

DEVON COUNTY COUNCIL

**EAST OF EXETER ACCESS
IMPROVEMENTS (PHASE 2)**

**MAJOR SCHEME BUSINESS CASE AT
PROGRAMME ENTRY Volume 6 of 6**

August 08

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**Appendices: Part 5 of 5 (Independent Surveyor's
Report and Estimate Rationalisation)**

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1.0 **APPENDIX 5 A: INDEPENDENT SURVEYOR'S REPORT (COST ESTIMATES
VERIFICATION)**

East of Exeter Transportation Infrastructure Phase 2 – Independent Scheme Estimate

[Report produced by Faithful and Gould \(A4 pdf\)](#)



**EAST OF EXETER
INFRASTRUCTURE PHASE 2**

INDEPENDENT SCHEME ESTIMATE

JULY 2008

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- Table 1: Summary of Independent Scheme Estimate

1.0 Introduction

- 1.1 The Government has designated the Exeter area as a Growth Point. This encompasses investment in housing and employment developments necessary to support the regional economy. A highway improvement scheme is proposed as part of phase 2 of the infrastructure requirements for the East of Exeter developments, which include Cranbrook new community, Skypark Industrial Estate, Intermodal freight terminal, Exeter Airport expansion and the Science Park.
- 1.2 The scheme is split into 3 sections as follows:
 - M5 Junction 29:- this is the major element of the scheme and involves provision of a three node signalised junction on the A30 trunk road as well as a new link road connecting to the C832 (former A30 trunk road) at Blackhorse. Also included is the provision of a displaced right turn on the A30 westbound, widening and realignment of the M5 northbound off-slip road, widening of the M5 southbound off-slip road, and removal of the Blackhorse interchange slip roads.
 - C832 Bus Lanes:- this entails provision of bus lanes within the existing highway boundary on the C832 Honiton Road, East of Exeter Airport, plus a signalised junction.
 - C832 IMFT Junction:- this involves the widening of the phase 1 junction between the C832, the Clyst Honiton Bypass and the Intermodal Freight Terminal.
- 1.3 The scheme will be funded by Devon County Council (DCC) and the Department for Transport (DfT). DCC will also receive contributions from developers who stand to benefit from the scheme. As of April 2008, the DfT's contribution was expected to be approximately 70% of the scheme development and construction costs.
- 1.4 A Major Scheme Business Case (MSBC) is being prepared by DCC in accordance with the latest Government guidelines, and will be submitted to the DfT in July 2008.
- 1.5 As part of the Major Scheme Business Case, an Independent Surveyor is required to verify the capital costs and other items included in the Approved Scheme Cost. Having been involved in a similar exercise for the proposed A380 Kingskerswell Bypass in April 2008, and following a competitive tendering process, Faithful+Gould (F+G) were appointed to carry out the work.
- 1.6 This report provides a summary of the evaluation methodology and findings in order to derive an 'Independent Scheme Estimate'.

2.0 Basis of Estimate

- 2.1 A number of drawings and documents prepared by the Design Consultant, Parsons Brinckerhoff (PB) in conjunction with the Engineering Design Group (EDG – Devon CC), form the base information from which the costs for the independent scheme estimate have been derived. A complete listing of the drawings and documents provided to F+G is set out in Appendix B.

This information was supplemented by PB in response to query lists raised by F+G in order to clarify detail, envisaged construction method or understanding. These query lists are enclosed in Appendix C.

- 2.2 The main cost references consulted for rating and benchmark comparison of prices are listed below:

- Independent Cost Estimate for A380 Kingskerswell Bypass
- Analysis of construction costs for A30 Bodmin to Indian Queens
- Analysis of construction costs for a Bypass in Wiltshire
- Highways Agency National Technology Framework Contract
- Environment Agency Framework standard rates
- Spon's Civil Engineering Price Books, 2007 and 2008

3.0 Methodology and Findings

3.1 The cost estimate has been based on the design information available at the preliminary stage. F+G used the drawings provided to assess the likely quantities, and in the few instances where this was not possible, used the quantities 'assumed' in the estimates supplied by PB. F+G also made various design assumptions, based on previous experience of similar schemes.

3.2 It is understood that the route of procurement will be a traditional one, and the form of contract will be NEC3 Option B (Priced Contract with Bill of Quantities).

3.3 Construction Costs

F+G produced 'high-level' schedules of quantities for the three sections, all measured in accordance with the provisions of the latest version of the Method of Measurement for Highway Works.

Unit rates for the various quantities were obtained from the sources listed in Section 2.0 above and adjusted if considered appropriate, or built up from 'first principles' using planned resources.

Preliminaries, including allowance for site supervision, accommodation, out-of-hours working, attendant plant and temporary works, plus office overheads, insurance, and margin have been estimated from experience and analysis of similar schemes in the South-West of England.

All the costings in the independent scheme estimate have a price base of Q3 2007.

The tables in Appendix A provide a summary of the independent scheme estimate, but further back-up calculations and cost analyses were provided to PB at a meeting on 22 July 2008. This meeting was specifically convened between PB and F+G to review the independent scheme estimate and provide final clarification of important matters relevant to the estimate.

3.3 Ancillary Works and Statutory Undertakers

This essentially encompasses the cost of work for Other Parties, including Local Authorities and Statutory Undertakers (SUs). The costs are based on estimates received from the various companies, except for works for South West Water and Western Power Distribution, which were estimated by PB. These estimates were reviewed by F+G and the following matters were noted:

- Costs for producing specifications and C4 detailed estimates by SUs had been omitted in error.
- Blackhorse Junction – closure of entry and exit slip roads had not been included (emails between F+G and PB dated 17 July 2008 refer).

3.4 Preparation Costs

This includes the estimated costs of PB and DCC associated with design, project management, MSBC preparation, environmental work, tendering, and the like. Advice to F+G from Atkins Highways & Transportation was that this could be expected to be within a range of 4% to 8% of the total construction costs, depending on how well the scheme progressed. Given that the scheme design is still at preliminary stage, 8% has been used in the independent scheme estimate.

3.5 Land and Part 1 Claims

There was no information given to enable F+G to check these costs. It is understood from PB that DCC valuers have not yet produced any estimates and that the majority of the land is owned by DCC. Therefore, the costs included in the independent scheme estimate are budget figures provided by PB/DCC.

3.6 Risk

A risk register prepared by PB in accordance with DfT guidance, was made available to F+G. This encompassed an assessment of the impact of the risks in terms of cost and time within a range, an estimate of the likelihood of occurrence and a derivation of the probability resulting in a risk allowance. The risk register was reviewed by F+G and discussed with PB, and was considered to be comprehensive.

In setting the risk budget, F+G used the 'mean' figure from the results of the HARM Risk Analysis, provided by PB. The risk budget includes an allowance for future inflation that exceeds current Treasury Green Book rates.

3.7 Inflation

The independent scheme estimate utilises an average tender price index, derived from two sets of published data and applied from Q3 2007 to the estimated mid-point of construction Q1 2011, to calculate an allowance for inflation. Inflation on 'Preparation & Supervision Costs' was calculated to 2013/14 in accordance with the anticipated programme.

3.8 Optimism Bias (Additional Risk Layer)

This is to allow for the tendency for project estimates to be exceeded and has been applied in accordance with DfT guidance. The full uplift factor for optimism bias depends on the category of a project and the stage of its development. A factor of 15% has been selected. While DfT guidance is based on utilising 50% of the optimism bias; due to the design being very preliminary at this stage, 100% utilisation has been assumed and therefore a factor of 15% used.

3.9 Summary of Independent Scheme Estimate

Table 1: Summary of Independent Scheme Estimate

Item Description <i>(all costs based on Q3 2007 prices)</i>	Amount (£)
Works (including Preliminaries & Contingencies)	9,902,404
Ancillary Works	684,250
Statutory Undertakers' Works	909,334
Preparation and Supervision	851,112
Land and Part 1 Claims	2,770,000
Sub-total	15,117,100
Risk allowance	1,382,866
Inflation allowance	2,041,083
Sub-total	18,541,049
Optimism Bias (Additional Risk Layer)	2,781,157
Independent Scheme Estimate	21,322,206

4.0 Conclusion

The independent scheme estimate has derived a value of £21,322,206 excluding traffic-related maintenance costs for a 60 year period and any VAT. It is understood from PB that their estimate which is in the draft 'MSBC at Programme Entry' is £20,885,755 plus £3,573,520 for traffic-related maintenance costs. Both figures exclude VAT.

Therefore, the independent scheme estimate, excluding traffic-related maintenance costs, is 2.1% higher than the estimate in the draft MSBC.

East of Exeter Infrastructure

Cost Estimate Summary

24th July 2008

		Total
1	Works	
	1.1 Preliminaries	1,836,810.39
	1.2 Vehicle Restraint	438,220.42
	1.3 Earthworks	613,694.98
	1.4 Roadworks	4,789,237.28
	1.5 Accommodation Works	108,584.82
	1.6 Environmental	212,826.25
	1.7 Gantries	168,489.90
	1.8 Retaining Walls	834,321.12
	sub-total	9,002,185.15
	1.9 Construction contingency	
	add 10%	900,218.52
	Construction cost total	9,902,403.67
2	Ancillary Works	684,250.00
3	Statutory Undertakers' Costs	909,333.86
4	Preparation Costs	851,111.82
5	Land Costs	2,400,000.00
6	Part 1 Claims	370,000.00
7	Risk	1,382,866.00
	sub-total (A)	16,499,965.35
8	Inflation	2,041,082.99
	sub-total (B)	18,541,048.34
9	Optimism Bias (<i>Additional Risk Layer</i>)	2,781,157.25
	Scheme Total	21,322,205.59

Costs not checked & not included in above total

A. Traffic-related maintenance costs

3,573,520.00

East of Exeter Infrastructure

Cost Estimate: M5 Junction 29

		Total
1	Works	
	1.1 Preliminaries	1,320,698.22
	1.2 Vehicle Restraint	438,220.42
	1.3 Earthworks	498,127.13
	1.4 Roadworks	3,761,139.51
	1.5 Accommodation Works	<i>allocated by %</i> 79,374.71
	1.6 Environmental	<i>allocated by %</i> 155,574.43
	1.7 Gantries	168,489.90
	1.8 Retaining Walls	-
	sub-total	6,421,624.30
	1.9 Construction contingency	add 10% 642,162.43
	Construction cost total	7,063,786.73

East of Exeter Infrastructure

M5 Junction 29 - Bill of Quantities

Item	Description	Quantity	Unit	Rate	Amount
	Series 100: Preliminaries <i>(15.5% site + 0.5% out of hrs + 6% central + 1% insurance + 2% margin)</i>				
100/1	Vehicle Restraint	25%	item	£ 438,220.42	£ 109,555.11
100/2	Earthworks	25%	item	£ 498,127.13	£ 124,531.78
100/3	Roadworks	25%	item	£ 3,761,139.51	£ 940,284.88
100/4	Gantries	25%	item	£ 168,489.90	£ 42,122.48
100/5	Retaining walls	25%	item	£ -	£ -
100/6	Accommodation Works	25%	item	£ 79,374.71	£ 19,843.68
100/7	Environmental	25%	item	£ 155,574.43	£ 38,893.61
100/8	Management of SU's by Contractor	5%	item	£ 909,333.86	£ 45,466.69
PRELIMINARIES - Sub Total					£ 1,320,698.22

Item	Description	Quantity	Unit	Rate	Amount
	Series 400: Vehicle Restraint (Road Restraint Systems) <i>(similar layout to existing plus protection to gantry supports)</i>				
400/1	Verge - single sided, N2W4, conc foundations	2,600	m	£ 73.50	£ 191,100.00
400/2	Central Reserve - ditto	1,675	m	£ 73.50	£ 123,112.50
400/3	Allow for P1 terminals	9	nr	£ 1,281.23	£ 11,531.07
400/4	Allow for P4 terminals	9	nr	£ 4,623.40	£ 41,610.60
400/5	Pedestrian Guardrail <i>(between cycle tracks & A30 main c/w + ped crossings)</i>	1,225	m	£ 57.85	£ 70,866.25
VEHICLE RESTRAINT - Sub Total					£ 438,220.42

Item	Description	Quantity	Unit	Rate	Amount
	Series 600: Earthworks				
600/1	Topsoil Excavation, 200mm thick average	458	m3	£ 1.68	£ 769.44
600/2	Bulk Excavation	20,907	m3	£ 0.83	£ 17,352.81
600/3	Deposition in Embankments	1,451	m3	£ 1.64	£ 2,379.64
600/4	Disposal off site	19,456	m3	£ 14.44	£ 280,944.64
600/5	Topsoiling: 200mm thick resoil (spreading around site)	2,292	m2	£ 1.32	£ 3,025.44
600/6	Compaction	1,451	m3	£ 1.04	£ 1,509.04
600/7	Deposition of sub-base	2,397	m3	£ 1.63	£ 3,907.11
600/8	Compaction (on sub base)	2,397	m3	£ 1.10	£ 2,636.70
600/9	Capping Material, 400mm thick	6,393	m3	£ 23.54	£ 150,491.22
600/10	Compaction (of capping)	6,393	m3	£ 1.10	£ 7,032.30
600/11	Completion of Formation	15,981	m2	£ 0.59	£ 9,428.79
600/12	Allow sum for double-handling		prov		£ 5,500.00
600/13	Groundwater Monitoring		prov		£ 10,000.00
	Geotechnical:				
600/14	Geotex SS20-G	150	m2	£ 6.00	£ 900.00
600/15	Geogrid B800/50	150	m2	£ 15.00	£ 2,250.00
EARTHWORKS - Sub Total					£ 498,127.13

ROADWORKS

Item	Description	Quantity	Unit	Rate	Amount
	Series 200: Site Clearance				
200/1	General Site Clearance	5.36	ha	£ 1,993.07	£ 10,682.86
200/2	Take up or down existing safety barrier	3,900	m	£ 23.13	£ 90,207.00
	Series 300: Fencing				
300/1	Post and 4 Rail fence with netting and barbed wire	1,440	m	£ 23.00	£ 33,120.00
	Series 500: Drainage & Service Ducts				
	Surface water drainage				
500/1	Remove existing surface water carrier drains and dispose	2,130	m	£ 9.10	£ 19,383.00

500/2	Fill up existing gullies	56	nr	£	26.00	£	1,456.00
500/3	Surface water carrier drains 150mm dia up to 2m, average depth	1,900	m	£	56.71	£	107,749.00
500/4	Surface water carrier drains 225mm dia up to 2m, average depth	950	m	£	92.27	£	87,656.50
500/5	Surface water carrier drains 450mm dia 2m to 3m, average depth	230	m	£	157.82	£	36,298.60
500/6	Gullies, 450mm dia x 900mm deep	81	nr	£	240.44	£	19,475.64
500/7	Chambers, 1200mm dia, upto 3m depth	33	nr	£	2,673.29	£	88,218.57
500/8	Connect 150mm dia surface water carrier drains to existing system	14	nr	£	104.00	£	1,456.00
500/9	Connect 225mm dia surface water carrier drains to existing system	2	nr	£	201.50	£	403.00
500/10	Break into existing surface water drain and make diversions	1	item	£	1,300.00	£	1,300.00
<u>Filter drains</u>							
500/11	Filter Drains 150dia up to 2m in Average Depth	1,440	m	£	65.37	£	94,132.80
500/12	Connect 150mm dia filter drains to existing system	1	nr	£	80.00	£	80.00
<u>Sundry Drainage Items:</u>							
500/13	Attenuation ponds	3	nr	£	6,080.00	£	18,240.00
500/14	Outfall lagoons	3	nr	£	98,848.07	£	296,544.21
500/15	Oil interceptors	3	nr	£	982.20	£	2,946.60
500/16	Allow sum for cutting off drainage from adjacent field by means of swales	1	item	£	5,000.00	£	5,000.00
500/17	Allow sum for making good to existing outfalls at B&Q & Blackhorse	1	item	£	15,000.00	£	15,000.00
500/18	Allow sum for raising or lowering or renewal of existing covers and gratings on existing chambers & gullies	100	nr	£	25.00	£	2,500.00
500/19	Other sundry items		sum			£	15,000.00
Series 700: Pavements							
700/1	Sub-base, 150mm thick	2,870	m3	£	27.55	£	79,068.50
700/2	HDM base course, 270mm thick	15,981	m2	£	28.22	£	450,983.82
700/3	HDM binder course, 60mm thick	15,981	m2	£	8.89	£	142,071.09
700/4	SMA surface course, 35mm thick	47,739	m2	£	7.43	£	354,700.77
700/5	Regulating Material	70	m3	£	188.95	£	13,226.50
700/6	Tack Coat	63,720	m2	£	0.40	£	25,488.00
700/7	High Friction Surfacing	6,725	m2	£	22.75	£	152,993.75
700/8	Bus lane - e.o. coloured asphalt surfacing	1,954	m2	£	4.23	£	8,265.42
700/9	Milling - plane 40mm deep (<i>arisings cart to recycling tip</i>)	31,757	m2	£	2.93	£	93,048.01
700/10	Allow sum for works to tie-ins, etc		sum			£	20,000.00
700/11	Allow sum for service trench reinstatements		sum			£	3,500.00
Series 1100: Footways, Kerbs and Paved Areas							
1100/1	Footways; flexible construction - 170mm thick, inc central reserve	11,054	m2	£	22.09	£	244,182.86
1100/2	Tactile paving at carriageway crossings	67	m2	£	47.13	£	3,157.71
1100/3	Combined drainage & kerb blocks	250	m	£	192.58	£	48,145.00
1100/4	Kerbing	5,365	m	£	17.24	£	92,492.60
1100/5	PCC edgings	1,961	m	£	8.22	£	16,119.42
Series 1200: Traffic Signs and Road Markings							
1200/1	Road markings, studs, etc - <i>per m2 of Surface Course, main c/w</i>	47,739	m2	£	1.57	£	74,950.23
1200/2	Ditto, footways / cyclepaths	11,054	m2	£	0.50	£	5,527.00
1200/3	Traffic signs - (<i>speed signs, cyclists, pedestrians, etc</i>)		sum			£	15,000.00
1200/4	Pedestrian Crossings - Pelican	3	nr	£	26,803.00	£	80,409.00
Series 1300: Road Lighting Columns and Brackets, CCTV Masts and Cantilever Masts							
1300/1	<u>Light Columns, Incl Electrics</u>						
a	Urbis sapphire 3 sealsafe lantern, 15m high, twin, c/w lamp (56,000 lum)	15	nr	£	734.25	£	11,013.75
b	Urbis sapphire 3 sealsafe lantern, 15m high, single, c/w lamp (56,000 lum)	26	nr	£	690.00	£	17,940.00
c	Urbis sapphire 3 sealsafe lantern, 12m high, c/w lamp (17,500 lum)	13	nr	£	546.12	£	7,099.56
d	Urbis sapphire 3 sealsafe lantern, 10m high, c/w lamp (17,500 lum)	5	nr	£	460.00	£	2,300.00
e	Urbis sapphire 3 sealsafe lantern, <i>unspecified</i> height, c/w lamp (33,200 lum)	11	nr	£	517.50	£	5,692.50
f	Urbis sapphire 1 sealsafe lantern, 6m high, c/w lamp (6,600 lum)	20	nr	£	372.39	£	7,447.80
g	Urbis sapphire 1 sealsafe lantern, 6m high, c/w lamp (4,400 lum)	4	nr	£	372.39	£	1,489.56
1300/2	Street lighting ducts	3,579	m	£	33.91	£	121,363.89

1300/3 CCTV cameras - <i>locations not yet determined</i>	3	nr	£	54,259.98	£	162,779.94
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Series 1500: Motorway Communications

1500/1 Communications duct	3,037	m		inc		
1500/2 Ducting on both sides of A30 for shadow toll counters	2,105	m	£	23.57	£	49,614.85

Traffic Signals

1500/3 <u>Traffic signal ducting (including exc trenches, backfill, etc)</u>						
>In footpaths & verges:-						
a	Duct DF1	2161	m	£	21.47	£ 46,396.67
b	Duct DF2	235	m	£	29.04	£ 6,824.40
c	Duct DF3	103	m	£	36.61	£ 3,770.83
d	Duct DF4	14	m	£	44.18	£ 618.52
>In carriageway:-						
a	Duct DC1	30	m	£	33.92	£ 1,017.60
b	Duct DC2	30	m	£	43.76	£ 1,312.80
c	Duct DC3	287	m	£	53.60	£ 15,383.20
d	Duct DC4	20	m	£	63.44	£ 1,268.80

1500/4 Chambers

a	300mm pole chamber	49	nr	£	460.00	£ 22,540.00
b	450mm pole chamber	26	nr	£	460.00	£ 11,960.00
c	Loop chamber	73	nr	£	460.00	£ 33,580.00
d	Chamber 3 sections	20	nr	£	460.00	£ 9,200.00
e	Mast arm foundation & chamber	6	nr	£	460.00	£ 2,760.00
f	Controller foundation & chamber	4	nr	£	460.00	£ 1,840.00

1500/5 Traffic Signal equipment & fittings (done by Specialist contractor)

a	New - Signal heads	62	nr	£	3,079.66	£ 190,938.92
b	Other 'upgrading' works		prov			£ 30,000.00

Series 3000: Landscaping & Ecology

3000/1 Soil seeding	8,713	m2	£	0.62	£	5,402.06
3000/2 Allow for landscaping works to all verges	48,511	m2	£	0.40	£	19,404.40
3000/3 Allow sum for other landscaping & ecology - <i>not yet defined</i>		prov			£	100,000.00

ROADWORKS - Sub Total **£ 3,761,139.51**

Series 1500: Motorway Communications

1500/6 <u>Gantries</u>						
a	New gantries	2	nr	£	79,918.54	£ 159,837.08
b	Gantry-type signs mounted on M5 overbridge	2	nr	£	3,676.41	£ 7,352.82
c	Amendments to existing gantry sign	1	nr	£	1,300.00	£ 1,300.00

GANTRIES - Sub Total **£ 168,489.90**

Series 1700: Piling and Embedded Retaining Walls

1700/1 <u>Retaining walls</u>						
>1m high x 1m thick reinforced conc with natural stone facing, including fabric reinforcement at 4kg/m ²						
		30	m	£	1,019.94	deleted

RETAINING WALLS - Sub Total **£ -**

East of Exeter Infrastructure

Cost Estimate: C832 Bus Lanes

		Total
1	Works	
	1.1 Preliminaries	399,399.63
	1.2 Vehicle Restraint	-
	1.3 Earthworks	86,184.86
	1.4 Roadworks	653,020.42
	1.5 Accommodation Works	<i>allocated by %</i> 22,604.60
	1.6 Environmental	<i>allocated by %</i> 44,305.01
	1.7 Gantries	-
	1.8 Retaining Walls	791,483.64
		sub-total 1,996,998.17
	1.9 Construction contingency	add 10% 199,699.82
	Construction cost total	2,196,697.99

East of Exeter Infrastructure

C832 Bus Lanes - Bill of Quantities

Item	Description	Quantity	Unit	Rate	Amount
Series 100: Preliminaries					
<i>(15.5% site + 0.5% out of hrs + 6% central + 1% insurance + 2% margin)</i>					
100/1	Vehicle Restraint	25%	item	£ -	£ -
100/2	Earthworks	25%	item	£ 86,184.86	£ 21,546.22
100/3	Roadworks	25%	item	£ 653,020.42	£ 163,255.11
100/4	Gantries	25%	item	£ -	£ -
100/5	Retaining walls	25%	item	£ 791,483.64	£ 197,870.91
100/6	Accommodation Works	25%	item	£ 22,604.60	£ 5,651.15
100/7	Environmental	25%	item	£ 44,305.01	£ 11,076.25
100/8	Management of SU's by Contractor	5%	item	inc	£ -
PRELIMINARIES - Sub Total					£ 399,399.63

Item	Description	Quantity	Unit	Rate	Amount
Series 600: Earthworks					
600/1	Topsoil Excavation, 150mm thick average	423	m3	£ 1.68	£ 710.64
600/2	Excavation of acceptable material excl 5A	2,483	m3	£ 5.09	£ 12,638.47
600/3	Disposal of topsoil material class 5A off site	423	m3	£ 14.44	£ 6,108.12
600/4	Disposal of acceptable material excl 5A off site (max 10km)	2,483	m3	£ 14.44	£ 35,854.52
600/5	Deposition of sub-base	509	m3	£ 1.63	£ 829.67
600/6	Compaction (on sub base)	509	m3	£ 1.10	£ 559.90
600/7	Capping Material, 400mm thick	1,129	m3	£ 23.54	£ 26,576.66
600/8	Compaction (of capping)	1,129	m3	£ 1.10	£ 1,241.90
600/9	Completion of Formation	2,822	m2	£ 0.59	£ 1,664.98
EARTHWORKS - Sub Total					£ 86,184.86

ROADWORKS

Item	Description	Quantity	Unit	Rate	Amount
Series 200: Site Clearance					
200/1	General Site Clearance	1.05	ha	£ 1,993.07	£ 2,092.72
Series 300: Fencing					
300/1	Post and 4 Rail fence with netting and barbed wire	232	m	£ 23.00	£ 5,336.00
Series 500: Drainage & Service Ducts					
<u>Surface water drainage</u>					
500/1	Remove existing surface water carrier drains and dispose	586	m	£ 7.00	£ 4,102.00
500/2	Fill up existing gullies	29	nr	£ 20.00	£ 580.00
500/3	Surface water carrier drains 150mm dia up to 2m, average depth	586	m	£ 56.71	£ 33,232.06
500/4	Surface water carrier drains 225mm dia up to 2m, average depth	586	m	£ 70.97	£ 41,588.42
500/5	Gullies, 450mm dia x 900mm deep	29	nr	£ 240.44	£ 6,972.76
500/6	Chambers, 1200mm dia, upto 3m depth	12	nr	£ 2,056.38	£ 24,676.56
500/7	Connect 150mm dia surface water carrier drains to existing system	2	nr	£ 80.00	£ 160.00
500/8	Connect 225mm dia surface water carrier drains to existing system	2	nr	£ 155.00	£ 310.00
<u>Sundry Drainage Items:</u>					
500/9	Outfall lagoons	1	nr	£ 98,848.07	£ 98,848.07
500/10	Oil interceptors	1	nr	£ 982.20	£ 982.20
500/11	Allow sum for raising or lowering or renewal of existing covers and gratings on existing chambers & gullies	10	nr	£ 25.00	£ 250.00
500/12	Other sundry items		sum		£ 1,000.00
Series 700: Pavements					
700/1	Sub-base, 150mm thick	509	m3	£ 27.55	£ 14,022.95
700/2	HDM base course, 270mm thick	2,822	m2	£ 28.22	£ 79,636.84
700/3	HDM binder course, 60mm thick	2,822	m2	£ 8.89	£ 25,087.58

700/4 SMA surface course, 35mm thick	8,262	m2	£	7.43	£	61,386.66
700/5 Regulating Material	25	m3	£	188.95	£	4,723.75
700/6 Tack Coat	11,084	m2	£	0.40	£	4,433.60
700/7 High Friction Surfacing	375	m2	£	22.75	£	8,531.25
700/8 Bus lane - e.o. coloured asphalt surfacing	4,085	m2	£	4.23	£	17,279.55
700/9 Milling - plane 40mm deep (<i>arisings cart to recycling tip</i>)	5,440	m2	£	2.93	£	15,939.20
700/10 Allow sum for works to tie-ins, etc	3	nr	£	2,500.00	£	7,500.00
700/11 Allow sum for service trench reinstatements		sum			£	1,000.00
700/12 Allow sum for making provision for future extension of bus lanes by developer	2	nr	£	500.00	£	1,000.00

Series 1100: Footways, Kerbs and Paved Areas

1100/1 Footways; flexible construction - 170mm thick	2,710	m2	£	22.09	£	59,863.90
1100/2 Tactile paving at carriageway crossings	9	m2	£	47.13	£	424.17
1100/3 Kerbs	1,102	m	£	14.99	£	16,518.98
1100/4 PCC edgings	1,172	m	£	8.22	£	9,633.84

Series 1200: Traffic Signs and Road Markings

1200/1 Road markings, studs, etc - <i>per m2 of Surface Course, main c/w</i>	8,262	m2	£	1.31	£	10,823.22
1200/2 Traffic signs - (<i>speed signs, cyclists, pedestrians, etc</i>)		sum			£	1,500.00
1200/3 Pedestrian Crossing - Pelican	1	nr	£	26,803.00	£	26,803.00

Series 1300: Road Lighting Columns and Brackets, CCTV Masts and Cantilever Masts

1300/1 Light Columns, Incl Electrics, at junction		prov			£	8,500.00
1300/2 Street lighting ducts	586	m	£	29.49	£	17,281.14

Series 1500: Motorway Communications

Traffic Signals

1500/1 Traffic Signals, complete (<i>1 nr T-junction, 3-way</i>)		prov			£	35,000.00
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Series 3000: Landscaping & Ecology

3000/1 Allow for landscaping works to all verges	52	m2			£	1,000.00
3000/2 Allow sum for other minor landscaping works		sum			£	5,000.00

ROADWORKS - Sub Total **£ 653,020.42**

Series 1700: Piling and Embedded Retaining Walls

1700/1 <u>Retaining walls</u>						
>1m high x 1m thick reinforced conc with natural stone facing, including fabric reinforcement at 4kg/m ²	51	m	£	1,019.94	£	52,016.94
>2m high x 1m thick reinforced conc with natural stone facing, including fabric reinforcement at 4kg/m ²	169	m	£	1,988.88	£	336,121.23
>3m high x 1m thick reinforced conc with natural stone facing, including fabric reinforcement at 4kg/m ²	104	m	£	3,878.32	£	403,345.47
					£	791,483.64
					RETAINING WALLS - Sub Total	£ 791,483.64

East of Exeter Infrastructure

Cost Estimate: C832 IMFT Junction

		Total
1	Works	
	1.1 Preliminaries	116,712.54
	1.2 Vehicle Restraint	-
	1.3 Earthworks	29,382.99
	1.4 Roadworks	375,077.35
	1.5 Accommodation Works	<i>allocated by %</i> 6,605.51
	1.6 Environmental	<i>allocated by %</i> 12,946.81
	1.7 Gantries	-
	1.8 Retaining Walls	42,837.48
		sub-total
		583,562.68
	1.9 Construction contingency	add 10% 58,356.27
	Construction cost total	641,918.95

East of Exeter Infrastructure

C832 IMFT Junction - Bill of Quantities

Item	Description	Quantity	Unit	Rate	Amount
Series 100: Preliminaries					
<i>(15.5% site + 0.5% out of hrs + 6% central + 1% insurance + 2% margin)</i>					
100/1	Vehicle Restraint	25%	item	£ -	£ -
100/2	Earthworks	25%	item	£ 29,382.99	£ 7,345.75
100/3	Roadworks	25%	item	£ 375,077.35	£ 93,769.34
100/4	Gantries	25%	item	£ -	£ -
100/5	Retaining walls	25%	item	£ 42,837.48	£ 10,709.37
100/6	Accommodation Works	25%	item	£ 6,605.51	£ 1,651.38
100/7	Environmental	25%	item	£ 12,946.81	£ 3,236.70
100/8	Management of SU's by Contractor	5%	item	inc	£ -
PRELIMINARIES - Sub Total					£ 116,712.54

Item	Description	Quantity	Unit	Rate	Amount
Series 600: Earthworks					
600/1	Topsoil Excavation, 150mm thick average	144	m3	£ 1.68	£ 241.92
600/2	Excavation of acceptable material excl 5A	846	m3	£ 5.09	£ 4,306.14
600/3	Disposal of topsoil material class 5A off site	144	m3	£ 14.44	£ 2,079.36
600/4	Disposal of acceptable material excl 5A off site	846	m3	£ 14.44	£ 12,216.24
600/5	Deposition of sub-base	178	m3	£ 1.63	£ 290.14
600/6	Compaction (on sub base)	178	m3	£ 1.10	£ 195.80
600/7	Capping Material, 400mm thick	385	m3	£ 23.54	£ 9,062.90
600/8	Compaction (of capping)	385	m3	£ 1.10	£ 423.50
600/9	Completion of Formation	961	m2	£ 0.59	£ 566.99
EARTHWORKS - Sub Total					£ 29,382.99

ROADWORKS

Item	Description	Quantity	Unit	Rate	Amount
Series 200: Site Clearance					
200/1	General Site Clearance	0.15	ha	£ 1,993.07	£ 298.96
Series 500: Drainage & Service Ducts					
<u>Surface water drainage</u>					
500/1	Remove existing surface water carrier drains and dispose	265	m	£ 7.00	£ 1,855.00
500/2	Fill up existing gullies	8	nr	£ 20.00	£ 160.00
500/3	Surface water carrier drains 150mm dia up to 2m, average depth	186	m	£ 56.71	£ 10,548.06
500/4	Surface water carrier drains 225mm dia up to 2m, average depth	82	m	£ 70.97	£ 5,819.54
500/5	Gullies, 450mm dia x 900mm deep	13	nr	£ 240.44	£ 3,125.72
500/6	Chambers, 1200mm dia, upto 3m depth	5	nr	£ 2,056.38	£ 10,281.90
500/7	Connect 150mm dia surface water carrier drains to existing system	2	nr	£ 80.00	£ 160.00
500/8	Connect 225mm dia surface water carrier drains to existing system	2	nr	£ 155.00	£ 310.00
<u>Sundry Drainage Items:</u>					
500/9	Outfall lagoons	1	nr	£ 98,848.07	£ 98,848.07
500/10	Oil interceptors	1	nr	£ 982.20	£ 982.20
500/11	Allow sum for making good to existing outfall near the Airport	1	item	£ 7,500.00	£ 7,500.00
500/12	Allow sum for raising or lowering or renewal of existing covers and gratings on existing chambers & gullies	5	nr	£ 25.00	£ 125.00
500/13	Other sundry items		sum		£ 1,000.00
Series 700: Pavements					
700/1	Sub-base, 150mm thick	178	m3	£ 27.55	£ 4,903.90
700/2	HDM base course, 270mm thick	961	m2	£ 28.22	£ 27,119.42
700/3	HDM binder course, 60mm thick	961	m2	£ 8.89	£ 8,543.29
700/4	SMA surface course, 35mm thick	3,970	m2	£ 7.43	£ 29,497.10
700/5	Regulating Material	10	m3	£ 188.95	£ 1,889.50

700/6 Tack Coat	4,932	m2	£	0.40	£	1,972.80
700/7 High Friction Surfacing	375	m2	£	22.75	£	8,531.25
700/8 Bus lane - e.o. coloured asphalt surfacing	1,130	m2	£	4.23	£	4,779.90
700/9 Milling - plane 40mm deep (<i>arisings cart to recycling tip</i>)	3,009	m2	£	2.93	£	8,816.37
700/10 Allow sum for works to tie-ins, etc	3	nr	£	2,500.00	£	7,500.00
700/11 Allow sum for service trench reinstatements		sum			£	1,000.00

Series 1100: Footways, Kerbs and Paved Areas

1100/1 Footways; flexible construction - 170mm thick	984	m2	£	22.09	£	21,736.56
1100/2 Tactile paving at carriageway crossings	17	m2	£	47.13	£	801.21
1100/3 Kerbs	448	m	£	14.99	£	6,715.52
1100/4 PCC edgings	268	m	£	8.22	£	2,202.96

Series 1200: Traffic Signs and Road Markings

1200/1 Road markings, studs, etc - <i>per m2 of Surface Course, main c/w</i>	3,970	m2	£	1.31	£	5,200.70
1200/2 Traffic signs - (<i>speed signs, cyclists, pedestrians, etc</i>)		item			£	1,500.00
1200/3 Pedestrian Crossings - Pelican	1	nr	£	26,803.00	£	26,803.00

Series 1300: Road Lighting Columns and Brackets, CCTV Masts and Cantilever Masts

1300/1 Light Columns, Incl Electrics, at junction		sum			£	8,500.00
1300/2 Street lighting ducts	358	m	£	29.49	£	10,557.42

Series 1500: Motorway Communications

Traffic Signals

1500/1 Traffic Signals, complete (<i>1 nr junction, 4-way</i>)		sum			£	40,000.00
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Series 3000: Landscaping & Ecology

3000/1 Soil seeding	328	m2	£	1.50	£	492.00
3000/2 Allow sum for minor landscaping works		sum			£	5,000.00

ROADWORKS - Sub Total £ **375,077.35**

Series 1700: Piling and Embedded Retaining Walls

1700/1 <u>Retaining walls</u> >1m high x 1m thick reinforced conc with natural stone facing, including fabric reinforcement at 4kg/m ²	42	m	£	1,019.94	£	42,837.48
					£	42,837.48

RETAINING WALLS - Sub Total £ **42,837.48**

East of Exeter Infrastructure

Appendix B: Schedule of Documents Used

Date	Parsons Brinckerhoff document	Documents Received
19/05/2008	ref: HPE91974A/E/F	<p><u>Drawings:-</u></p> <p>(a) HEP91974/2_006: Scheme Plan with retaining wall</p> <p>(b) HPE91974A/007 rev A: New Junction 29 Rt Two nodes displaced right turn</p> <p>(c) HPE91974A/011 rev A: Scheme Plan (M5 Jct 29)</p> <p>(d) 04PN055/19: Clyst Honiton Bypass Junction</p>
22/05/2008	meeting: A Braine / M Helliwell	<p><u>Drawings:-</u></p> <p>(a) HPE91974/MSB103: Preferred Option</p>
12/06/2008	ref: HPE91974A/E/F3	<p>1 Preliminary Estimate - assumptions report</p> <p>2 Draft MSB Volume 5 pages 1 to 74 - Estimate</p> <p>3 Draft MSB Volume 2 pages 7 to 17 - Risk Assessment</p> <p>4 Statutory Undertakers - NRSWA C3 estimates & plans (2 from each: M5 Jct 29 & C832)</p> <p>(a) South West Water</p> <p>(b) Western Power Distribution</p> <p>(c) Wales & West Utilities</p> <p>(d) BT Openreach</p> <p>(e) Virgin Media</p> <p>(f) Atkins</p> <p>5 <u>Drawings:-</u></p> <p>(a) HPE91974A-J29-001 rev A: Location Plan - Preferred Scheme</p> <p>(b) HPE91974A-J29-002 rev A: General Layout - Preferred Scheme - sheet 1 of 3</p> <p>(c) HPE91974A-J29-003 rev A: General Layout - Preferred Scheme - sheet 2 of 3</p> <p>(d) HPE91974A-J29-004 rev A: General Layout - Preferred Scheme - sheet 3 of 3</p> <p>(e) HPE91974A/J29: Signal Layout Sheet 1</p> <p>(f) HPE91974A/J29: Signal Layout Sheet 2</p> <p>(g) 26599 rev A - Proposed Lighting Design - sheet 1 of 6</p> <p>(h) 26599 rev A - Proposed Lighting Design - sheet 2 of 6</p> <p>(i) 26599 rev A - Proposed Lighting Design - sheet 3 of 6</p> <p>(j) 26599 rev A - Proposed Lighting Design - sheet 4 of 6</p> <p>(k) 26599 rev A - Proposed Lighting Design - sheet 5 of 6</p> <p>(l) 26599 rev A - Proposed Lighting Design - sheet 6 of 6</p>
17/06/2008		<p>1 <u>Drawings:-</u></p> <p>(a) HPE91974A-J29-020 rev A: Link Road Plan & Profile - sheet 1 of 2</p> <p>(b) HPE91974A-J29-021 rev A: Link Road Plan & Profile - sheet 2 of 2</p> <p>(c) HPE91974A-J29-022 rev A: M5 north & south offslip road plan & profiles</p> <p>(d) Link Road Sheet 1: Existing & Proposed Levels</p> <p>(e) Link Road Sheet 2: Existing & Proposed Levels</p> <p>(f) Link Road Sheet 3: Existing & Proposed Levels</p> <p>(g) Link Road Sheet 4: Existing & Proposed Levels</p> <p>(h) Link Road Sheet 5: Existing & Proposed Levels</p> <p>(i) M5 Northbound Off Slip</p> <p>(j) M5 Southbound Off Slip</p>

Other Documents Used		
A	The British Department for Transport	Procedures for dealing with Optimism Bias in Transport Planning (June 2004)
B	Department for Transport	Procedures for dealing with Optimism Bias in Transport Planning
C	Department for Transport	Transport Analysis Guidance (TAG) - Unit 3.5.9: The Estimation and Treatment of Scheme Costs (September 2006)
D	Nichols Report to Secretary of State for Transport	Review of Highways Agency Major Roads Programme (March 2007)

East of Exeter Infrastructure



Query List No. 1 - 1st July 2008

Item	Query Description	Response
1	<p>Please confirm whether the earthworks quants include topsoil excavation or not. Presumably, all topsoil will be spread around site, and none taken off site?</p>	<p>The earthworks quantities include topsoil and it is presumed it will all be retained on site. The depth of topsoil is unknown but will probably be in excess of 150mm over most of the site.</p>
2	<p>Do you have an outline schedule of works (with or without quants) and/or outline spec over and above the 'estimate assumptions' you sent? The drawings do not show any extents for most elements, but we are particularly concerned with the following:-</p> <ul style="list-style-type: none"> - Drainage: all elements - Vehicular Restraint Systems - based on my previous experience, the HA normally want all the safety barrier to be upgraded to the latest spec. You have approx £15k in your budget for this, so presumably this is just for a few replacements and extensions. - Kerbs <p>The alternative is for us to make more assumptions, if that's ok with you.</p>	<p>The short answer is no, there is no schedule of works.</p> <p>Drainage: the drainage design is still in its infancy but the following conclusions have been reached:</p> <ul style="list-style-type: none"> - Link road chainage 840 to east end will outfall to the existing A30 east system utilising the existing system from the loop junction - Link road chainage 420 (crest) to chainage 840 will outfall the the existing A30 west system utilising a connection adjacent to Redhayes Lodge. - The remainder of the link road will have attenuated drainage with a storage pond located in the centre of the junction and outfalling to the adjacent A30 west system. - M5 southbound on and off slip roads will outfall to the existing A30 west system - M5 northbound off slip will have attenuated drainage with a storage pond located adjacent to the off slip junction and outfalling to the adjacent A30 west system. The outfall from the A30 west system is just west of the M5 overbridge on the south side complete with oil interceptors. The flow at this outfall will be similar or less than the existing and it is presumed that the lead in pipes will be retained. <p>- The assumption on our estimates was to only replace or extend, not to renew The existing. You are probably correct in your assumption that HA will require more extensive replacement.</p> <p>All roads will be kerbed except for:</p> <ul style="list-style-type: none"> - M5 northbound off slip - hardstrip to signal stop line. - A30 eastbound from the eastern extremity of the link road junction eastwards - hardstrip. - A30 westbound into M5 southbound on slip - hardstrip - M5 southbound off slip - hardstrip to signal stop line. <p>Please make such other assumptions as you consider appropriate</p>
3	<p><u>Road Construction Thickness</u></p>	

Item	Query Description	Response
	<p>The PB estimate assumptions state the base & binder thicknesses as: - Base 235mm & Binder 50mm However, the PB estimate build-ups state the thicknesses as follows: - M5 Jct 29: Base 270mm & binder 60mm - C832 IMFT Jct: Base 200mm & binder 60mm - C832 Bus Lanes: Base 200mm & binder 60mm Please confirm which thicknesses to use.</p>	<p>Use:- base 270mm & binder 60mm for all sections</p>
4	<p><u>Retaining Walls</u> - M5 Jct 29: where is the 30m long retaining wall located? It's not shown on the drawings and also not stated in the PB estimate assumptions. - All sections: please confirm the thickness of the retaining walls and reinforcement allowance factor, i.e. kg/m³.</p>	<p>The retaining wall is no longer required for J29 Mass concrete retaining walls have been assumed 1.0m thick with fabric reinforcement at 4kg/m³</p>
5	<p><u>Gantries</u> - PB estimate assumptions state provision of "2 additional gantry signs + 2 gantry type signs mounted on the M5 overbridge + amendments to an existing gantry sign" Our current interpretation of the above is as follows:- (a) 2nr new gantries c/w appropriate signage (b) 2nr new gantry signs only fixed on M5 Overbridge (c) 1nr existing gantry sign to be amended Please confirm this is right.</p>	<p>correct correct correct</p>
6	<p><u>Comms Ducting</u> (a) PB estimates refer to sl ducts - what's 'sl'? (b) Traffic signal drawings show DF & DC ducts - what's the difference between the two?</p>	<p>street lighting DF in footway or verge, DC in carriageway</p>

Item	Query Description	Response								
1	<p>Has any more design work been done for the above? At the moment, all we have is the junction layout on A4 and not to scale. So, if you have done more work on it, and perhaps put it on A1 sheets, could we please have a copy(s)?</p>	<p>The design for IMFT junction has not developed as we are waiting for details of the Clyst Honiton Bypass to be agreed between the Cranbrook developers and DCC. This seems to have gone into a black hole.</p> <p>- Have attached a pdf at a scale of 1:500 (A3) showing the current layout with the new carriageway highlighted in orange and some indication of earthworks and retaining structures which may assist</p>								
2	<p>Should we allow for traffic signals at the IMFT junction?</p>	<p>Yes.</p> <p>- Although there has been agreement to a change which omits the signals there is no amended design available so it has been decided to submit the MSB with the current scheme and use the period prior to final submission to redesign and recast the bus lane scheme. This may require a further estimate check in due course. The agreed change is more significant than removal of the signals as it is also intended to reduce standards and consequently reduce or remove the retaining walls.</p>								
3	<p>Where you have measured 'communications ducts' - is this the same as traffic signal ducting or it's for something else different?</p>	<p>No, they are ducts that are needed for detector loops measuring traffic flow for the purposes of the DBFO contract between Connect and the Highways Agency, and for CCTV cables. The detailed locations are unknown at this stage.</p>								
4	<p>Do we need to make allowance for inflation on Prep & Supervision Costs or that has already been built in? If yes, could you please provide the indicative times when these P&S costs will be incurred.</p>	<p>Inflation is not included in prep and supervision costs but has been included in the overall inflation calculation. The indicative times are 09/10 to 10/11 for prep and 10/11 to 11/12 for supervision.</p>								
5	<p>I have noticed 2 more sets of costs over and above the £17m, for design costs and traffic-related costs (for 60yrs) - presumably, you do not wish for us to check these 2 items?</p>	<p>The design costs and traffic related maintenance costs form part of the bid and should be checked. If it is beyond the brief could you put a note to that effect in your report please.</p>								
6	<p>Further to item 5 above: Design costs - you have the following totals:-</p> <table data-bbox="177 1666 766 1800"> <tr> <td>(a) M5 Junction 29 -</td> <td>£446,490</td> </tr> <tr> <td>(b) C832 Bus Lanes -</td> <td>£144,672</td> </tr> <tr> <td>(c) C832 IMFT Junction -</td> <td>£nil</td> </tr> <tr> <td colspan="2" style="text-align: center;">TOTAL = £591,162</td> </tr> </table> <p>Are these costs different from the design costs included in the Preparation & Supervision costs (items 19 & 29) total £628,470?</p>	(a) M5 Junction 29 -	£446,490	(b) C832 Bus Lanes -	£144,672	(c) C832 IMFT Junction -	£nil	TOTAL = £591,162		<p>These are the same costs as those included in the preparation and supervision costs, however I have a cost of £39,807 against (c) C832 IMFT Junction.</p>
(a) M5 Junction 29 -	£446,490									
(b) C832 Bus Lanes -	£144,672									
(c) C832 IMFT Junction -	£nil									
TOTAL = £591,162										

Item	Query Description	Response
1	<p><u>Risk</u></p> <p>Other Suggested Risks: (a) Health & Safety Risk - e.g. major accident resulting in site being shut down by the HSE and so on (b) Risk of some tenderers withdrawing after a certain Stage Gate and/or having to extend the tender period, etc</p>	<p>Agreed but seen as a contractor risk with no financial effect to the employer. Agreed but this risk is mitigated by invitation to tender to 8 contractors with DCC standing orders requiring 4 valid tenders.</p>
2	<p><u>Land & Part 1 Costs</u></p> <p>Do you have the correspondence from the valuers so that we can verify the figures in your estimate?</p>	<p>No. The valuers have not yet produced their estimates. The major land cost is a budget figure only as the land is already owned by DCC. The budget figure of £2m was a DCC input.</p>
3	<p><u>Statutory Undertakers' Costs</u></p> <p><i>to be read in conjunction with spreadsheet summarising SU costs</i></p> <p>SWW - their 2 quotes state no cost implications, yet you have an estimate of £62,650. Please advise.</p>	<p>SWW are seeking further detail before they can provide an estimate for J29. The estimate is the average of the potential highest and lowest cost.</p>
4	<p>WPD - their quote has a cost of £5k for cable diversion plus trenching works to be done by others, which we estimate to be c£2k, but you have an estimate of £74k. Please advise.</p>	<p>The WPD estimate is for high voltage equipment only. We have not had any estimate for the low voltage cable diversions so an assessment has been included.</p>
5	<p>BT - seems fine, but you did not include costs for producing spec and estimate. Please advise.</p>	<p>This has been omitted in error.</p>
6	<p>C&W - they provided 2 quotes: Old A30 Bus Lanes c£145k, and then M5 Jct 29 c£20k; but you only included £18k for M5 J29. Please advise.</p>	<p>The spec and estimate cost has been omitted in error.</p>
7	<p>Virgin - they provided 2 quotes. You went with earlier quote c£58k and not the later one c£42k. Please advise.</p>	<p>The £58k is for J29 and the £42k for C832. Both should be included.</p>

2.0 APPENDIX 5 B: ESTIMATE RATIONALISATION

EAST OF EXETER TRANSPORT INFRASTRUCTURE PHASE 2

ESTIMATE OF COSTS

Rationalisation of current estimate with independent estimate

Current estimate produced by PB Ltd to November 2007 base
Independent estimate produced by Faithful + Gould to November 2007 base

Works (including preliminaries and contingencies).

PB total £9,763,824 F+G total £9,902,404 Variance £138,580

This section is sub divided into:

	variance
Preliminaries	495,869
Vehicle restraint	423,220
Earthworks	101,995
Roadworks	(-1,401,102)
Accommodation works	48,585
Environmental	150,826
Gantries	18,490
Retaining walls	114,990
Contingency	47,127

The majority of the variances are a consequence of different estimating procedures. The PB estimates included secondary excavation to formation, capping and accommodation works fencing within roadworks together with some elements of the preliminaries and contingencies. In the F+G estimate these have been included in the separate sections. In total the variances cancel out with only vehicle restraint having noticeable estimating differences.

Vehicle restraint: F+G contend that the Highways Agency will require all barriers within and adjacent to the scheme to be upgraded to the current standard. The PB estimate only allowed for adjustments where required. It is accepted that F+G may be correct in their assumption

Ancillary Works

PB total £330,334 F+G total £684,250 Variance £353,916

The major part of the variance is the omission from the PB estimates of the costs of removal of the Blackhorse slip roads. In addition the F+G total includes inflation which is included separately in the PB estimate

Statutory Undertakers Costs

PB total £757,407 F+G total £909,333 Variance £151,926

The variance is mainly accounted for by the addition of inflation to the F+G totals which is included separately in the PB estimate. Neither estimate includes the 18% NRSWA undertaker contribution.

Preparation Costs

PB total £950,470 F+G total £851,111 Variance £(-99,358)

F+G estimate is 8% of the construction cost. PB estimate is made up of a series of identified elements. The variance cannot be rationalised but is not considered significant.

Land Costs

No variance (PB supplied figures not available for independent check)

Part 1 Claims

No variance (PB supplied figures not available for independent check)

Risk

PB total £1,382,866 F+G total £1,403,890 Variance £(-21,024)

PB figure had not been updated at the time of submission to F+G. There is now no variance.

Inflation

PB total £1,143,550 F+G total £2,041,083 Variance £897,533

The inflation total is made up of two parts, RPI (from the Treasury Green Book) and the additional construction inflation. COBA analysis utilises the additional construction inflation only and that figure has been used in error in the PB estimate. It is accepted that the F+G calculation, which includes RPI, is the correct method for the MSB.

Optimism Bias

PB total £3,766,280 F+G total £2,781,157 Variance £(-985,123)

Optimism bias has three levels depending on an assessment of the scheme development, 44% for preliminary development, 15% for more detailed development and 3% for pre-tender level. PB assessment takes 50% of the 44% level giving a bias of 22%. F+G assessed the design was sufficiently advanced to be within the 15% band and have used a bias of 15%.

Scheme Cost

PB total £20,855,755 F+G total £21,322,206 Variance £436,451

Comment

The F+G total estimate is 2% above the PB estimate. A correction of the PB estimate for inflation and acceptance of the F+G optimism bias would reduce the variance by a further £100,000 to 1.5%. It is considered that the two estimates are within an acceptable level of verification at this stage of the design.

M. Helliwell