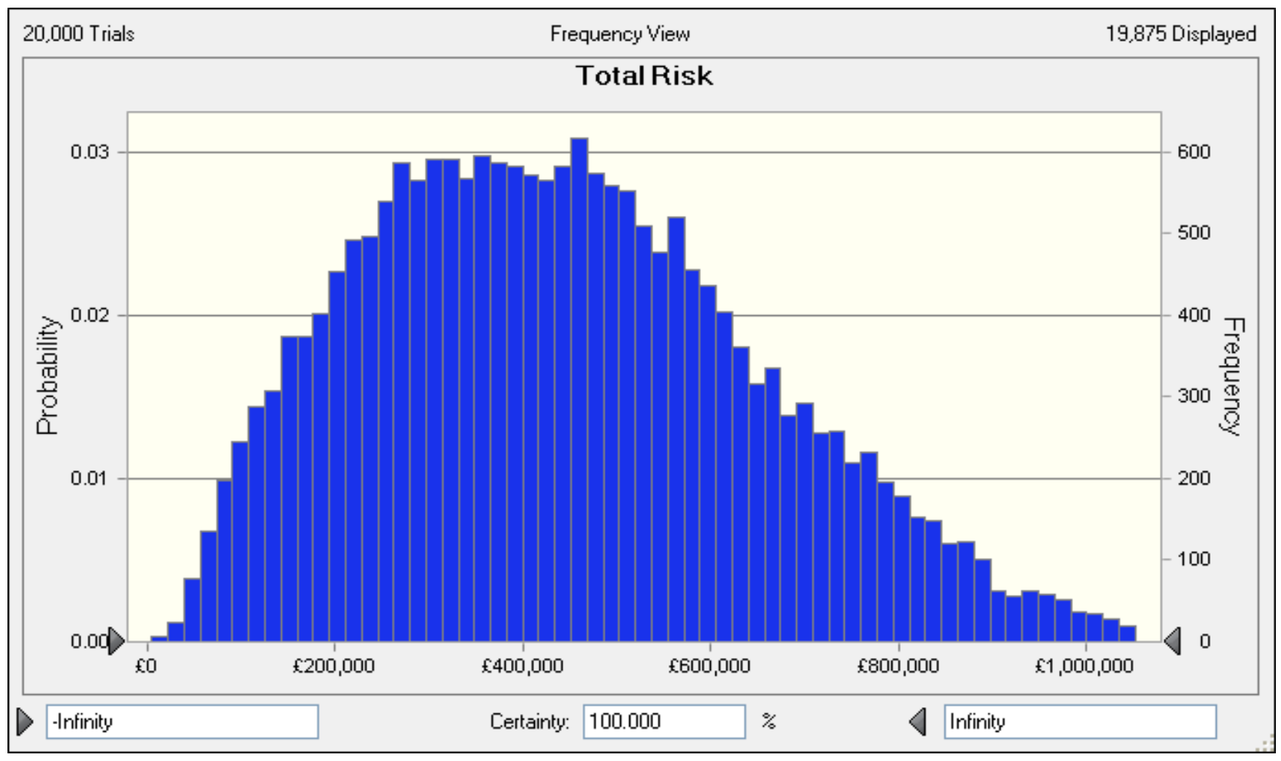
REGISTER - Derriford and WPR

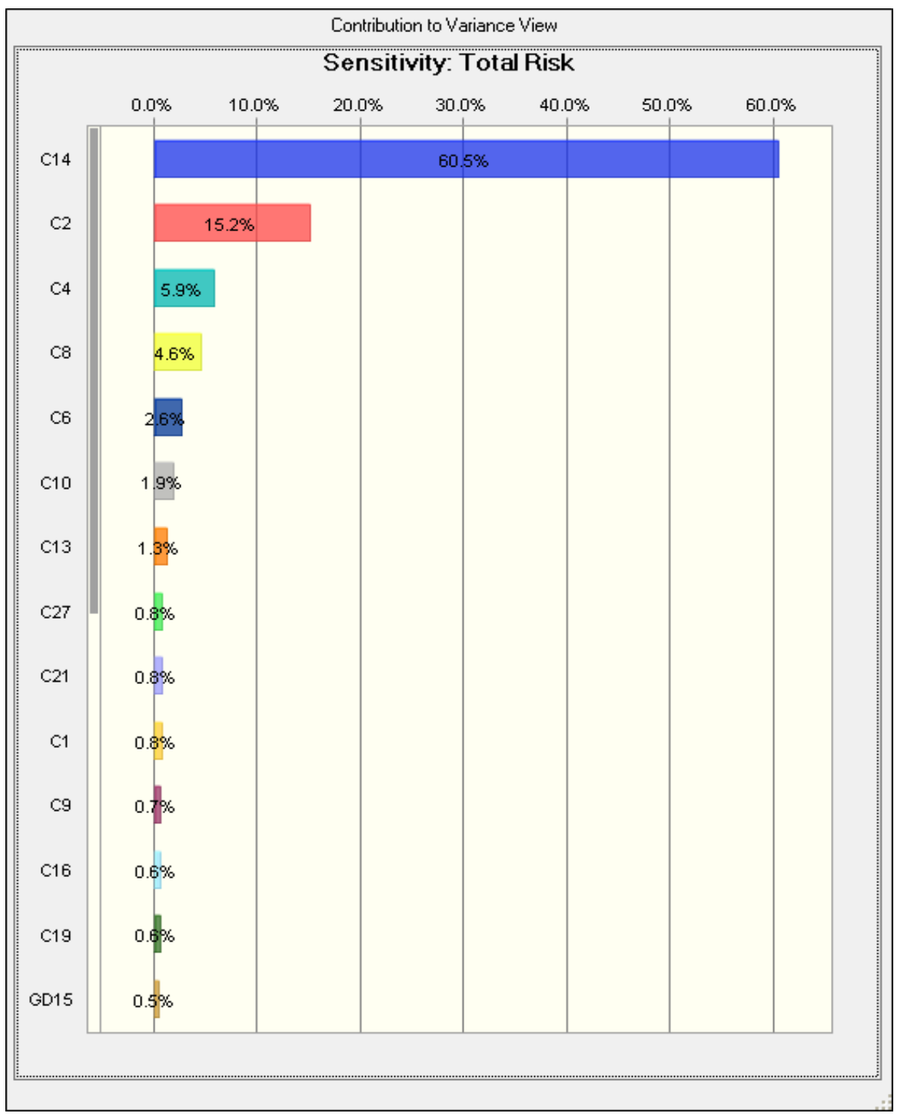
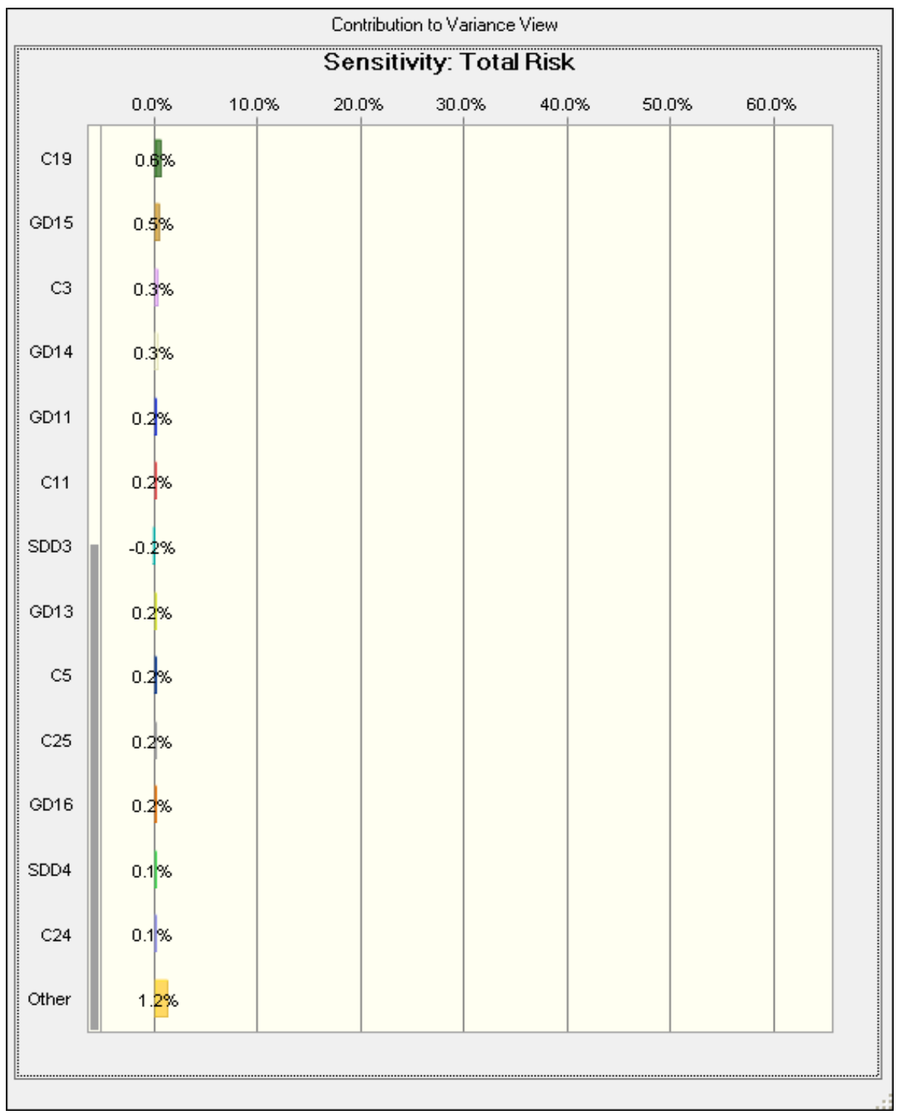
IDENTIFICATION					RISK QUANTIFICATION					
Risk No (Identifier)	Risk Description	Risk Owner	Discipline	Impact Description	Likelihood (1 - 10)	Impact (1 - 10)	Probability	Minimum Cost £	Most Likely Cost £	Maximum Cost £
	Global Design Risks common to both junctions									
GD1	Sufficiency and accuracy of Topo design.	Amey	GEO and TOPO	Abortive design works, the requirement for additional survey works and both time/cost impact upon the design programme	2	8	16%	£5,000	£15,000	£25,000
GD2	Ground Investigation design inadequate	Amey	GEO and TOPO	Abortive design works, the requirement for additional survey works and both time/cost impact upon the design programme	5	5	25%	£5,000	£15,000	£25,000
GD3	Ground Conditions-Contaminated Land identified in GI	Client	GEO and TOPO	Additional survey works and both time/cost impact upon the design programme	4	3	12%	£2,500	£5,000	£10,000
GD4	Ground Conditions-Archaeology identified in GI	Client	GEO and TOPO	Additional survey works and both time/cost impact upon the design programme	3	3	9%	£1,000	£2,500	£5,000
GD5	Environmental approvals not granted	Client	Environmental	Time delay and mitigation costs . Potential impact upon the design programme	3	5	15%	£2,500	£5,000	£10,000
GD6	Environmental Mitigation	Client	Environmental	Time delay and mitigation costs . Potential impact upon the design programme	3	5	15%	£2,500	£5,000	£10,000
GD7	Environmental Impact Assessment fails to identify issue/receptor	Shared	Environmental	Time delay and mitigation costs . Potential impact upon the design programme	3	5	15%	£2,500	£5,000	£10,000
GD8	Health and Safety Risk increases to unacceptable level	Shared	Project Management	Additional redesign time and cost and potential impact upon the design programme	2	5	10%	£5,000	£15,000	£25,000
GD9	Planning Permission is assessed as being required	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	3	6	18%	£5,000	£15,000	£25,000
GD10	Planning Permission Conditions	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	4	20%	£5,000	£15,000	£25,000
GD11	Land negotiations fail and CPO of private land required	Client	Traffic and Economics	Delays/additional cost and potential impact upon delivery of identified preferred option.	5	8	40%	£10,000	£25,000	£50,000
GD12	Land purchase and CPO procedure not successful	Client	Project Management	Additional redesign time and cost and potential impact upon delivery of identified preferred option.	2	5	10%	£5,000	£15,000	£25,000
GD13	Land Purchase-cost increase over and above allowable budget	Client	Project Management	Additional redesign time and cost and potential impact upon delivery of identified preferred option.	2	5	10%	£5,000	£15,000	£25,000
GD14	Utility Information-sufficiency and accuracy of data	Client	GEO and TOPO	Additional design works, the requirement for additional survey works and impact upon the design programme	5	5	25%	£10,000	£25,000	£50,000
GD15	Presence of critical Utility infrastructure impacts upon highway design option	Client	GEO and TOPO	Additional design works, the requirement for additional survey works and impact upon the design programme	5	5	25%	£10,000	£25,000	£50,000
GD16	Highway design work is incorrect	Amey	Project Management	Additional redesign time and cost and potential impact upon the design programme	3	6	18%	£2,500	£5,000	£10,000
GD17	Road Safety Audit identifies design issues that requires changes to the preferred design	Amey	Highways	Additional design works and both time/cost impact upon the design programme	8	3	24%	£2,500	£5,000	£10,000
GD18	Detailed design work not completed in line with project programme	Amey	Project Management	Time impact upon the design programme	3	2	6%	£1,000	£2,500	£5,000
GD19	Design standards, guidance and specifications change during design programme	Client	Project Management	Additional design works and both time/cost impact upon the design programme	3	2	6%	£1,000	£2,500	£5,000
GD21	Additional walking and cycling provision required over and above that included within outline design	Client	Project Management	Additional design works and both time/cost impact upon the design programme	3	5	15%	£2,500	£5,000	£10,000
GD22	Existing bus routes and priorities change	Client	Traffic and Economics	Additional design works and both time/cost impact upon the design programme	2	2	4%	£1,000	£2,500	£5,000
GD23	Traffic route capacities change in response to development changes	Client	Traffic and Economics	Additional design works and both time/cost impact upon the design programme	2	3	6%	£1,000	£2,500	£5,000
GD24	Traffic modelling inputs and outputs are incorrect/inaccurate	Client	Traffic and Economics	Additional design works and both time/cost impact upon the design programme	3	3	9%	£1,000	£2,500	£5,000
GD26	Traffic growth predictions are inaccurate	Shared	Traffic and Economics	Additional design works and both time/cost impact upon the design programme	3	3	9%	£2,500	£5,000	£10,000
GD27	Lack of Stakeholder support	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	2	5	10%	£2,500	£5,000	£10,000
GD28	Public Opposition to the works	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	4	20%	£5,000	£15,000	£25,000
GD29	New Third party Works are identified or existing Third Party proposals change	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	4	20%	£5,000	£15,000	£25,000
GD30	Cost of works exceeds Scheme budget	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	5	25%	£2,500	£5,000	£10,000
GD31	PCC contributory funding not made available	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	2	9	18%	£5,000	£15,000	£25,000
GD32	Funding profile requirement changes in 2015	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	1	9	9%	£2,500	£5,000	£10,000
GD33	Scope of works changes after Target Cost Agreed	Amey	Project Management	Additional design works and both time/cost impact upon the design programme	5	5	25%	£1,000	£2,500	£5,000
	Specific Design Risks associated with WPR									
SDW1	Existing master plan changes in response to main developments at Seaton Barracks, SWW site and North West Quadrant	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	5	25%	£5,000	£15,000	£25,000
SDW2	Retaining structures require additional land outside of HMPE and or PCC ownership	Client	Structures	Additional redesign time and cost and potential impact upon the design programme	3	3	9%	£2,500	£5,000	£10,000
SDW3	Project scope creep in terms of works required to adjacent section of highway	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	5	25%	£5,000	£15,000	£25,000
	Specific Design Risks associated with Derriford Junction									
SDD1	Unknown land ownership in area of widening adjacent to Northern exit	Client	Traffic and Economics	Additional redesign time and cost and potential impact upon the design programme	5	2	10%	£5,000	£15,000	£25,000
SDD2	Proposed widening mitigation is assessed as inadequate or requires additional works	Client	Traffic and Economics	Additional redesign time and cost and potential impact upon the design programme	3	3	9%	£2,500	£5,000	£10,000
SDD3	EIA identifies protected species.	Client	Environmental	Additional redesign time and cost and potential impact upon the design programme	5	5	25%	£2,500	£5,000	£10,000
SDD4	Tree Protection Order issues arise	Client	Environmental	Additional redesign time and cost and potential impact upon the design programme	3	5	15%	£2,500	£5,000	£10,000
SDD5	Scope and nature of Part 1 Claims increases beyond original assessment	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	5	25%	£5,000	£15,000	£25,000
SDD6	Consultation Plan is ineffective	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	5	25%	£2,500	£5,000	£10,000
SDD7	Project scope creep in terms of works required to adjacent section of highway (Looseleigh Lane)	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	5	25%	£5,000	£15,000	£25,000
SDD8	Hospital Blue Routes disrupted to unacceptable level	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	5	5	25%	£2,500	£5,000	£10,000
SDD9	Adjacent junction improvement works on Plymbridge Road and Derriford Road not taken forward leading to loss of overall project benefits	Client	Project Management	Additional redesign time and cost and potential impact upon the design programme	3	5	15%	£5,000	£15,000	£25,000
	Construction Risks common to both junctions									
C1	Sufficiency and accuracy of Topo design discovered during construction.	Amey	GEO and TOPO	Abortive and additional works, delays and both time/cost impact upon the construction programme	2	6	12%	£25,000	£75,000	£150,000
C2	Ground Conditions-Contaminated Land/materials identified	Client	GEO and TOPO	Additional survey works, additional disposal costs and both time/cost impact upon the construction programme	3	7	21%	£100,000	£200,000	£500,000
C3	Ground Conditions-Archaeology discovered during construction.	Client	GEO and TOPO	Additional survey works and both time/cost impact upon the construction programme	2	4	8%	£10,000	£25,000	£75,000
C4	Ground Conditions-Unexploded Ordnance identified in working area	Client	Project Management	Delays, cost and potential impact upon the construction programme	3	8	24%	£75,000	£150,000	£250,000
C5	Public Interest/Concern requires additional infromation and Liaison	Client	Project Management	Delays, cost and potential impact upon the construction programme	3	5	15%	£10,000	£15,000	£50,000
C6	Health and Safety Risk increases to unacceptable level	Shared	Project Management	Delays, cost and potential impact upon the construction programme	3	7	21%	£50,000	£100,000	£200,000
C8	Presence of critical Utility infrastructure impacts upon highway design option	Client	GEO and TOPO	Additional survey works and both time/cost impact upon the construction programme	5	5	25%	£50,000	£100,000	£200,000
C9	Utility Works-Programme restrictions	Shared	Project Management	Project delivery programme may be dictated by utility works programme leading to additional cost associated with programme delay and or extension.	4	5	20%	£75,000	£150,000	£225,000
C10	Utility Works - Increased cost of service diversions over and above allowances made at Target Cost stage	Client	GEO and TOPO	Delays, cost and potential impact upon the construction programme	5	3	15%	£50,000	£100,000	£200,000
C11	Service Damage	Amey	GEO and TOPO	Additional costs and delays to the construction programme	3	3	9%	£10,000	£25,000	£100,000
C12	Highway design work is incorrect	Amey	Project Management	Delays, cost and potential impact upon the construction programme	2	2	4%	£10,000	£25,000	£100,000
C13	Inflation-cost increases beyond that anticipated and allowed for within Cost Estimates	Client	Project Management	Cost Benefit scores are reduced and delivery costs increase beyond the project budget.	5	4	20%	£15,000	£50,000	£100,000
C14	Changes to design after Target Cost agreed	Amey	Project Management	Delays, cost and potential impact upon the construction programme	8	5	40%	£100,000	£250,000	£500,000
C15	Additional works instructed by the Client	Client	Project Management	Additional costs and delays to the construction programme	3	5	15%	£25,000	£50,000	£100,000
C16	Provisional Sums - Actual costs exceed allowances	Client	Project Management	Additional costs	5	3	15%	£10,000	£25,000	£50,000
C17	Amey Traffic Management Plan ineffective due to changes by others	Amey	Traffic and Economics	Cost and delay associated with additional mitigation	3	3	9%	£10,000	£20,000	£30,000
C19	Rock / Hard material. With the exception of surfacing materials, hard dig is excluded from the estimates	Client	GEO and TOPO	Additional costs	5	3	15%	£25,000	£50,000	£100,000
C20	Availability of bulk fill materials	Amey	Project Management	Additional cost associated with sourcing and providing alternative supplies. Use of substitute materials with impact upon cost and delivery programme	3	3	9%	£25,000	£50,000	£100,000
C21	Adverse Weather Conditions during construction	Shared	Project Management	Additional costs and delays to the construction programme	5	2	10%	£25,000	£50,000	£150,000
C22	Impact of Flooding during construction.	Shared	Project Management	Additional costs and delays to the construction programme	2	2	4%	£5,000	£10,000	£20,000
C23	Out of hours/night working required due to programme slip due to Amey actions	Amey	Project Management	Additional costs	3	3	9%	£10,000	£20,000	£50,000
C24	Out of hours/night working required due to programme slip as a result of client actions or if instructed by others	Client	Project Management	Additional costs	3	3	9%	£10,000	£20,000	£50,000
C25	Alternative TM traffic route enabling works required	Client	Project Management	Additional costs	4	4	16%	£10,000	£25,000	£50,000
C26	Disruption to Derriford emergency services	Shared	Traffic and Economics	Additional costs and delays to the construction programme	5	2	10%	£5,000	£10,000	£20,000
C27	Itinerants occupy site/Outside events impact site works	Shared	Project Management	Additional costs and delays to the construction programme	3	5	15%	£25,000	£50,000	£150,000
							0%			

Amey Consulting - RISK REGISTER - Derriford and WPR
29th Sep 2014

Percentiles	Total Risk
0%	£5,197
25%	£279,658
50%	£427,965
75%	£586,249
100%	£1,420,685

		Percentiles					
	Risk	Total Risk	0%	25%	50%	75%	100%
1	C14	60.5%	£ 3,146	£ 169,317	£ 259,108	£ 354,941	£ 860,145
2	C2	15.2%	£ 789	£ 42,464	£ 64,983	£ 89,018	£ 215,721
3	C4	5.9%	£ 305	£ 16,390	£ 25,082	£ 34,359	£ 83,263
4	C8	4.6%	£ 240	£ 12,909	£ 19,755	£ 27,061	£ 65,578
5	C6	2.6%	£ 137	£ 7,357	£ 11,259	£ 15,423	£ 37,375
6	C10	1.9%	£ 99	£ 5,333	£ 8,161	£ 11,180	£ 27,093
7	C13	1.3%	£ 65	£ 3,510	£ 5,372	£ 7,359	£ 17,833
8	C27	0.8%	£ 42	£ 2,249	£ 3,442	£ 4,715	£ 11,427
9	C21	0.8%	£ 40	£ 2,134	£ 3,266	£ 4,473	£ 10,841
10	C1	0.8%	£ 39	£ 2,125	£ 3,252	£ 4,454	£ 10,794
11	C9	0.7%	£ 35	£ 1,903	£ 2,912	£ 3,988	£ 9,665
12	C16	0.6%	£ 30	£ 1,616	£ 2,473	£ 3,388	£ 8,210
13	C19	0.6%	£ 30	£ 1,591	£ 2,435	£ 3,336	£ 8,085
14	GD15	0.5%	£ 24	£ 1,304	£ 1,996	£ 2,734	£ 6,626
15	C3	0.3%	£ 18	£ 978	£ 1,497	£ 2,050	£ 4,969
16	GD14	0.3%	£ 15	£ 813	£ 1,244	£ 1,703	£ 4,128
17	GD11	0.2%	£ 12	£ 647	£ 990	£ 1,356	£ 3,287
18	C11	0.2%	£ 11	£ 590	£ 903	£ 1,237	£ 2,998
19	SDD3	0.2%	£ 11	£ 571	£ 874	£ 1,198	£ 2,903
20	GD13	0.2%	£ 8	£ 451	£ 690	£ 945	£ 2,289
21	C5	0.2%	£ 8	£ 444	£ 679	£ 931	£ 2,255
22	C25	0.2%	£ 8	£ 427	£ 653	£ 895	£ 2,169
23	GD16	0.2%	£ 8	£ 424	£ 649	£ 889	£ 2,154
24	SDD4	0.1%	£ 8	£ 409	£ 625	£ 857	£ 2,076
25	C24	0.1%	£ 7	£ 396	£ 606	£ 830	£ 2,012
26	Other	1.2%	£ 61	£ 3,305	£ 5,058	£ 6,929	£ 16,790



Sensitivity: Total Risk

Assumptio	Contributio	RankCorrelation
C14	60.54%	0.121656
C2	15.18%	0.060925
C4	5.86%	0.037851
C8	4.62%	0.033591
C6	2.63%	0.025359
C10	1.91%	0.021591
C13	1.26%	0.017517
C27	0.80%	0.014022
C21	0.76%	0.013658
C1	0.76%	0.013628
C9	0.68%	0.012896
C16	0.58%	0.011885
C19	0.57%	0.011794
GD15	0.47%	0.010678
C3	0.35%	0.009247
GD14	0.29%	0.008428
GD11	0.23%	0.007521
C11	0.21%	0.007182
SDD3	0.20%	-0.00707
GD13	0.16%	0.006276
C5	0.16%	0.006229
C25	0.15%	0.00611
GD16	0.15%	0.006088
SDD4	0.15%	0.005977
C24	0.14%	0.005884
Other	1.18%