500

REMARKS:

1. Materials:
- Multi-strand stay cables 15,7mm diameter strands, fu=1860 MPa
2. Installation
- Jacking from anchor chambers in tower

		Side span																	
Cable no		18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Length	m	292	281	270	258	247	236	225	214	203	192	181	170	150	132	114	97	81	69
No of strands	nos	61	61	61	61	61	61	55	55	55	55	43	43	43	37	37	31	31	31
Breaking load	MN	17,0	17,0	17,0	17,0	17,0	17,0	15,3	15,3	15,3	15,3	12,0	12,0	12,0	10,3	10,3	8,6	8,6	8,6
Linear weight	kg/m	71,83	71,83	71,83	71,83	71,83	71,83	64,76	64,76	64,76	64,76	50,63	50,63	50,63	43,57	43,57	36,50	36,50	36,50
Total weight*	T	21,0	20,2	19,4	18,5	17,7	17,0	14,6	13,9	13,1	12,4	9,2	8,6	7,6	5,8	5,0	3,5	3,0	2,5
HDPE tube	mm	225	225	225	225	225	225	200	200	200	200	200	200	200	180	180	160	160	160
Anchor tube deck	mm	355	355	355	355	355	355	323	323	323	323	323	323	323	273	273	244	244	244
Anchor tube tower	mm	419	419	419	419	419	419	419	419	419	419	406	406	406	355	355	323	323	323
Permanent load	MN	5,0	4,9	4,8	4,6	4,5	4,1	4,2	4,0	3,8	3,6	3,5	3,3	3,1	3,0	2,7	2,5	2,2	2,0
Traffic load	MN	1,3	1,4	1,5	1,7	1,8	1,9	2,0	2,0	1,9	1,8	1,7	1,6	1,5	1,4	1,3	1,2	1,1	1,0
Wave load	MN	0,9	0,9	0,8	0,8	0,8	0,7	0,7	0,6	0,5	0,4	0,3	0,3	0,3	0,2	0,2	0,1	0,1	0,1
Wind load	MN	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,3	0,3	0,3	0,3	0,3	0,3	0,3
Temperature load	MN	0,4	0,4	0,3	0,2	0,2	0,1	0,1	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Tide load	MN	0,3	0,3	0,3	0,2	0,2	0,2	0,2	0,2	0,1	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0
ULS1	MN	9,4	9,3	9,2	8,9	8,9	8,3	8,6	8,2	7,7	7,2	6,9	6,4	6,0	5,7	5,2	4,8	4,3	3,9
ULS2	MN	9,2	9,2	9,0	8,9	9,0	8,5	8,7	8,4	7,9	7,4	7,1	6,5	6,2	5,8	5,3	4,9	4,4	4,0
ULS3	MN	9,2	9,1	8,6	8,1	8,0	7,2	7,3	6,9	6,3	5,8	5,5	4,9	4,7	4,4	4,0	3,6	3,3	3,0
Max ULS	MN	9,4	9,3	9,2	8,9	9,0	8,5	8,7	8,4	7,9	7,4	7,1	6,5	6,2	5,8	5,3	4,9	4,4	4,0
Breaking load (design)	MN	9,5	9,5	9,5	9,5	9,5	9,5	8,5	8,5	8,5	8,5	6,7	6,7	6,7	5,7	5,7	4,8	4,8	4,8

*Excluding anchorages

Main span																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
69	81	97	114	132	150	170	189	209	229	249	269	289	309	329	350	370	390		
31	31	31	37	43	43	55	55	55	55	61	61	67	67	67	67	67	67		
8,6	8,6	8,6	10,3	12,0	12,0	15,3	15,3	15,3	15,3	17,0	17,0	18,7	18,7	18,7	18,7	18,7	18,7		
36,50	36,50	36,50	43,57	50,63	50,63	64,76	64,76	64,76	64,76	71,83	71,83	78,89	78,89	78,89	78,89	78,89	78,89		
2,5	3,0	3,5	5,0	6,7	7,6	11,0	12,2	13,5	14,8	17,9	19,3	22,8	24,4	26,0	27,6	29,2	30,8		
160	160	160	180	200	200	200	200	200	200	225	225	250	250	250	250	250	250		
244	244	244	273	323	323	323	323	323	323	355	355	406	406	406	406	406	406		
323	323	323	355	406	406	419	419	419	419	419	419	508	508	508	508	508	508		
2,0	2,2	2,5	2,7	3,0	3,2	3,4	3,6	3,8	4,1	4,4	4,7	4,9	5,2	5,2	5,2	5,2	5,2		
0,5	0,9	1,1	1,3	1,5	1,6	1,7	1,8	1,8	1,9	1,8	1,8	1,8	1,7	1,7	1,6	1,5	1,3		
0,0	0,0	0,0	0,1	0,2	0,3	0,4	0,4	0,4	0,5	0,6	0,7	0,8	1,0	1,1	1,2	1,1	1,0		
0,2	0,3	0,3	0,4	0,4	0,5	0,5	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6		
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,1	0,2	0,2	0,3	0,3	0,3	0,3	0,4	0,4		
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,1	0,1	0,1	0,1	0,2	0,3	0,4	0,6	0,8		
3,3	4,0	4,6	5,2	5,9	6,4	6,8	7,4	7,7	8,3	8,7	9,2	9,6	10,1	10,2	10,3	10,3	10,2		
3,2	4,1	4,7	5,3	6,0	6,6	7,0	7,6	7,8	8,4	8,8	9,2	9,6	10,0	10,1	10,2	10,2	10,0		
2,7	3,1	3,5	4,0	4,6	5,1	5,5	6,2	6,5	7,0	7,7	8,2	8,8	9,6	9,9	10,2	10,6	10,7		
3,3	4,1	4,7	5,3	6,0	6,6	7,0	7,6	7,8	8,4	8,8	9,2	9,6	10,1	10,2	10,3	10,6	10,7		
4,8	4,8	4,8	5,7	6,7	6,7	8,5	8,5	8,5	8,5	9,5	9,5	10,4	10,4	10,4	10,4	10,4	10,4		

REFERENCES:

DR-101 Cable stayed bridge Layout, plan and elevation

AAS-JAKOBSEN COWI Multiconsult

JOHNS HOLT · AkerSolutions · entail · NGI · DISSING+WEITLING architecture a/s · mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IKO/TOF	AN	SEJ	30.06.2019

Statens vegvesen

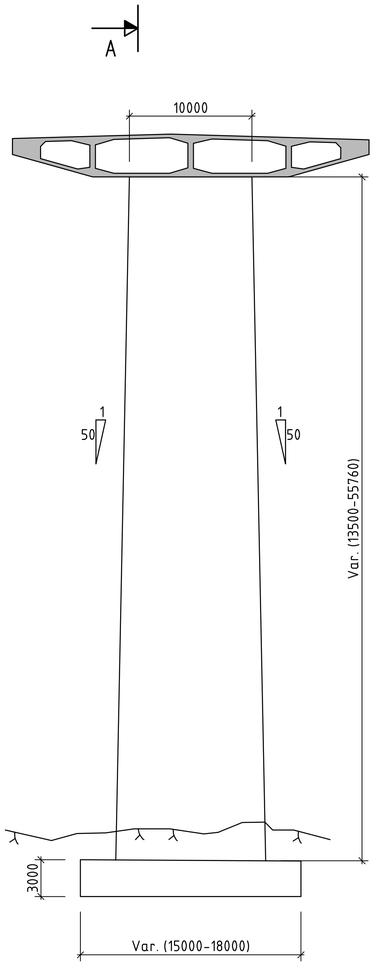
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Cable stayed bridge, K12
Stay cable system

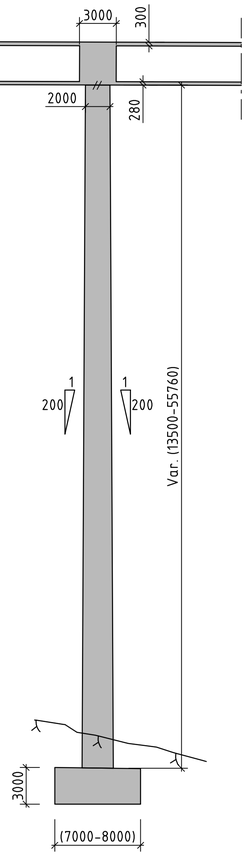
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:1250

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IKO/TOF	AN	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-105	0



CONCRETE PIER

A1=1:250
A3=1:500



SECTION A-A

A1=1:250
A3=1:500

Column axis	Profile	Column Length	Foundation Dimensions BxWxH	Elevation bottom of foundation
1-A	38570	13.50	7x15x3	46.5
1-B	38625	22.56	7x15x3	36.7
1-C	38680	33.33	7x15x3	25.2
1-D	38735	41.30	7x18x3	16.5
1-E	38790	55.76	8x18x3	1.3

Table 1: Profile, elevation and concrete dimensions

REMARKS:

1. General:
- All measurements in mm
- Heights and dimensions in table are in m.

1. Material:
- Concrete: B45

REFERENCES:

DR-101 Cable stayed bridge Layout, plan and elevation

AAS-JAKOBSEN COWI Multiconsult

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IKO/AMU	AN	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

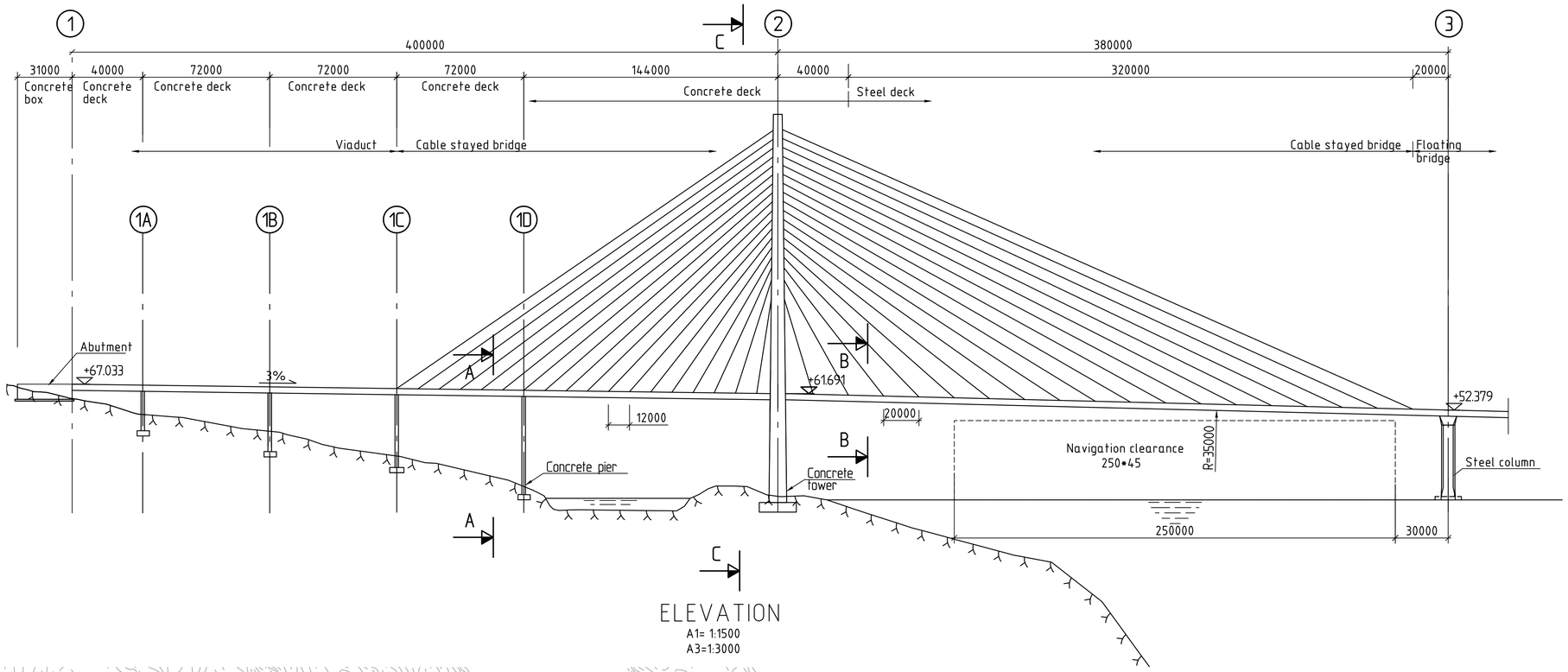
Concept development, floating bridge E39 Bjørnafjorden

Cable stayed bridge, K12
Piers in side span

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:250

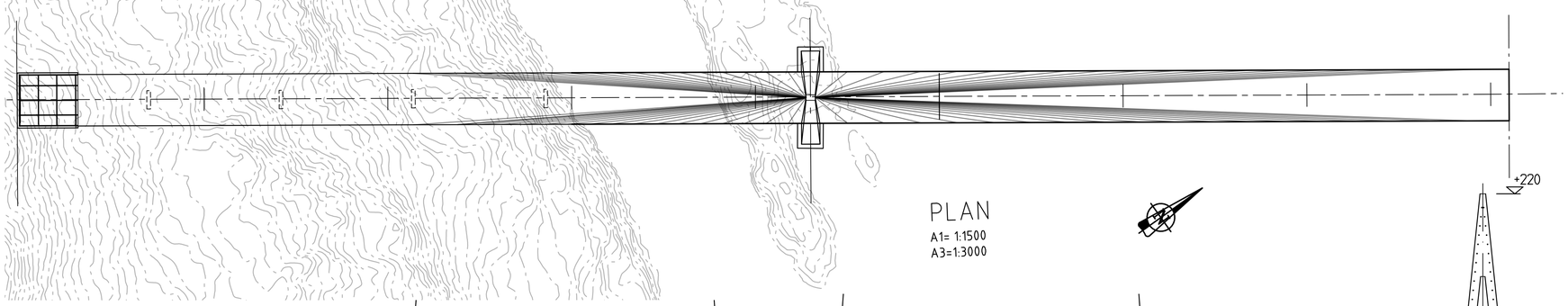
Drawn by:	Checked by:	Approved by:	Project no.
IKO/AMU	AN	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-106 0



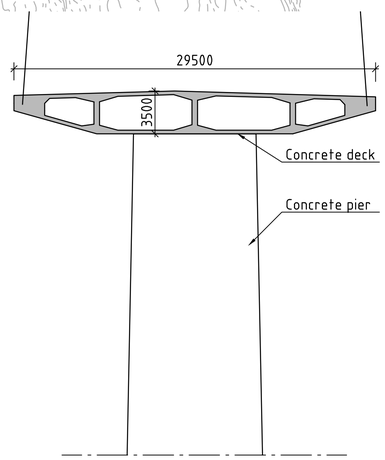
ELEVATION

A1= 1:1500
A3=1:3000



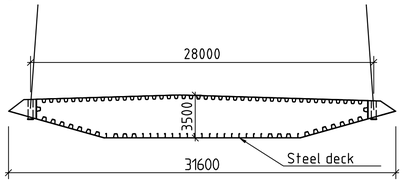
PLAN

A1= 1:1500
A3=1:3000



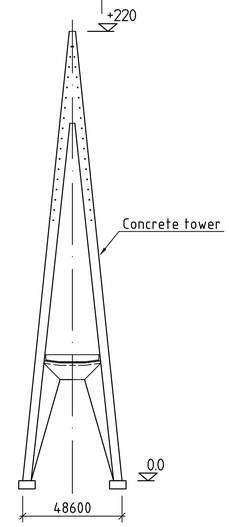
SECTION A-A

A1=1:250
A3=1:500



SECTION B-B

A1=1:250
A3=1:500



SECTION C-C

A1= 1:1500
A3=1:3000

REMARKS:

1. General:
- All measurements in mm

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IKO/HPO	AN	SEJ	30.06.2019

Statens vegvesen

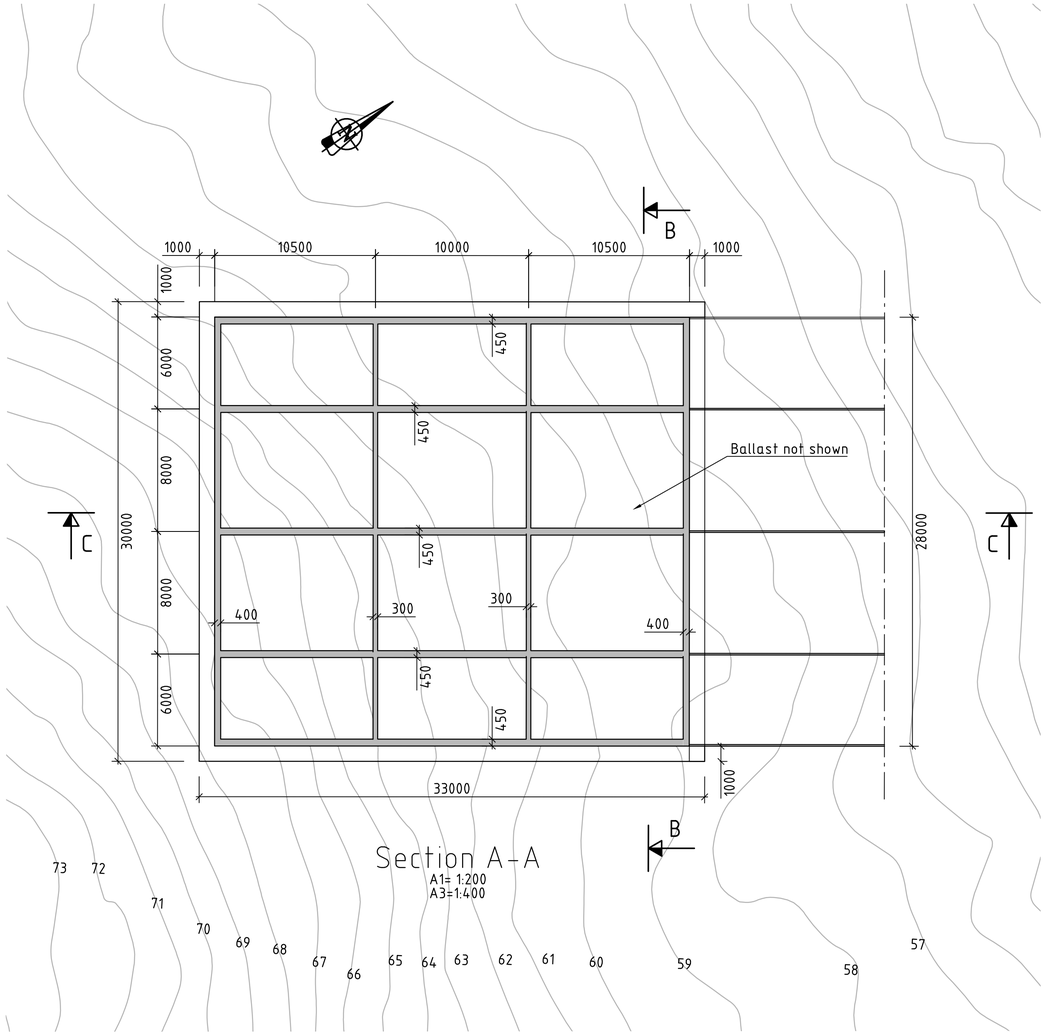
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

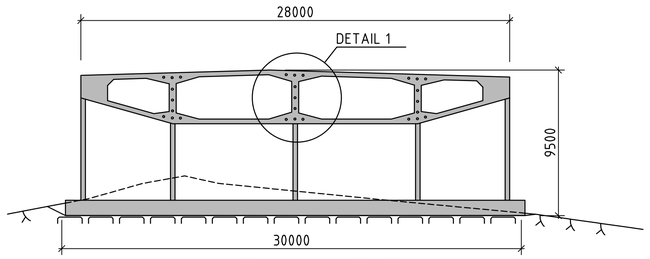
Cable stayed bridge, K12
Alternative layout, plan and elevation

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:1500/1:250
Drawing number/Revision index	SBJ-33-C5-AMC-22-DR-111 0

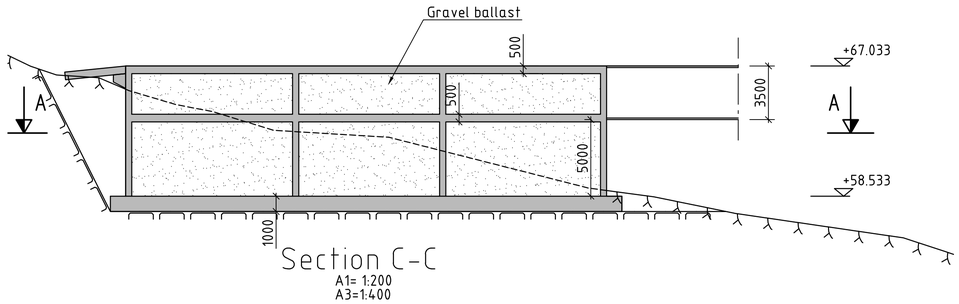
Drawn by:	Checked by:	Approved by:	Project no.
IKO/HPO	AN	SEJ	10205546-01



Section A-A
A1= 1:200
A3=1:400



Section B-B
A1= 1:200
A3=1:400



Section C-C
A1= 1:200
A3=1:400

DETAIL 1
A1= 1:20
A3= 1:40

REMARKS:

1. General:
- All measurements in mm
2. Material:
- Concrete: B45
- Ballast density 18 kN/m^3

REFERENCES:

DR-101	Cable stayed bridge	Layout, plan and elevation

AAS-JAKOBSEN COWI Multiconsult
JOHN HOLT AkerSolutions entail NGI DISSING+WEITLING architecture a/s moss maritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IKO/TBA	AN	SEJ	30.06.2019

Statens vegvesen

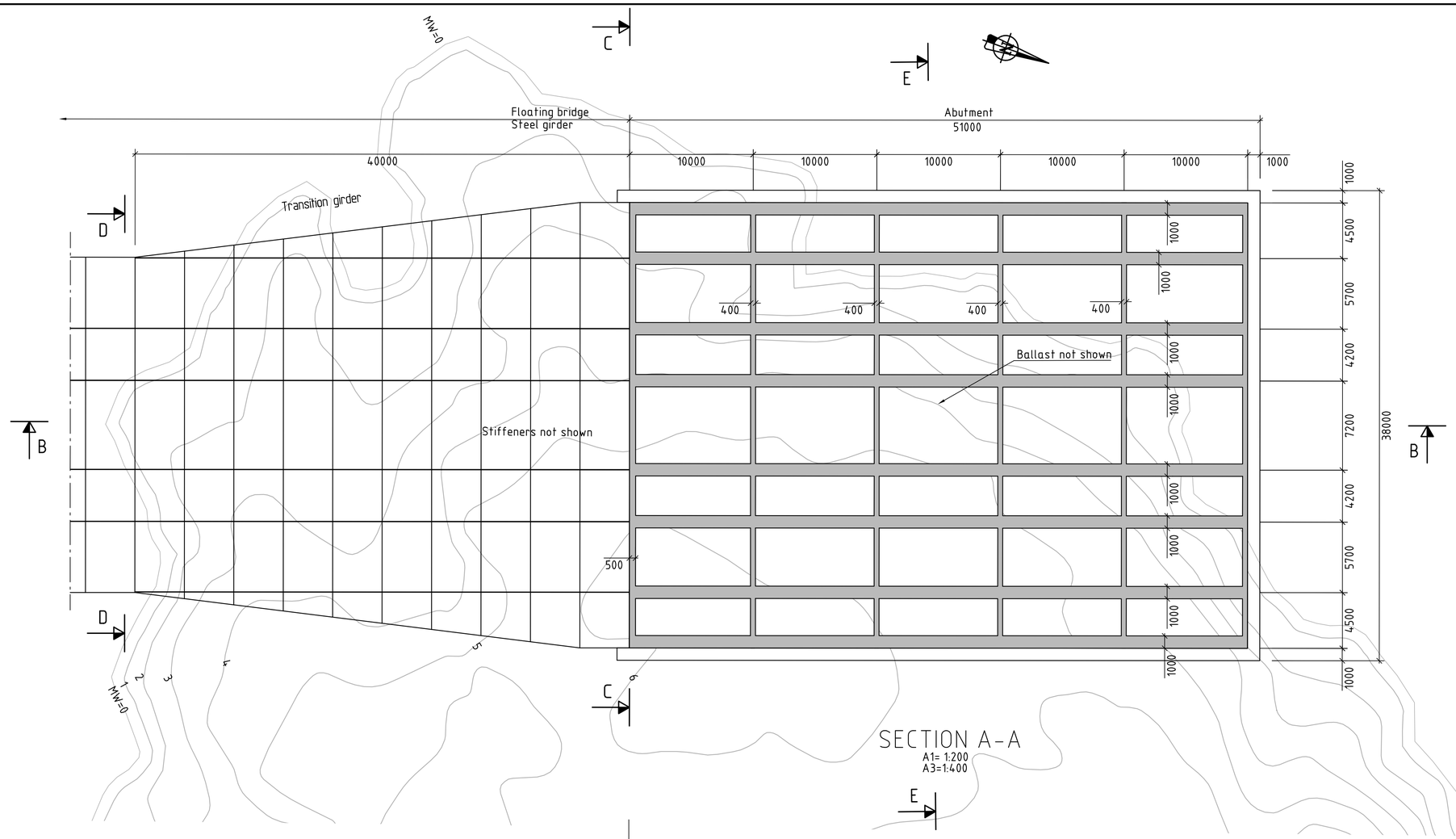
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

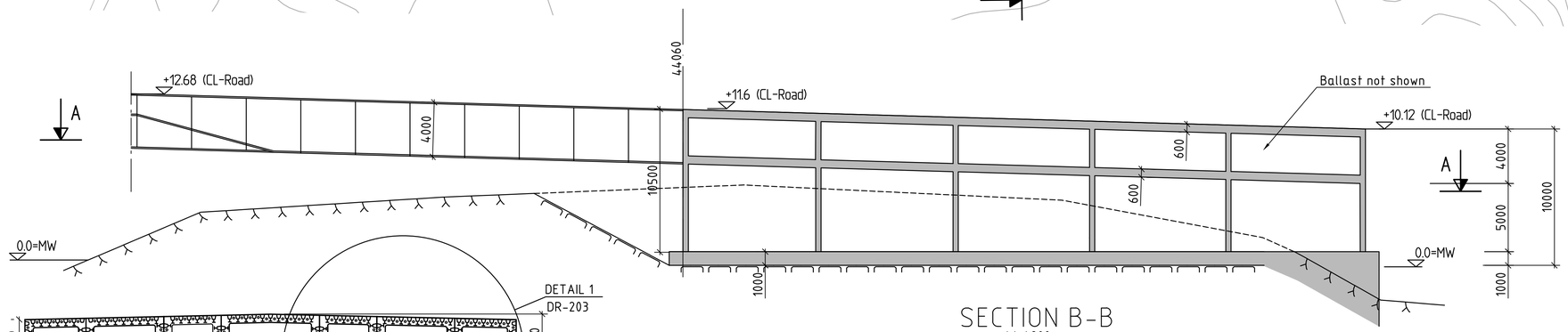
Abutments, K12
South, layout and sections

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:200/1:20

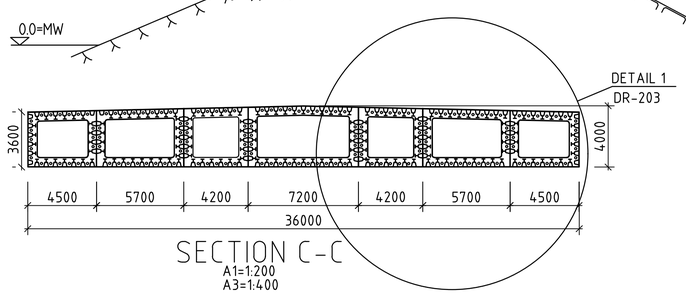
Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IKO/TBA	AN	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-201	0



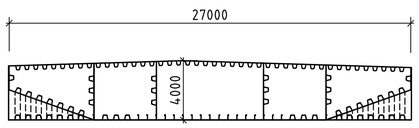
SECTION A-A
A1= 1:200
A3=1:400



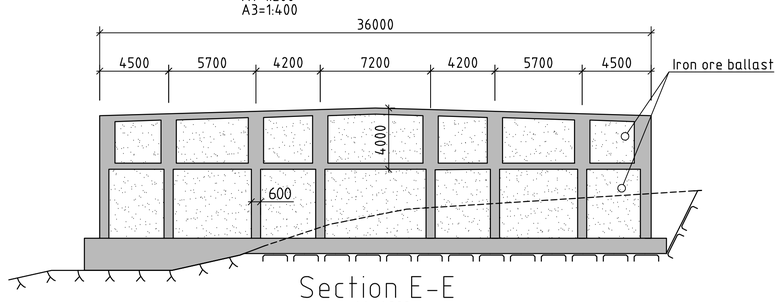
SECTION B-B
A1=1:200
A3=1:400



SECTION C-C
A1=1:200
A3=1:400



SECTION D-D
A1=1:200
A3=1:400



Section E-E
A1= 1:200
A3=1:400

REMARKS:

1. General:
- All measurements in mm

2.Material:
- Concrete: B45
- Ballast density 35 kN/m^3

REFERENCES:

DR-101	Cable stayed bridge	Layout, plan and elevation
DR-203	Abutments	North and south - details

AAS-JAKOBSEN COWI Multiconsult

JOHN HOLT · AkerSolutions · entail · NGI · DISSING+WEITLING architecture a/s · mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IKO/TBA	AN	SEJ	30.06.2019

Statens vegvesen

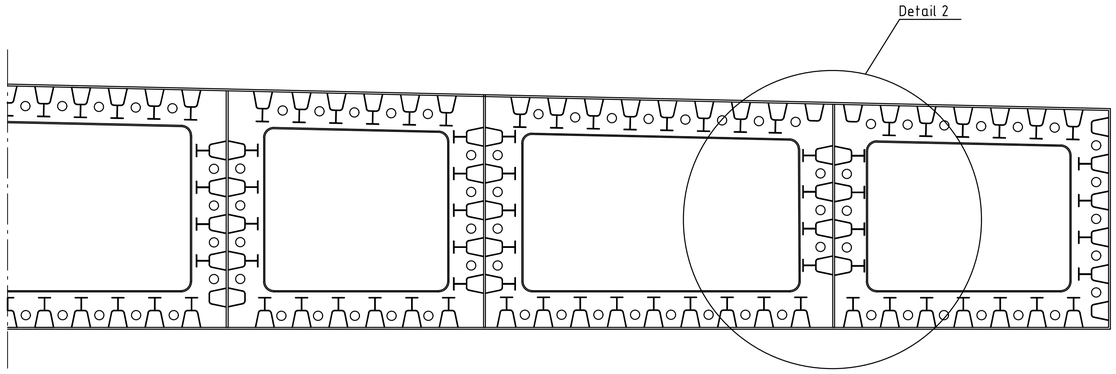
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Abutments, K12
North, layout and sections

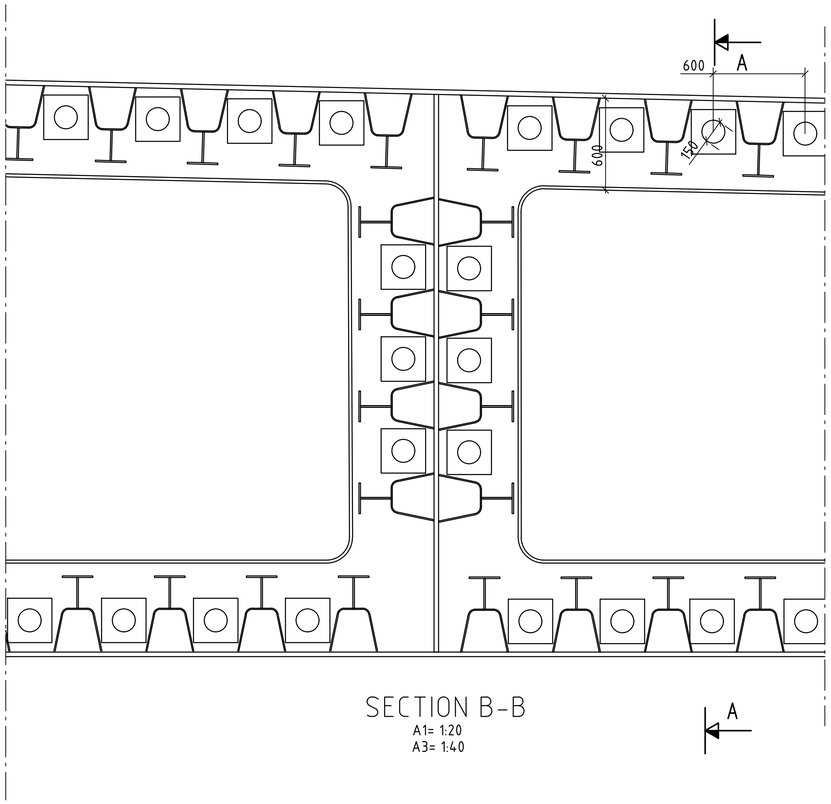
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:200

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IKO/TBA	AN	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-202	0



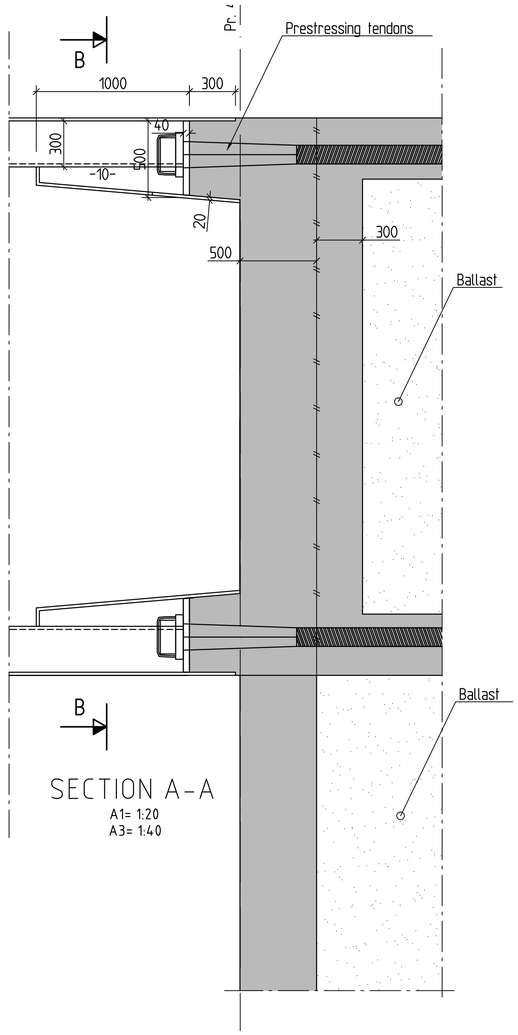
DETAIL 1, DR-202

A1=1:50
A3=1:100



SECTION B-B

A1= 1:20
A3= 1:40



SECTION A-A

A1= 1:20
A3= 1:40

REMARKS:

1. General:
- All measurements in mm
2. Material:
- Tendons 6-22, Spk=6138 kN

REFERENCES:

DR-101	Cable stayed bridge	Layout, plan and elevation
DR-202	Abutments	North, layout and sections

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IKO/TBA	AN	SEJ	30.06.2019

Statens vegvesen

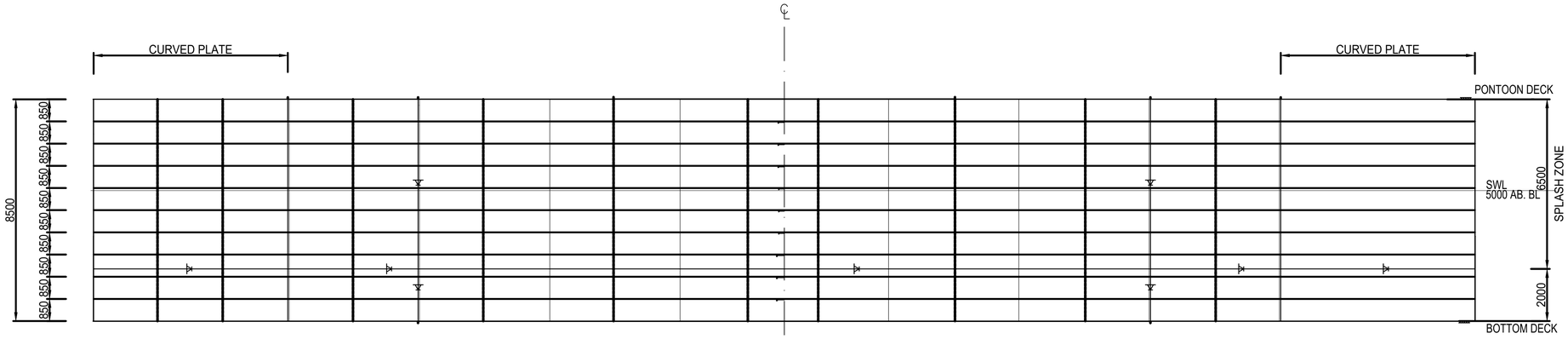
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

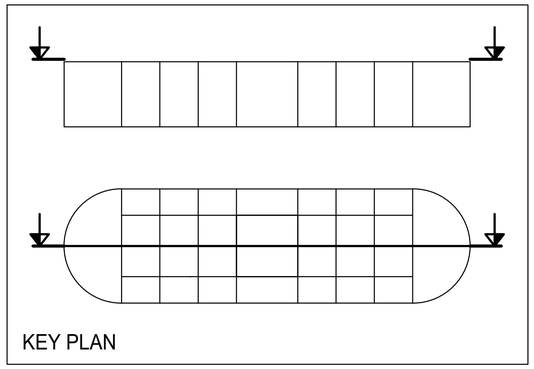
Abutments, K12
South and north, details

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:20/1:50

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IKO/TBA	AN	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-203	0

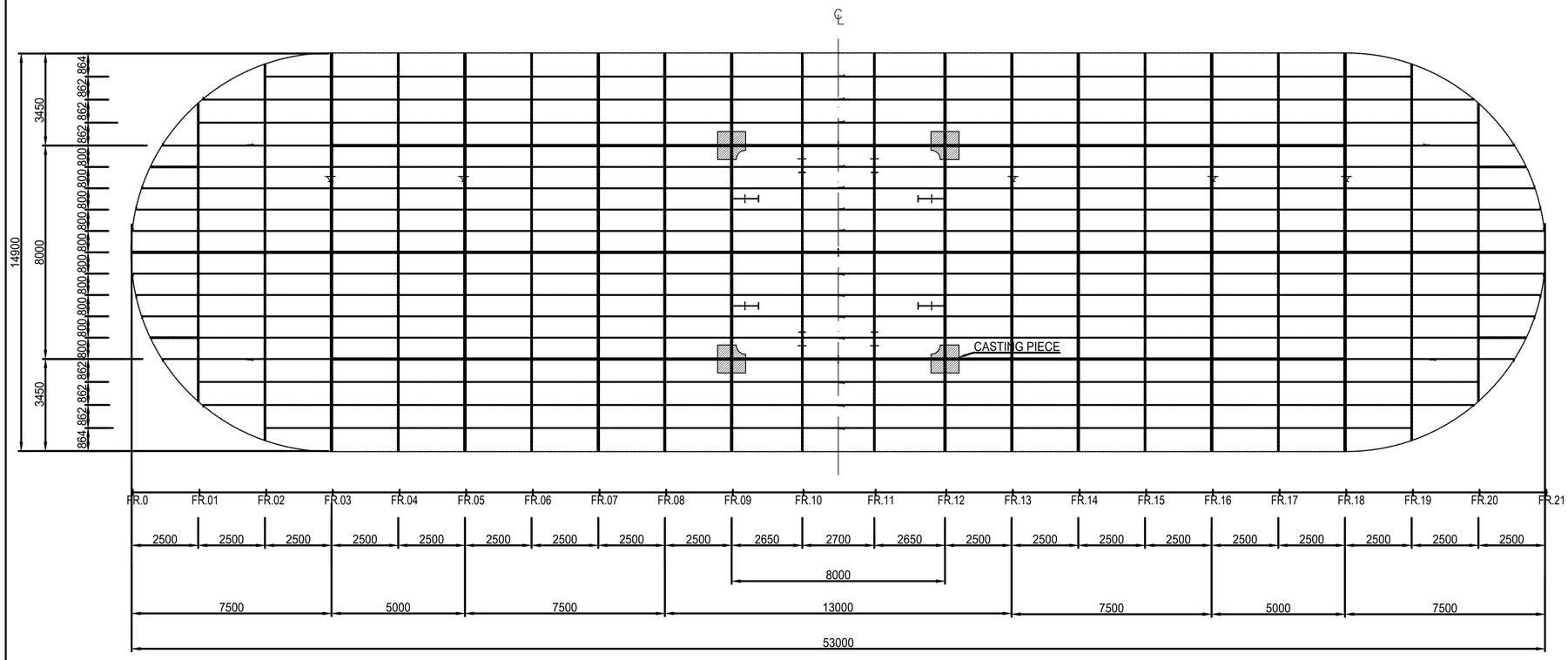


LONG. SECTION AT 7450 FROM CL



REMARKS:

1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML
- Steel quality in plates in splash zone: 25CR (SDSS)
3. Transverse heeling for water run-off at pontoon top deck is not shown in drawings.



PONTOON PLAN VIEW

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Rev.	Description	Drawn	Checked	Approved	Rev. date
1	Final issue	IBA/AKL	PNL	SEJ	15.08.2019
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

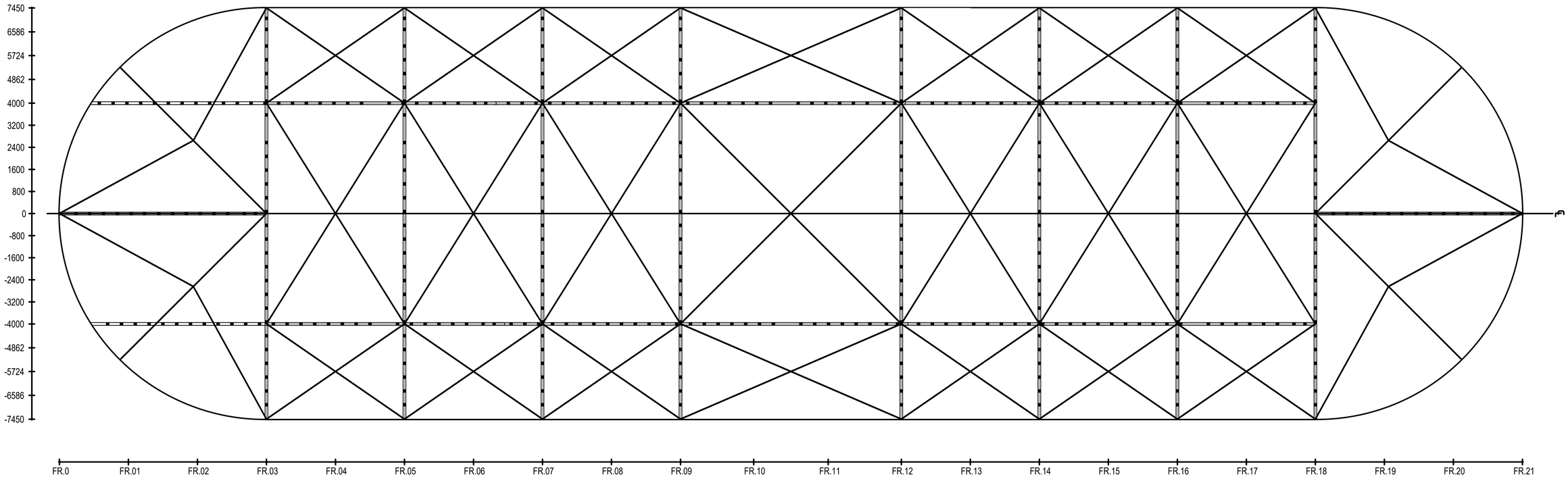
Floating Bridge Pontoon, K12
General Arrangement
Dimensions

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:100

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-300 1

REMARKS:
1. General:
- All measurements in mm.



TANK PLAN

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

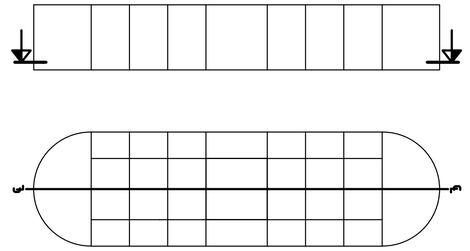
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Arrangement
Tank Plan

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

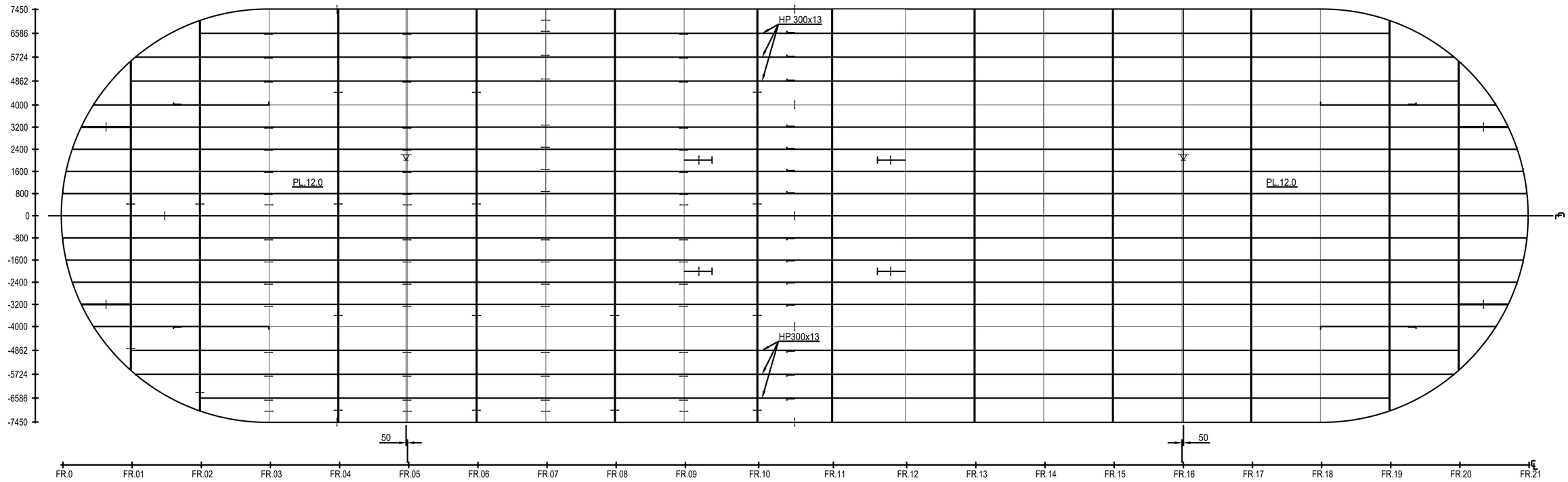
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-301 0



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML



PLAN VIEW OF BOTTOM DECK

Deck Stiffeners: HP 300x11 U.N.O.
Plate thickness: 14.0 U.N.O.

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

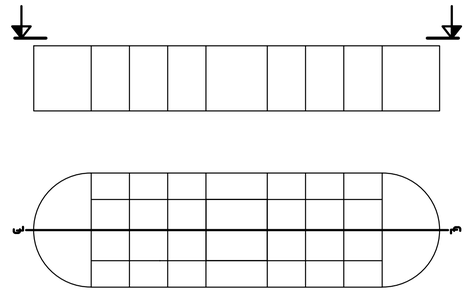
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Bottom Plate
Dimension Plate and stiffeners

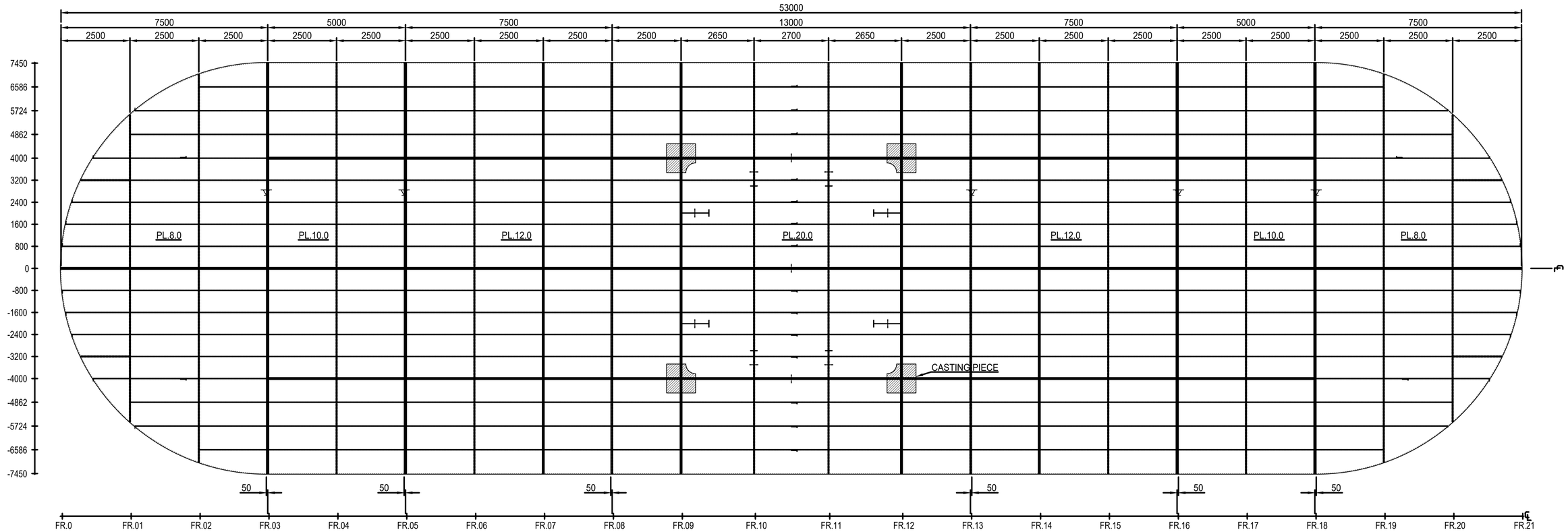
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-302 0



REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML



PLAN VIEW OF PONTOON DECK AT EL. 8500

Deck Stiffeners: HP 220x10

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

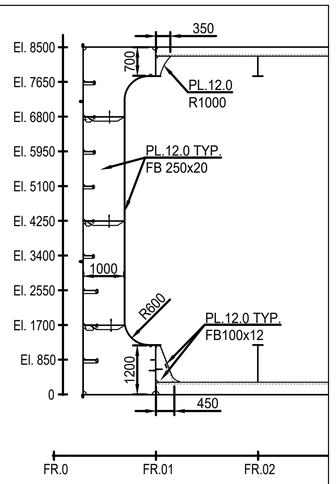
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Top Plate
Dimension plate and stiffeners

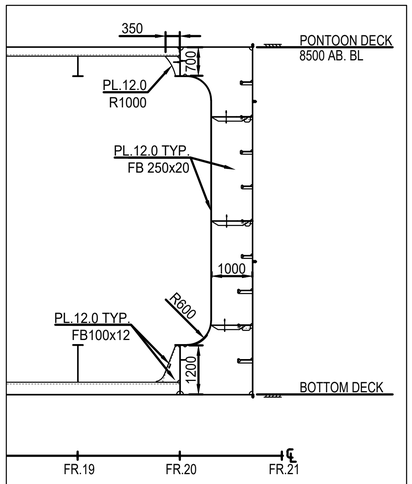
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IBA/AKL	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-303	0



LONG. SEC. AT 3200 FROM CL

PS PONTOON SHOWN / SB SIMILAR U.N.O.



LONG. SEC. AT 3200 FROM CL

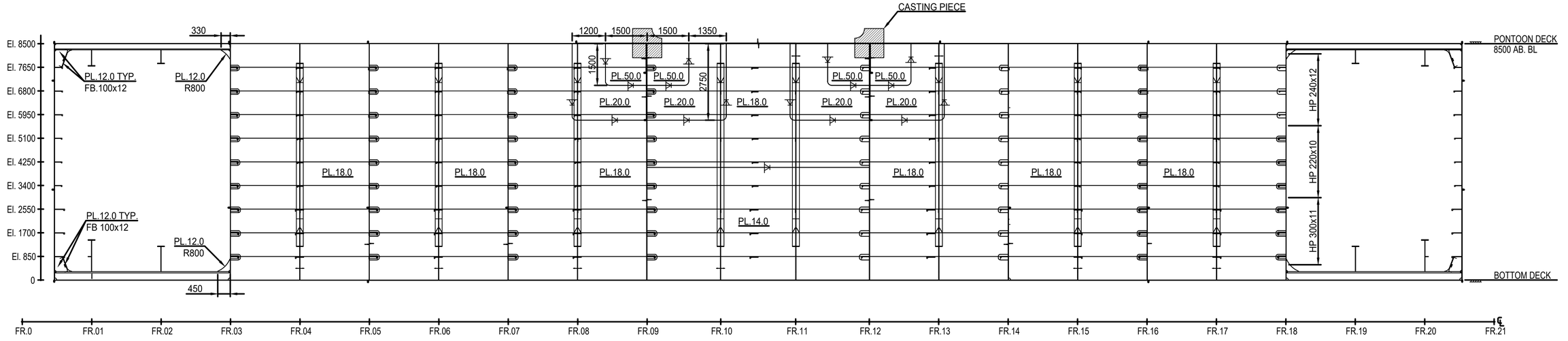
PS PONTOON SHOWN / SB SIMILAR U.N.O.

KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML



LONG. SECTION AT 4000 FROM CL

PS PONTOON SHOWN / SB SIMILAR U.N.O.

AAS-JAKOBSEN COWI Multiconsult

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

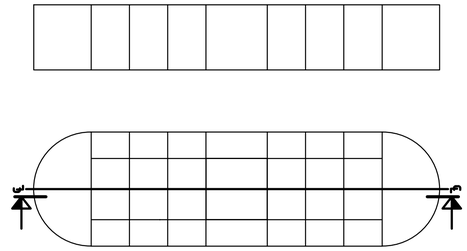
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Internal Plate
Longitudinal Structure 4000 mm from CL

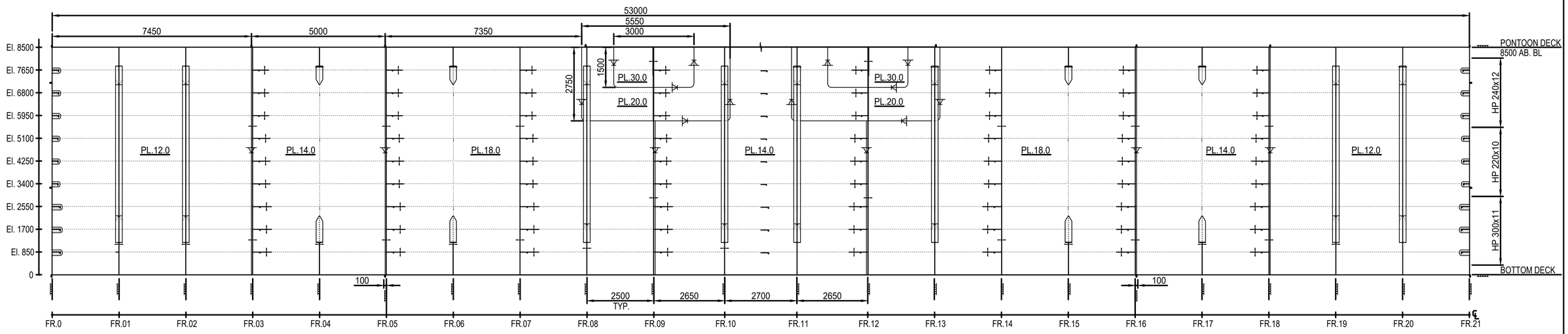
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75
Drawing number/Revision index	SBJ-33-C5-AMC-22-DR-304 0



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML



SECTION AT CL

AAS-JAKOBSEN COWI Multiconsult
JOHNS HOLT AkerSolutions entail NGI DISSING+WEITLING architecture as mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

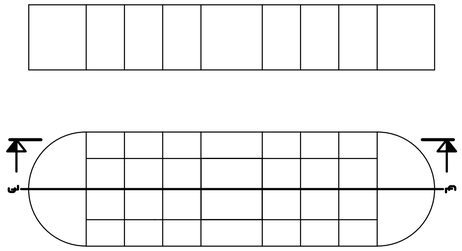
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Internal Plate
Longitudinal Structure in CL

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

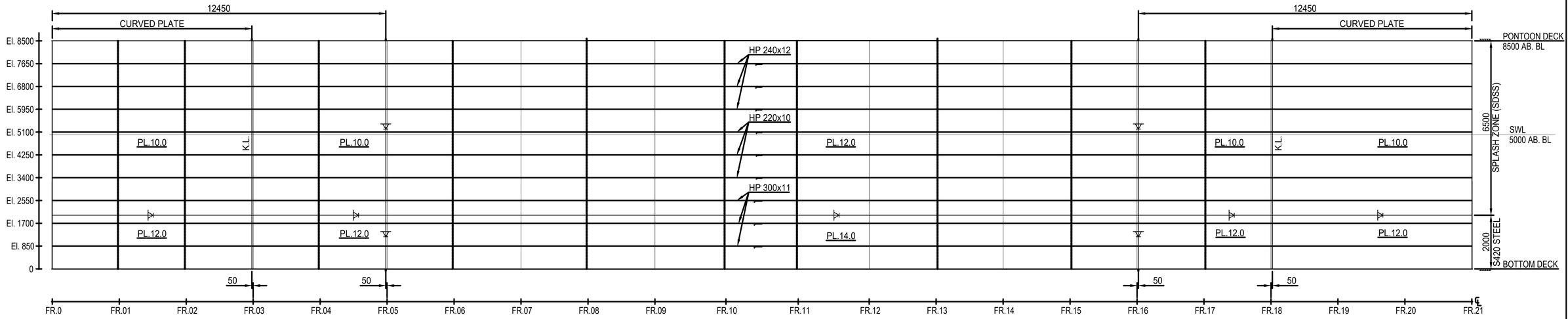
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-305 0



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML
- Steel quality in plates: 25CR (SDSS)



LONG. SECTION AT 7450 FROM CL

PS PONTOON SHOWN / SB SIMILAR U.N.O.

AAS-JAKOBSEN COWI Multiconsult

JOHN HOLT · AkerSolutions · entail · NGI · DISSING+WEITLING architecture a/s · mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

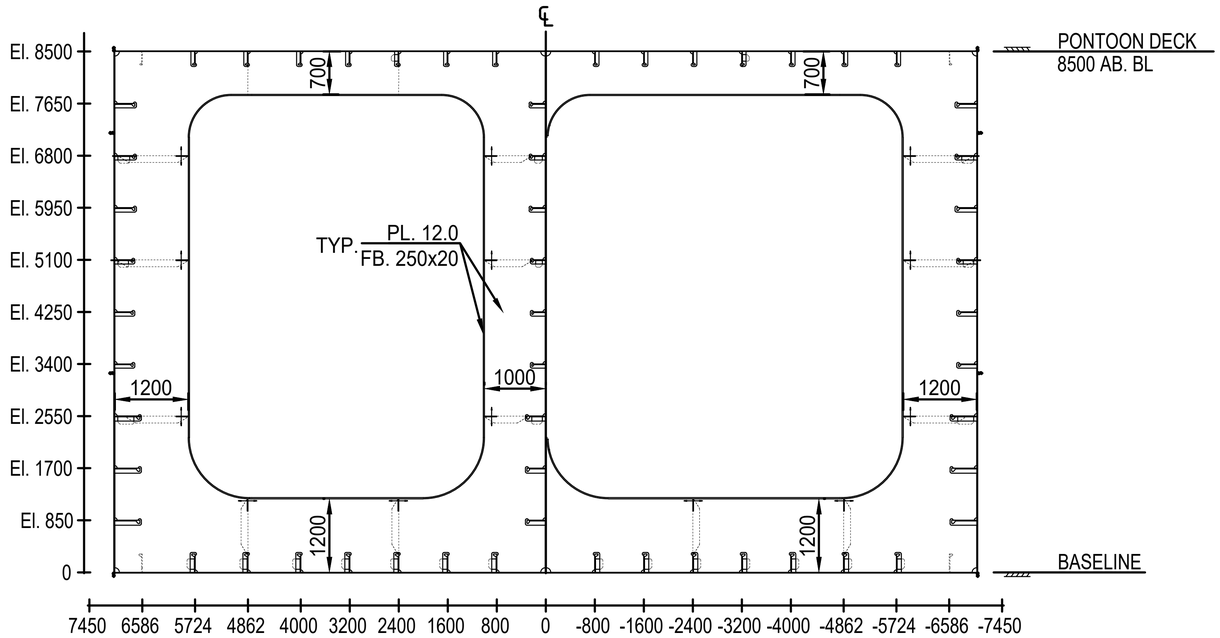
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Side
Longitudinal Structure 7450 mm from CL

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

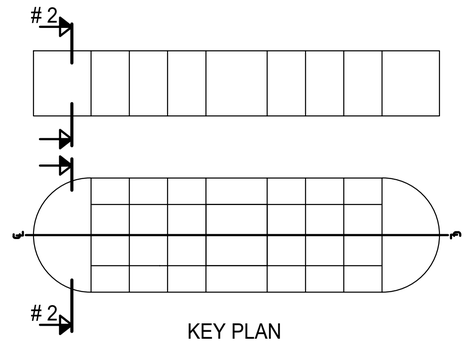
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-306 0



FRAME No. 2

FRAME No.19 SIMILAR



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

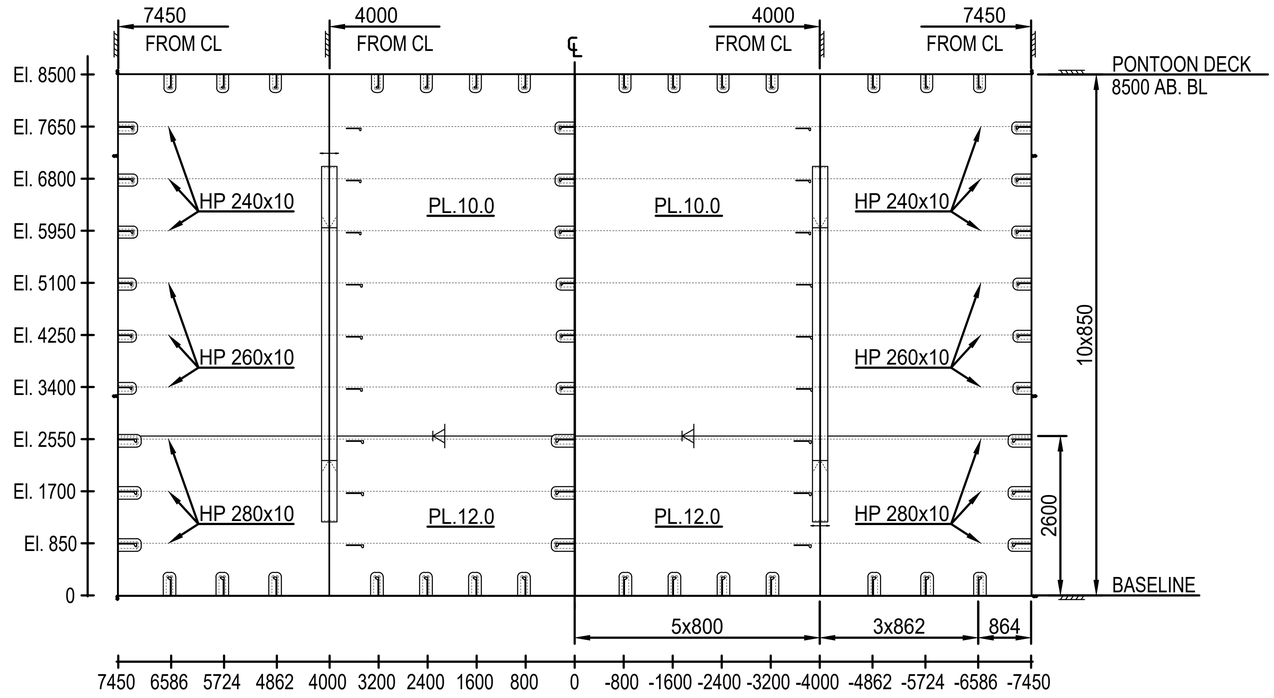
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Internal Structure
Transverse Frame No. 02 (No. 19)

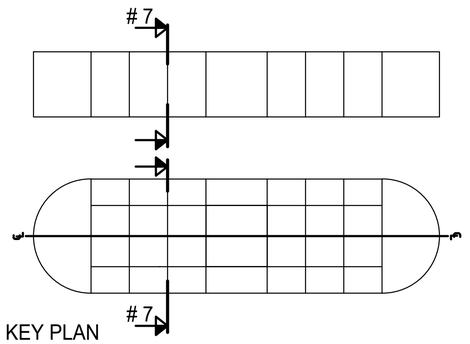
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IBA/AKL	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-307	0



BULKHEAD FRAME No. 7

FRAME No.14 SIMILAR



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

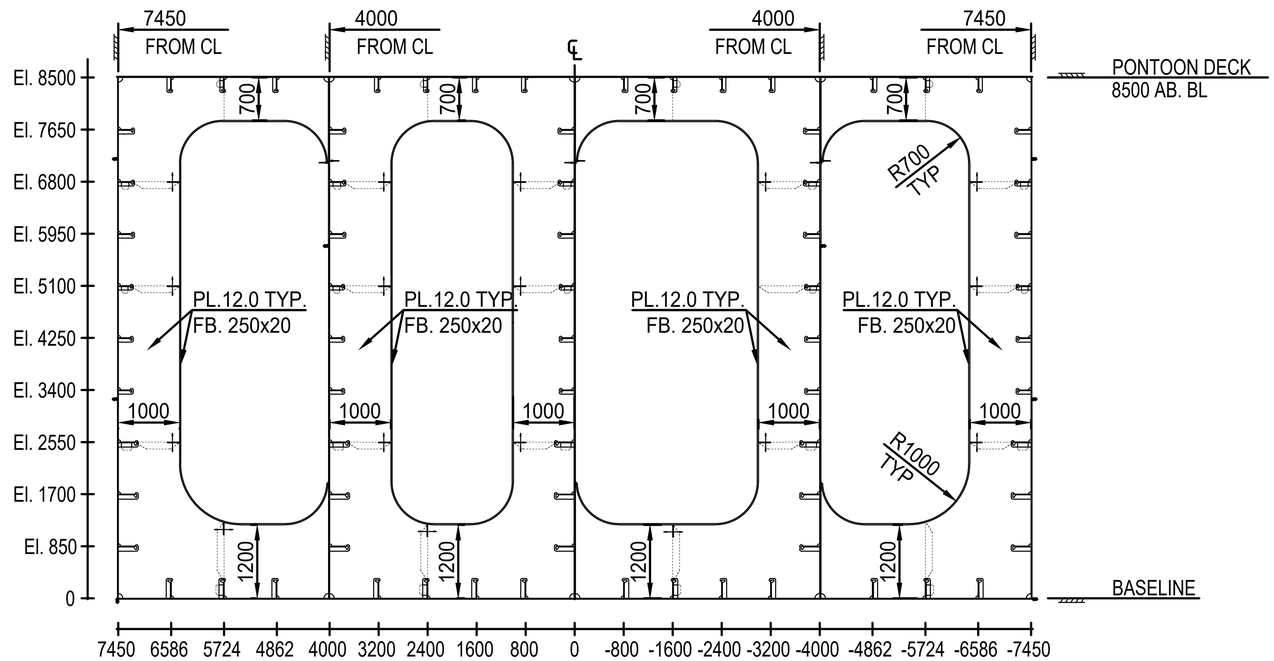
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Internal Structure
Transverse Frame No. 07 (No. 14)

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

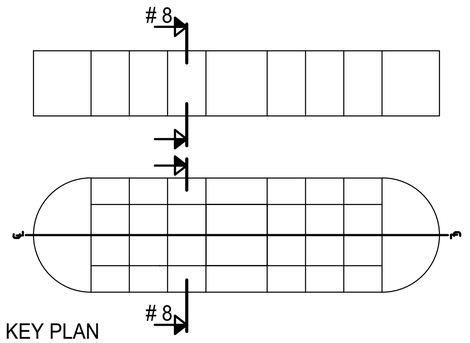
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-308 0



FRAME No. 08

FRAME No.13 SIMILAR



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

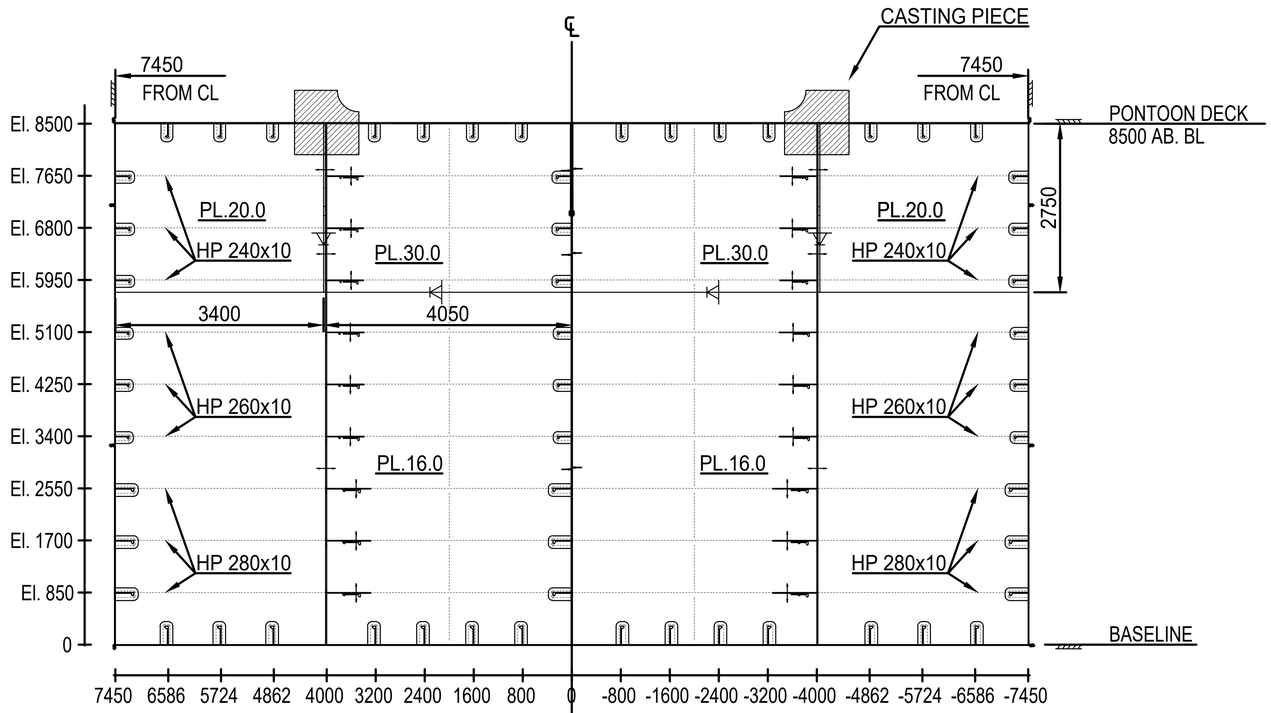
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Internal Structure
Transverse Frame No. 08 (No. 13)

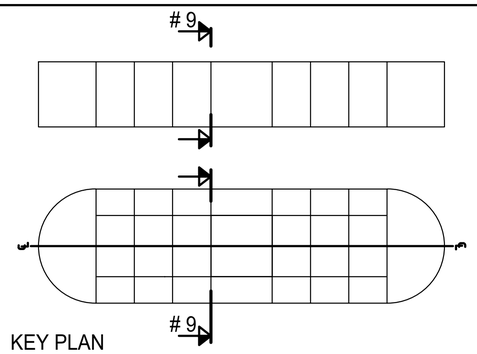
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-309 0



BULKHEAD FRAME No. 09



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

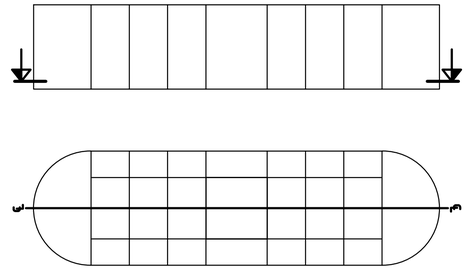
E39 Tysnes–Os

Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Internal Structure
Transverse Frame No. 09

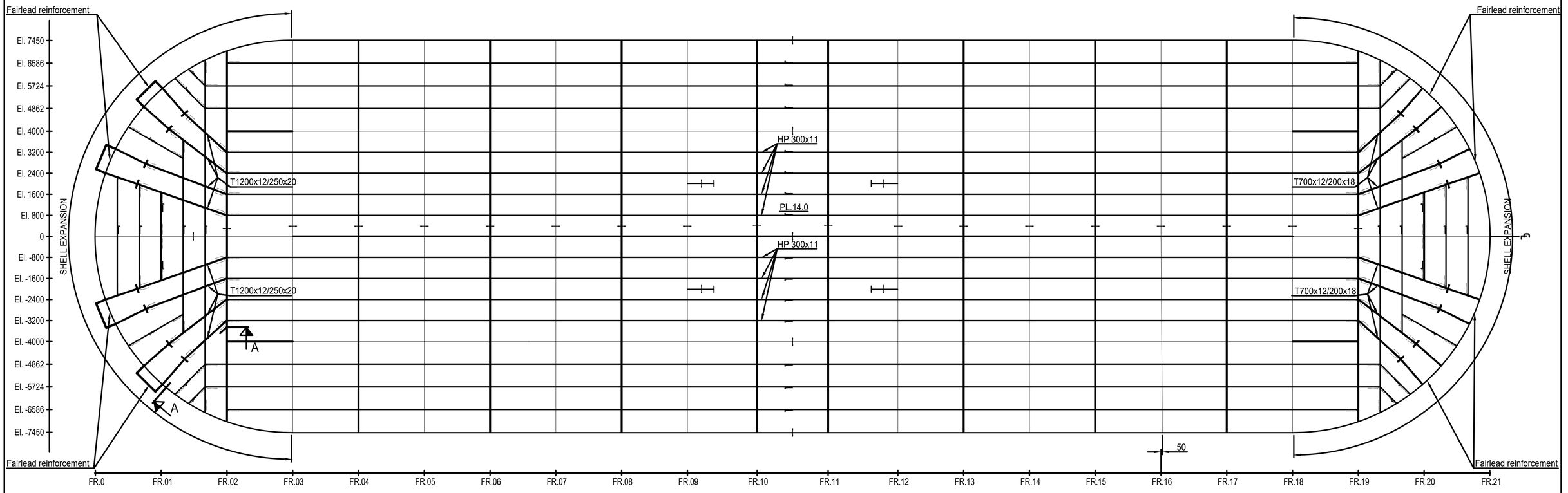
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50
Drawing number/Revision index	SBJ-33-C5-AMC-22-DR-310 0



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML



PLAN VIEW OF BOTTOM DECK

Deck Stiffeners: HP 300x13 U.N.O.
Plate thickness: 14.0

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes–Os

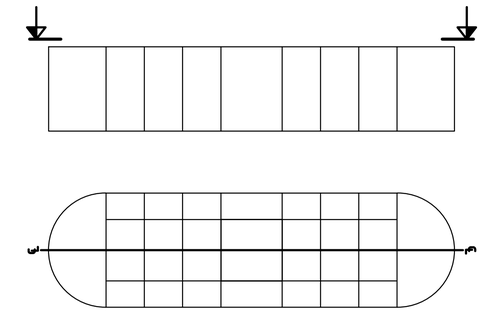
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Plan Bottom Deck
Anchored pontoons axis 13, 20 and 27

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

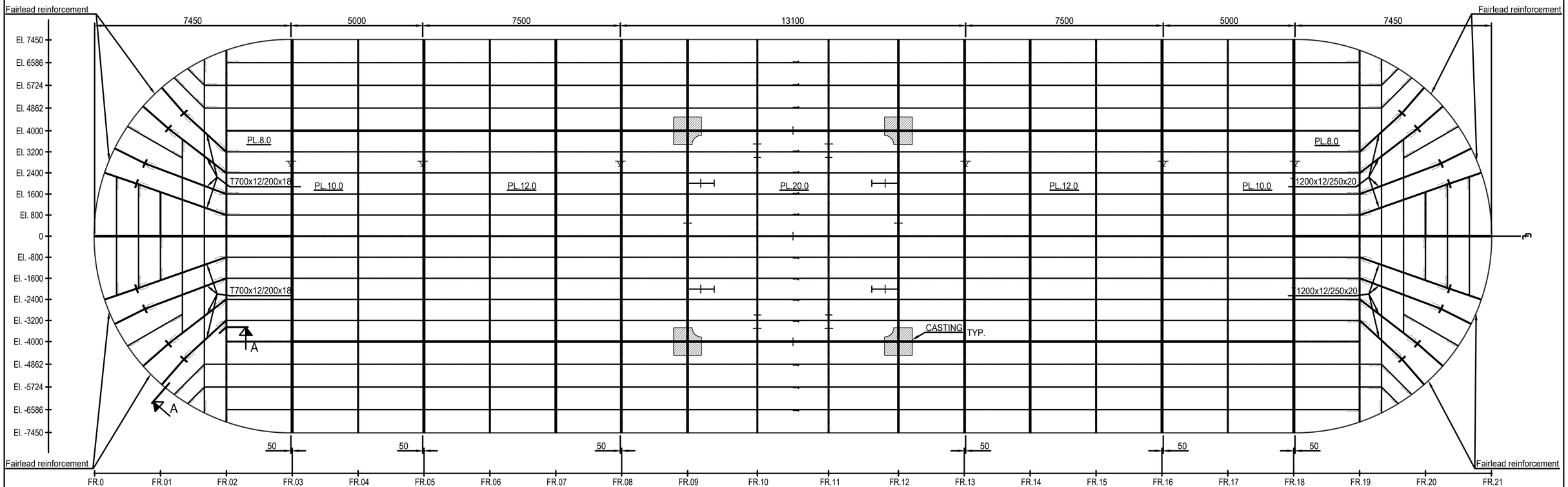
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-351 0



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML



PLAN VIEW OF PONTOON DECK AT EL. 11000

Deck Stiffeners: HP 220x10

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

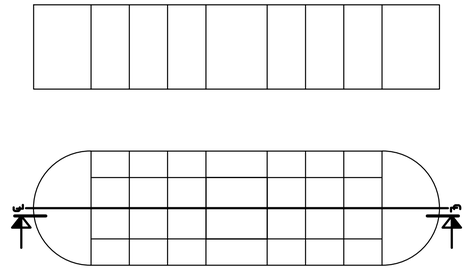
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Plan Pontoon deck 11000 ab. Base line
Anchored pontoons axis 13, 20 and 27

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

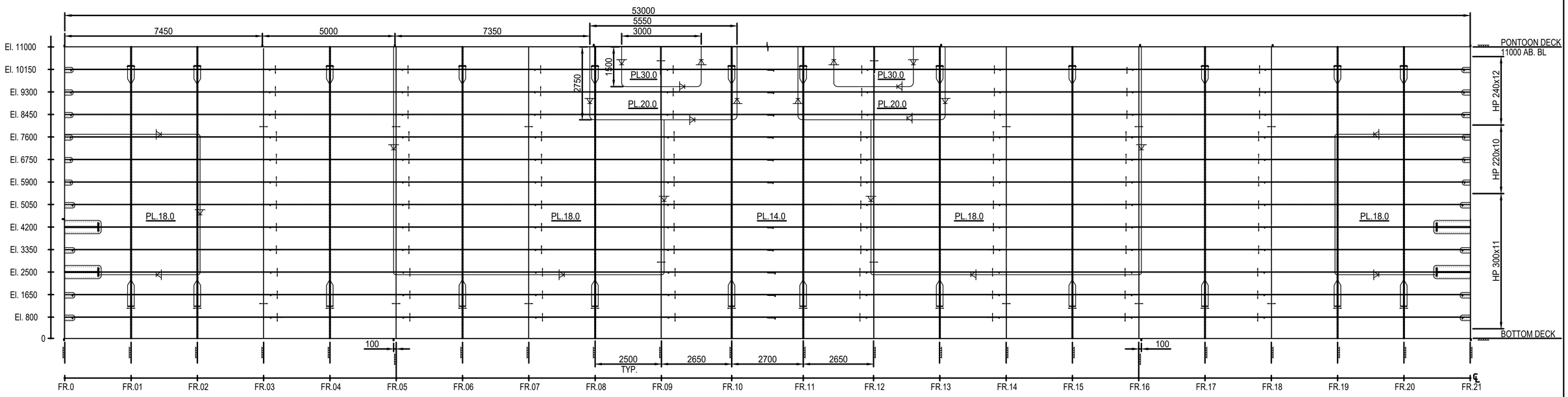
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-352 0



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML



SECTION AT CL

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes–Os

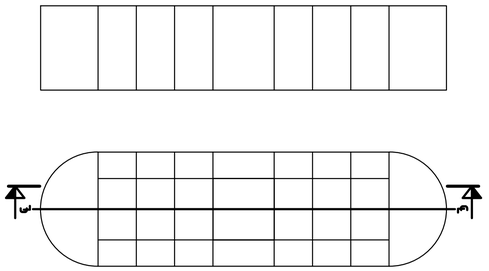
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Longitudinal Structure in CL
Anchored pontoons axis 13, 20 and 27

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

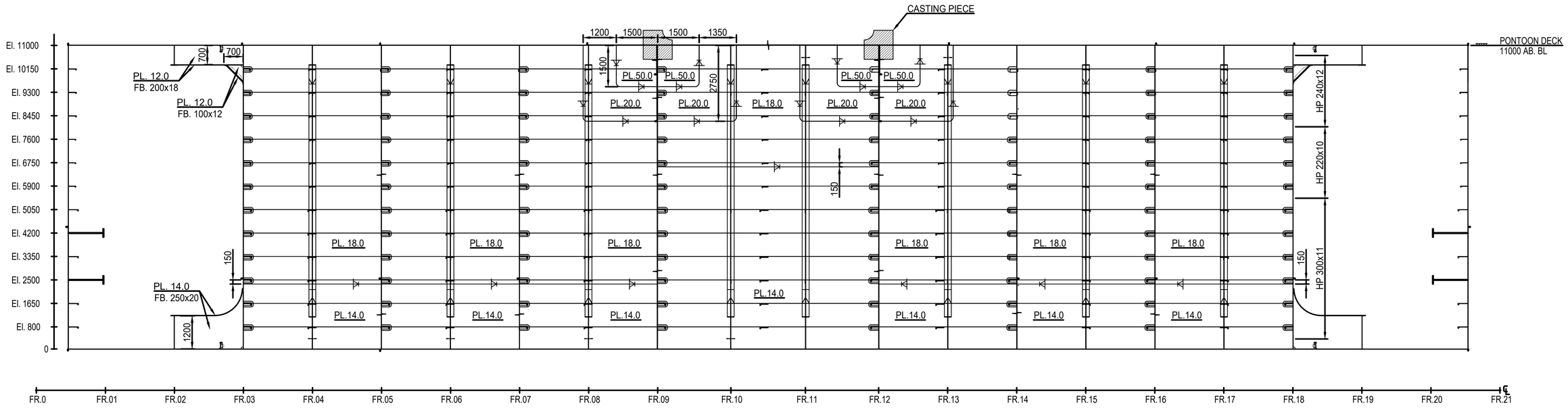
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-353 0



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML



LONG. SECTION AT 4000 FROM CL

PS PONTOON SHOWN / SB SIMILAR U.N.O.

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

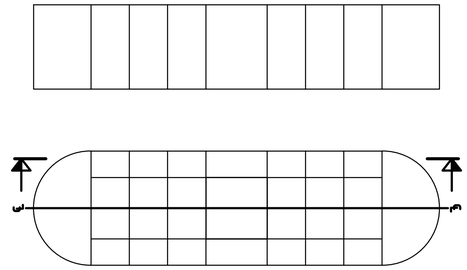
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Longitudinal Structure 4000 mm from CL
Anchored pontoons axis 13, 20 and 27

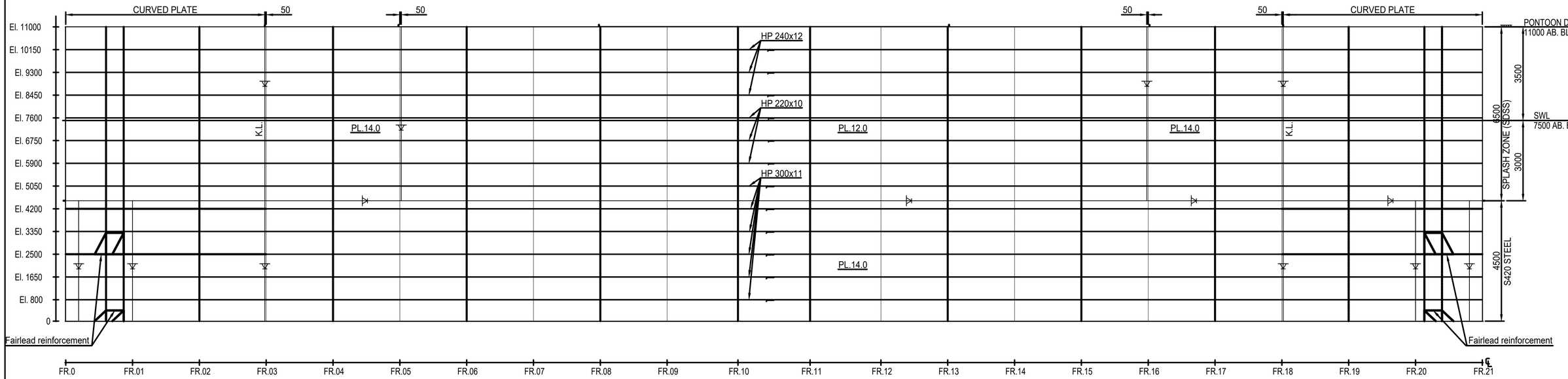
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75
Drawing number/Revision index	SBJ-33-C5-AMC-22-DR-354 0



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML
- Steel quality for plates in splash zone: 25CR (SDSS)



LONG. SECTION AT 7450 FROM CL

PS PONTOON SHOWN / SB SIMILAR U.N.O.

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes–Os

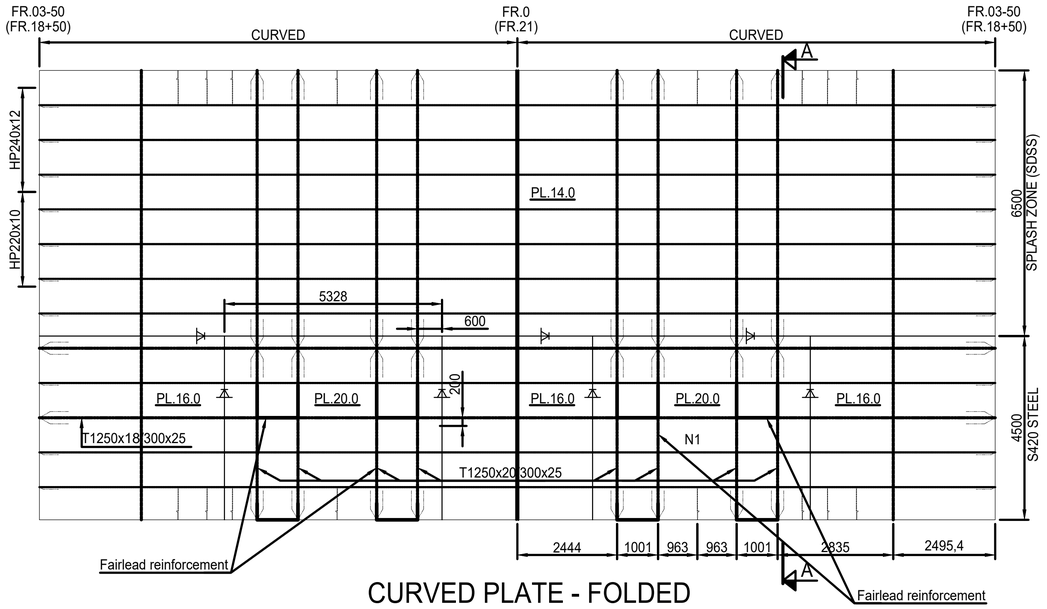
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Longitudinal Structure 7450 mm from CL
Anchored pontoons axis 13, 20 and 27

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

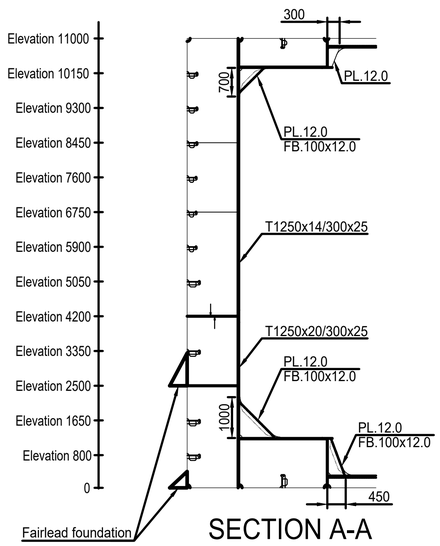
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-355 0

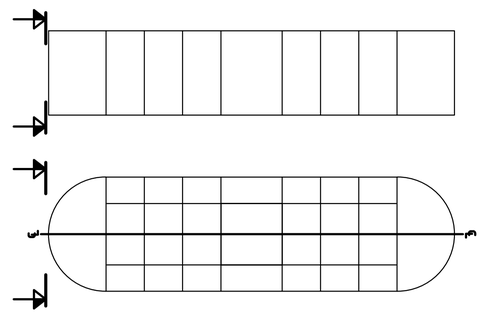


CURVED PLATE - FOLDED

STIFFENERS: HP300x11 U.N.O.
GIRDERS: T1250x14/300x25 U.N.O.

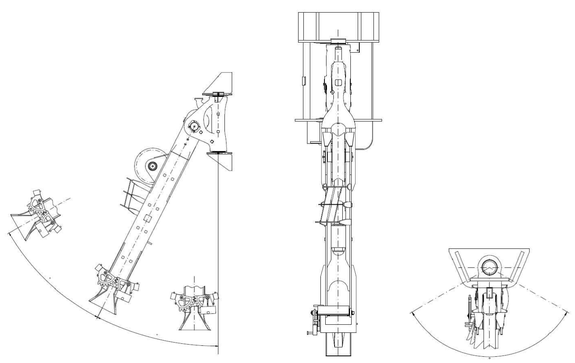


SECTION A-A



KEY PLAN

REMARKS:
1. General:
- All measurements in mm.
2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML
- Steel quality for plates in splash zone: 25CR (SDSS)



DETAIL: DUAL AXIS FAIRLEAD FOR 147 mm CHAIN

AAS-JAKOBSEN COWI Multiconsult
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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

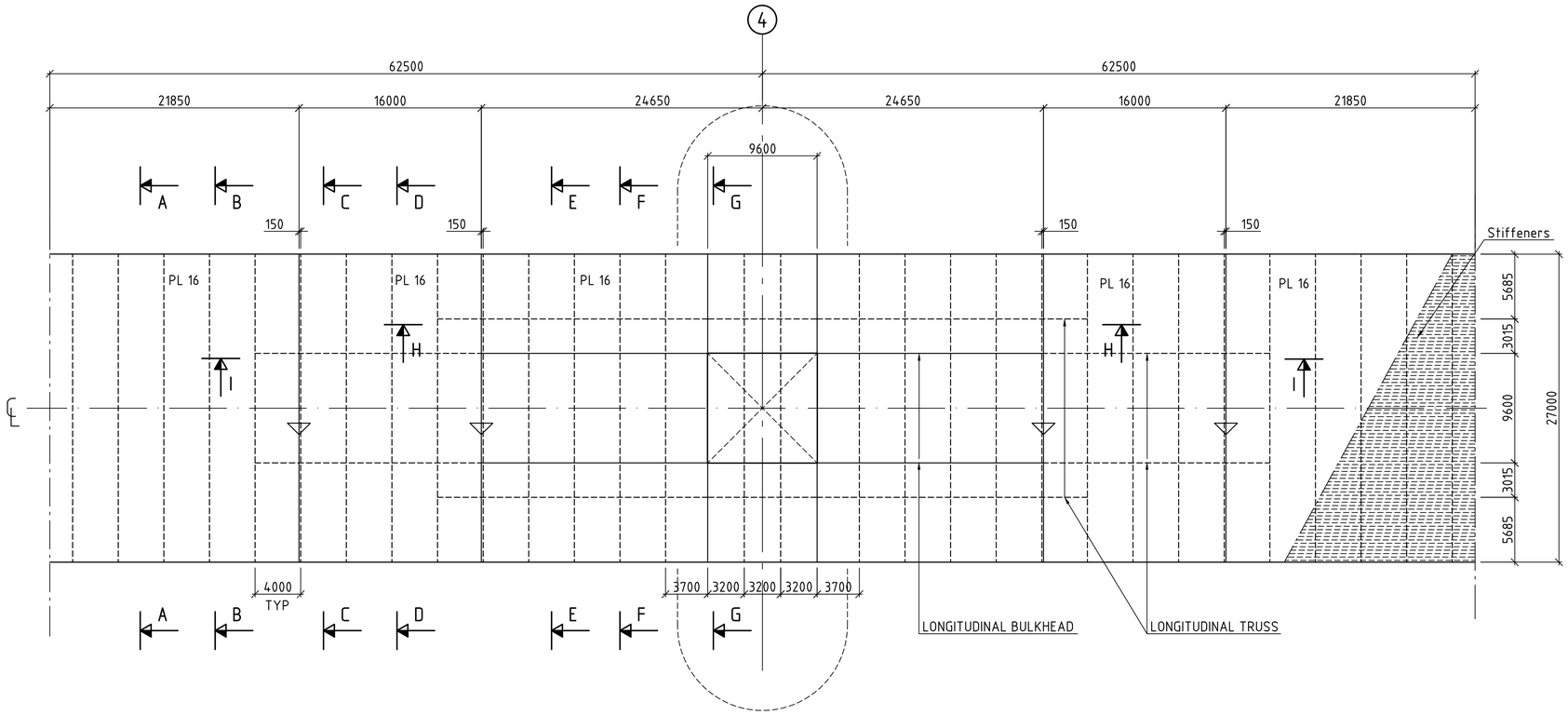
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Pontoon, K12
Curved Structure Bow and Stern
Anchored pontoons axis 13, 20 and 27

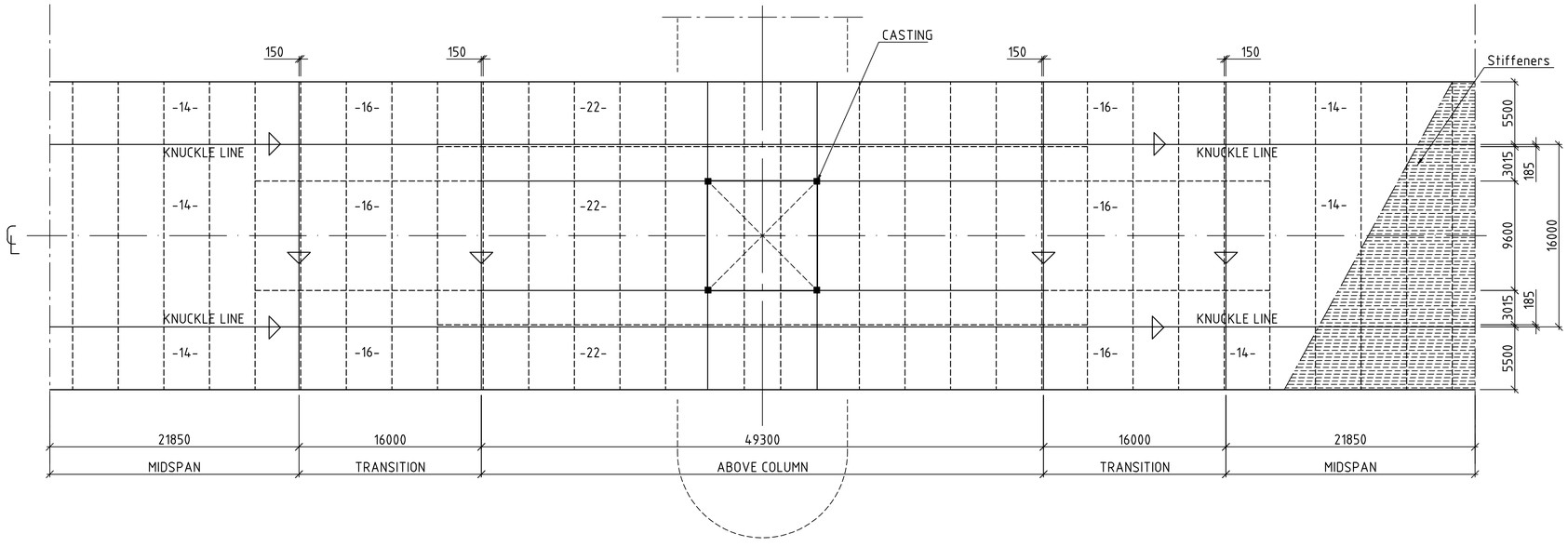
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-356 0

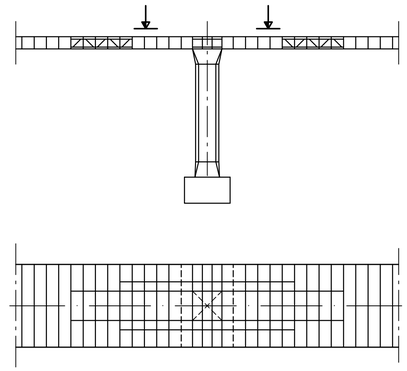


FLOATING BRIDGE, HIGH PART AXIS 3-8, TOP PLATE
TYPICAL LAYOUT



HIGH PART, BOTTOM PLATE

HIGH PART, WEB PLATE



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

REFERENCES:

SECTION A-A	DR-402
SECTION B-B	DR-402
SECTION C-C	DR-403
SECTION D-D	DR-403
SECTION E-E	DR-404
SECTION F-F	DR-404
SECTION G-G	DR-405
SECTION H-H	DR-406
SECTION I-I	DR-406

AAS-JAKOBSEN COWI Multiconsult
JOHN HOLT AkerSolutions entail NGI DISSING+WEITLING architecture as mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

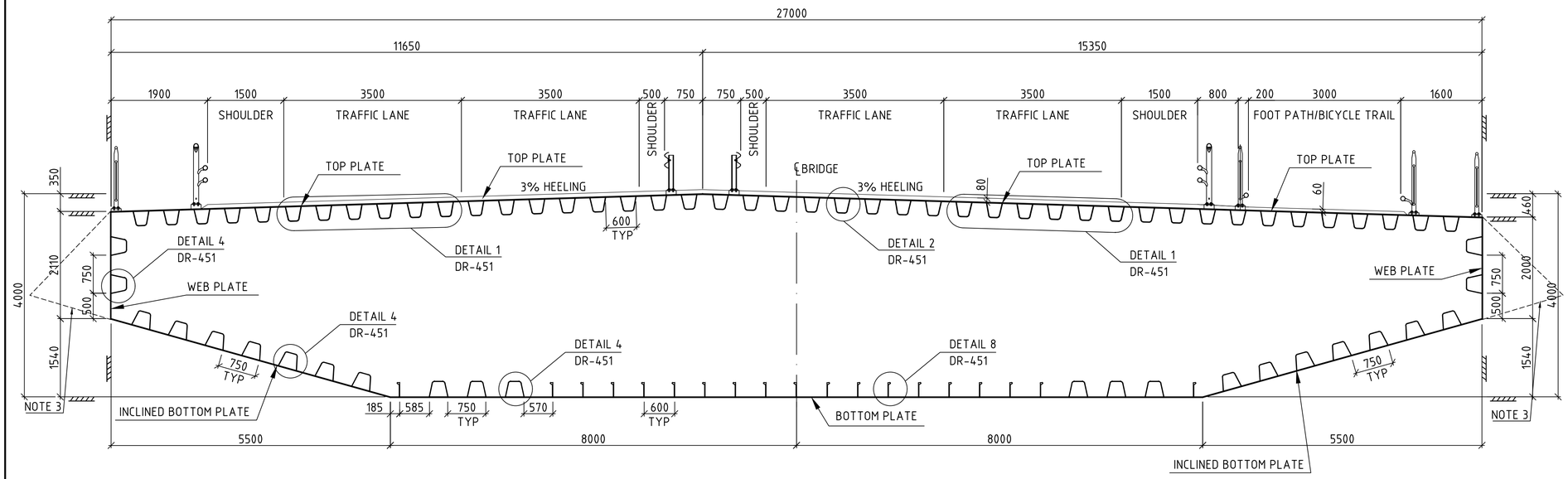
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, High Part Axis 3-8
Typical Plan

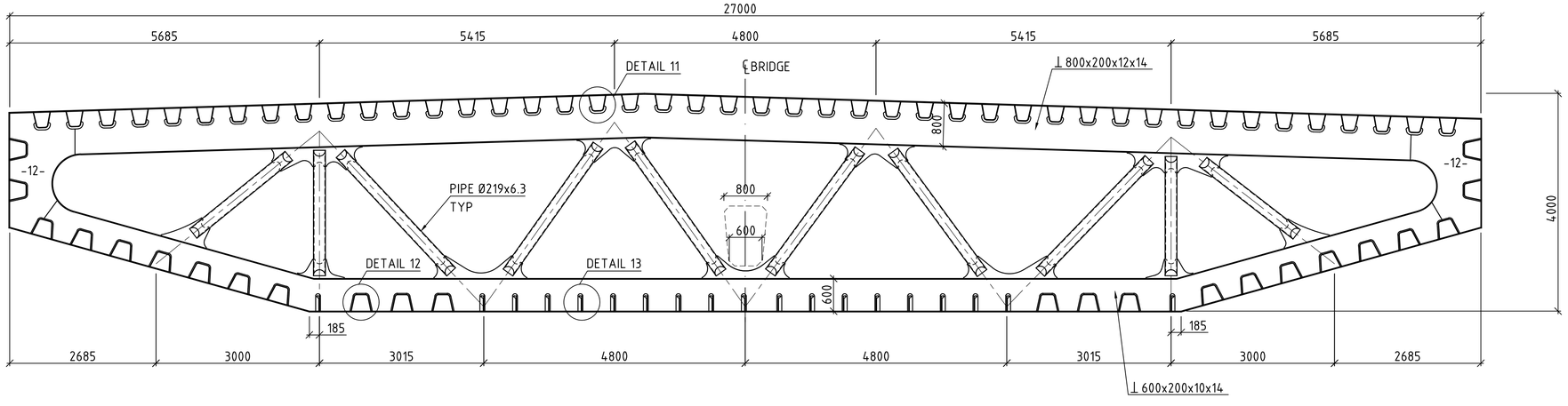
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:250

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

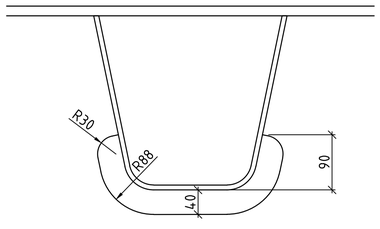
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-401 0



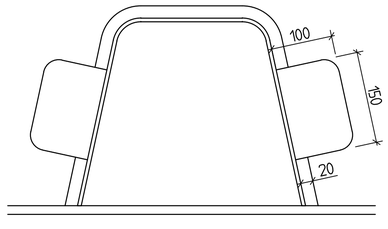
SECTION A-A, DR-401
HIGH PART AXIS 3-8, TYPICAL CROSS-SECTION AT MIDSPAN



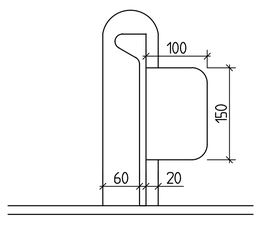
SECTION B-B, DR-401
HIGH PART AXIS 3-8, TYPICAL TRANSVERSE TRUSSES AT MIDSPAN



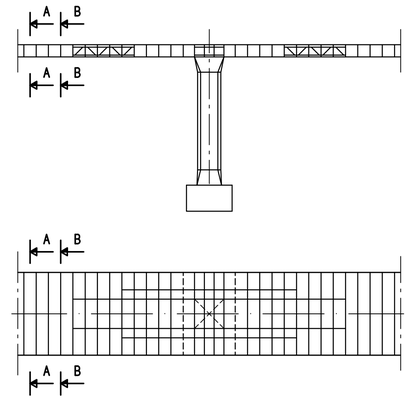
DETAIL 11
TYPICAL CUT-OUT
SCALE 1:5



DETAIL 12
TYPICAL CUT-OUT
SCALE 1:5



DETAIL 13
TYPICAL CUT-OUT
SCALE 1:5



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

3. Wind nose:
- Typical 6 mm steel plate along whole bridge length

	Typical for High Part Axis 3-8		
	Midspan	Transition	Above column
Plate thicknesses (mm)			
Top plate	16	16	16
Web plate	14	14	20
Inclined bottom plate	14	16	22
Bottom plate	14	16	22
Stiffener type (DR-451)			
Top plate detail	1 and 2	1 and 2	1 and 2
Web plate detail	4	5	5
Inclined bottom plate detail	4	5	6
Bottom plate - trapes detail	4	5	5
Bottom plate - bulb detail	8	9	9

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Rev.	Description	Drawn	Checked	Approved	Rev. date
1	Final issue	IBA/AKL	PNL	SEJ	15.08.2019
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

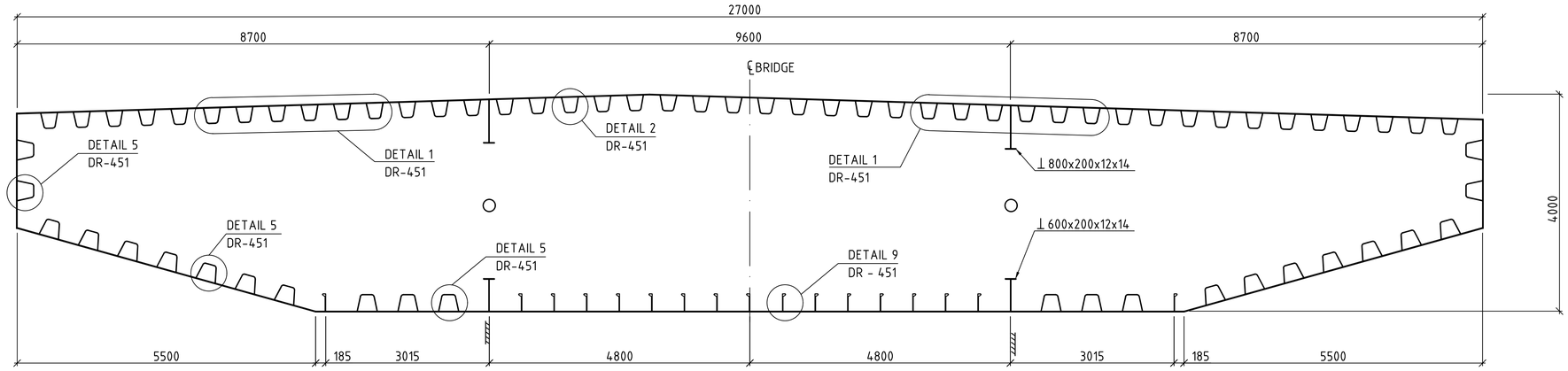
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, High Part Axis 3-8
Typical Cross-section at Midspan

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

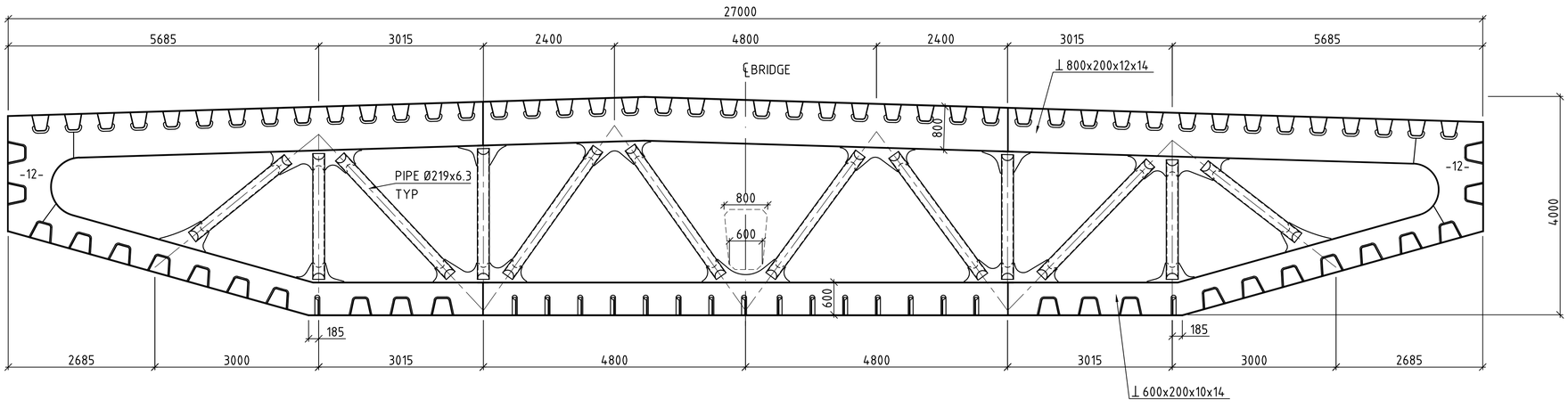
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-402 1



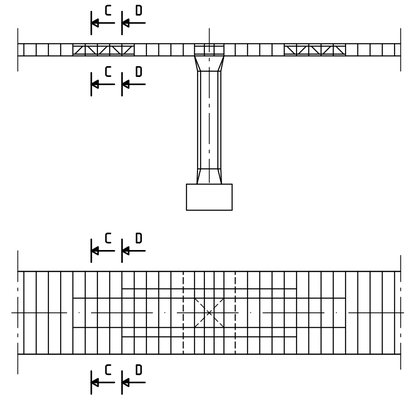
SECTION C-C, DR-401

HIGH PART AXIS 3-8, TYPICAL CROSS-SECTION AT TRANSITION



SECTION D-D, DR-401

HIGH PART AXIS 3-8, TYPICAL TRANSVERSE TRUSSES AT TRANSITION



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

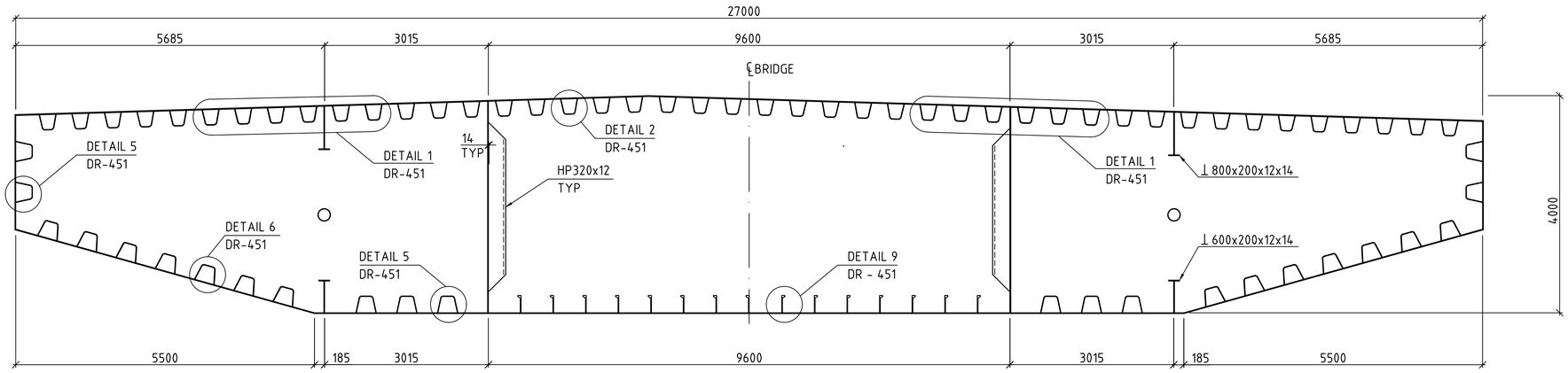
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, High Part Axis 3-8
Typical Cross-section at Transition

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

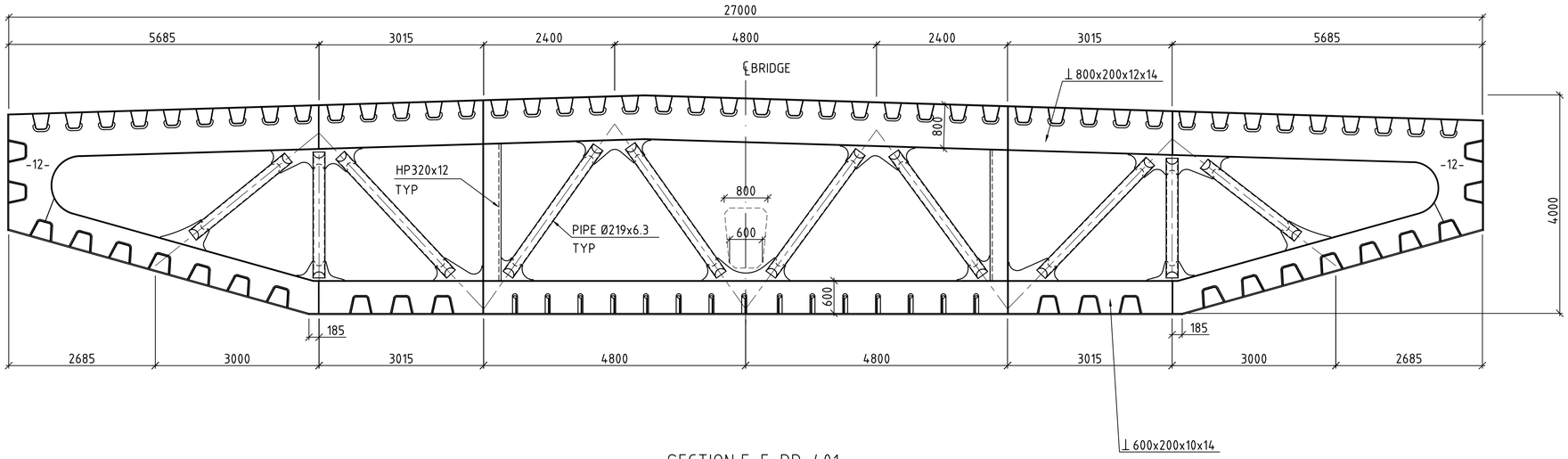
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-403 0



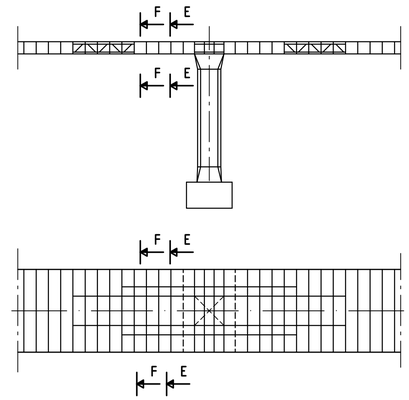
SECTION E-E, DR-401

HIGH PART AXIS 3-8, TYPICAL CROSS-SECTION ABOVE COLUMN



SECTION F-F, DR-401

HIGH PART AXIS 3-8, TYPICAL TRANSVERSE TRUSSES ABOVE COLUMN



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

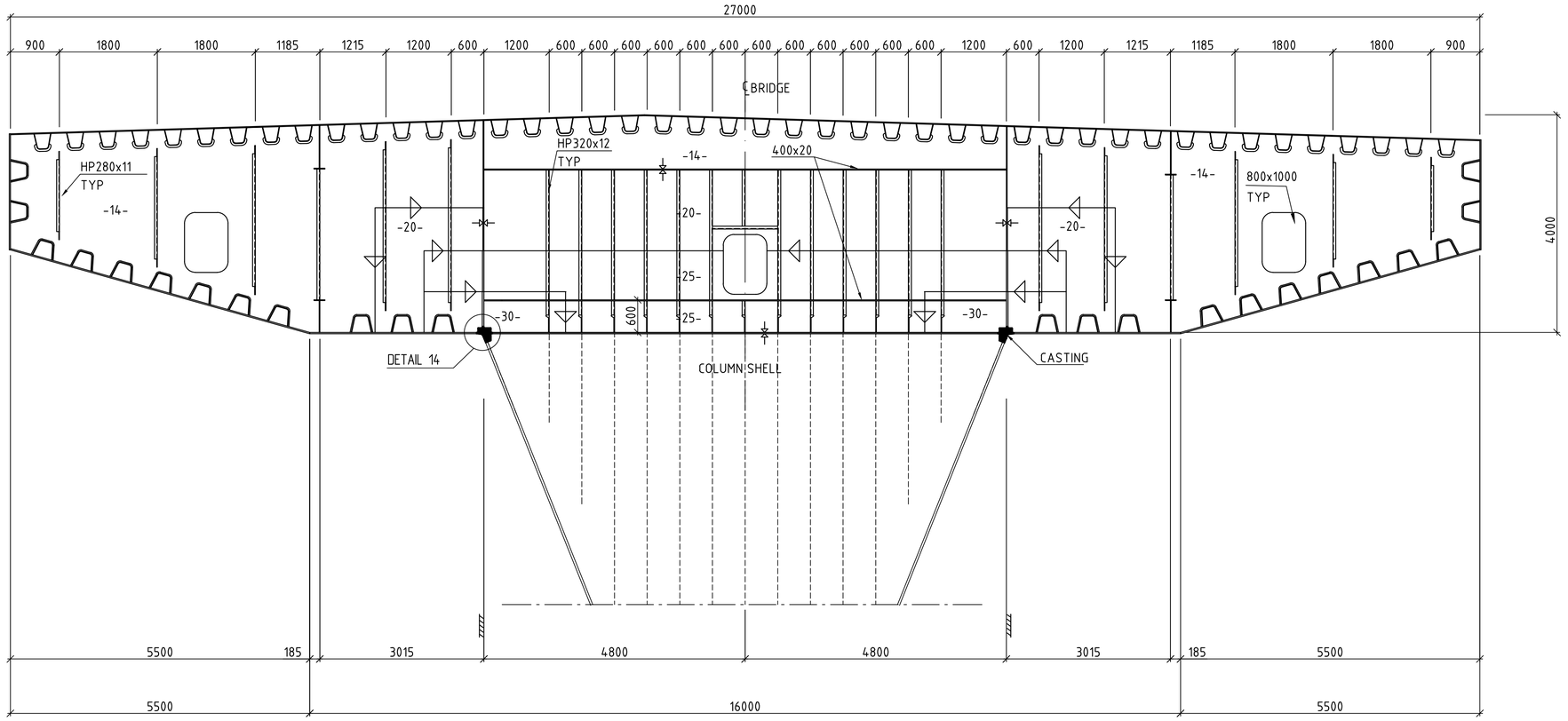
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, High Part Axis 3-8
Typical Cross-section above Column

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

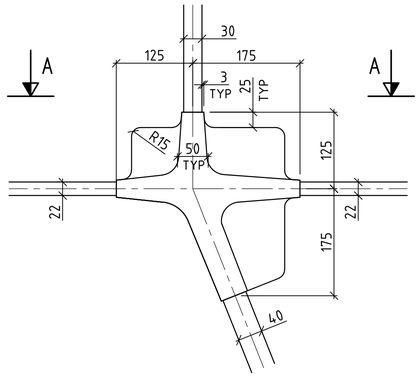
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-404 0

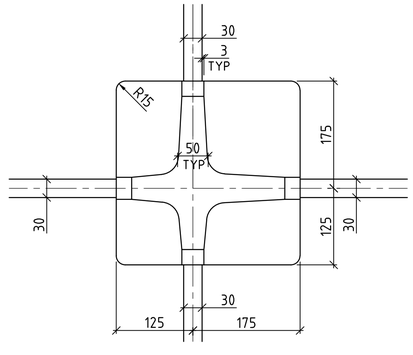


SECTION G-G, DR-401

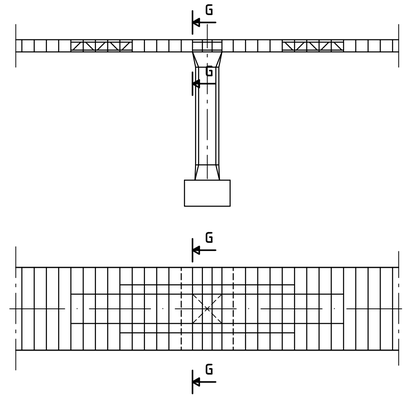
HIGH PART AXIS 3-8, TYPICAL TRANSVERSE BULKHEAD ABOVE COLUMN



DETAIL 14
CASTING
SCALE 1:5



SECTION A-A
SCALE 1:5



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

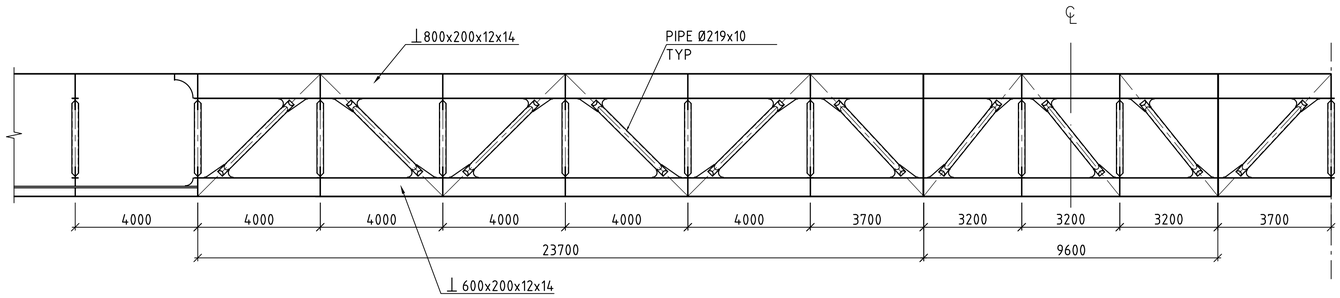
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, High Part Axis 3-8
Typical Transverse Bulkhead above Column

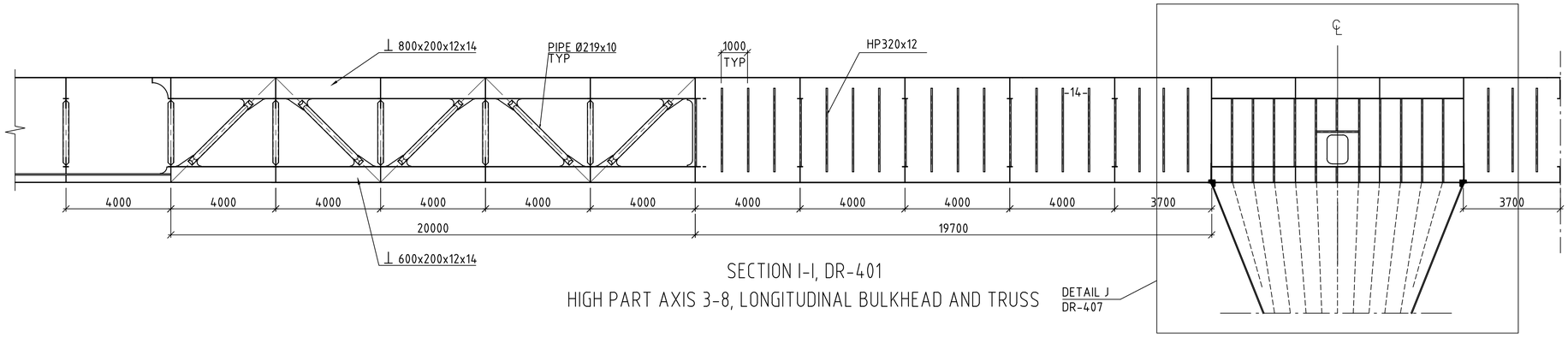
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

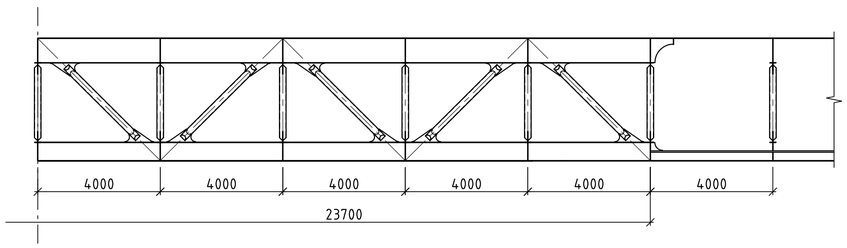
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-405 0



SECTION H-H, DR-401
HIGH PART AXIS 3-8, LONGITUDINAL TRUSS



SECTION I-I, DR-401
HIGH PART AXIS 3-8, LONGITUDINAL BULKHEAD AND TRUSS



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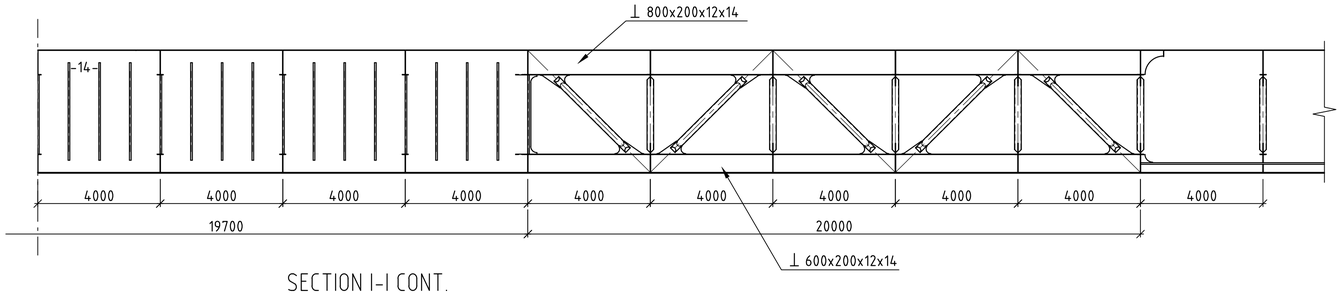
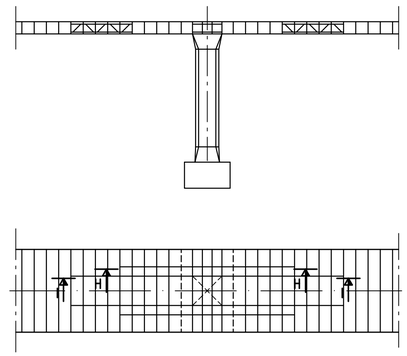


SECTION I-I CONT.



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

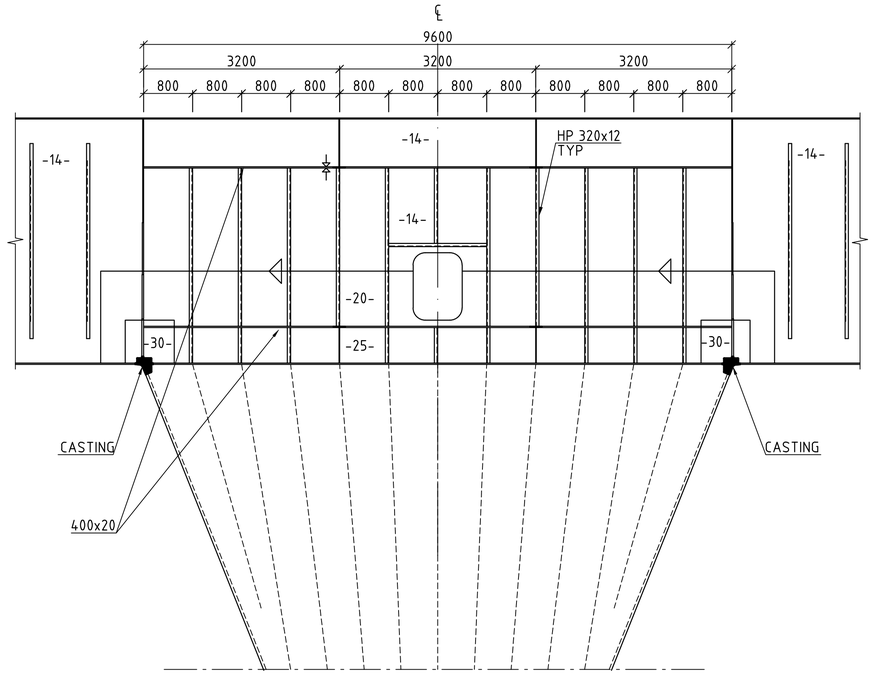
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, High Part Axis 3-8
Typical Longitudinal Truss and Bulkhead

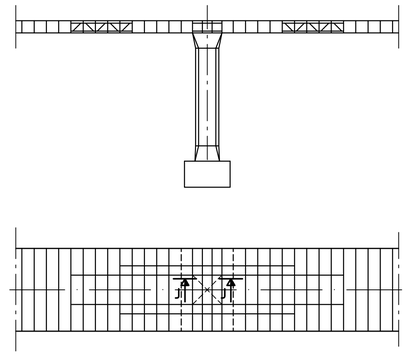
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:100

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-406 0



DETAIL J, DR-406



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

JOHS HOLT AkerSolutions entail NGI DISSING+WEITLING architecture as moss maritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

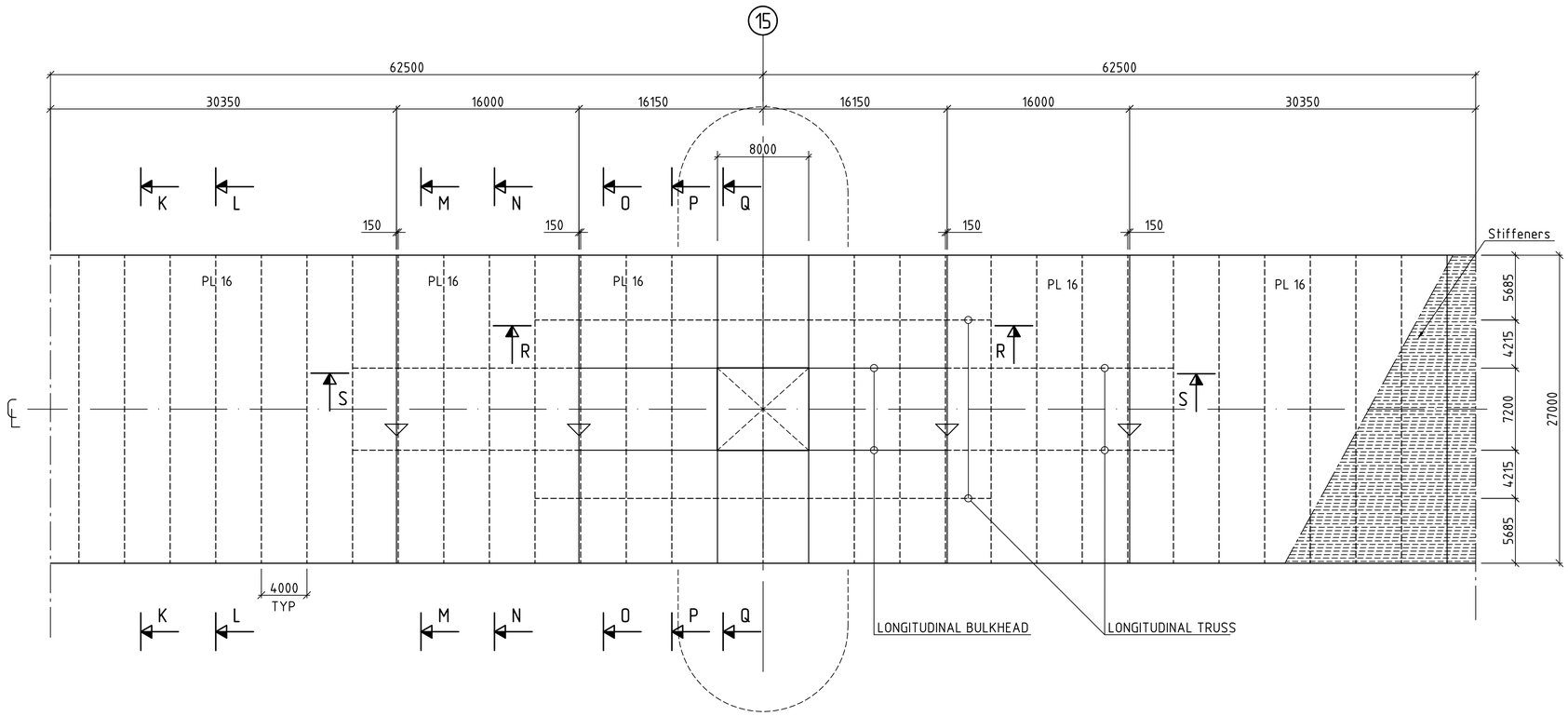
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

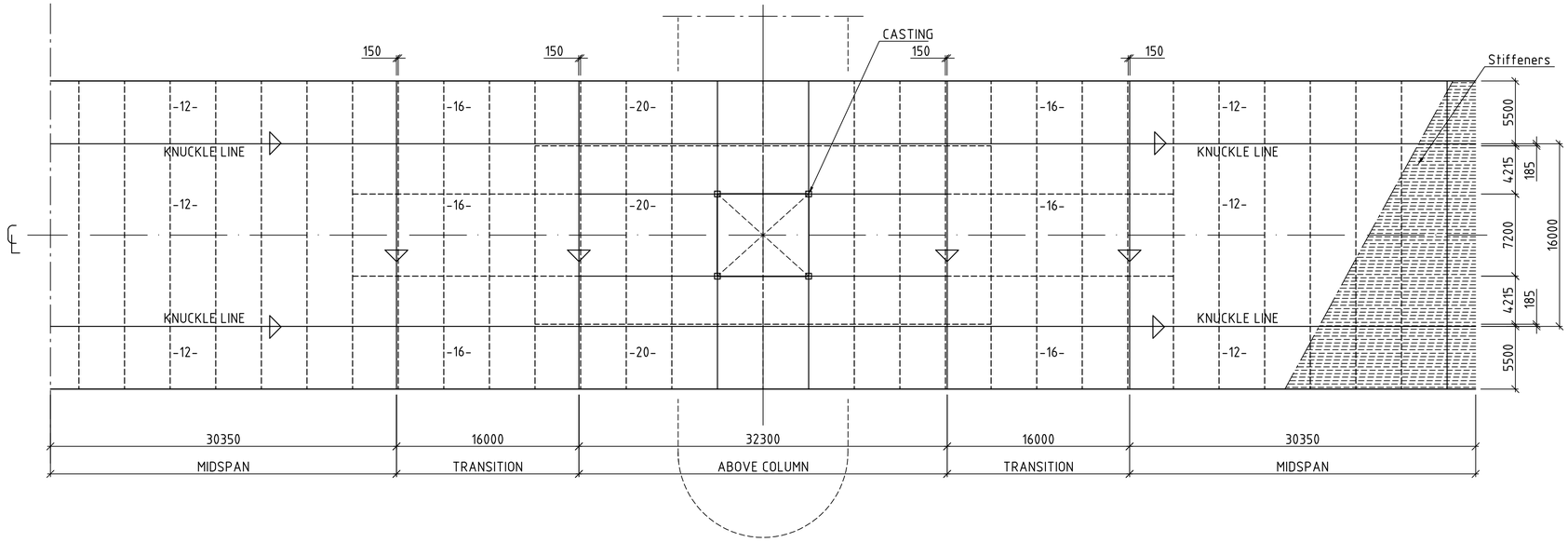
Floating Bridge Girder K12, High Part Axis 3-8
Typical Longitudinal Detail above Column

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IBA/AKL	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-407	0

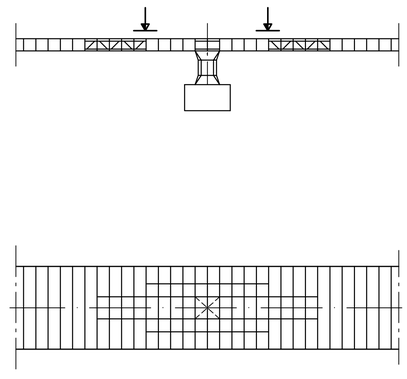


FLOATING BRIDGE, LOW PART AXIS 9-40, TOP PLATE
TYPICAL LAYOUT



LOW PART, BOTTOM PLATE

LOW PART, WEB PLATE



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

REFERENCES:

SECTION K-K	DR-432
SECTION L-L	DR-432
SECTION M-M	DR-433
SECTION N-N	DR-433
SECTION O-O	DR-434
SECTION P-P	DR-434
SECTION Q-Q	DR-435
SECTION R-R	DR-436
SECTION S-S	DR-436

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

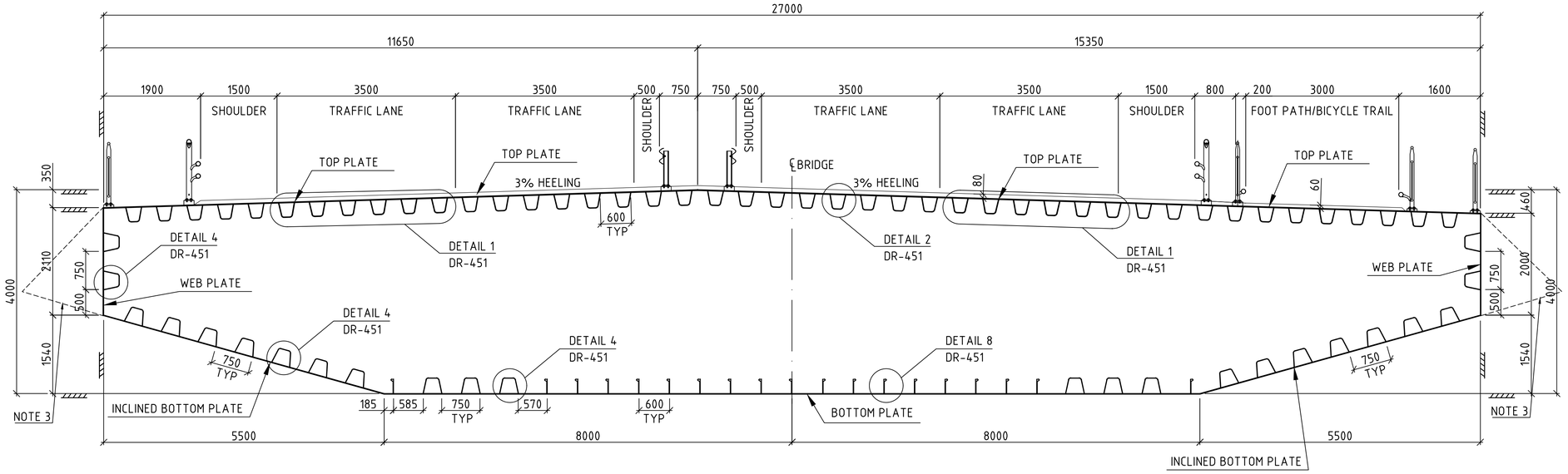
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, Low Part Axis 9-40
Typical Plan

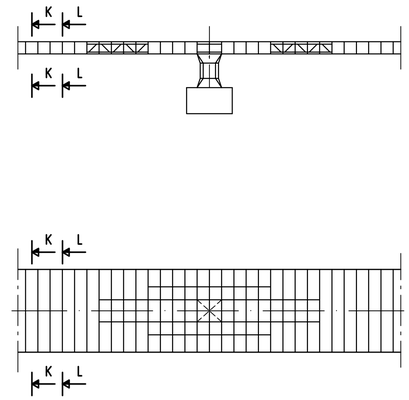
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:250

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

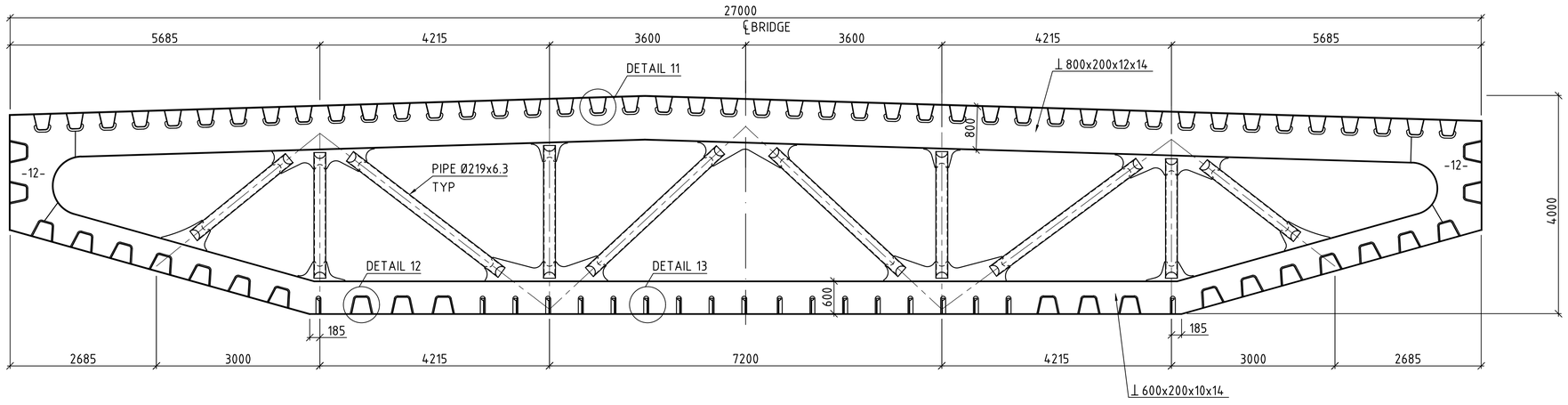
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-431 0



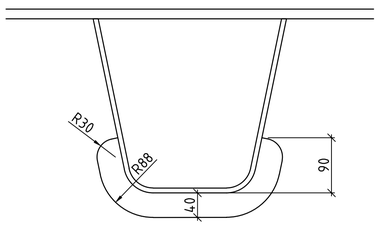
SECTION K-K, DR-431
LOW PART AXIS 9-40, TYPICAL CROSS-SECTION AT MIDSPAN



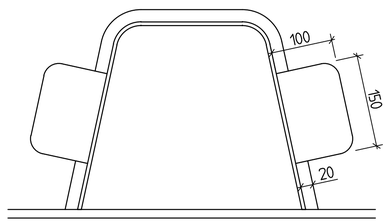
KEY PLAN



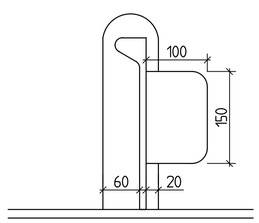
SECTION L-L, DR-431
LOW PART AXIS 9-40, TYPICAL TRANSVERSE TRUSSES AT MIDSPAN



DETAIL 11
TYPICAL CUT-OUT
SCALE 1:5



DETAIL 12
TYPICAL CUT-OUT
SCALE 1:5



DETAIL 13
TYPICAL CUT-OUT
SCALE 1:5

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

3. Wind nose:
- Typical 6 mm steel plate along whole bridge length

	Typical for Low Part Axis 9-40		
	Midspan	Transition	Above column
Plate thicknesses (mm)			
Top plate	16	16	16
Web plate	12	14	14
Inclined bottom plate	12	16	20
Bottom plate	12	16	20
Stiffener type (DR-451)			
Top plate detail	1 and 2	1 and 2	1 and 2
Web plate detail	4	5	5
Inclined bottom plate detail	4	5	5
Bottom plate - trapes detail	4	5	5
Bottom plate - bulb detail	8	9	9

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Rev.	Description	Drawn	Checked	Approved	Rev. date
1	Final issue	IBA/AKL	PNL	SEJ	15.08.2019
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

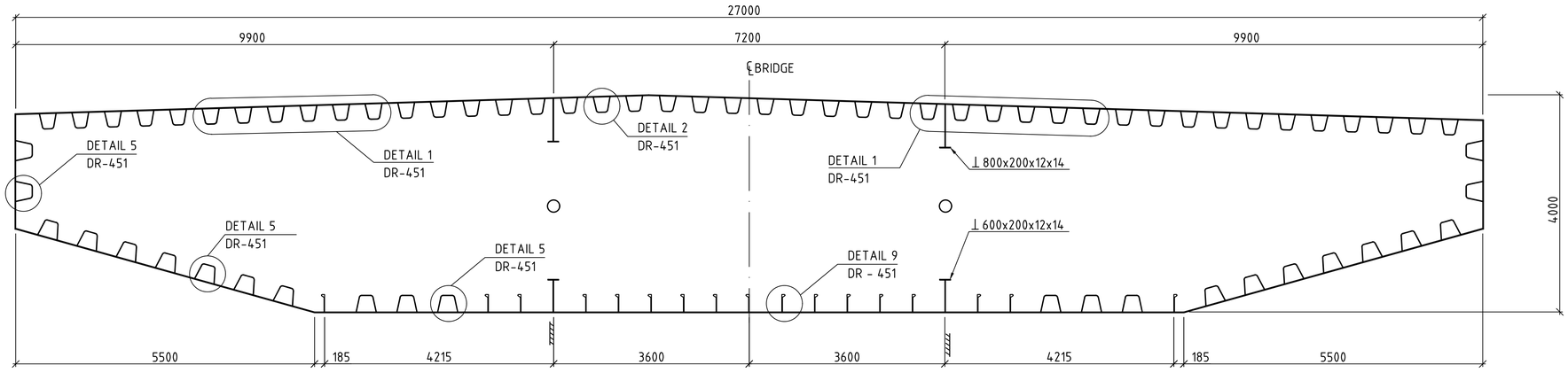
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, Low Part Axis 9-40
Typical Cross-section at Midspan

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

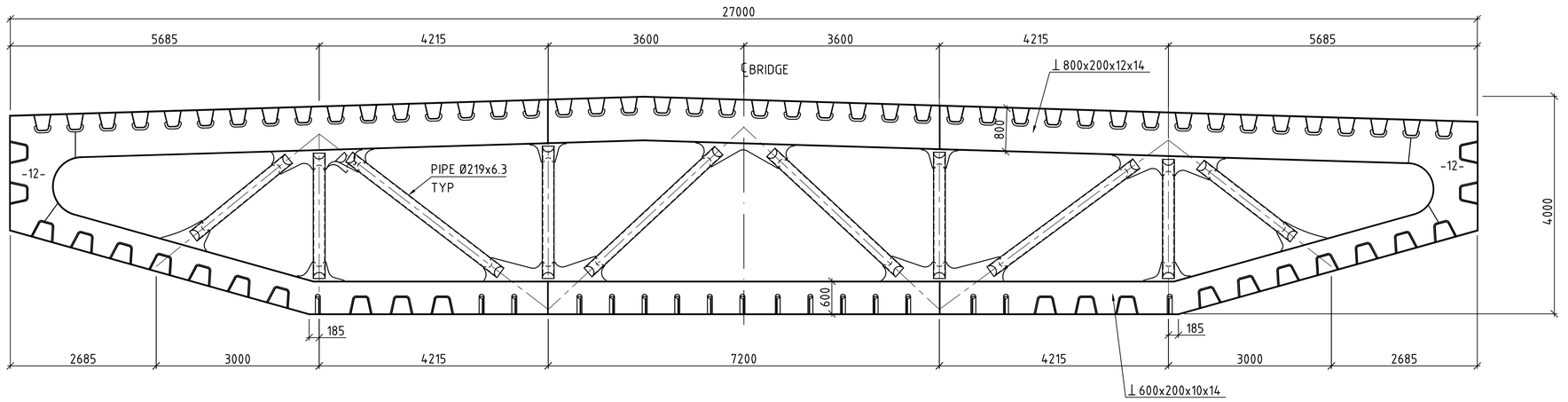
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-432 1



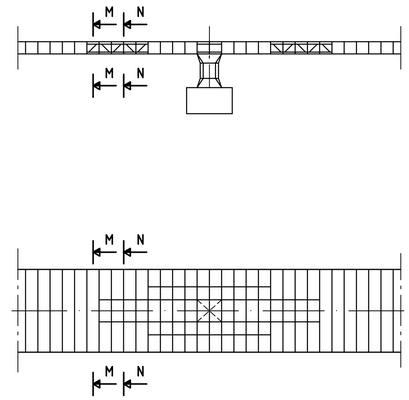
SECTION M-M, DR-431

LOW PART AXIS 9-40, TYPICAL CROSS-SECTION AT TRANSITION



SECTION N-N, DR-431

LOW PART AXIS 9-40, TYPICAL TRANSVERSE TRUSSES AT TRANSITION



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

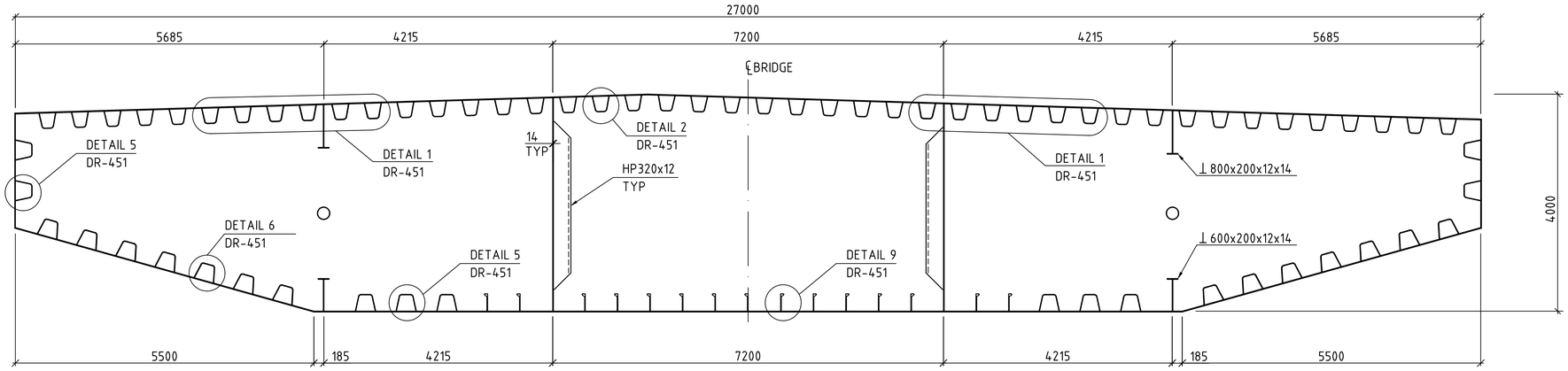
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, Low Part Axis 9-40
Typical Cross-section at Transition

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

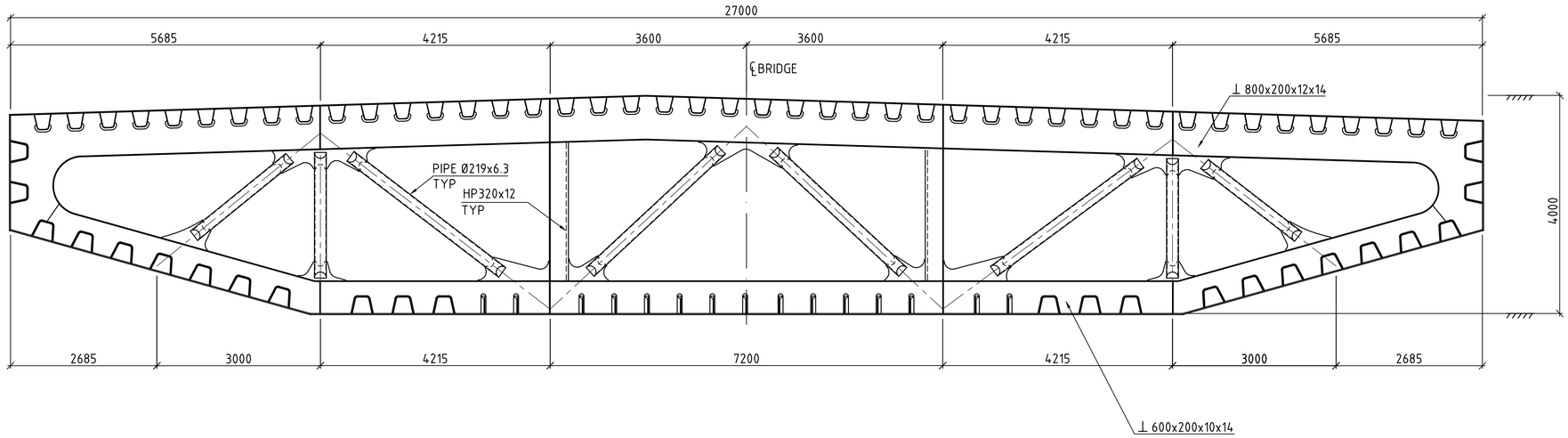
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-433 0



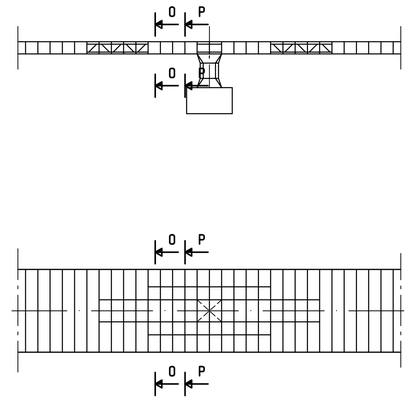
SECTION O-O, DR-431

LOW PART AXIS 9-40, TYPICAL CROSS-SECTION ABOVE COLUMN



SECTION P-P, DR-431

LOW PART AXIS 9-40, TYPICAL TRANSVERSE TRUSSES ABOVE COLUMN



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

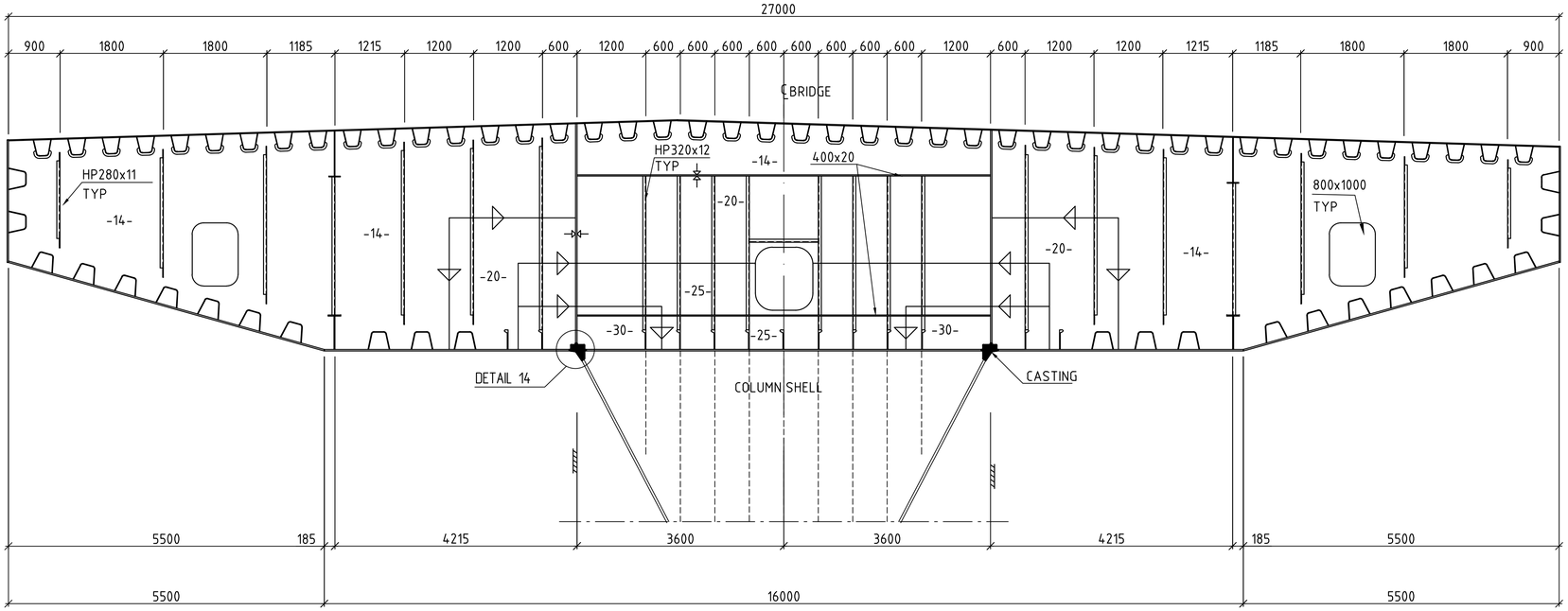
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, Low Part Axis 9-40
Typical Cross-section above Column

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

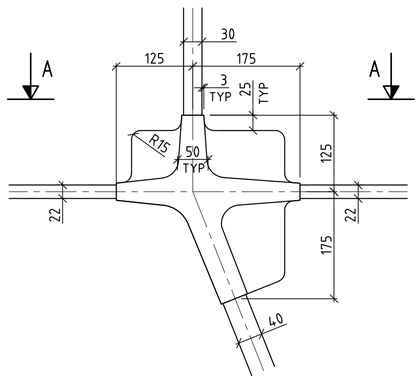
Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-434 | 0

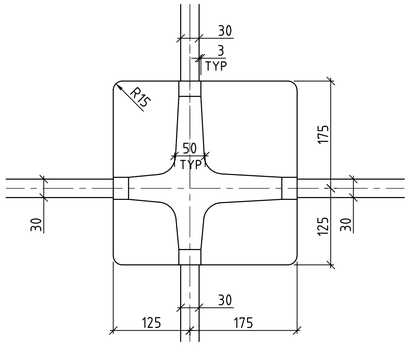


SECTION Q-Q, DR-431

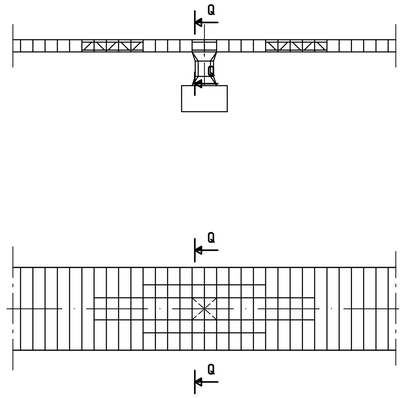
LOW PART AXIS 9-40, TYPICAL TRANSVERSE BULKHEAD ABOVE COLUMN



DETAIL 14
CASTING
SCALE 1:5



SECTION A-A
SCALE 1:5



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

JOHS HOLT AkerSolutions entail NGI DISSING+WEITLING architecture as moss maritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

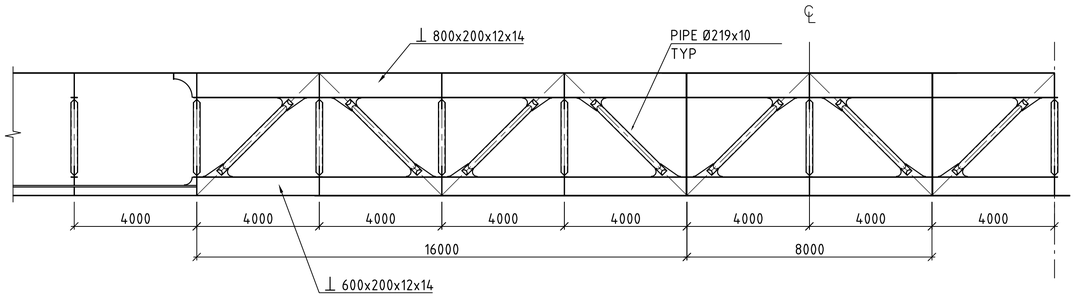
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, Low Part Axis 9-40
Typical Transverse Bulkhead above Column

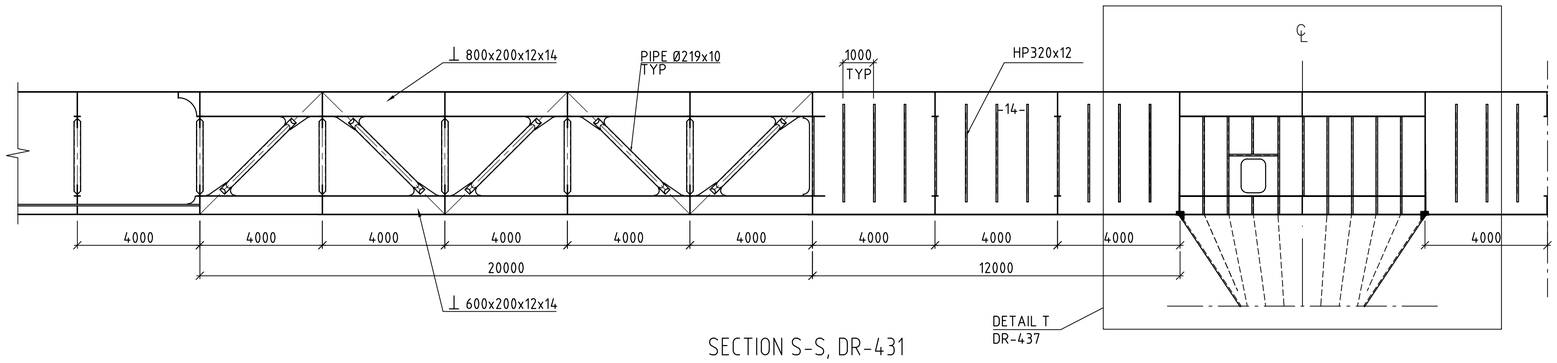
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

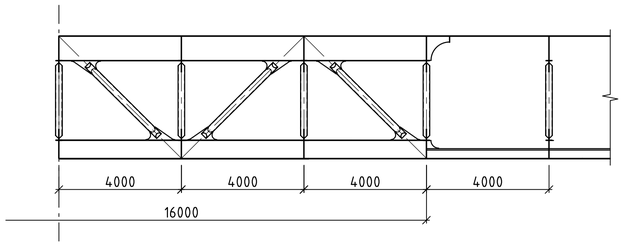
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-435 0



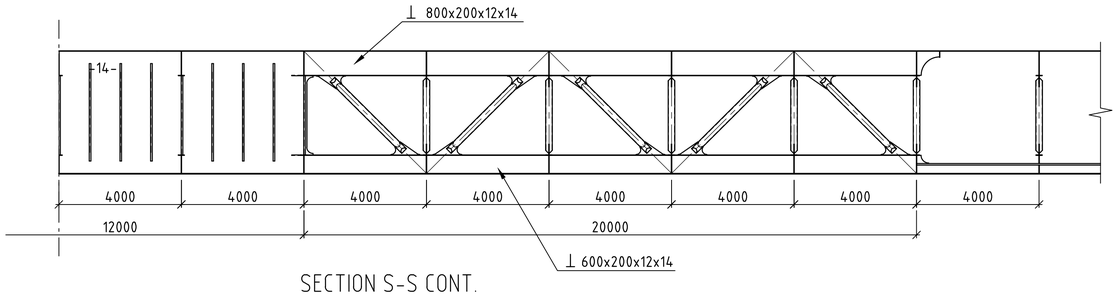
SECTION R-R, DR-431
LOW PART AXIS 9-40, LONGITUDINAL TRUSS



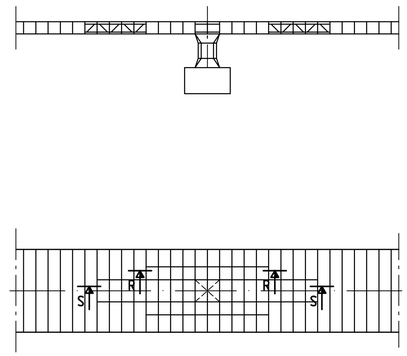
SECTION S-S, DR-431
LOW PART AXIS 9-40, LONGITUDINAL BULKHEAD



SECTION R-R CONT.



SECTION S-S CONT.



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

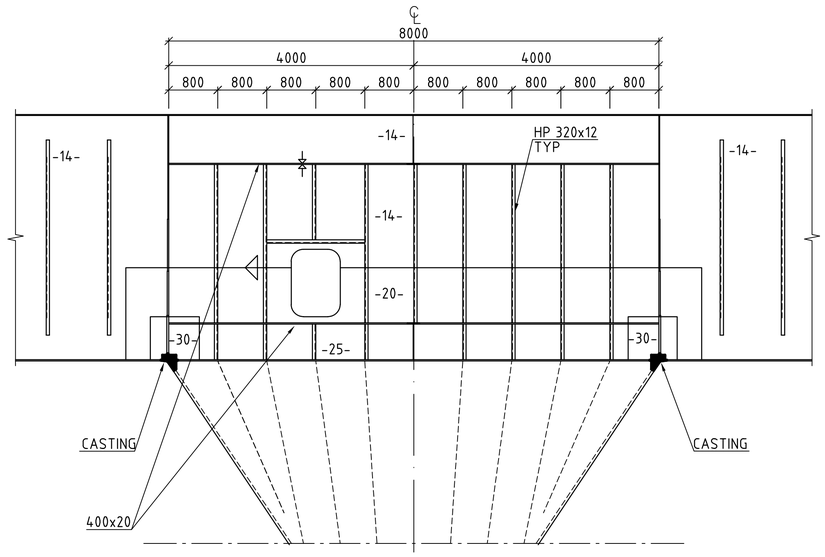
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, Low Part Axis 9-40
Typical Longitudinal Truss and Bulkhead

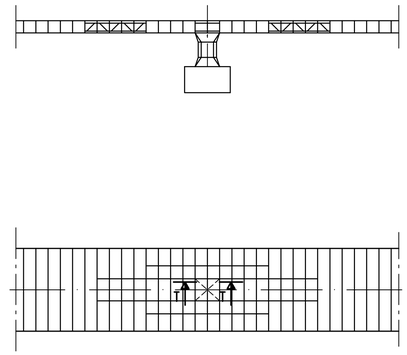
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:100

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-436 0



DETAIL T, DR-436



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

AAS-JAKOBSEN COWI Multiconsult

JOHNS HOLT AkerSolutions entail NGI DISSING+WEITLING architecture a/s mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

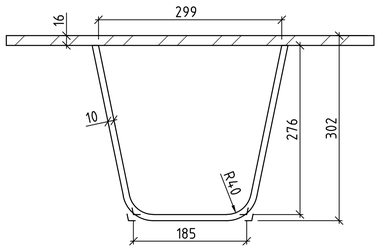
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, Low Part Axis 9-40
Typical Longitudinal Detail above Column

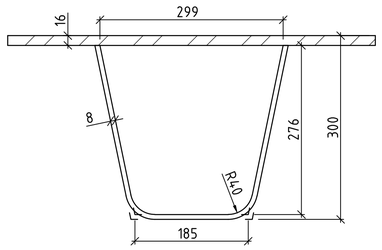
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:50

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

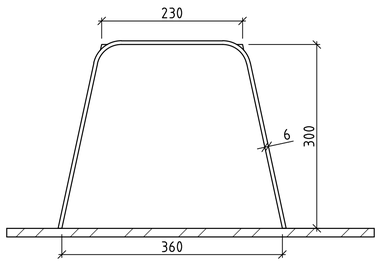
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-437 0



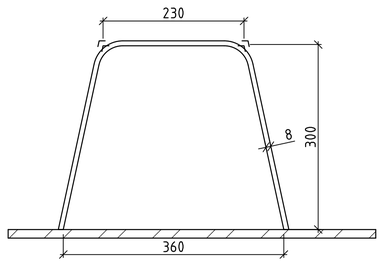
DETAIL 1



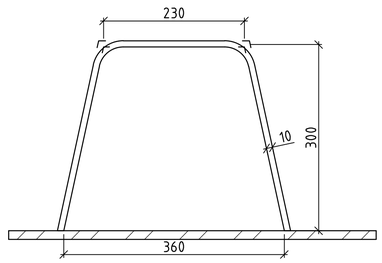
DETAIL 2



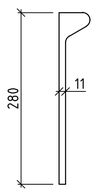
DETAIL 4



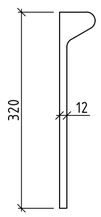
DETAIL 5



DETAIL 6



DETAIL 8



DETAIL 9

HP TABLE:
HP 280X11
HP 320X12

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

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Rev.	Description	Drawn	Checked	Approved	Rev. date
1	Final issue	IBA/AKL	PNL	SEJ	15.08.2019
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

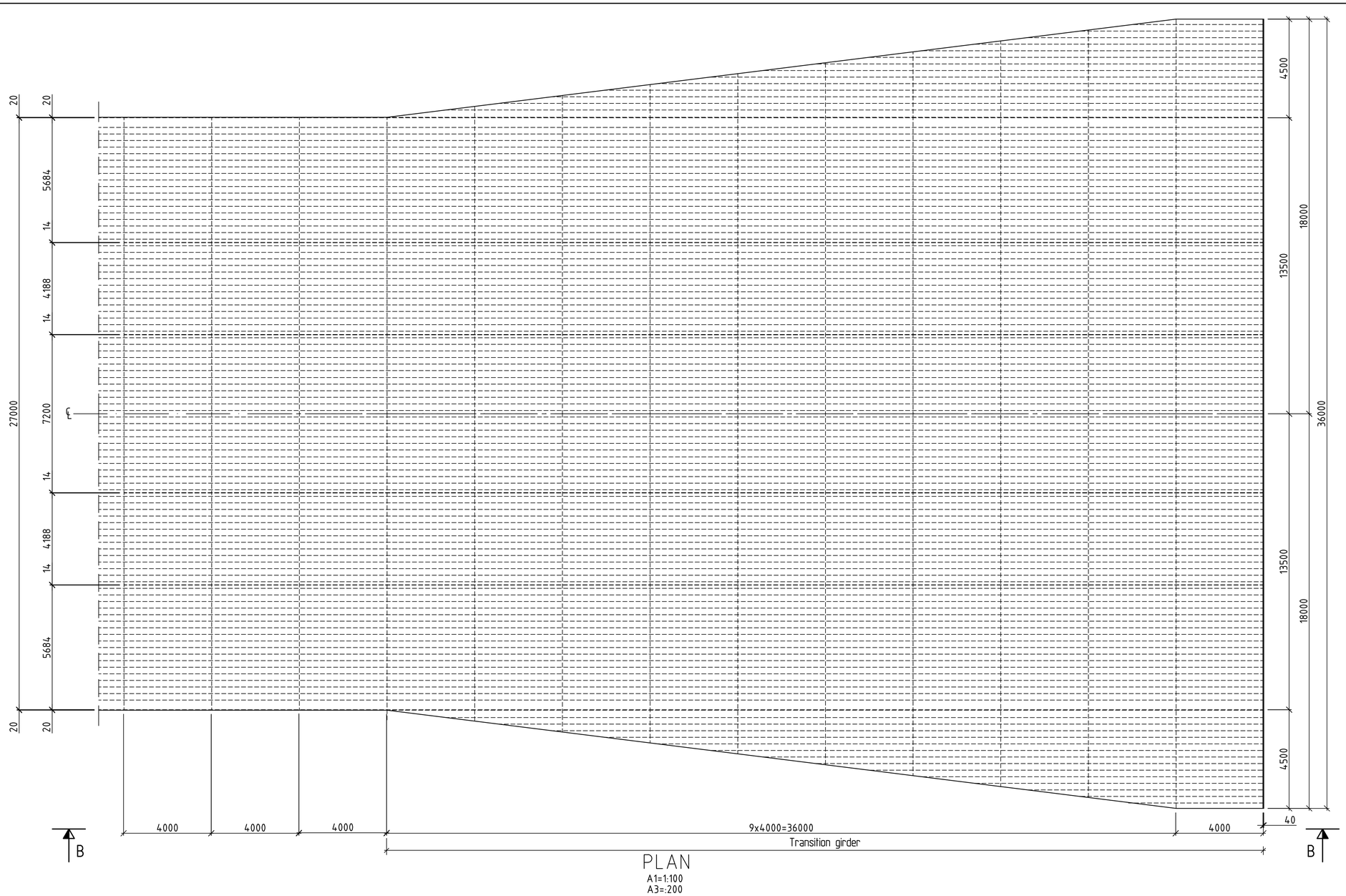
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12
Stiffener Details

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:20

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

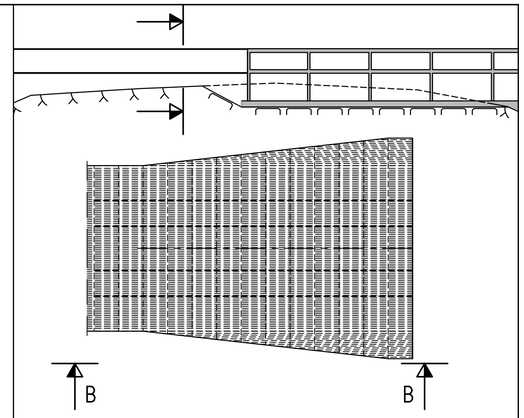
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-451 1



PLAN

A1=1:100
A3=:200

ELEVATION B-B



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality: S420 N/NL or M/ML

REFERENCES:

Abutments, North layout and sections DR-202

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	TBA/IKO	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes–Os

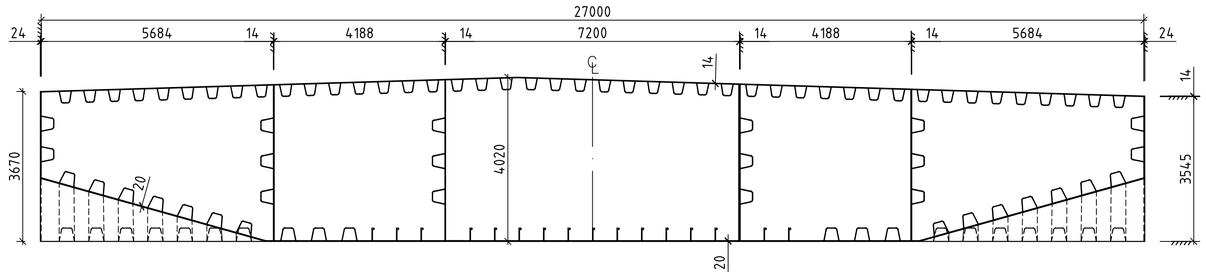
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Girder K12, Low Part
End of bridge girder at north abutment - plan and elevation

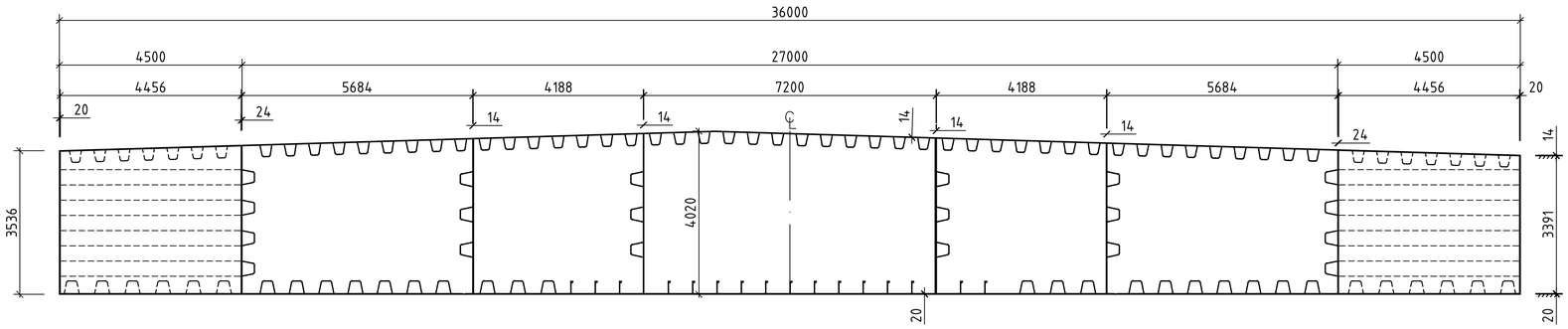
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:100

Drawn by:	Checked by:	Approved by:	Project no.
TBA/IKO	PNL	SEJ	10205546-01

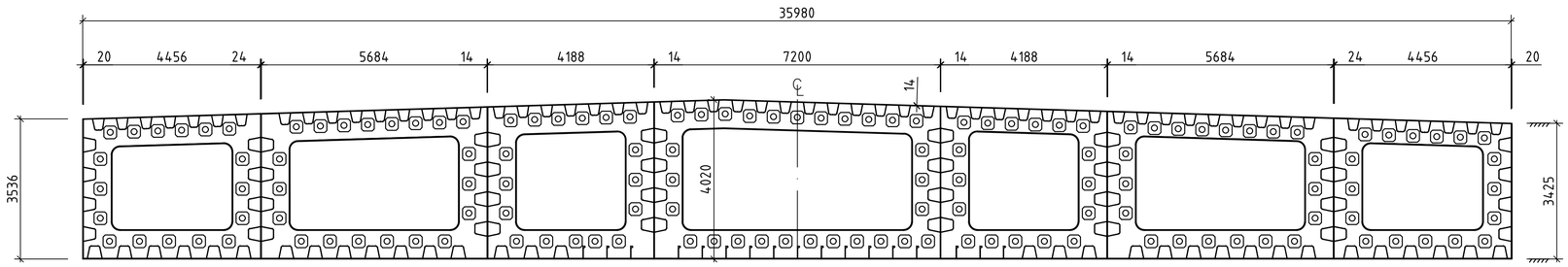
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-461 0



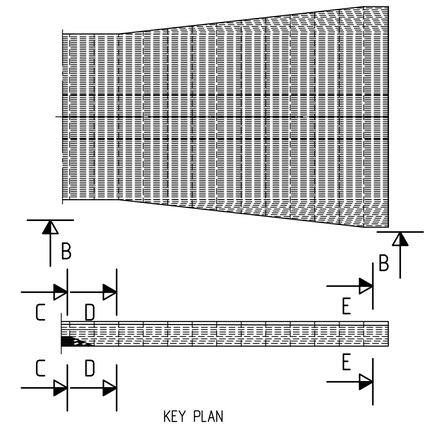
SECTION C-C, DR-461



SECTION D-D, DR-461



SECTION E-E, DR-461



KEY PLAN

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality: S420 N/NL or M/ML
- Tendons: 6-22, Spk=6138 kN

REFERENCES:

Abutments, North layout and sections DR-202

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	TBA/IKO	PNL	SEJ	30.06.2019

Statens vegvesen

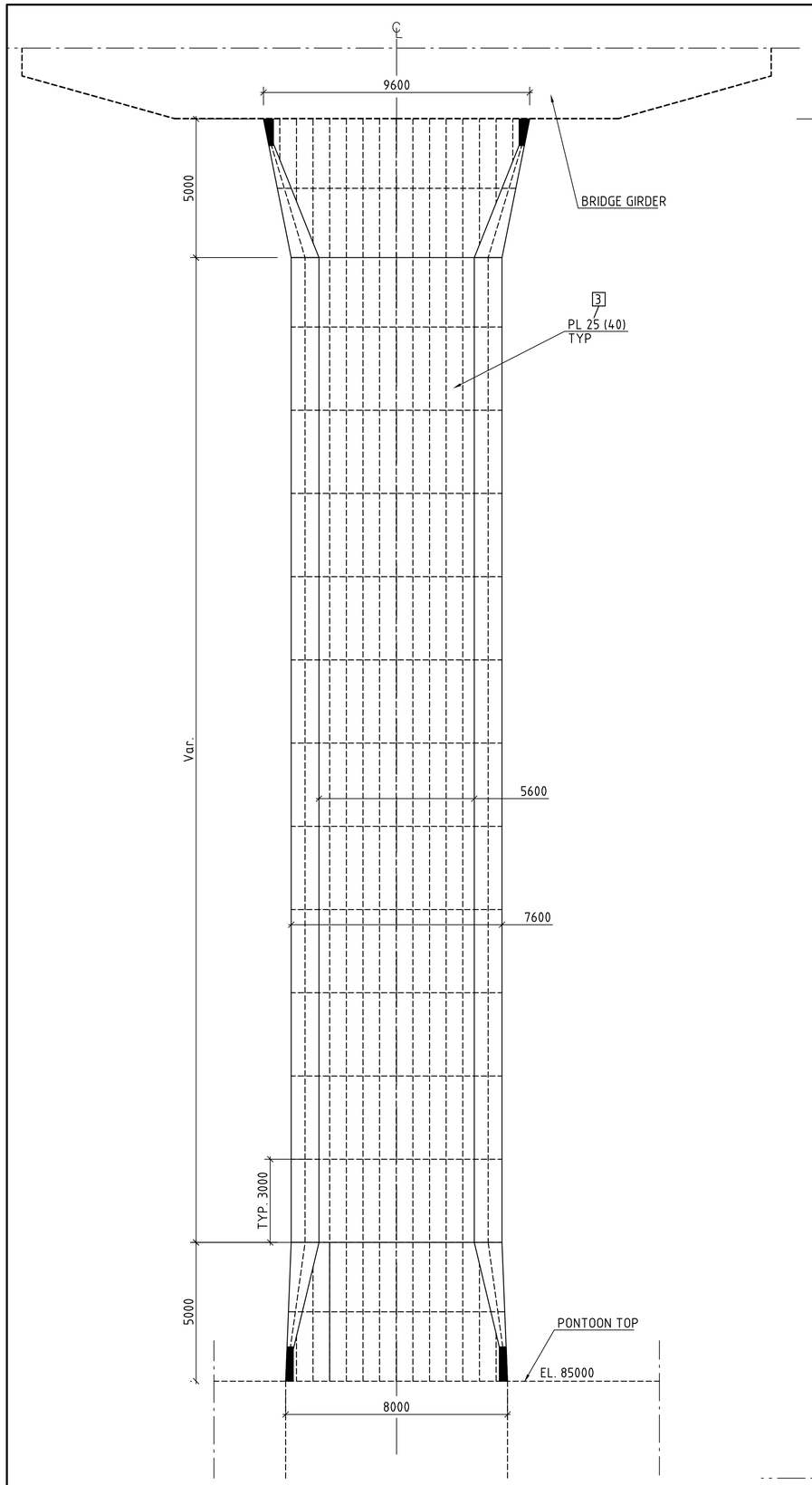
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

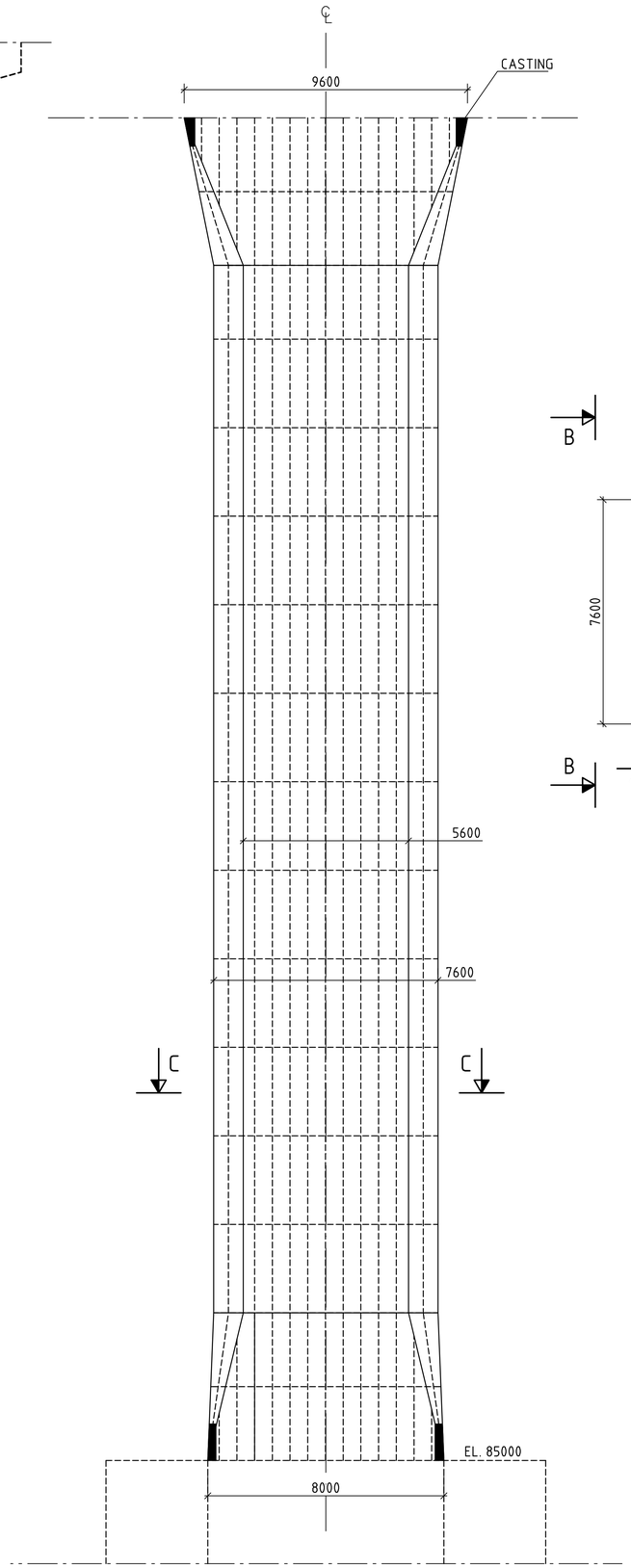
Floating Bridge Girder K12, Low Part
End of bridge girder at north abutment - sections

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:75

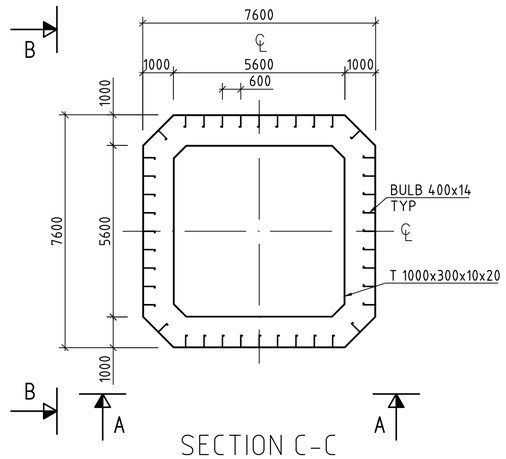
Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
TBA/IKO	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-462	0



SECTION A-A



SECTION B-B



SECTION C-C

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

3 Plate thickness of 40 mm due to ships collision.

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

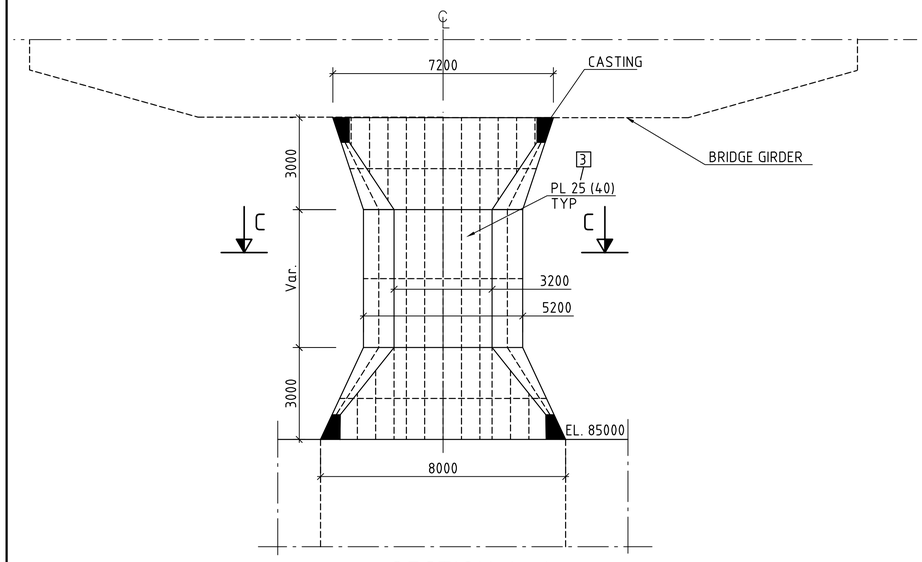
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Column K12, High Part, Axis 3-8
Structural arrangement and dimensions

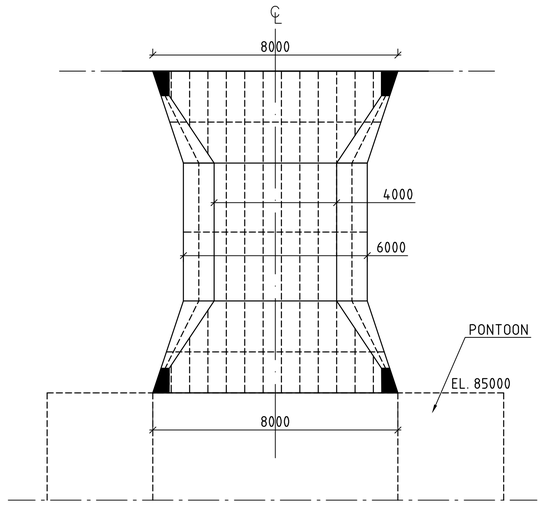
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:100

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

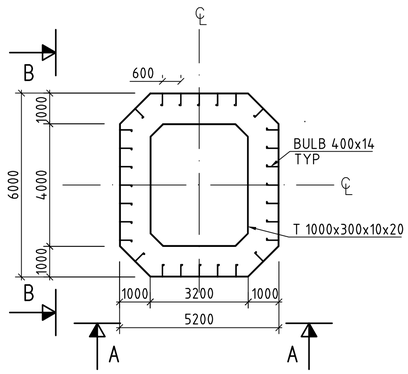
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-471 0



SECTION A-A



SECTION B-B



SECTION C-C

REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML

3. Plate thickness of 40 mm due to ships collision.

AAS-JAKOBSEN COWI Multiconsult

JOHNS HOLT · AkerSolutions · entail · NGI · DISSING+WEITLING architecture a/s · mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

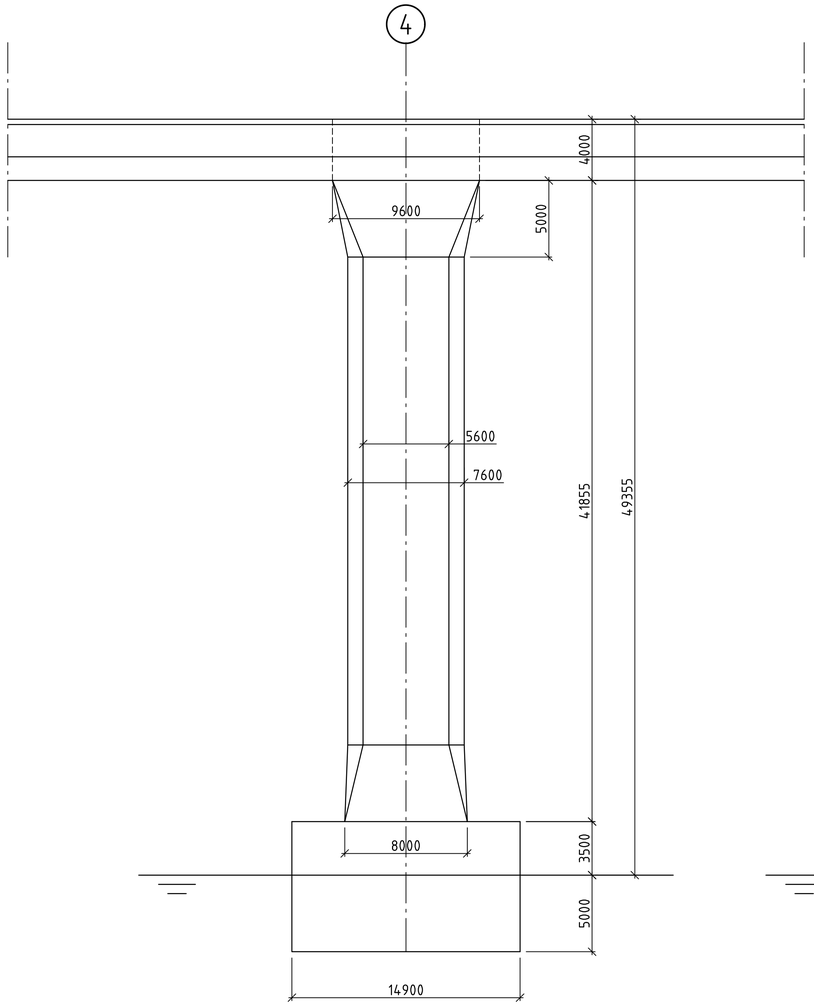
E39 Tysnes-Os

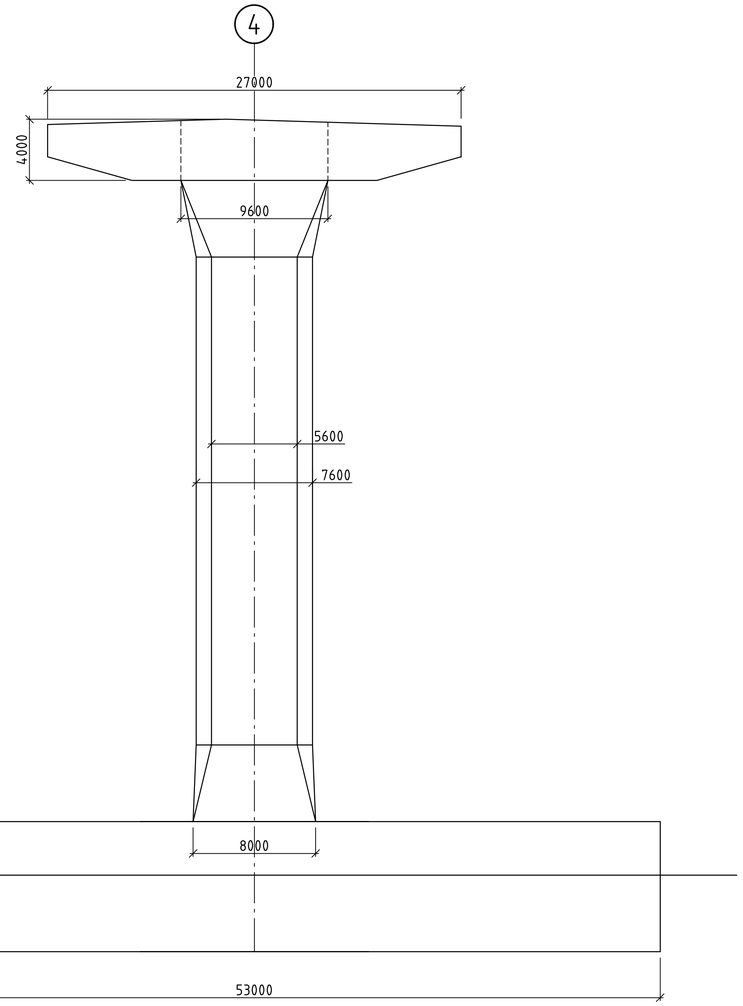
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge Column K12, Low Part, Axis 9 and above
Structural arrangement and dimensions

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:100

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IBA/AKL	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-481	0





REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML
- Steel quality in plates in splash zone: 25CR (SDSS)

AAS-JAKOBSEN COWI Multiconsult

JOHN HOLT · AkerSolutions · entail · NGI · DISSING+WEITLING architecture a/s · mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

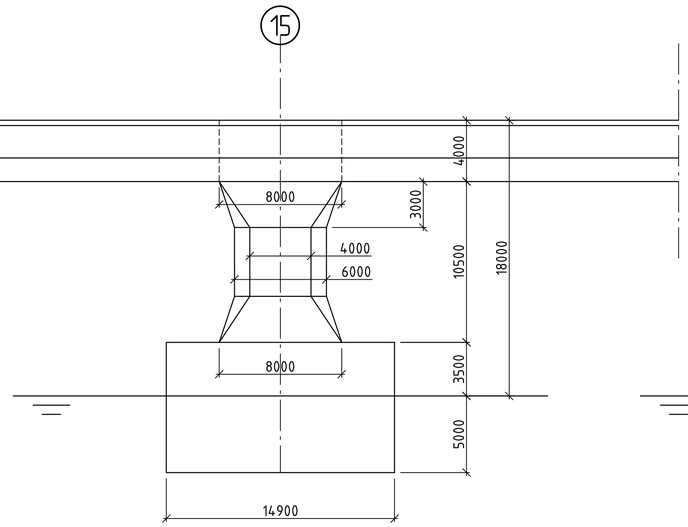
Concept development, floating bridge E39 Bjørnafjorden

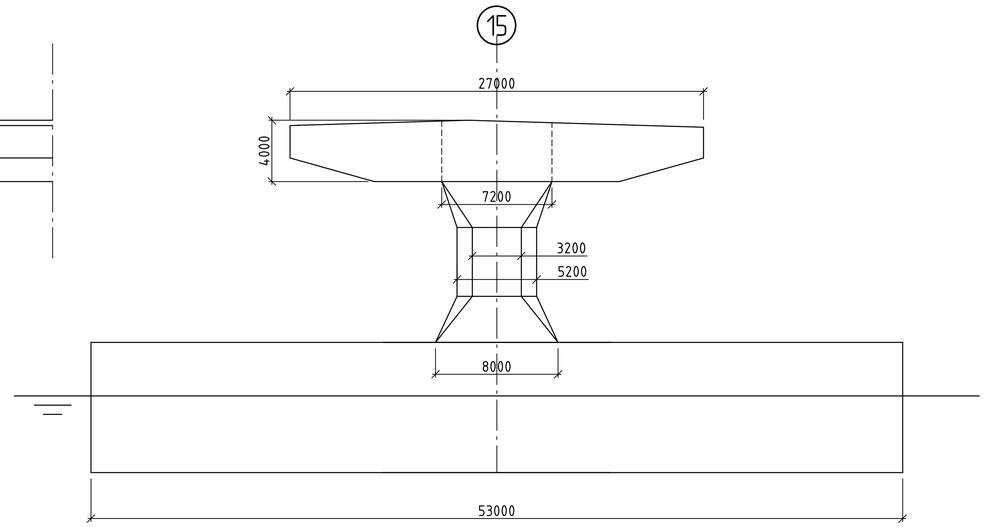
Floating Bridge K12, High Part Axis 3-8
Typical Structural Arrangement

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:250

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-491 0





REMARKS:

1. General:
- All measurements in mm.

2. Materials:
- Steel quality in plates: S420 N/NL or M/ML
- Steel quality in bulbs: S420 N/NL or M/ML
- Steel quality in plates in splash zone: 25CR (SDSS)

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	IBA/AKL	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

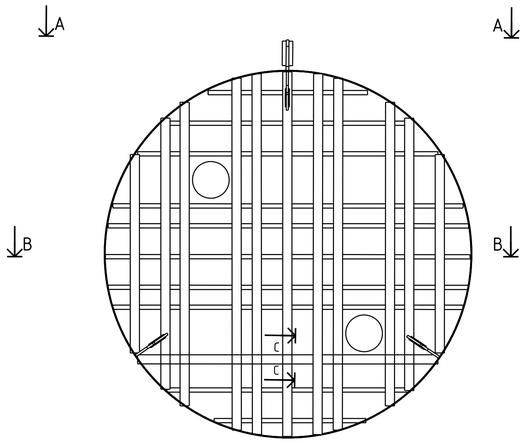
Concept development, floating bridge E39 Bjørnafjorden

Floating Bridge K12, Low Part Axis 9-40
Typical Structural Arrangement

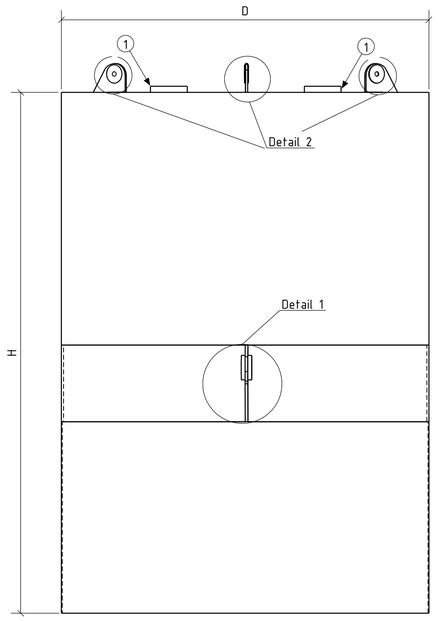
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:250

Drawn by:	Checked by:	Approved by:	Project no.
IBA/AKL	PNL	SEJ	10205546-01

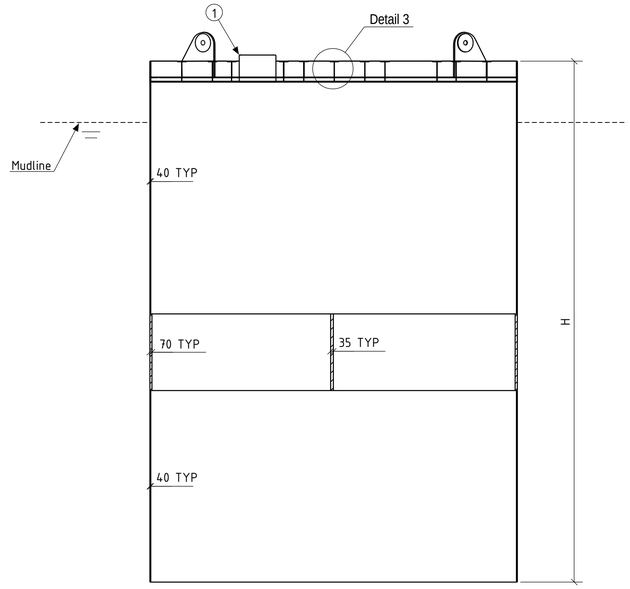
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-492 0



Plan
A1 = 1:100
A3 = 1:200



Elevation A - A
A1= 1:100
A3=1:200



Section B - B
A1= 1:100
A3=1:200

REMARKS:

1. Steel

- Material quality: S355

2. Surface coating:

- Surfaces above mudline and 2 m below mudline:
  System 7, ref. NORSOK M-501, in combination with cahtodic protection.
- Remaining embedded:
  No coating

NOTES:

Padeye will be located below seabed for all suction anchors
and will thus not be accessible for visual inspection.
The exact loaction of padeye will be determined in detail design.

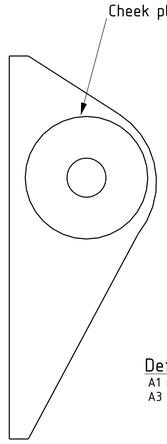
EXPLANATIONS:

(1) Vent hatches

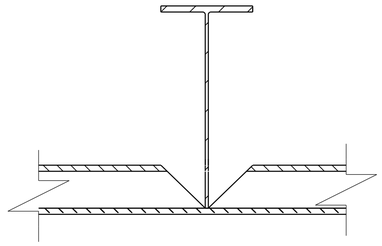
REFERENCES:

SBJ-33-C5-AMC-22-DR-012 General view K12

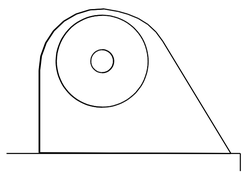
Anchor no.	Diameter, D [m]	Height, H [m]
1	6	19
2	6	19
3	6	19
4	6	16
5	6	16
6	6	16
7	6	16
8	6	19
9	8	15
10	6	11
11	6	16
12	8	15



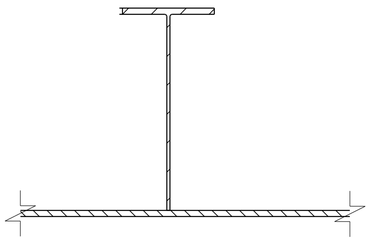
Detail 1
A1 = 1:20
A3 = 1:40



Detail 3
A1 = 1:10
A3 = 1:20



Detail 2
A1 = 1:20
A3 = 1:40



Section C - C
A1 = 1:10
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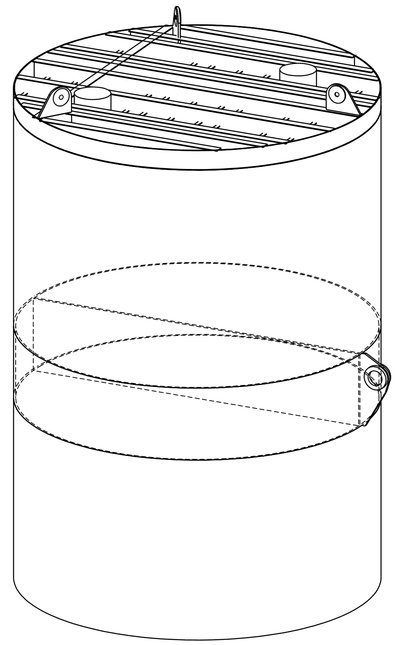

Perspective

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JOHN HOLT AkerSolutions entail NGI DISSING+WEITLING architecture as mosstotalitime

Rev.	Description	Drawn	Checked	Approved	Rev. date
1	Final issue	AS/KS	PNL	SEJ	30.06.2019
0	Final issue	AS/KS	PNL	SEJ	24.05.2019

Statens vegvesen

E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

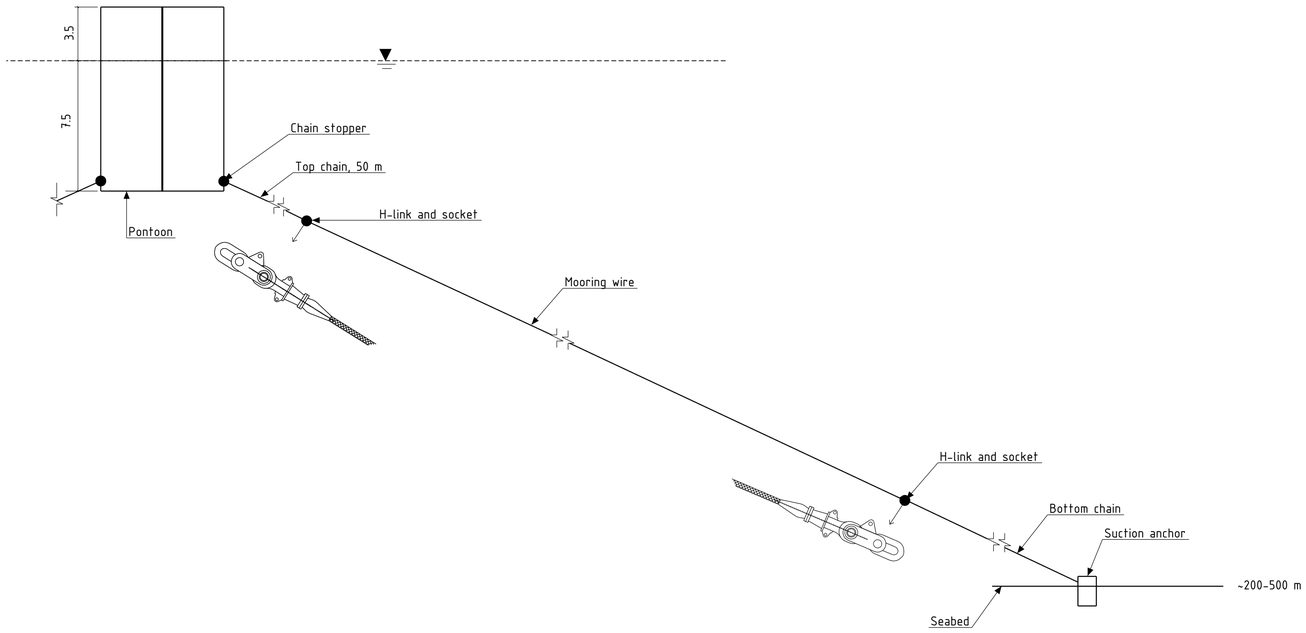
Anchor, K12

Suction anchor, typical

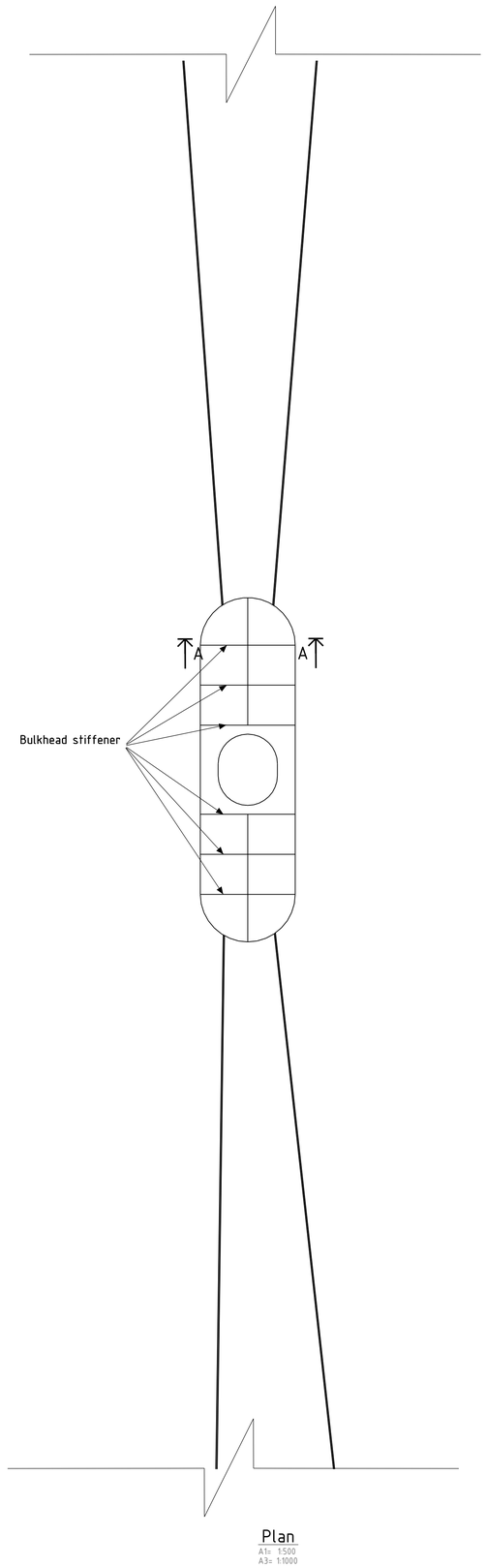
Drawing date	30-06-2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:10 1:20 1:100

Drawn by:	Checked by:	Approved by:	Project no.
AS/KS	PNL	SEJ	10205546-01

Drawing number/Revision index
SBJ-33-C5-AMC-22-DR-601 1



Section A - A, suction anchor



Plan

A1= 1:500
A3= 1:1000

Line segmentation

Anchor no	Top chain [m]	Bottom chain [m]	Wire lengths [m]
1	50	100	571
2	50	100	514
3	50	100	717
4	50	100	713
5	50	100	875
6	50	100	811
7	50	100	830
8	50	100	717
9	50	100	466
10	50	100	560
11	50	100	479
12	50	100	435

NOTES:

Chain (at installation):
- Dimension: 147 mm R4
- Weight: 432.2 kg/m
- MBL: 19 089 kN

Wire segment:
- Diameter: 124 mm SPR2PLUS
- Sheeting: 11 mm
- Weight: 82.2 kg/m
- MBL: 15 073 kN

- Top and bottom chains are protected by a corrosion allowance of 10 mm (top) / 20 mm (bottom) included in design.
- Wire is protected by coating.

Pretension:
- See drawings DR-012

REFERENCES:

SBJ-33-C5-AMC-DR-012 General view K12

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Rev.	Description	Drawn	Checked	Approved	Rev. date
2	Final issue	PSU	PNL	SEJ	15.08.2019
1	Final issue	AS/KS	PNL	SEJ	30.06.2019
0	Final issue	AS/KS	PNL	SEJ	24.05.2019

Statens vegvesen

E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

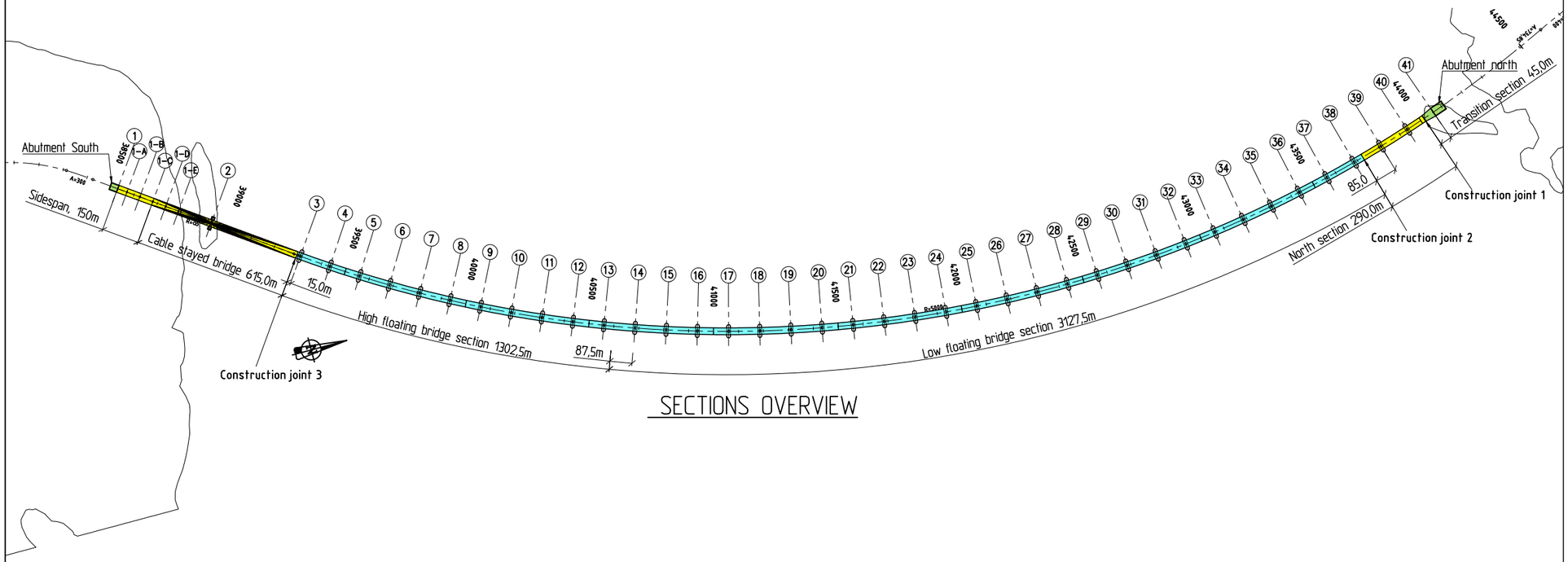
Mooring, K12

Mooring line segmentation arrangement

Drawing date	30-06-2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	1:500
Drawing number/Revision index	SBJ-33-C5-AMC-22-DR-701 2

Drawn by:	Checked by:	Approved by:	Project no.
AS/LFB	PNL	SEJ	10205546-01

ORGINALFORMAT: A1



SECTIONS OVERVIEW

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0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes–Os

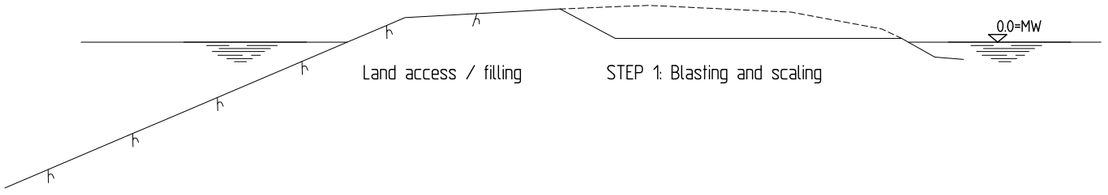
Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12

Sections overview

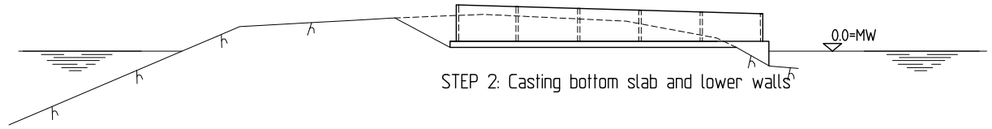
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
HPO/JOK	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR- 800	0

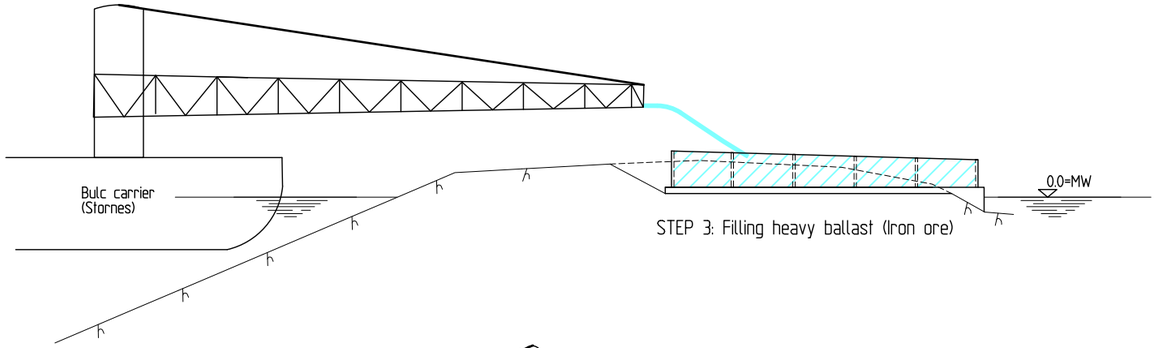


Land access / filling

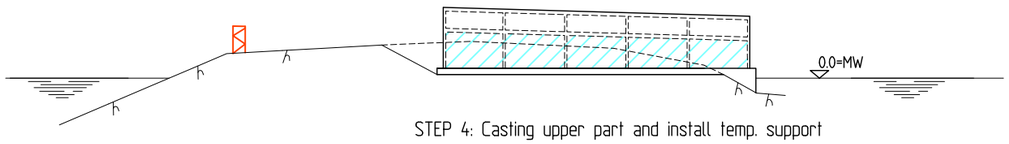
STEP 1: Blasting and scaling



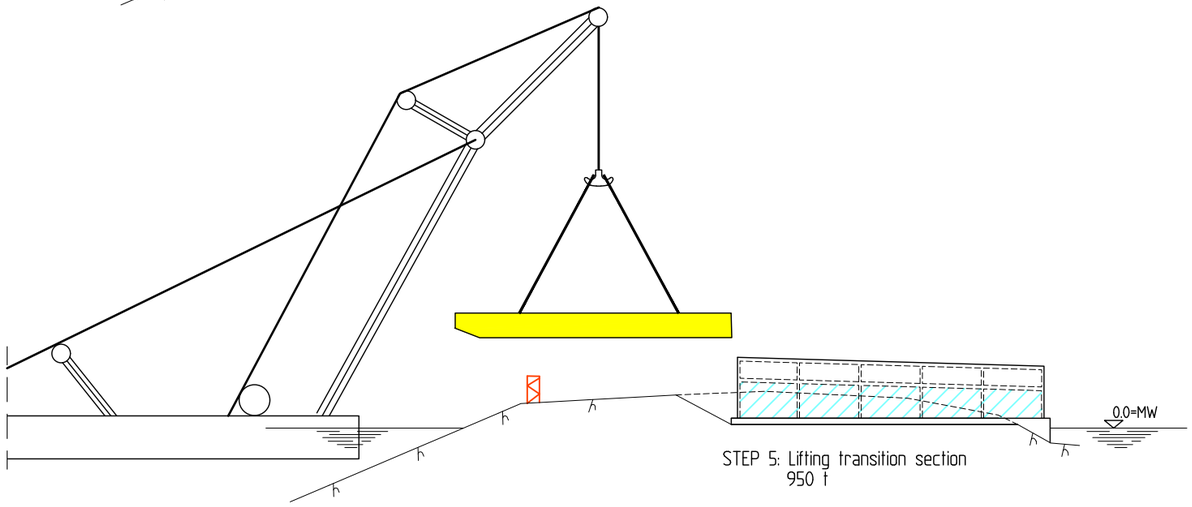
STEP 2: Casting bottom slab and lower walls



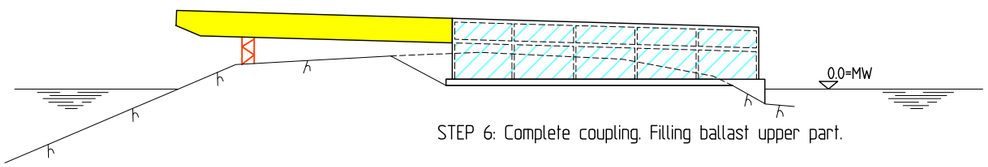
STEP 3: Filling heavy ballast (Iron ore)



STEP 4: Casting upper part and install temp. support



STEP 5: Lifting transition section
950 t



STEP 6: Complete coupling. Filling ballast upper part.

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1	Final issue	HPO/JOK	PNL	SEJ	15.08.2019
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Statens vegvesen

E39 Tysnes-Os

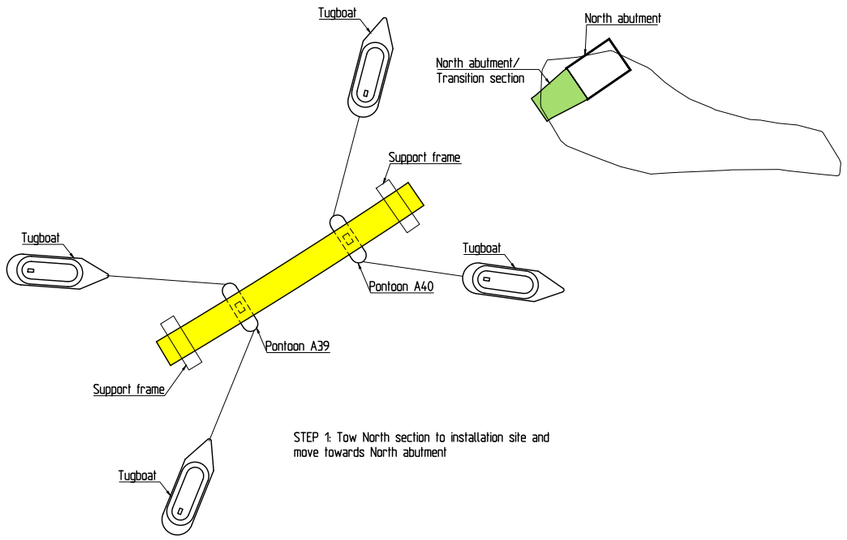
Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12
Abutment north

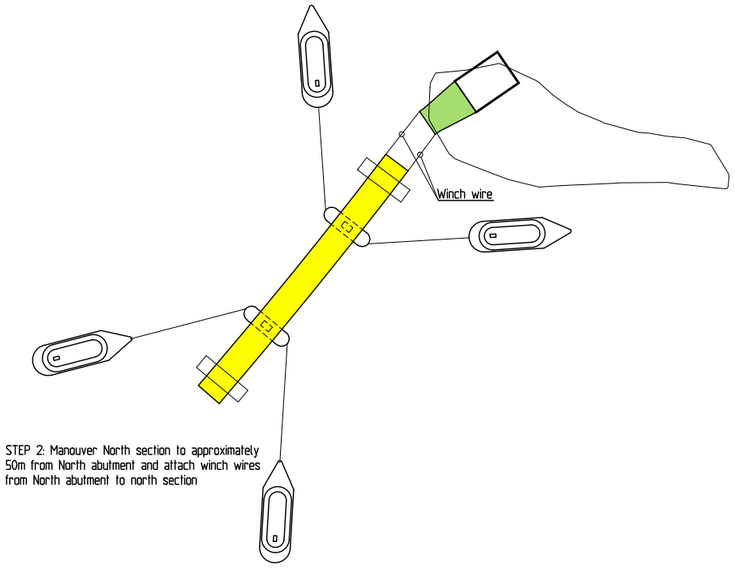
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.
HPO/JOK	PNL	SEJ	10205546-01

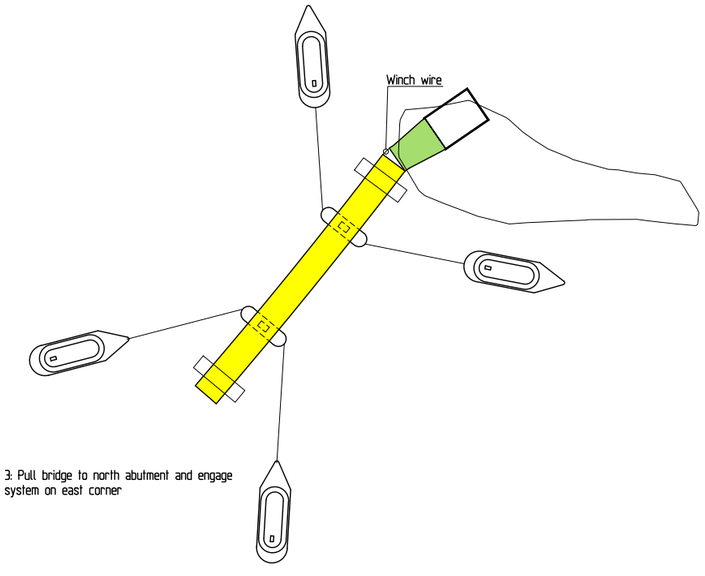
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR- 810 1



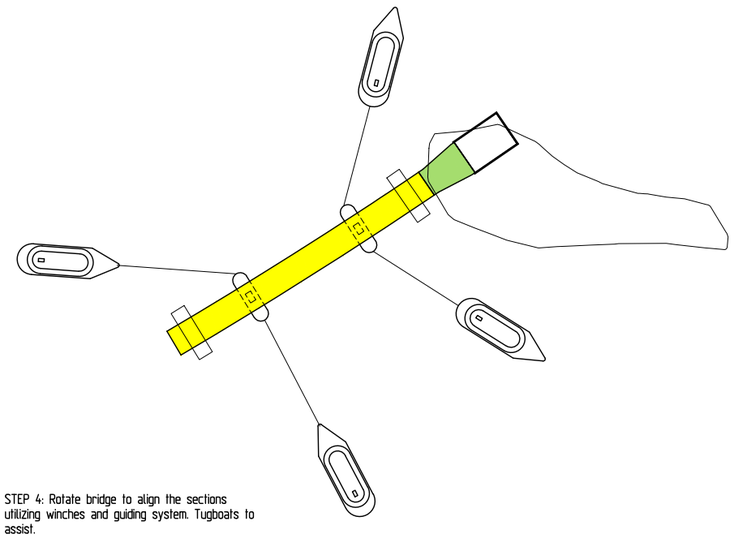
STEP 1: Tow North section to installation site and move towards North abutment



STEP 2: Manouver North section to approximately 50m from North abutment and attach winch wires from North abutment to north section



STEP 3: Pull bridge to north abutment and engage guide system on east corner



STEP 4: Rotate bridge to align the sections utilizing winches and guiding system. Tugboats to assist.

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

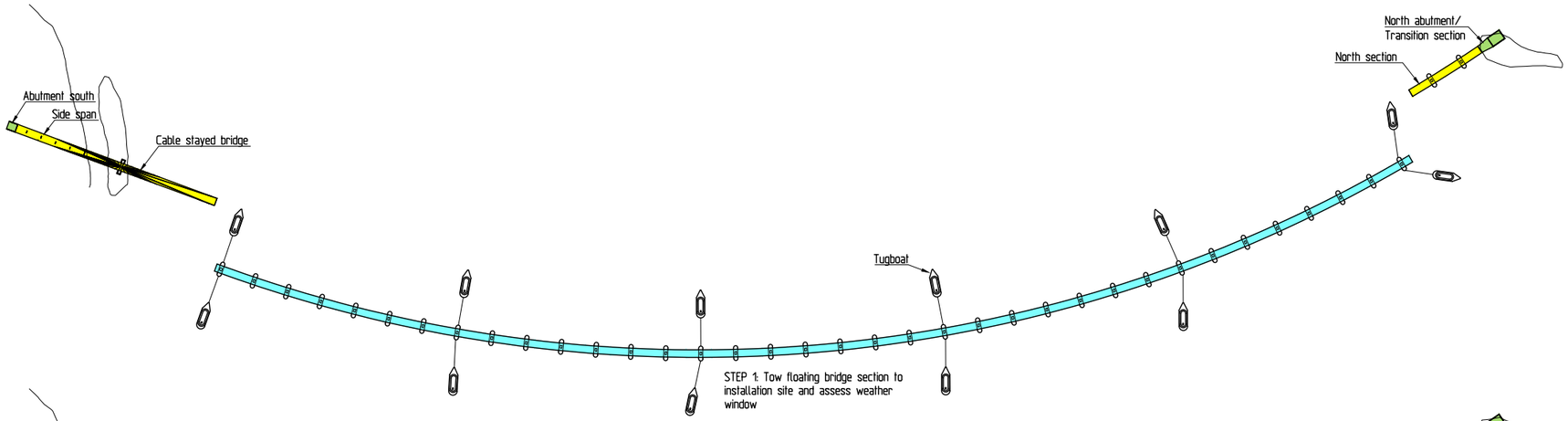
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

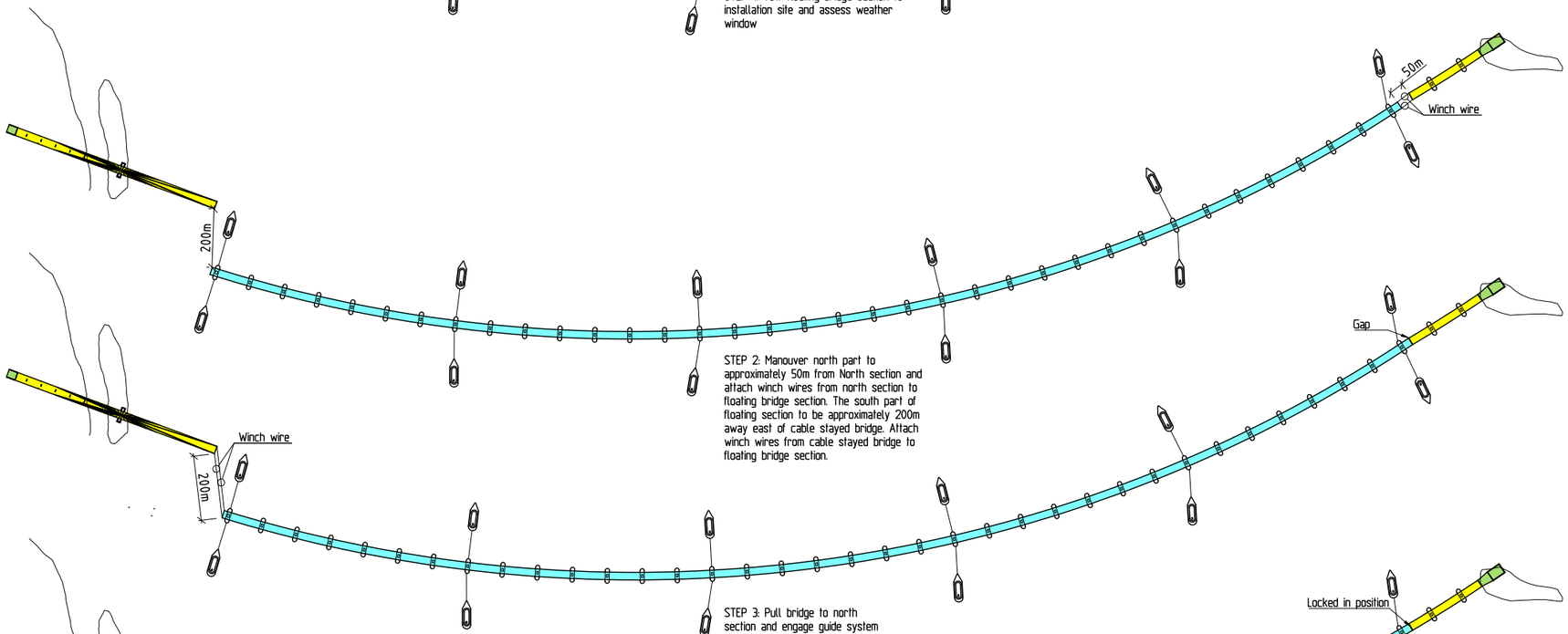
Assembly and installation, K12
North section installation

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
HPO/JOK	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-811	0

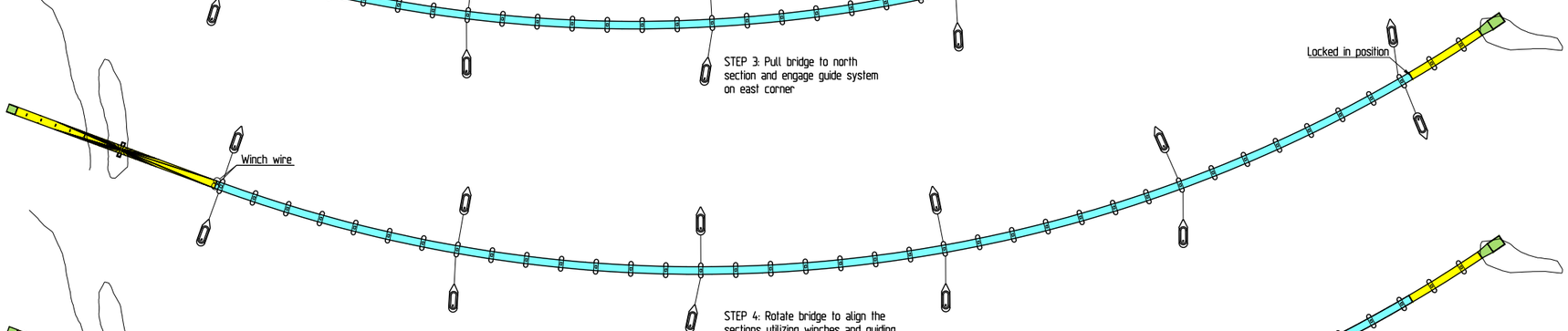


STEP 1: Tow floating bridge section to installation site and assess weather window

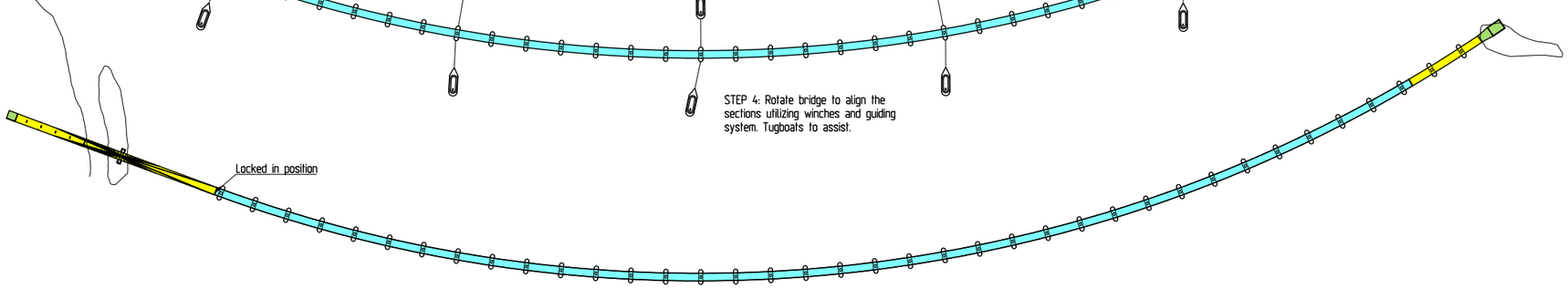


STEP 2: Manouver north part to approximately 50m from North section and attach winch wires from north section to floating bridge section. The south part of floating section to be approximately 200m away east of cable stayed bridge. Attach winch wires from cable stayed bridge to floating bridge section.

STEP 3: Pull bridge to north section and engage guide system on east corner



STEP 4: Rotate bridge to align the sections utilizing winches and guiding system. Tugboats to assist.



STEP 5: Attach positioning system in north and pull the bridge to cable stayed bridge (the bridge is slightly deformed to close the gap). Attach the positioning system in south and install locking systems in both ends.

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

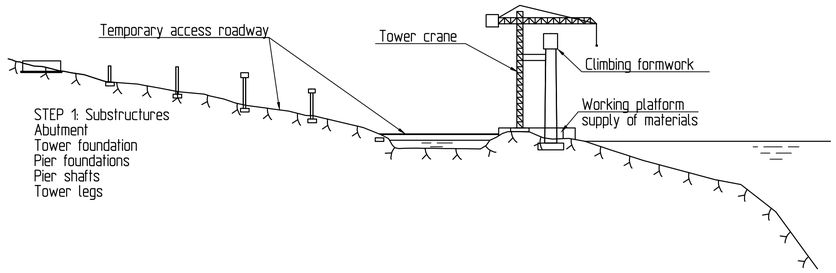
E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

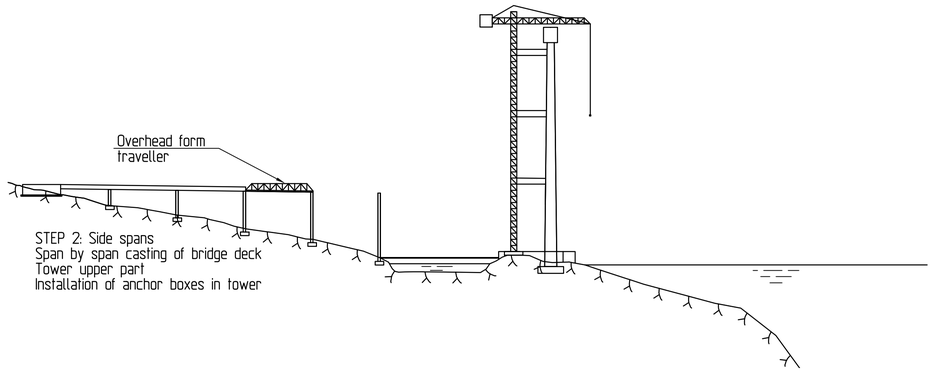
Assembly and installation, K12
Floating bridge installation

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

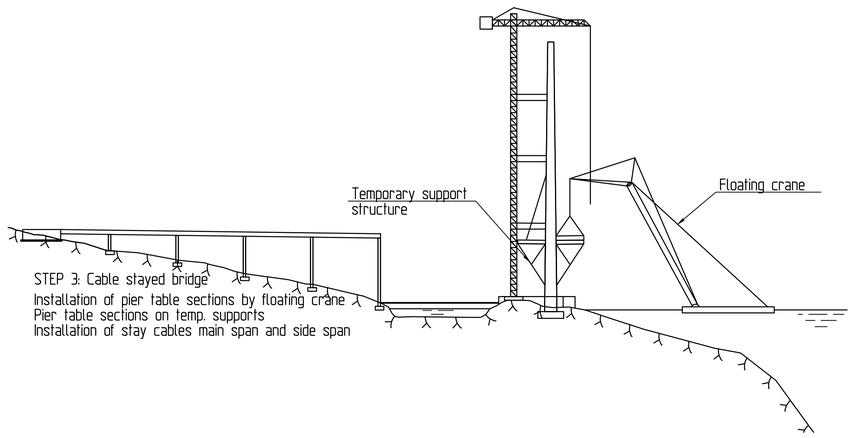
Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
HPO/JOK	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-812	0



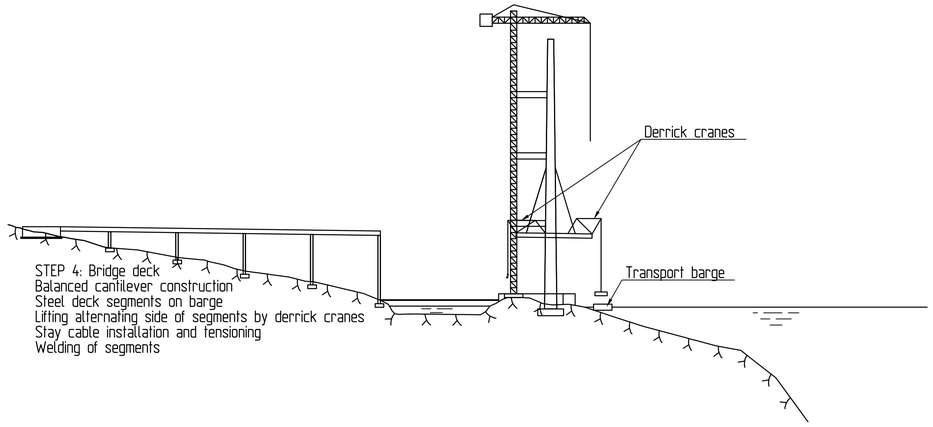
STEP 1: Substructures
Abutment
Tower foundation
Pier foundations
Pier shafts
Tower legs



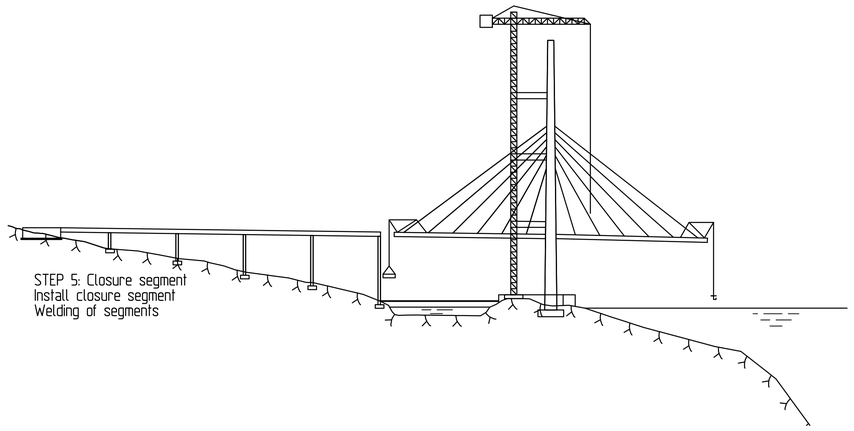
STEP 2: Side spans
Span by span casting of bridge deck
Tower upper part
Installation of anchor boxes in tower



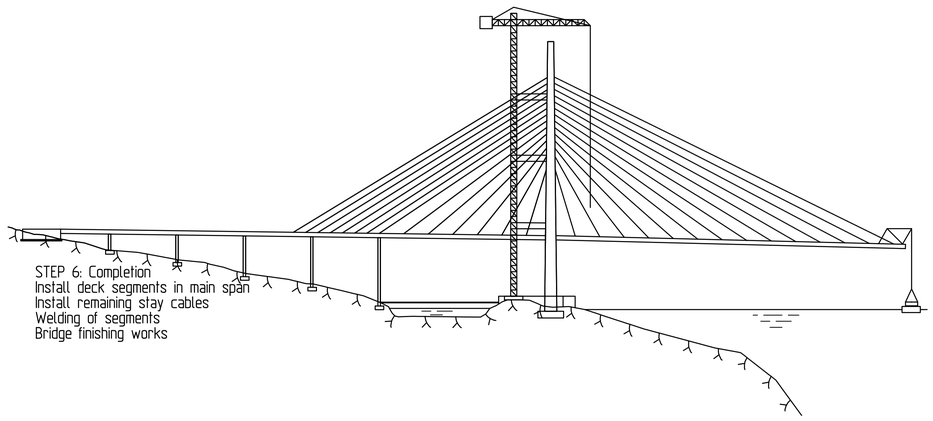
STEP 3: Cable stayed bridge
Installation of pier table sections by floating crane
Pier table sections on temp. supports
Installation of stay cables main span and side span



STEP 4: Bridge deck
Balanced cantilever construction
Steel deck segments on barge
Lifting alternating side of segments by derrick cranes
Stay cable installation and tensioning
Welding of segments



STEP 5: Closure segment
Install closure segment
Welding of segments



STEP 6: Completion
Install deck segments in main span
Install remaining stay cables
Welding of segments
Bridge finishing works

REMARKS:

REFERENCES:

DR-101	Cable stayed bridge	Base case layout, plan and elevation
DR-102	Cable stayed bridge	Tower, elevation and sections
DR-103	Cable stayed bridge	Steel box girder, section and details
DR-104	Cable stayed bridge	Concrete box girder, section and details
DR-105	Cable stayed bridge	Stay cable system
DR-106	Cable stayed bridge	Piers in side span
DR-201	Abutments	South, layout and sections
DR-202	Abutments	North, layout and sections
DR-203	Abutments	South and north, details

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JOHS HOLT AkerSolutions entail NGI DISSING+WEITLING architecture as mossmaritime

Rev.	Description	Drawn	Checked	Approved	Rev. date
1	Final issue	IKO/TOF	AN	SEJ	15.08.2019
0	Final issue	IKO/TOF	AN	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

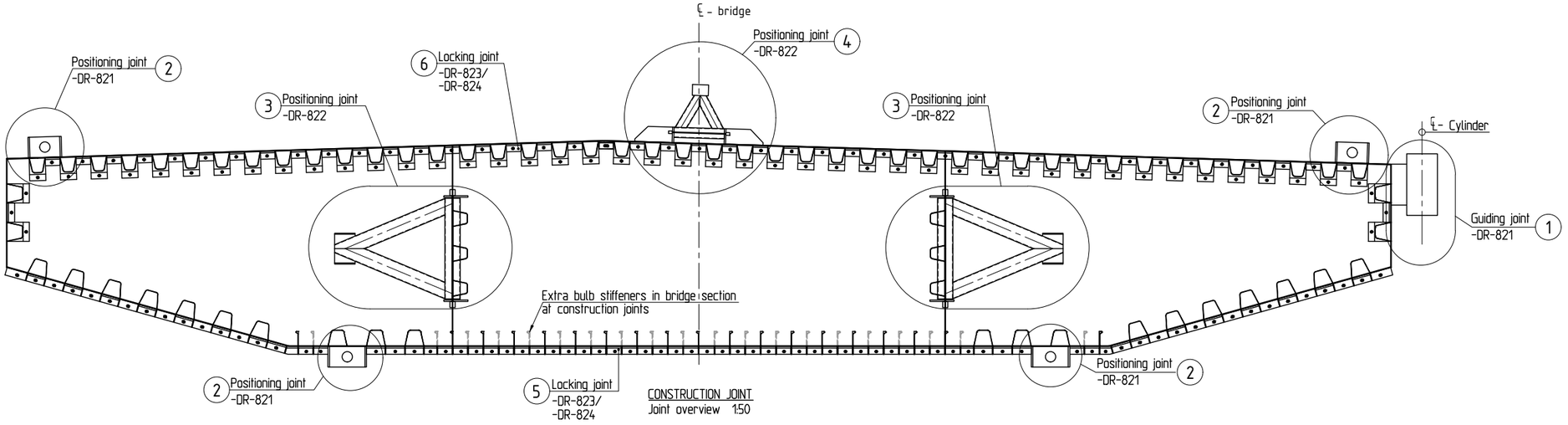
Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12

Cable stayed bridge

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
IKO/TOF	AN	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-813	1



REMARKS:

1. General:
- All measurements in mm.

2. Joints :

(1) Guiding joint:
Tool/equipment necessary for guiding the new floating bridge part to the already installed bridge within the bridge line.

(2)(3)(4) Positioning joint:
Tool/equipment necessary for positioning the new floating bridge part correctly towards the already installed bridge within the bridge line. The joint will be able to withstand the environment loading within the requested weather window for installation until the locking joint is fully in place.

(5)(6) Locking joint:
Tool/equipment necessary to lock and secure the new floating bridge part against the environmental loading within the requested period of welding until the permanent joint is in place to take over the loading

3. Position of the construction joints are shown on drawing -DR-800.

REFERENCES :

- SBJ-33-C5-AMC-22-DR-800
- SBJ-33-C5-AMC-22-DR-821
- SBJ-33-C5-AMC-22-DR-822
- SBJ-33-C5-AMC-22-DR-823
- SBJ-33-C5-AMC-22-DR-824

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

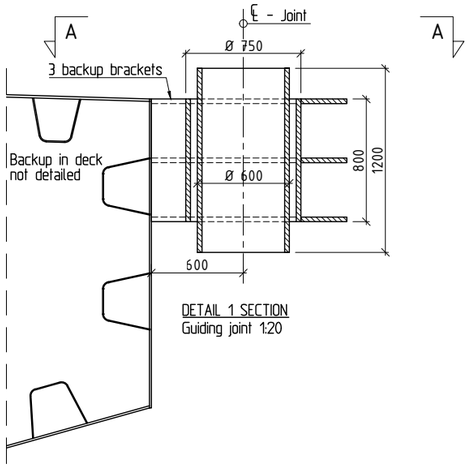
Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12
Construction joint
Joint overview

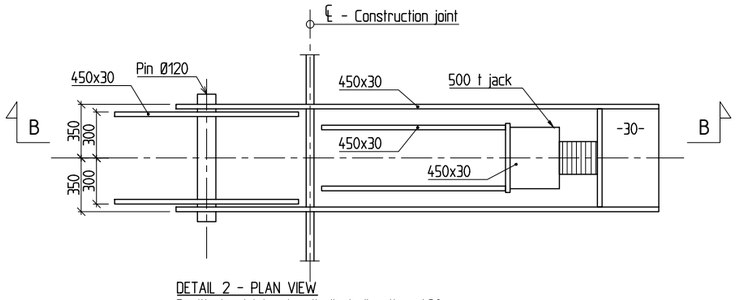
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.
HPO/JOK	PNL	SEJ	10205546-01

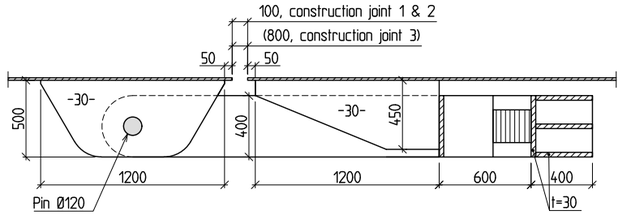
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR- 820 0



DETAIL 1 SECTION
Guiding joint 1:20



DETAIL 2 - PLAN VIEW
Positioning joint - longitudinal direction, 1:20



SECTION B-B
Positioning joint - longitudinal direction, 1:20

SECTION A-A
Guiding joint 1:20

REFERENCES :

- SBJ-33-C5-AMC-22-DR-800
- SBJ-33-C5-AMC-22-DR-820
- SBJ-33-C5-AMC-22-DR-822
- SBJ-33-C5-AMC-22-DR-823
- SBJ-33-C5-AMC-22-DR-824

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Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

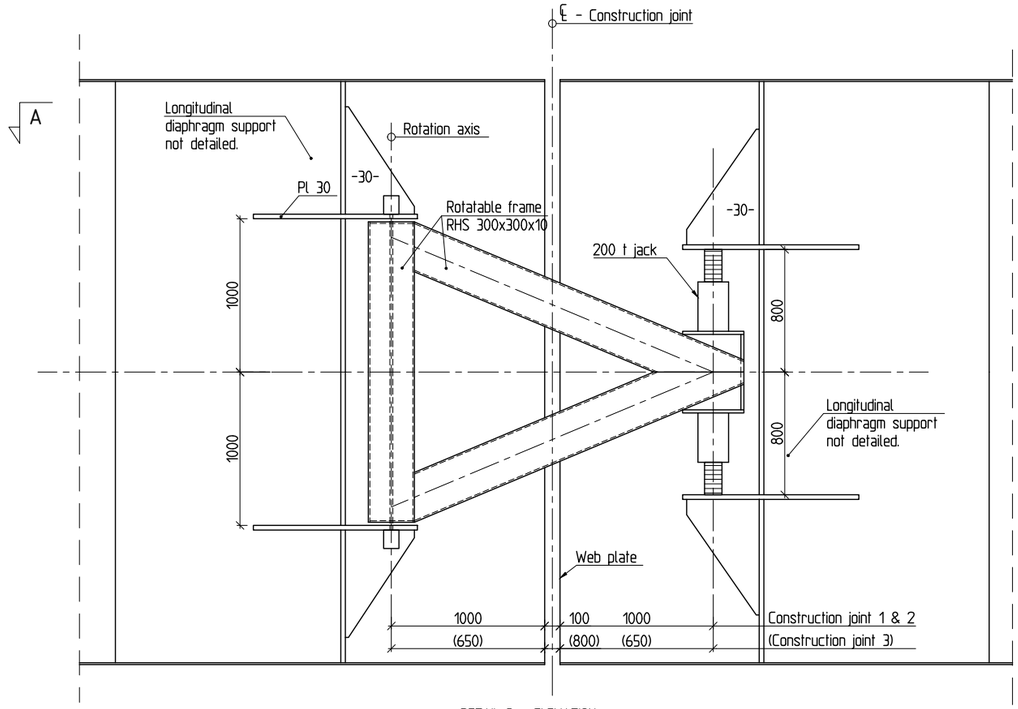
Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12
Construction joint
Guide- and positioning joint

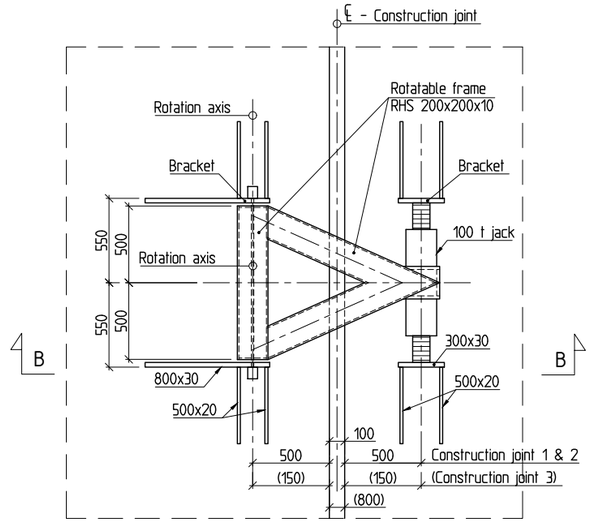
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.
HPO/JOK	PNL	SEJ	10205546-01

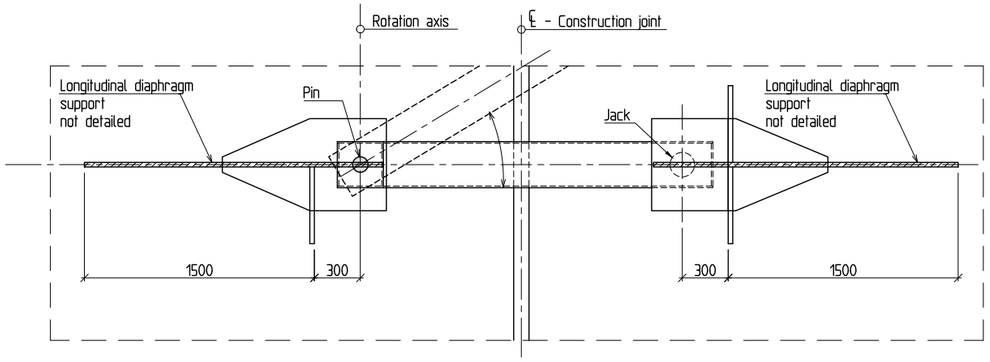
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-821 0



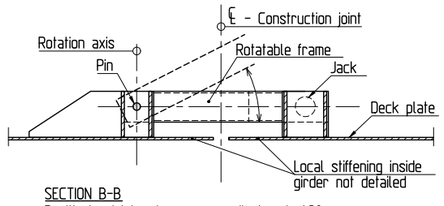
DETAIL 3 - ELEVATION
Positioning joint - vertical and rotation adjustment, 1:20



DETAIL 4 - PLAN VIEW
Positioning joint - transverse adjustment, 1:20



PLAN A -A
Positioning joint - vertical and rotation adjustment, 1:20



SECTION B-B
Positioning joint - transverse adjustment, 1:20

REFERENCES :

- SBJ-33-C5-AMC-22-DR-800
- SBJ-33-C5-AMC-22-DR-820
- SBJ-33-C5-AMC-22-DR-821
- SBJ-33-C5-AMC-22-DR-823
- SBJ-33-C5-AMC-22-DR-824

AAS-JAKOBSEN COWI Multiconsult

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

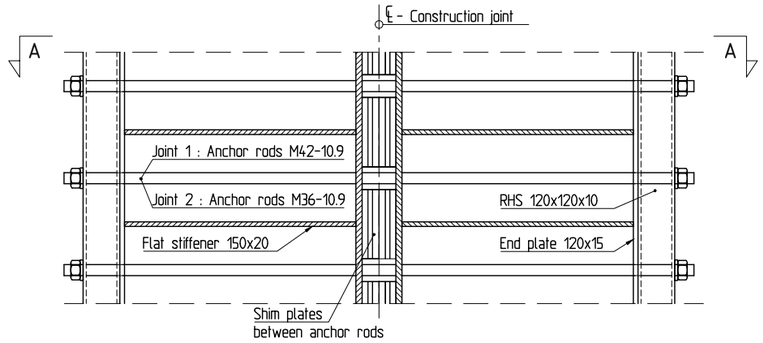
Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12
Construction joint
Positioning joint

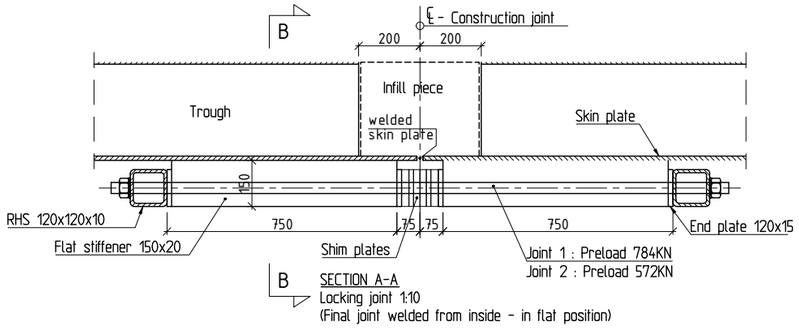
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.
HPO/JOK	PNL	SEJ	10205546-01

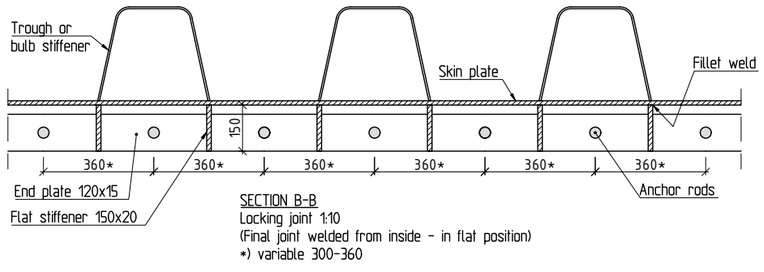
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR- 822 0



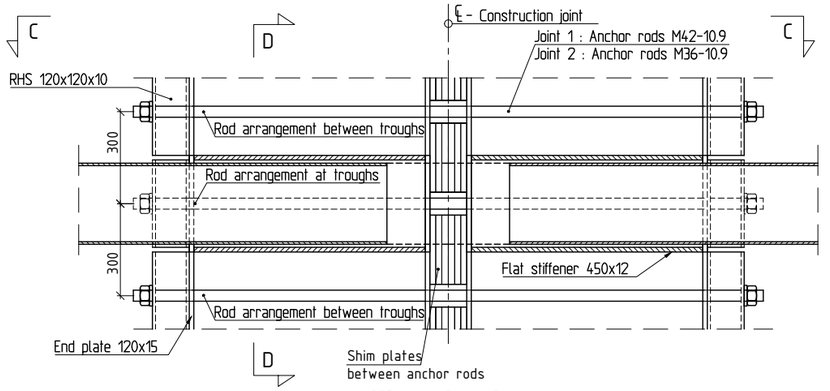
DETAIL 5 - PLAN VIEW
Locking joint 1:10
(Final joint welded from inside - in flat position)



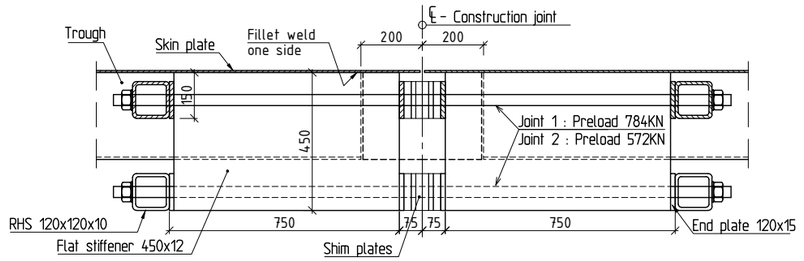
SECTION A-A
Locking joint 1:10
(Final joint welded from inside - in flat position)



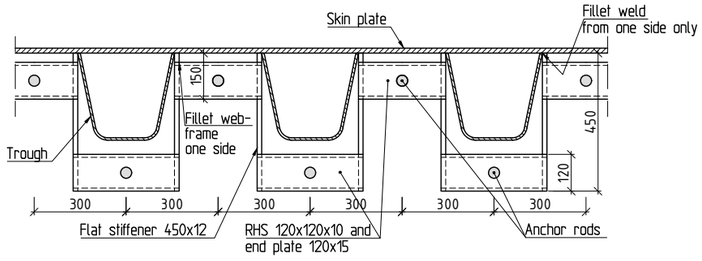
SECTION B-B
Locking joint 1:10
(Final joint welded from inside - in flat position)
*) variable 300-360



DETAIL 6 - PLAN VIEW
Locking joint 1:10
(Final joint welded from outside - in flat position)



SECTION C-C
Locking joint 1:10
(Final joint welded from outside - in flat position)



SECTION D-D
Locking joint 1:10
(Final joint welded from outside - in flat position)

REFERENCES :

- SBJ-33-C5-AMC-22-DR-800
- SBJ-33-C5-AMC-22-DR-820
- SBJ-33-C5-AMC-22-DR-821
- SBJ-33-C5-AMC-22-DR-822
- SBJ-33-C5-AMC-22-DR-824

AAS-JAKOBSEN COWI Multiconsult

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12

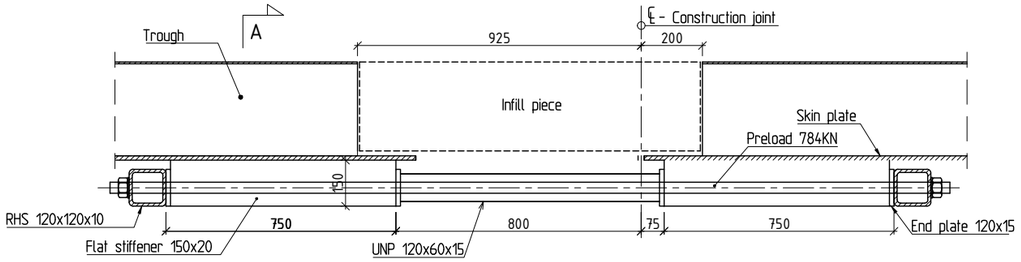
Construction joint

Locking joint for construction joint 1 & 2

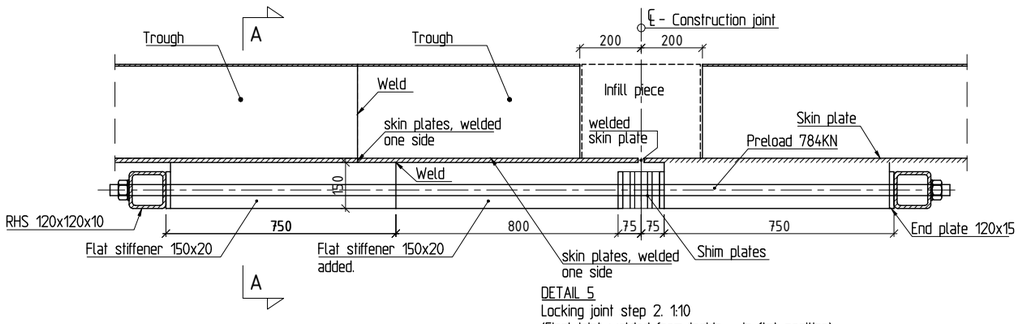
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.
HPO/JOK	PNL	SEJ	10205546-01

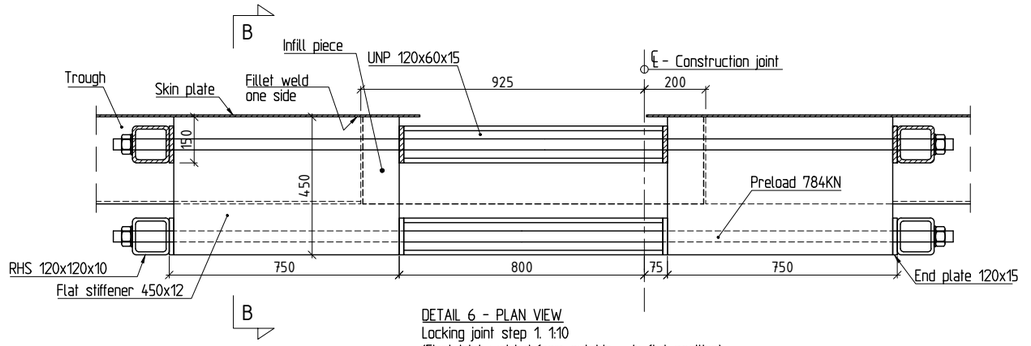
Drawing number/Revision index: SBJ-33-C5-AMC-22-DR-823 0



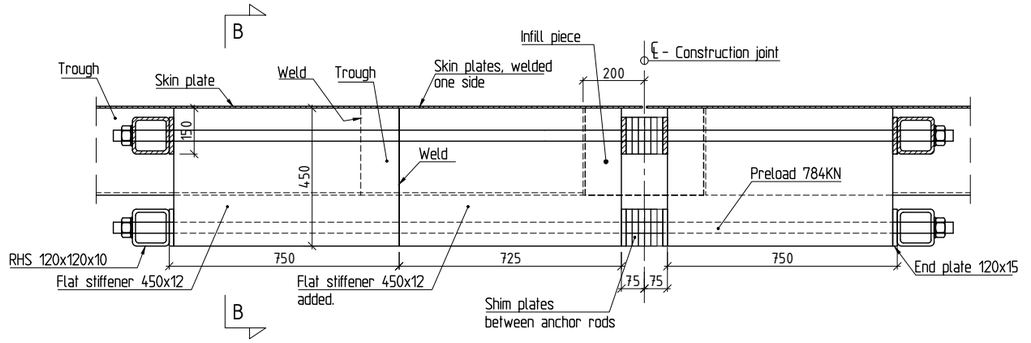
DETAIL 5
Locking joint step 1. 1:10
(Final joint welded from inside - in flat position)



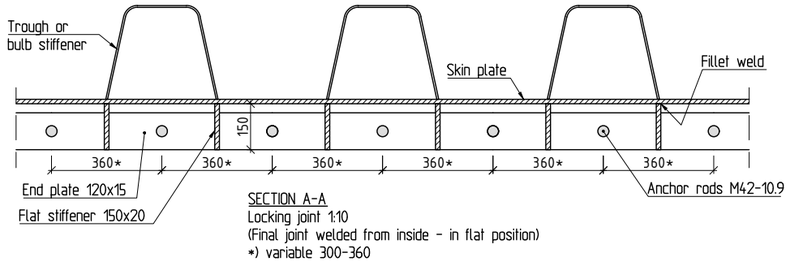
DETAIL 5
Locking joint step 2. 1:10
(Final joint welded from inside - in flat position)



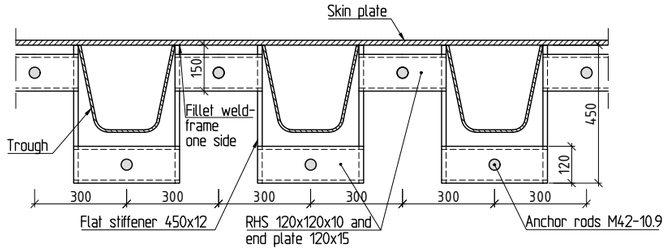
DETAIL 6 - PLAN VIEW
Locking joint step 1. 1:10
(Final joint welded from outside - in flat position)



DETAIL 6 - PLAN VIEW
Locking joint step 2. 1:10
(Final joint welded from outside - in flat position)



SECTION A-A
Locking joint 1:10
(Final joint welded from inside - in flat position)
*) variable 300-360



SECTION B-B
Locking joint 1:10
(Final joint welded from outside - in flat position)

REFERENCES :

- SBJ-33-C5-AMC-22-DR-800
- SBJ-33-C5-AMC-22-DR-820
- SBJ-33-C5-AMC-22-DR-821
- SBJ-33-C5-AMC-22-DR-822
- SBJ-33-C5-AMC-22-DR-823

AAS-JAKOBSEN COWI Multiconsult

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

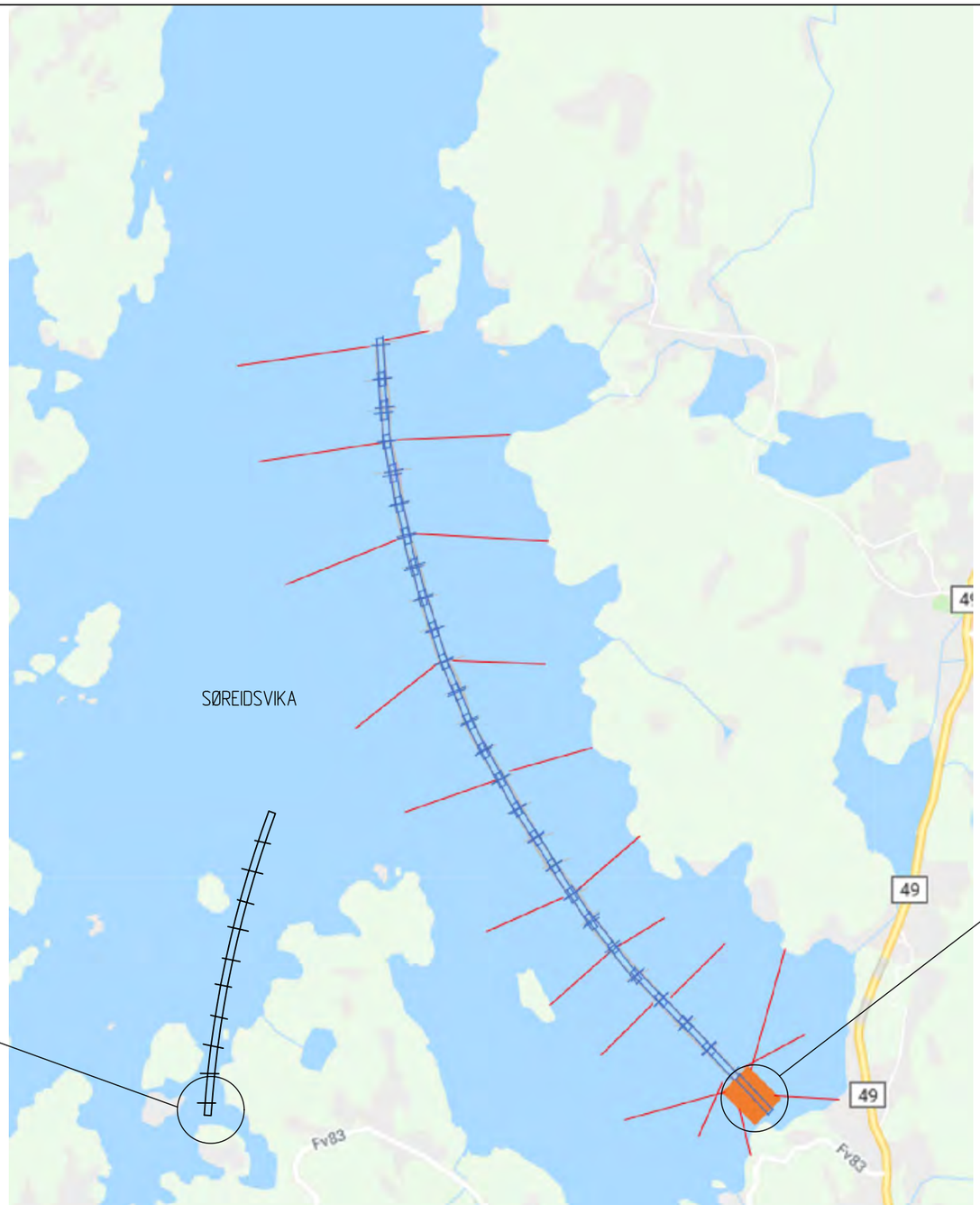
Assembly and installation, K12

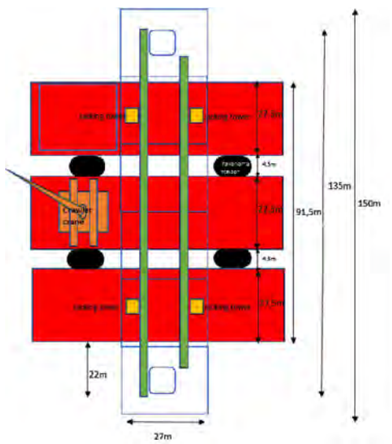
Construction joint

Locking joint for construction joint 3

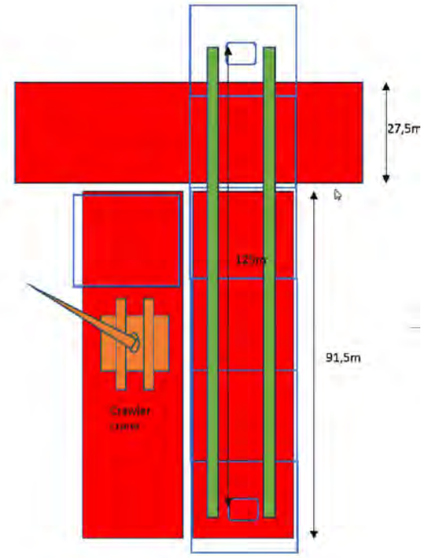
Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
HPO/JOK	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR- 824	0





FLOATING BRIDGE HIGH PART



FLOATING BRIDGE LOW PART

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0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes–Os

Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12

Floating bridge assembly site setup in Søreidsvika

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

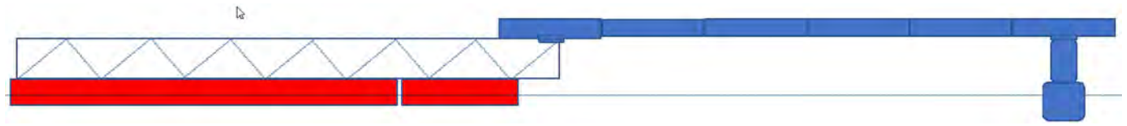
Drawn by:	Checked by:	Approved by:	Project no.
HPO/JOK	PNL	SEJ	10205546-01

Drawing number/Revision index: SBJ-33-C5-AMC-22-DR- 850 0

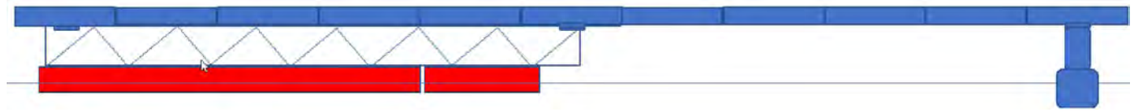
Step 1: Lift 6 bridge girder sections onto the heightened skidding system and make up all welds between the sections.

Step 2: Float pontoon with column under bridge girder

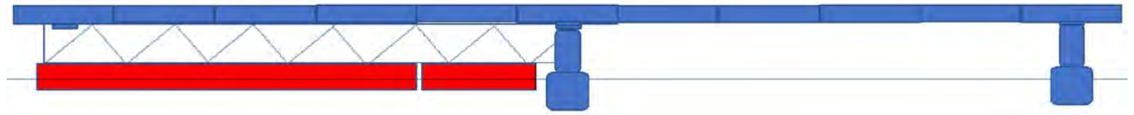
Step 3: Deballast pontoon to mate with bridge girder and make up weld.



Step 4: Skid the section in to position for new pontoon and moor pontoon and secure end on barge



Step 5: Lift 5 bridge girder sections onto the heightened skidding system and make up all welds between the sections and to the floating section.



Step 6: Float pontoon with column under bridge girder

Step 7: Deballast pontoon to mate with bridge girder and make up weld.
Skid the welded sections 125 m ready for lifting 5 new sections.
Repeat until complete floating low bridge is assembled

AAS-JAKOBSEN COWI Multiconsult

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes–Os

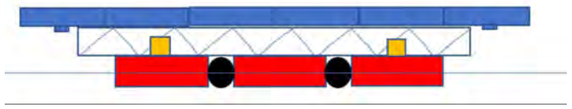
Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12

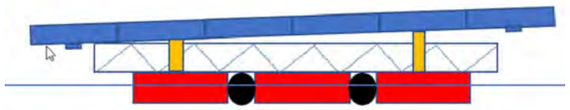
Low bridge assembly method

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

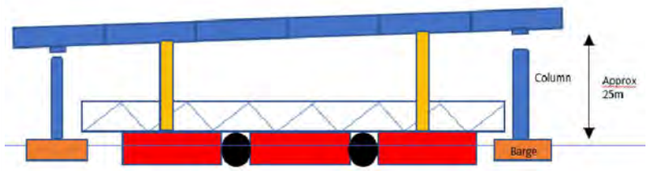
Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
HPO/JOK	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR- 851	0



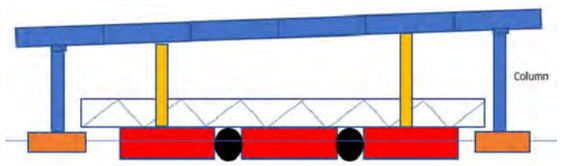
Step 1: Lift 6 bridge girder sections onto the barge grillage/skidding system. Skid bridge sections to correct position and make up all welds between sections



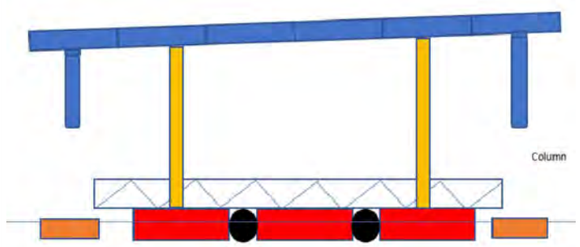
Step 2: Jack up jacking towers and engage with bridge section. Jack up the towers more on the forward jacks to achieve defined bridge slope.



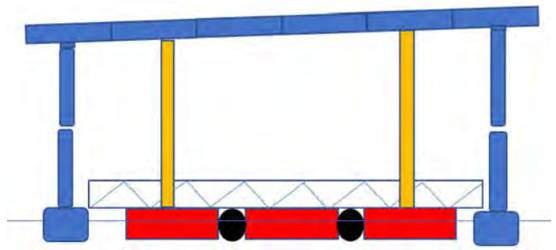
Step 3: Jack the assembled sections to a height of approximately 25m with the 4 jacks. Tow two barges with approximately 25m column pieces underneath the bridge girder column pups.



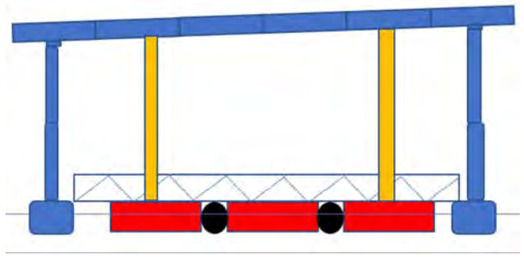
Step 4: Deballast the barges to align columns with bridge girder pups and make up welds.



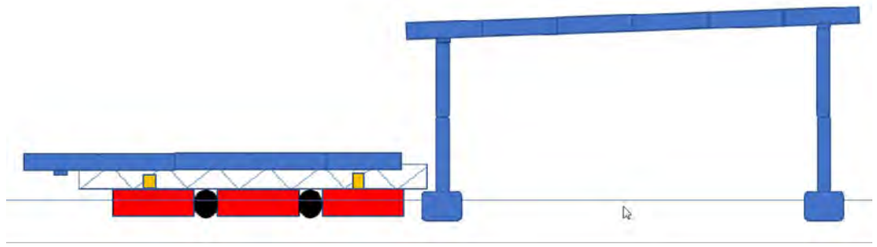
Step 5: Remove seafastening/connection between columns and barges and ballast barges to disconnect from columns.
Jack bridge section to correct height.



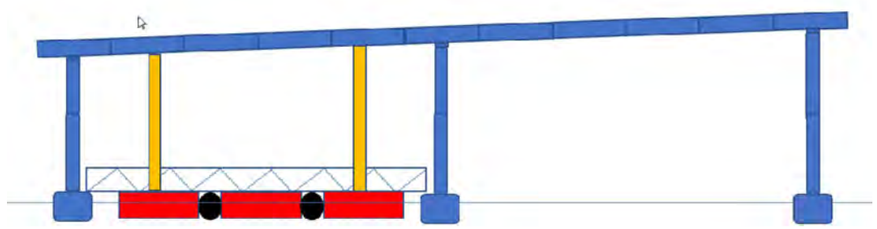
Step 6: Float in pontoon with lower column parts



Step 7: Deballast pontoons to mate the two column parts and make up welds



Step 8: Detach jacking towers from bridge section and jack down towers.
Float the assembled section in front of the barge and secure it with moorings.
Lift 5 bridge girder sections onto the barge welding stations and make up all welds between the sections.



Step 9: Jack up the bridge sections
Float in upper part of column, deballast to mate with bridge pup and make up weld
Jack up to correct height to align with catamaran section in front of the barges.
Float in the pontoon with lower part of column and mate with top part and make up weld.

Step 10: Repeat until full length of heigh floating bridge is assembled (10 sections)

AAS-JAKOBSEN COWI Multiconsult

Rev.	Description	Drawn	Checked	Approved	Rev. date
0	Final issue	HPO/JOK	PNL	SEJ	30.06.2019

Statens vegvesen

E39 Tysnes-Os

Concept development, floating bridge E39 Bjørnafjorden

Assembly and installation, K12
High bridge assembly method

Drawing date	30.06.2019
Client rep.	Øyvind Nedrebø
Produced for	Statens vegvesen
Produced by	AMC
Project number	18/91094
PROF-number	-
File number	-
Coordinate system	EUREF 89 UTM 32N
Scale A1	

Drawn by:	Checked by:	Approved by:	Project no.	Drawing number/Revision index	
HPO/JOK	PNL	SEJ	10205546-01	SBJ-33-C5-AMC-22-DR-852	0