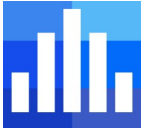


Risk ID		Risk description		Risk status	Risk owner (Customer, contractor, consultant, etc)	Response Action			Qualitative Ranking (After Response Action)						Data for Quantitative Analysis				Assumptions (for cost and time basis)
		Source of risk	Consequence on project			Existing safeguards in place	Action	Action owner	Residual probability (%)	Probability scale	Cost impact	Time impact	Cost+time impact	Priority	Least cost (£)	Most likely cost (£)	Max cost (£)	MEV (£)	
1	PROCUREMENT RISKS	Delays in submission/approval of planning application	Delay in programme	Live	Customer	Informal preapplication discussion during OBC	Pre-app early during design development, public engagement and consultation planned	Client	20%	L	L	H	H	M	£14,000	£244,000	£487,000	£48,800	Least cost - 2 weeks delays (£7,000/week plus) Most likely cost - 3 months delays (£7,000/week plus 5% construction cost increase per year) Max. cost - 6 months delays (£7,000/week plus 5% construction cost increase per year)
2		Design or method change triggers need for new approval (e.g. climate change allowance guidance subject to revision)	Increase costs and programme to address approval	Expired	Consultant	Outline design follows current NRW/WG guidance		Consultant	30%	L	M	M	M	M				£0	Least cost - 2 month delays (£7,000/week plus 5% construction cost increase per year) Most likely cost - 4 months delays (£7,000/week plus 5% construction cost increase per year) Max. cost - 6 months delays (£7,000/week plus 5% construction cost increase per year)
3		Discharge of planning conditions	Additional mitigation work (and associated design) requirements	Live	Customer	Informal preapplication discussion during OBC	Pre-app early during design development, public engagement and consultation planned	Client	30%	L	M	VH	VH	H	£163,000	£325,000	£487,000	£97,500	Least cost - 2 month delays (£7,000/week plus 5% construction cost increase per year) Most likely cost - 4 months delays (£7,000/week plus 5% construction cost increase per year) Max. cost - 6 months delays (£7,000/week plus 5% construction cost increase per year)
4		Marine licence approval conditions/ requirements	Potential re-design, programme delays and additional costs	Live	Customer	Keep NRW informed	Arrange meeting with NRW	Client	50%	M	M	VH	VH	H	£82,000	£487,000	£973,000	£243,500	Least cost -1 month delays (£7,000/week plus 5% construction cost increase per year) Most likely cost -6 months delays (£7,000/week plus 5% construction cost increase per year) Max. cost - 12 months delays (£7,000/week plus 5% construction cost increase per year)
5		Late contractor involvement in design	May lead to redesign or problems during construction	Expired	Consultant	Contractor already involved	Client procurement to allow for ECI	Client	10%	VL	M	VH	VH	H				£0	Least cost - 2 month delays (£7,000/week plus 5% construction cost increase per year) Most likely cost - 6 months delays (£7,000/week plus 5% construction cost increase per year) Max. cost - 12 months delays (£7,000/week plus 5% construction cost increase per year)
6	PROJECT-SPECIFIC RISKS	For Project Specific Design Assumptions Please refer to OBC Appendix J: Risks and Assumptions Register																	
7		Significant flood or erosion event occurs in advance of FBC completion.	Increased interest/programme acceleration. Remedial works to stabilise/reinstate/recover. Potential change of scope and design.	Live	Customer	Separate funding provided on reactive basis		Client	10%	VL	L	VH	VH	H	£118,000	£177,000	£353,000	£17,700	Least cost - 4 month work delays before construction (£7,000/week) Most likely cost - 6 month work delays before construction (£7,000/week) Max. cost - 12 month work delays before construction (£7,000/week)
8		Ground and structural conditions are worse than assumed.	Increased costs and delay to programme	Live	Consultant	No site investigation was completed as part of Outline Business Case	GI to include inspection proving as-built arrangement (information incomplete, including toe detail) and UXO detailed assessment	Client	30%	L	H	VH	VH	H	£0	£720,000	£1,180,000	£216,000	Least cost - No changes Most likely cost - 4 month work delays before construction (£7,000/week) + the cost of breaking out the entire promenade and fill with granular material and increase length of the sheet pile toe on the entire promenade Max. cost - 6 month work delays before construction (£7,000/week)+ the cost of breaking out the entire promenade and fill with granular material and increase the length of the sheet pile toe on the entire promenade
9		Detailed design consideration of impact on adjacent structures (properties, infrastructure, planned developments)	Increases construction cost and extends programme. Constraint on work methods most likely. Constraint worst case could require design change (unlikely).	Live	Consultant	OBC considers wider flood cell and implications on adjacent policy units	Further assessment required during detailed design, including interface with adjacent policy units	Consultant	25%	L	M	L	M	M	£0	£402,000	£702,000	£100,500	Least cost - not changes to the secondary (alternative primary) wall height Most likely cost - the cost of increasing the height of the secondary wall by 0.5m + 2 weeks programme delays £50,000/week Max. cost - the cost of increasing the height of the secondary wall by 1.0m + 4 weeks programme delays £50,000/week
10		Seasonal restrictions on works.	Potential constraints and delays to programme in order to manage public relations	Live	Contractor	Non-summer working considered in outline design costing	YGC to consider constraints	Contractor	70%	H	M	VH	VH	H	£100,000	£350,000	£3,600,000	£245,000	Highly likely that programme will be extended through constraints to minimise impact on tourism Least likely cost: Most likely cost: allowance for stock piling 1 year in advance of commencing construction works Max. cost: allowance for bringing beach material by sea 150000t @ £24/t
11		Uncertainty in stability of temporary works in coastal ground conditions	Additional costs and delays with works	Live	Contractor	Desk study but no ground investigations undertaken to date	Survey to inform detailed design	Consultant	60%	H	L	L	L	M	£100,000	£250,000	£300,000	£150,000	Assumes GI completed during design development Least likely cost: Most likely cost: allowance for 500lm of a piling mat/ crane track Max. cost:
12		No known service interfaces. Delays by statutory undertakers to identify, provide quotations for, and implement diversion/protection of utilities.	Potential increased costs and delay to programme	Live	Consultant	Screening statutory service information completed.	Liaison with utility providers at detailed design	Consultant	10%	L	VL	L	L	L	£14,000	£64,000	£278,000	£6,400	Least cost - 1 week work delays during construction (£7,000/week) no change in construction cost Most likely cost - 2 weeks work delays during construction (£7,000/week) + plus £50,000 construction cost Max. cost - 4 weeks work delays during construction (£7,000/week+ £250,000 construction cost
13		Outfall - delays to identify, provide quotations for, and implement diversion/protection of utilities.	Potential increased costs and delay to programme	Live	Customer		GI to consider proving undertaker records	Consultant	50%	M	L	L	L	L	£50,000	£100,000	£500,000	£50,000	Most likely cost - allowance for protection of exposed outfall Max. cost - allowance for replacing exposed section and for diverting any unknown service
14		Damage to adjacent infrastructure/property during construction	Potential increased costs and delay to programme	Live	Contractor	Limited adjacent properties	Full planning as part of Early Contractor Involvement and on-going engagement with community	Contractor	50%	M	M	M	M	M	£50,000	£500,000	£1,000,000	£250,000	Most likely cost - £500k for level crossing repairs Max. cost - Repairs to 1.5km of highway and level crossing repairs
15		Unknown construction details of existing defences	Changes to design increasing construction cost/programme	Live	Consultant	All assumptions and risks clearly recorded in a register	Undertake structural investigation.	Client	75%	VH	L	M	M	H	£61,000	£92,000	£183,000	£69,000	Least cost - 1 month work delays during construction (£7,000/week) + 0.25% construction cost Most likely cost - 1 month work delays during construction (£7,000/week) + 0.5% construction cost Max. cost - 2 month work delays during construction (£7,000/week)+ 1% construction cost
16		Results from physical modelling are not delivered on time and the assumed wave loading or overtopping rates are underestimated.	Changes to design increasing construction cost and programme delays	Live	Consultant	All assumptions and risks clearly recorded in a register	Undertake physical coastal modelling before undertaken full detailed design	Client	60%	H	L	M	M	M	£92,000	£154,000	£431,000	£92,400	Least cost - 1 month work delays before construction (£7,000/week) + 0.5% construction cost Most likely cost - 1 month work delays before construction (£7,000/week) + 1% construction cost Max. cost - 2 month work delays before construction (£7,000/week)+ 3% construction cost
17		Uncertainty in model predictions due to limited validation data to confirm transport rates	Potential for greater losses and increased maintenance costs	Live	Consultant	Model sensitivity testing undertaken	Undertake additional analysis of shingle beach mobility to the north of North promenade with new available data and revisit model testing	Consultant	25%	L	L	H	H	M	£100,000	£200,000	£300,000	£50,000	Least cost- 2 maintenance campaigns in 50 years Most likely cost- 3 maintenance campaigns in 50years Max. cost- 4 maintenance campaigns in 50 years
18		Material used in scheme design does not match the material modelled	Beach volatility and loss from frontage will be different to that predicted	Live	Consultant	Modelled different sediment sizes in liaison with lead consultant	Review suppliers / quarries as soon as possible	Consultant	10%	VL	L	H	H	M	£100,000	£200,000	£300,000	£20,000	Least cost- 2 maintenance campaigns in 50 years Most likely cost- 3 maintenance campaigns in 50years Max. cost- 4 maintenance campaigns in 50 years
19		Shingle berm of nourished material likely to be raised and pushed back over hard defence by wave action. Natural berm crest may become higher than primary wall.	Increased maintenance costs, public access / aesthetics	Live	Consultant		Maintenance programme would need to account for material having to be returned to the beach	consultant	50%	M	L	M	M	M	£198,000	£237,000	£447,000	£118,500	Least cost - Increased maintenance budget by 25% Most likely - Increased maintenance budget by 50% Max Cost - demolition of primary wall and installing a higher secondary wall by 450mm (from 5.8mOD to 6.25mOD)
20		Transport of shingle/cobbles from nourished beach to the south could lead to changes in the sediment characteristics of the amenity beach off South Promenade. [YGC risk, this is not a project risk]	Reduced amenity value and local concerns	Expired	Consultant	Analysis of modelling results wrt coastal processes. Conservative modelling assumptions wrt wave direction	Monitoring programme	Consultant	25%	L	M	L	M	M					Least cost: further monitoring Most likely cost: further monitoring + reactive maintenance Max. cost: further monitoring + upper bound cost of terminal groyne

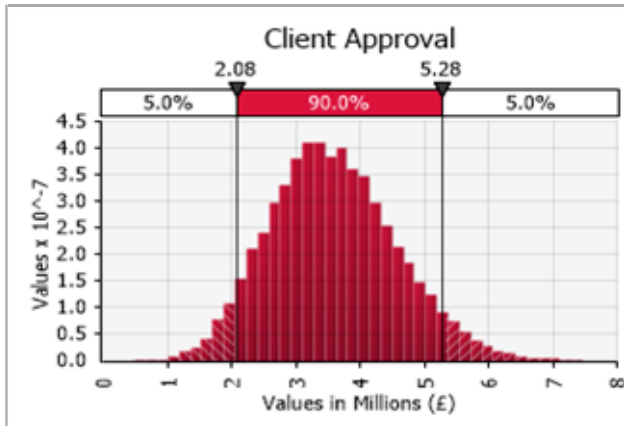
Risk ID		Risk description		Risk status	Risk owner (Customer, contractor, consultant, etc)	Response Action			Qualitative Ranking (After Response Action)						Data for Quantitative Analysis				Assumptions (for cost and time basis)
		Source of risk	Consequence on project			Existing safeguards in place	Action	Action owner	Residual probability (%)	Probability scale	Cost impact	Time impact	Cost+time impact	Priority	Least cost (£)	Most likely cost (£)	Max cost (£)	MEV (£)	
21		Loss of material exposed seawall to undermining / damage [YGC risk, this is not a project risk]	Cost and maintenance requirements	Expired	Consultant	Model different scenarios to inform decision	Monitoring programme	Consultant	15%	L	H	M	H	M					
22		Opportunity: alterations to proposals at detailed design stage which achieve objectives in more efficient design.	Reduced use of materials and associated costs	Live	Consultant	Identified in outline design development and overtopping analysis	To be considered in detailed design stage: further modelling to inform design crest level of proposed works, opportunity to reduce requirement for secondary wall through use of drainage system	Consultant	75%	VH	L	L	L	M				£0	Opportunity to consider during design development.
23	CLIENT-SPECIFIC RISKS	Pre-planning consultation risk [Covered in Risk 3 above]	Changes to design increasing construction cost/programme	Expired	Customer	One public drop-in meeting has been held. Further discussions with NRW, Network Rail and Local Councillors are on-going	Further public and landowner engagement to be undertaken	Client	40%	M	M	M	M	M				£0	
24		Failing to reach 85% funding	Delay in construction	Live	Customer	(See Commercial & Financial Case section of OBC)	Engagement with Welsh Government	Client	15%	L	M	VH	VH	H	£0	£310,000	£620,000	£46,500	most likely - 6months max. - 12months
25		Delay in or failure to identify 15% for funding	Delay in construction or abandoned project.	Expired	Customer	(See Commercial & Financial Case section of OBC)	YGC to identify funding sources	Client	20%	L	M	M	M	M				£0	
26		Availability and capacity of key staff	Delays, potential impact on workforce and public as result of inappropriate project activities	Live	Customer	Involvement of relevant YGC staff from early stage		Client	20%	L	VL	M	M	M	£10,000	£20,000	£30,000	£4,000	Most likely - delays to response to consultant requests (and construction)
27	ENVIRONMENT RISKS	Scheme creates public interest requiring management	Additional costs	Live	Customer	Public consultations undertaken during initial design	On-going public consultations recommended at detailed design	Client	80%	VH	VL	M	M	H	£0	£50,000	£100,000	£40,000	Most likely cost- PI and an office on the prom for 1year Max. cost- PLO for 2years
28		Environmental impact	Increased costs and delay to programme due to mitigation of environmental impacts, or non-viability of scheme in worst case	Live	Consultant	Environmental screening process, HRA and PIER	Progress actions identified from screening process as part of obtaining necessary approvals and consents	Consultant	10%	VL	M	VH	VH	H	£0	£310,000	£620,000	£31,000	Most likely cost- 6months delays cost Max. cost- 12 months delays cost
29		Ecological survey identifies presence of protected species	Additional surveys, design delay, consenting works/delay, mitigation amendments. Requires licence application, resulting in potential alteration to methods.	Live	Consultant	*(none identified by initial environmental screening)	Review environmental screenings, recommend appropriate further survey as required.	Consultant	10%	VL	M	VH	VH	H	£0	£310,000	£620,000	£31,000	Most likely cost- 6months delays cost Max. cost- 12months delays cost
30		Unknown archaeology encountered during construction	Additional costs and delays with works reprogrammed whilst further investigation and mitigation undertaken.	Live	Consultant	*(none identified by initial environmental screening)	Review environmental screenings, recommend appropriate further survey as required.	Consultant	10%	VL	L	M	M	L	£0	£250,000	£500,000	£25,000	Most likely cost- 5week delays £50,000/week Max. cost- 10week delays £50,000/week
31		Contaminated ground identified on site, requiring removal	Increased costs to deal with or dispose of material where necessary	Live	Contractor	Geotechnical desk study recommends ground investigations to inform detailed design and construction	Pending site investigations	Contractor	60%	H	H	M	H	H	£0	£550,000	£900,000	£330,000	Most likely cost- Assume 500m3 and 4 weeks delays £50,000/week Max. cost-
32		Physical conditions beyond what can be reasonably assumed	Increase costs and delay	Live	Customer		Site investigation planned during design development	Consultant	20%	L	L	L	L	L	£0	£100,000	£200,000	£20,000	Most likely cost- 2weeks delays £50,000/week Max. cost- 4week delays £50,000/week
33	RISKS FROM EXTERNAL INFLUENCES	Variability in material costs	Increase aggregate costs to scheme	Live	Customer			Client	90%	VH	M	VH	VH	H	£414,000	£621,000	£828,000	£558,900	Least cost- 10% increase based on £4.1m of aggregates Most likely cost- 15% increase based on £4.1m of aggregates Max. cost- 20% increase based on £4.1m of aggregates
34		Variability in material costs	Increase steel cost to scheme	Live	Customer			Client	75%	VH	L	VH	VH	H	£102,880	£257,201	£514,402	£192,901	Least cost- 10% increase based on £1.02m of steel Most likely cost- 25% increase based on £1.02m of Steel Max. cost- 50% increase based on £1.02m of Steel
35		Weather Events (below 1:10)	Increase scheme cost and delay	Live	Contractor		Insurable event	Contractor	10%	VL	L	L	L	L	£70,000	£100,000	£150,000	£10,000	Allows for client cost, contractor to be included in their rates
36		Weather Events (above 1:10)	Increase scheme cost and delay	Live	Customer			Client	5%	VL	L	L	L	L	£0	£200,000	£300,000	£10,000	Most likely cost- 2week down time plus 2 week doing repairs Max. cost- 2week down time plus 4 week doing repairs
37		Project sensitivity to legislation and regulation changes	Additional costs, potential delays to programme	Live	Customer			Client	90%	VH	L	H	H	H	£142,755	£214,133	£285,510	£192,719	Timeframe of UK exit from EU and corresponding changes in legislation may affect project
38		Covid-19	Increase in construction costs for safe procedures	Live	Customer		Allow for extra cost in budget	Consultant	50%	M	L	L	L	L	£0	£270,000	£945,000	£135,000	Least cost- Most likely cost- additional welfare and transport over contract Max. cost- additional welfare and transport over contract and decrease in efficiency

MEV	£3,402,320
50%tile	£3,531,498
95%tile	£5,284,408



Client Approval - '4 - Risk Register'!AR60

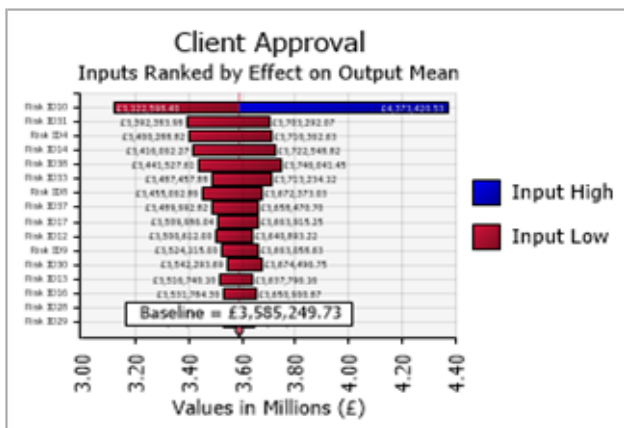
Report: Compact Output Report
Performed By: Seyi.Daniyan
Date: 14 May 2021



Summary Statistics	
Statistic	Value
Minimum	£ 489,491.15
Maximum	£ 7,465,397.43
Mean	£ 3,585,249.73
Std. Deviation	£ 973,653.32
Variance	9.480E+011
Skewness	0.2971
Kurtosis	2.9630
Median	£ 3,531,498.31
Mode	£ 3,248,523.94
Left X	£ 2,075,641.16
Left P	5%
Right X	£ 5,284,407.75
Right P	95%



Percentiles	
Percentile	Value
1%	£ 1,580,791.94
2.5%	£ 1,842,589.23
5%	£ 2,075,641.16
10%	£ 2,363,338.87
20%	£ 2,744,572.64
25%	£ 2,896,381.92
50%	£ 3,531,498.31
75%	£ 4,215,734.57
80%	£ 4,393,444.12
90%	£ 4,888,425.40
95%	£ 5,284,407.75
97.5%	£ 5,630,205.91
99%	£ 6,036,898.81



Change in Output			
Rank	Name	Lower	Upper
1	Risk ID10	£ 3,122,598.40	£ 4,373,420.53
2	Risk ID31	£ 3,392,383.98	£ 3,703,292.07
3	Risk ID4	£ 3,400,288.82	£ 3,710,362.63
4	Risk ID14	£ 3,416,062.27	£ 3,722,548.82
5	Risk ID38	£ 3,441,527.61	£ 3,746,041.45
6	Risk ID33	£ 3,487,457.88	£ 3,713,234.12
7	Risk ID8	£ 3,455,062.86	£ 3,672,373.03
8	Risk ID37	£ 3,489,992.82	£ 3,658,470.70
9	Risk ID17	£ 3,509,986.04	£ 3,663,915.25
10	Risk ID12	£ 3,500,612.00	£ 3,640,893.22
11	Risk ID9	£ 3,524,115.00	£ 3,663,058.63
12	Risk ID30	£ 3,542,293.69	£ 3,674,496.75
13	Risk ID13	£ 3,516,740.10	£ 3,637,796.16