

Sensitivity test by varying individual weights of factors f4, f8, f9, f10 and f19

FACTORS		Base Weight	Sensitivity Test																
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	19	20
f1	Highway alignment	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
f2	Drainage impact	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
f3	Utilities impact	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
f4	Construction practicability	6	3	6	6	6	3	3	3	6	6	6	6	3	3	3	3	6	6
f5	Construction traffic management	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
f6	Traffic operation	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
f7	Noise impact	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
f8	Air quality impact	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	6
f9	Water quality impact	3	3	6	3	3	6	3	3	6	6	3	6	3	6	6	6	3	6
f10	Ecology impact	3	3	3	6	3	3	6	3	6	3	6	6	6	3	6	6	3	6
f11	Fisheries impact	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
f12	Waste	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
f13	Cultural heritage impact	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
f14	Hazard to life	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
f15	Landscape and visual impact	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
f16	Marine impact	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
f17	Land use impact	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
f18	Programme	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
f19	Cost	3	3	3	3	6	3	3	6	3	6	6	6	6	6	3	6	3	3
f20	Public perception	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
f21	HSK NDA	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
SUM		64	61	67	67	67	64	64	64	70	70	70	73	67	67	67	70	67	73
% on Engineering (factors f1 to f6)		23.4%	19.7%	22.4%	22.4%	22.4%	18.8%	18.8%	18.8%	21.4%	21.4%	21.4%	20.5%	17.9%	17.9%	17.9%	17.1%	22.4%	20.5%
% on Environmental (factors f7 to f15)		46.9%	49.2%	49.3%	49.3%	44.8%	51.6%	51.6%	46.9%	51.4%	47.1%	47.1%	49.3%	49.3%	49.3%	53.7%	51.4%	49.3%	53.4%
% on Marine (factor f16)		4.7%	4.9%	4.5%	4.5%	4.5%	4.7%	4.7%	4.7%	4.3%	4.3%	4.3%	4.1%	4.5%	4.5%	4.5%	4.3%	4.5%	4.1%
% on Land (factor f17)		1.6%	1.6%	1.5%	1.5%	1.5%	1.6%	1.6%	1.6%	1.4%	1.4%	1.4%	1.4%	1.5%	1.5%	1.5%	1.4%	1.5%	1.4%
% on Programme (factor f18)		9.4%	9.8%	9.0%	9.0%	9.0%	9.4%	9.4%	9.4%	8.6%	8.6%	8.6%	8.2%	9.0%	9.0%	9.0%	8.6%	9.0%	8.2%
% on Cost (factor f19)		4.7%	4.9%	4.5%	4.5%	9.0%	4.7%	4.7%	9.4%	4.3%	8.6%	8.6%	8.2%	9.0%	9.0%	4.5%	8.6%	4.5%	4.1%
% on Public perception (factor f20)		4.7%	4.9%	4.5%	4.5%	4.5%	4.7%	4.7%	4.7%	4.3%	4.3%	4.3%	4.1%	4.5%	4.5%	4.5%	4.3%	4.5%	4.1%
% on HSK NDA (factor f21)		4.7%	4.9%	4.5%	4.5%	4.5%	4.7%	4.7%	4.7%	4.3%	4.3%	4.3%	4.1%	4.5%	4.5%	4.5%	4.3%	4.5%	4.1%
SUM		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Sensitivity test by varying the % distribution of the total weight among various groups of factors

FACTORS	Base Weight	Environment Group = 60%			Environment Group = 40%			Eng+Cost+Prog+HSK = 60%		
		16	17	18	16	17	18	16	17	18
f1 Highway alignment	3	2.259	3.388	4.267	2.259	3.388	4.267	2.259	3.388	4.267
f2 Drainage impact	1	0.753	1.129	1.422	0.753	1.129	1.422	0.753	1.129	1.422
f3 Utilities impact	1	0.753	1.129	1.422	0.753	1.129	1.422	0.753	1.129	1.422
f4 Construction practicability	6	4.518	6.776	8.533	4.518	6.776	8.533	4.518	6.776	8.533
f5 Construction traffic management	1	0.753	1.129	1.422	0.753	1.129	1.422	0.753	1.129	1.422
f6 Traffic operation	3	2.259	3.388	4.267	2.259	3.388	4.267	2.259	3.388	4.267
f7 Noise impact	3	3.840	2.560	2.076	3.840	2.560	2.076	3.840	2.560	2.076
f8 Air quality impact	3	3.840	2.560	2.076	3.840	2.560	2.076	3.840	2.560	2.076
f9 Water quality impact	3	3.840	2.560	2.076	3.840	2.560	2.076	3.840	2.560	2.076
f10 Ecology impact	3	3.840	2.560	2.076	3.840	2.560	2.076	3.840	2.560	2.076
f11 Fisheries impact	3	3.840	2.560	2.076	3.840	2.560	2.076	3.840	2.560	2.076
f12 Waste	3	3.840	2.560	2.076	3.840	2.560	2.076	3.840	2.560	2.076
f13 Cultural heritage impact	3	3.840	2.560	2.076	3.840	2.560	2.076	3.840	2.560	2.076
f14 Hazard to life	6	7.680	5.120	4.151	7.680	5.120	4.151	7.680	5.120	4.151
f15 Landscape and visual impact	3	3.840	2.560	2.076	3.840	2.560	2.076	3.840	2.560	2.076
f16 Marine impact	3	2.259	3.388	2.076	2.259	3.388	2.076	2.259	3.388	2.076
f17 Land use impact	1	0.753	1.129	0.692	0.753	1.129	0.692	0.753	1.129	0.692
f18 Programme	6	4.518	6.776	8.533	4.518	6.776	8.533	4.518	6.776	8.533
f19 Cost	3	2.259	3.388	4.267	2.259	3.388	4.267	2.259	3.388	4.267
f20 Public perception	3	2.259	3.388	2.076	2.259	3.388	2.076	2.259	3.388	2.076
f21 HSK NDA	3	2.259	3.388	4.267	2.259	3.388	4.267	2.259	3.388	4.267
SUM	64	64	64	64	64	64	64	64	64	64
% on Engineering (factors f1 to f6)	23.4%	17.6%	26.5%	33.3%	17.6%	26.5%	33.3%	17.6%	26.5%	33.3%
% on Environmental (factors f7 to f15)	46.9%	60.0%	40.0%	32.4%	60.0%	40.0%	32.4%	60.0%	40.0%	32.4%
% on Marine (factor f16)	4.7%	3.5%	5.3%	3.2%	3.5%	5.3%	3.2%	3.5%	5.3%	3.2%
% on Land (factor f17)	1.6%	1.2%	1.8%	1.1%	1.2%	1.8%	1.1%	1.2%	1.8%	1.1%
% on Programme (factor f18)	9.4%	7.1%	10.6%	13.3%	7.1%	10.6%	13.3%	7.1%	10.6%	13.3%
% on Cost (factor f19)	4.7%	3.5%	5.3%	6.7%	3.5%	5.3%	6.7%	3.5%	5.3%	6.7%
% on Public perception (factor f20)	4.7%	3.5%	5.3%	3.2%	3.5%	5.3%	3.2%	3.5%	5.3%	3.2%
% on HSK NDA (factor f21)	4.7%	3.5%	5.3%	6.7%	3.5%	5.3%	6.7%	3.5%	5.3%	6.7%
SUM	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
% on Eng+Cost+Prog+HSK NDA	42.2%	31.8%	47.6%	60.0%	31.8%	47.6%	60.0%	31.8%	47.6%	60.0%

Sensitivity Test No. 1

SCORE TABLE		Score				Weight Set 1	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	3	12.00	12.00	7.50	9.00	15
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	3	12.00	12.00	3.00	6.00	15
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	3	9.30	9.00	6.60	6.15	15
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist. views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	3	15.00	14.88	0.00	0.00	15
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							235.53	235.80	138.22	151.12	305
OVERALL RANKING OF OPTIONS							2	1	4	3	
% on Engineering (factors f1 to f6)							19.7%				
% on Environmental (factors f7 to f15)							49.2%				
% on Marine (factor f16)							4.9%				
% on Land (factor f17)							1.6%				
% on Programme (factor f18)							9.8%				
% on Cost (factor f19)							4.9%				
% on Public perception (factor f20)							4.9%				
% on HSK NDA (factor f21)							4.9%				
SUM							100.0%				

Sensitivity Test No. 2

SCORE TABLE		Score				Weight Set 2	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	6	24.00	24.00	15.00	18.00	30
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	6	24.00	24.00	6.00	12.00	30
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	3	9.30	9.00	6.60	6.15	15
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist. views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	3	15.00	14.88	0.00	0.00	15
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							259.53	259.80	148.72	166.12	335
OVERALL RANKING OF OPTIONS							2	1	4	3	
% on Engineering (factors f1 to f6)		22.4%									
% on Environmental (factors f7 to f15)		49.3%									
% on Marine (factor f16)		4.5%									
% on Land (factor f17)		1.5%									
% on Programme (factor f18)		9.0%									
% on Cost (factor f19)		4.5%									
% on Public perception (factor f20)		4.5%									
% on HSK NDA (factor f21)		4.5%									
SUM		100.0%									

Sensitivity Test No. 3

SCORE TABLE		Score				Weight Set 3	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	6	24.00	24.00	15.00	18.00	30
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	3	12.00	12.00	3.00	6.00	15
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	6	18.60	18.00	13.20	12.30	30
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist. views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	3	15.00	14.88	0.00	0.00	15
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							256.83	256.80	152.32	166.27	335
OVERALL RANKING OF OPTIONS							1	2	4	3	
% on Engineering (factors f1 to f6)		22.4%									
% on Environmental (factors f7 to f15)		49.3%									
% on Marine (factor f16)		4.5%									
% on Land (factor f17)		1.5%									
% on Programme (factor f18)		9.0%									
% on Cost (factor f19)		4.5%									
% on Public perception (factor f20)		4.5%									
% on HSK NDA (factor f21)		4.5%									
SUM		100.0%									

Sensitivity Test No. 4

SCORE TABLE		Score				Weight Set 4	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	6	24.00	24.00	15.00	18.00	30
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	3	12.00	12.00	3.00	6.00	15
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	3	9.30	9.00	6.60	6.15	15
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	6	30.00	29.76	0.00	0.00	30
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							262.63	262.68	145.72	160.12	335
OVERALL RANKING OF OPTIONS							2	1	4	3	
% on Engineering (factors f1 to f6)							22.4%				
% on Environmental (factors f7 to f15)							44.8%				
% on Marine (factor f16)							4.5%				
% on Land (factor f17)							1.5%				
% on Programme (factor f18)							9.0%				
% on Cost (factor f19)							9.0%				
% on Public perception (factor f20)							4.5%				
% on HSK NDA (factor f21)							4.5%				
SUM							100.0%				

Sensitivity Test No. 5

SCORE TABLE		Score				Weight Set 5	Weighted Score						
		Alignment options					Alignment options						
		A	B	C	D		A	B	C	D	max.		
f1	Highway alignment												
	(1) Horizontal alignment	5.00	4.97	3.38	3.53								
	(2) Vertical alignment	4.51	5.00	3.58	3.36								
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15		
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5		
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5		
f4	Construction practicability												
	(1) Degree of temporary works	3.00	3.00	3.00	3.00								
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00								
	(3) Additional land during construction	3.00	3.00	1.00	5.00								
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00								
	f4 total score =	4.00	4.00	2.50	3.00	3	12.00	12.00	7.50	9.00	15		
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5		
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15		
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15		
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15		
f9	Water quality impact	4.00	4.00	1.00	2.00	6	24.00	24.00	6.00	12.00	30		
f10	Ecology impact												
	(1) Intertidal impacts	3.00	3.00	2.50	2.00								
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50								
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00								
	f10 total score =	3.10	3.00	2.20	2.05	3	9.30	9.00	6.60	6.15	15		
f11	Fisheries impact												
	(1) Capture fisheries	2.50	2.50	3.00	5.00								
	(2) Oyster culture	2.50	2.50	3.00	5.00								
	(3) Pond fisheries	5.00	5.00	2.00	1.00								
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15		
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15		
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15		
f14	Hazard to life												
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00								
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00								
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30		
f15	Landscape and visual impact												
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00								
	(2) Impact on exist. views, visual amenity	1.00	1.00	2.00	3.00								
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00								
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15		
f16	Marine impact												
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00								
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00								
	(3) Disruption during construction	2.00	2.00	3.00	4.00								
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00								
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00								
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15		
f17	Land use impact												
	(1) Effect on existing land use	3.00	3.00	1.00	4.00								
	(2) Effect on planned land use	5.00	5.00	5.00	5.00								
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00								
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5		
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30		
f19	Cost	5.00	4.96	0.00	0.00	3	15.00	14.88	0.00	0.00	15		
f20	Public perception												
	(1) Environmental groups	2.00	2.00	2.00	4.00								
	(2) Local residents	4.00	4.00	1.00	1.00								
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15		
f21	HSK NDA												
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00								
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00								
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15		
TOTAL WEIGHTED SCORE							247.53	247.80	141.22	157.12	320		
OVERALL RANKING OF OPTIONS							2	1	4	3			
% on Engineering (factors f1 to f6)		18.8%											
% on Environmental (factors f7 to f15)		51.6%											
% on Marine (factor f16)		4.7%											
% on Land (factor f17)		1.6%											
% on Programme (factor f18)		9.4%											
% on Cost (factor f19)		4.7%											
% on Public perception (factor f20)		4.7%											
% on HSK NDA (factor f21)		4.7%											
SUM		100.0%											

Sensitivity Test No. 6

SCORE TABLE		Score				Weight Set 6	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	3	12.00	12.00	7.50	9.00	15
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	6.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	3	12.00	12.00	3.00	6.00	15
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	3	18.60	18.00	13.20	12.30	30
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist. views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	3	15.00	14.88	0.00	0.00	15
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							244.83	244.80	144.82	157.27	320
OVERALL RANKING OF OPTIONS							1	2	4	3	
% on Engineering (factors f1 to f6)		18.8%									
% on Environmental (factors f7 to f15)		51.6%									
% on Marine (factor f16)		4.7%									
% on Land (factor f17)		1.6%									
% on Programme (factor f18)		9.4%									
% on Cost (factor f19)		4.7%									
% on Public perception (factor f20)		4.7%									
% on HSK NDA (factor f21)		4.7%									
SUM		100.0%									

Sensitivity Test No. 7

SCORE TABLE		Score				Weight Set 7	Weighted Score						
		Alignment options					Alignment options						
		A	B	C	D		A	B	C	D	max.		
f1	Highway alignment												
	(1) Horizontal alignment	5.00	4.97	3.38	3.53								
	(2) Vertical alignment	4.51	5.00	3.58	3.36								
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15		
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5		
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5		
f4	Construction practicability												
	(1) Degree of temporary works	3.00	3.00	3.00	3.00								
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00								
	(3) Additional land during construction	3.00	3.00	1.00	5.00								
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00								
	f4 total score =	4.00	4.00	2.50	3.00	3	12.00	12.00	7.50	9.00	15		
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5		
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15		
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15		
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15		
f9	Water quality impact	4.00	4.00	1.00	2.00	3	12.00	12.00	3.00	6.00	15		
f10	Ecology impact												
	(1) Intertidal impacts	3.00	3.00	2.50	2.00								
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50								
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00								
	f10 total score =	3.10	3.00	2.20	2.05	3	9.30	9.00	6.60	6.15	15		
f11	Fisheries impact												
	(1) Capture fisheries	2.50	2.50	3.00	5.00								
	(2) Oyster culture	2.50	2.50	3.00	5.00								
	(3) Pond fisheries	5.00	5.00	2.00	1.00								
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15		
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15		
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15		
f14	Hazard to life												
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00								
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00								
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30		
f15	Landscape and visual impact												
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00								
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00								
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00								
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15		
f16	Marine impact												
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00								
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00								
	(3) Disruption during construction	2.00	2.00	3.00	4.00								
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00								
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00								
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15		
f17	Land use impact												
	(1) Effect on existing land use	3.00	3.00	1.00	4.00								
	(2) Effect on planned land use	5.00	5.00	5.00	5.00								
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00								
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5		
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30		
f19	Cost	5.00	4.96	0.00	0.00	6	30.00	29.76	0.00	0.00	30		
f20	Public perception												
	(1) Environmental groups	2.00	2.00	2.00	4.00								
	(2) Local residents	4.00	4.00	1.00	1.00								
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15		
f21	HSK NDA												
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00								
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00								
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15		
TOTAL WEIGHTED SCORE							250.53	250.68	138.22	151.12	320		
OVERALL RANKING OF OPTIONS							2	1	4	3			
% on Engineering (factors f1 to f6)		18.8%											
% on Environmental (factors f7 to f15)		46.9%											
% on Marine (factor f16)		4.7%											
% on Land (factor f17)		1.6%											
% on Programme (factor f18)		9.4%											
% on Cost (factor f19)		9.4%											
% on Public perception (factor f20)		4.7%											
% on HSK NDA (factor f21)		4.7%											
SUM		100.0%											

Sensitivity Test No. 8

SCORE TABLE		Score				Weight Set B	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	6	24.00	24.00	15.00	18.00	30
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	3	12.00	12.00	3.00	6.00	15
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	6	18.60	18.00	13.20	12.30	30
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	3	15.00	14.88	0.00	0.00	15
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							268.83	288.80	155.32	172.27	350
OVERALL RANKING OF OPTIONS							1	2	4	3	
% on Engineering (factors f1 to f6)		21.4%									
% on Environmental (factors f7 to f15)		51.4%									
% on Marine (factor f16)		4.3%									
% on Land (factor f17)		1.4%									
% on Programme (factor f18)		8.6%									
% on Cost (factor f19)		4.3%									
% on Public perception (factor f20)		4.3%									
% on HSK NDA (factor f21)		4.3%									
SUM		100.0%									

Sensitivity Test No. 9

SCORE TABLE		Score				Weight Set 9	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	6	24.00	24.00	15.00	18.00	30
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	6	24.00	24.00	6.00	12.00	30
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	3	9.30	9.00	6.60	6.15	15
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	6	30.00	29.76	0.00	0.00	30
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							274.53	274.68	148.72	166.12	350
OVERALL RANKING OF OPTIONS							2	1	4	3	
% on Engineering (factors f1 to f6)		21.4%									
% on Environmental (factors f7 to f15)		47.1%									
% on Marine (factor f16)		4.3%									
% on Land (factor f17)		1.4%									
% on Programme (factor f18)		8.6%									
% on Cost (factor f19)		8.6%									
% on Public perception (factor f20)		4.3%									
% on HSK NDA (factor f21)		4.3%									
SUM		100.0%									

Sensitivity Test No. 10

SCORE TABLE		Score				Weight Set 10	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	6	24.00	24.00	15.00	18.00	30
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	3	12.00	12.00	3.00	6.00	15
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	6	18.60	18.00	13.20	12.30	30
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	6	30.00	29.76	0.00	0.00	30
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							271.83	271.68	152.32	166.27	350
OVERALL RANKING OF OPTIONS							1	2	4	3	
% on Engineering (factors f1 to f6)		21.4%									
% on Environmental (factors f7 to f15)		47.1%									
% on Marine (factor f16)		4.3%									
% on Land (factor f17)		1.4%									
% on Programme (factor f18)		8.6%									
% on Cost (factor f19)		8.6%									
% on Public perception (factor f20)		4.3%									
% on HSK NDA (factor f21)		4.3%									
SUM		100.0%									

Sensitivity Test No. 11

SCORE TABLE		Score				Weight Set 11	Weighted Score					
		Alignment options					Alignment options					
		A	B	C	D		A	B	C	D	max.	
f1	Highway alignment											
	(1) Horizontal alignment	5.00	4.97	3.38	3.53							
	(2) Vertical alignment	4.51	5.00	3.58	3.36							
	f1 total score =	4.75	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15	
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5	
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5	
f4	Construction practicability											
	(1) Degree of temporary works	3.00	3.00	3.00	3.00							
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00							
	(3) Additional land during construction	3.00	3.00	1.00	5.00							
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00							
	f4 total score =	4.00	4.00	2.50	3.00	6	24.00	24.00	15.00	18.00	30	
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5	
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15	
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15	
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15	
f9	Water quality impact	4.00	4.00	1.00	2.00	6	24.00	24.00	6.00	12.00	30	
f10	Ecology impact											
	(1) Intertidal impacts	3.00	3.00	2.50	2.00							
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50							
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00							
	f10 total score =	3.10	3.00	2.20	2.05	6	18.60	18.00	13.20	12.30	30	
f11	Fisheries impact											
	(1) Capture fisheries	2.50	2.50	3.00	5.00							
	(2) Oyster culture	2.50	2.50	3.00	5.00							
	(3) Pond fisheries	5.00	5.00	2.00	1.00							
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15	
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15	
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15	
f14	Hazard to life											
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00							
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00							
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30	
f15	Landscape and visual impact											
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00							
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00							
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00							
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15	
f16	Marine impact											
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00							
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00							
	(3) Disruption during construction	2.00	2.00	3.00	4.00							
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00							
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00							
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15	
f17	Land use impact											
	(1) Effect on existing land use	3.00	3.00	1.00	4.00							
	(2) Effect on planned land use	5.00	5.00	5.00	5.00							
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00							
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5	
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30	
f19	Cost	5.00	4.96	0.00	0.00	6	30.00	29.76	0.00	0.00	30	
f20	Public perception											
	(1) Environmental groups	2.00	2.00	2.00	4.00							
	(2) Local residents	4.00	4.00	1.00	1.00							
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15	
f21	HSK NDA											
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00							
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00							
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15	
TOTAL WEIGHTED SCORE							283.83	283.68	155.32	172.27	365	
OVERALL RANKING OF OPTIONS							1	2	4	3		
% on Engineering (factors f1 to f6)							20.5%					
% on Environmental (factors f7 to f15)							49.3%					
% on Marine (factor f16)							4.1%					
% on Land (factor f17)							1.4%					
% on Programme (factor f18)							8.2%					
% on Cost (factor f19)							8.2%					
% on Public perception (factor f20)							4.1%					
% on HSK NDA (factor f21)							4.1%					
SUM							100.0%					

Sensitivity Test No. 12

SCORE TABLE		Score				Weight Set 12	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	3	12.00	12.00	7.50	9.00	15
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	3	12.00	12.00	3.00	6.00	15
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	6	18.60	18.00	13.20	12.30	30
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist. views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.95	0.00	0.00	6	30.00	29.76	0.00	0.00	30
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							259.83	259.68	144.82	157.27	335
OVERALL RANKING OF OPTIONS							1	2	4	3	
% on Engineering (factors f1 to f6)		17.9%									
% on Environmental (factors f7 to f15)		49.3%									
% on Marine (factor f16)		4.5%									
% on Land (factor f17)		1.5%									
% on Programme (factor f18)		9.0%									
% on Cost (factor f19)		9.0%									
% on Public perception (factor f20)		4.5%									
% on HSK NDA (factor f21)		4.5%									
SUM		100.0%									

Sensitivity Test No. 13

SCORE TABLE		Score				Weight Set 13	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	3	12.00	12.00	7.50	9.00	15
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	6	24.00	24.00	6.00	12.00	30
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	3	9.30	9.00	6.60	6.15	15
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	6	30.00	29.76	0.00	0.00	30
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							262.53	262.68	141.22	157.12	335
OVERALL RANKING OF OPTIONS							2	1	4	3	
% on Engineering (factors f1 to f6)		17.9%									
% on Environmental (factors f7 to f15)		49.3%									
% on Marine (factor f16)		4.5%									
% on Land (factor f17)		1.5%									
% on Programme (factor f18)		9.0%									
% on Cost (factor f19)		9.0%									
% on Public perception (factor f20)		4.5%									
% on HSK NDA (factor f21)		4.5%									
SUM		100.0%									

Sensitivity Test No. 14

SCORE TABLE		Score				Weight Set 14	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	3	12.00	12.00	7.50	9.00	15
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	6	24.00	24.00	6.00	12.00	30
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	6	18.60	18.00	13.20	12.30	30
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	3	15.00	14.88	0.00	0.00	15
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							256.83	256.80	147.82	163.27	335
OVERALL RANKING OF OPTIONS							1	2	4	3	
% on Engineering (factors f1 to f6)							17.9%				
% on Environmental (factors f7 to f15)							53.7%				
% on Marine (factor f16)							4.5%				
% on Land (factor f17)							1.5%				
% on Programme (factor f18)							9.0%				
% on Cost (factor f19)							4.5%				
% on Public perception (factor f20)							4.5%				
% on HSK NDA (factor f21)							4.5%				
SUM							100.0%				

Sensitivity Test No. 15

SCORE TABLE		Score				Weight Set 15	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	3	12.00	12.00	7.50	9.00	15
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f9	Water quality impact	4.00	4.00	1.00	2.00	6	24.00	24.00	6.00	12.00	30
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	6	18.60	18.00	13.20	12.30	30
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.80	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	6	30.00	29.76	0.00	0.00	30
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							271.83	271.68	147.82	163.27	350
OVERALL RANKING OF OPTIONS							1	2	4	3	
% on Engineering (factors f1 to f6)							17.1%				
% on Environmental (factors f7 to f15)							51.4%				
% on Marine (factor f16)							4.3%				
% on Land (factor f17)							1.4%				
% on Programme (factor f18)							8.6%				
% on Cost (factor f19)							8.6%				
% on Public perception (factor f20)							4.3%				
% on HSK NDA (factor f21)							4.3%				
SUM							100.0%				

Sensitivity Test No. 16

SCORE TABLE		Score				Weight Set 16	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	2.259	10.74	11.26	7.85	7.78	11.2941
f2	Drainage impact	5.00	5.00	2.00	4.00	0.753	3.76	3.76	1.51	3.01	3.76471
f3	Utilities impact	5.00	5.00	0.00	5.00	0.753	3.76	3.76	0.00	3.76	3.76471
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	4.518	18.07	18.07	11.29	13.55	22.5882
f5	Construction traffic management	4.00	4.00	4.00	3.00	0.753	3.01	3.01	3.01	2.26	3.76471
f6	Traffic Operation	4.00	4.00	2.00	2.00	2.259	9.04	9.04	4.52	4.52	11.2941
f7	Noise impact	4.00	4.00	3.00	5.00	3.840	15.36	15.36	11.52	19.20	19.2
f8	Air quality impact	3.00	3.00	2.00	2.00	3.840	11.52	11.52	7.68	7.68	19.2
f9	Water quality impact	4.00	4.00	1.00	2.00	3.840	15.36	15.36	3.84	7.68	19.2
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	3.840	11.90	11.52	8.45	7.87	19.2
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3.840	12.80	12.80	10.24	14.08	19.2
f12	Waste	5.00	5.00	3.00	3.00	3.840	19.20	19.20	11.52	11.52	19.2
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3.840	11.52	11.52	7.68	7.68	19.2
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	7.680	30.72	30.72	12.29	9.98	38.4
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3.840	8.96	8.96	7.68	11.52	19.2
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	2.259	5.87	5.87	6.78	9.04	11.2941
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	0.753	2.76	2.76	1.76	2.51	3.76471
f18	Programme	5.00	5.00	3.13	1.25	4.518	22.59	22.59	14.12	5.65	22.5882
f19	Cost	5.00	4.96	0.00	0.00	2.259	11.29	11.20	0.00	0.00	11.2941
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	2.259	6.78	6.78	3.39	5.65	11.2941
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	2.259	7.91	7.91	7.91	5.65	11.2941
TOTAL WEIGHTED SCORE							242.93	242.97	143.03	160.59	320
OVERALL RANKING OF OPTIONS							2	1	4	3	
% on Engineering (factors f1 to f6)		17.6%									
% on Environmental (factors f7 to f15)		60.0%									
% on Marine (factor f16)		3.5%									
% on Land (factor f17)		1.2%									
% on Programme (factor f18)		7.1%									
% on Cost (factor f19)		3.5%									
% on Public perception (factor f20)		3.5%									
% on HSK NDA (factor f21)		3.5%									
SUM		100.0%									

Sensitivity Test No. 17

SCORE TABLE		Score				Weight Set 17	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3.388	16.11	16.88	11.79	11.67	16.9412
f2	Drainage impact	5.00	5.00	2.00	4.00	1.129	5.65	5.65	2.26	4.52	5.64706
f3	Utilities impact	5.00	5.00	0.00	5.00	1.129	5.65	5.65	0.00	5.65	5.64706
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	6.776	27.11	27.11	16.94	20.33	33.8824
f5	Construction traffic management	4.00	4.00	4.00	3.00	1.129	4.52	4.52	4.52	3.39	5.64706
f6	Traffic Operation	4.00	4.00	2.00	2.00	3.388	13.55	13.55	6.78	6.78	16.9412
f7	Noise impact	4.00	4.00	3.00	5.00	2.560	10.24	10.24	7.68	12.80	12.8
f8	Air quality impact	3.00	3.00	2.00	2.00	2.560	7.68	7.68	5.12	5.12	12.8
f9	Water quality impact	4.00	4.00	1.00	2.00	2.560	10.24	10.24	2.56	5.12	12.8
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	2.560	7.94	7.68	5.63	5.25	12.8
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	2.560	8.53	8.53	6.83	9.39	12.8
f12	Waste	5.00	5.00	3.00	3.00	2.560	12.80	12.80	7.68	7.68	12.8
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	2.560	7.68	7.68	5.12	5.12	12.8
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	5.120	20.48	20.48	8.19	6.66	25.6
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist. views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	2.560	5.97	5.97	5.12	7.68	12.8
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3.388	8.81	8.81	10.16	13.55	16.9412
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1.129	4.14	4.14	2.64	3.76	5.64706
f18	Programme	5.00	5.00	3.13	1.25	6.776	33.88	33.88	21.18	8.47	33.8824
f19	Cost	5.00	4.96	0.00	0.00	3.388	16.94	16.81	0.00	0.00	16.9412
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3.388	10.18	10.16	5.08	8.47	16.9412
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3.388	11.86	11.86	11.86	8.47	16.9412
TOTAL WEIGHTED SCORE							249.94	250.32	147.14	159.87	320
OVERALL RANKING OF OPTIONS							2	1	4	3	
% on Engineering (factors f1 to f6)		26.5%									
% on Environmental (factors f7 to f15)		40.0%									
% on Marine (factor f16)		5.3%									
% on Land (factor f17)		1.8%									
% on Programme (factor f18)		10.6%									
% on Cost (factor f19)		5.3%									
% on Public perception (factor f20)		5.3%									
% on HSK NDA (factor f21)		5.3%									
SUM		100.0%									

Sensitivity Test No. 18

SCORE TABLE		Score				Weight Set 18	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	4.267	20.29	21.26	14.85	14.70	21.3333
f2	Drainage impact	5.00	5.00	2.00	4.00	1.422	7.11	7.11	2.84	5.69	7.11111
f3	Utilities impact	5.00	5.00	0.00	5.00	1.422	7.11	7.11	0.00	7.11	7.11111
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	8.533	34.13	34.13	21.33	25.60	42.6667
f5	Construction traffic management	4.00	4.00	4.00	3.00	1.422	5.69	5.69	5.69	4.27	7.11111
f6	Traffic Operation	4.00	4.00	2.00	2.00	4.267	17.07	17.07	8.53	8.53	21.3333
f7	Noise impact	4.00	4.00	3.00	5.00	2.076	8.30	8.30	6.23	10.38	10.3784
f8	Air quality impact	3.00	3.00	2.00	2.00	2.076	6.23	6.23	4.15	4.15	10.3784
f9	Water quality impact	4.00	4.00	1.00	2.00	2.076	8.30	8.30	2.08	4.15	10.3784
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	2.076	6.43	6.23	4.57	4.26	10.3784
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	2.076	6.92	6.92	5.54	7.61	10.3784
f12	Waste	5.00	5.00	3.00	3.00	2.076	10.38	10.38	6.23	6.23	10.3784
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	2.076	6.23	6.23	4.15	4.15	10.3784
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.80	1.30	4.151	16.61	16.61	6.64	5.40	20.7568
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist. views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	2.076	4.84	4.84	4.15	6.23	10.3784
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	2.076	5.40	5.40	6.23	8.30	10.3784
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	0.692	2.54	2.54	1.61	2.31	3.45946
f18	Programme	5.00	5.00	3.13	1.25	8.533	42.67	42.67	26.67	10.67	42.6667
f19	Cost	5.00	4.96	0.00	0.00	4.267	21.33	21.16	0.00	0.00	21.3333
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	2.076	6.23	6.23	3.11	5.19	10.3784
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	4.267	14.93	14.93	14.93	10.67	21.3333
TOTAL WEIGHTED SCORE							258.74	259.33	149.53	155.58	320
OVERALL RANKING OF OPTIONS							2	1	4	3	
% on Engineering (factors f1 to f6)		33.3%									
% on Environmental (factors f7 to f15)		32.4%									
% on Marine (factor f16)		3.2%									
% on Land (factor f17)		1.1%									
% on Programme (factor f18)		13.3%									
% on Cost (factor f19)		6.7%									
% on Public perception (factor f20)		3.2%									
% on HSK NDA (factor f21)		6.7%									
SUM		100.0%									
% on Eng+Cost+Prog+HSK NDA		80.0%									

Sensitivity Test No. 19

SCORE TABLE		Score				Weight Set 19	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	6	24.00	24.00	15.00	18.00	30
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	6	18.00	18.00	12.00	12.00	30
f9	Water quality impact	4.00	4.00	1.00	2.00	3	12.00	12.00	3.00	6.00	15
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	3	9.30	9.00	6.60	6.15	15
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist. views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	3	15.00	14.88	0.00	0.00	15
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE						256.53	256.80	151.72	166.12	335	
OVERALL RANKING OF OPTIONS						2	1	4	3		
% on Engineering (factors f1 to f6)						22.4%					
% on Environmental (factors f7 to f15)						49.3%					
% on Marine (factor f16)						4.5%					
% on Land (factor f17)						1.5%					
% on Programme (factor f18)						9.0%					
% on Cost (factor f19)						4.5%					
% on Public perception (factor f20)						4.5%					
% on HSK NDA (factor f21)						4.5%					
SUM						100.0%					

Sensitivity Test No. 20

SCORE TABLE		Score				Weight Set 20	Weighted Score				
		Alignment options					Alignment options				
		A	B	C	D		A	B	C	D	max.
f1	Highway alignment										
	(1) Horizontal alignment	5.00	4.97	3.38	3.53						
	(2) Vertical alignment	4.51	5.00	3.58	3.36						
	f1 total score =	4.76	4.98	3.48	3.44	3	14.27	14.95	10.44	10.33	15
f2	Drainage impact	5.00	5.00	2.00	4.00	1	5.00	5.00	2.00	4.00	5
f3	Utilities impact	5.00	5.00	0.00	5.00	1	5.00	5.00	0.00	5.00	5
f4	Construction practicability										
	(1) Degree of temporary works	3.00	3.00	3.00	3.00						
	(2) Special plants and specially trained skilled labour	5.00	5.00	3.00	3.00						
	(3) Additional land during construction	3.00	3.00	1.00	5.00						
	(4) Interfacing at both ends of the crossing	5.00	5.00	3.00	1.00						
	f4 total score =	4.00	4.00	2.50	3.00	6	24.00	24.00	15.00	18.00	30
f5	Construction traffic management	4.00	4.00	4.00	3.00	1	4.00	4.00	4.00	3.00	5
f6	Traffic Operation	4.00	4.00	2.00	2.00	3	12.00	12.00	6.00	6.00	15
f7	Noise impact	4.00	4.00	3.00	5.00	3	12.00	12.00	9.00	15.00	15
f8	Air quality impact	3.00	3.00	2.00	2.00	6	18.00	18.00	12.00	12.00	30
f9	Water quality impact	4.00	4.00	1.00	2.00	6	24.00	24.00	6.00	12.00	30
f10	Ecology impact										
	(1) Intertidal impacts	3.00	3.00	2.50	2.00						
	(2) Terrestrial impacts	3.00	3.00	1.50	1.50						
	(3) Sub-tidal impacts	3.50	3.00	2.50	3.00						
	f10 total score =	3.10	3.00	2.20	2.05	6	18.60	18.00	13.20	12.30	30
f11	Fisheries impact										
	(1) Capture fisheries	2.50	2.50	3.00	5.00						
	(2) Oyster culture	2.50	2.50	3.00	5.00						
	(3) Pond fisheries	5.00	5.00	2.00	1.00						
	f11 total score =	3.33	3.33	2.67	3.67	3	10.00	10.00	8.00	11.00	15
f12	Waste	5.00	5.00	3.00	3.00	3	15.00	15.00	9.00	9.00	15
f13	Cultural heritage impact	3.00	3.00	2.00	2.00	3	9.00	9.00	6.00	6.00	15
f14	Hazard to life										
	(1) Potential hazard during construction stage	4.00	4.00	3.00	2.00						
	(2) Potential hazard during operation stage	4.00	4.00	1.00	1.00						
	f14 total score =	4.00	4.00	1.60	1.30	6	24.00	24.00	9.60	7.80	30
f15	Landscape and visual impact										
	(1) Impact on existing landscape elements	3.00	3.00	1.00	2.00						
	(2) Impact on exist, views, visual amenity	1.00	1.00	2.00	3.00						
	(3) Potential for mitigation of impacts	3.00	3.00	3.00	4.00						
	f15 total score =	2.33	2.33	2.00	3.00	3	7.00	7.00	6.00	9.00	15
f16	Marine impact										
	(1) Loss of navigational water space	5.00	5.00	2.00	2.00						
	(2) Loss of anchorage space	0.00	0.00	2.00	5.00						
	(3) Disruption during construction	2.00	2.00	3.00	4.00						
	(4) Risk to marine traffic	3.00	3.00	4.00	4.00						
	(5) Risk of structure against ship collision	3.00	3.00	4.00	5.00						
	f16 total score =	2.60	2.60	3.00	4.00	3	7.80	7.80	9.00	12.00	15
f17	Land use impact										
	(1) Effect on existing land use	3.00	3.00	1.00	4.00						
	(2) Effect on planned land use	5.00	5.00	5.00	5.00						
	(3) Effect on future dev. potential of the asst. area	3.00	3.00	1.00	1.00						
	f17 total score =	3.67	3.67	2.33	3.33	1	3.67	3.67	2.33	3.33	5
f18	Programme	5.00	5.00	3.13	1.25	6	30.00	30.00	18.75	7.50	30
f19	Cost	5.00	4.96	0.00	0.00	3	15.00	14.88	0.00	0.00	15
f20	Public perception										
	(1) Environmental groups	2.00	2.00	2.00	4.00						
	(2) Local residents	4.00	4.00	1.00	1.00						
	f20 total score =	3.00	3.00	1.50	2.50	3	9.00	9.00	4.50	7.50	15
f21	HSK NDA										
	(1) Connectivity via DBL to HSK NDA	4.00	4.00	4.00	2.00						
	(2) Impact to HSK NDA	3.00	3.00	3.00	3.00						
	f21 total score =	3.50	3.50	3.50	2.50	3	10.50	10.50	10.50	7.50	15
TOTAL WEIGHTED SCORE							277.83	277.80	161.32	178.27	365
OVERALL RANKING OF OPTIONS							1	2	4	3	
% on Engineering (factors f1 to f6)		20.5%									
% on Environmental (factors f7 to f15)		53.4%									
% on Marine (factor f16)		4.1%									
% on Land (factor f17)		1.4%									
% on Programme (factor f18)		8.2%									
% on Cost (factor f19)		4.1%									
% on Public perception (factor f20)		4.1%									
% on HSK NDA (factor f21)		4.1%									
SUM		100.0%									