

# PROJECT DELIVERY SPECIALISTS

**WAITAHURANGI BRIDGE**

**OPTIONS ESTIMATE**

PREPARED FOR:

**AUCKLAND COUNCIL**

FRIDAY, 26 AUGUST 2016



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**PROJECT  
MANAGEMENT**

**QUANTITY  
SURVEYING**

**CONSENT  
AND PLANNING**

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## REVISION HISTORY

Rev	DESCRIPTION	DATE
1.00	Draft issued to Auckland Council.	19/08/2016
2.00	Final issued to Auckland Council.	26/08/2016

## VERIFICATION

PREPARED BY: Les Lewer



REVIEWED BY: Kyle Kaliniak



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## 1.00 Executive summary

Stellar Projects Ltd have been commissioned by Auckland Council to provide Concept Option Estimates for the Waitahurangi Bridge Project.

The purpose of the Report is to provide Auckland Council with cost estimate options for discussion to choose a preferred concept option to progress to detail design. 3 options have been assessed, they are;

- OPTION 1 : '58.4m x 3.5m wide bridge' - this option is a 58.4m long bridge for a 3.5m wide shared walking/cycling path.
  - OPTION 2 : '46m x 3.5m wide bridge' - this option is a 46m long bridge for a 3.5m wide shared walking/cycling path with graded ramp on the Busby Street approach.
  - OPTION 3 : '58.4m x 3.5/6.1m wide bridge' - this option is a 58.4m long bridge for a 3.5m wide shared walking/cycling path including a 2.6m widened section with webforge grate decking as a viewing platform.
- We have included in each bridge option a stainless steel soffit, refer to section 6.02 'Removal of Stainless Steel Cladding' for the expected estimate costs excluding this soffit.
  - We have included in each bridge option a proprietary steel balustrade, refer to section 6.03 'Upgrading the Balustrade to a bespoke option' for the expected estimate costs if this balustrade is architecturally enhanced.
  - We have included 'Streetscape Landscaping' costs of \$266,100 within each option to provide an outturn cost of the project

The following is a summary of the estimate:

Total Physical Works estimate		Option 1 (\$)	Option 2 (\$)	Option 3 (\$)
1	Project Base Estimate	1,132,000	1,027,000	1,220,000
2	<b>Expected</b> Project Estimate	<b>1,349,000</b>	<b>1,217,000</b>	<b>1,524,000</b>
3	95th Percentile Project Estimate	1,404,000	1,265,000	1,600,000

Refer to the attached detailed estimates for further breakdown of these estimates.

- The Project Base estimate includes for Consultant design fees, Consultant construction monitoring fees and Construction costs, it excludes contingency.
- The Expected project estimate includes the above plus a Contingency of 25%.
- The 95th Percentile project estimate includes the above "expected estimate" plus project risk contingency. Statistically 95% of projects out turn cost will be below this figure and 5% will be above it.

## 2.00 Methodology

Stellar Projects Ltd strictly follow NZTA guidelines (SM014, Part D) for preparing estimates. In preparing the Waitahurangi Bridge option estimates the following methodology has been used:

- Gather all project documentation that may impact on the cost of the project.
- Define the scope of work and translate into the schedule of quantities.
- Define the construction methodology and program and translate into the schedule of quantities.
- Gather estimated rates/allowances and ensure they are reasonable/appropriate for the item of work they apply to.

- Undertake an arithmetical check.
- Determine the contingency and funding risk allowances.
- Review the appropriateness of the output result.
- Define the assumptions made.
- Prepare a report summarising the outcome for Auckland Council.

### 3.00 Clarifications

The following is included in the Options Estimate:

- Professional fees including:
  - Investigation and reporting
  - Design and project documentation
- Construction MSQA
- Physical works costs
- Contingency/Risk contingency

### 4.00 Exclusions

The following is excluded from the Options Estimate:

- GST.
- Project Property cost.
- Asbestos demolition and removal.
- Unusual ground conditions including contamination, rock, etc.
- Escalation from the date of the Option Estimates.
- Sunk costs.

### 5.00 Option Estimates

#### 5.01 Option 1 : '58.4m x 3.5m wide bridge'

The estimate for the '58.4m x 3.5m wide bridge' includes all works to construct the bridge as set out within Warren and Mahoney concept design drawings, as limited detail has been provided the estimate assumptions are based on historic projects of similar nature;

- We have made an allowance of 20% for Preliminary and General overheads.
- We have allowed \$7,600 for Environmental Compliance including plans, controls, etc.
- We have allowed the following for 3 central piers including;
  - 4 x 8m driven 'H' piles to each pair. We have assumed these piles are 60kgs/m pile.
  - 2000 x 2000 x 500 deep reinforced concrete pile cap including an allowance of 150kgs/m<sup>3</sup> for reinforcing.
  - 600 dia reinforced concrete column including an allowance of 110kgs/m<sup>3</sup> for reinforcing with paint finish and graffiti guard protection to 3m above finished ground level.
- We have allowed the following for bridge abutments;
  - 4 x 8m driven 'H' piles to each abutment. We have assumed these piles are 60kgs/m pile.
  - 3500 x 2000 x 2000/1200 deep reinforced concrete abutment beams including an allowance of 150kgs/m<sup>3</sup> for reinforcing.

- We have allowed a 800 x 600 x 20 thick curved box beam with 3500 x 500 o/a deep x 16 thick raked cross beams for support of the deck.
- We have made no allowance for bridge bearings.
- We have allowed a 150mm thick reinforced concrete bridge deck complete with 75 thick flatslab permanent formwork including an allowance of 120kgs/m<sup>3</sup> for reinforcing.
- We have allowed for steel barrier/balustrades including graffiti guard protection.
  
- We have allowed to make good all temporary works surfaces to match existing vegetation including topsoil, mulch, planting, etc.

'WAITAHURANGI BRIDGE - Costing Options' drawings provided by Warren and Mahoney dated 10th August 2016 were used for the '58.4m x 3.5m wide bridge'

## 5.02 Option 2 : '46m x 3.5m wide bridge'

The estimate for the '46m x 3.5m wide bridge' includes all works to construct the bridge as set out within Warren and Mahoney concept design drawings, as limited detail has been provided the estimate assumptions are based on historic projects of similar nature;

- We have made an allowance of 20% for Preliminary and General overheads.
- We have allowed \$7,600 for Environmental Compliance including plans, controls, etc.
- We have allowed to form a ramp with imported fill to the abutment of the proposed bridge.
- We have allowed the following for 2 central piers including;
  - 4 x 8m driven 'H' piles to each pier. We have assumed these piles are 60kgs/m pile.
  - 2000 x 2000 x 500 deep reinforced concrete pile cap including an allowance of 150kgs/m<sup>3</sup> for reinforcing.
  - 600 dia reinforced concrete column including an allowance of 110kgs/m<sup>3</sup> for reinforcing with paint finish and graffiti guard protection to 3m above finished ground level.
- We have allowed the following for bridge abutments;
  - 4 x 8m driven 'H' piles to each abutment. We have assumed these piles are 60kgs/m pile.
  - 3500 x 2000 x 2000/1200 deep reinforced concrete abutment beams including an allowance of 150kgs/m<sup>3</sup> for reinforcing.
- We have allowed a 800 x 600 x 20 thick curved box beam with 3500 x 500 o/a deep x 16 thick raked cross beams for support of the deck.
- We have made no allowance for bridge bearings.
- We have allowed a 150mm thick reinforced concrete bridge deck complete with 75 thick flatslab permanent formwork including an allowance of 120kgs/m<sup>3</sup> for reinforcing.
- We have allowed for steel barrier/balustrades including graffiti guard protection.
- We have allowed to make good all temporary works surfaces to match existing vegetation including topsoil, mulch, planting, etc.

'WAITAHURANGI BRIDGE - Costing Options' drawings provided by Warren and Mahoney dated 10th August 2016 were used for the '46m x 3.5m wide bridge'

## 5.03 Option 3 : '58.4m x 3.5/6.1m wide bridge'

The estimate for the '58.4m x 3.5/6.1m wide bridge' includes all works to construct the bridge as set out within Warren and Mahoney concept design drawings, as limited detail has been provided the estimate assumptions are based on historic projects of similar nature;

- We have made an allowance of 20% for Preliminary and General overheads.
- We have allowed \$7,600 for Environmental Compliance including plans, controls, etc.
- We have allowed the following for 3 central piers including;
  - 4 x 8m driven 'H' piles to each pair. We have assumed these piles are 60kgs/m pile.
  - 2000 x 2000 x 500 deep reinforced concrete pile cap including an allowance of 150kgs/m<sup>3</sup> for reinforcing.
  - 600 dia reinforced concrete column including an allowance of 110kgs/m<sup>3</sup> for reinforcing with paint finish and graffiti guard protection to 3m above finished ground level.
- We have allowed the following for bridge abutments;
  - 4 x 8m driven 'H' piles to each abutment. We have assumed these piles are 60kgs/m pile.
  - 3500 x 2000 x 2000/1200 deep reinforced concrete abutment beams including an allowance of 150kgs/m<sup>3</sup> for reinforcing.
- We have allowed a 800 x 600 x 20 thick curved box beam with 3500 x 500 o/a deep x 16 thick raked cross beams for support of the deck.
- We have made no allowance for bridge bearings.
- We have allowed a 150mm thick reinforced concrete bridge deck complete with 75 thick flatslab permanent formwork including an allowance of 120kgs/m<sup>3</sup> for reinforcing.
- We have allowed to increase the bridge width to 6.1 to create a viewing platform. We have assumed 75mm thick webforge grate decking to this area.
- We have allowed for steel barrier/balustrades including graffiti guard protection.
- We have allowed to make good all temporary works surfaces to match existing vegetation including topsoil, mulch, planting, etc.

'WAITAHURANGI BRIDGE - Costing Options' drawings provided by Warren and Mahoney dated 10th August 2016 were used for the '58.4m x 3.5m wide bridge'

#### 5.04 Streetscape Landscaping

The estimate for the 'Streetscape Landscaping' includes all landscaping works as set out within Boffa Miskell concept design drawings, as limited detail has been provided the estimate assumptions are based on historic projects of similar nature;

- We have made an allowance of 20% for Preliminary and General overheads.
- We have allowed \$2,400 for Environmental Compliance including plans, controls, etc
- We have allowed to remove existing kerb and channel and pavement.
- We have not allowed to adjust the existing lid levels of any manholes.
- We have not allowed to mill and re-shape the cross falls of the existing
- We have allowed 10 road signs.
- We have not allowed for lighting.
- We have made no allowance to relocate existing services.
- We have allowed to make good surfaces to match existing vegetation including topsoil, mulch, planting, etc.
- We have allowed for exposed aggregate concrete footpaths.

'WAITAHURANGI BRIDGE - Costing Options' drawings provided by Boffa Miskell dated 10th August 2016 were used for the 'Streetscape Landscaping' Estimate.

#### 5.04 Rates and Allowances

Any new rates or allowances have been gathered from historic projects of similar nature and market conditions. Where we have considered rates to be outside of these conditions we have created rates using first principle rate build-ups that include materials, plant, labour and margin.

#### 5.05 Contingency / Risk

The following allowances have been made for Contingency :

- Development Contributions - 25%
- Professional fees - 25%
- Construction - 25%

The following allowances have been made for Funding Risk (95th percentile) :

- Development Contributions - 5%
- Professional fees - 5%
- Construction - 5%

No formal Risk assessment has been completed.

In line with acceptable estimation limitations these Option Estimates have a level of accuracy of minus 15% to plus 25%.

(The 95th percentile estimate means statistically 95% of projects out turn cost will be below this figure and 5% will be above it)

#### 5.06 Estimate summary

The following is a summary of the estimate:

Total Physical Works estimate		Option 1 (\$)	Option 2 (\$)	Option 3 (\$)
1	Project Base Estimate	1,132,000	1,027,000	1,220,000
2	<b>Expected</b> Project Estimate	<b>1,349,000</b>	<b>1,217,000</b>	<b>1,524,000</b>
3	95th Percentile Project Estimate	1,404,000	1,265,000	1,600,000

Refer to the attached detailed estimates for further breakdown of these estimates.

## 6.00 Additional Options

### 6.01 Removal of Streetscape Landscaping

The following option excludes the Streetscape Landscaping upgrades to McWhirter Place and Busby Street and is based on the 'Expected Estimate' including a corresponding adjustment to the contingency.

Total Physical Works estimate		Option 1 (\$)	Option 2 (\$)	Option 3 (\$)
1	<b>Expected</b> Project Estimate	1,349,000	1,217,000	1,524,000
2	Excluding Streetscape	1,016,000	884,000	1,191,000
	<b>Cost Saving</b>	<b>333,000</b>	<b>333,000</b>	<b>333,000</b>

### 6.02 Removal of Stainless Steel Cladding

The following option excludes the stainless steel cladding to the soffit of the bridge and is based on the 'Expected Estimate' including a corresponding adjustment to the contingency.

Total Physical Works estimate		Option 1 (\$)	Option 2 (\$)	Option 3 (\$)
1	<b>Expected</b> Project Estimate	1,349,000	1,217,000	1,524,000
2	Excluding soffit	1,245,000	1,135,000	1,420,000
	<b>Cost Saving</b>	<b>104,000</b>	<b>82,000</b>	<b>104,000</b>

### 6.03 Upgrading the Balustrade to a bespoke option

The following option allows an Architectural finish of \$200/m to the base option balustrades and is based on the 'Expected Estimate' including a corresponding adjustment to the contingency.

Total Physical Works estimate		Option 1 (\$)	Option 2 (\$)	Option 3 (\$)
1	<b>Expected</b> Project Estimate	1,349,000	1,217,000	1,524,000
2	Balustrade Upgrade	1,478,000	1,319,000	1,653,000
	<b>Cost Increase</b>	<b>129,000</b>	<b>102,000</b>	<b>129,000</b>

### 6.04 Upgrade Option 2 for viewing platform (steel grate)

The following option allows upgrading the 'Option 2' bridge to allow for a steel grated viewing platform and is based on the 'Expected Estimate' including a corresponding adjustment to the contingency.

Total Physical Works estimate		Option 2 (\$)	
1	<b>Expected</b> Project Estimate		1,217,000
2	Viewing platform Upgrade		1,287,000
	<b>Cost Increase</b>	<b>-</b>	<b>70,000</b>



**WAITAHURANGI BRIDGE  
 FOR  
 AUCKLAND COUNCIL  
 AUCKLAND  
 58.4m x 3.5m WIDE BRIDGE OPTION ESTIMATE**

ITEM	DESCRIPTION	BASE ESTIMATE	CONTINGENCY	FUNDING RISK
	<b>Project Property Cost</b>			
	- Rateable value	Excl		
	- Adjustment to market condition (assume 25%)	Excl		
	- Legal Fees (assume 15%)	Excl		
<b>A</b>	<b>Nett project property cost</b>	-	-	-
	<b>Investigation and reporting:</b>			
	- Consultancy fees	16,000		
	- Client managed costs	10,000		
<b>B</b>	<b>Total investigation and reporting</b>	26,000	7,000	2,000
	<b>Design and project documentation:</b>			
	- Consultancy fees	47,000		
	- Client managed costs	10,000		
<b>C</b>	<b>Total design and project documentation</b>	57,000	14,000	4,000
	<b>Construction</b>			
	<i>MSQA</i>			
	- Consultancy fees	39,000		
	- Auckland Council managed costs	20,000		
	- Consent monitoring fees	29,000		
	<i>Sub-total base MSQA</i>	88,000		
	<i>Civil Works</i>			
	- Preliminary & General	116,000		
	- Environmental compliance	7,600		
	- Site clearance & Demolition	2,100		
	- Earthworks	4,950		
	- Bridge	503,478		
	- Landscaping and Urban design	43,000		
	- Traffic management and Temporary works	17,200		
	<i>Sub-total Civil Works</i>	694,328		
	- Streetscape Landscaping	266,100		
<b>D</b>	<b>Total construction</b>	782,328	196,000	49,000
<b>E</b>	<b>Project base estimate (A+C)</b>	1,132,000	217,000	55,000
<b>F</b>	<b>Contingency (Assessed/Analysed)</b>	(A+C+D)	217,000	
<b>G</b>	<b>Project expected estimate (E+F)</b>		1,349,000	
	Project property cost expected estimate		-	
	Investigation and reporting expected estimate		33,000	
	Design and project documentation expected estimate		71,000	
	Construction expected estimate		978,328	
<b>H</b>	<b>Funding risk (Assessed/Analysed)</b>		(A+C+D)	55,000
<b>I</b>	<b>95th percentile Project Estimate (G+H)</b>			1,404,000
	Project property cost 95th percentile estimate			-
	Investigation and reporting 95th percentile estimate			35,000
	Design and project documentation 95th percentile estimate			75,000
	Construction 95th percentile estimate			1,027,328
	<b>Date of estimate : August 2016</b>	<b>Cost index (Qtr/Year)</b>		<b>August 2016</b>
	<b>Estimate prepared by : Les Lewer</b>	<b>Signed</b>		
	<b>Estimate internal peer review by : Kyle Kaliniak</b>	<b>Signed</b>		
	<b>Estimate external peer review by :</b>	<b>Signed</b>		
	<b>Estimate accepted by the Client :</b>	<b>Signed</b>		

WAITAHURANGI BRIDGE

FOR

AUCKLAND COUNCIL

AUCKLAND

58.4m x 3.5m WIDE BRIDGE PHYSICAL WORKS ESTIMATE

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
1 -	<b><u>PRELIMINARY AND GENERAL</u></b>				116,000.00
1	Allowance for on-site preliminary and general costs (assumed 20%)		item		116,000.00
2 -	<b><u>ENVIRONMENTAL COMPLIANCE</u></b>				7,600.00
2	Allowance for Environmental compliance		item		7,600.00
3 -	<b><u>DEMOLITION &amp; SITE CLEARANCE</u></b>				2,100.00
3	Allow to clear site		item		2,100.00
4 -	<b><u>EARTHWORKS</u></b>				4,950.00
4	Strip topsoil to stockpile 150mm thick	90	m3	55.00	4,950.00
5 - 42	<b><u>BRIDGE</u></b>				503,478.40
5 - 21	<b><u>Substructure</u></b>				64,473.00
	<b>Piling</b>				
5	We have assumed 8m deep H piles		note		No Allowance
6	Establish piling rig on site		item		12,000.00
7	Setup piling rig to pile	8	no	500.00	4,000.00
8	Supply steel H pile (assumed 60kg/m)	960	kg	12.00	11,520.00
9	Drive steel H pile	64	m	170.00	10,880.00
	<b>Pile Caps</b>				
10	We have allowed a 2000 x 2000 x 500 deep reinforced concrete pile cap		note		No Allowance

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
11	Excavate for capping beam	9	m3	80.00	720.00
12	Formwork to capping beam	8	m2	120.00	960.00
13	Concrete to capping beam	4	m3	400.00	1,600.00
14	Reinforcing to capping beam (assumed 150kg/m3 concrete)	600	kg	7.00	4,200.00
15	Backfill capping beam	1	m3	35.00	35.00
	<b>Columns</b>				
16	We have allowed a 600mm dia concrete column		note		No Allowance
17	Formwork to column	20	m	562	11,240
18	Concrete to column	6	m3	350	2,100
19	Cut top of column to final level	2	no	200	400
20	Reinforcing to column (assumed 110kg/m3 concrete)	623	kg	6	3,738
21	Paint finish and graffiti guard protection to column (allowed 3m high from bottom of column)	12	m2	90.00	1,080.00
22 - 32	<b>Abutments</b>				<b>54,030.00</b>
	<b>Piling</b>				
22	We have assumed 8m deep H piles		note		No Allowance
23	Establish piling rig on site (included within piling to piers)		item		No Allowance
24	Setup piling rig to pile	8	no	500.00	4,000.00
25	Supply steel H pile (assumed 60kg/m)	960	kg	12.00	11,520.00
26	Drive steel H pile	64	m	170.00	10,880.00
	<b>Abutment Pile Caps</b>				
27	We have allowed a 3500 x 2000 x 2000/1200 deep reinforced concrete pile cap		note		No Allowance
28	Excavate for capping beam	54	m3	80.00	4,320.00
29	Formwork to capping beam	44	m2	120.00	5,280.00
30	Concrete to capping beam	12	m3	400.00	4,800.00
31	Reinforcing to capping beam (assumed 150kg/m3 concrete)	1,680	kg	7.00	11,760.00

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
32	Backfill capping beam	42	m3	35.00	1,470.00
33 - 42	<b>Superstructure</b>				<b>384,975.40</b>
	<b>Central Beam</b>				
33	800 x 600 x 20 thick welded central beam	25,696	kg	5.80	149,036.80
34	Allowance for connection plates to 600dia concrete columns	4	no	314.00	1,256.00
35	3500 x 500 deep x 16 thick raked cross beams bolt fixed to central beam at 3m centres	20	no	733.00	14,660.00
36	3 thick stainless steel raking fascia bolt fixed to central beam and concrete deck (optional)	246	m2	282.60	69,519.60
	<b>Deck</b>				
37	75 thick flatslab as permanent formwork including falsework	205	m2	83.00	17,015.00
38	Curved edge formwork to last	117	m	24.00	2,808.00
39	75 thick concrete	16	m3	400.00	6,400.00
40	Reinforcing to deck (assumed 120kg/m3 concrete)	1,840	kg	7.00	12,880.00
	<b>Balustrade</b>				
41	Allowance for steel balustrade including steel handrail	117	m	800.00	93,600.00
	<b>Graffiti Guard</b>				
42	Allow for graffiti guard protection to deck and balustrade		item		17,800.00
43 - 44	<b>LANDSCAPING AND URBAN DESIGN</b>				<b>43,000.00</b>
43 -	<b>Grassing, hydroseeding, riparian planting, revegetation</b>				<b>18,000.00</b>
43	Allow to make good area of works to match existing vegetation include topsoil, mulch, and riparian planting, etc		item		18,000.00
44 -	<b>Architecture</b>				<b>25,000.00</b>
44	Allow for Architectural lighting to bridge balustrade including power supply, controls, etc		item		25,000.00
45 - 46	<b>TRAFFIC MANAGEMENT AND TEMPORARY WORKS</b>				<b>17,200.00</b>
45 -	<b>Temporary works</b>				<b>8,700.00</b>

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
45	Allow to form temporary work platforms including reinstatement on completion of works		item		8,700.00
46 -	<u>Traffic Management</u>				8,500.00
46	Allowance for temporary traffic management		item		8,500.00
	<u>AMOUNT OF 58.4M X 3.5M WIDE BRIDGE OPTION ESTIMATE</u>				694,328.40
	<u>CARRIED TO SUMMARY</u>				

**WAITAHURANGI BRIDGE  
FOR  
AUCKLAND COUNCIL  
AUCKLAND  
46m x 3.5m WIDE BRIDGE OPTION ESTIMATE**

ITEM	DESCRIPTION	BASE ESTIMATE	CONTINGENCY	FUNDING RISK
	<b>Project Property Cost</b>			
	- Rateable value	Excl		
	- Adjustment to market condition (assume 25%)	Excl		
	- Legal Fees (assume 15%)	Excl		
<b>A</b>	<b>Nett project property cost</b>	-	-	-
	<b>Investigation and reporting:</b>			
	- Consultancy fees	14,000		
	- Client managed costs	10,000		
<b>B</b>	<b>Total investigation and reporting</b>	24,000	6,000	2,000
	<b>Design and project documentation:</b>			
	- Consultancy fees	42,000		
	- Client managed costs	10,000		
<b>C</b>	<b>Total design and project documentation</b>	52,000	13,000	3,000
	<b>Construction</b>			
	<i>MSQA</i>			
	- Consultancy fees	35,000		
	- Auckland Council managed costs	18,000		
	- Consent monitoring fees	27,000		
	<i>Sub-total base MSQA</i>	80,000		
	<i>Civil Works</i>			
	- Preliminary & General	101,000		
	- Environmental compliance	7,600		
	- Site clearance & Demolition	2,100		
	- Earthworks	7,155		
	- Bridge	426,809		
	- Landscaping and Urban design	43,000		
	- Traffic management and Temporary works	17,200		
	<i>Sub-total Civil Works</i>	604,864		
	- Streetscape Landscaping	266,100		
<b>D</b>	<b>Total construction</b>	684,864	171,000	43,000
<b>E</b>	<b>Project base estimate (A+C)</b>	1,027,000	190,000	48,000
<b>F</b>	<b>Contingency (Assessed/Analysed)</b>	(A+C+D)	190,000	
<b>G</b>	<b>Project expected estimate (E+F)</b>		1,217,000	
	Project property cost expected estimate		-	
	Investigation and reporting expected estimate		30,000	
	Design and project documentation expected estimate		65,000	
	Construction expected estimate		855,864	
<b>H</b>	<b>Funding risk (Assessed/Analysed)</b>		(A+C+D)	48,000
<b>I</b>	<b>95th percentile Project Estimate (G+H)</b>			1,265,000
	Project property cost 95th percentile estimate			-
	Investigation and reporting 95th percentile estimate			32,000
	Design and project documentation 95th percentile estimate			68,000
	Construction 95th percentile estimate			898,864
	<b>Date of estimate : August 2016</b>	<b>Cost index (Qtr/Year)</b>		<b>August 2016</b>
	<b>Estimate prepared by : Les Lewer</b>	<b>Signed</b>		
	<b>Estimate internal peer review by : Kyle Kaliniak</b>	<b>Signed</b>		
	<b>Estimate external peer review by :</b>	<b>Signed</b>		
	<b>Estimate accepted by the Client :</b>	<b>Signed</b>		

WAITAHURANGI BRIDGE

FOR

AUCKLAND COUNCIL

AUCKLAND

46m x 3.5m WIDE BRIDGE PHYSICAL WORKS ESTIMATE

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
1 -	<b><u>PRELIMINARY AND GENERAL</u></b>				101,000.00
1	Allowance for on-site preliminary and general costs (assumed 20%)		item		101,000.00
2 -	<b><u>ENVIRONMENTAL COMPLIANCE</u></b>				7,600.00
2	Allowance for Environmental compliance		item		7,600.00
3 -	<b><u>DEMOLITION &amp; SITE CLEARANCE</u></b>				2,100.00
3	Allow to clear site		item		2,100.00
4 - 5	<b><u>EARTHWORKS</u></b>				7,155.00
4	Strip topsoil to stockpile 150mm thick	90	m3	55.00	4,950.00
5	Imported fill to form ramp (Busby Street)	63	m3	35.00	2,205.00
6 - 43	<b><u>BRIDGE</u></b>				426,809.40
6 - 22	<b><u>Substructure</u></b>				64,473.00
	<b>Piling</b>				
6	We have assumed 8m deep H piles		note		No Allowance
7	Establish piling rig on site		item		12,000.00
8	Setup piling rig to pile	8	no	500.00	4,000.00
9	Supply steel H pile (assumed 60kg/m)	960	kg	12.00	11,520.00
10	Drive steel H pile	64	m	170.00	10,880.00
	<b>Pile Caps</b>				

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
11	We have allowed a 2000 x 2000 x 500 deep reinforced concrete pile cap		note		No Allowance
12	Excavate for capping beam	9	m3	80.00	720.00
13	Formwork to capping beam	8	m2	120.00	960.00
14	Concrete to capping beam	4	m3	400.00	1,600.00
15	Reinforcing to capping beam (assumed 150kg/m3 concrete)	600	kg	7.00	4,200.00
16	Backfill capping beam	1	m3	35.00	35.00
	<b>Columns</b>				
17	We have allowed a 600mm dia concrete column		note		No Allowance
18	Formwork to column	20	m	562	11,240
19	Concrete to column	6	m3	350	2,100
20	Cut top of column to final level	2	no	200	400
21	Reinforcing to column (assumed 110kg/m3 concrete)	623	kg	6	3,738
22	Paint finish and graffiti guard protection to column (allowed 3m high from bottom of column)	12	m2	90.00	1,080.00
23 - 33	<b>Abutments</b>				<b>54,030.00</b>
	<b>Piling</b>				
23	We have assumed 8m deep H piles		note		No Allowance
24	Establish piling rig on site (included within piling to piers)		item		No Allowance
25	Setup piling rig to pile	8	no	500.00	4,000.00
26	Supply steel H pile (assumed 60kg/m)	960	kg	12.00	11,520.00
27	Drive steel H pile	64	m	170.00	10,880.00
	<b>Abutment Pile Caps</b>				
28	We have allowed a 3500 x 2000 x 2000/1200 deep reinforced concrete pile cap		note		No Allowance
29	Excavate for capping beam	54	m3	80.00	4,320.00
30	Formwork to capping beam	44	m2	120.00	5,280.00



ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
31	Concrete to capping beam	12	m3	400.00	4,800.00
32	Reinforcing to capping beam (assumed 150kg/m3 concrete)	1,680	kg	7.00	11,760.00
33	Backfill capping beam	42	m3	35.00	1,470.00
34 - 43	<b>Superstructure</b>				<b>308,306.40</b>
	<b>Central Beam</b>				
34	800 x 600 x 20 thick welded central beam	20,240	kg	6.00	121,440.00
35	Allowance for connection plates to 600dia concrete columns	4	no	325.00	1,300.00
36	3500 x 500 deep x 16 thick raked cross beams bolt fixed to central beam at 3m centres	16	no	758.00	12,128.00
37	3 thick stainless steel raking fascia bolt fixed to central beam and concrete deck (optional)	194	m2	282.60	54,824.40
	<b>Deck</b>				
38	75 thick flatslab as permanent formwork including falsework	161	m2	83.00	13,363.00
39	Curved edge formwork to last	92	m	24.00	2,208.00
40	75 thick concrete	13	m3	400.00	5,200.00
41	Reinforcing to deck (assumed 120kg/m3 concrete)	1,449	kg	7.00	10,143.00
	<b>Balustrade</b>				
42	Allowance for steel balustrade including steel handrail	92	m	800.00	73,600.00
	<b>Graffiti Guard</b>				
43	Allow for graffiti guard protection to deck and balustrade		item		14,100.00
44 - 45	<b>LANDSCAPING AND URBAN DESIGN</b>				<b>43,000.00</b>
44 -	<b>Grassing, hydroseeding, riparian planting, revegetation</b>				<b>18,000.00</b>
44	Allow to make good area of works to match existing vegetation include topsoil, mulch, and riparian planting, etc		item		18,000.00
45 -	<b>Architecture</b>				<b>25,000.00</b>
45	Allow for Architectural lighting to bridge including power supply, controls, etc		item		25,000.00
46 - 47	<b>TRAFFIC MANAGEMENT AND TEMPORARY WORKS</b>				<b>17,200.00</b>

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
46 -	<u>Temporary works</u>				8,700.00
46	Allow to form temporary work platforms including reinstatement on completion of works		item		8,700.00
47 -	<u>Traffic Management</u>				8,500.00
47	Allowance for temporary traffic management		item		8,500.00
	<u>AMOUNT OF 46M X 3.5M WIDE BRIDGE OPTION ESTIMATE CARRIED TO SUMMARY</u>				604,864.40

**WAITAHURANGI BRIDGE  
 FOR  
 AUCKLAND COUNCIL  
 AUCKLAND  
 58.4m x 3.5/6.1m WIDE BRIDGE OPTION ESTIMATE**

ITEM	DESCRIPTION	BASE ESTIMATE	CONTINGENCY	FUNDING RISK
	<b>Project Property Cost</b>			
	- Rateable value	Excl		
	- Adjustment to market condition (assume 25%)	Excl		
	- Legal Fees (assume 15%)	Excl		
<b>A</b>	<b>Nett project property cost</b>	-	-	-
	<b>Investigation and reporting:</b>			
	- Consultancy fees	23,000		
	- Client managed costs	10,000		
<b>B</b>	<b>Total investigation and reporting</b>	33,000	8,000	2,000
	<b>Design and project documentation:</b>			
	- Consultancy fees	67,000		
	- Client managed costs	10,000		
<b>C</b>	<b>Total design and project documentation</b>	77,000	19,000	5,000
	<b>Construction</b>			
	<i>MSQA</i>			
	- Consultancy fees	41,000		
	- Auckland Council managed costs	21,000		
	- Consent monitoring fees	31,000		
	<i>Sub-total base MSQA</i>	93,000		
	<i>Civil Works</i>			
	- Preliminary & General	125,000		
	- Environmental compliance	7,600		
	- Site clearance & Demolition	2,100		
	- Earthworks	4,950		
	- Bridge	550,134		
	- Landscaping and Urban design	43,000		
	- Traffic management and Temporary works	17,200		
	<i>Sub-total Civil Works</i>	749,984		
	- Streetscape Landscaping	266,100		
<b>D</b>	<b>Total construction</b>	1,109,084	277,000	69,000
<b>E</b>	<b>Project base estimate (A+C)</b>	1,220,000	304,000	76,000
<b>F</b>	<b>Contingency (Assessed/Analysed)</b>	(A+C+D)	304,000	
<b>G</b>	<b>Project expected estimate (E+F)</b>		1,524,000	
	Project property cost expected estimate		-	
	Investigation and reporting expected estimate		41,000	
	Design and project documentation expected estimate		96,000	
	Construction expected estimate		1,386,084	
<b>H</b>	<b>Funding risk (Assessed/Analysed)</b>		(A+C+D)	76,000
<b>I</b>	<b>95th percentile Project Estimate (G+H)</b>			1,600,000
	Project property cost 95th percentile estimate			-
	Investigation and reporting 95th percentile estimate			43,000
	Design and project documentation 95th percentile estimate			101,000
	Construction 95th percentile estimate			1,455,084
	<b>Date of estimate : August 2016</b>	<b>Cost index (Qtr/Year)</b>		<b>August 2016</b>
	<b>Estimate prepared by : Les Lewer</b>	<b>Signed</b>		
	<b>Estimate internal peer review by : Kyle Kaliniak</b>	<b>Signed</b>		
	<b>Estimate external peer review by :</b>	<b>Signed</b>		
	<b>Estimate accepted by the Client :</b>	<b>Signed</b>		

WAITAHURANGI BRIDGE

FOR

AUCKLAND COUNCIL

AUCKLAND

58.4m x 3.5/6.1m WIDE BRIDGE PHYSICAL WORKS ESTIMATE

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
1 -	<b><u>PRELIMINARY AND GENERAL</u></b>				125,000.00
1	Allowance for on-site preliminary and general costs (assumed 20%)		item		125,000.00
2 -	<b><u>ENVIRONMENTAL COMPLIANCE</u></b>				7,600.00
2	Allowance for Environmental compliance		item		7,600.00
3 -	<b><u>DEMOLITION &amp; SITE CLEARANCE</u></b>				2,100.00
3	Allow to clear site		item		2,100.00
4 -	<b><u>EARTHWORKS</u></b>				4,950.00
4	Strip topsoil to stockpile 150mm thick	90	m3	55.00	4,950.00
5 - 43	<b><u>BRIDGE</u></b>				550,134.40
5 - 21	<b><u>Substructure</u></b>				64,473.00
	<b>Piling</b>				
5	We have assumed 8m deep H piles		note		No Allowance
6	Establish piling rig on site		item		12,000.00
7	Setup piling rig to pile	8	no	500.00	4,000.00
8	Supply steel H pile (assumed 60kg/m)	960	kg	12.00	11,520.00
9	Drive steel H pile	64	m	170.00	10,880.00
	<b>Pile Caps</b>				
10	We have allowed a 2000 x 2000 x 500 deep reinforced concrete pile cap		note		No Allowance

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
11	Excavate for capping beam	9	m3	80.00	720.00
12	Formwork to capping beam	8	m2	120.00	960.00
13	Concrete to capping beam	4	m3	400.00	1,600.00
14	Reinforcing to capping beam (assumed 150kg/m3 concrete)	600	kg	7.00	4,200.00
15	Backfill capping beam	1	m3	35.00	35.00
	<b>Columns</b>				
16	We have allowed a 600mm dia concrete column		note		No Allowance
17	Formwork to column	20	m	562	11,240
18	Concrete to column	6	m3	350	2,100
19	Cut top of column to final level	2	no	200	400
20	Reinforcing to column (assumed 110kg/m3 concrete)	623	kg	6	3,738
21	Paint finish and graffiti guard protection to column (allowed 3m high from bottom of column)	12	m2	90.00	1,080.00
22 - 32	<b>Abutments</b>				<b>54,030.00</b>
	<b>Piling</b>				
22	We have assumed 8m deep H piles		note		No Allowance
23	Establish piling rig on site (included within piling to piers)		item		No Allowance
24	Setup piling rig to pile	8	no	500.00	4,000.00
25	Supply steel H pile (assumed 60kg/m)	960	kg	12.00	11,520.00
26	Drive steel H pile	64	m	170.00	10,880.00
	<b>Abutment Pile Caps</b>				
27	We have allowed a 3500 x 2000 x 2000/1200 deep reinforced concrete pile cap		note		No Allowance
28	Excavate for capping beam	54	m3	80.00	4,320.00
29	Formwork to capping beam	44	m2	120.00	5,280.00
30	Concrete to capping beam	12	m3	400.00	4,800.00
31	Reinforcing to capping beam (assumed 150kg/m3 concrete)	1,680	kg	7.00	11,760.00

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
32	Backfill capping beam	42	m3	35.00	1,470.00
33 - 43	<b>Superstructure</b>				<b>431,631.40</b>
	<b>Central Beam</b>				
33	800 x 600 x 20 thick welded central beam	25,696	kg	5.80	149,036.80
34	Allowance for connection plates to 600dia concrete columns	4	no	314.00	1,256.00
35	3500 x 500 deep x 16 thick raked cross beams bolt fixed to central beam at 3m centres	20	no	733.00	14,660.00
36	3 thick stainless steel raking fascia bolt fixed to central beam and concrete deck (optional)	246	m2	282.60	69,519.60
	<b>Deck</b>				
37	75 thick flatslab as permanent formwork including falsework	205	m2	83.00	17,015.00
38	Curved edge formwork to last	117	m	24.00	2,808.00
39	75 thick concrete	16	m3	400.00	6,400.00
40	Reinforcing to deck (assumed 120kg/m3 concrete)	1,840	kg	7.00	12,880.00
41	Allowance for webforge grate decking (assumed for viewing platforms)	72	m2	648.00	46,656.00
	<b>Balustrade</b>				
42	Allowance for balustrade including steel handrail	117	m	800.00	93,600.00
	<b>Graffiti Guard</b>				
43	Allow for graffiti guard protection to deck and balustrade		item		17,800.00
44 - 45	<b>LANDSCAPING AND URBAN DESIGN</b>				<b>43,000.00</b>
44 -	<b>Grassing, hydroseeding, riparian planting, revegetation</b>				<b>18,000.00</b>
44	Allow to make good area of works to match existing vegetation include topsoil, mulch, and riparian planting, etc		item		18,000.00
45 -	<b>Architecture</b>				<b>25,000.00</b>
45	Allow for Architectural lighting to bridge including power supply, controls, etc		item		25,000.00
46 - 47	<b>TRAFFIC MANAGEMENT AND TEMPORARY WORKS</b>				<b>17,200.00</b>

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
46 -	<u>Temporary works</u>				8,700.00
46	Allow to form temporary work platforms including reinstatement on completion of works		item		8,700.00
47 -	<u>Traffic Management</u>				8,500.00
47	Allowance for temporary traffic management		item		8,500.00
	<u>AMOUNT OF 58.4M X 3.5/6.1M WIDE BRIDGE OPTION ESTIMATE CARRIED TO SUMMARY</u>				749,984.40

WAITAHURANGI BRIDGE

FOR

AUCKLAND COUNCIL

AUCKLAND

STREETSCAPE LANDSCAPING PHYSICAL WORKS ESTIMATE

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
1 -	<b><u>PRELIMINARY AND GENERAL</u></b>				45,000
1	Allowance for on-site preliminary and general costs (assumed 20%)		item		45,000
2 -	<b><u>ENVIRONMENTAL COMPLIANCE</u></b>				2,400
2	Allow to comply with all Auckland City requirements with regards to environmental management and erosion and sediment control		item		2,400
3 - 5	<b><u>SITE CLEARANCE &amp; DEMOLITION</u></b>				16,400
3 -	<b><u>Site clearance</u></b>				5,200
3	Allow to clear site	2,600	m2	2	5,200
4 - 5	<b><u>Demolition</u></b>				11,200
4	Demolish and remove existing kerb and channel	200	m	15	3,000
5	Sawcut, demolish and remove existing pavement (allowed to road edge only)	410	m2	20	8,200
6 - 7	<b><u>EARTHWORKS</u></b>				1,350
6	Strip topsoil 150mm thick to waste off site	30	m3	45	1,350
7	No allowance to reform existing levels		note		No Allowance
8 - 11	<b><u>STORMWATER DRAINAGE</u></b>				27,360
8	No allowance for new stormwater drainage		note		No Allowance
9	Allow to adjust existing catchpit lid levels to new level	2	no	2,500	5,000
10 -	<b><u>Subsoil drains</u></b>				9,880



ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
10	Subsoil drain in filter sock connected into catchpits	260	m	38	9,880
11 -	<b>Kerbing</b>				<b>12,480</b>
11	Concrete kerb and channel	260	m	48	12,480
12 -	<b>WASTEWATER DRAINAGE</b>				-
12	No allowance to adjust existing wastewater drainage assets		note		No Allowance
13 -	<b>PAVEMENT AND SURFACING</b>				<b>53,100</b>
13	Allow re-shape sides complete with new infill pavement	590	m2	90	53,100
14 - 17	<b>TRAFFIC SERVICES</b>				<b>3,230</b>
14 - 15	<b>Road marking</b>				<b>930</b>
14	100mm wide line marking	150	m	5	750
15	Directional arrows	1	no	180	180
16 -	<b>Signs</b>				<b>2,300</b>
16	Allowance for single pole mounted sign	10	no	230	2,300
17 -	<b>Lighting</b>				-
17	No allowance to relocate or upgrade existing lighting		note		No Allowance
18 -	<b>SERVICE RELOCATIONS</b>				-
18	No allowance to relocate existing services		note		No Allowance
19 - 21	<b>LANDSCAPING AND URBAN DESIGN</b>				<b>107,260</b>
19 - 20	<b>Grassing, hydroseeding, planting, revegetation</b>				<b>58,660</b>
19	Allowance for 150mm thick topsoil treated and respread from stockpile, planted with grass	560	m2	11	6,160
20	Allowance for tree including treepit	15	no	3500.00	52,500.00
21 -	<b>Footpaths and cycleways</b>				<b>48,600</b>
21	Exposed aggregate concrete platform including thickenings to edges, saw cut joints, construction joints, etc	540	m2	90	48,600

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
22 -	<u>TRAFFIC MANAGEMENT AND TEMPORARY WORKS</u>				10,000
22	Allowance for Traffic Management		item		10,000
	<u>AMOUNT OF STREETScape LANDSCAPING PHYSICAL WORKS ESTIMATE CARRIED TO SUMMARY</u>				266,100