

# Great Yarmouth Third River Crossing

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OUTLINE BUSINESS CASE

MARCH 2017

Appendix E – Detailed Cost Breakdown

## GREAT YARMOUTH THIRD RIVER CROSSING

### SUMMARY OF OPTION 32 COST ESTIMATE

Estimate Prepared: March 2017  
Price Base: Q3 2016 (when initial estimating commenced)

Option 32 -  
Dual Carriageway  
from Suffolk Road New Four-  
Arm Roundabout to South Denes  
Road T-Junction

High level bridge - high roads  
capacity (Dual lanes in each  
direction provision)

<b>Estimated basic construction and associated costs;</b>	
West Section (including bridge approach)	£11,464,865
Bascule Bridge	£40,012,609
East Section (including bridge approach)	£5,909,159
<b>Sub-total Basic construction and associated costs</b>	<b>£57,386,633</b>
Work by Statutory undertakers and others	£3,040,454
Survey/Investigate/Design/Procure/Supervise/Manage & Liase	£11,400,000
<b>Sub-total including Stats/Others &amp; Design etc. but excluding Land &amp; Risk</b>	<b>£71,827,088</b>
Land and associated costs	£14,110,000
Risk generated by QRA (using scheme developed Risk register & @Risk monte-carlo simulation software 85th percentile result)	£25,714,218
<b>Indicative Total Scheme Estimate</b>	<b>£111,651,306</b>

#### Cost estimates are based on the following:

Option 32 - Drawing No. 1076653-MOU-HGN/HML-OPT32-DR-D-0001&0002(P1,S2)

Client: Norfolk County Council		Work Content measured for Scheme Estimate										
Project: Great Yarmouth Third River Crossing		Option 32 - Dual Carriageway										
Title: Initial Estimate Content (pricing deemed current Q3 2016)		from Suffolk Road New Four-Arm Roundabout to South Denes Road T-Junction							Drwg no: Option 32 - Drawing No. 1076653-MOU-HGN- OPT32-DR-D-0001&0002(P1,S2)			
Work Element	Details	Quantities			Unit	Assessed all inclusive rates			Amount			
		East Section	Crossing	East Section		All & West	Crossing	East	West Section	Crossing	East Section	
Site clearance	some Live carriageway	1.607		0.822	Ha	6,000			9,643		4,931	
Demolition of footbridge	incl access ramps	1			no	40,000			40,000		0	
Demolition of residential and industrial buildings	houses/buildings approx	15			no	2,000			30,000		0	
<b>Footways</b>												
Footways/Splitter islands	Measured from drawings includes edging	6,188		1,723	sq m	54			334,140		93,015	
pedestrian barrier	Allowance at crossings junctions r'abouts etc	160		160	lm	105			16,800		16,800	
<b>Pavements</b>												
Tie in inlay to existing carriageways	Assume resurface extg carriageways over whole area	2,937		2,625	sq m	50			146,866		131,250	
Surfacing (Full)	Measured from Drawings	6,946		3,871	sq m	132			916,851		510,972	
Abandonment of existing roads	(within earthworks,urban realm works sum and St Annes rd item below)	3,320		0	sq m	20			0		0	
<b>Earthworks</b>												
	Earthworks - fill with selected well graded granular fill Class 6N	12,230		8,286	cu m	40			489,216		331,430	
	Less Underpass	-2,160			cu m	40			-86,400			
	Excavation for carriageway and footway and dispose 85% inert/15%contaminated/10% EO hard dig	7,413		3,614	cu m	56			415,128		202,359	
<b>Retaining Walls</b>												
	Reinforced concrete walls	1,145		780	sq m	500			572,250		390,150	
	EO for feature. Patterned profile finishing	1,145		780	sq m	50			57,225		39,015	
<b>Drainage</b>												
Pipework system	conventional allowed pipes and manholes collectors for new gullies (see also urban design and bridge)	1,223		550	m	118			144,361		64,900	
Gullies and connections	allows for new gullies at new kerblines to main routes	61		28	no	793			48,508		21,808	
Drainage connections to existing systems	allow one each at new system ends	4		4	no	1,058			4,232		4,232	
<b>Kerbs</b>												
	Measured from drawings both sides of new road and around roundabout	2,340		568	m	28			64,370		15,623	
<b>Vehicle Parapets</b>												
	Both sides of road above reinforced earth section - 1.4m high	350		270	m	500			175,000		135,000	
<b>Road works</b>												
	New access road to commercial properties				Item	n/a						
Box culvert underpass 24m wide 5.0m high approx	To provide access to commercial properties	24			m	53,000			1,272,000			
<b>New Bascule Bridge</b>												
	Bridge option 1 - 82m span x 23.4m wide		1,919		sq m		9,250		17,748,900			
<b>Civils work for Bascule Bridge</b>												
	See separate build ups including knuckles		1,919		sq m		6,326		12,139,137			
<b>Lighting</b>												
	3.0% of site clearance, drainage, roads, footways & kerbs(equates to about				sum				137,000		59,000	
<b>Road markings</b>												
	0.50% of ditto				Sum				23,000		10,000	
<b>Traffic Signs</b>												
	1.0% of ditto				Sum				46,000		20,000	
<b>Electrical/comms</b>												
	1.25% of ditto				Sum				57,000		25,000	
<b>Environmental mitigation work</b>												
	1.5% of ditto				Sum				69,000		29,000	
<b>Landscaping/urban realm works</b>												
	As seperately assessed urban realm works estimate				Sum				1,763,345		949,493	
<b>Accommodation Works</b>												
	1.0% of ditto (boundary fences to adjoining owners and other impact mitigation requests) ssumed minimal urban design to most areas land purchased				Sum				46,000		20,000	
<b>Traffic Signals</b>												
	traffic controlled signalised junction	0		1	nr	150,000			0		150,000	
<b>Pedestrian/NMU crossings</b>												
	4no 2lane controlled crossings at west junction area	4				25,000			100,000		0	
	1no 2 lane uncontrolled crossing suffolk road	1				5,000			5,000		0	
<b>band drains</b>												
	whole embank area	3,584		3024	sq m	113		113	404,240		342,640	
	interceptors and collector drains	1		1	sum	42,250		36,250	42,250		36,250	
<b>stone columns for 20m</b>												
	all now Cmc's to provide moderate risk geotech design soloution	410		448	sq m	155		153	63,609		68,635	
<b>EO to provide moderate risk option of using CMC's to embankment formation level, behind new strucure abutments and at interfaces with existing embankments</b>												
		1		1	sum	600,615		152,773	600,615		152,773	
<b>Provision of in river temporary berthing pontoons and access adjacent to the bridge both sides of river for smaller vessels</b>												
	based on basic quote from other scheme				sum				200,000		200,000	
<b>EO for east side road construction to facilitate heavy vehicle crossing</b>												
	EO for east side road construction to facilitate heavy vehicle crossing(protection to surface needed if crawler type vehicles?)	0		750	sq m	130			0		97,500	
<b>Allowance for Dock wall reconstruction due to incorporating new bridge supports.</b>												
	allowance only based on up to 3m on plan infringement beyond foundation for bridge	1		1	sum	238,620			239,000		239,000	
<b>Allowance to provide changed access and hammerhead at each end of St Annes road</b>												
	based on road area/footway alterations at grade tied in to existing	200			sq m	150			30,000		0	
		100			sq m	75			7,500		0	
<b>Allowance for ducting runs from opposite river towers for bridge control/coordination</b>												
	based on ducts layout upt 300mm dias in river bed trenched(depth below dredge level) surface mounted to walls in trench on dock area	70		70	lm	350			24,500		24,500	
									sub-total	8,508,249	29,888,037	4,385,276
	<b>Items of construction contingency for items not identified and precise detail/spec at this stage</b>						allowed at	10.0%	850,825	1,494,402	438,528	
	<b>Preliminaries/TM/Temp works/OH &amp; P</b>								2,105,792	8,630,171	1,085,356	
									sub-total	11,464,865	40,012,609	5,909,159
<b>ADD For other considerations</b>												
	<b>Work by Statutory undertakers and others</b>						allowed at	17.5%	2,006,351		1,034,103	
	<b>Optioneering/Survey/Investigate/outlin-detailed Design/Procure/Supervise/manage &amp; liase</b>						allowed at	18.9%	2,541,441	7,548,663	1,309,896	
									Overall Sub-Total per Section	16,012,658	47,561,272	8,253,158
									Indicative Estimate Total to be used in Summary		71,827,088	