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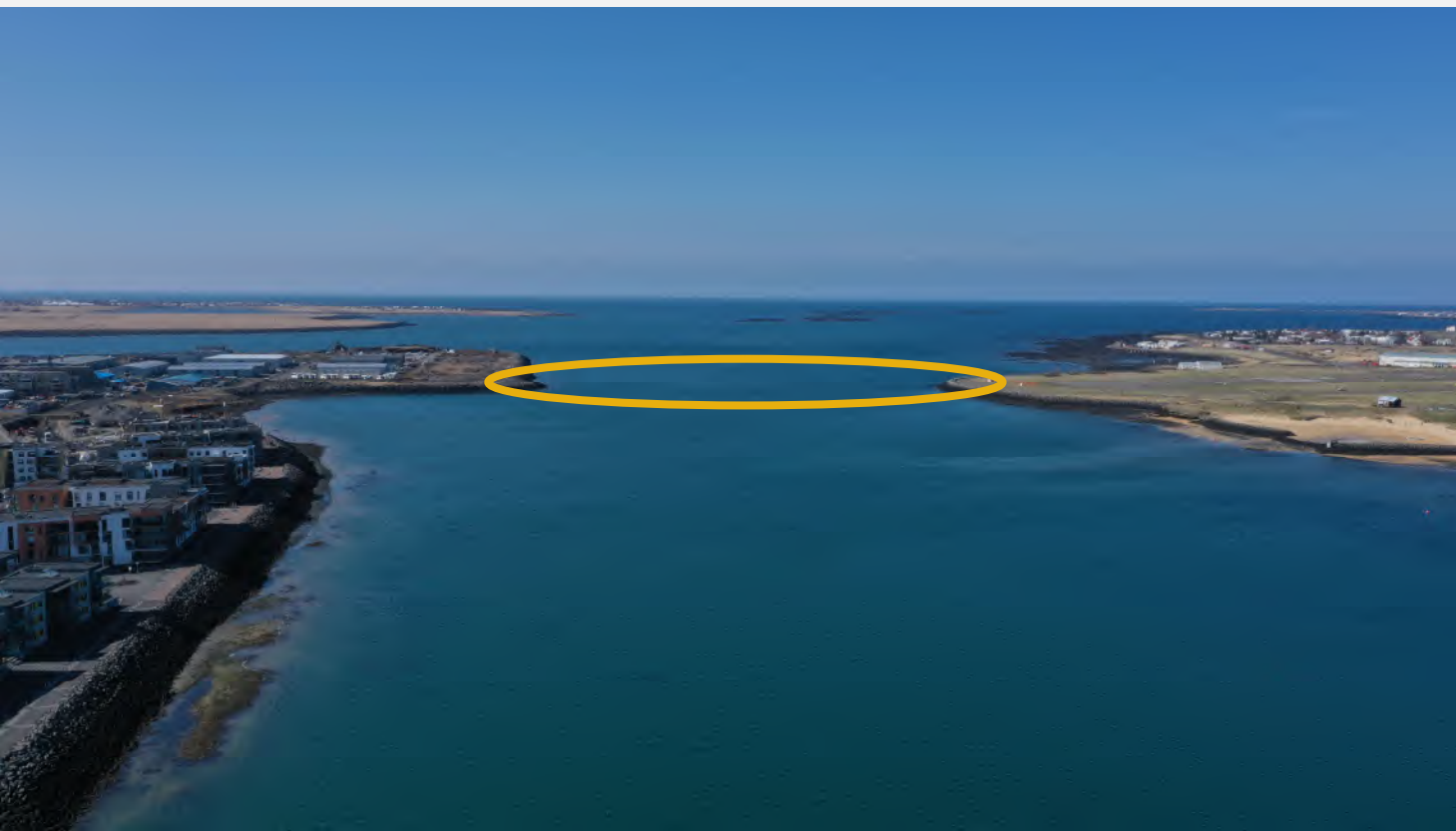


Fossvogsbrú – Kynning fyrir Umhverfis- og skipulagsráð- 31. janúar 2024



Efni kynningar

- Samkeppnistillaga frá 2021 og ferill hönnunar hingað til
- Áherslur í hönnun
- Nálægð við flugvöllinn
- Tímalína
- Kostnaður





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- Brú fyrir Borgarlínuna, gangandi og hjólandi
- 270 m stálbitabrú í 5 höfum
- Frá 2022 hefur hönnun verið unnið fyrir Borgarlínuna í samstarfi við Vegagerðina, Reykjavíkurborg og Kópavogsbæ

- Útboðshönnun vel á veg komin
- Stefnt að 2 útboðum, fyllingu og brú
- Fyllingarútboð mars/apríl 2024
- Útboð á brú og landmótun sumar 2024



Fossvogsbrú – 1. áfangi Borgarlínunnar



Hönnunarsamkeppni, grunnmynd



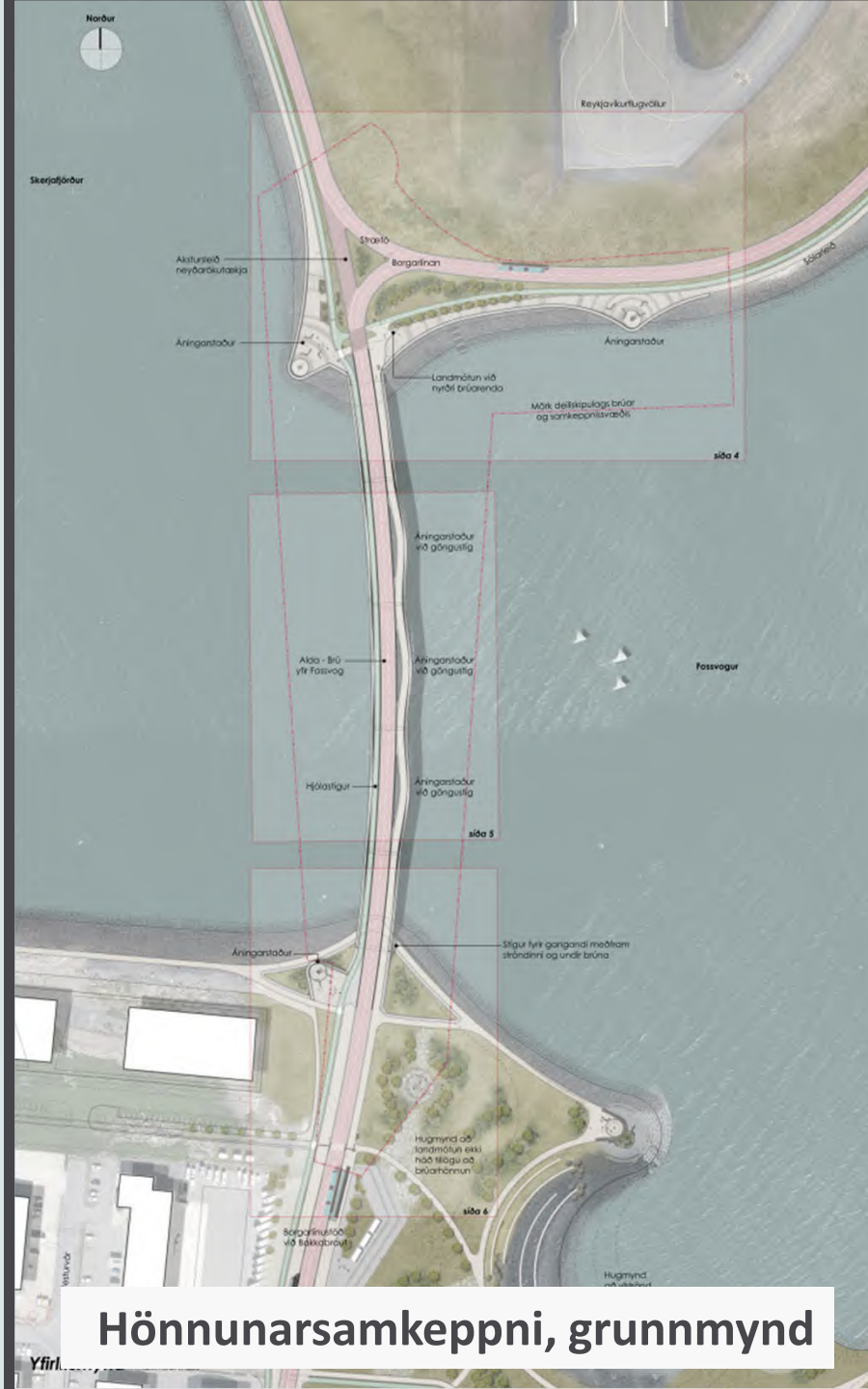
Grunnmynd í janúar 2024

Óbreytt frá samkeppni:

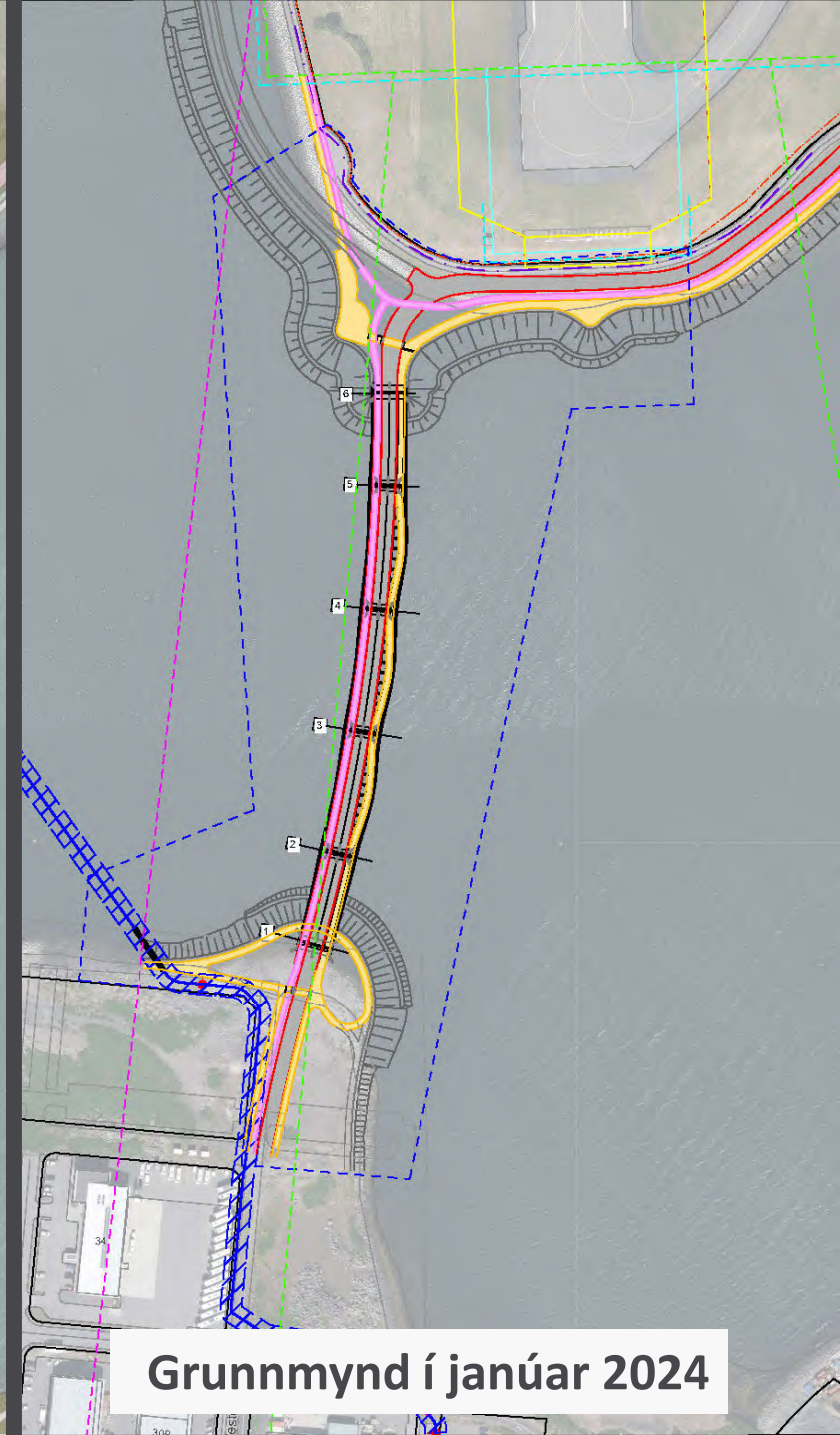
- Brúarlengd og hafskipting
- Burðarkerfi brúar
- Fyrirkomulag umferðar á brú og undir brú að sunnan
- Arkitektúr í þversniði brúar
- Götu- og stígalýsing

Hefur þróast frá samkeppni:

- Plan- og hæðarlega
- Efnisval í meginburðarvirki
- Fyrirkomulag umferðar við brúarenda
- Landfylling, útlínur og umfang
- Landslagshönnun
- Deiliskipulagsmörk
- Mörk hönnunar



Hönnunarsamkeppni, grunnmynd



Grunnmynd í janúar 2024



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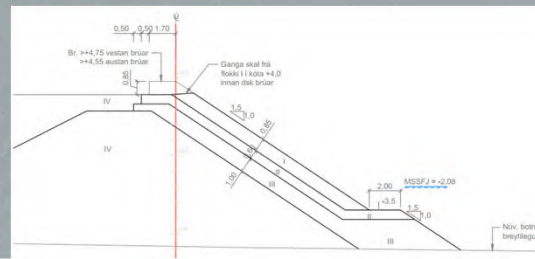
Landfylling og sjóvarnir

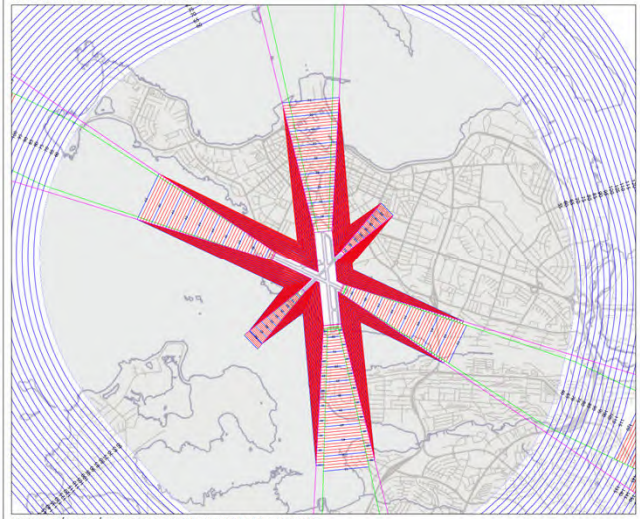
- Sér útboð
- Fylling Skerjafirði með í útboði
- Landhæð tekur mið af væntum sjávarstöðubreytingum
- Alls um 180 þm³ af efni
- Að hluta endurnýtt efni
- Óvissa um uppruna efnis

Landfylling Skerjafjörður
Flatarmál: 1,1 ha
Rúmmál: 63.000 m³

Landfylling Fossvogsbrú - Reykjavík
Flatarmál: 0,9 ha
Rúmmál: 87.000 m³

Landfylling Fossvogsbrú - Kársnes
Flatarmál: 0,7 ha
Rúmmál: 30.500 m³





SKÝRINGAR / SKILMÁLAR

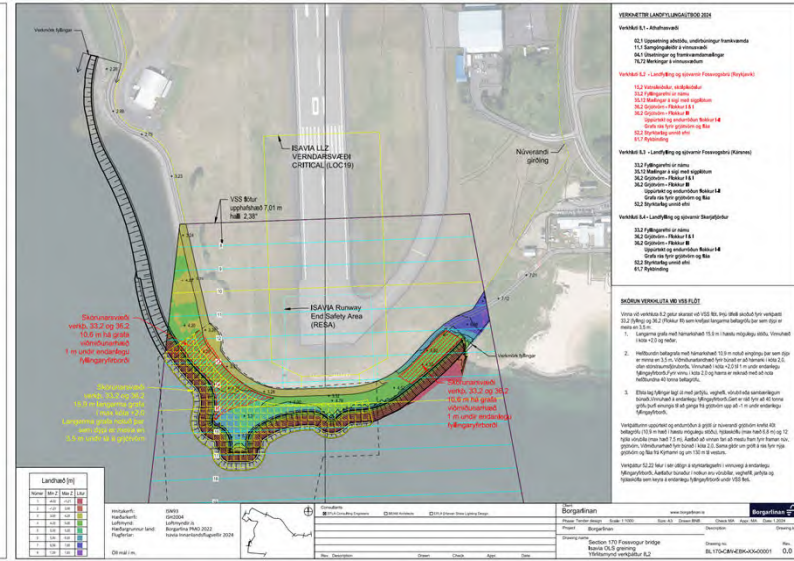
1. Skýringar og skilmálar eru byggðar á grunnástandi flugvallarinnar og eru byggðar á grundvelli ástandafláttarinnar. Skýringar og skilmálar eru byggðar á grundvelli ástandafláttarinnar og eru byggðar á grundvelli ástandafláttarinnar.

2. Skýringar og skilmálar eru byggðar á grundvelli ástandafláttarinnar og eru byggðar á grundvelli ástandafláttarinnar.

3. Skýringar og skilmálar eru byggðar á grundvelli ástandafláttarinnar og eru byggðar á grundvelli ástandafláttarinnar.

4. Skýringar og skilmálar eru byggðar á grundvelli ástandafláttarinnar og eru byggðar á grundvelli ástandafláttarinnar.

5. Skýringar og skilmálar eru byggðar á grundvelli ástandafláttarinnar og eru byggðar á grundvelli ástandafláttarinnar.

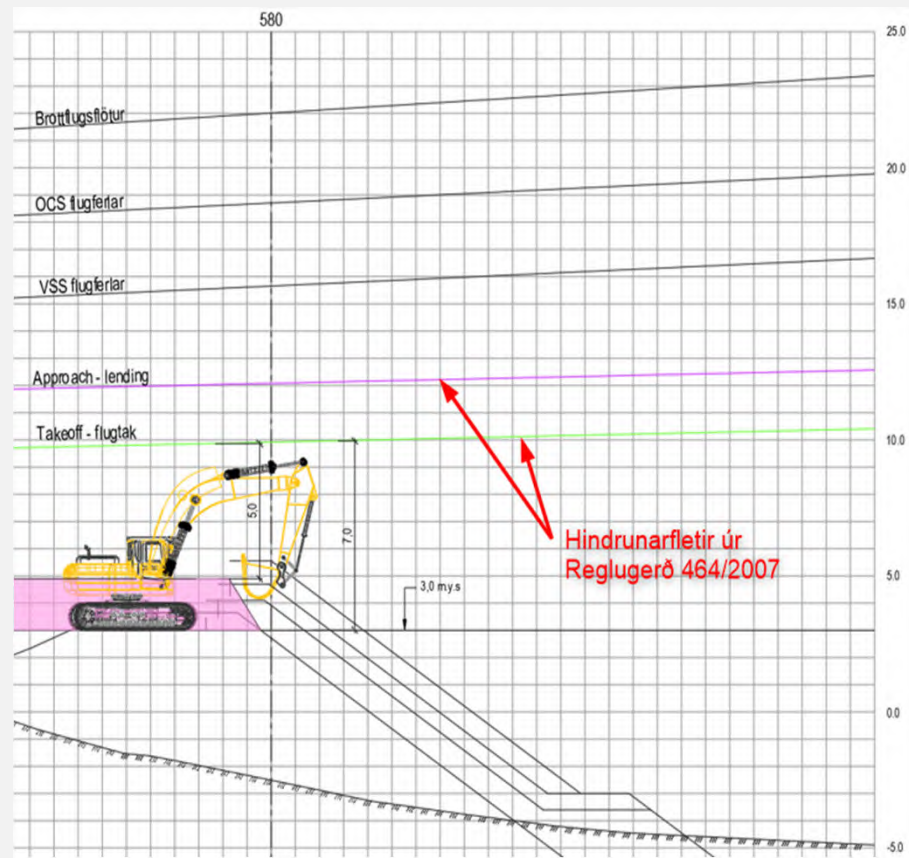
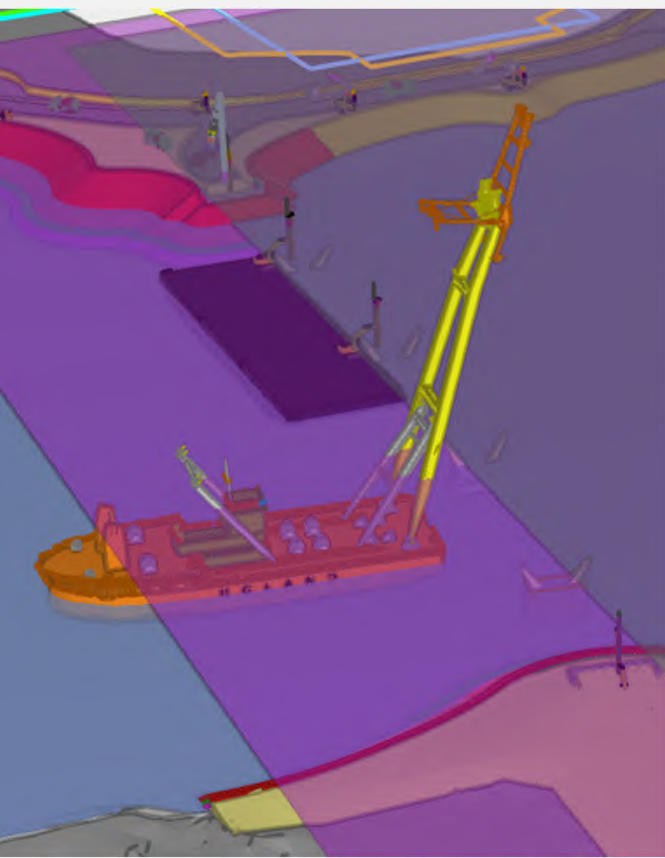


Landshæð (m)	Stærð (m)	Stærð (m)	Stærð (m)
100	100	100	100
110	110	110	110
120	120	120	120
130	130	130	130
140	140	140	140
150	150	150	150
160	160	160	160
170	170	170	170
180	180	180	180
190	190	190	190
200	200	200	200
210	210	210	210
220	220	220	220
230	230	230	230
240	240	240	240
250	250	250	250



Reykjavíkflugvöllur

- Áhrif af flugvelli á bæði útboð
- Hindrunarfletir úr skipulagsreglum
- Unnið að undanþágum
- Greining á vinnutækjum tengt áfangaskiptingu framkvæmda
- Unnið náið með Isavia



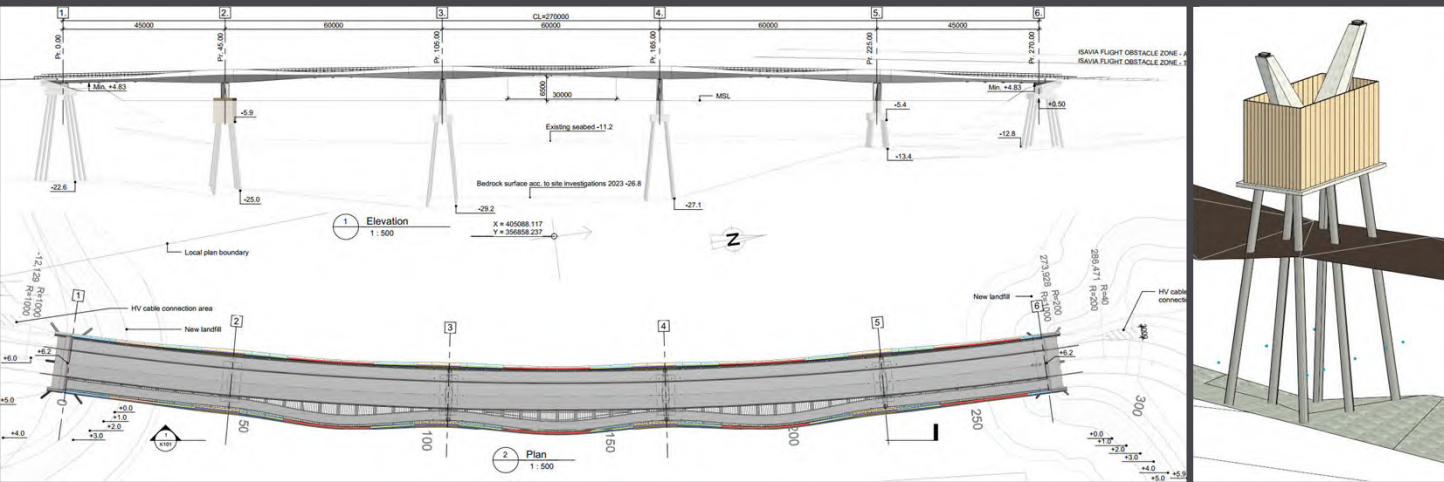
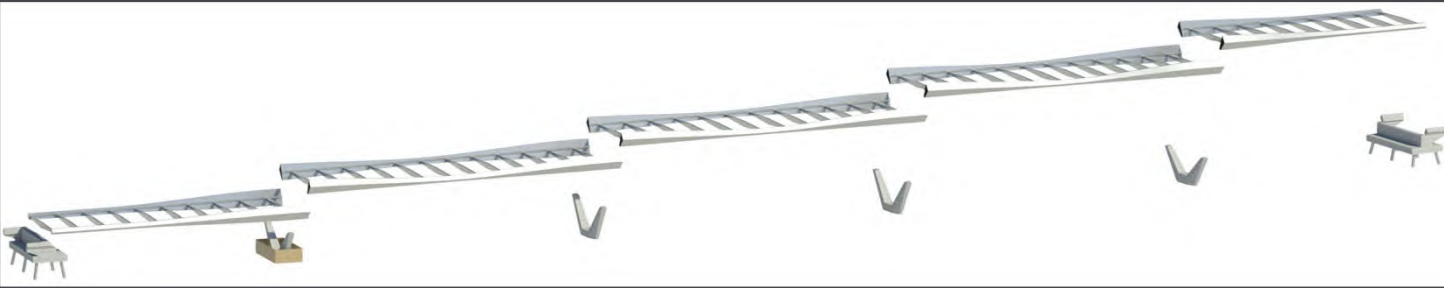


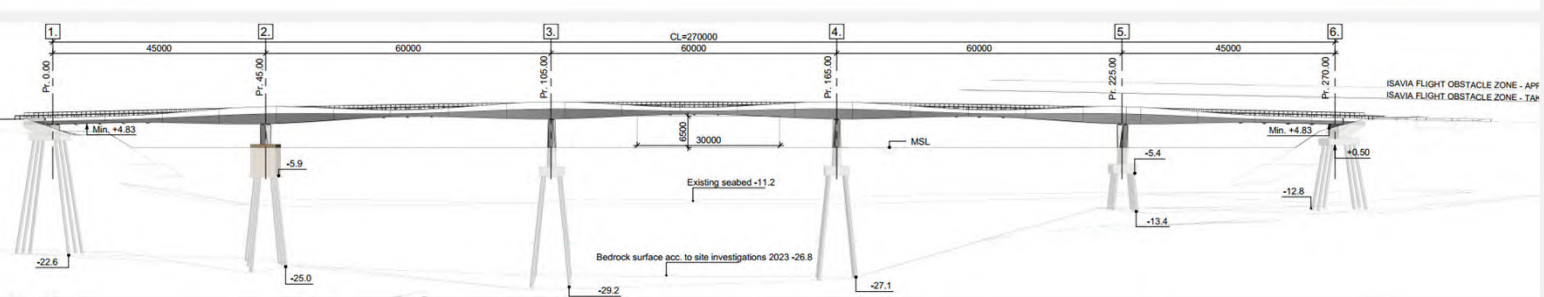
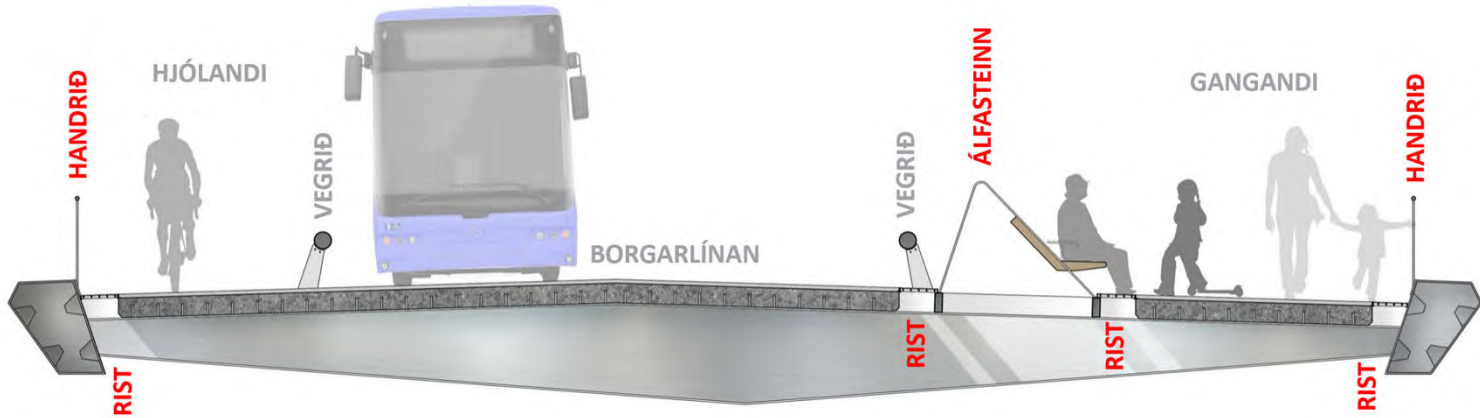
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Burðarvirki

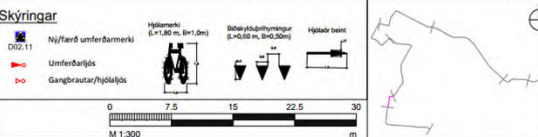
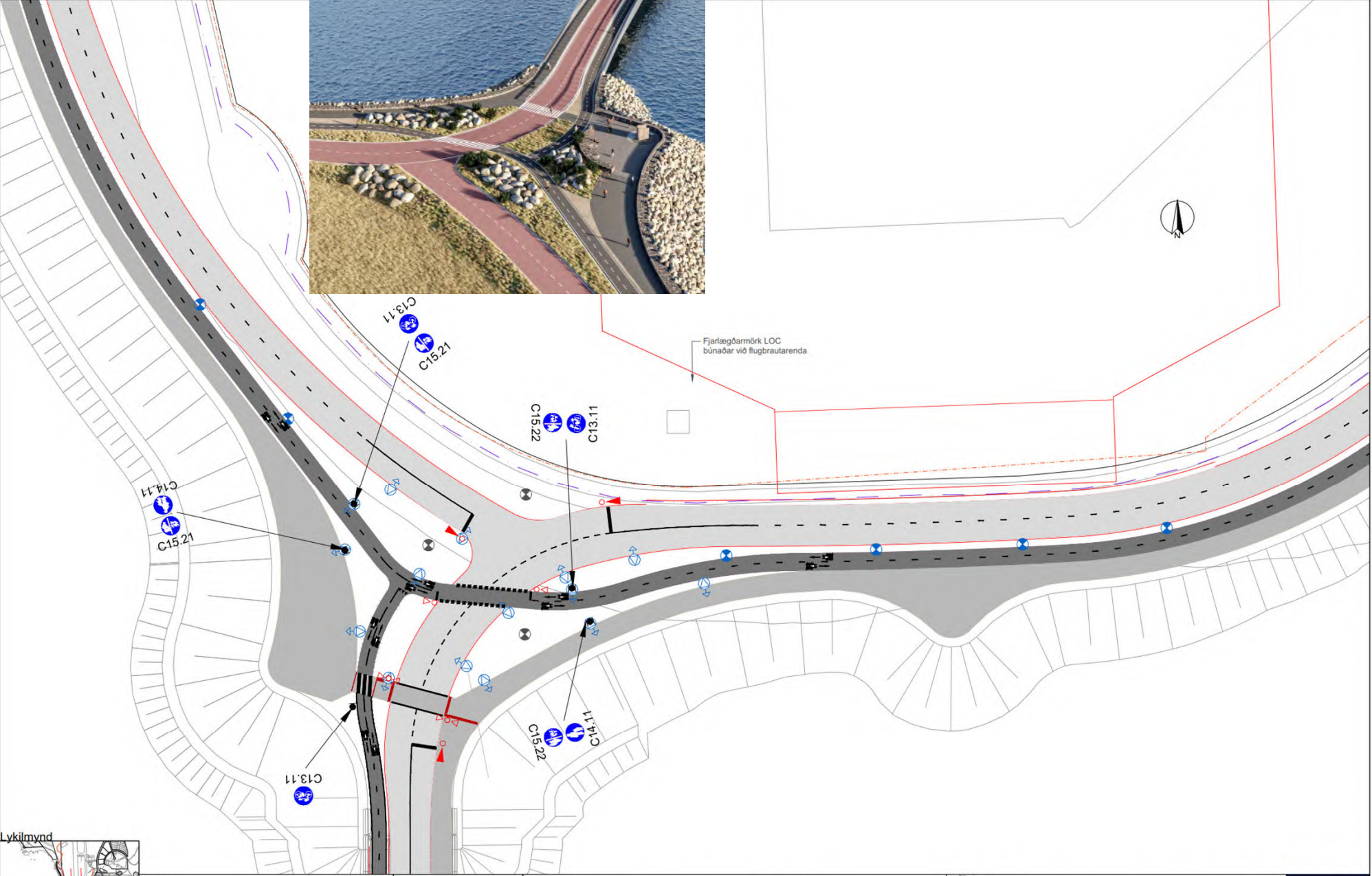
- Staundairstöður
- Steypt undirbygging
- Brú í 5 höfum
- 900 tonn af stáli í yfirbyggingu
- Steypt brúargólf
- Stórar forsmíðaðar einingar í stöpla og yfirbyggingu





Umferð

- Aðskilnaður fararmáta
- 3,5 m stígabreidd
- Algild hönnun
 - Mjög lítill langhalli
 - Bekkir á brú
- Gönguþverun á Kársnesi
- Gönguleið undir brú á Kársnesi
- Ljósastýring Reykjavíkurmegin



Consultants			
<input checked="" type="checkbox"/> EFLA Consulting Engineers	<input type="checkbox"/> BEAM Architects	<input type="checkbox"/> EFLA Kevan Shaw Lighting Design	
1.1 Updated layout	EYK	HJS	MA
Rev.	Description	Drawn	Check
		Appr.	Date

Client Borgarlínan		www.borgarlinan.is		Borgarlínan	
Phase: Tender design	Scale: 1:300	Size: A1	Drawn: SM	Check: HJS	Appr.: MA
Project: Borgarlínan	Description: Draft submission			Drawing Id: L102	
Drawing name: Section 170 Fossvogur bridge	Drawing no.:			Rev.:	
Gatnahönnun	BL170-STR-EBK-LL-00002			1.1	
Skilti og yfirborðsmörkingar, Reykjavík					

Landslagshönnun

- Alls 8 áningarstaðir
- 2 Reykjavíkurmegin
- Nánd við sjóvarnargarða
- Fínleiki í grjóti á dvalarsvæðum
- Leiðarsteinar á áningarstöðum vísa á ákveðin kennileiti
- Innfeld lýsing



Hönnun í þversniði brúar

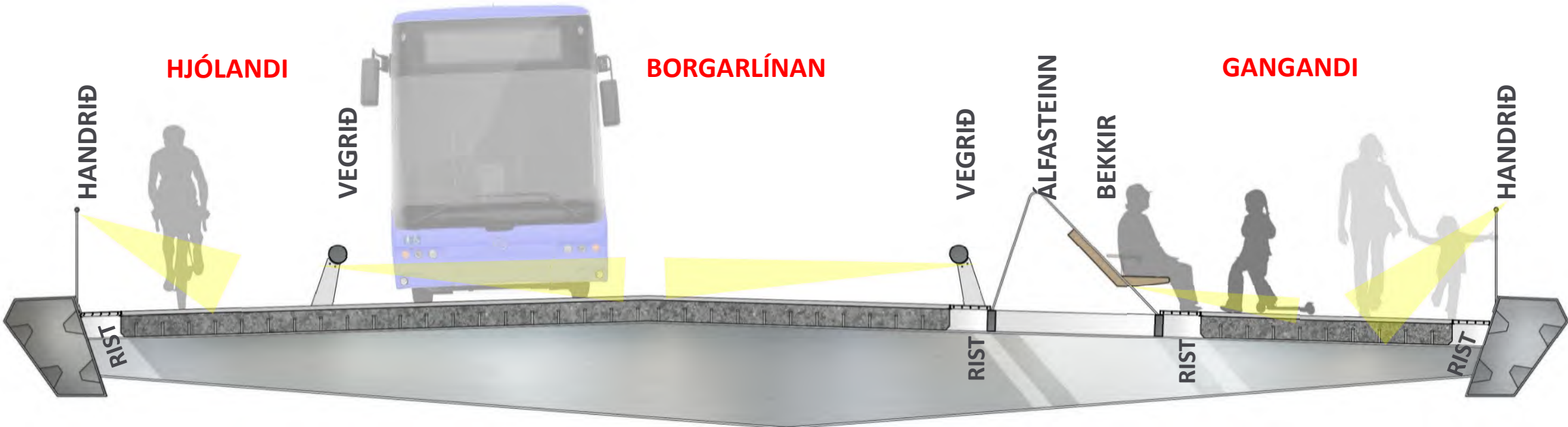




Hjólandi

Borgarlínan

Gangandi





Open Deck Environment

Parapet

Elfstone
Barrier

Barrier

Parapet

Peds
slow

Buses
fast

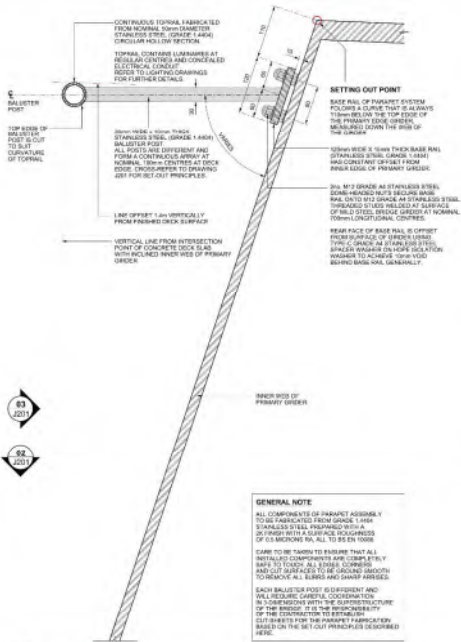
Bikes
fast

84185
28148

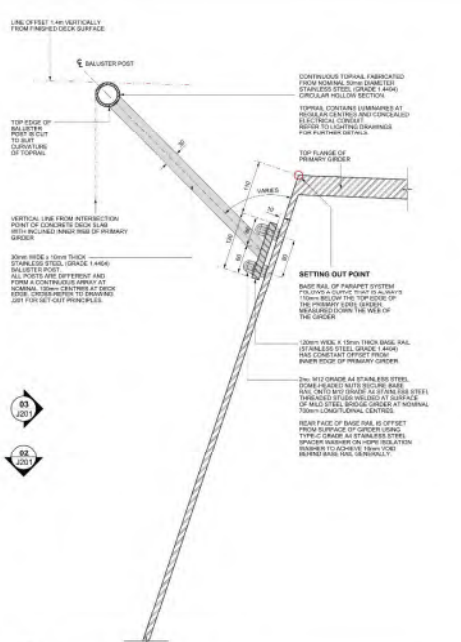




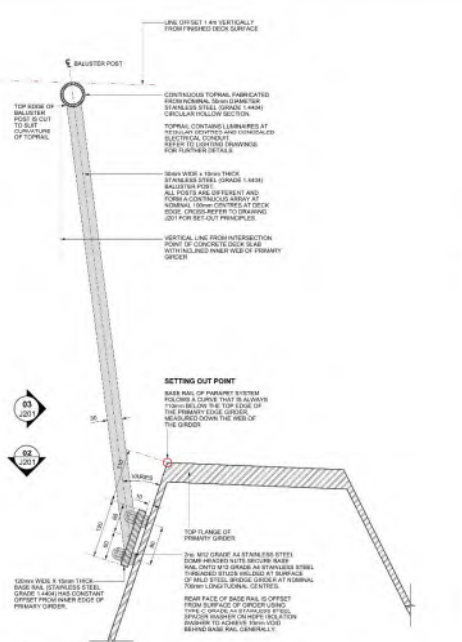
Parapets



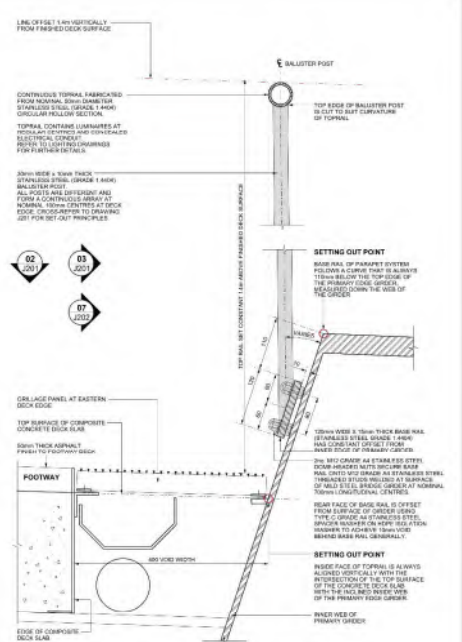
81 PARAPET SECTION DETAIL AT PIER LOCATION SCALE 1:5



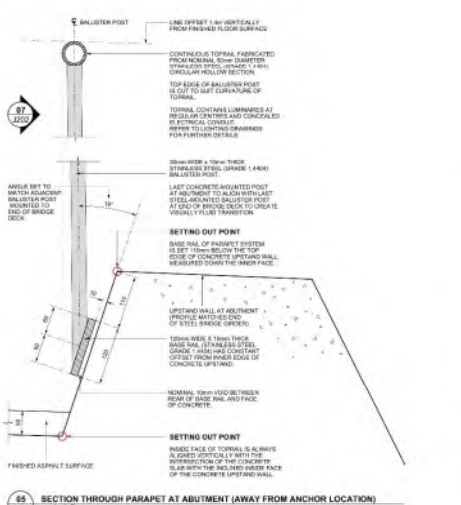
82 INTERMEDIATE PARAPET SECTION DETAIL SCALE 1:5



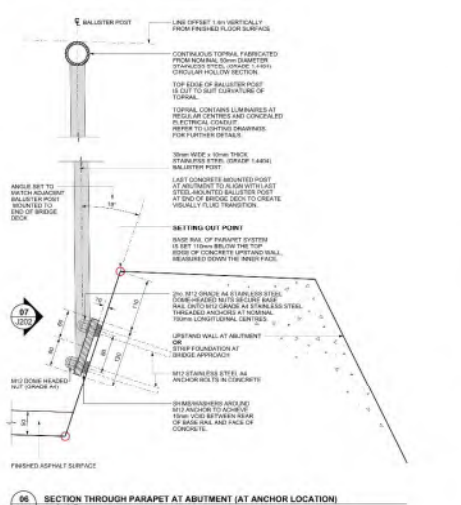
83 INTERMEDIATE PARAPET SECTION DETAIL SCALE 1:5



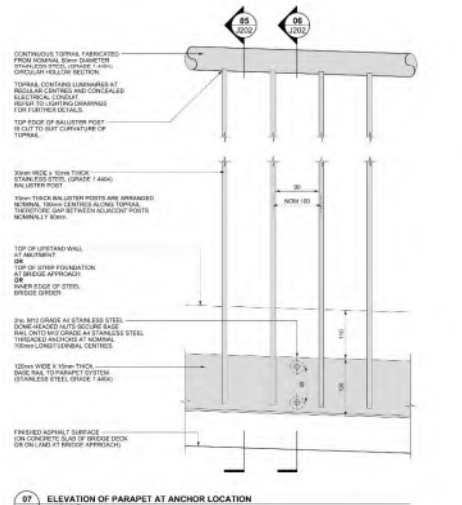
84 PARAPET SECTION DETAIL AT MIDSPAN SCALE 1:5



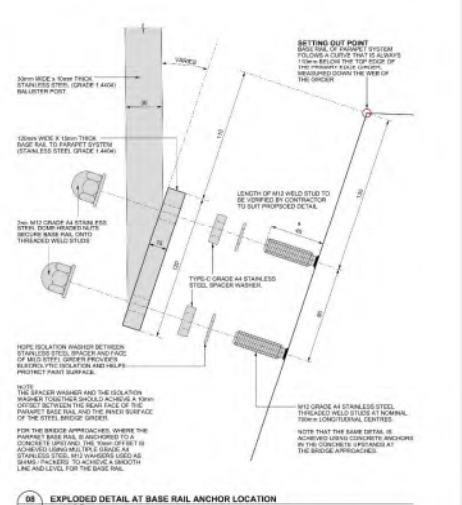
85 SECTION THROUGH PARAPET AT ABUTMENT (AWAY FROM ANCHOR LOCATION) SCALE 1:5



86 SECTION THROUGH PARAPET AT ABUTMENT (AT ANCHOR LOCATION) SCALE 1:5



87 ELEVATION OF PARAPET AT ANCHOR LOCATION SCALE 1:5



88 EXPLODED DETAIL AT BASE RAIL ANCHOR LOCATION SCALE 1:5

GENERAL NOTE
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE DETAILS DESCRIBED HERE ARE APPROPRIATE FOR THE CONSTRUCTION PROCESS AND THE MATERIALS SPECIFIED.



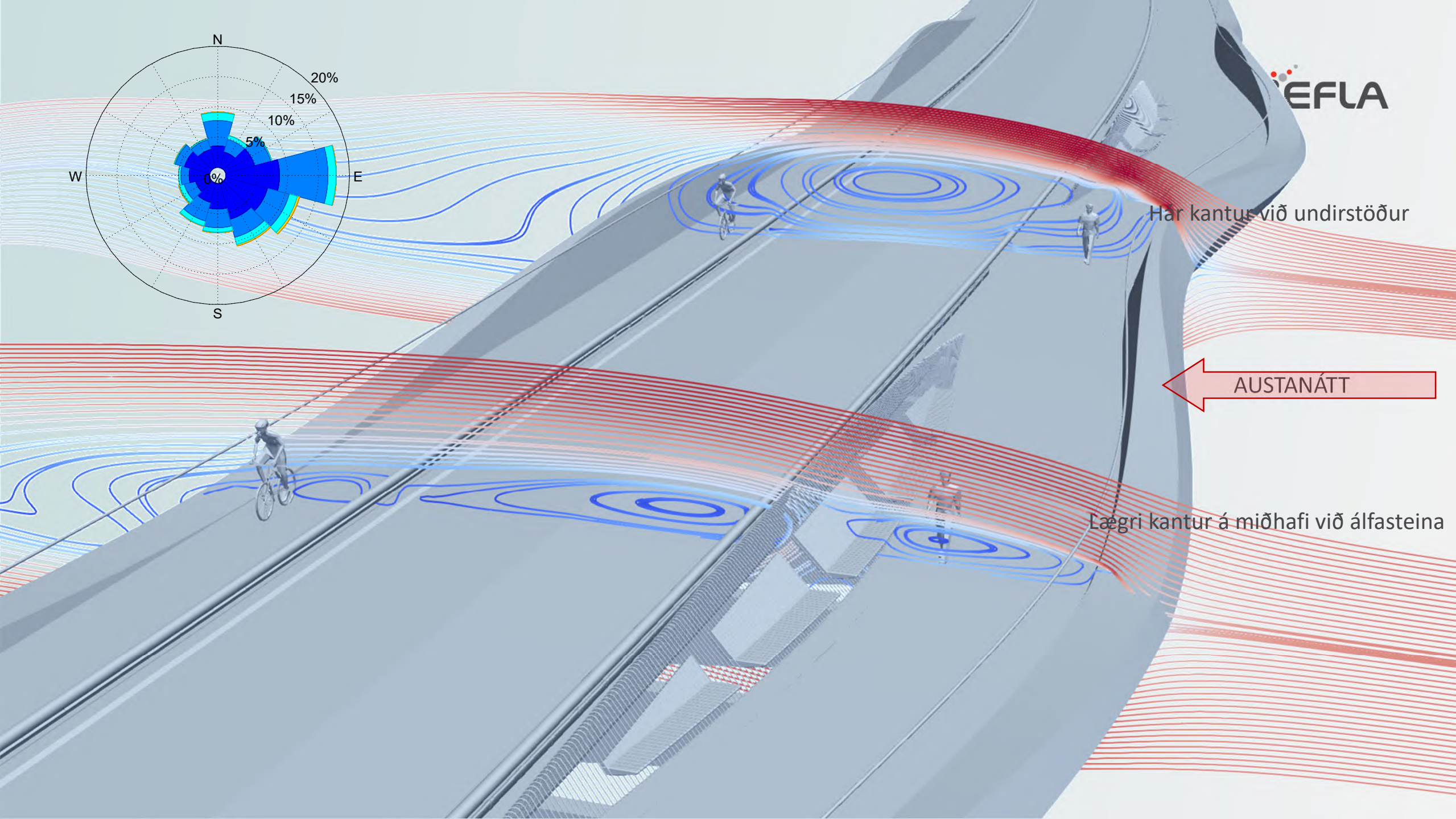
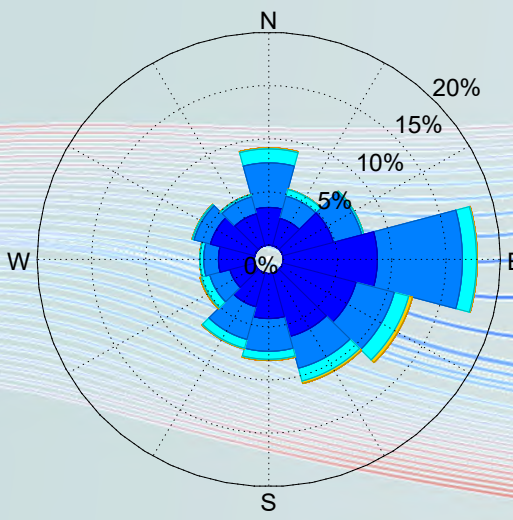
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00 First Issue for Comment	JM	BH	KB
Rev.	Description	Drawn	Check
Appr.		Appr.	Date

Client	Borgarlinan	www.borgarlinan.is
Phase	Tender Design	Scale: 1:5
Project	Borgarlinan	Description
Drawing name	Bridge Parapet Detail Sheet	Draft Submission
		Drawing no.
		Rev.
		BL170-CO-EBK-JJ-00002
		00

Álfasteinar



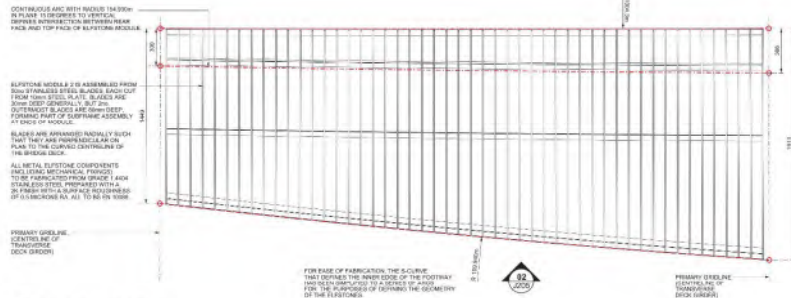




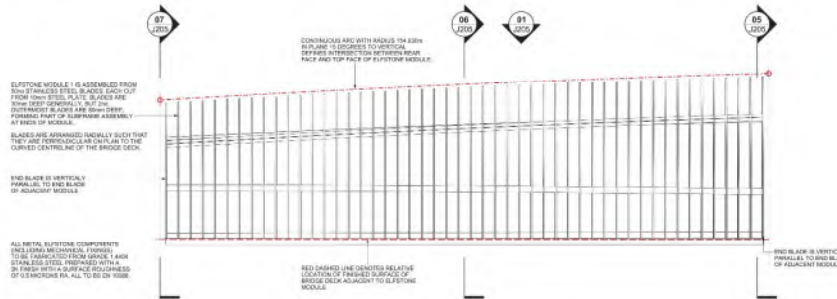
Hár kantur við undirstöður

AUSTANÁTT

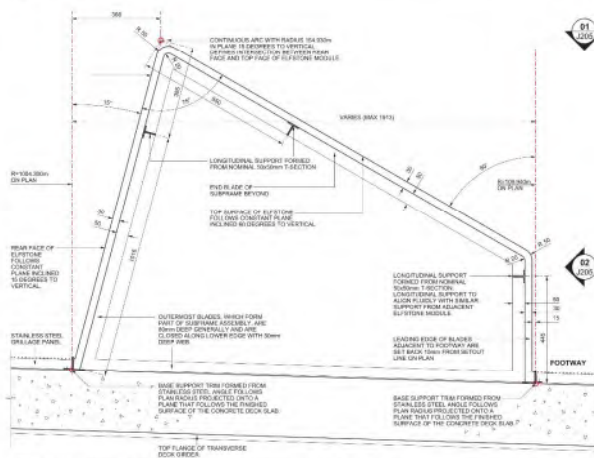
Lægri kantur á miðhafi við álfasteina



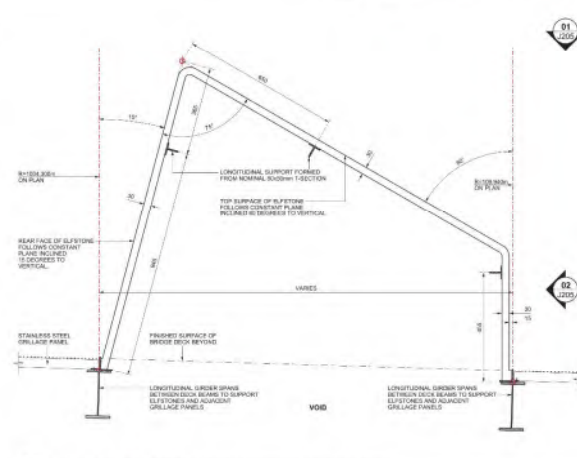
01 PLAN OF ELFSTONE MODULE 2
Scale: 1:20



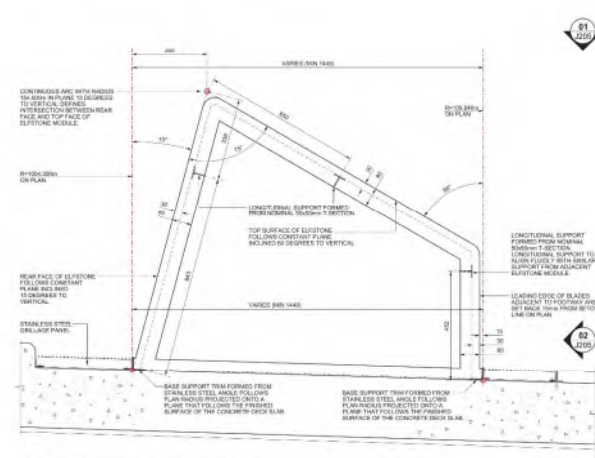
02 ELEVATION OF ELFSTONE MODULE 2
Scale: 1:20



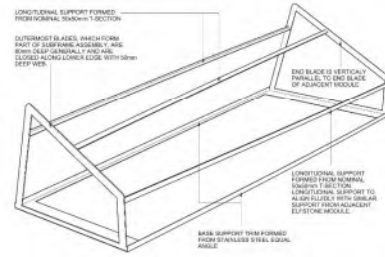
05 DETAIL SECTION AT HIGH END OF MODULE 2 (SECTION IS CUT PERPENDICULAR TO CENTRELINE OF BRIDGE)
Scale: 1:10



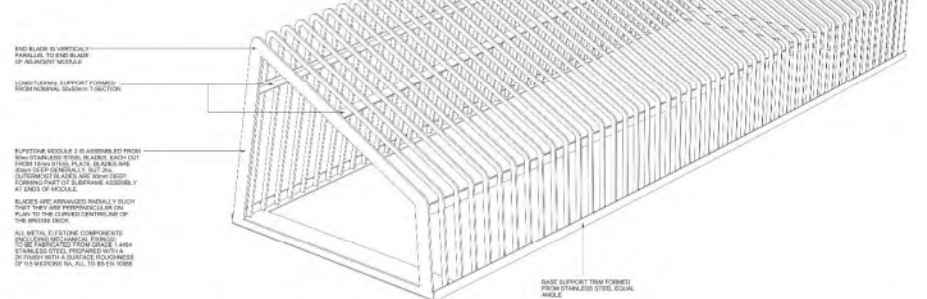
06 DETAIL AT MIDPOINT OF MODULE 2 (SECTION IS CUT PERPENDICULAR TO CENTRELINE OF BRIDGE)
Scale: 1:10



07 DETAIL SECTION AT LOW END OF MODULE 2 (SECTION IS CUT PERPENDICULAR TO CENTRELINE OF BRIDGE)
Scale: 1:10



03 PERSPECTIVE VIEW OF SUBFRAME TO ELFSTONE MODULE 2
Not to Scale



04 PERSPECTIVE VIEW OF ELFSTONE MODULE 2
Not to Scale

NOTE
DIMENSIONS ARE PROVIDED TO ILLUSTRATE GEOMETRICAL PRINCIPLES FOR FABRICATION OF ELFSTONE ASSEMBLY AND SHOULD BE READ IN CONJUNCTION WITH CAD MODELS PROVIDED.
FABRICATION TO DEFINITIVE BIDDING DRAWINGS FOR ELFSTONE MODULES BASED ON LONGITUDINAL BRIDGE GEOMETRY AND TELEGRAPHIC OF MANUFACTURING PROCESSES.

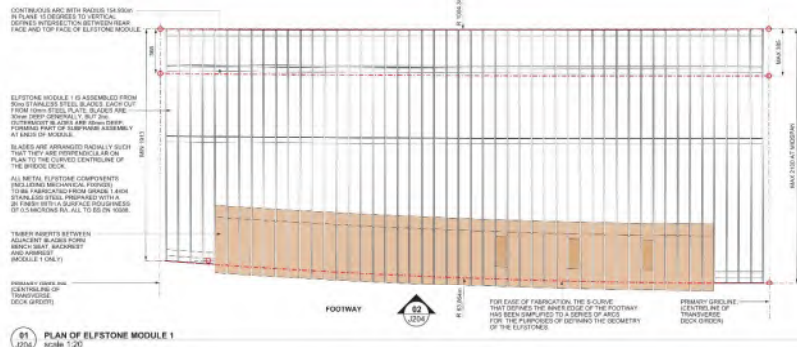


Consultants		Client	
<input type="checkbox"/> EFLA Consulting Engineers	<input checked="" type="checkbox"/> BEAM Architects	<input type="checkbox"/> EFLA Kevan Shaw Lighting Design	Borgarlinan
00 First Issue for Comment	JM BH KB	xx-xx-2023	www.borgarlinan.is
Rev.	Description	Drawn	Check

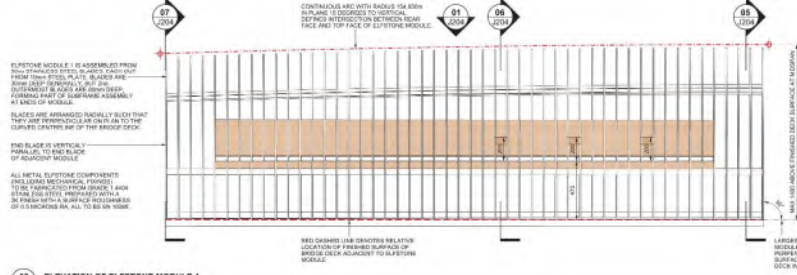
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Borgarlinan		Tender Design		1:20, 1:10		A1		JM		BH		KB		xx-xx-2023	
Drawing name		Description		Draft Submission		J205									
Elfstones Detail Sheet 2 (Module 2)		Draft Submission		J205											
Rev.		Drawing no.		Rev.		00									
		BL170-CON-EBK-JJ-00005		00											



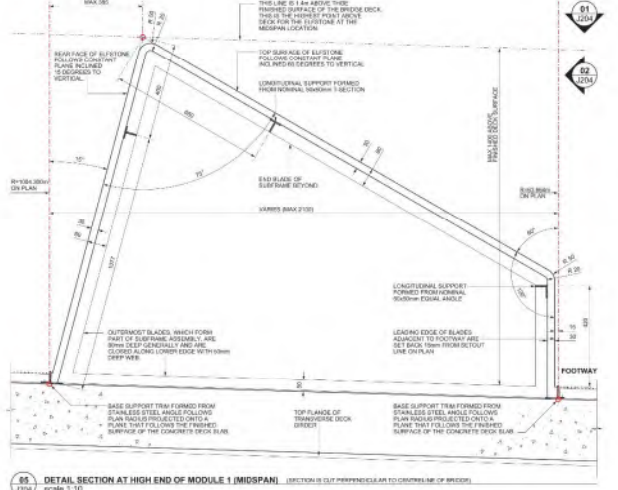




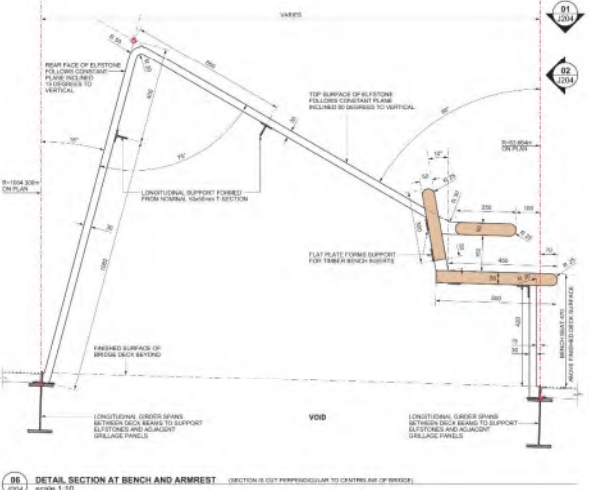
81 J204 PLAN OF ELFSTONE MODULE 1 Scale: 1:20



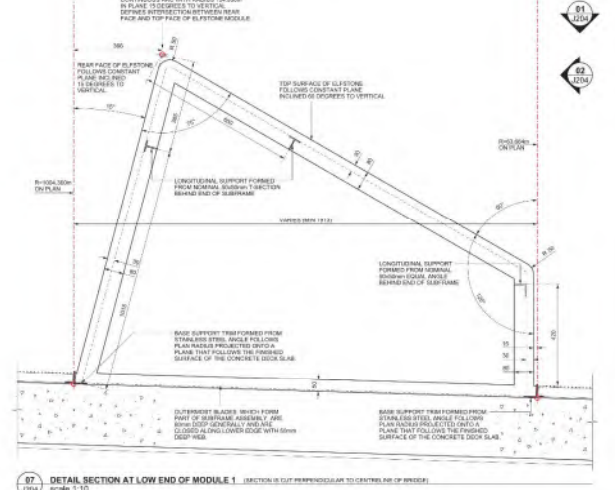
82 J204 ELEVATION OF ELFSTONE MODULE 1 Scale: 1:20



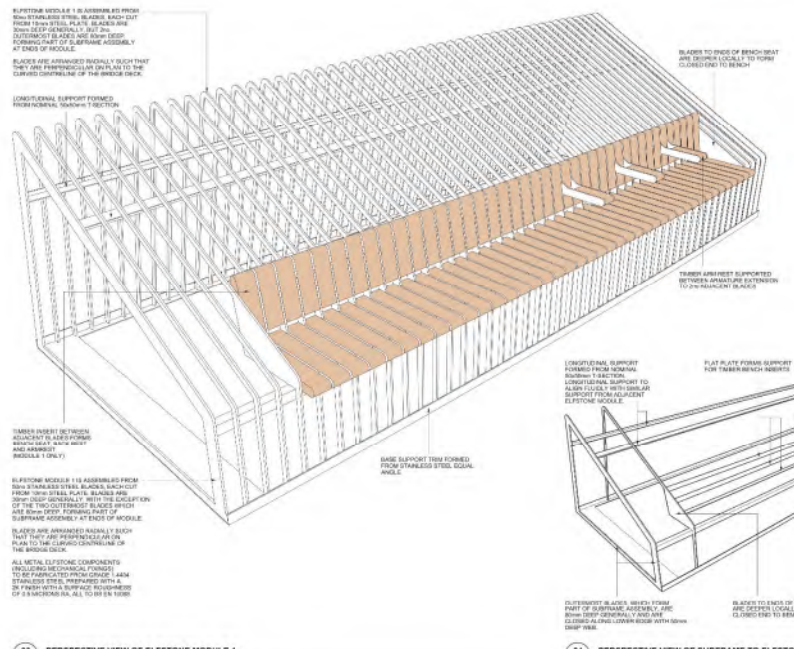
89 J204 DETAIL SECTION AT HIGH END OF MODULE 1 (MIDSPAN) SECTION IS CUT PERPENDICULAR TO CENTRAL AXIS OF BRIDGE. Scale: 1:10



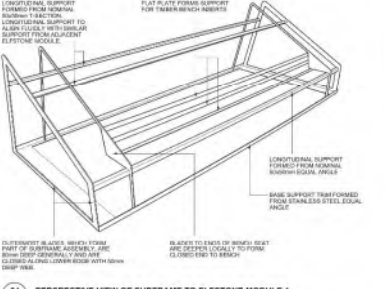
93 J204 DETAIL SECTION AT BENCH AND ARMREST SECTION IS CUT PERPENDICULAR TO CENTRAL AXIS OF BRIDGE. Scale: 1:10



97 J204 DETAIL SECTION AT LOW END OF MODULE 1 SECTION IS CUT PERPENDICULAR TO CENTRAL AXIS OF BRIDGE. Scale: 1:10

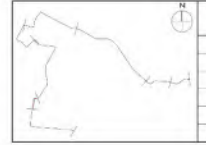


93 J204 PERSPECTIVE VIEW OF ELFSTONE MODULE 1 Not to Scale



94 J204 PERSPECTIVE VIEW OF SUBFRAME TO ELFSTONE MODULE 1 Not to Scale

NOTE: DIMENSIONS MAY VARY TO ESTIMATE GEOMETRICAL PROFILES FOR FABRICATION OF ELFSTONE ASSEMBLY AND SHOULD BE RE-CONSTRUCTED WITH CARE MODULE FROM MANUFACTURER. EXACT DIMENSIONS FOR ELFSTONE MODULES BASED ON 1-DIMENSIONAL BRIDGE GEOMETRY AND TOLERANCES OF MANUFACTURING PROCESSES.



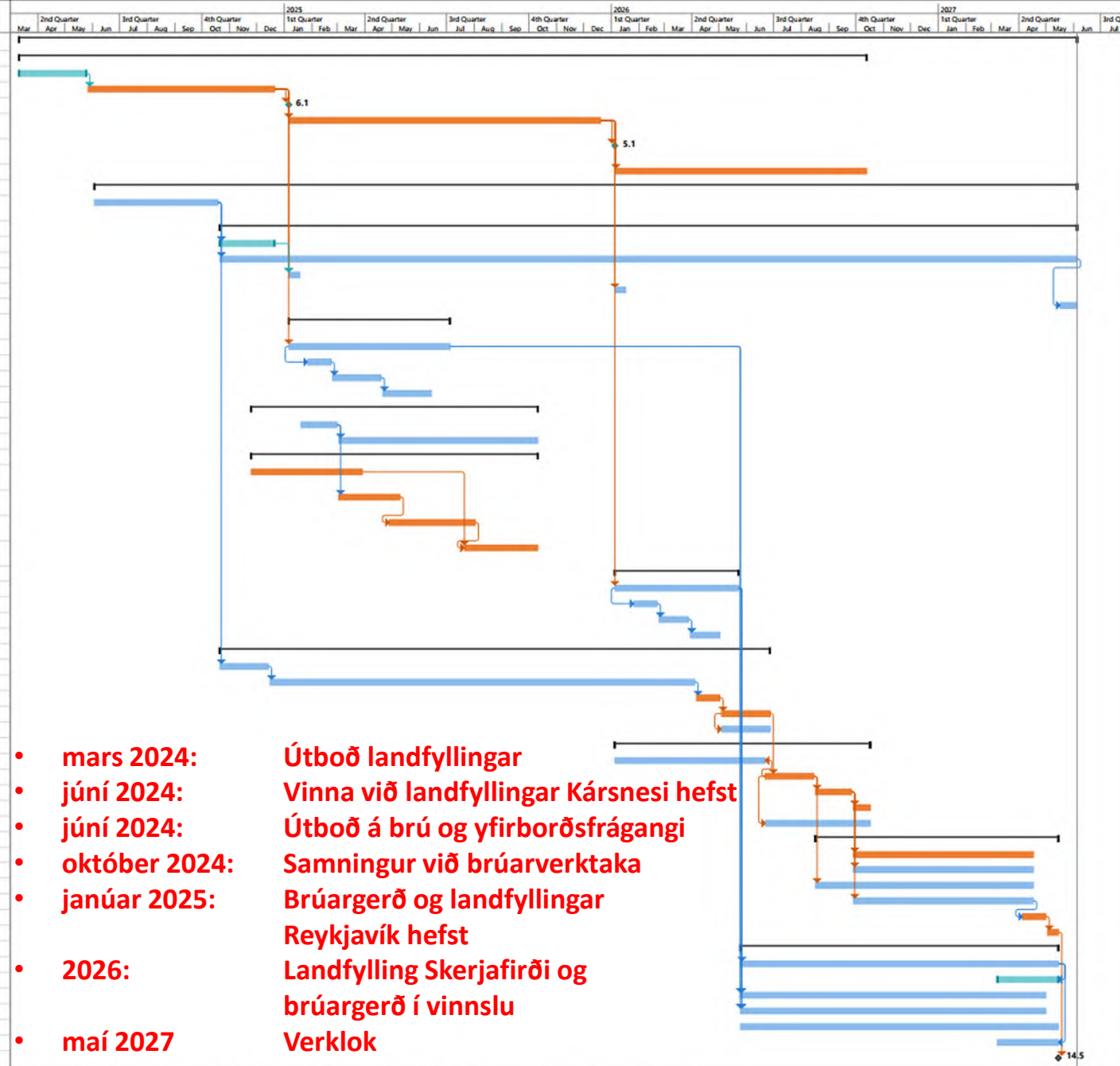
Consultants	■ BEAM Architects	□ EFLA Kevan Shaw Lighting Design
00	First Issue for Comment	JM BH KB xx-xx-2023
Rev.	Description	Drawn Check Appr. Date

Client	Borgarlinan	www.borgarlinan.is	Borgarlinan
Phase:	Tender Design	Scale: 1:20, 1:10	Size: A1
Project	Borgarlinan	Drawn: JM	Check: BH
Drawing name	Elfstones Detail Sheet 1 (Module 1)	Appr: KB	Date: xx-xx-2023
		Description	Draft Submission
		Drawing no.	BL170-CON-EBK-JJ-0004
		Rev.	00



Tímalína framkvæmdar

WBS	Task Name	Duration	Start	Finish	Predecessors
1	Alda - Brú yfir Fossveg - Framkvæmd	164 wks	Mon 11.3.24	Fri 4.6.27	
2	1.1 Landfill	130,2 wks	Mon 11.3.24	Mon 12.10.26	
3	1.1.1 Landfill tender and contract period	10 wks	Mon 11.3.24	Fri 24.5.24	
4	1.1.2 Landfill execution - Phase 1 - Kársnes	30 wks	Mon 27.5.24	Fri 20.12.24	3
5	1.1.3 Bridge contractor can begin works on Kársnes	0 days	Mon 6.1.25	Mon 6.1.25	4
6	1.1.4 Landfill execution - Phase 2 - Borgarlinan north	50 wks	Mon 6.1.25	Fri 19.12.25	4
7	1.1.5 Bridge contractor can begin works on north side	0 days	Mon 5.1.26	Mon 5.1.26	6
8	1.1.6 Landfill execution - Phase 3 - Skerjafjörður	40 wks	Tue 6.1.26	Mon 12.10.26	6FS+1 day
9	1.2 Bridge and surfaces	153 wks	Mon 3.6.24	Fri 4.6.27	
10	1.2.1 Bridge and surfaces tender and contract period	20 wks	Mon 3.6.24	Fri 18.10.24	
11	1.2.2 Phase 0 - Site operations	133 wks	Mon 21.10.24	Fri 4.6.27	
12	1.2.2.1 Bridge contractor preparations	9 wks	Mon 21.10.24	Fri 20.12.24	10
13	1.2.2.2 Contractor management	133 wks	Mon 21.10.24	Fri 4.6.27	10
14	1.2.2.3 Camp setup Kársnes	2 wks	Mon 6.1.25	Fri 17.1.25	12;4
15	1.2.2.4 Camp setup north side	2 wks	Mon 5.1.26	Fri 16.1.26	6
16	1.2.2.5 Camp removal	3 wks	Mon 17.5.27	Fri 4.6.27	13FS-3 wks
17	1.2.3 Phase 1 - Earthwork and end abutments Kársnes	26 wks	Mon 6.1.25	Fri 4.7.25	
18	1.2.3.1 Earthworks and utilities	26 wks	Mon 6.1.25	Fri 4.7.25	4
19	1.2.3.2 Pile driving	4 wks	Mon 27.1.25	Fri 21.2.25	18SS+3 wks
20	1.2.3.3 Concreting - pile caps	8 wks	Mon 24.2.25	Fri 18.4.25	19
21	1.2.3.4 Concreting - abutments	8 wks	Mon 21.4.25	Fri 13.6.25	20
22	1.2.4 Phase 2 - Intermediate pillars	44 wks	Mon 25.11.24	Fri 10.10.25	
23	1.2.4.1 Provisional timber pier	6 wks	Mon 20.1.25	Fri 28.2.25	
24	1.2.4.2 Barge operations	32 wks	Mon 3.3.25	Fri 10.10.25	23
25	1.2.4.3 Intermediate pillars	44 wks	Mon 25.11.24	Fri 10.10.25	
26	1.2.4.3.1 Pre-casting, post tensioning and transport of pillars	16 wks	Mon 25.11.24	Fri 28.3.25	
27	1.2.4.3.2 Pile driving axes 2-5 and securing of pilegroups	10 wks	Mon 3.3.25	Fri 9.5.25	23
28	1.2.4.3.3 Caisson installation and de-watering axes 2-5	14 wks	Mon 28.4.25	Fri 1.8.25	27FS-2 wks
29	1.2.4.3.4 Pre-cast pillars and casting of pilecaps axes 2-5	12 wks	Mon 21.7.25	Fri 10.10.25	28FS-2 wks;26
30	1.2.5 Phase 3 - Earthwork and end abutments north	20 wks	Mon 5.1.26	Fri 22.5.26	
31	1.2.5.1 Earthworks and utilities	20 wks	Mon 5.1.26	Fri 22.5.26	6
32	1.2.5.2 Pile driving	4 wks	Mon 26.1.26	Fri 20.2.26	31SS+3 wks
33	1.2.5.3 Concreting - pile caps	5 wks	Mon 23.2.26	Fri 27.3.26	32
34	1.2.5.4 Concreting - abutments	5 wks	Mon 30.3.26	Fri 1.5.26	33
35	1.2.6 Phase 4 - Steel superstructure	84 wks	Mon 21.10.24	Fri 26.6.26	
36	1.2.6.1 Fabrication initiation	8 wks	Mon 21.10.24	Fri 13.12.24	10
37	1.2.6.2 Fabrication	64 wks	Mon 16.12.24	Fri 3.4.26	36
38	1.2.6.3 Transport	4 wks	Mon 6.4.26	Fri 1.5.26	37
39	1.2.6.4 Superstructure mounting operations	8 wks	Mon 4.5.26	Fri 26.6.26	38
40	1.2.6.5 Barge operations	8 wks	Mon 4.5.26	Fri 26.6.26	39SS
41	1.2.7 Phase 5 - Bridge deck, concrete works	41 wks	Mon 5.1.26	Fri 16.10.26	
42	1.2.7.1 Concrete elements, fabrication	24 wks	Mon 5.1.26	Mon 22.6.26	43SF
43	1.2.7.2 Concrete elements, mounting operations	8 wks	Mon 22.6.26	Fri 14.8.26	39FS-1 wk
44	1.2.7.3 Site casting of deck	6 wks	Mon 17.8.26	Fri 25.9.26	43
45	1.2.7.4 Provisional timber pier removal	3 wks	Mon 28.9.26	Fri 16.10.26	44
46	1.2.7.5 Barge operations	17 wks	Mon 22.6.26	Fri 16.10.26	43SS
47	1.2.8 Phase 6 - Secondary steel and bridge finishes	39 wks	Mon 17.8.26	Fri 14.5.27	
48	1.2.8.1 Guardrails	29 wks	Mon 28.9.26	Fri 16.4.27	44
49	1.2.8.2 Handrails	29 wks	Mon 28.9.26	Fri 16.4.27	44
50	1.2.8.3 Bridge lighting	35 wks	Mon 17.8.26	Fri 16.4.27	43
51	1.2.8.4 Eilstones and gutters	29 wks	Mon 28.9.26	Fri 16.4.27	44
52	1.2.8.5 Waterproofing membrane	4 wks	Mon 5.4.27	Fri 30.4.27	51FS-2 wks
53	1.2.8.6 Asphaltting and surface markings	2 wks	Mon 3.5.27	Fri 14.5.27	52
54	1.2.9 Phase 7 - Landfill surfaces	51 wks	Mon 25.5.26	Fri 14.5.27	
55	1.2.9.1 Street - footways - Cycleways	51 wks	Mon 25.5.26	Fri 14.5.27	31
56	1.2.9.2 Signage, surface markings and traffic lights	10 wks	Mon 8.3.27	Fri 14.5.27	55FF
57	1.2.9.3 Drainage system	49 wks	Mon 25.5.26	Fri 30.4.27	18;31
58	1.2.9.4 Lighting - cables	49 wks	Mon 25.5.26	Fri 30.4.27	18;31
59	1.2.9.5 Landscaping	51 wks	Mon 25.5.26	Fri 14.5.27	
60	1.2.9.6 Lighting - lights	10 wks	Mon 8.3.27	Fri 14.5.27	55FF
61	2 Bridge opening	0 wks	Fri 14.5.27	Fri 14.5.27	53



- mars 2024: Útboð landfyllingar
- júní 2024: Vinna við landfyllingar Kársnesi hefst
- júní 2024: Útboð á brú og yfirborðsfrágangi
- október 2024: Samningur við brúarverktaka
- janúar 2025: Brúargerð og landfyllingar Reykjavík hefst
- 2026: Landfylling Skerjafirði og brúargerð í vinnslu
- maí 2027 Verklok

Kostnaðaráætlun

Brú



	Verktakakostnaður [MISK]
Aðstaða og heiltöluliðir	400
Endastöplar	200
Millistöplar	1.000
Yfirbygging	2.800
Yfirborðsfrágangur og öryggisbúnaður	700
Samtals áætlaður grunnverktakakostnaður =	5.100
Ótilgreindir verkþættir og óvissa í áætlun, 16%*	800
Hönnunarkostnaður	300
Háspennukaplar í brú	200
Umsjón og eftirlit	300
Áætlaður kostnaður við brú, P50 =	6.700

*: 3ja punkta mat á óvissu hefur áætlað hlutfall milli grunnkostnaðar og P50-gildis (miðgildi, jafnar líkur á yfir- og undirmati) sem 1,16

Landmótun og yfirborðsfrágangur



	Verktakakostnaður [MISK]
Aðstaða og heiltöluliðir	100
Landfylling og grjótvörn sunnan	200
Landfylling og grjótvörn, Borgarlínan norðan	500
Landfylling og grjótvörn, Skerjafjörður	400
Yfirborðsfrágangur sunnan	100
Yfirborðsfrágangur norðan	300
Samtals áætlaður grunnverktakakostnaður =	1.600
Ótilgreindir verkþættir og óvissa í áætlun, 25%*	400
Umsjón og eftirlit	100
Áætlaður kostnaður við landmótun og yfirborðsfrágang, P50 =	2.100

*: 3ja punkta mat á óvissu hefur áætlað hlutfall milli grunnkostnaðar og P50-gildis (miðgildi, jafnar líkur á yfir- og undirmati) sem 1,25



Takk fyrir