



# **Stage 2A Route Construction Cost Estimates**

25 October 2017

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# Warrington Western Link - OBC - Route Construction - Stage 2A

## Route Summary

	CAP-EX														MAINTENANCE		
	Precon	Design	Highway	Structure	Staff	Utilities	Inflat'n	Const	Land	OBC	WBC/PI *	WBC Network	NWR	Risk	Total	60 yr cost NPV	Avg / yr (2018 prices)
	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's
<b>Yellow Route Total</b>	2.500	19.655	165.620	39.994	12.777	10.250	55.971	306.768	27.615	1.500	4.000	2.500	0.521	46.757	389.661	41.884	0.224
<b>Orange Route Total</b>	2.500	8.559	45.963	38.782	10.349	11.825	22.713	140.691	31.570	1.500	4.000	2.500	0.756	24.644	205.661	41.340	0.221
<b>Red Route Total</b>	2.500	8.522	48.245	37.179	9.263	13.245	22.776	141.731	21.200	1.500	4.000	2.500	0.746	24.269	195.946	40.523	0.217
<b>Pink Route Total</b>	2.500	7.944	52.712	28.147	7.411	12.745	18.905	130.364	22.500	1.500	4.000	2.500	0.746	21.059	182.669	38.346	0.205
<b>Purple Route Total</b>	2.500	8.441	45.610	38.912	9.263	13.225	22.572	140.522	23.840	1.500	4.000	2.500	0.846	23.969	197.178	40.523	0.217
<b>Green Route Total</b>	2.500	7.871	50.163	29.879	7.411	12.725	18.743	129.291	25.100	1.500	4.000	2.500	0.846	20.076	183.314	38.346	0.205

\* includes Archaeology

## Warrington Western Link - OBC - Route Construction - Stage 2A Inflation

Item	Start Yr	End Yr	Yrs	Total Cost £M	Cost/Yr	2,018	2,019	2,020	2,021	2,022	2,023	2,024	2,025	Total
<b>Yellow Route</b>														
Preconstruction	2,018	2,020	3	2,500	0.833	0.833	0.833	0.833	-	-	-	-	-	2,500
Design	2,018	2,020	3	19,655	6,552	6,552	6,552	6,552	-	-	-	-	-	46,757
Highways	2,020	2,024	5	165,620	33,124	-	-	33,124	33,124	33,124	33,124	33,124	-	24,644
Structures	2,020	2,024	5	39,994	7,999	-	-	7,999	7,999	7,999	7,999	7,999	-	24,269
Prelims	2,020	2,024	5	12,777	2,555	-	-	2,555	2,555	2,555	2,555	2,555	-	21,059
Utilities	2,019	2,020	2	10,250	5,125	-	5,125	5,125	-	-	-	-	-	23,969
TOTAL				250,797		7,385	12,510	56,188	43,678	43,678	43,678	43,678	-	20,076
Inflation	Average		5.40%			2.70%	8.10%	13.50%	18.90%	24.30%	29.70%	35.10%	40.50%	
	Cost			55,971		0.199	1.013	7.585	8.255	10.614	12.972	15.331	-	55,971
	Risk per extra		1.00%			1.00%	2.00%	3.00%	4.00%	5.00%	6.00%	7.00%	8.00%	
	Cost			8,561		0.074	0.250	1.686	1.747	2.184	2.621	-	-	8,561
<b>Orange Route</b>														
Preconstruction	2,018	2,020	3	2,500	0.833	0.833	0.833	0.833	-	-	-	-	-	2,500
Design	2,018	2,020	3	8,559	2,853	2,853	2,853	2,853	-	-	-	-	-	8,559
Highways	2,020	2,023	4	45,963	11,491	-	-	11,491	11,491	11,491	11,491	-	-	45,963
Structures	2,020	2,023	4	38,782	9,695	-	-	9,695	9,695	9,695	9,695	-	-	38,782
Prelims	2,020	2,023	4	10,349	2,587	-	-	2,587	2,587	2,587	2,587	-	-	10,349
Utilities	2,019	2,020	2	11,825	5,913	-	5,913	5,913	-	-	-	-	-	11,825
TOTAL				117,978		3,686	9,599	33,372	23,774	23,774	23,774	-	-	117,978
Inflation	Average		5.40%			2.70%	8.10%	13.50%	18.90%	24.30%	29.70%	35.10%	40.50%	
	Cost			22,713		0.100	0.777	4.505	4.493	5.777	7.061	-	-	22,713
	Risk per extra		1.00%			0.50%	1.50%	2.50%	3.50%	4.50%	5.50%	6.50%	7.50%	
	Cost			4,206		0.018	0.144	0.834	0.832	1.070	1.308	-	-	4,206
<b>Red Route</b>														
Preconstruction	2,018	2,020	3	2,500	0.833	0.833	0.833	0.833	-	-	-	-	-	2,500
Design	2,018	2,020	3	8,522	2,841	2,841	2,841	2,841	-	-	-	-	-	8,522
Highways	2,020	2,023	4	48,245	12,061	-	-	12,061	12,061	12,061	12,061	-	-	48,245
Structures	2,020	2,023	4	37,179	9,295	-	-	9,295	9,295	9,295	9,295	-	-	37,179
Prelims	2,020	2,023	4	9,263	2,316	-	-	2,316	2,316	2,316	2,316	-	-	9,263
Utilities	2,019	2,020	2	13,245	6,623	-	6,623	6,623	-	-	-	-	-	13,245
TOTAL				118,955		3,674	10,296	33,968	23,672	23,672	23,672	-	-	118,955
Inflation	Average		5.40%			2.70%	8.10%	13.50%	18.90%	24.30%	29.70%	35.10%	40.50%	
	Cost			22,776		0.099	0.834	4.586	4.474	5.752	7.031	-	-	22,776
	Risk per extra		1.00%			0.50%	1.50%	2.50%	3.50%	4.50%	5.50%	6.50%	7.50%	
	Cost			4,218		0.018	0.154	0.849	0.829	1.065	1.302	-	-	4,218
<b>Pink Route</b>														
Preconstruction	2,018	2,020	3	2,500	0.833	0.833	0.833	0.833	-	-	-	-	-	2,500
Design	2,018	2,020	3	7,944	2,648	2,648	2,648	2,648	-	-	-	-	-	7,944
Highways	2,020	2,022	3	52,712	17,571	-	-	17,571	17,571	17,571	-	-	-	52,712
Structures	2,020	2,022	3	28,147	9,382	-	-	9,382	9,382	9,382	-	-	-	28,147
Prelims	2,020	2,022	3	7,411	2,470	-	-	2,470	2,470	2,470	-	-	-	7,411
Utilities	2,019	2,020	2	12,745	6,373	-	6,373	6,373	-	-	-	-	-	12,745
TOTAL				111,458		3,481	9,854	39,277	29,423	29,423	-	-	-	111,458
Inflation	Average		5.40%			2.70%	8.10%	13.50%	18.90%	24.30%	29.70%	35.10%	40.50%	
	Cost			18,905		0.094	0.798	5.302	5.561	7.150	-	-	-	18,905
	Risk per extra		1.00%			0.50%	1.50%	2.50%	3.50%	4.50%	5.50%	6.50%	7.50%	
	Cost			3,501		0.017	0.148	0.982	1.030	1.324	-	-	-	3,501
<b>Purple Route</b>														
Preconstruction	2,018	2,020	3	2,500	0.833	0.833	0.833	0.833	-	-	-	-	-	2,500
Design	2,018	2,020	3	8,441	2,814	2,814	2,814	2,814	-	-	-	-	-	8,441
Highways	2,020	2,023	4	45,610	11,402	-	-	11,402	11,402	11,402	11,402	-	-	45,610
Structures	2,020	2,023	4	38,912	9,728	-	-	9,728	9,728	9,728	9,728	-	-	38,912
Prelims	2,020	2,023	4	9,263	2,316	-	-	2,316	2,316	2,316	2,316	-	-	9,263
Utilities	2,019	2,020	2	13,225	6,613	-	6,613	6,613	-	-	-	-	-	13,225
TOTAL				117,950		3,647	10,259	33,706	23,446	23,446	23,446	-	-	117,950
Inflation	Average		5.40%			2.70%	8.10%	13.50%	18.90%	24.30%	29.70%	35.10%	40.50%	
	Cost			22,572		0.098	0.831	4.550	4.431	5.697	6.964	-	-	22,572
	Risk per extra		1.00%			0.50%	1.50%	2.50%	3.50%	4.50%	5.50%	6.50%	7.50%	
	Cost			4,180		0.018	0.154	0.843	0.821	1.055	1.290	-	-	4,180
<b>Green Route</b>														
Preconstruction	2,018	2,020	3	2,500	0.833	0.833	0.833	0.833	-	-	-	-	-	2,500
Design	2,018	2,020	3	7,871	2,624	2,624	2,624	2,624	-	-	-	-	-	7,871
Highways	2,020	2,022	3	50,163	16,721	-	-	16,721	16,721	16,721	-	-	-	50,163
Structures	2,020	2,022	3	29,879	9,960	-	-	9,960	9,960	9,960	-	-	-	29,879
Prelims	2,020	2,022	3	7,411	2,470	-	-	2,470	2,470	2,470	-	-	-	7,411
Utilities	2,019	2,020	2	12,725	6,363	-	6,363	6,363	-	-	-	-	-	12,725
TOTAL				110,548		3,457	9,819	38,970	29,151	29,151	-	-	-	110,548
Inflation	Average		5.40%			2.70%	8.10%	13.50%	18.90%	24.30%	29.70%	35.10%	40.50%	
	Cost			18,743		0.093	0.795	5.261	5.510	7.084	-	-	-	18,743
	Risk per extra		1.00%			0.50%	1.50%	2.50%	3.50%	4.50%	5.50%	6.50%	7.50%	
	Cost			3,471		0.017	0.147	0.974	1.020	1.312	-	-	-	3,471

Warrington Western Link - OBC - Route Construction - Stage 2A  
Colour Route Details

Colour Route Details		Precon	Design	Highway	Structure	Staff	Utilities	Inflation	Construction	NWR
		£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's
Green Route	R02			30.693	12.068				42.760	0.521
Green Route	R04			2.252	7.625				9.876	-
Green Route	R05			8.417	5.624				14.041	0.326
Green Route	R06			7.518	4.563				12.081	-
Green Route	Green			1.284					1.284	
Green Route	Others	2.500	7.871			7.411	12.725	18.743	49.249	
<b>Green Route Total</b>		<b>2.500</b>	<b>7.871</b>	<b>50.163</b>	<b>29.879</b>	<b>7.411</b>	<b>12.725</b>	<b>18.743</b>	<b>129.291</b>	<b>0.846</b>
Orange Route	R01			18.872	21.100				39.972	0.521
Orange Route	R03			5.997	-				5.997	-
Orange Route	R04			2.252	7.625				9.876	-
Orange Route	R08			15.933	10.057				25.990	0.235
Orange Route	R10			1.009	-				1.009	-
Orange Route	Orange			1.901					1.901	
Orange Route	Others	2.500	8.559			10.349	11.825	22.713	55.946	
<b>Orange Route Total</b>		<b>2.500</b>	<b>8.559</b>	<b>45.963</b>	<b>38.782</b>	<b>10.349</b>	<b>11.825</b>	<b>22.713</b>	<b>140.691</b>	<b>0.756</b>
Pink Route	R02			30.693	12.068				42.760	0.521
Pink Route	R04			2.252	7.625				9.876	-
Pink Route	R06			7.518	4.563				12.081	-
Pink Route	R07			10.913	3.891				14.805	0.225
Pink Route	Pink			1.336					1.336	
Pink Route	Others	2.500	7.944			7.411	12.745	18.905	49.505	
<b>Pink Route Total</b>		<b>2.500</b>	<b>7.944</b>	<b>52.712</b>	<b>28.147</b>	<b>7.411</b>	<b>12.745</b>	<b>18.905</b>	<b>130.364</b>	<b>0.746</b>
Purple Route	R01			18.872	21.100				39.972	0.521
Purple Route	R03			5.997	-				5.997	-
Purple Route	R04			2.252	7.625				9.876	-
Purple Route	R05			8.417	5.624				14.041	0.326
Purple Route	R06			7.518	4.563				12.081	-
Purple Route	R10			1.009	-				1.009	-
Purple Route	Purple			1.546					1.546	
Purple Route	Others	2.500	8.441			9.263	13.225	22.572	56.001	
<b>Purple Route Total</b>		<b>2.500</b>	<b>8.441</b>	<b>45.610</b>	<b>38.912</b>	<b>9.263</b>	<b>13.225</b>	<b>22.572</b>	<b>140.522</b>	<b>0.846</b>
Red Route	R01			18.872	21.100				39.972	0.521
Red Route	R03			5.997	-				5.997	-
Red Route	R04			2.252	7.625				9.876	-
Red Route	R06			7.518	4.563				12.081	-
Red Route	R07			10.913	3.891				14.805	0.225
Red Route	R10			1.009	-				1.009	-
Red Route	Red			1.685					1.685	
Red Route	Others	2.500	8.522			9.263	13.245	22.776	56.306	
<b>Red Route Total</b>		<b>2.500</b>	<b>8.522</b>	<b>48.245</b>	<b>37.179</b>	<b>9.263</b>	<b>13.245</b>	<b>22.776</b>	<b>141.731</b>	<b>0.746</b>
Yellow Route	R01			18.872	21.100				39.972	0.521
Yellow Route	R09			143.721	18.894				162.615	-
Yellow Route	R10			1.009	-				1.009	-
Yellow Route	Yellow			2.019					2.019	
Yellow Route	Others	2.500	19.655			12.777	10.250	55.971	101.153	
<b>Yellow Route Total</b>		<b>2.500</b>	<b>19.655</b>	<b>165.620</b>	<b>39.994</b>	<b>12.777</b>	<b>10.250</b>	<b>55.971</b>	<b>306.768</b>	<b>0.521</b>

Warrington Western Link - OBC - Route Construction - Stage 2A  
Route Section Summary

Sections	HIGHWAYS					STRUCTURES					NWR
	NETT	WAO	Fee	SCAPE	Total	NETT	WAO	Fee	SCAPE	Total	
	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	£M's	
R01	16.807	1.513	0.458	0.094	18.872	18.792	1.691	0.512	0.105	21.100	0.521
R02	27.335	2.460	0.745	0.153	30.693	10.747	0.967	0.293	0.060	12.068	0.521
R03	5.341	0.481	0.146	0.030	5.997	-	-	-	-	-	-
R04	2.005	0.180	0.055	0.011	2.252	6.791	0.611	0.185	0.038	7.625	-
R05	7.496	0.675	0.204	0.042	8.417	5.008	0.451	0.136	0.028	5.624	0.326
R06	6.695	0.603	0.182	0.037	7.518	4.064	0.366	0.111	0.023	4.563	-
R07	9.719	0.875	0.265	0.054	10.913	3.466	0.312	0.094	0.019	3.891	0.225
R08	14.190	1.277	0.387	0.079	15.933	8.957	0.806	0.244	0.050	10.057	0.235
R09	127.998	11.520	3.488	0.715	143.721	16.827	1.514	0.459	0.094	18.894	-
R10	0.898	0.081	0.024	0.005	1.009	-	-	-	-	-	-

E.O for colour route costs	HIGHWAYS				
	NETT	WAO	Fee	SCAPE	Total
	£M's	£M's	£M's	£M's	£M's
Green	1.143	0.103	0.031	0.006	1.284
Orange	1.693	0.152	0.046	0.009	1.901
Pink	1.190	0.107	0.032	0.007	1.336
Purple	1.377	0.124	0.038	0.008	1.546
Red	1.501	0.135	0.041	0.008	1.685
Yellow	1.798	0.162	0.049	0.010	2.019

**Warrington Western Link - OBC - Route Construction - Stage 2A**  
**Section Route Details**

Section Route Details	R01	R02	R03	R04	R05	R06	R07	R08	R09	R10
	£	£	£	£	£	£	£	£	£	£
Special Prelims - GPR	£ 10,000	£ 10,000	£ 10,000	£ 10,000	£ 10,000	£ 10,000	£ 10,000	£ 10,000	£ 10,000	£ 10,000
Special Prelims - Traffic Management	£ 1,045,520	£ 1,145,520	£ -	£ 218,400	£ 218,400	£ 200,000	£ 218,400	£ 418,400	£ 200,000	
Special Prelims - Haul Roads / Working Platform	£ 682,403	£ 1,226,236	£ 83,195	£ 515,644	£ 23,288	£ 600,218	£ 74,925	£ 888,472	£ 1,541,526	£ 13,866
Special Prelims - Vac Excavation	£ 998,400	£ 998,400	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Special Prelims - Water Siltation Management	£ 468,000	£ 260,000	£ -	£ 260,000	£ 130,000	£ -	£ 130,000	£ 130,000	£ 390,000	£ -
Site Clearance	£ 172,441	£ 1,778,207	£ 159,505	£ 14,330	£ 169,778	£ 199,356	£ 167,870	£ 562,871	£ 1,239,475	£ 26,584
Fencing	£ 558,388	£ 460,106	£ 59,257	£ 194,252	£ 375,201	£ 239,806	£ 454,157	£ 818,173	£ 613,590	£ 9,876
Safety Fencing	£ 291,999	£ 387,394	£ -	£ 31,965	£ 99,943	£ -	£ 108,733	£ 47,903	£ 369,546	£ -
Drainage	£ 1,605,937	£ 1,692,292	£ 825,862	£ 375,903	£ 686,491	£ 775,284	£ 1,004,816	£ 1,913,053	£ 2,938,853	£ 137,644
Earthworks	£ 2,876,617	£ 5,264,658	£ 2,260,583	£ 617	£ 3,793,029	£ 1,388,687	£ 4,857,537	£ 4,423,014	£ 107,822,610	£ 376,764
Pavements	£ 1,017,572	£ 2,323,409	£ 553,040	£ 41,366	£ 464,585	£ 1,797,195	£ 543,515	£ 1,641,924	£ 2,384,654	£ 92,173
Kerbs & Footways	£ 616,838	£ 788,500	£ 300,263	£ 44,191	£ 297,019	£ 326,417	£ 342,984	£ 634,674	£ 1,303,392	£ 50,044
Traffic Signs	£ 81,003	£ 160,012	£ 7,714	£ 6,504	£ 7,714	£ 93,288	£ 80,979	£ 137,518	£ 67,500	£ 1,286
Traffic Signals	£ 164,082	£ 284,301	£ -	£ -	£ -	£ 252,540	£ 200,431	£ 376,808	£ 26,345	£ -
Road Markings	£ 7,500	£ 9,000	£ 3,000	£ 3,000	£ 4,500	£ 6,000	£ 4,500	£ 6,000	£ 12,000	£ 500
Street Lighting	£ 169,771	£ 158,287	£ 52,367	£ 38,831	£ 59,728	£ 26,480	£ 70,726	£ 158,371	£ 300,668	£ 8,728
Electrical Work for Road Lighting and Traffic Sig	£ 158,280	£ 165,966	£ 63,220	£ 50,125	£ 63,595	£ 35,176	£ 75,480	£ 175,608	£ 313,266	£ 10,537
Special Structures	£ -	£ 398,000	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Accommodation Works and Stats	£ 1,465,000	£ 3,500,000	£ -	£ 200,000	£ 1,053,478	£ 705,101	£ 1,290,024	£ 1,535,254	£ 6,512,931	£ -
Landscaping and Ecology	£ 1,287,563	£ 955,125	£ 962,922	£ 253	£ 39,631	£ 39,691	£ 84,416	£ 311,936	£ 1,951,987	£ 160,487
Highways Structure	£ 3,129,781	£ 5,369,738								
<b>Roadworks Summary</b>	<b>£ 16,807,093</b>	<b>£ 27,335,149</b>	<b>£ 5,340,927</b>	<b>£ 2,005,381</b>	<b>£ 7,496,379</b>	<b>£ 6,695,240</b>	<b>£ 9,719,491</b>	<b>£ 14,189,978</b>	<b>£ 127,998,343</b>	<b>£ 898,488</b>
MSC Viaduct	£ 16,788,494									
Walton Viaduct	£ 1,885,032	£ 1,885,032								
WCML Viaduct	£ 118,443	£ 118,443								
Forrest Way Bridge				£ 6,790,607						
East Gaston Rail Viaduct					£ 5,008,313					
West Gaston Rail Viaduct							£ 3,465,774			
St Helens Canal Bridge						£ 682,504				
Sankey Brook Bridge								£ 516,268		
Garston Rail Bridge								£ 8,440,348		
West Mersey Crossing									£ 16,826,972	
East Mersey Crossing		£ 3,135,683								£ -
Others	£ -	£ 5,608,213				£ 3,381,261				
<b>Structures Summary</b>	<b>£ 18,791,969</b>	<b>£ 10,747,372</b>	<b>£ -</b>	<b>£ 6,790,607</b>	<b>£ 5,008,313</b>	<b>£ 4,063,765</b>	<b>£ 3,465,774</b>	<b>£ 8,956,616</b>	<b>£ 16,826,972</b>	<b>£ -</b>
<b>Link Summary</b>	<b>£ 35,599,062</b>	<b>£ 38,082,521</b>	<b>£ 5,340,927</b>	<b>£ 8,795,988</b>	<b>£ 12,504,693</b>	<b>£ 10,759,005</b>	<b>£ 13,185,264</b>	<b>£ 23,146,595</b>	<b>£ 144,825,315</b>	<b>£ 898,488</b>
<b>NWR Costs</b>	<b>£ 520,904</b>	<b>£ 520,904</b>			<b>£ 325,540</b>		<b>£ 225,275</b>	<b>£ 234,772</b>		

Section Route Details	Green	Orange	Pink	Purple	Red	Yellow
	£	£	£	£	£	£
Special Prelims - GPR						
Special Prelims - Traffic Management						
Special Prelims - Haul Roads / Working Platforms						
Special Prelims - Vac Excavation						
Special Prelims - Attendant Gang	£ 530,000	£ 810,000	£ 580,000	£ 725,000	£ 725,000	£ 1,000,000
Site Clearance						
Fencing						
Safety Fencing						
Drainage						
Earthworks						
Pavements						
Kerbs & Footways						
Traffic Signs	£ 229,387	£ 229,387	£ 229,387	£ 229,387	£ 229,387	£ 229,387
Traffic Signals	£ 149,206	£ 149,206	£ 149,206	£ 149,206	£ 149,206	£ 149,206
Road Markings	£ 4,500	£ 4,500	£ 4,500	£ 4,500	£ 4,500	£ 4,500
Street Lighting						
Electrical Work for Road Lighting and Traffic Sig	£ 9,840	£ 9,840	£ 9,840	£ 9,840	£ 9,840	£ 9,840
Special Structures						
Accommodation Works and Stats	£ 50,000	£ 50,000	£ 50,000	£ 50,000	£ 50,000	
Landscaping and Ecology	£ 170,202	£ 440,052	£ 166,992	£ 208,742	£ 332,604	£ 404,910
Highways Structure						
<b>Roadworks Summary</b>	<b>£ 1,143,135</b>	<b>£ 1,692,985</b>	<b>£ 1,189,925</b>	<b>£ 1,376,675</b>	<b>£ 1,500,537</b>	<b>£ 1,797,843</b>





Warrington Western Link - OBC - Route Construction - Stage 2A  
Structures Individual Prices

Warrington Western Link - OBC - Route Construction - Stage 2A  
Structures Individual Prices

Individual Structure Prices			S1		S2		S3		S4		S5		S6		S7		S8		S9		S10		S11		S12		S13		S14				
Item Description	Rate	Unit	MSC Viad't		Walton Viad't		WCML Viad't		Forest Way Br		E Garston Rail Viad't		W Garston Rail Viad't		St Helens Canal Br		Sankey Brook Br		Garston Rail Br		W Mersey X'ing		E Mersey X'ing		Morley Com. Culvert		Cromwell Ave Flyover		CPL and Latchford Extensions				
			Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost	Quant	Cost			
Structures Abutment Small	£126,914	No	-	£	-	£	-	£	-	£	-	2	£ 253,827	4	£ 507,655	1	£126,914	2	£253,827	-	£	-	£	-	£	-	£	-	£	-			
Structures Abutment Medium / Rail	£245,650	No	-	£	-	£	-	£	-	£	-	6	£1,473,899	2	£ 491,300	1	£245,650	-	£	-	2	£ 491,300	2	£ 491,300	-	£	-	£	-	2	£ 491,300		
Structures Abutment Large	£469,760	No	8	£ 3,758,084	2	£ 939,521	-	£	-	2	£ 939,521	-	£	-	£	-	£	-	£	-	4	£ 1,879,042	-	£	-	£	-	£	-	2	£ 939,521		
Structures Abutment Large Tidal	£791,225	No	2	£ 1,582,449	-	£	-	£	-	2	£1,582,449	-	£	-	£	-	£	-	£	-	3	£ 2,373,674	2	£1,582,449	-	£	-	£	-	2	£ 1,582,449		
Structures Deck Small T beams	£ 560	sq,m	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-		
Structures Deck Medium Y/W Beams	£ 860	sq,m	-	£	-	£	-	£	-	£	-	973	£ 837,277	482	£ 414,689	236	£202,737	202	£173,774	-	£	-	£	-	£	-	£	-	£	-	£	-	
Structures Deck Large Concrete/Steel	£ 1,456	sq,m	7,251	£10,558,436	-	£	-	£	-	2,716	£3,954,454	197	£ 287,394	196	£ 285,166	-	£	-	£	-	662	£ 964,664	5,432	£ 7,908,907	949	£1,381,274	-	£	-	440	£ 640,692	2,120	£ 3,086,243
Structures Deck Rail Replacement	£ 7,168	sq,m	-	£	-	132	£ 945,511	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	
Tunnel	£ 94,732	m	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-		
Cut and Cover	£ 28,222	sq,m	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-		
Reinforced Earth wall [fill included in highways]		sq,m	-	£ 889,525	-	£	-	£	-	£ 314,183	-	£2,155,915	-	£1,766,964	-	£107,203	-	£ 88,666	-	£6,984,385	-	£ 4,174,049	-	£ 171,960	-	£ 171,960	-	£ 2,249,269	-	£	-		
Flood Defence Wall		m3	-	£	-	Inc. in drainage	1	£118,443	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-		
Refurbishment	£118,443	sum	-	£	-	£	-	0	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-			
Culvert	£161,986	sum	-	£	-	£	-	0	£	-	£	-	£	-	£	-	£	-	£	-	£	-	£	-	1	£ 161,986	-	£	-	£	-		
<b>Demolition</b>					1	£	-			1	£	-																					
<b>Structures Summary</b>				<b>£16,788,494</b>		<b>£1,885,032</b>		<b>£118,443</b>		<b>£6,790,607</b>		<b>£5,008,313</b>		<b>£3,465,774</b>		<b>£682,504</b>		<b>£516,268</b>		<b>£8,440,348</b>		<b>£16,826,972</b>		<b>£3,135,683</b>		<b>£ 333,946</b>		<b>£ 3,381,261</b>		<b>£ 5,608,213</b>			

\* NWR costs from Warrington West Station 26.00%  
12.5% NWR fee  
12.5% APA / BAPA fee  
1% for possessions

	MSC Viaduct	Walton Viaduct	WCML Viaduct	Forest Way Bridge	East Garston Rail Viaduct				West Garston Rail Viaduct			St Helens Canal Bridge	Sankey Brook Bridge	Garston Rail Bridge	West Mersey Crossing		East Mersey Crossing	Morley Common Access Culvert	Cromwell Ave Flyover
					Barnard Street	Ditton Goods Line	Old Liverpool Rd	Sankey Brook Canal	Sankey Brook Canal	Ditton Goods Line	Old Liverpool Rd				River Mersey	St Helens Canal / Ditton Goods Line			
Rail/River/Canal/Road	Canal	2 options Rail/River	New VRS Rail/River	River	Road	Rail	Road	Canal	Canal	Rail	Road	Canal	River	Rail/Canal	River	Rail/Canal	River	Road	Road
Type	Steel Composite	Steel Composite		Steel Composite	Pre-stressed Concrete Beams	Pre-stressed Concrete Beams	Pre-stressed Concrete Beams	Pre-stressed Concrete Beams	Pre-stressed Concrete Beams	Pre-stressed Concrete Beams	Pre-stressed Concrete Beams	Pre-stressed Concrete Beams	Pre-stressed Concrete Beams	Reinforced Concrete Beams	Steel Composite	Steel Composite	Steel Composite	Pre-cast Culvert	Steel Composite
Clearance height [m]	22	5.7		10	5.7	5.8	5.7	0.6	0.6	5.8	5.7	2.4	0.6	5.8	10	5.8	10.54	5	6
Structure clear span [m]	473.927	17.357		177.5	11.3	12.9	24.8	27.5	15.7	12.8	15.8	15.4	13.2	43.3	315	40	62	20	40
Deck [m2]	7251	132		2715.75	172.89	197.37	379.44	420.75	240.21	195.84	241.74	235.62	201.96	662.49	4819.5	612	948.6	80	440
Large Abutments [no.]	2	2		2											2				
Large Abutments adjacent to/in watercourse [no.]																	2		
Large Piers [no.]	6	0													2				
Large Pier adjacent to/in watercourse [no.]	2	0		2											3				
Small Abutments [no.]					2	2	2			2	2			1		1			
Small Abutments adjacent to/in watercourse [no.]								2	2			2	2	1		1			
Small Piers [no.]																			
Small Pier adjacent to/in watercourse [no.]																			
Piles	900mm dia.	-	-	900mm dia.	600mm dia.	600mm dia.	600mm dia.	600mm dia.	600mm dia.	600mm dia.	600mm dia.	600mm dia.	600mm dia.	900mm dia.	900mm dia.	900mm dia.	900mm dia.		
Reinforced earth [load transfer]	402.5	-	-	43.2	44.8	544	328.5	20	72	152	42	27.5	15.75	119	372	540	35		
reinforced earth m2	427.5	0	0	200	710.6	544	328.5	20	798	517.5	42	27.5	15.75	70	2360	540	54		
pile length m	10	0	0	15	15	15	15	15	15	15	15	10	10	12	19	19	10		
starter layer m2	2197.1	0	0	622.8	4300.78					3200.5			346	311.4	2145.2	6712.4		553.6	
Flood defence wall [m3] + sheet piling		116.49	150																
Demolition		Partial																	

Rates

Structures				
Abutment				
Small				
Sankey Brook Bridge	Total		£ 253,827	
	per	2.00		
	<b>Abutment</b>		<b>£ 126,914</b>	
Medium				
St Helens Canal Br - from Budget	Total		£ 491,300	
	per	2.00		
	<b>Abutment</b>		<b>£ 245,650</b>	
Large Non-Tidal				
Ship Canal Bridge - from Budget	Total		£ 1,879,042	
	per	4.00		
	<b>Abutment</b>		<b>£ 469,760</b>	
Large Tidal				
Ship Canal Bridge - from Budget	Total		£ 3,956,124	
	per	5.00		
	<b>Abutment</b>		<b>£ 791,225</b>	
Deck				
Small T beams				
Sankey Brook Br - from Budget	Deck		£ 270,677	
	length	m	15	
	cost/m		£ 18,045.14	
	less highway cost		- 2,208.05	
	e.o. cost/m		£ 15,837.09	
	width	m	28.3	
	<b>Deck e.o.cost/m2</b>		<b>£ 560</b>	
Medium Y/W Beams				
St Helens Canal Br - from Budget	Deck		£ 618,111	
	length	m	43	
	cost/m		£ 14,374.67	
	less highway cost		- 2,208.05	
	e.o. cost/m		£ 12,166.62	
	width	m	14.14	
	<b>Deck e.o.cost/m2</b>		<b>£ 860</b>	
Large Concrete/Steel				
Ship Canal Bridge - from Budget	Deck		£ 8,374,973	
	length	m	340	
	cost/m		£ 24,632.27	
	less highway cost		- 2,208.05	
	e.o. cost/m		£ 22,424.22	
	width	m	15.4	
	<b>Deck e.o.cost/m2</b>		<b>£ 1,456</b>	
Rail Replacement				
Chester-Helsby Br - from Budget	Total cost		£ 1,583,754	
	less abutments		-£ 253,827	
	Deck		£ 1,329,927	
	length	m	18	
	cost/m		£ 73,884.81	
	less highway cost		- 2,208.05	
	e.o. cost/m		£ 71,676.76	
	width	m	10	
<b>Deck e.o.cost/m2</b>		<b>£ 7,168</b>		
Tunnel				
Slurry				
cost from HS2	Purchase TBM		£ 16,000,000	
	Tunnelling support			
		Fixed		£ 45,000
		T/R		£ 1,100,000
		Weeks	1	£ 1,100,000
	Tunnel construction		£ 25,000	£ 7,000,000
	Disposal of Exc material		£ 4,500	£ 1,260,000
	Portal Construction			cut & cover
	Shaft Construction			tunnel too short
	M&E Installation		£ 4,000	£ 1,120,000
	Total cost			£ 26,525,000
	Length	m		280
	<b>Tunnel cost per m</b>			<b>£ 94,732</b>

EPBM			
cost from HS2	Purchase TBM		£ 18,000,000
	Tunnelling support		
		Fixed	£ 35,000
		T/R	£ 1,100,000
		Weeks	£ 1,100,000
	Tunnel construction		£ 22,000
	Disposal of Exc material		£ 4,500
	Portal Construction		£ 6,160,000
	Shaft Construction		£ 1,260,000
	M&E Installation		cut & cover
	Total cost		tunnel too short
	Length	m	£ 4,000
			£ 1,120,000
			£ 27,675,000
			280
			£ 98,839

Cut and Cover			
Establish piling		1 m	£ 50,000
contig piles		28,800 m2	£ 260
Disposal of contaminated arisings		28,800 m3	£ 37
Exc u/s mat		135,520 m3	£ 5.00
Double handle		135,520 m3	£ 2.65
Disposal inert	80%	135,520 m3	£ 27.86
Disposal contaminated	20%	135,520 m3	£ 37.30
Excavate soft spots	10%	9,240 m3	£ 78.85
Concrete slab - Base		12,240 m3	£ 500
Concrete slab - Top	10%	12,240 m3	£ 1,000
M&E drainage		1 m	£ 200,000
Brick facing		16,000 m2	£ 80
Total			£ 22,577,871
Length		800.00 m	
<b>Total</b>		<b>/m</b>	<b>£ 28,222</b>

Reinforced Earth wall - Geogrid			
i54 construction cost	Total		£ 57,000
(Terramesh)	m2	262.50	
No. of elevations		2.00	
<b>Total</b>	<b>/m2</b>		<b>£ 434</b>

Reinforced Earth wall - Load Transfer System [450mm diameter bored piling]			
Balfour Beatty Ground Engineering - CPLR 31.01.17 quote			
350mm diameter Pencil			
m2	Total No.	No./m2	Depth7m-10m
West Bank 676 sq.m	345.00	0.51	8.5
East Bank 875 sq.m	446.00	0.51	8.5
1551.00	791.00		6723.50
			£/no.
			313.60
			108,193.05
			313.60
			139,866.95
			248,060.00
<b>Total</b>	<b>/m2</b>		<b>£ 159.94</b>

£ 18.82 /m/m2

Reinforced Earth wall - Starter Layer [2 layers geogrid, 600mm 6c fill]			
CPLR Budget Jan 17			
Per m2			
Tensar TX160 (Supply and lay)	2.00 m2	£	2.41
Imported acceptable material			4.82
Class 6N in fill to structures	0.60 m3	£	29.43
			17.66
			-
			22.48
<b>Total</b>	<b>/m2</b>		<b>£ 22.48</b>

Culvert			
External [m3]			
6m x 5m x 20m	600		
Internal [m3]			
5m x 4m x 20m	400		
Volume [m3]	200		
In situ concrete	Based on Caernafon S114	200 m3	£ 674.25
Blinding		18 m3	£ 136.47
Craneage [150T]		1 shift	£ 4,680.00
Lighting, etc			£ 20,000.00
<b>Total</b>	<b>/no</b>		<b>£ 161,986.46</b>

Balfour Beatty NWC15008 Warrington Waterfront Feasibility Budget						WCML Arches	
Description	Nett Rate	% Mark Up	Rate	Unit	Estimators Notes	Quantity	Total
<b>Special Preliminaries</b>							
<i>Rail Specific Requirements</i>							
Safety Management (NR)	£ 2,723.40	0.0000%	£ 2,723.40	item	Based on Ardsley Junction M	1	£ 2,723.40
Monitoring	£ 15,720.00	0.0000%	£ 15,720.00	item	Baseline, Monitoring & Post S	1	£ 15,720.00
<b>Superstructure</b>							
Repointing to arches, removal of vegetation, resin grouting to cracks.	£ 100,000.00	0.0000%	£ 100,000.00	item	Based on BBRCL budget qud	1	£ 100,000.00
							£ 118,443.40

			S1		S2		S3		S4		S5		S6		S7		S8		S9		S10		S11		S12		S13	
			MSC Viaduct		Walton Viaduct		WCML Viaduct		Forest Way Bridge		East Garston Rail Viaduct		West Garston Rail Viaduct		St Helens Canal Bridge		Sankey Brook Bridge		Garston Rail Bridge		West Mersey Crossing		East Mersey Crossing		Morley Common Culvert		Cromwell Ave Flyover	
Reinforced Earth wall - Geogrid. Fill to be included in highways price	£ 434.29	m2	830	£360,457.14	0	£ -	0	£ -	243.2	£105,618.29	1647.9	£ 715,659.43	1581.5	£ 686,822.86	55	£ 23,885.71	31.5	£13,680.00	189	£ 82,080.00	3272	£1,420,982.86	89	£ 38,651.43		£ -	4400	£ 1,910,857.14
Reinforced Earth wall - Load Transfer System [450mm diameter bored piling]	£ 18.82	m/m2	21971	£413,405.11	0	£ -	0	£ -	9342	£175,778.55	64511.7	£1,213,848.55	48007.5	£ 903,306.44	3460	£ 65,103.17	3114	£58,592.85	344942.4	£ 6,490,416.94	127535.6	£2,399,702.73	5536	£104,165.07		£ -		£ -
Reinforced Earth wall - Starter Layer [2 layers geogrid, 600mm 6c fill]	£ 22.48	m2	2197.1	£ 49,386.41	0	£ -	0	£ -	622.8	£ 13,999.30	4300.78	£ 96,672.93	3200.5	£ 71,940.84	346	£ 7,777.39	311.4	£ 6,999.65	15445.2	£ 347,177.21	6712.4	£ 150,881.33	553.6	£ 12,443.82		£ -	4840	£ 108,793.52
N2 Parapet - 2 sides	£ 521.86	m	127	£ 66,276.22		£ -		£ -	36	£ 18,786.96	248.6	£ 129,734.40	201	£ 104,893.86	20	£ 10,437.20	18	£ 9,393.48	124	£ 64,710.64	388	£ 202,481.68	32	£ 16,699.52		£ -	440	£ 229,618.40
				<b>£889,524.89</b>		£ -		£ -		<b>£314,183.09</b>		<b>£2,155,915.30</b>		<b>£1,766,964.00</b>		<b>£107,203.47</b>		<b>£88,665.98</b>		<b>£ 6,984,384.79</b>		<b>£4,174,048.59</b>		<b>£171,959.84</b>		£ -		<b>£ 2,249,269.06</b>

388

£ 10,757.86

WEEK	Rate			£
Assistant/Junior Quantity Surveyor	836.02	wk		-
Buyer	1493.32	wk		-
Commercial Manager	1623.57	wk		-
D & B Co-ordinator	1484.24	wk		-
Design Manager	1622.56	wk		-
Gateman	772.41	wk		-
General Clerk 1	651.25	wk		-
General Foreman 1	1351.97	wk		-
Graduate Engineer 1	836.02	wk		-
Junior Engineer 1	742.12	wk		-
Labour 1	772.41	wk		-
Lean construction lead	1250.94	wk		-
M & E Co-ordinator	1484.24	wk		-
Planning Engineer 1	1049.06	wk		-
Principal Planner 1	1554.92	wk		-
Project Manager 1	1938.95	wk		-
Quality Lead	1250.94	wk		-
Quantity Surveyor 1	1100.56	wk		-
Receptionist 1	661.34	wk		-
Safety Manager 1	1464.04	wk		-
Secretary/Receptionist/Typist	661.34	wk		-
Section Engineer 1	975.36	wk		-
Section Foreman	1037.96	wk		-
Security	1110.65	wk		-
Senior Agent 1	1558.95	wk		-
Senior Commercial Manager	1867.92	wk		-
Senior Engineer 1	1156.09	wk		-
Senior Foreman 1	1554.92	wk		-
Senior Planner 1	1484.24	wk		-
Senior Project Manager 1	2181.46	wk		-
Senior Quantity Surveyor 1	1491.30	wk		-
Site Agent 1	1410.53	wk		-
Storeman	772.41	wk		-
Sub Agent/TSCO 1	1220.71	wk		-
Trainee Engineer 1	626.00	wk		-
<b>Rail team</b>				
Design Manager	3000.00	wk		-
Design Manager	3000.00	wk		-
<b>Road Works Team 1</b>		wk		-
Project Manager 1	1938.95	wk		-
Quantity Surveyor 1	1100.56	wk		-
General Foreman 1	1351.97	wk		-
Site Agent 1	1410.53	wk		-
Sub Agent/TSCO 1	1220.71	wk		-
Senior Engineer 1	1156.09	wk		-
Section Engineer 1	975.36	wk		-
Section Engineer 1	975.36	wk		-
Graduate Engineer 1	836.02	wk		-
<b>Structures Team 1</b>		wk		-
Project Manager 1	1938.95	wk		-
Quantity Surveyor 1	1100.56	wk		-
General Foreman 1	1351.97	wk		-
Site Agent 1	1410.53	wk		-
Sub Agent/TSCO 1	1220.71	wk		-
Senior Engineer 1	1156.09	wk		-
Section Engineer 1	975.36	wk		-
Section Engineer 1	975.36	wk		-
Graduate Engineer 1	836.02	wk		-
<b>Structures Team 2</b>		wk		-
Project Manager 1	1938.95	wk		-
Quantity Surveyor 1	1100.56	wk		-
General Foreman 1	1351.97	wk		-
Site Agent 1	1410.53	wk		-
Sub Agent/TSCO 1	1220.71	wk		-
Senior Engineer 1	1156.09	wk		-
Section Engineer 1	975.36	wk		-
Section Engineer 1	975.36	wk		-
Graduate Engineer 1	836.02	wk		-
<b>Structures Team 3</b>		wk		-
Project Manager 1	1938.95	wk		-
Quantity Surveyor 1	1100.56	wk		-
General Foreman 1	1351.97	wk		-
Site Agent 1	1410.53	wk		-
Sub Agent/TSCO 1	1220.71	wk		-
Senior Engineer 1	1156.09	wk		-
Section Engineer 1	975.36	wk		-
Section Engineer 1	975.36	wk		-
Graduate Engineer 1	836.02	wk		-
<b>Core Team</b>				
Buyer	1493.32	wk		-
Senior Planner 1	1484.24	wk		-
Senior Commercial Manager	1867.92	wk		-
Secretary/Receptionist/Typist	661.34	wk		-
Quality Lead	1250.94	wk		-
D & B Co-ordinator	1484.24	wk		-
Senior Project Manager 1	2181.46	wk		-

**60,285.62**

Security	1200.00	wk		
Security	1200.00	wk		
Security	1200.00	wk		

63,885.62

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Green	63.89	wk	116	7.41
Orange	63.89	wk	162	10.35
Pink	63.89	wk	116	7.41
Purple	63.89	wk	145	9.26
Red	63.89	wk	145	9.26
Yellow	63.89	wk	200	12.78

