on threshold ranges set on Sheet 3 (Prioritisation)

	Probability	Cost	Time
VL	0 to 10%	£0k to £38.685k	0 to 0 wks
L	11 to 30%	£39.685k to £154.74k	0 to 2 wks
M	31 to 50%	£155.74k to £386.85k	2 to 4 wks
H	51 to 70%	£387.85k to £773.7k	4 to 8 wks
VH	71 to 100%	£774.7k to £~k	8 to ~ wks

on threshold ranges set on Sheet 3 (Prioritisation)

	Probability	Cost	Time
VL	0 to 10%	£0k to £38.685k	0 to 0 wks
L	11 to 30%	9.685k to £154.7	0 to 2 wks
M	31 to 50%	55.74k to £386.8	2 to 4 wks
H	51 to 70%	387.85k to £773.7	4 to 8 wks
VH	71 to 100%	£774.7k to £~k	8 to ~ wks

Risk ID	Target completion	Risk description: Source of risk	Risk description: Consequence on project	Risk status	Risk owner (Customer, contractor, consultant, etc)	Lesson learnt	Qualitative ranking (before response action): Probability scale	Cost impact	Time impact	Risk priority	Existing safeguards in place	Response Action: Response strategy	Action	Cost of mitigation (£)	Action owner	Completion date	Qualitative Ranking (After Response Action): Residual probability (%)	Probability scale	Cost impact	Time impact	Priority
1	Post PAR	Volume of excavated material exceeds the usable capacity at Raithwaite Gill - requiring landfill disposal.	Increased costs	Live	Customer		H	VH	M	H	Topographic survey of upper slopes and Raithwaite Gill have been carried out.	Extent of fill and profile is to some extent flexible and the design can accommodate more fill at Raithwaite Gill. Possible that some bulking or additional failed material will need to be moved.	Designers to consider increasing slope angle to maximum (say 24 or 25 degrees) to reduce volume of material to be removed.	£0	Designer	tbc	75%	M	M	L	M
2	Post PAR	Tidal erosion of temporary haul road on beach results in additional imported sand costs and potential need for rock armour placement of seaward side.	Increased costs and possible programme delay.	Live	Customer		H	M	M	M	It has been assumed that Vehicle access on the beach will be required for all aspects of the revetment construction and that protection of the underlying bedrock is required. A cost allowance of £700k has been included for a temporary haul road.	Timing of construction works to minimise risk of storm damage. Contractor to design works and develop methodology for avoiding tracking on the beach and look into options for placing revetments from the highway.	Consideration of the use of rock for Raithwaite Gill to line the seaward face of the access track should be considered. Designer and Contractor to consider ways in which the need for a haul road can be reduced or eliminated through construction methodology.	£0	Designer / Contractor	tbc	100%	M	M	L	M
3	Post PAR	Objections from consultees to proposed options.	Increased costs and programme delays	Live	Customer		M	M	M	M	The proposed solution replaces an existing concrete revetment and provides better access - limited objections to the scheme are anticipated. Public consultation has taken place during the StAR process and no objections or comments were received.	Formal consultation process with residents and local businesses to be undertaken during the design phase and to continue into the construction phase.	Set up Stakeholder group and provide a newsletter (or similar) in addition to regular meetings and ongoing consultation.	£0	Client	tbc	10%	L	L	L	L
4	Post PAR	Substantial expansion of the scope of archaeological/heritage input may be required post PAR	Increased costs and programme delays	Live	Customer		L	L	L	L	English Heritage have been consulted during the PAR stage and their requirements in terms of logging the Defence of Britton site(s) is understood.	Watching Brief will be required for slope trimming works and has been included in the costs.		£10	Client	tbc	100%	VH	VL	VL	L
5	Pre PAR	Topo information used in design may be inaccurate or volume assessments may be incorrect leading to increase in scope	Legal costs as NYCC will seek recourse to designers / survey firm and their insurers	Live	Customer		VL	H	M	M	Common sense check on volume was carried out to verify volume calculation figures derived by CAD.	Amount of fill that can be accommodated at Raithwaite Gill is greater than the estimated cut volume from the upper slopes, leaving some flexibility in terms of potential fill volume available.					10%	VL	M	L	L
6	Post PAR	Further instability of upper slope occurs prior to or during construction.	Design change required.	Live	Customer		M	M	VH	H	The upper slope design is relatively flexible and further slippage will not significantly impact on the required design.						75%	L	M	M	M
7	Post PAR	UXO discovered on site during works potentially leading to survey requirements	Additional cost and programme implications	Live	Customer		L	L	H	M	Beach levels vary, often exposing the bed rock - therefore limited risk on foreshore but possible risk on upper slopes.	Include a UXO survey as part of the design stage process / costs.					10%	L	L	H	M
8	Post PAR	SI information used in design found to be incorrect during construction	Legal costs as NYCC will seek recourse to SI firm and their insurers. Also delay in programme as may need to revise design and/or do more SI	Live	Customer		VL	M	H	M	SI carried out at key areas of the site to ensure that appropriate information has been obtained. Designs take into account ground conditions. SI works have been supervised by RH.	Detailed design to take account of potential variability of ground conditions and the geological nature of the deposits and bedrock.					10%	VL	L	M	L
9	Post PAR	Haulage of materials to beach results in loss of revenue and vibration damage to the Beach Café and adjacent slipway.	Additional costs for compensation and repairs to slipway area.	Live	Customer		L	M	L	M	Property is set back from the road and slipway reducing potential risk of damage.	Contractor to consider ways in which the impact can be further reduced in terms of speed restrictions and timing of the works.					30%	VL	L	L	L
10	Post PAR	Unanticipated Services uncovered in the highway, footpath and existing revetment.	Additional costs and programme delays.	Live	Customer		M	M	H	H	Service information has been reviewed and design incorporates continuity of outfalls. Limited extent of works in highway other than manhole and new outfall pipe - location of which is flexible.	Detailed design to select most appropriate location for manhole and pipe crossing based on identifed services.					50%	M	L	L	L
11	Post PAR	Unanticipated changes in principal material costs; concrete, steel, rock.	Additional costs over and above inflation allowance.	Live	Customer		VL	L	L	L		Early ordering of materials may result in agreed held prices. There is no guarantee that this arrangement will be possible and therefore no reduction in risk has been applied.					25%	VL	L	L	L
12	Post PAR	Weather and tide delays	Extended programme and cost	Live	Contractor		H	VH	VH	H	ECI stage input from Birse indicates that 18 month programme is a reasonable estimate. Most works are above MHWS and therefore tidal working restrictions are reduced.		Designer and Contractor to consider methodologies for carrying out works from the Highway and not the beach, thereby reducing standing time due to tidal conditions. Client to consider contractual arrangements for tidal/weather risk i.e. making this the Contractor's risk when appropriate.				25%	M	H	H	H
13	Post PAR	Accessibility to carry out slope trimming works is more complex than anticipated.	Additional costs incurred through temporary works requirements and complex working practices for safety purposes. Possible road closures as opposed to traffic management.	Live	Customer		L	VH	VH	H	Similar works have been carried out either side of the study area without incident. NYCC highways engineers have been involved in assessment and consultation process.	ECI stage contractor to assess working method and consider safety of construction activities and safety of highway users.					60%	VL	L	L	L
14	Post PAR	Access from farmland above upper slope is not permitted.	Additional costs incurred through either further negotiation and compensation or else complex access arrangements.	Live	Customer		L	L	H	M	Farmer has been consulted during GI works and is aware of proposed works.	Consultation with farmer and lan agent required througout design process.					60%	L	L	M	M
15	Post PAR	Under estimated compensation costs.	Additional costs.	Live	Customer		L	M	M	M		Consultation with affect residents and businesses to be carried out post PAR.					50%	L	L	L	L
16	Post PAR	Material beneath existing revetment is unsuitable for reuse as fill material.	Additional disposal costs and additional imported fill material costs.	Live	Customer		M	M	H	H	Outline design minimises amount of fillmaterial required.	Consider whether beach material can be used as fill material, or consider use of imported sand used for haul road as fill material - initial additional cost but no subsequent programme dealy.					75%	L	M	M	M
17		**Variations in Environment Agency staff inputs**								Data missing											Data missing
18		**Variation in inflation (Consultant)**								Data missing											Data missing
19		**Variation in inflation (Client)**								Data missing											Data missing
20		Variability in programme costs (if not already covered in individual risk costs)	Cost implication based on assessment of critical path risks to programme (time)		Consultant					Data missing							100%				Data missing
21		Variability in programme costs (if not already covered in individual risk costs)	Cost implication based on assessment of critical path risks to programme (time)		Customer					Data missing							100%				Data missing
R7-1	-	Employer's Risks as set down in Clause 80.1 of the NEC ECC Contract as amended by Clause Z23.			Customer					Data missing											Data missing
R7-2	-	Major flooding event			Customer					Data missing											Data missing
R7-3	-	Major scope change	Example may include change in panel engineer resulting in major changes to requirements		Customer					Data missing											Data missing
R7-4	-	Legislative change not anticipated			Customer					Data missing											Data missing
R7-5	-	Costs associated with major legal process / CPO or public enquiry	Potential pandemic outbreaks e.g. foot and mouth, avian flu etc.		Customer					Data missing											Data missing
R7-6	-	Programme/ budgetary changes introduced by Customer after agreement of PAR			Customer					Data missing											Data missing
R7-7	-	Other Exceptional Risks	Reservoir fails during the works, full upgrade of existing pathways to current standards		Customer					Data missing											Data missing

Risk ID	Data for Quantitative Analysis: Least cost (£)	Most likely cost (£)	Max cost (£)	MEV (£)	Risk occurs (Yes=1;No=0)	PERT	Cost value (£)	Mean Risk	Rank	Assumptions (for cost and time basis)	Risk Owners: Customer	Consultant	Contractor	Others	Others 1	Others 2	All risks
1	£155,740	£271,295	£386,850	£203,471	1	£260,408	£260,408	£201,854	3		£260,408	£0	£0	£0	£0	£0	£260,408
2	£155,740	£271,295	£386,850	£271,295	1	£324,604	£324,604	£271,591	1		£324,604	£0	£0	£0	£0	£0	£324,604
3	£39,685	£97,213	£154,740	£9,721	0	£70,567	£0	£9,612	15		£0	£0	£0	£0	£0	£0	£0
4	£0	£19,343	£38,685	£19,343	1	£28,174	£28,174	£19,407	13		£28,174	£0	£0	£0	£0	£0	£28,174
5	£155,740	£271,295	£386,850	£27,130	1	£320,634	£320,634	£25,575	11		£320,634	£0	£0	£0	£0	£0	£320,634
6	£155,740	£271,295	£386,850	£203,471	1	£256,931	£256,931	£201,412	4		£256,931	£0	£0	£0	£0	£0	£256,931
7	£39,685	£97,213	£154,740	£9,721	0	£111,290	£0	£9,518	16		£0	£0	£0	£0	£0	£0	£0
8	£39,685	£97,213	£154,740	£9,721	0	£84,571	£0	£9,772	14		£0	£0	£0	£0	£0	£0	£0
9	£39,685	£97,213	£154,740	£29,164	0	£123,452	£0	£29,273	10		£0	£0	£0	£0	£0	£0	£0
10	£39,685	£97,213	£154,740	£48,606	0	£71,426	£0	£49,144	8		£0	£0	£0	£0	£0	£0	£0
11	£39,685	£97,213	£154,740	£24,303	0	£106,133	£0	£23,409	12		£0	£0	£0	£0	£0	£0	£0
12	£387,850	£580,775	£773,700	£145,194	1	£615,391	£615,391	£145,315	5		£0	£0	£615,391	£0	£0	£0	£615,391
13	£39,685	£97,213	£154,740	£58,328	0	£77,176	£0	£58,907	6		£0	£0	£0	£0	£0	£0	£0
14	£39,685	£97,213	£154,740	£58,328	1	£92,954	£92,954	£58,737	7		£92,954	£0	£0	£0	£0	£0	£92,954
15	£39,685	£97,213	£154,740	£48,606	1	£107,906	£107,906	£48,686	9		£107,906	£0	£0	£0	£0	£0	£107,906
16	£155,740	£271,295	£386,850	£203,471	1	£242,960	£242,960	£204,383	2		£242,960	£0	£0	£0	£0	£0	£242,960
17				£0	Data missing	Data missing	Data missing	£0			Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	£0
18				£0	Data missing	Data missing	Data missing	£0			Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	£0
19				£0	Data missing	Data missing	Data missing	£0			Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	Identify Risk Owner	£0
20				£0	Data missing	Data missing	Data missing	£0		Cost element derived from 5th, 50th and 95th%ile of consultant time risks	£0	Data missing	£0	£0	£0	£0	
21				£0	Data missing	Data missing	Data missing	£0		Cost element derived from 5th, 50th and 95th%ile of project time risks	Data missing	£0	£0	£0	£0	£0	£0
R7-1				£0	Data missing	Data missing	Data missing	£0			Data missing	£0	£0	£0	£0	£0	£0
R7-2				£0	Data missing	Data missing	Data missing	£0			Data missing	£0	£0	£0	£0	£0	£0
R7-3				£0	Data missing	Data missing	Data missing	£0			Data missing	£0	£0	£0	£0	£0	£0
R7-4				£0	Data missing	Data missing	Data missing	£0			Data missing	£0	£0	£0	£0	£0	£0
R7-5				£0	Data missing	Data missing	Data missing	£0			Data missing	£0	£0	£0	£0	£0	£0
R7-6				£0	Data missing	Data missing	Data missing	£0			Data missing	£0	£0	£0	£0	£0	£0
R7-7				£0	Data missing	Data missing	Data missing	£0			Data missing	£0	£0	£0	£0	£0	£0

	MEV	Customer	Consultant	Contractor	Others	Others 1	Others 2	All risks
	£1,369,873							
@RiskSum (ignore these cells)		£1,634,571	£0	£615,391	£0	£0	£0	£2,249,962
50%tile (for individual supplier Incentivisation - Form A)		£1,229,992	£0	£0	£0	£0	£0	
50%tile (for Joint Supplier Incentivisation - Construction)								£1,332,444

Client Approval for Form A and Construction Phases	
@Risk Sum cell (ignore this cell)	£2,249,962
50%tile Client Approval Risk Budget	£1,332,444
95%tile Client Approval Risk Budget	£2,038,427

At the end of the simulation please produce @Risk output reports to identify the risk values to be