

APPENDIX 5a – Optimism bias calculations

OPTIMISM BIAS: CONTRIBUTORY FACTORS AND MITIGATION

Contributory Factor to Upper Bound	% Factor Contributes	Stage	Mitigation Factor	% After Mitigation
Progress with Planning Approval	4%	SOC	Opened discussion with planning authority, some engagement	4%
		OBC	Outline consent in place, with any Planning Conditions and requirements for Section 106 or similar agreements established, including any specific requirements of e.g. Environmental Agency	
		FBC	Full Consent in place. Judicial Review period passed	
Other Regulatory	4%	SOC	Degree of sign off from Fire Authority, HSE, transport authority, local government etc	4%
		OBC		
		FBC		
Depth of surveying of site/ground information	3%	SOC	Desktop study undertaken of own site	3%
		OBC	Investigations undertaken, historical records examined	
		FBC	Full survey of conditions, site services and topographics	
Detail of design	4%	SOC	Concept/masterplan/DCP	4%
		OBC	1:500s agreed and selected 1:200s	
		FBC	All 1:200s in place, key 1:50s (depends on procurement route)	
Innovative project/design	3%	SOC	Yes/No	1%
		OBC		
		FBC		
Design complexity	4%	SOC	This might include complex M&E solutions (requires further development)	2%
		OBC		
		FBC		
Likely variations from Standard Contract	2%	SOC	No contract chosen	2%
		OBC	Yes/No with measurement of scale variations	
		FBC		
Design Team capabilities	3%	SOC	Previous relevant experience of individuals involved. Capacity	0%
		OBC		
		FBC		
Contractor's capabilities	2%	SOC	Previous relevant experience of individuals involved. Capacity. Track record of delivery	1%
		OBC		
		FBC		
Contractor involvement	2%	SOC	Buildability. Opportunity to influence design	1%
		OBC		
		FBC		
Client capability and capacity	6%	SOC	Degree of team in place with relevant experience	4%
		OBC	Full team in place for procurement	
		FBC	Robust implementation plan in place	
Robustness of Output Specification	25%	SOC	Definition of scope and extent of services. Degree of outstanding decisions	15%
		OBC		
		FBC		

Involvement of Stakeholders, including Public and Patient Involvement	5%	SOC	Scope of stakeholders to be involved. Plan in place to engage	5%
		OBC	Implementation of Plan	
		FBC	Involvement demonstrated	
Agreement to Output Specification by stakeholders	5%	SOC	Letters of support from clinicians, Trade Unions, staff groups, patient representatives/groups	5%
		OBC		
		FBC		
New service or traditional	3%	SOC	Assessment of how innovative/new service model is at national/regional/local level. Has this ever been tried before?	2%
		OBC		
		FBC		
Local community consent	3%	SOC	Consideration of traffic noise/existence of protestors or pressure groups	2%
		OBC		
		FBC		
Stable policy environment	20%	SOC	Degree to which new policy/standards are applicable depending upon which stage is reached	15%
		OBC		
		FBC		
Likely competition in the market for the project	2%	SOC	Degree project has been marketed	0%
		OBC	Evidence of market interest	
		FBC	Mitigated	
TOTAL	100%			70%

Note: Across all contributory factors, mitigation would be expected to be greater the greater the extent of risk quantification and risk management (including the extent to which it is captured in contingencies)



OPTIMISM BIAS - UPPER BOUND CALCULATION

Lowest & Upper Bound	13%
Mid %	40%
Upper %	76%
Actual % Upper Bound for this project	31%

Build complexity			
<i>Choose 1 category</i>			
<i>Length of Build</i>	< 2 years	0.50%	0.50%
	2 to 4 years	1.00%	
	Over 4 years	4.00%	
<i>Choose 1 category</i>			
<i>Number of phases</i>	1 or 2 phases	0.50%	0.50%
	3 or 4 phases	2.00%	
	More than 4 Phases	5.00%	
<i>Choose 1 category</i>			
<i>Number of sites involved (i.e. before and after change)</i>	Single site	2.00%	
	2 sites	2.00%	2.00%
	More than 2 sites	5.00%	
Location			
<i>Green field</i>	New build	3%	
	<i>Brown field</i> New build	8%	
<i>Existing site</i>	New build	5%	
		<i>or</i>	
	Less than 15% refurb	6%	
	15% - 50% refurb	10%	10.00%
	Over 50% refurb	15%	
Scope of scheme			
<i>Choose 1 category</i>			
<i>Facilities Management</i>	Hard FM only	0.00%	0.00%
	TUPE whole service	2.00%	
	RoE whole service	2.00%	
<i>Choose 1 category</i>			
<i>Equipment</i>	Group 1&2 only	0.50%	0.50%
	Major medical equipment	1.50%	
	All equipment included	5.00%	
<i>Choose 1 category</i>			
<i>IT</i>	No IT implications	0.00%	
	Infrastructure	1.50%	1.50%
	Infrastructure & systems	5.00%	

<i>Choose more than 1 category if applicable</i>			
External stakeholders	Local NHS economy (e.g. DGH)	1.00%	1.00%
	Wider NHS economy (e.g. teaching DGH)	2.00%	
	NHS/Universities/Private/Vol sector	5.00%	
Service changes			
Stable environment, i.e. no change to service		5%	
Identified changes not quantified		10%	10%
Longer time frame service changes		20%	
Gateway			
<i>Choose 1 category</i>			
RPA Score	Low	0%	
	Medium	5%	5%
	High	10%	
		TOTAL	31.000%

CONTRIBUTION FACTORS AND MITIGATION	70%
UPPER BOUND CALCULATION	31%
TOTAL FACTOR TO APPLY TO ESTIMATE	22%

OPTIMISM BIAS: CONTRIBUTORY FACTORS AND MITIGATION

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		FBC		
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		OBC	Evidence of market interest	
		FBC	Mitigated	
TOTAL	100%			70%

Note: Across all contributory factors, mitigation would be expected to be greater the greater the extent of risk quantification and risk management (including the extent to which it is captured in contingencies)

OPTIMISM BIAS - UPPER BOUND CALCULATION

Lowest & Upper Bound	13%
Mid %	40%
Upper %	76%
Actual % Upper Bound for this project	33%

Build complexity			
<i>Choose 1 category</i>			
<i>Length of Build</i>	< 2 years	0.50%	
	2 to 4 years	1.00%	1.00%
	Over 4 years	4.00%	
<i>Choose 1 category</i>			
<i>Number of phases</i>	1 or 2 phases	0.50%	
	3 or 4 phases	2.00%	2.00%
	More than 4 Phases	5.00%	
<i>Choose 1 category</i>			
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	2 sites	2.00%	2.00%
	More than 2 sites	5.00%	
Location			
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	<i>Brown field</i> New build	8%	
<i>Existing site</i>	New build	5%	
		<i>or</i>	
	Less than 15% refurb	6%	
	15% - 50% refurb	10%	10.00%
	Over 50% refurb	15%	
Scope of scheme			
<i>Choose 1 category</i>			
<i>Facilities Management</i>	Hard FM only	0.00%	0.00%
	TUPE whole service	2.00%	
	RoE whole service	2.00%	
<i>Choose 1 category</i>			
<i>Equipment</i>	Group 1&2 only	0.50%	0.50%
	Major medical equipment	1.50%	
	All equipment included	5.00%	
<i>Choose 1 category</i>			
<i>IT</i>	No IT implications	0.00%	
	Infrastructure	1.50%	1.50%
	Infrastructure & systems	5.00%	

<i>Choose more than 1 category if applicable</i>			
External stakeholders	Local NHS economy (e.g. DGH)	1.00%	1.00%
	Wider NHS economy (e.g. teaching DGH)	2.00%	
	NHS/Universities/Private/Vol sector	5.00%	
Service changes			
Stable environment, i.e. no change to service		5%	
Identified changes not quantified		10%	10%
Longer time frame service changes		20%	
Gateway			
<i>Choose 1 category</i>			
RPA Score	Low	0%	
	Medium	5%	5%
	High	10%	
TOTAL			33.000%

CONTRIBUTION FACTORS AND MITIGATION	70%
UPPER BOUND CALCULATION	33%
TOTAL FACTOR TO APPLY TO ESTIMATE	23%

APPENDIX 5b – OB Forms

COST FORM OB1

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at PRH Potential Solution

CAPITAL COSTS: Summary

	Cost £	V.A.T. (at 20%) £	Cost incl V.A.T £
1 Department Costs (from Form OB2)	39,835,096	7,967,019	47,802,115
2 On Costs (a) (from Form OB3)	6,915,500	1,383,100	8,298,600
3 Work Cost Total (1+2) at PUBSEC 195	46,750,596	9,350,119	56,100,715
4 Provisional location adjustment Shropshire	-796,702	-159,340	-956,042
5 Sub-Total (3+4)	45,953,894	9,190,779	55,144,673
6 Fees (c) (from Form OB4)	7,670,800	(d) xxxxxxxxxxxxxx	7,670,800
7 Non-Works Costs (e)	0	0	0
	300,000	60,000	360,000
8 Equipment Cost (from OB2)	6,516,400	1,303,280	7,819,680
9A Planning contingencies 10%	5,113,800	1,022,760	6,136,560
9B Optimism Bias 22%	15,562,676	3,112,535	18,675,211
10 TOTAL (for approval purposes)(5+6+7+8+9a+9b)	81,117,570	14,689,354	95,806,924
11 Inflation Adjustments PUBSEC 195 to PUBSEC 217	5,184,542	1,036,908	6,221,450
12 FORECAST OUTTURN BUSINESS CASE	86,302,112	15,726,262	102,028,374

Cash Flow
YEAR

	EFL	SOURCE OTHER GOVERNMENT	PRIVATE	£ TOTAL
Total	0	0		0

This form completed by: RIDER HUNT
Telephone No: 0161 834 8922
Address: 12 Tenterden Street, Bury, BL0 0EG
Date: 02.03.16

COST FORM OB2

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at PRH Potential Solution

CAPITAL COSTS: Departmental

FUNCTIONAL CONTENT	FUNCTION UNIT/SPACE REQUIREMENTS	COST /M2 £	COST ALLOWANCE £	EQUIPMENT COST £
New building works at PRH			24,159,880	
Work to existing buildings at PRH			3,258,000	
New building works at RSH			3,952,000	
Work to existing buildings at RSH			3,971,000	
Adjust for inflation to PUBSEC 195 reporting level			4,494,216	
			39,835,096	
Less abatement for transferred equipment if applicable (0.%) (4)				
Departmental Costs and Equipment Costs to Summary (Form OB1)		£	39,835,096	6,516,400

COST FORM OB3

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at PRH Potential Solution

CAPITAL COSTS: On-Costs

	Estimated Cost (exc. VAT)	Percentage of Departmental Cost
	£	
1. Communications		
a. New Bridge Link at 1st Floor Level	82,500	
b. New hospital street	936,000	
c. Vertical circulation	675,000	2,013,500
d. Lifts	320,000	5.05%
2. "External" Building Works		
a. Drainage	1,750,000	
b. Roads, paths, parking	675,000	
c. Site layout, walls, fencing, gates	327,000	
d. Builders work for engineering services outside buildings)	2,752,000
		6.91%
3. "External" Engineering Works)	
a. Steam, condensate, heating, hot water and gas supply mains)	
b. Cold water mains and storage)	
c. Electricity mains, stand-by generating plant)	
d. Calorifiers and associated plant)	
e. Miscellaneous Services (connections)	0	0.00%
4. Auxiliary Buildings	0	0.00%
5. Other on-costs and abnormals		
a. Building		
i) Abnormal Foundations	1,500,000	
ii) Work to Existing Building	200,000	
iii) Service diversions	250,000	
v) Drop off and entrance canopies	200,000	
	2,150,000	5.40%
Total On-Costs to Summary OB1	6,915,500	

This form completed by: RIDER HUNT
12 Tenterden Street, Bury, BL9 ONT
Telephone: 0161 834 8922
Date: 02.03.16

COST FORM OB4

TRUST The Shrewsbury and Telford Hospital NHS Trust

SCHEME Sustainable Services Programme
Emergency and Acute Site at PRH Potential Solution

CAPITAL COSTS: Fees and Non-works costs

	£	Percentage of Works Cost %
1. Fees (including "in-house" resource costs)		
a. Architects		}
b. Structural Engineers		}
c. Mechanical Engineers		}
d. Electrical Engineers		}
e. Quantity Surveyors		}
f. Project Management		}
g. Project Sponsorship		}
h. Legal Fees		}
i. Site Supervision		}
j. Others (specify)		}
Design fees at 15%	7,670,800	
Total Fees to Summary (OB1)	£ 7,670,800	19.3%

£

2. Non-Works Costs		
a. Land purchase costs and associated legal fees		
b. Land receipts)	
c. Statutory and Local Authority charges)	
d. Building Regulations and Planning Fees)	300,000
e. Other (specify) e.g. decanting costs)	
Non-Works Costs to Summary (OB1)	£ 300,000	

Notes:

* Delete as appropriate

This form completed by: RIDER HUNT
 12 Tenterden Street, Bury, BL0 0EG

Telephone No. 0161 834 8922

Date 02.03.16

PRH Emergency and Acute

WORKS COSTS

<u>Area No</u>	<u>New Building Works (Based on DOH HPCGs)</u>		£	£
1	AEC (HBN 22)	722 m2 @	£2,280 / m2	1,646,160
2-3	Ward (HBN 04-01)	2,588 m2 @	£2,040 / m2	5,279,520
4	ED (HBN 22)	1,786 m2 @	£2,140 / m2	3,822,040
7	Main Entrance / Circulation	2,108 m2 @	£1,700 / m2	3,583,600
11	Critical Care (HBN 57 Supercost)	1,784 m2 @	£2,840 / m2	5,066,560
	Allowance for Main Plant Rooms	2,000 m2 @	£2,280 / m2	4,560,000
	Adjustment for single storey buildings	5,050 m2 @	£40 / m2	<u>202,000</u>
				24,159,880
	<u>Works To Existing Buildings</u>			
5	A+E to Urgent Care Centre Medium Refurbishment	1,155 m2 @	£1,500 / m2	1,732,500
12	Medium Refurbishment of Critical Care	1,017 m2 @	£1,500 / m2	<u>1,525,500</u>
				<u>3,258,000</u>
				27,417,880
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level			<u>3,486,667</u>
				30,904,547
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016			<u>-618,091</u>
				30,286,456
	<u>Site Wide Implications (current prices)</u>			
	New Bridge Link at 1st Floor Level	55 m2 @	£1,500 / m2	82,500
	Drop off and Entrance Canopies	2 nr	£100,000	200,000
	New Multi Storey Car Park			<u>Excluded</u>
				282,500
	<u>External Works</u>			
	Re-alignment of Entrance Road	item		500,000
	Hard Landscaping	3,500 m2 @	£50 / m2	175,000
	Soft Landscaping	10,700 m2 @	£10 / m2	107,000
	Retaining Wall 4m high	150 m2 @	£800 / m	120,000
	Allowance for Planting	item		50,000
	Allowance for Street Furniture	item		50,000
	Allowance for Building Drainage	item		<u>250,000</u>
				1,252,000
				<u>31,820,956</u>
			Carried Forward	31,820,956

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Emergency and Acute

			£	£
WORKS COSTS Continued			Brought Forward	31,820,956
 <u>Communications</u>				
New Build Hospital Street as AHR Schedule	624 m2 @	£1,500 / m2	936,000	
Vertical Circulation (say)	450 m2 @	£1,500 / m2	675,000	
Lifts	4 NO	£80,000 each	<u>320,000</u>	1,931,000
 <u>Undefined Allowances / Provisional Sums</u>				
Poor ground conditions			1,500,000	
Additional drainage, external works and external services			1,500,000	
Allowance for service and drainage, diversions and connections			250,000	
Connections / breakthroughs to existing buildings			<u>200,000</u>	<u>3,450,000</u>
				37,201,956
Adjust to current prices from PUBSEC 195 - 217				<u>4,197,144</u>
				41,399,100
 TRUST COSTS				
Fees at 15% of Works Cost- as HPCGs			6,209,900	
Non-works costs, including planning fees (allowance based on "typical" building)			200,000	
Equipment (say 15% of departmental costs) as HPCGs			5,055,500	
Planning Contingencies (10% of Works Cost)			<u>4,139,900</u>	<u>15,605,300</u>
				57,004,400
Add Optimism Bias - 22% of Capital Cost				<u>12,540,968</u>
				69,545,368
VALUE ADDED TAX - 20%				<u>13,909,100</u>
				83,454,468
Potential VAT Recovery				
Less: Fees (100% recovery assumed)			1,242,000	
Extensions (no recovery assumed)			0	
Refurbishment (no recovery assumed)			<u>0</u>	<u>-1,242,000</u>
				PRH HOT SITE OPTION 4 TOTAL PROJECT ESTIMATE
			£	<u><u>82,212,468</u></u>

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Emergency and Acute

<u>Summary</u>	
WORKS COST (EXCL VAT)	£ 41,399,000
TOTAL CAPITAL (EXCL VAT)	£ 57,004,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£ 69,545,000
TOTAL CAPITAL (INCL VAT)	£ 83,454,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£ 82,212,000

RSH Acute and Planned

WORKS COSTS

<u>Area No</u>	<u>Work to Existing Buildings</u>		£	£
3	Convert short stay to UCC Medium Refurbishment	850 m2 @ £1,500 / m2	1,275,000	
4	Convert Escalation to UCC Medium Refurbishment	290 m2 @ £1,500 / m2	435,000	
5	Convert A+E into UCC Medium Refurbishment	660 m2 @ £1,500 / m2	990,000	
9	Ward to Training Ward Refresh	1,349 m2 @ £500 / m2	674,500	
11	Fracture Clinic to UCC Medium Refurbishment	390 m2 @ £1,500 / m2	585,000	
6	Demolition Offices	230 m2 @ £50 / m2	11,500	
<u>New Building Works</u>				
11a	POPD/ANC/PANDA (HBN 09-02)	800 m2 @ £2,470 / m2	1,976,000	
15 (a)	MLU (HBN 09-02)	800 m2 @ £2,470 / m2	<u>1,976,000</u>	<u>7,923,000</u>
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level			<u>1,007,549</u>
				8,930,549
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016			<u>-178,611</u>
				8,751,938
	Adjust to current prices from PUBSEC 195 - 217			<u>987,398</u>
				9,739,336

TRUST COSTS

Fees at 15% of Works Cost- as HPCGs	1,460,900	
Non-works costs, including planning fees (allowance based on "typical" building)	100,000	
Equipment (say 15% of departmental costs) as HPCGs	1,460,900	
Planning Contingencies (10% of Works Cost)	<u>973,900</u>	<u>3,995,700</u>
		13,735,036
Add Optimism Bias - 22% of Capital Cost		<u>3,021,708</u>
		16,756,744

Carried Forward 16,756,744

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Acute and Planned

	£	£
Brought Forward		16,756,744
VALUE ADDED TAX - 20%		<u>3,351,300</u>
		20,108,044
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	292,200	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-292,200</u>
RHS WARM SITE OPTION 4 TOTAL PROJECT ESTIMATE	£	<u><u>19,815,844</u></u>

NOTES:

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Summary

WORKS COST (EXCL VAT)	£	8,752,000
TOTAL CAPITAL (EXCL VAT)	£	13,735,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	16,757,000
TOTAL CAPITAL (INCL VAT)	£	20,108,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	19,816,000

COST FORM OB1

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at RSH Potential Solution

CAPITAL COSTS: Summary

	Cost £	V.A.T. (at 20%) £	Cost incl V.A.T £
1 Department Costs (from Form OB2)	71,970,668	14,394,134	86,364,801
2 On Costs (a) (from Form OB3)	16,592,490	3,318,498	19,910,988
3 Work Cost Total (1+2) at PUBSEC 195	88,563,158	17,712,632	106,275,789
4 Provisional location adjustment Shropshire	-1,439,413	-287,883	-1,727,296
5 Sub-Total (3+4)	87,123,744	17,424,749	104,548,493
6 Fees (c) (from Form OB4)	14,542,900	(d) xxxxxxxxxxxxxx	14,542,900
7 Non-Works Costs (e)	0	0	0
	300,000	60,000	360,000
8 Equipment Cost (from OB2)	12,813,200	2,562,640	15,375,840
9A Planning contingencies 10%	9,695,300	1,939,060	11,634,360
9B Optimism Bias 23%	30,890,033	6,178,007	37,068,039
10 TOTAL (for approval purposes)(5+6+7+8+9a+9b)	155,365,177	28,164,455	183,529,632
11 Inflation Adjustments PUBSEC 195 to PUBSEC 217	9,829,346	1,965,869	11,795,215
12 FORECAST OUTTURN BUSINESS CASE	165,194,522	30,130,324	195,324,847

Cash Flow YEAR	EFL	SOURCE OTHER GOVERNMENT	PRIVATE	£ TOTAL
Total	0	0		0

This form completed by: RIDER HUNT
 Telephone No: 0161 834 8922
 Address: 12 Tenterden Street, Bury, BL0 0EG
 Date: 02.03.16

COST FORM OB2

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at RSH Potential Solution

CAPITAL COSTS: Departmental

FUNCTIONAL CONTENT	FUNCTION UNIT/SPACE REQUIREMENTS	COST /M2 £	COST ALLOWANCE £	EQUIPMENT COST £
New building works at RSH			45,172,900	
Work to existing buildings at RSH			6,396,600	
New building works at PRH			0	
Work to existing buildings at PRH			12,281,400	
Adjust for inflation to PUBSEC 195 reporting level			8,119,768	
			71,970,668	
Less abatement for transferred equipment if applicable (0.%) (4)				
Departmental Costs and Equipment Costs to Summary (Form OB1)		£	71,970,668	12,813,200

COST FORM OB3

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at RSH Potential Solution

CAPITAL COSTS: On-Costs

	Estimated Cost (exc. VAT)	Percentage of Departmental Cost
	£	
1. Communications		
a. Replacement buildings	6,030,000	
b. New hospital street	1,263,000	
c. Vertical circulation	900,000	
d. Lifts	240,000	
	8,433,000	11.72%
2. "External" Building Works		
a. Drainage	3,000,000	
b. Roads, paths, parking	806,550	
c. Site layout, walls, fencing, gates	364,940	
d. Builders work for engineering services outside buildings)		
	4,171,490	5.80%
3. "External" Engineering Works)		
a. Steam, condensate, heating, hot water and gas supply mains)		
b. Cold water mains and storage)		
c. Electricity mains, stand-by generating plant)		
d. Removal of underground tanks	100,000	
e. Removal of generator	10,000	
	110,000	0.15%
4. Auxiliary Buildings		0.00%
a. Demolition	700,000	
	700,000	
5. Other on-costs and abnormals		
a. Building		
i) Abnormal Foundations	2,000,000	
ii) Work to Existing Building	250,000	
iii) Service diversions	500,000	
v) Drop off and entrance canopies	200,000	
vi) Underground walkway duct	228,000	
	3,178,000	4.42%
Total On-Costs to Summary OB1	16,592,490	

This form completed by: RIDER HUNT
12 Tenterden Street, Bury, BL9 ONT
Telephone: 0161 834 8922
Date: 02.03.16

COST FORM OB4

TRUST The Shrewsbury and Telford Hospital NHS Trust

SCHEME Sustainable Services Programme
Emergency and Acute Site at RSH Potential Solution

CAPITAL COSTS: Fees and Non-works costs

	£	Percentage of Works Cost %
1. Fees (including "in-house" resource costs)		
a. Architects		}
b. Structural Engineers		}
c. Mechanical Engineers		}
d. Electrical Engineers		}
e. Quantity Surveyors		}
f. Project Management		}
g. Project Sponsorship		}
h. Legal Fees		}
i. Site Supervision		}
j. Others (specify)		}
Design fees at 15%	14,542,900	
Total Fees to Summary (OB1)	£ 14,542,900	20.2%

£

2. Non-Works Costs		
a. Land purchase costs and associated legal fees		
b. Land receipts)	
c. Statutory and Local Authority charges)	
d. Building Regulations and Planning Fees)	300,000
e. Other (specify) e.g. decanting costs)	
Non-Works Costs to Summary (OB1)	£	<u>300,000</u>

Notes:

* Delete as appropriate

This form completed by: RIDER HUNT
12 Tenterden Street, Bury, BL0 0EG
Telephone No. 0161 834 8922
Date 02.03.16

RSH Emergency and Acute

WORKS COSTS

			£	£
<u>Area No</u>	<u>New Building Works (Based on DOH HPCGs)</u>			
16	AEC (HBN 22)	578 m2 @	£2,140 / m2	1,236,920
16a	UCC (HBN 12)	1,050 m2 @	£2,040 / m2	2,142,000
17	ED (HBN 22)	1,786 m2 @	£2,140 / m2	3,822,040
18	Critical Care (HBN 57 Supercost)	2,741 m2 @	£2,840 / m2	7,784,440
19	Paediatrics In (HBN 09-02)	1,580 m2 @	£2,470 / m2	3,902,600
20	Antenatal (HBN 09-02)	1,072 m2 @	£2,470 / m2	2,647,840
21	Post natal (HBN 09-02)	857 m2 @	£2,470 / m2	2,116,790
24	Neo natal (HBN 09-02)	1,072 m2 @	£2,470 / m2	2,647,840
24a	Obs. Theatre (HBN 09-02)	508 m2 @	£2,470 / m2	1,254,760
25	Delivery Suite (HBN 09-02)	1,027 m2 @	£2,470 / m2	2,536,690
	Main Entrance / Circulation	2,575 m2 @	£1,700 / m2	4,377,500
	Allowance for Main Plant Rooms	4,300 m2 @	£2,400 / m2	10,320,000
	Adjustment for single storey buildings	9,587 m2 @	£40 / m2	<u>383,480</u>
				45,172,900
	<u>Works To Existing Buildings</u>			
2	Convert stores to Paediatrics OPD Heavy refurbishment	584 m2 @	£1,900 / m2	1,109,600
6	Refurb Atrium/Staff Admin Light refurbishment	685 m2 @	£900 / m2	616,500
7	Convert existing ward to MLU Medium Refurbishment	1,423 m2 @	£1,500 / m2	2,134,500
8	HDU Empty no work	119 m2 @	/ m2	0
9	ITU Empty no work	394 m2 @	/ m2	0
10	Part A+E converted to Imaging Medium Refurbishment	1,103 m2 @	£1,500 / m2	1,654,500
12	Existing ward into practice ward Refresh	1,293 m2 @	£500 / m2	646,500
13	Wards Empty no work	4,079 m2 @	/ m2	0
15	Refresh Staff/Admin	470 m2 @	£500 / m2	<u>235,000</u>
				<u>6,396,600</u>
				51,569,500
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level			<u>6,557,971</u>
				58,127,471
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016			<u>-1,162,549</u>
				<u>56,964,922</u>
				<u>56,964,922</u>
			Carried Forward	56,964,922

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Emergency and Acute

WORKS COSTS Continued

	£	£
	Brought Forward	56,964,922

Site Wide Implications (current prices)

Replacement Buildings

Emergency Generator and Boiler House Extensions	221 m2 @	£2,000 / m2	442,000	
Reprovided Stores and Loading Bay	1,600 m2 @	£1,000 / m2	1,600,000	
Reprovided Estates Department	1,300 m2 @	£1,700 / m2	2,210,000	
New Regen Kitchen	460 m2 @	£2,300 / m2	1,058,000	
Reprovided Catering	400 m2 @	£1,800 / m2	720,000	
Drop off and entrance canopy	2 nr	£100,000	200,000	
New Multi Storey Car Park			Excluded	
Extra for rooftop helipad			<u>Excluded</u>	6,230,000

External Works

Perimeter road diversion	315 m2 @	£1,500 / m	472,500	
Hard Landscaping	6,681 m2 @	£50 / m2	334,050	
Soft Landscaping	15,294 m2 @	£10 / m2	152,940	
Retaining Wall 3.5 high	160 m2 @	£700 / m	112,000	
New Underground walkway Duct	190 m2 @	£1,200 / m	228,000	
Allowance for Planting	item		50,000	
Allowance for Street Furniture	item		50,000	
Allowance for Building Drainage	item		500,000	
Allowance for Removing Underground Tanks	item		100,000	
Allowance for Decommissioning and Removing Emergency Generator	item		10,000	
Allowance for Demolition of Existing Buildings circa 4000 m2 as indicated on AHR schedule and Main Entrance Plan			<u>700,000</u>	2,709,490

Communications

New Build Hospital Street as AHR Schedule	842 m2 @	£1,500 / m2	1,263,000	
Vertical Circulation (say)	600 m2 @	£1,500 / m2	900,000	
Lifts	3 NO	£80,000 each	<u>240,000</u>	2,403,000

	Carried Forward	68,307,412
--	-----------------	------------

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Emergency and Acute

	£	£
WORKS COSTS Continued	Brought Forward	68,307,412
 <u>Undefined Allowances / Provisional Sums</u>		
Poor ground conditions	2,000,000	
Additional drainage, external works and external services	2,500,000	
Allowance for service and drainage, diversions and connections	500,000	
Connections / breakthroughs to existing buildings	<u>250,000</u>	<u>5,250,000</u>
		73,557,412
Adjust to current prices from PUBSEC 195 - 217		8,298,785
		<hr/>
	TOTAL WORKS COST EXCLUDING VAT	81,856,197
 TRUST COSTS		
Fees at 15% of Works Cost- as HPCGs	12,278,400	
Non-works costs, including planning fees (allowance based on "typical" building)	200,000	
Equipment (say 15% of departmental costs) as HPCGs	10,548,700	
Planning Contingencies (10% of Works Cost)	<u>8,185,600</u>	<u>31,212,700</u>
	TOTAL CAPITAL COST EXCLUDING VAT	113,068,897
Add Optimism Bias - 23% of Capital Cost		26,005,846
	TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT	139,074,743
VALUE ADDED TAX - 20%		<u>27,814,900</u>
		166,889,643
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	2,455,700	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-2,455,700</u>
	RSH HOT SITE OPTION 4 TOTAL PROJECT ESTIMATE	£ <u><u>164,433,943</u></u>

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

<u>Summary</u>		
WORKS COST (EXCL VAT)	£	81,856,000
TOTAL CAPITAL (EXCL VAT)	£	113,069,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	139,075,000
TOTAL CAPITAL (INCL VAT)	£	166,890,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	164,434,000

PRH Acute and Planned

WORKS COSTS

<u>Area No</u>	<u>Work to Existing Buildings</u>		£	£
1	Convert Post natal/Antenatal into new Treatment Centre Light/Medium Refurbishment	2,518 m2 @	£1,200 / m2	3,021,600
2	Convert Paeds. Outpatients into ward Light/Medium Refurbishment	1,926 m2 @	£1,200 / m2	2,311,200
3	Paediatric Inpatients to ward - no work	1,417 m2 @	/ m2	0
4	Convert A+E into UCC Medium Refurbishment	1,180 m2 @	£1,500 / m2	1,770,000
5	Stroke ward - no work	492 m2 @	/ m2	0
6	Stroke ward - no work	365 m2 @	/ m2	0
7	Convert Neo-natal Unit/ Delivery Suite into new Treatment Medium/ Light Refurbishment	2,518 m2 @	£1,200 / m2	3,021,600
8	Convert ward treatment into ward Light/Medium Refurbishment for 50% of area	535 m2 @	£1,200 / m2	642,000
9-14	Existing ward - no work	3,000 m2 @	/ m2	0
15	Convert CCU into AEC Medium Refurbishment	1,010 m2 @	£1,500 / m2	1,515,000
16-18	Existing ward - no work	1,500 m2 @	/ m2	0
				<u>12,281,400</u>
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level			<u>1,561,797</u>
				13,843,197
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016			<u>-276,864</u>
				13,566,333
	Adjust to current prices from PUBSEC 195 - 217			<u>1,530,561</u>
				15,096,893
 Trust Costs				
	Fees at 15% of Works Cost- as HPCGs			2,264,500
	Non-works costs, including planning fees (allowance based on "typical" building)			100,000
	Equipment (say 15% of departmental costs) as HPCGs			2,264,500
	Planning Contingencies (10% of Works Cost)			<u>1,509,700</u>
				<u>6,138,700</u>
				21,235,593
	Add Optimism Bias - 23% of Capital Cost			4,884,186
				<u>26,119,780</u>
				26,119,780
				<u>26,119,780</u>
				Carried Forward
				26,119,780

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Acute and Planned

	£	£
Brought Forward		26,119,780
VALUE ADDED TAX - 20%		<u>5,224,000</u>
Potential VAT Recovery		31,343,780
Less: Fees (100% recovery assumed)	452,900	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-452,900</u>

PRH WARM SITE OPTION 4 TOTAL PROJECT ESTIMATE £ 30,890,880

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

Summary

WORKS COST (EXCL VAT)	£	15,097,000
TOTAL CAPITAL (EXCL VAT)	£	21,236,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	26,120,000
TOTAL CAPITAL (INCL VAT)	£	31,344,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	30,891,000

APPENDIX 5c – High level cost estimates (for information only)



The Shrewsbury and Telford Hospital NHS Trust

Sustainable Services Programme

PRH Emergency and Acute/RSH Acute and Planned

High Level Cost Estimates

Potential Solution

March 2016

**Rider Hunt Construction Consultants LLP
12 Tenterden Street
Bury
BL9 0EG**

The Shrewsbury and Telford Hospital NHS Trust
Sustainable Services Programme

PRH Hot Site/RSH Warm Site

Summary of Total Project Estimate for Potential Solution

Capital cost of Works at PRH	£82,212,468
Capital cost of works at RSH	£19,815,844
Total Capital Cost of Potential Solution	£102,028,312

Sustainable Services Programme

High Level Cost Estimate

NOTES AND CLARIFICATIONS

The estimated costs have been based on the AHR Schedules of Areas with current revisions for all options and the site wide implication drawings.

The estimates exclude the costs of multi-storey car parks and the helipads at both sites.

As confirmed by AHR the areas scheduled include an allowance for circulation and engineering within the department and Rider Hunt have added an allowance for main plant rooms and communication space between departments.

The rates per m2 are calculated mainly from DoH HPCGs and adjusted accordingly for storey height, location factor and inflation to current prices.

For refurbishment projects, a percentage of the new build rate has been taken based on the type of refurbishment indicated on the schedules.

The costs have been adjusted to current levels (PUBSEC 217) but **NO ALLOWANCE** is included for inflation up to start on site or during the construction period, as no programme information is currently available.

The estimates assume that the existing hospital engineering services infrastructure have the capacity to supply the new extensions and therefore **EXCLUDE** any upgrades (eg boilers, distribution, medical gases, sub-stations, back up generators etc etc), as we are unable to quantify at this stage. All services being connected into are assumed to be in good working order.

The new extensions are increasing the size of the overall hospital buildings at the "hot" site, which may lead to capacity issues with shared support services (eg catering, stores, IT, pathology, offices, mortuary, FM etc). All upgrades, amendments and increased capacity to these items **ARE EXCLUDED**, as we are unable to quantify at this stage.

It is assumed that the buildings are able to be constructed and areas can be refurbished as shown on the plans, and this has not been verified.

The costs assume that sufficient space is available to construct the new buildings/ carry out the refurbishments, suitable and sufficient access is available for construction activity, and there are no unusual or difficult working conditions or restrictions

Allowances for on-costs, abnormal, site specific costs are estimated lump sums based on similar recent projects and must be regarded as very approximate at this stage

An allowance of 15% for fees has been allowed for the project as HPCG guidance

An allowance of 15% for equipment costs has been included as HPCG guidance

The works costs have been adjusted by the location factor for 'Shropshire' as published by BCIS

An allowance has been made for Optimism Bias, based on the attached calculations totalling 22%

Recovery on VAT has been assumed based on fees only as similar schemes. It is suggested the Trust seek specialist advice in order to pursue further recovery.

We have excluded any costs for:

- Hire of temporary buildings, works associated with temporary accommodation, or temporary diagnostics
- Costs for decanting, moves, moving equipment, and items moved off site (eg medical records)
- Contaminated land and remediation
- Asbestos surveys and removal
- Land purchase/Site acquisition
- Exceptionally poor ground conditions (general allowance only for poor ground conditions)
- Legal fees
- Trust internal costs and fees
- Costs associated with establishing a procurement vehicle
- Medical equipment and diagnostic equipment (CT, MRI, Ultrasound etc.) Equipment allowance on HPCG guidance only.
- Energy costs and bringing into use
- Additional or replacement parking
- Additional or replacement offices (unless specifically identified)
- Significant external works
- Backlog maintenance and existing building defects
- Upgrades to shared support services
- Site infrastructure upgrades, repairs, and any additional infrastructure
- Unusual or difficult access or working conditions
- Remodelling of roads or access ways
- Prolongation or lengthened construction programme above a typical duration
- Unusual or restrictive planning conditions

PRH Emergency and Acute

WORKS COSTS

<u>Area No</u>	<u>New Building Works (Based on DOH HPCGs)</u>		£	£
1	AEC (HBN 22)	722 m2 @	£2,280 / m2	1,646,160
2-3	Ward (HBN 04-01)	2,588 m2 @	£2,040 / m2	5,279,520
4	ED (HBN 22)	1,786 m2 @	£2,140 / m2	3,822,040
7	Main Entrance / Circulation	2,108 m2 @	£1,700 / m2	3,583,600
11	Critical Care (HBN 57 Supercost)	1,784 m2 @	£2,840 / m2	5,066,560
	Allowance for Main Plant Rooms	2,000 m2 @	£2,280 / m2	4,560,000
	Adjustment for single storey buildings	5,050 m2 @	£40 / m2	<u>202,000</u>
				24,159,880
	<u>Works To Existing Buildings</u>			
5	A+E to Urgent Care Centre Medium Refurbishment	1,155 m2 @	£1,500 / m2	1,732,500
12	Medium Refurbishment of Critical Care	1,017 m2 @	£1,500 / m2	<u>1,525,500</u>
				<u>3,258,000</u>
				27,417,880
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level			<u>3,486,667</u>
				30,904,547
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016			<u>-618,091</u>
				30,286,456
	<u>Site Wide Implications (current prices)</u>			
	New Bridge Link at 1st Floor Level	55 m2 @	£1,500 / m2	82,500
	Drop off and Entrance Canopies	2 nr	£100,000	200,000
	New Multi Storey Car Park			<u>Excluded</u>
				282,500
	<u>External Works</u>			
	Re-alignment of Entrance Road	item		500,000
	Hard Landscaping	3,500 m2 @	£50 / m2	175,000
	Soft Landscaping	10,700 m2 @	£10 / m2	107,000
	Retaining Wall 4m high	150 m2 @	£800 / m	120,000
	Allowance for Planting	item		50,000
	Allowance for Street Furniture	item		50,000
	Allowance for Building Drainage	item		<u>250,000</u>
				1,252,000
				<u>31,820,956</u>
			Carried Forward	31,820,956

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Emergency and Acute

			£	£
WORKS COSTS Continued			Brought Forward	31,820,956
 <u>Communications</u>				
New Build Hospital Street as AHR Schedule	624 m2 @	£1,500 / m2	936,000	
Vertical Circulation (say)	450 m2 @	£1,500 / m2	675,000	
Lifts	4 NO	£80,000 each	<u>320,000</u>	1,931,000
 <u>Undefined Allowances / Provisional Sums</u>				
Poor ground conditions			1,500,000	
Additional drainage, external works and external services			1,500,000	
Allowance for service and drainage, diversions and connections			250,000	
Connections / breakthroughs to existing buildings			<u>200,000</u>	<u>3,450,000</u>
				37,201,956
Adjust to current prices from PUBSEC 195 - 217				<u>4,197,144</u>
				41,399,100
 TRUST COSTS				
Fees at 15% of Works Cost- as HPCGs			6,209,900	
Non-works costs, including planning fees (allowance based on "typical" building)			200,000	
Equipment (say 15% of departmental costs) as HPCGs			5,055,500	
Planning Contingencies (10% of Works Cost)			<u>4,139,900</u>	<u>15,605,300</u>
				57,004,400
Add Optimism Bias - 22% of Capital Cost				<u>12,540,968</u>
				69,545,368
VALUE ADDED TAX - 20%				<u>13,909,100</u>
				83,454,468
Potential VAT Recovery				
Less: Fees (100% recovery assumed)			1,242,000	
Extensions (no recovery assumed)			0	
Refurbishment (no recovery assumed)			<u>0</u>	<u>-1,242,000</u>
				PRH EMERGENCY AND ACUTE TOTAL PROJECT ESTIMATE
			£	<u><u>82,212,468</u></u>

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Emergency and Acute

<u>Summary</u>	
WORKS COST (EXCL VAT)	£ 41,399,000
TOTAL CAPITAL (EXCL VAT)	£ 57,004,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£ 69,545,000
TOTAL CAPITAL (INCL VAT)	£ 83,454,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£ 82,212,000

RSH Acute and Planned

WORKS COSTS

<u>Area No</u>	<u>Work to Existing Buildings</u>		£	£
3	Convert short stay to UCC Medium Refurbishment	850 m2 @ £1,500 / m2	1,275,000	
4	Convert Escalation to UCC Medium Refurbishment	290 m2 @ £1,500 / m2	435,000	
5	Convert A+E into UCC Medium Refurbishment	660 m2 @ £1,500 / m2	990,000	
9	Ward to Training Ward Refresh	1,349 m2 @ £500 / m2	674,500	
11	Fracture Clinic to UCC Medium Refurbishment	390 m2 @ £1,500 / m2	585,000	
6	Demolition Offices	230 m2 @ £50 / m2	11,500	
	<u>New Building Works</u>			
11a	POPD/ANC/PANDA (HBN 09-02)	800 m2 @ £2,470 / m2	1,976,000	
15 (a)	MLU (HBN 09-02)	800 m2 @ £2,470 / m2	<u>1,976,000</u>	<u>7,923,000</u>
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level			<u>1,007,549</u>
				8,930,549
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016			<u>-178,611</u>
				8,751,938
	Adjust to current prices from PUBSEC 195 - 217			<u>987,398</u>
				9,739,336

TRUST COSTS

Fees at 15% of Works Cost- as HPCGs	1,460,900	
Non-works costs, including planning fees (allowance based on "typical" building)	100,000	
Equipment (say 15% of departmental costs) as HPCGs	1,460,900	
Planning Contingencies (10% of Works Cost)	<u>973,900</u>	<u>3,995,700</u>
		13,735,036
Add Optimism Bias - 22% of Capital Cost		<u>3,021,708</u>
		16,756,744

Carried Forward 16,756,744

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Acute and Planned

	£	£
Brought Forward		16,756,744
VALUE ADDED TAX - 20%		<u>3,351,300</u>
		20,108,044
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	292,200	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-292,200</u>
RHS ACUTE AND PLANNED TOTAL PROJECT ESTIMATE	£	<u><u>19,815,844</u></u>

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

Summary

WORKS COST (EXCL VAT)	£	8,752,000
TOTAL CAPITAL (EXCL VAT)	£	13,735,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	16,757,000
TOTAL CAPITAL (INCL VAT)	£	20,108,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	19,816,000

OPTIMISM BIAS: CONTRIBUTORY FACTORS AND MITIGATION

Contributory Factor to Upper Bound	% Factor Contributes	Stage	Mitigation Factor	% After Mitigation
Progress with Planning Approval	4%	SOC	Opened discussion with planning authority, some engagement	4%
		OBC	Outline consent in place, with any Planning Conditions and requirements for Section 106 or similar agreements established, including any specific requirements of e.g. Environmental Agency	
		FBC	Full Consent in place. Judicial Review period passed	
Other Regulatory	4%	SOC	Degree of sign off from Fire Authority, HSE, transport authority, local government etc	4%
		OBC		
		FBC		
Depth of surveying of site/ground information	3%	SOC	Desktop study undertaken of own site	3%
		OBC	Investigations undertaken, historical records examined	
		FBC	Full survey of conditions, site services and topographics	
Detail of design	4%	SOC	Concept/masterplan/DCP	4%
		OBC	1:500s agreed and selected 1:200s	
		FBC	All 1:200s in place, key 1:50s (depends on procurement route)	
Innovative project/design	3%	SOC	Yes/No	1%
		OBC		
		FBC		
Design complexity	4%	SOC	This might include complex M&E solutions (requires further development)	2%
		OBC		
		FBC		
Likely variations from Standard Contract	2%	SOC	No contract chosen	2%
		OBC	Yes/No with measurement of scale variations	
		FBC		
Design Team capabilities	3%	SOC	Previous relevant experience of individuals involved. Capacity	0%
		OBC		
		FBC		
Contractor's capabilities	2%	SOC	Previous relevant experience of individuals involved. Capacity. Track record of delivery	1%
		OBC		
		FBC		
Contractor involvement	2%	SOC	Buildability. Opportunity to influence design	1%
		OBC		
		FBC		
Client capability and capacity	6%	SOC	Degree of team in place with relevant experience	4%
		OBC	Full team in place for procurement	
		FBC	Robust implementation plan in place	
Robustness of Output Specification	25%	SOC	Definition of scope and extent of services. Degree of outstanding decisions	15%
		OBC		
		FBC		

Involvement of Stakeholders, including Public and Patient Involvement	5%	SOC	Scope of stakeholders to be involved. Plan in place to engage	5%
		OBC	Implementation of Plan	
		FBC	Involvement demonstrated	
Agreement to Output Specification by stakeholders	5%	SOC	Letters of support from clinicians, Trade Unions, staff groups, patient representatives/groups	5%
		OBC		
		FBC		
New service or traditional	3%	SOC	Assessment of how innovative/new service model is at national/regional/local level. Has this ever been tried before?	2%
		OBC		
		FBC		
Local community consent	3%	SOC	Consideration of traffic noise/existence of protestors or pressure groups	2%
		OBC		
		FBC		
Stable policy environment	20%	SOC	Degree to which new policy/standards are applicable depending upon which stage is reached	15%
		OBC		
		FBC		
Likely competition in the market for the project	2%	SOC	Degree project has been marketed	0%
		OBC	Evidence of market interest	
		FBC	Mitigated	
TOTAL	100%			70%

Note: Across all contributory factors, mitigation would be expected to be greater the greater the extent of risk quantification and risk management (including the extent to which it is captured in contingencies)

OPTIMISM BIAS - UPPER BOUND CALCULATION

Lowest & Upper Bound	13%
Mid %	40%
Upper %	76%
Actual % Upper Bound for this project	31%

Build complexity			
<i>Choose 1 category</i>			
Length of Build	< 2 years	0.50%	0.50%
	2 to 4 years	1.00%	
	Over 4 years	4.00%	
<i>Choose 1 category</i>			
Number of phases	1 or 2 phases	0.50%	0.50%
	3 or 4 phases	2.00%	
	More than 4 Phases	5.00%	
<i>Choose 1 category</i>			
Number of sites involved <i>(i.e. before and after change)</i>	Single site	2.00%	
	2 sites	2.00%	2.00%
	More than 2 sites	5.00%	
Location			
Green field	New build	3%	
	Brown field	New build	8%
Existing site	New build	5%	
	Less than 15% refurb	6%	
	15% - 50% refurb	10%	10.00%
	Over 50% refurb	15%	
<i>or</i>			
Scope of scheme			
<i>Choose 1 category</i>			
Facilities Management	Hard FM only	0.00%	0.00%
	TUPE whole service	2.00%	
	RoE whole service	2.00%	
<i>Choose 1 category</i>			
Equipment	Group 1&2 only	0.50%	0.50%
	Major medical equipment	1.50%	
	All equipment included	5.00%	
<i>Choose 1 category</i>			
IT	No IT implications	0.00%	
	Infrastructure	1.50%	1.50%
	Infrastructure & systems	5.00%	

<i>Choose more than 1 category if applicable</i>			
External stakeholders	Local NHS economy (e.g. DGH)	1.00%	1.00%
	Wider NHS economy (e.g. teaching DGH)	2.00%	
	NHS/Universities/Private/Vol sector	5.00%	
Service changes			
Stable environment, i.e. no change to service		5%	
Identified changes not quantified		10%	10%
Longer time frame service changes		20%	
Gateway			
<i>Choose 1 category</i>			
RPA Score	Low	0%	
	Medium	5%	5%
	High	10%	
		TOTAL	31.000%

CONTRIBUTION FACTORS AND MITIGATION	70%
UPPER BOUND CALCULATION	31%
TOTAL FACTOR TO APPLY TO ESTIMATE	22%



The Shrewsbury and Telford Hospital NHS Trust

Sustainable Services Programme

RSH Emergency and Acute/PRH Acute and Planned

High Level Cost Estimates

Potential Solution

March 2016

**Rider Hunt Construction Consultants LLP
12 Tenterden Street
Bury
BL9 0EG**

The Shrewsbury and Telford Hospital NHS Trust
Sustainable Services Programme

RSH Emergency and Acute/PRH Acute and Planned

Summary of Total Project Estimate for Potential Solution

Capital cost of Works at RSH	£164,433,943
Capital cost of works at PRH	£30,890,880
Total Capital Cost of Potential Solution	£195,324,822

Sustainable Services Programme High Level Cost Estimate

NOTES AND CLARIFICATIONS

The estimated costs have been based on the AHR Schedules of Areas with current revisions for all options and the site wide implication drawings.

The estimates exclude the costs of multi-storey car parks and the helipads at both sites.

As confirmed by AHR the areas scheduled include an allowance for circulation and engineering within the department and Rider Hunt have added an allowance for main plant rooms and communication space between departments.

The rates per m2 are calculated mainly from DoH HPCGs and adjusted accordingly for storey height, location factor and inflation to current prices.

For refurbishment projects, a percentage of the new build rate has been taken based on the type of refurbishment indicated on the schedules.

The costs have been adjusted to current levels (PUBSEC 217) but **NO ALLOWANCE** is included for inflation up to start on site or during the construction period, as no programme information is currently available.

The estimates assume that the existing hospital engineering services infrastructure have the capacity to supply the new extensions and therefore **EXCLUDE** any upgrades (eg boilers, distribution, medical gases, sub-stations, back up generators etc etc), as we are unable to quantify at this stage. All services being connected into are assumed to be in good working order.

The new extensions are increasing the size of the overall hospital buildings at the "hot" site, which may lead to capacity issues with shared support services (eg catering, stores, IT, pathology, offices, mortuary, FM etc). All upgrades, amendments and increased capacity to these items **ARE EXCLUDED**, as we are unable to quantify at this stage.

It is assumed that the buildings are able to be constructed and areas can be refurbished as shown on the plans, and this has not been verified.

The costs assume that sufficient space is available to construct the new buildings/ carry out the refurbishments, suitable and sufficient access is available for construction activity, and there are no unusual or difficult working conditions or restrictions

Allowances for on-costs, abnormals, site specific costs are estimated lump sums based on similar recent projects and must be regarded as very approximate at this stage

An allowance of 15% for fees has been allowed for the project as HPCG guidance

An allowance of 15% for equipment costs has been included as HPCG guidance

The works costs have been adjusted by the location factor for 'Shropshire' as published by BCIS

An allowance has been made for Optimism Bias, based on the attached calculations totalling 23%

Recovery on VAT has been assumed based on fees only as similar schemes. It is suggested the Trust seek specialist advice in order to pursue further recovery.

We have excluded any costs for:

- Hire of temporary buildings, works associated with temporary accommodation, or temporary diagnostics
- Costs for decanting, moves, moving equipment, and items moved off site (eg medical records)
- Contaminated land and remediation
- Asbestos surveys and removal
- Land purchase/Site acquisition
- Exceptionally poor ground conditions (general allowance only for poor ground conditions)
- Legal fees
- Trust internal costs and fees
- Costs associated with establishing a procurement vehicle
- Medical equipment and diagnostic equipment (CT, MRI, Ultrasound etc.) Equipment allowance on HPCG guidance only.
- Energy costs and bringing into use
- Additional or replacement parking
- Additional or replacement offices (unless specifically identified)
- Significant external works
- Backlog maintenance and existing building defects
- Upgrades to shared support services
- Site infrastructure upgrades, repairs, and any additional infrastructure
- Unusual or difficult access or working conditions
- Remodelling of roads or access ways
- Prolongation or lengthened construction programme above a typical duration
- Unusual or restrictive planning conditions

RSH Emergency and Acute

WORKS COSTS

			£	£
<u>Area No</u>	<u>New Building Works (Based on DOH HPCGs)</u>			
16	AEC (HBN 22)	578 m2 @	£2,140 / m2	1,236,920
16a	UCC (HBN 12)	1,050 m2 @	£2,040 / m2	2,142,000
17	ED (HBN 22)	1,786 m2 @	£2,140 / m2	3,822,040
18	Critical Care (HBN 57 Supercost)	2,741 m2 @	£2,840 / m2	7,784,440
19	Paediatrics In (HBN 09-02)	1,580 m2 @	£2,470 / m2	3,902,600
20	Antenatal (HBN 09-02)	1,072 m2 @	£2,470 / m2	2,647,840
21	Post natal (HBN 09-02)	857 m2 @	£2,470 / m2	2,116,790
24	Neo natal (HBN 09-02)	1,072 m2 @	£2,470 / m2	2,647,840
24a	Obs. Theatre (HBN 09-02)	508 m2 @	£2,470 / m2	1,254,760
25	Delivery Suite (HBN 09-02)	1,027 m2 @	£2,470 / m2	2,536,690
	Main Entrance / Circulation	2,575 m2 @	£1,700 / m2	4,377,500
	Allowance for Main Plant Rooms	4,300 m2 @	£2,400 / m2	10,320,000
	Adjustment for single storey buildings	9,587 m2 @	£40 / m2	<u>383,480</u>
				45,172,900
	<u>Works To Existing Buildings</u>			
2	Convert stores to Paediatrics OPD Heavy refurbishment	584 m2 @	£1,900 / m2	1,109,600
6	Refurb Atrium/Staff Admin Light refurbishment	685 m2 @	£900 / m2	616,500
7	Convert existing ward to MLU Medium Refurbishment	1,423 m2 @	£1,500 / m2	2,134,500
8	HDU Empty no work	119 m2 @	/ m2	0
9	ITU Empty no work	394 m2 @	/ m2	0
10	Part A+E converted to Imaging Medium Refurbishment	1,103 m2 @	£1,500 / m2	1,654,500
12	Existing ward into practice ward Refresh	1,293 m2 @	£500 / m2	646,500
13	Wards Empty no work	4,079 m2 @	/ m2	0
15	Refresh Staff/Admin	470 m2 @	£500 / m2	<u>235,000</u>
				<u>6,396,600</u>
				51,569,500
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level			<u>6,557,971</u>
				58,127,471
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016			<u>-1,162,549</u>
				<u>56,964,922</u>
			Carried Forward	56,964,922

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Emergency and Acute

WORKS COSTS Continued

	£	£
	Brought Forward	56,964,922

Site Wide Implications (current prices)

Replacement Buildings

Emergency Generator and Boiler House Extensions	221 m2 @	£2,000 / m2	442,000	
Reprovided Stores and Loading Bay	1,600 m2 @	£1,000 / m2	1,600,000	
Reprovided Estates Department	1,300 m2 @	£1,700 / m2	2,210,000	
New Regen Kitchen	460 m2 @	£2,300 / m2	1,058,000	
Reprovided Catering	400 m2 @	£1,800 / m2	720,000	
Drop off and entrance canopy	2 nr	£100,000	200,000	
New Multi Storey Car Park			Excluded	
Extra for rooftop helipad			<u>Excluded</u>	6,230,000

External Works

Perimeter road diversion	315 m2 @	£1,500 / m	472,500	
Hard Landscaping	6,681 m2 @	£50 / m2	334,050	
Soft Landscaping	15,294 m2 @	£10 / m2	152,940	
Retaining Wall 3.5 high	160 m2 @	£700 / m	112,000	
New Underground walkway Duct	190 m2 @	£1,200 / m	228,000	
Allowance for Planting	item		50,000	
Allowance for Street Furniture	item		50,000	
Allowance for Building Drainage	item		500,000	
Allowance for Removing Underground Tanks	item		100,000	
Allowance for Decommissioning and Removing Emergency Generator	item		10,000	
Allowance for Demolition of Existing Buildings circa 4000 m2 as indicated on AHR schedule and Main Entrance Plan			<u>700,000</u>	2,709,490

Communications

New Build Hospital Street as AHR Schedule	842 m2 @	£1,500 / m2	1,263,000	
Vertical Circulation (say)	600 m2 @	£1,500 / m2	900,000	
Lifts	3 NO	£80,000 each	<u>240,000</u>	2,403,000

	Carried Forward	68,307,412
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The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Emergency and Acute

	£	£
WORKS COSTS Continued	Brought Forward	68,307,412
 <u>Undefined Allowances / Provisional Sums</u>		
Poor ground conditions	2,000,000	
Additional drainage, external works and external services	2,500,000	
Allowance for service and drainage, diversions and connections	500,000	
Connections / breakthroughs to existing buildings	<u>250,000</u>	<u>5,250,000</u>
		73,557,412
Adjust to current prices from PUBSEC 195 - 217		8,298,785
		<hr/>
	TOTAL WORKS COST EXCLUDING VAT	81,856,197
 TRUST COSTS		
Fees at 15% of Works Cost- as HPCGs	12,278,400	
Non-works costs, including planning fees (allowance based on "typical" building)	200,000	
Equipment (say 15% of departmental costs) as HPCGs	10,548,700	
Planning Contingencies (10% of Works Cost)	<u>8,185,600</u>	<u>31,212,700</u>
	TOTAL CAPITAL COST EXCLUDING VAT	113,068,897
Add Optimism Bias - 23% of Capital Cost		26,005,846
	TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT	139,074,743
VALUE ADDED TAX - 20%		<u>27,814,900</u>
		166,889,643
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	2,455,700	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-2,455,700</u>
	RSH EMERGENCY AND ACUTE TOTAL PROJECT ESTIMATE	£ 164,433,943

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

<u>Summary</u>		
WORKS COST (EXCL VAT)	£	81,856,000
TOTAL CAPITAL (EXCL VAT)	£	113,069,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	139,075,000
TOTAL CAPITAL (INCL VAT)	£	166,890,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	164,434,000

PRH Acute and Planned

WORKS COSTS

<u>Area No</u>	<u>Work to Existing Buildings</u>		£	£
1	Convert Post natal/Antenatal into new Treatment Centre Light/Medium Refurbishment	2,518 m2 @ £1,200 / m2	3,021,600	
2	Convert Paeds. Outpatients into ward Light/Medium Refurbishment	1,926 m2 @ £1,200 / m2	2,311,200	
3	Paediatric Inpatients to ward - no work	1,417 m2 @ / m2	0	
4	Convert A+E into UCC Medium Refurbishment	1,180 m2 @ £1,500 / m2	1,770,000	
5	Stroke ward - no work	492 m2 @ / m2	0	
6	Stroke ward - no work	365 m2 @ / m2	0	
7	Convert Neo-natal Unit/ Delivery Suite into new Treatment Medium/ Light Refurbishment	2,518 m2 @ £1,200 / m2	3,021,600	
8	Convert ward treatment into ward Light/Medium Refurbishment for 50% of area	535 m2 @ £1,200 / m2	642,000	
9-14	Existing ward - no work	3,000 m2 @ / m2	0	
15	Convert CCU into AEC Medium Refurbishment	1,010 m2 @ £1,500 / m2	1,515,000	
16-18	Existing ward - no work	1,500 m2 @ / m2	0	<u>12,281,400</u>
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level			<u>1,561,797</u>
				13,843,197
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016			<u>-276,864</u>
				13,566,333
	Adjust to current prices from PUBSEC 195 - 217			<u>1,530,561</u>
				15,096,893
Trust Costs				
	Fees at 15% of Works Cost- as HPCGs		2,264,500	
	Non-works costs, including planning fees (allowance based on "typical" building)		100,000	
	Equipment (say 15% of departmental costs) as HPCGs		2,264,500	
	Planning Contingencies (10% of Works Cost)		<u>1,509,700</u>	<u>6,138,700</u>
				21,235,593
	Add Optimism Bias - 23% of Capital Cost			<u>4,884,186</u>
				26,119,780
				<u>26,119,780</u>
			Carried Forward	26,119,780

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Acute and Planned

	£	£
	Brought Forward	26,119,780
VALUE ADDED TAX - 20%		<u>5,224,000</u>
		31,343,780
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	452,900	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-452,900</u>

PRH ACUTE AND PLANNED TOTAL PROJECT ESTIMATE £ 30,890,880

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

Summary

WORKS COST (EXCL VAT)	£	15,097,000
TOTAL CAPITAL (EXCL VAT)	£	21,236,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	26,120,000
TOTAL CAPITAL (INCL VAT)	£	31,344,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	30,891,000

OPTIMISM BIAS: CONTRIBUTORY FACTORS AND MITIGATION

Contributory Factor to Upper Bound	% Factor Contributes	Stage	Mitigation Factor	% After Mitigation
Progress with Planning Approval	4%	SOC	Opened discussion with planning authority, some engagement	
		OBC	Outline consent in place, with any Planning Conditions and requirements for Section 106 or similar agreements established, including any specific requirements of e.g. Environmental Agency	4%
		FBC	Full Consent in place. Judicial Review period passed	
Other Regulatory	4%	SOC	Degree of sign off from Fire Authority, HSE, transport authority, local government etc	4%
		OBC		
		FBC		
Depth of surveying of site/ground information	3%	SOC	Desktop study undertaken of own site	3%
		OBC	Investigations undertaken, historical records examined	
		FBC	Full survey of conditions, site services and topographics	
Detail of design	4%	SOC	Concept/masterplan/DCP	4%
		OBC	1:500s agreed and selected 1:200s	
		FBC	All 1:200s in place, key 1:50s (depends on procurement route)	
Innovative project/design	3%	SOC		
		OBC	Yes/No	1%
		FBC		
Design complexity	4%	SOC	This might include complex M&E solutions (requires further development)	2%
		OBC		
		FBC		
Likely variations from Standard Contract	2%	SOC	No contract chosen	2%
		OBC	Yes/No with measurement of scale variations	
		FBC		
Design Team capabilities	3%	SOC	Previous relevant experience of individuals involved. Capacity	0%
		OBC		
		FBC		
Contractor's capabilities	2%	SOC	Previous relevant experience of individuals involved. Capacity. Track record of delivery	1%
		OBC		
		FBC		
Contractor involvement	2%	SOC	Buildability. Opportunity to influence design	1%
		OBC		
		FBC		
Client capability and capacity	6%	SOC	Degree of team in place with relevant experience	4%
		OBC	Full team in place for procurement	
		FBC	Robust implementation plan in place	
Robustness of Output Specification	25%	SOC	Definition of scope and extent of services. Degree of outstanding decisions	15%
		OBC		
		FBC		

Involvement of Stakeholders, including Public and Patient Involvement	5%	SOC	Scope of stakeholders to be involved. Plan in place to engage	5%
		OBC	Implementation of Plan	
		FBC	Involvement demonstrated	
Agreement to Output Specification by stakeholders	5%	SOC	Letters of support from clinicians, Trade Unions, staff groups, patient representatives/groups	5%
		OBC		
		FBC		
New service or traditional	3%	SOC	Assessment of how innovative/new service model is at national/regional/local level. Has this ever been tried before?	2%
		OBC		
		FBC		
Local community consent	3%	SOC	Consideration of traffic noise/existence of protestors or pressure groups	2%
		OBC		
		FBC		
Stable policy environment	20%	SOC	Degree to which new policy/standards are applicable depending upon which stage is reached	15%
		OBC		
		FBC		
Likely competition in the market for the project	2%	SOC	Degree project has been marketed	0%
		OBC	Evidence of market interest	
		FBC	Mitigated	
TOTAL	100%			70%

Note: Across all contributory factors, mitigation would be expected to be greater the greater the extent of risk quantification and risk management (including the extent to which it is captured in contingencies)

OPTIMISM BIAS - UPPER BOUND CALCULATION

Lowest & Upper Bound	13%
Mid %	40%
Upper %	76%
Actual % Upper Bound for this project	33%

Build complexity			
<i>Choose 1 category</i>			
<i>Length of Build</i>	< 2 years	0.50%	
	2 to 4 years	1.00%	1.00%
	Over 4 years	4.00%	
<i>Choose 1 category</i>			
<i>Number of phases</i>	1 or 2 phases	0.50%	
	3 or 4 phases	2.00%	2.00%
	More than 4 Phases	5.00%	
<i>Choose 1 category</i>			
<i>Number of sites involved (i.e. before and after change)</i>	Single site	2.00%	
	2 sites	2.00%	2.00%
	More than 2 sites	5.00%	
Location			
<i>Green field</i>	New build	3%	
	<i>Brown field</i> New build	8%	
<i>Existing site</i>	New build	5%	
		<i>or</i>	
	Less than 15% refurb	6%	
	15% - 50% refurb	10%	10.00%
	Over 50% refurb	15%	
Scope of scheme			
<i>Choose 1 category</i>			
<i>Facilities Management</i>	Hard FM only	0.00%	0.00%
	TUPE whole service	2.00%	
	RoE whole service	2.00%	
<i>Choose 1 category</i>			
<i>Equipment</i>	Group 1&2 only	0.50%	0.50%
	Major medical equipment	1.50%	
	All equipment included	5.00%	
<i>Choose 1 category</i>			
<i>IT</i>	No IT implications	0.00%	
	Infrastructure	1.50%	1.50%
	Infrastructure & systems	5.00%	

<i>Choose more than 1 category if applicable</i>			
External stakeholders	Local NHS economy (e.g. DGH)	1.00%	1.00%
	Wider NHS economy (e.g. teaching DGH)	2.00%	
	NHS/Universities/Private/Vol sector	5.00%	
Service changes			
Stable environment, i.e. no change to service		5%	
Identified changes not quantified		10%	10%
Longer time frame service changes		20%	
Gateway			
<i>Choose 1 category</i>			
RPA Score	Low	0%	
	Medium	5%	5%
	High	10%	
		TOTAL	33.000%

CONTRIBUTION FACTORS AND MITIGATION	70%
UPPER BOUND CALCULATION	33%
TOTAL FACTOR TO APPLY TO ESTIMATE	23%