



Lancashire
Enterprise Partnership



APPENDIX C

BLACKPOOL BRIDGES

PROJECT COST ESTIMATES

GROWTH FUND APPLICATION TO LANCASHIRE ENTERPRISE PARTNERSHIP

**COST BASE: Q4 2014/15
(Version A - 02/02/2015)**

CONTROL SHEET

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CONTENTS

	Page No.
1. Summary of Blackpool Bridges Cost Estimates	3
2. Plymouth Road Bridge	4
3. Devonshire Road Railway Bridge	7
4. Chapel Street Bridge	9
5. Princess Street Bridge	10
6. Gas Works Subway	13
7. Rigby Road Bridge	15
8. Waterloo Road Bridge	16
9. Watson Road Bridge	19
10. Harrowside Bridge	22
11. Squires Gate Lane Bridge	24

SUMMARY

<u>BRIDGE</u>	<u>TOTAL ESTIMATED COST (£)</u>
Plymouth Road Bridge	£ 5,097,206
Devonshire Road Railway Bridge	£ 438,892
Chapel Street Railway Bridge	£ 208,509
Princess Street Bridge	£ 1,554,009
Gas Works Subway	£ 312,444
Rigby Road Bridge	£ 72,820
Waterloo Road Bridge	£ 506,471
Watson Road Bridge	£ 335,984
Harrowside Bridge	£400,000
Squires Gate Lane Bridge	£2,438,791
Total	£11,365,126

PLYMOUTH ROAD BRIDGE FEASIBILITY STUDY	
This feasibility report identifies a number of options	
The recommended option is Option 2 - Complete bridge deck replacement using pre-stressed beams keeping 1 traffic lane live	
Civils construction cost for the recommended option	£ 2,453,672
It is estimated that it will take 32 weeks to complete the works.	
Other costs:	
Legal fees (none anticipated)	£ -
Permanent/temporary land take costs (none anticipated)	£ -
Site Investigation costs (trial digs for services, drainage survey, red lead testing)	£ 20,000
Cores to determine thickness of abutments	£ 5,000
Radar scanner (for services)	£ 25,000
Ecological Surveys	£ 5,000
Service diversions	£ 1,274,000
Topo survey	£ 15,000
Network Rail costs	£ 300,000
Consultant Design Fees/supervision/project management (Wilde CE only)	£ 150,000
Sub-Total	£ 4,247,672
Contingency, inflation and risk (20%)	£ 849,534
Total	£ 5,097,206

Breakdown	Calc	Unit	Quantity	Rate £	Total £
Contractor Preliminaries (32 weeks @ £5000 per week		no	32	5000	160,000
Traffic Management (on bridge deck) 32 weeks @ £2000/week		no	32	2000	64,000
Demolition/Site Clearance					
Demolition of existing bridge deck in phases		m2	700	300	210,000
e.o. for nightshifts		no	5	15,000	75,000
Disposal of unacceptable material		m3	700	30	21,000
Permanent Highway Works to Approach Carriageways & Footways					
Planing/scarifying	18.3m x 20m x 2	m2	732	25	18,300

Excavation and disposal of unacceptable material	18.3m x 20m x 0.24m x 2	m3	176	30	5,280
135mm thk base course	18.3m x 20m x 2	m2	732	25	18,300
60mm thk binder	18.3m x 20m x 2	m2	732	21	15,372
45mm thk wearing course	18.3m x 20m x 2	m2	732	15	10,980
Kerbs	20m x 4	m	80	25	2,000
VRS to approaches	30m x 4	m	120	350	42,000
Permanent Bridge Works					
Partially take down existing masonry piers and abutments, raise to new level and prepare for cill units	1.0m x 20m x 1.0m x 6	m3	120	100	12,000
PCC cill beams	0.6m x 1.0m x 20m x 6	no	72	590	42,480
Bearings, 26x6 incl. installation	26 x 6	no	156	300	46,800
e.o. for temp/perm specials	8 x 6	no	48	300	14,400
PCC bridge beams	23 x 33m	m	760	900	684,000
Shuttering	6 x 20m x 1.2m x 2	m2	300	75	22,500
RC Concrete Deck	0.15m x 18m x 38m	m3	110	600	66,000
RC Concrete Ballast Walls	0.6m x 1.2m x 20m x 6	m3	90	600	54,000
Concrete infill to deck	0.7m x 18m x 38m x 0.5	m3	171	150	25,650
Waterproof, multi visits 4 no min	18.2m x 38m	m2	700	75	52,500
PCC parapet beams	(11.2m + 13.8m + 5.6m) x 2	m	62	1500	93,000
PCC H4a parapet	38m x 2	m	76	1800	136,800
Expansion joints, dowel bars etc.	20m x 6	m	120	1000	120,000
e.o. for nightshifts		no	5	15,000	75,000

Kerbing over bridge	38m x 2	m	72	25	1,800
Asphalt on deck	38m x 18.2m	m2	700	27	19,110
					-
Temporary Works - Highways					-
Kerbs/surfacing		m	40	200	8,000
H4a Barriers and fencing for stages, hire and movement		no	2	15,000	30,000
White lining/cones, etc. multi visits		no	5	4,000	20,000
Depot Road closure, fees, signs, barriers		item	1	20000	20,000
					-
Temporary Works - Bridges					-
Concrete Barriers/ fencing to pier tops/ parapet edges.		item	1	60000	60,000
Working Scaffold to piers/abutment faces	20m x 6	m	120	210	25,200
Working scaffold to protect rail track	19m x 22.3m	m2	424	175	74,200
					-
Temporary Works Services, etc.					-
					-
Temp Scaffold bridges west and east incl. foundations		item	1	100000	100,000
Ducts in c'way north and south side		m	80	100	8,000
TOTAL					2,453,672

Devonshire Road Bridge	
No as built drawings are available for the structure. All dimension have been obtained from scaling off OS plans	
Based on information contained in the bridge register it appears that general maintenance works are required including:	£ 323,645
Grit blasting and painting of the riveted plate girders	
Concrete repairs to the deck soffit	
Local re-build of the brick parapets	
Drainage repairs to prevent staining/water percolating down the face of the abutments	
Power washing and painting of the abutments	
Grit blasting and painting of the pedestrian railings beneath the bridge	
Other costs:	
Legal fees (TRO's to close the road to carry out the maintenance works)	£ -
Permanent/temporary land take costs (none anticipated)	£ -
Network Rail Third party engineer costs	£ 15,000
Site Investigation costs (temporary scaffolding and TM to determine extent of concrete repairs to deck soffit, paint sample testing-including red lead testing)	£ 15,000
Geotechnical testing	£ -
Ecological Surveys	£ 1,000
Consultant Design, Project management and supervision fees (Wilde CE only)	£ 27,000
Diversion of Services (none anticipated)	£ -
Sub-Total	£ 381,645
Contingency, inflation and risk (15%)	£ 57,247
Total	£ 438,892

Breakdown of costs	Calculation	Quantity	rate	Total
Contractors Preliminaries (8 weeks @ £5000 per week)	5000	8	5000	40000
Traffic management beneath bridge (including diversion signs)	8 weeks @1250 /week	8	1250	10000
Temporary access structures				25,000
Network Rail possessions (to take down and re-build parapets)				20.,000
NO AS BUILT DRAWINGS AVAILABLE				
DIMENSIONS HAVE BEEN OBTAINED FROM SCALING OS PLANS				
SPAN APPROX 10.8m WIDTH=19m				

Power wash abutments	approx 60m wide Assume 3m high (2No)	360	15	5400
Power wash deck soffit	10.8 * 19	205.2	20	4104
Paint abutments	As above	360	15	5400
Apply anti-vandal treatment	As above	360	20	7200
Grit blasting and painting (assume red lead present)	Approx perimeter of beam (assumed to be 50% bigger than the beams at Waterloo Road Bridge)=2320*1.5*10.8	451.008	150	67651.2
	12 beams - check			
Steelwork repairs	(assumed)			15000
Take down and locally re-build brick parapets				30,000
Concrete repairs to deck soffit				50,000
Illuminate height restriction signs				10,000
Carry out drainage repairs				20,000
Grit blast and paint railings beneath bridge				30,000
Pigeon Spikes	10.8m length (12 No beams)	129.6	30	3888
Total				323643.2

Chapel Street Bridge	
It is understood that the existing parapets are sub-standard	
The proposal is to replace the parapets with a compliant parapet and to carry out maintenance works	
It is estimated that it will take approximately 4 weeks to complete the works	
The cost of carrying out the works is estimated to be £161,312 (from table below).	£ 161,312
Other costs:	
Legal fees (none anticipated)	£ -
Permanent/temporary land take costs (none anticipated)	£ -
Site Investigation costs (localised break out of stringcourse to check reinforcement configuration in stringcourse)	£ 5,000
Geotechnical testing	£ -
Ecological Surveys (none anticipated)	£ -
Traffic management (including in Construction Cost)	£ -
Consultant Design, Project Management and supervision fees (Wilde CE only)	£ 15,000
Sub-Total	£ 181,312
Contingency, inflation and risk (15%)	<u>£ 27,197</u>
Total	£ 208,509

Breakdown of costs	Calculation	Quantity	Rate	Total
Contractors Preliminaries (4 weeks @ £3333 per week)		4	3333	13332
Temporary works/access platforms (to take down and re-install parapets)		10000		10000
Traffic management (traffic lights will be required)	4 weeks @2000/week	8	2000	16000
Vehicle Restraint System (including fixings)	approx 30m	30	333	19980
Localised parapet strengthening at parapet post base locations				75,000
Remove vegetation behind wing walls			20	1000
Take up and re-bed loose copings				1000
Clean bearing shelf and install pigeon spikes				5000
Rake out and re-point wing walls				20000
			TOTAL	161312

PRINCESS STREET BRIDGE FEASIBILITY STUDY	
This feasibility report identifies a number of options	
The recommended option is Option 1-Complete bridge deck replacement using pre-stressed beams	
The construction cost for the recommended option is £1,166,000	£ 1,169,312
It is estimated that it will take 20 weeks to complete the works.	
Other costs:	
Legal fees (none anticipated)	£ -
Permanent/temporary land take costs (none anticipated)	£ -
Site Investigation costs (trial digs for services, drainage survey, red lead testing)	£ 20,000
Cores to determine thickness of abutments	£ 5,000
Radar scanner (for services)	£ 12,500
Ecological Surveys	£ 2,500
Service diversions (assumed). -electric cabinet for street lighting and street lighting cable	£ 10,000
Topo survey	£ 15,000
Consultant Design Fees/supervision/project management (Wilde CE only)	£ 117,000
Sub-Total	£ 1,351,312
Contingency, inflation and risk (15%)	<u>£ 202,697</u>
Total	£ 1,554,009

Breakdown of costs	Calculation	Quantity	Rate	Total	Check
Contractors Preliminaries (20 weeks @ £500 per week)	5000	20	5000	100000	100000
Traffic management (on bridge deck)	20 weeks @2000 /week	20	2000	40000	40000
Temporary works/access platform				25000	25000
Vehicle Restraint System (including fixings)		18	350	6300	6300
Temporary carriageway in car park					
Take up block paving and dispose off site to tip	7.3m *80m approx	584	6	3504	
Excavation and disposal of unacceptable material in car park	7.3*0.38*80	221.92	20	4438.4	
Granular sub base type 1	7.3*0.15*80	87.6	30	2628	
135 thick base in car park	7.3*80	584	25	14600	
60 thick binder in car park	7.3*80	584	21	12264	
45 thick surface course in car park	7.3*80	584	15	8760	
Kerbing	160m of kerbing required for temp access road	160	25	4000	

Remove kerbing upon completion of works		160	7.5	1200	
Excavation and disposal of unacceptable material in car park (surfacing upon completion)	7.3*80*0.39	227.76	20	4555.2	
Reinstate block paving	7.3*80	584	32	18688	
Take down VRS and reinstate at contra flow				400	
					75037.6
Bridge Replacement					
Demolition of existing bridge deck in phases				100,000	
Allowance for dealing with ENW and working adjacent to electricity substation				6,000	
Temporary Protection to HV services located in Princess Street when scaffold installed				5,000	
Partially Take down existing bridge abutments and prepare for cill units				25000	
Cast insitu cill units				40,000	
Bridge bearings	Assume strip bearing	76	200	15200	
PCC Bridge Beams	41no	41	7500	307500	
PCC edge units	2NO	2	10000	20,000	
Concrete infill to deck	150 thick * 38m *9m	51.3	130	6669	
Waterproofing to bridge deck	38*9-deck (2.2m *38 for back of abutments)	425.6	35	14896	
Bridge expansion joints *Asphaltic Plug Joint)	38*2	76	1000	76,000	
Soil nails to stabilise abutments (may not be required)	Assume 1 soil nail every metre, soil nail length assumed to be 25m				
Establishment of soil nailing rig		7000		7000	
soil nails	80 no, 25 in length	2000	35	70000	
Kerbing over bridge deck		18	25	450	
Red sand asphalt	9m span 40m width	360	27.3	9828	
Imported fill beneath car park	32m wide*200 deep *9m span	57.6	35	2016	

Reinstate block paving beneath car park	as above	288	32	9216	
Reinstate footways beneath bridge (on Princess Street)					
Excavation and disposal of unacceptable material in footway	1.8m wide (assumed) x 40m wide-2 no	25.92	20	518.4	
Footway comprising granular sub-base Type 1 100 mm thick, dense macadam binder course with 20 mm aggregate 50 mm thick, dense bitumen macadam surface course with 6 mm aggregate 30 mm thick at surfaces sloping at 10° or less to horizontal.	As above	25.92	25	648	
Temporarily disconnect and reinstate lighting units fixed to abutments/further improve lighting				45,000	
Install weep holes in abutments and drainage system				30,000	
Plane off carriageway surfacing under bridge	Assumed 5.4m wide	216	21	4536	
40mm wearing course	Areas as above	216	30	6480	
Partial demolition of northwest abutment, facing /repairs to exposed face of abutment and new retaining walls adjacent to electric sub-station				20,000	
Partial Demolition of south abutment and facing/repairs to exposed abutment				25000	
Replacement fence adjacent to sub-station (as per ENW details)				18,000	
Rake out and re-point/repairs to wingwalls				30,000	
New fencing adjacent to housing estate when abutment partially demolished				5,000	
					899,957
Reinstate VRS in central reserve	Assumed 80m to be replaced	80	37.5	3,000	3,000
135 thick base in carriageway	7.3*9	65.7	25	1642.5	
60 thick binder in carriageway	7.3*9	65.7	21	1379.7	
45 thick surface course in carriageway	7.3*9	65.7	15	985.5	
Plane off carriageway surfacing to tie in new levels on Seaside Way	Assumed 7.3m wide *43m	313.9	21	6591.9	
40mm wearing course	Areas as above	313.9	30	9417	20,017
				TOTAL	1,169,312

Gas Works Subway infill	
The proposal is to infill the subway with lightweight self levelling concrete and make it redundant. The infill concrete will be supported by a piled raft foundation to limit future settlement. The outside faces of the subway will have a brick finish	
It is estimated that it will take approximately 6 weeks to complete the works	
Construction costs	182,690
Other costs:	
Legal fees TRO s for road closure	£ 2,000
Permanent/temporary land take costs (none anticipated)	£ -
Site Investigation costs (trial digs for services, drainage survey)	£ 3,000
Geotechnical testing	£ 8,000
Ecological Surveys	£ 1,000
Consultant Design/Supervision/Project Fees (Wilde CE only)	£ 25,000
Diversion of Services BT cable and low voltage cable (estimated as C2 estimates not obtained due to timescales available for submission of bid). Note BT may object to diverting their cables and therefore a bridge deck replacement may be required	£ 50,000
Sub-Total	£ 271,690
Contingency, inflation and risk (15%)	£ 40,754
Total	£ 312,444

Breakdown of costs	Calculation	Quantity	Rate	Total
Contractors Preliminaries (6 weeks @ £3333 per week)	19998	19998		19998
Temporary works/access platforms	10000	10000		10000
Traffic management (required for resurfacing Seaside way). Assume road closed at night. Costs for diversion signs	5000			5000
Mini piles	Assume 70 no	70	500	35000
Subway dimensions (span 4.46) height 3.53, width 31.60				
Lightweight self levelling concrete	$4.46 * 3.53 * 31.60$	497.50	130	64675.53
Raft foundation	Assume 250 thick. $4.46 * 31.60 * 0.25$	35.234	140	8400
Reinforcement	assume 0.15t per m ³	5.2851	1000	5285.1
Formwork (raft)	$0.25 * 4.46 * 2$ no	2.23	70	156.1
Formwork (subway faces)	$4.46 * 3.53 * 2$ no	31.22	70	2185.4

Brickwork cladding	4.46*3.53*2 no	31.22	150	4683
Removal of gates and disposal				2000
Wing wall pilaster removal and disposal, east side and make good/repair				5000
Western wall repair				5000
135 thick base in carriageway	7.3*20	146	25	3650
60 thick binder in carriageway	7.3*20	146	21	3066
45 thick surface course in carriageway	7.3*20	146	15	2190
Excavation and disposal of unacceptable material in carriageway	7.3m wide (assumed) x 40m length	70.08	20	1401.6
Repairs to carriageway behind subway abutments				5000
Total				182690.7

Rigby Road Bridge	
Maintenance works are required to Rigby Road Bridge	
It is estimated that it will take approximately 4 weeks to complete the works	
The cost of carrying out the works is estimated to be £48,322	£ 48,322
Other costs:	
Legal fees (none anticipated)	£ -
Permanent/temporary land take costs (none anticipated)	£ -
Site Investigation costs (none anticipated)	£ 5,000
Geotechnical testing	£ -
Ecological Surveys (none anticipated)	£ -
Consultant Design, Project Management and supervision fees (Wilde CE only)	£ 10,000
Sub-Total	£ 63,322
Contingency, inflation and risk (15%)	<u>£ 9,498</u>
Total	£ 72,820

Breakdown of costs	Calculation	Quantity	Rate	Total
Contractors Preliminaries (4 weeks @ £3333 per week)		4	3333	13332
Temporary works/access platforms (to take down and re-install parapets)		5000		5000
Traffic management (traffic lights will be required)	2 weeks @2000/week	2	2000	4000
Remove vegetation				2000
Localised concrete repairs				10,000
Remove vegetation behind wing walls				1000
Replace missing mesh infill to parapets				5000
Replace damaged railings to wingwall				5000
Rake out and re-seal joints				3000
			TOTAL	48332

WATERLOO ROAD BRIDGE FEASIBILITY STUDY	
This feasibility report identifies a number of options either to strengthen the edge beams to improve the load capacity, or to provide measures to prevent vehicles excessively loading the beams	
Option 3 – Install vehicle restraint system and ground beam	
The option which appears to offer the best cost/benefit ratio is Option 3 which is to install a Vehicle Restraint System (VRS) and Ground Beam on the bridge deck to prevent Accidental Wheel Loading. This option provides protection to the deck to prevent Accidental Wheel Loading. This option failing edge beams without severe disruption to the road network system along failing edge beams without severe disruption to the road network system along provides protection to the deck to prevent Accidental Wheel Loading. This option provides protection to the failing edge beams without severe disruption to the road network system along Waterloo Road and Seasiders Way. Works can be carried out using some basic approaches within the Department for Transport Traffic Signs Manual, Chapter 8, i.e. there will be no requirement for road closures. Option 3 also has the lowest overall cost.	
The construction cost for the recommended option is £387,057	£ 387,057
It is estimated that it will take 6-8 weeks to complete the works.	
Other costs:	
Legal fees (none anticipated)	£ -
Permanent/temporary land take costs (none anticipated)	£ -
Inflation (say 5% of Construction Cost over 2 years)	£ 19,353
Site Investigation costs (trial digs for services, drainage survey, red lead testing)	£ 7,000
Geotechnical testing	£ 1,000
Ecological Surveys	£ 1,000
Consultant Design Fees (Wilde CE only)	£ 25,000
Diversion of Services (none anticipated)	£ -
Sub-Total	£ 440,410
Contingency, inflation and risk (15%)	<u>£ 66,061</u>
Total	£ 506,471

Breakdown of costs	Calculation	Quantity	rate	Total
Contractors Preliminaries (8 weeks @ £5000 per week)	5000	8	5000	40000
Traffic management (on bridge deck)	8 weeks @1250 /week	8	1250	10000
Vehicle Restraint System (including fixings)	approx 75	75	333	24975
Excavation and disposal of unacceptable material in footway	4.301*0.2*40 (north) over bridge deck	34.408	20	688.16

	4*0.2*40(south) over bridge deck	32	20	640
In situ concrete in ground beam	assume 0.31m ²	23.56	140	3298.4
	76m overall length			
Reinforcement	Assume 0.2t per m ³	4.712	1000	4712
Formwork (see outline design calcs for dimensions)	0.4*75	30	70	2100
	0.2*75	15	70	1050
	0.2*75	15	70	1050
Take up and dispose kerbs off site	80m	80	5	400
Kerbing	Assume 80m over bridge	80	25	2000
Imported fill material to footways	2.870*0.35*40 (south)	40.306	35	1410.71
	3.120*0.35*40 (north)	43.68	35	1528.8
Waterproofing to ground beam (see outline calcs for dimensions)	0.4*75	30	95	2850
	0.2*75	15	95	1425
(Small quantity of waterproofing reflected in rate)	0.65*75	48.75	95	4631.25
	0.2*75	15	95	1425
Footway comprising granular sub-base Type 1 100 mm thick, dense macadam binder course with 20 mm aggregate 50 mm thick, dense bitumen macadam surface course with 6 mm aggregate 30 mm thick at surfaces sloping at 10° or less to horizontal.	3,251*40 (north) over bridge deck	130.04	25	3251
	2.95*40(north) over bridge deck	118	25	2950
Patch repair carriageway surface in cracked areas behind abutment				10000
Take down cracked area of masonry parapet and rebuild, and repoint other areas				20000
Temporary access structures for grit blasting and painting				30000
Grit blasting and painting	Plan area 17.8m, length 17m	302.6	95	28747
	Approx perimeter of beam =2320, length of beams 17m	1651.84	95	156924.8
	48 beams			

Traffic management for grit blasting/painting	8 weeks @2000 /week	8	2000	16000
Steelwork repairs	(assumed)			15000
		Total		387057.1

Watson Road Bridge	
It is understood that the bridge is owned by Network Rail and the surfacing is the responsibility of the Highway Authority (Blackpool Council). As part of the feasibility study Blackpool Councils Traffic Section and Network Rail have been consulted.	
The option which appears to offer the best cost/benefit ratio is Option 4.	
dismantling the existing brick parapet and rebuilding it to a height of 1.8m and a thickness of 350mm	
Installing a vehicle restraint system (VRS) and ground beam on the bridge deck to prevent accidental wheel loading on the footpath/service bay support structure.	
	£ 227,060
It is estimated that it will take approximately 12 weeks to complete the works	
The recommended option is subject to final approval from Network Rail.	
The recommended option is also based on the assumption that Network Rail will replace the missing corroded tie rods as part of future maintenance works.	
Other costs:	
Legal fees (none anticipated but subject to Network Rail/Blackpool Council)	£ 2,000
Permanent/temporary land take costs (none anticipated)	£ -
Allow for Network Rail fees for reviewing and approving drawings	£ 7,500
Inflation (say 5% of Construction Cost over 2 years)	£ 23,000
Site Investigation costs (trial digs for services, drainage survey)	£ 3,000
Geotechnical testing	£ 1,000
Ecological Surveys (none anticipated)	£ 1,000
Traffic management (including in Construction Cost)	£ -
Consultant Design Fees (Wilde CE only)	£ 27,600
Diversion of Services (none anticipated)	£ -
Sub-Total	£ 292,160
Contingency, inflation and risk (15%)	£ 43,824
Total	£ 335,984

Breakdown of costs	Calculation	Quantity	Rate	Total
Contractors Preliminaries (12 weeks @ £3333 per week)	39996	39996		39996
Temporary works/access platforms (north side to take down and re-build parapets)	20000	20000		20000
Temporary works/access platforms (north side to take down and re-build parapets)	20000	20000		20000
Network Rail possessions	21000	21000		21000
Traffic management	12 weeks @833/week	9996		9996

Take down and remove off store to tip existing coping/Replace	approx 52m	52	30	1560
Take down and remove off store to tip existing brick parapets	2.56 (height) x 0.4 (width) x 52m	53.248	20	1064.96
Re-build parapets in brickwork	1.8*52	93.6	190	17784
Vehicle Restraint System (including fixings)	approx 60m	60	333	19980
Excavation and disposal of unacceptable material in footway	2.870*0.5*35 (south) over bridge deck	50.225	20	1004.5
	3.120*0.5*35 (north) over bridge deck	54.6	20	1092
	assume 30m ³ off the bridge deck at the junction	30	20	600
Insitu concrete in ground beam	assume 0.31m ²	16.12	140	2256.8
	52m overall length			
Reinforcement	assume 0.2t per m ³	3.224	1000	3224
Formwork (see outline design calcs for dimensions)	0.4*52	20.8	70	1456
	0.2*52	10.4	70	728
	0.2*52	10.4	70	728
Kerbing	assume 70m over bridge and 50m off the bridge at the junction	120	25	3000
Plane off carriageway surfacing	7.465 width (over bridge) assume 45 m length	335.925	21	7054.425
	Assume same again at the junction off the bridge	335.925	21	7054.425
40mm wearing course	Areas as above	671.85	30	20155.5
Regulator course (assume 70t)		70	105	7350
Imported fill material to footways	2.870*0.35*35 (south)	35.26775	35	1234.371
	3.120*0.35*35 (north)	38.22	35	1337.7

Waterproofing to ground beam (see outline calcs for dimensions) (Small quantity of waterproofing reflected in rate)	0.4*52	20.8	95	1976
	0.2*52	10.4	95	988
	0.65*52	33.8	95	3211
	0.2*52	10.4	95	988
Footway comprising granular sub-base Type 1 100 mm thick, dense macadam binder course with 20 mm aggregate 50 mm thick, dense bitumen macadam surface course with 6 mm aggregate 30 mm thick at surfaces sloping at 10° or less to horizontal.	2.870*35 (south) over bridge deck	100.45	25	2511.25
	3.120*35 (north) over bridge deck	109.2	25	2730
	assume 200m2 off the bridge deck at the junction	200	25	5000
				227060.9

HARROWSIDE BRIDGE AND HARROWSIDE APPROACH BRIDGE	
PRELIMINARY ESTIMATE FOR GRANT APPLICATIONS	
<p>Harrowside Railway Bridge is a single (8.13m) span insitu reinforced concrete bridge spanning a single track railway line.</p> <p>A preliminary estimate has been produced for the “do something” demolition and reconstruction of Harrowside Bridge and Harrowside Approach Bridge (below) but this is for budget estimating purposes only. The estimate is subject to the following caveats:</p> <p>The estimate is based on an equivalent square metre cost for similar bridges in the north west of England.</p> <p>The estimate is subject to the findings of a detailed feasibility study, still to be undertaken.</p> <p>Estimates for Harrowside Approach Bridge are based on a series of cursory inspections inside the ramped approach. No testing or hands-on inspection of the approach ramps have been undertaken.</p> <p>The estimate includes for full demolition and reconstruction. Piled foundations are assumed as are new RC abutments. A pre-cast pre-stressed composite bridge deck is assumed for both the single span main bridge and the approach ramps.</p> <p>Estimates are valid for Q4 2014/15.</p> <p>Statutory Undertakers/Buried Services (from online records) shows:</p> <ul style="list-style-type: none"> • Electrical – 1 x 6.0 - 6.6kV cable in the north footway • Electrical – 1 x 6.0 - 6.6kV and 2 x LV cables running north to south in the embankment between the west approach ramp and the portal structure • Electrical – 2 x LV cables in the north footway • Gas – 12” Low Pressure cast iron main in south footway • Water – 1 x 9” cast iron water main in north • Sewer – 1 x 450mm dia combined foul water pipe below eastbound carriageway (possibly under the railway) • Sewer – 1 x 600mm dia surface water carrier pipe below the centre of carriageway (possibly under the railway). <p>The estimated cost for civil engineering works, statutory undertakers, and Network Rail charges are:</p>	
Harrowside Bridge	2,868,000
Harrowside Approach Bridge	6,400,000
Sub Total	£9,268,000
Other costs:	
Legal fees (none anticipated)	£ -
Permanent/temporary land take costs (none anticipated)	£ -

Site Investigation costs (trial digs for services, drainage survey, red lead testing)	£ 20,000
Cores to determine thickness of abutments	£ 5,000
Radar scanner (for services)	£ 25,000
Ecological Surveys	£ 5,000
Topographical survey	£ 15,000
Consultant Design Fees/supervision/project management (Wilde CE only)	£ 220,000
Sub-Total	£ 9,558,000
Contingency, inflation and risk (20%)	<u>£ 1,911,600</u>
Total (NB – not the preferred option)	£ 11,469,600
Preferred “Do Minimum” option. Implement 3 tonne vehicular weight restriction and install netting and/or concrete repairs to deck soffit.	£400,000

SQUIRES GATE BRIDGE FEASIBILITY STUDY	
This feasibility report identifies a number of options	
The recommended option is Option 2 - Complete bridge deck replacement using pre-stressed beams keeping 1 traffic lane live	
Civils construction cost for the recommended option	£ 1,239,188
It is estimated that it will take 24 weeks to complete the works.	
Other costs:	
Legal fees (none anticipated)	£ -
Permanent/temporary land take costs (none anticipated)	£ -
Site Investigation costs (trial digs for services, drainage survey, red lead testing)	£ 10,000
Cores to determine thickness of abutments	£ 5,000
Radar scanner (for services)	£ 7,500
Ecological Surveys	£ 5,000
Service diversions	£ 450,000
Topo survey	£ 10,000
Network Rail costs	£ 270,000
Consultant Design Fees/supervision/project management (Wilde CE only)	£ 124,000
Sub-Total	£ 2,120,688
Contingency, inflation and risk (15%)	<u>£ 318,103</u>
Total	£ 2,438,791

Breakdown	Calc	Unit	Quantity	Rate £	Total £
Contractor Preliminaries (24 weeks @ £6200 per week		no	24	6200	148,800
Traffic Management (on bridge deck) 24 weeks @ £2500/week		no	24	2500	60,000
Demolition/Site clearance					
Demolition of existing bridge deck in phases	10m x 22.17m	m2	222	300	66,600
e.o. for nightshifts		no	2	19500	39,000
Disposal of unacceptable material	10m x 22.17m x 1.35m	m3	300	30	9,000
Street lighting cols take down		no	2	1300	2,600
					-
Permanent Highway Works to Approach Carriageways & Footways					-

Planning/scarifying	22.17m x 7.5m x 2	m2	333	25	8,325
Excavation and disposal of unacceptable material	22.17m x 7.5m x 0.24m x 2	m3	80	45.5	3,640
Sub-base Granular fill DOT Type 1	7.5m x 23m x 0.45m	m3	80	30	2,400
135mm thk base course	22.17m x 7.5m x 2	m2	333	25	8,325
60mm thk binder	22.17m x 7.5m x 2	m2	333	21	6,993
45mm thk wearing course	22.17m x 7.5m x 2	m2	333	15	4,995
Kerbs	7.5m x 4	m	30	25	750
VRS to approaches	30.0 m x 4	m	120	350	42,000
New street lighting column		no	2	1300	2,600
Permanent Bridge Works					-
Partially take down existing masonry piers and abutments, raise to new level and prepare for cill units	1.0m x 22.17m x 1.0m x 2	m3	45	130	5,850
PCC cill beams	0.6m x 1.0m x 22.17m x 2	m3	27	650	17,550
Bearings,27x2 inc install	27 x 2	no	54	300	16,200
e.o. for temp/perm specials	6 x 2		12	300	3,600
PCC bridge beams	25 x 10	m	250	1000	250,000
Shuttering	2 x 22.17m x 1.2m x 2	m2	110	75	8,250
RC Concrete Deck	0.15m x 22m x 10m	m3	33	600	19,800
RC Concrete Ballast Walls	0.6m x 1.2m x 22m x 2	m3	32	600	19,200
Concrete infill to deck	0.7m x 22m x 10m x 0.5	m3	77	150	11,550

Waterproof, multi visits 4 no min	10m x 22.17m	m2	222	80	17,760
PCC parapet beams	10m x 2	m	20	1800	36,000
PCC H4a parapet	22m x 2	m	44	2100	92,400
Expansion joints, dowel bars etc.	22.17m x 2	m	45	1100	49,500
e.o. for nightshifts		No	5	15000	75,000
Kerbing over bridge	10m x 2	m	20	25	500
Asphalt on deck	10m x 22.17m	m2	700	80	56,000
					-
Temporary Works - Highways					-
Kerbs/surfacing		m	15	200	3,000
H4a Barriers and fencing for stages, hire and movement		no	3	15000	45,000
White lining/cones, etc. multi visits		no	5	4000	20,000
					-
Temporary Works Bridges					-
Concrete Barriers/ fencing to pier tops/ parapet edges.		item	1	15000	15,000
Working Scaffold to piers/abutment faces	25m x 2	m	50	230	11,500
Working scaffold to protect rail track	10m x 20m	m2	200	190	38,000
					-
Temporary Works Services, etc					-
					-
Temp Scaffold bridge south inc founds		item	1	20000	20,000
Ducts in carriageway		m	15	100	1,500
					-
TOTAL					1,239,188