

# Schedule 1 – Part 4

## Stormwater

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# Schedule 1 – Part 4

## Local Infrastructure – Stormwater

### 1.0 Introduction

A comprehensive approach to stormwater management designed to maintain water quality, avoid erosion, minimise flooding risk and protect downstream properties and the Tauranga Harbour has been adopted.

The district has been broken down into subcatchments in the Urban Growth Areas. These subcatchments have been analysed to calculate storm water runoffs and determine the most appropriate method of control.

This investigation has been undertaken jointly by Shrimpton & Lipinski Ltd and Council staff, with Shrimpton & Lipinski Ltd preparing basic design and estimates for detention ponds (including the open stormwater channels in the Maranui catchment at Papamoa) and Council staff responsible for the roading associated works.

#### 1.1 Stormwater

##### **Funding Needs assessment in relation to the requirements of S101 (3) of the LGA.**

##### **Scope of Projects Covered by this Activity**

The projects funded by Tauranga City Council (TCC) through the Stormwater Subdivision Impact fee are those projects that reticulate and treat stormwater from within a specified growth area. Projects that relate to reticulating stormwater from individual households are normally completed by individual developers and given (vested) to TCC.

##### **Community Outcomes**

The Community Outcomes identified for Tauranga city have been summarised in the city's Tauranga Tomorrow document. The provision of stormwater reticulation within a growth area contributes to a number of outcomes within Tauranga Tomorrow. These include:

- Clean Green Valued Environment
- Built to Fit Our Hills Harbour and Coast

These projects are also important in implementing Western Bay of Plenty's growth management strategy, Smartgrowth.

##### **Distribution of Benefits**

The principal benefit that these projects convey is that they mitigate the impact of increasing the amount of impermeable surface within a growth area. This mitigation is normally required as part of obtaining a land use consent. If these projects are not completed there may be a significant detrimental impact on geographic areas not included in the individual growth areas. However completing these projects only maintains the level of service outside the growth area, they do not enhance it. As such households and business areas outside the growth area do not benefit from the construction of these projects.

For most growth areas there was (or will be) an existing population (normally with a significantly lower housing density) before the growth area was opened up for intensification. These existing properties either already had/will have a stormwater reticulation system that met/ meets Council's Level of Service or the density was such that no such system was required. The new dwellings within the growth area increase the potential for a detrimental stormwater impact on these existing properties. Therefore these existing properties should not be required to fund the costs of this mitigation.

On this basis we have determined that, in the first instance, the entire benefit of the capital expenditure identified for this group of activities is received by the new developments.

**Period In or Over Which Benefits Occur**

The capital projects included are designed to ensure that all units of demand within the growth area are able to connect to Council's stormwater system. We have therefore assessed the period over which the benefits will be received is the development period of the Greenfield area, from when the growth area is first opened up until it is full (to the maximum allowed density). The divisor used in our calculations is the expected number of new lots over this period.

**Extent to Which Groups or Individuals Contribute to the Need to Undertake the Activity**

The group that creates the need for these works is residential and non-residential growth (i.e. new households and businesses) in the specified growth areas. Development contributions allocate the cost of these works to that growth community.

**Costs and Benefits of Funding the Activity Distinctly from Other Activities**

Given the benefits and causation factors outlined above, it is considered appropriate (in particular for transparency and accountability reasons) for these works to be funded through this particular contribution, rather than the city-wide contribution (BIF) or other funding sources such as rates or a UAGC.

**Social, Economic, Environmental and Cultural Well-being**

Council has considered the impact for all sectors of the community, including the growth community which pays development contributions, of the proposed allocation of costs in terms of their social, economic, environmental and cultural well-being. It considers this allocation of costs to be fair and reasonable. The allocation details for this activity are clearly set out in this section.

**2.0 Parameters for Design**

Rainfall predictions are critical to the design of stormwater facilities. The Tauranga District Council standard rainfall intensity curves have been superseded by the software HIRDS produced by the Climate Analysis and Applications Section of NIWA Ltd. It is possible to produce rainfall intensity curves from HIRDS which are significantly less intense than the Tauranga District Council curves particularly with the greater return period.

Stormwater Retention devices are designed for a 1:50 year event with overland flow paths to cope with larger flows.

The Rational Formula has been used to calculate the storm flows. The runoff factor has been analysed from recent subdivisions and 0.55 has been used in most cases. A rural value of 0.3 has generally been used for the existing rural regime calculation.

The water quality improvement is designed from the ARC Manual Publication No 10 and is for a 1:2 year event approximately.

New areas being urbanised are designed to discharge at no higher rate than the existing rural regime discharge.

Stormwater discharge pipework and manholes associated with roading have been analysed for each area. Kerb, channel and cesspits are included in the roading service.

Pond designs for Structure plans 1 - 11 have been based on one metre contour plots from Council's GIS system (1992 photogrammetry).

**Tauriko**

This area has been designed on the basis of a 2 percent AEP (1:50) event using the 2006 rainfall data.

**Wairakei.**

The stormwater design for Wairakei has been based on a 1 percent AEP (1:100) event using the revised 2006 rainfall data.

### **3.0 Land Purchase**

Valuations for the purchase of various blocks of land for detention ponds or drainage channels are shown in Appendix A.

Land purchase costs have been based on property valuation evidence provided to the Tauranga City Council by registered valuers. The valuations have been carried out on a general overview basis in order that a fair fee can be assessed for calculating development contributions. These assessments should not be taken as a basis for compensation to be paid by Council for possible land acquisitions. The compensation payable for land required for network infrastructure or community infrastructure will be assessed on a case basis in the accordance with the Public Works Act 1981.

### **4.0 Basis for Cost Estimates**

The unit rate costs are updated annually using the rates applying to the Tauranga area at the time. Contingencies vary according to the complexity of the project and 12 percent has been allowed for design and supervision.

**URBAN GROWTH STORMWATER  
PARAMETERS FOR COST ESTIMATES**

ITEM	DESCRIPTION PER METRE															
		225	300	375	450	525	600	675	750	900	1050	1200	1350	1650	1800	2400
1	Pipe Material Costs(RCRRJ) Class "X"	\$49	\$ 66	\$ 80	\$ 110	\$ 127	\$ 167	\$ 196	\$ 259	\$ 355	\$ 485	\$ 549	\$ 660	\$ 8 97	\$1,148	\$3,503
<b>LAYING RATES</b>																
2	Supply and Lay	\$99	\$ 126	\$ 150	\$ 190	\$ 217	\$ 267	\$ 311	\$ 389	\$ 505	\$ 665	\$ 769	\$ 925	\$1,131	\$1,386	\$3,624
3	Manholes 1050dia.	\$2,850	\$2,850	\$2,850	\$2,850	\$2850	\$3,335	\$3,335								
4	Manholes (1050 dia) pm (50m spacing)	\$57	\$57	\$57	\$57	\$57	\$67	\$67								
5	Manholes 1350-1500dia.						\$4,169	\$4,169	\$4,169	\$5,753	\$5,753	\$ 8,731	\$10,633	\$18,540	\$24,784	\$32,000
6	Manholes 1350-1500dia.p/m (50m spacing)						\$ 83	\$ 83	\$ 83	\$ 115	\$ 115	\$ 175	\$ 213	\$ 371	\$ 496	\$ 640
<b>REINSTATEMENT</b>																
7	Type 1 Carriageway - Asphaltic Concrete	\$ 95	\$ 95	\$ 95	\$ 130	\$ 130	\$ 130	\$ 148	\$ 148	\$ 148	\$ 178	\$ 178	\$ 190	\$ 195	\$ 200	\$ 205
8	Type 2 Carriageway - Chip Seal	\$ 62	\$ 62	\$ 62	\$ 80	\$ 80	\$ 80	\$ 95	\$ 95	\$ 98	\$ 105	\$ 105	\$ 105	\$ 120	\$ 135	\$ 145
9	Type 3 Berm / Open Country	\$ 8	\$ 8	\$ 8	\$ 10	\$ 10	\$ 10	\$ 12	\$ 12	\$ 14	\$ 14	\$ 14	\$ 18	\$ 22	\$ 25	\$ 30
10	Unsuitable Backfill Material	\$ 19	\$ 19	\$ 19	\$ 25	\$ 25	\$ 25	\$ 35	\$ 35	\$ 40	\$ 40	\$ 40	\$ 50	\$ 50	\$ 55	\$ 65
11	Import Suitable Fill	\$ 40	\$ 40	\$ 40	\$ 50	\$ 50	\$ 60	\$ 70	\$ 70	\$ 85	\$ 85	\$ 85	\$ 100	\$ 120	\$ 120	\$ 130
12	Dewatering	\$ 90	\$ 90	\$ 110	\$ 110	\$ 115	\$ 115	\$ 120	\$ 120	\$ 120	\$ 135	\$ 135	\$ 145	\$ 145	\$ 145	\$ 150
13	Drainage Aggregate	\$ 45	\$ 45	\$ 50	\$ 60	\$ 60	\$ 60	\$ 70	\$ 70	\$ 70	\$ 85	\$ 85	\$ 100	\$ 120	\$ 120	\$ 130
14	Antiscour blocks	\$ 33	\$ 53	\$ 74	\$ 95	\$ 115	\$ 135	\$ 160	\$ 185	\$ 220	\$ 240	\$ 270	\$ 305	\$ 355	\$ 420	\$ 490
<b>TOTALS (inc. 8% P&amp;G)</b>																
	Type 1 (Items 2, 4 & 7)	\$ 271	\$ 300	\$ 326	\$ 407	\$ 436	\$ 501	\$ 568	\$ 670	\$ 829	\$1,035	\$ 1,212	\$ 1,434	\$1,833	\$2,248	\$4,827
	Type 2 (Items 2, 4 & 8)	\$ 235	\$ 265	\$ 291	\$ 353	\$ 382	\$ 447	\$ 511	\$ 613	\$ 772	\$ 956	\$ 1,133	\$ 1,342	\$1,752	\$2,178	\$4,762
	Type 3 (Items 2, 4 & 9)	\$ 177	\$ 206	\$ 232	\$ 278	\$ 307	\$ 371	\$ 421	\$ 523	\$ 685	\$ 858	\$ 1,035	\$ 1,248	\$1,646	\$2,060	\$4,638
<b>ROADING ASSOCIATED WORKS (inc 12% Contingencies, Design and Supervision)</b>																
	Rate 1 (> 1Km, Avg 600mm dia)	\$ 651	Calculated from rates above													
	Rate 2 (500m - 1Km, Avg 375mm dia)	\$ 423														
	Rate 3 (< 500m, Avg 300mm dia)	\$ 385														
<b>OTHER WORK</b>																
	Main Drain	\$300	per lin. metre													
	Earthworks	\$8	per m3													
	Strip topsoil and stockpile	\$6	per m3													
	Cut to waste	\$15	per m2													
	Respread topsoil and sow in grass	\$4.5	per m3													
	Concrete Invert	\$69	per lin. metre													
1	Landscaping/Planting	\$12	per m2													
2	Landscaping/Planting	\$57	per lin. metre													
3	Landscaping/Planting - Wairaki Stream	\$80	per lin. metre													
	Headwalls	\$4,900	each													
	Outlet structure	\$6,095	each													
	Spillway	\$189	per lin. metre (10m wide.)													
	Swales	\$200	per metre (20m wide, 2m deep)													
	Retaining Walls - 1m high	\$220	per lin. metre													
	Embankments	\$7	per m3													
	Testing compaction	\$700	each													
	Gabion Baskets – forebays etc	\$90	per m3													
	Geofabric	\$3	per m2													
	Rockfill for subbase to structures	\$60	per m3													
	Culvert 600mm Type 3	\$353	per lin. metre													
	Culvert 1050mm Type 3	\$757	per lin. m													
	Floodgate	\$8,000	each													
Typical realistic rates as at September 2008																
Items 10, 11, 12 & 13 are to be applied as required. Contingencies, design and supervision must be added.																

Rates for roading associated stormwater are as follows:

Rate 1:	Long length of reticulation, probably road/chip seal reinstatement, large dia outlet		
	Average 600mm dia (> 1 km)	\$ 447	/m
	Plus contingencies (30 percent), design and supervision (12 percent)	\$ 651	/m
Rate 2:	Medium length of reticulation, possible road/chip seal reinstatement, medium dia outlet		
	Average 375mm dia (500m - 1 km)	\$ 291	/m
	Plus contingencies (30 percent), design and supervision (12 percent)	\$ 423	/m
Rate 3:	Small length of reticulation, combination grass/road reinstatement, small dia outlet		
	Average 300mm dia (< 500m)	\$ 265	/m
	Plus contingencies (30 percent), design and supervision (12 percent)	\$ 385	/m

These figures allow for supply, lay, manholes, reinstatement, outlet structures, some dewatering and imported fill. Cesspits and cesspit construction are part of the roading costs.

## 5.0 Bethlehem

This area has substantially altered as a result of planning appeals. The current development is related to the Moffat/Cambridge/S H 2 triangle which was extensively analysed for the resource consent to discharge at two of the State Highway culverts.

The third culvert nearer Jonathon St has not been analysed as the catchment will be affected by the construction of Route J.

Ponds A4 and BI have been constructed and Pond AI and A2 are under construction at the time of preparing this report.

Land is still to be purchased for pond A3 and A7 while easements will be required for ponds A5 and A6.

### 5.1 Ponds AI and A2

These two ponds are relatively small and located close together at the head of Catchment A. They are currently under construction and the quotation for their completion is \$63,596.00 plus landscaping of a further \$11,200.00.

### 5.2 Pond A3

This pond has yet to be designed. It is located approximately 1.3km up stream from the State Highway in Catchment A and is anticipated to be a little larger than Pond A2. Construction of this will be required when development of adjacent land takes place.

### 5.3 Pond A4

This pond is located approximately 1.15km from the State Highway in Catchment A and its construction is complete. Some landscaping is still required.

### 5.4 Pond A5

Located in a subcatchment of Catchment A, this pond is 0.6 km from the State Highway. A small pond currently exists and this will need to be extended and an outlet structure constructed.

### 5.5 Pond A6

Pond A6 will be formed when the road across the gully is constructed. It is intended that this "pond" will in fact be dry for most of the time but the pipe under the road will be slightly undersized so that times of heavy rain, water will pond in this area.

### 5.6 Pond A7

Pond A7 is located at the bottom of Catchment A, adjacent to the State Highway. This will be a permanent wet pond with marshland at its upstream end. An outlet structure is required to maintain the wet area.

### 5.7 Pond BI

This pond is located between the neighbourhood reserve in Beaumaris Boulevard and the State Highway. Its construction is complete and consists of a permanent wet pond and a large detention area. Extensive downstream works, including a large culvert and floodgates are also included.

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>5.8</b>	<b>Estimates - Bethlehem Triangle</b>						
<b>5.8.1</b>	<b>Ponds A1 and A2 (LIPS 280102)</b>						
			Current Contract Works			Actual cost	\$84,277
			Landscaping/Planting	1400	m <sup>2</sup>	Actual cost	\$21,371
			Land Purchase			Actual cost	\$66,078
			<b>Ponds A1 and A2 Total</b>				<b>\$171,726</b>
<b>5.8.2</b>	<b>Pond A3 (LIPS 280272)</b>						
			Dam Construction and Outlet Structure				
			Landscaping/Planting	1500	m <sup>2</sup>	Actual cost	\$135,610
			Land Purchase	2972	m <sup>2</sup>	Actual cost	\$50,741
			<b>Total Pond A3</b>				<b>\$186,351</b>
<b>5.8.3</b>	<b>Pond A4 (LIPS 280103)</b>						
			Pond Construction			Actual cost	\$34,701
			Land Purchase			Actual cost	\$18,775
			Landscaping/Planting	300	m <sup>2</sup>	Actual cost	\$2,260
			<b>Total Pond A4</b>				<b>\$55,736</b>
<b>5.8.4</b>	<b>Pond A5 (LIPS 280104)</b>						
			Construction of Pond and Outlet Structure			Actual cost	\$195,029
			Landscaping/Planting	600	m <sup>2</sup>	Actual cost	\$14,144
			Land Purchase	0.50	ha	Actual cost	\$14,684
			<b>Total for Pond A5</b>				<b>\$223,857</b>
<b>5.8.5</b>	<b>Pond A6 (LIPS 280105)</b>						
			Land Purchase (easement)	4.00	ha	Actual cost	\$132,310
			<b>Total for Pond A6</b>				<b>\$132,310</b>
<b>5.8.6</b>	<b>Pond A7 (LIPS 280106)</b>						
			Construction of Pond and Outlet Structure			Actual cost	\$176,589
			Land Purchase	1.50	ha	Actual cost	\$99,798
			<b>Total for Pond A7</b>				<b>\$276,387</b>
<b>5.8.7</b>	<b>Pond B1 (LIPS 280107)</b>						
			Construction (actual including downstream works)			Actual cost	\$344,162
			Landscaping/Planting	2000	m <sup>2</sup>	Actual cost	\$15,293
			Land Purchase			Actual cost	\$42,000
			<b>Total for Pond B1</b>			Actual cost	<b>\$401,455</b>
<b>5.8.8</b>	<b>Roading Associated</b>						
			Moffat Rd adjacent Waihi Rd (LIPS 280108)	450	m	Actual cost	\$123,726
			Moffat Rd / Orange Lane (LIPS 280108)	500	m	Actual cost	\$45,352
			Moffat Rd adjacent Elder Lane (LIPS 280108)	745	m	Actual cost	\$117,382
			Moffat Rd adjacent Cambridge Rd (LIPS 280109)	81	m	Actual cost	\$16,750
			Cambridge Rd / Moffat Rd (LIPS 280109)	1150	m	Actual cost	\$564,700
			Cambridge Rd adjacent Westridge (LIPS 280110)	450	m	Actual cost	\$135,000
			Cambridge Rd opposite Westridge (LIPS 280110)	600	m	Actual cost	\$208,200
			Cambridge Rd adjacent Miles Lane (LIPS 280110)	300	m	Actual cost	\$90,000
			Beaumaris Boulevard/Sterling Gate/Route J (LIPS 1360)			Eng Est.	\$500,000
			<b>Total Roding Associated</b>				<b>\$1,801,110</b>
			<b>TOTAL FOR BETHLEHEM TRIANGLE</b>				<b>\$3,248,932</b>

## 5.9 North East Bethlehem

The development of this area will ultimately require the construction of five detention and treatment ponds, labelled C to G. Piped systems have been allowed for to take stormwater from the roads and adjoining land and convey it to a detention/treatment ponds.

Ponds C, D and E then discharge into the low-lying land which is part of the Carmichael Farm, while Ponds F and G discharge under the railway line into the harbour.

Due to the extent of flooding on the Carmichael Farm caused by the residential development of upstream catchments, allowance has been made to purchase the low-lying areas of the farm (39 hectares). This is to allow the land to be used for flooding purposes and will provide for the final “polishing” of the stormwater before it discharges into the harbour. Lower parts of this land would be allowed to revert back to its natural state to complement the adjacent harbour, which has been identified as a special ecological area. Limited public access to this area would be provided through walkways and boardwalks. The purchase and development costs of this land should be shared (on a catchment size basis) between the Bethlehem development and existing Otumoetai catchment that also discharges onto the farm land. This ratio is calculated as follows:

Otumoetai catchment	=	138	hectares
Bethlehem catchment	=	325	hectares
325/463	=	70%	Bethlehem share

Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension		
<b>5.9 Estimates - North East Bethlehem</b>								
<b>5.9.1 Pond C (LIPS 280238)</b>								
Note that this pond has been deleted and the downstream pond (Pond 'H') has been enlarged to compensate. The cost estimate for Pond 'C' has been transferred and added to Pond 'H'.								
<b>Roading Associated</b>								
1050mm	Type 3		405	m	Actual cost	\$158,890		
525mm	Type 2		230	m	Actual cost	\$94,047		
375mm	Type 2		360	m	Actual cost	\$147,204		
300mm	Type 2		250	m	Actual cost	\$104,695		
						<b>\$504,836</b>		
<b>Cost Share of 1050mm (6.1.5)</b>								
		West Bethlehem share	20%	\$31,778				
		Bethlehem share	80%	\$127,112				
						<u>\$158,890</u>		
<b>5.9.2 Pond D (LIPS 280239)</b>								
Dam construction (incl inlet and outlets)					Actual cost	\$95,870		
Reticulation	600mm	Type 3	530	m	Actual cost	\$223,600		
						<b>\$319,470</b>		
<b>Roading Associated (LIPS 280240)</b>								
New Road (Mayfield Lane to Pond "D")			350	m	Actual cost	\$108,497		
New Road (Pond D toward Carmichael Rd)			200	m	Actual cost	\$41,700		
						<b>\$150,197</b>		
<b>5.9.3 Pond E (LIPS 1573)</b>								
Dam construction (incl inlet and outlets)					1	Actual cost	\$70,485	
Landscaping/Planting					1750	m <sup>2</sup> @ \$12.00	\$21,000	
						\$91,485		
Land Purchase (LIPS 280222)					2.03	ha	Actual cost	\$71,100
						<b>\$162,585</b>		

Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>Reticulation (LIPS 1578)</b>						
300mm	Type 2		220	m	@ \$265	\$58,300
525mm	Type 2		220	m	@ \$382	\$84,040
900mm	Type 2		170	m	@ \$772	\$131,240
1050mm	Type 3		80	m	@ \$858	\$68,640
						<u>\$342,220</u>
Plus Contingencies					@ 25%	\$85,555
Plus Engineering Design and Supervision					@ 12%	\$51,333
						<u><b>\$479,108</b></u>
<b>Roading Associated</b>						
New Road (Carmichael Rd southward) (LIPS 280271)			300	m	Actual cost	\$86,426
New Road (Carmichael Rd northward) (LIPS 2127)			250	m	@ \$385.00	\$96,250
						<u><b>\$182,676</b></u>
<b>5.9.4 Pond F (LIPS 981)</b>						
Dam construction (incl inlet and outlets) and landscaping					Actual cost	<u><b>\$118,662</b></u>
<b>Reticulation (LIPS 1580)</b>						
450mm	Type 2		390	m	@ \$353	\$137,670
750mm	Type 3		220	m	@ \$523	\$115,060
						<u>\$252,730</u>
Plus Contingencies					@ 20%	\$50,546
Plus Engineering Design and Supervision					@ 12%	\$36,393
						<u><b>\$339,669</b></u>
<b>5.9.5 Pond G (LIPS 1581)</b>						
Dam construction (incl inlet and outlets)					Estimate	\$48,551
Landscaping/Planting			625	m <sup>2</sup>	@ \$12.00	\$7,500
						<u>\$56,051</u>
Plus Contingencies					@ 20%	\$11,210
Plus Engineering Design and Supervision					@ 12%	\$8,071
						<u>\$75,333</u>
Land Purchase			0.68	ha	@ \$55,000	\$37,400
						<u><b>\$112,733</b></u>
<b>Reticulation (LIPS 1582)</b>						
300mm	Type 2		490	m	@ \$265	\$129,850
525mm	Type 2		130	m	@ \$382	\$49,660
600mm	Type 3		150	m	@ \$371	\$55,650
						<u>\$235,160</u>
Plus Contingencies					@ 10%	\$23,516
Plus Engineering Design and Supervision					@ 12%	\$31,041
						<u><b>\$298,717</b></u>
<b>5.9.6 Pond H (LIPS 280241)</b>						
This pond is to be constructed in conjunction with Millers Rd extension.						
Inlet structure, culvert under Millers Rd and earthworks.						
Outlet Structure and Culvert				L.S.	Actual cost	\$74,705
Mayfield Ltd Share					Actual cost	\$21,618
Landscaping			2500	m <sup>2</sup>	Actual cost	\$72,895
						<u><b>\$169,218</b></u>
<b>Cost Share of Pond H (6.1.6)</b>						
West Bethlehem share			20%	33,844		
Bethlehem share			80%	<u>\$135,374</u>		
						<u><b>\$169,218</b></u>

Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension	
<b>Roading Associated (LIPS 280269)</b>							
		Millers Rd extension from Bellevue Rd			Actual cost	<u><b>\$193,938</b></u>	
<b>5.9.7</b>	<b>Carmichael Farm Ponding Area (LIPS 280242)</b>						
	<i>Development:</i>						
	Construct Pond				Actual cost	\$395,735	
	Pond Planting				Actual cost	\$135,627	
	Land Purchase				Actual cost	<u>\$1,653,371</u>	
						<u><b>\$2,184,733</b></u>	
	<b>Cost Share of Carmichael Farm (6.1.7)</b>						
	Loan	30%			\$655,400		
	West Bethlehem share	3.5%	16 ha		\$76,466		
	Bethlehem share	66.5%	325 ha		\$1,452,847		
		Cost sharing: 16/325		5%			
		<b>5% of the 70% cost*</b>		<b>3.5%</b>			
					<u>\$2,184,713</u>		
<b>TOTAL FOR NORTH EAST BETHLEHEM</b>						<u><b>\$5,207,542</b></u>	

## 6.0 West Bethlehem

The development of this area requires costs sharing of downstream works in North East Bethlehem as set out in the schedules. A new pond is to be constructed on Parau Farms land.

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension	
<b>6.1</b>	<b>West Bethlehem - Stormwater Estimates</b>							
<b>6.1.1</b>	<b>Reticulation Block A (LIPS 280255)</b>					Actual cost	\$440,027	
						Actual cost	\$117,820	
							<b>\$557,847</b>	
<b>6.1.2</b>	<b>Reticulation Block B - includes SH2 end of Carmichael Rd (LIPS 1659)</b>							
	750 mm	Type 3		215	m @	\$523	\$112,445	
	750 mm	Thrust		20	m @	\$579	\$11,570	
	600 mm	Type 3		145	m @	\$371	\$53,795	
	525 mm	Type 3		90	m @	\$307	\$27,630	
	450 mm	Type 3		110	m @	\$278	\$30,580	
	300 mm	Type 3		180	m @	\$206	\$37,080	
	375 mm	Type 3		80	m @	\$232	\$18,560	
							\$291,660	
	Plus Contingencies					@	25%	\$72,915
	Engineering Design and Supervision					@	12%	\$43,749
							<b>\$408,324</b>	
	<b>Cost sharing:</b>			<b>100%</b>				
<b>6.1.3</b>	<b>Reticulation Block C (LIPS 280298)</b>							
	900 mm	Type 2		235	m	Actual cost	\$126,115	
	750 mm	Type 2		100	m	Actual cost	\$42,0385	
							<b>\$168,153</b>	
	<b>Cost sharing:</b>			<b>100%</b>				
	<b>Roading Associated (LIPS 1583)</b>							
	Bethlehem Road from Carmichael North			400	m	Eng Est.	<b>\$92,810</b>	
<b>6.1.4</b>	<b>Roading Associated</b>							
	Carmichael Rd - Eastern end (LIPS 280282)			480	m	Actual cost	\$165,077	
	Carmichael Rd – Eastern end (LIPS 1661)			280	m @	\$385	\$107,800	
							<b>\$272,877</b>	
	<b>Cost sharing:</b>			<b>100%</b>				
<b>6.1.5</b>	<b>Pond C (LIPS 280238)</b>							
	Note that this pond has been deleted and the downstream pond (Pond 'H') has been enlarged to compensate. The cost estimate for Pond 'C' has been transferred and added to Pond 'H'.							
	<b>Roading Associated</b>							
	1050mm	Type 3		405	m	Actual cost	<b>\$504,836</b>	
	<b>Cost share of 1050mm (5.9.1)</b>							
	West Bethlehem share	20%				\$100,967		
	Bethlehem share	80%				\$403,869		
							<b>\$504,836</b>	
<b>6.1.6</b>	<b>Pond H (LIPS 280241)</b>							
	This pond is to be constructed in conjunction with Millers Road extension.							

Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
		Inlet structure, culvert under Millers Rd and earthworks				
		Outlet structure and culvert			Actual cost	\$74,705
		Mayfield Ltd share			Actual cost	\$21,618
		Landscaping	2500	m <sup>2</sup>	Actual cost	\$72,895
						<b>\$169,218</b>
		<b>Cost share of Pond H (5.9.6)</b>				
		West Bethlehem share	20%		\$33,844	
		Bethlehem share	80%		\$135,374	
						<b>\$169,218</b>
<b>6.1.7</b>		<b>Carmichael Farm Ponding Area (LIPS 280242)</b>				
		<i>Development:</i>				
		Construct Pond			Actual cost	\$395,735
		Pond Planting			Actual cost	\$135,627
		Land Purchase			Actual cost	\$1,653,371
						<b>\$2,184,733</b>
		<b>Cost share of Carmichael Farm (5.9.7)</b>				
		Loan	30%		\$655,420	
		West Bethlehem share*	3.5%	16 Ha	\$76,466	
		Bethlehem share	66.5%	325 Ha	\$1,452,847	
		Cost sharing: 16/325		5%		
		<b>5% of the 70% of cost*</b>		<b>3.5%</b>		
						<b>\$2,184,733</b>
<b>6.1.8</b>		<b>Pond Parau Farms</b>				
		Reticulation associated with pond (LIPS 280283)			Actual cost	\$31,086
		Land Purchase - located on reserve land close to Wairoa river				Nil
		Manage stormwater on private land (LIPS 1662)				\$50,000
		Dam construction (incl inlet and outlets)				\$51,650
		Landscaping/Planting	1875	m <sup>2</sup> @	\$12	\$22,500
						<b>\$124,150</b>
		Plus Contingencies		@	25%	\$31,038
		Engineering Design and Supervision		@	12%	\$18,623
						<b>\$204,896</b>
		<b>Cost sharing:</b>		<b>100%</b>		
		<b>TOTAL FOR WEST BETHLEHEM</b>				<b>\$4,563,694</b>

## **7.0 Pyes Pa**

Further to the previous work by Worley Consultants, four pond sites have been identified. Pond design has been completed for Ponds 1 and 2 and these are due for completion in 1996. Draft designs have been completed for Ponds 3 and 4. All ponds require land purchases.

### **7.1 Pond 1**

This ponding area is located on the south side of Cheyne Rd adjacent to the entrance to Woodbury Rise Subdivision. It will serve the catchment to the south and west to Pyes Pa Rd near the Centre Pac Packhouse. The outlet pipe has been constructed as part of the Woodbury Rise reticulation.

Minimal work is required to the ponding area (rubbish to be cleared) and an item has been included for channel works up the main valley to the south end of the Greenbelt zone.

The discharge from Pond 1 is piped to Pond 2.

### **7.2 Pond 2**

This existing ponding area on the south side of S H 29 serves the western portion of Woodbury Rise, the land to the west to Pyes Pa Road and both sides of S H 29. The Pond 1 catchment discharges into the top of the ponding area.

The existing 1200mm dia culvert under S H 29 has a constructed inlet to restrict the flow to the rural regime runoff rate in a 1: 50 year event. Any surplus water continues along the side of S H 29 eastwards to Pond 4.

The majority of the construction costs are confirmed at the time of this estimate and the pipework installed.

### **7.3 Pond 3**

This existing dam and pond approximately 150 metres south of Cheyne Rd serves the south east portion of the catchment to the boundary with Waimapu catchment. Minor earthworks and piping will be required to ensure all the land from the edge of the bluff drains to this pond.

The dam requires strengthening and raising to contain a 1: 50 year storm for an urbanised catchment.

The discharge is to the proposed Cheyne Rd culvert and piped to the Pond 4 catchment through Woodbury Rise subdivision.

### **7.4 Pond 4**

Under S H 29 is an existing 1200mm dia culvert. Using the HIRDS rainfall data no duplication is necessary. The culvert will require a constructed inlet to provide water quality improvement, storm attenuation and include a fish pass.

The pond services the eastern area of Woodbury Rise and the eastern area of Cheyne Rd to the top of the bluff above Oropi Rd. The pond receives all the discharge from Pond 3 and the overflow in 1: 50 year and greater events from Pond 2.

Included in this area is a 300mm dia low flow pipe and grassed channel over most of the length of the reserve from below Cheyne Rd to S H 29.

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>7.5</b>	<b>Estimates</b>						
<b>7.5.1</b>	<b>Pond 1 (Southwest of Cheyne Rd to Pyes Pa Rd) (LIPS 280131)</b>						
			Upper Channel in Greenbelt			Actual cost	\$32,338
			Land Purchase	0.40	ha	Actual cost	\$21,588
			<b>Total for Pond 1</b>				<b>\$53,926</b>
<b>7.5.2</b>	<b>Pond 2 (South Side S H 29 west to Pyes Pa Rd) (LIPS 280132)</b>						
			Pond construction			Actual cost	\$39,094
			TDC share of additional pipe size			Actual cost	\$30,286
			Landscaping/Planting	1400	m <sup>2</sup>	Actual cost	\$9,767
			Land Purchase	0.90	ha	Actual cost	\$14,210
			<b>Total for Pond 2</b>				<b>\$93,357</b>
<b>7.5.3</b>	<b>Pond 3 (South side of Cheyne Rd east toward Oropi Rd) (LIPS 280133)</b>						
			Upper Channel in Greenbelt			Actual cost	\$36,122
			Upgrade existing Retention Dam (earthworks and outlet)			Actual cost	\$329,051
			Landscaping/Planting	5000	m <sup>2</sup>	Actual cost	\$45,243
			Land Purchase	2.50	ha	Actual cost	\$170,237
			<b>Total for Pond 3</b>				<b>\$580,653</b>
<b>7.5.4</b>	<b>Pond 4 (South Side of SH 29 east towards Oropi Rd) (LIPS 280134)</b>						
			Grassed / Piped (300mm dia) channel			Actual cost	\$35,343
			Culvert Cheyne Rd			Actual cost	\$43,727
			Pond minor Earthworks, Outlet structure			Actual cost	\$606
			Landscaping/Planting	2000	m <sup>2</sup>	Actual cost	\$9,369
			Land Purchase	2.40	ha	Actual cost	\$82,242
			<b>Total for Pond 4</b>				<b>\$171,287</b>
<b>7.5.5</b>	<b>Roading Associated</b>						
			Pyes Pa Rd / Cheyne Rd (LIPS 280267)	810	m	Actual cost	\$344,630
			Cheyne Rd East (LIPS 280135)	695	m	Actual cost	\$392,390
			Cheyne Rd Central (LIPS 280135)	380	m	Actual Cost	\$131,900
			Pyes Pa Rd (via Manor Park) (LIPS 280136)			Actual cost	\$25,384
			Pyes Pa Rd (LIPS 280136)	315	m	Actual cost	\$285,254
			Pyes Pa Rd / Freeburn (LIPS 280136)	950	m	Completed	\$466,500
			<b>Total Roding Associated</b>				<b>\$1,646,058</b>
			<b>TOTAL FOR PYES PA</b>				<b>\$2,545,281</b>

## 8.0 Pyes Pa West

The UGA has been broken down into subcatchments. These subcatchments have been analysed to calculate stormwater runoffs and determine the most appropriate method of control to ensure that once fully developed, the pre-development Q100 discharge volumes at the SH 29 culvert are not exceeded.

The parameters for the design of the stormwater management system proposed for the Urban Growth Area are described in the Pyes Pa Urban Growth Stormwater Report, by Beca Carter Hollings & Ferner Ltd, August 2003.

A total of 26 sub-catchments are identified in the Urban Growth Area. In most cases each sub-catchment is provided with a small detention pond appropriate to the characteristics of the sub-catchment. In some areas sub-catchments have been combined.

The stormwater model assumes that 50 percent of the gross residential and business area is covered with impervious surface draining to the retention pond system. A further 20 percent of the gross area drains to ground and the remaining area is pervious.

Pond locations including floodways are shown on Structure Plan SP 13. (Note that the final area required will be determined in final design).

Valuations for the purchase of various land areas for detention ponds and floodways are based on valuations prepared by 3D Consultancy Registered Valuers.

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>8</b>	<b>PYES PA WEST</b>						
<b>8.1</b>	<b>Pond 1 (LIPS 1531)</b>						
				9300	m <sup>3</sup>	@ \$21.00	\$195,300
				1700	m <sup>2</sup>	@ \$12.00	\$20,400
							<u>\$215,700</u>
			Plus Contingencies			@ 20%	\$43,140
			Engineering Design and Supervision			@ 12%	\$31,061
							<u>\$289,901</u>
			Land purchase (LIPS 1923)	1.1	ha	@ \$18,000.00	\$19,800
			<b>Total for Pond 1</b>				<b><u>\$309,701</u></b>
			<b>Roading Associated (LIPS 1675)</b>				
			300mm	380	m	@ \$385.00	\$146,300
			Cost sharing – 37 % SIF contribution				<u>\$146,300</u>
<b>8.2</b>	<b>Pond 2 (LIPS 1532)</b>						
				6800	m <sup>3</sup>	@ \$21.00	\$142,800
				2200	m <sup>2</sup>	@ \$12.00	\$26,400
							<u>\$169,200</u>
			Plus Contingencies			@ 20%	\$33,840
			Engineering Design and Supervision			@ 12%	\$24,365
							<u>\$227,405</u>
			Land purchase (LIPS 1951)	0.9	ha	@ \$50,000.00	\$45,000
			<b>Total for Pond 2</b>				<b><u>\$272,405</u></b>

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	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>8.3</b>	<b>Pond 3 (LIPS 1533)</b>						
			Construction (inc. inlet and outlet)	7000	m <sup>3</sup>	@ \$21.00	\$147,000
			Landscaping	2000	m <sup>2</sup>	@ \$12.00	\$24,000
							<u>\$171,000</u>
			Plus Contingencies			@ 20%	\$34,200
			Engineering Design and Supervision			@ 12%	\$24,624
							<u>\$229,824</u>
			Land purchase (LIPS 1952)	0.9	ha	@ \$50,000.00	\$45,000
			<b>Total for Pond 3</b>				<b><u>\$274,824</u></b>
	<b>Roading Associated – Pyes Pa &amp; Kennedy Rd (LIPS 1536)</b>						
			300mm	240	m	@ \$385.00	\$92,400
			375mm	220	m	@ \$423.00	\$93,060
			Cost sharing - 100% SIF				<u>\$185,460</u>
<b>8.4</b>	<b>Pond 5 (LIPS 1538)</b>						
			Construction (inc. inlet and outlet)	5000	m <sup>3</sup>	@ \$21.00	\$105,000
			Landscaping	2000	m <sup>2</sup>	@ \$12.00	\$24,000
							<u>\$129,000</u>
			Plus Contingencies			@ 20%	\$25,800
			Engineering Design and Supervision			@ 12%	\$18,576
							<u>\$173,376</u>
			Land purchase (LIPS 1954)	0.7	ha	@ \$40,000.00	\$28,000
			<b>Total for Pond 5</b>				<b><u>\$201,376</u></b>
<b>8.5</b>	<b>Pond 6 (LIPS 1540)</b>						
			Construction (inc. inlet and outlet)	4900	m <sup>3</sup>	@ \$21.00	\$102,900
			Landscaping	2100	m <sup>2</sup>	@ \$12.00	\$25,200
							<u>\$128,100</u>
			Plus Contingencies			@ 20%	\$25,620
			Engineering Design and Supervision			@ 12%	\$18,446
							<u>\$172,166</u>
			Land purchase (LIPS 2066)	0.7	ha	@ \$40,000.00	\$28,000
			<b>Total for Pond 6</b>				<b><u>\$200,166</u></b>
<b>8.6</b>	<b>Pond 7 (LIPS 1542)</b>						
			Construction (inc. inlet and outlet)	12000	m <sup>3</sup>	@ \$21.00	\$252,000
			Landscaping	2000	m <sup>2</sup>	@ \$12.00	\$24,000
							<u>\$276,000</u>
			Plus Contingencies			@ 20%	\$55,200
			Engineering Design and Supervision			@ 12%	\$39,744
							<u>\$370,944</u>
			Land purchase (LIPS 2065)	1.4	ha	@ \$45,000.00	\$63,000
			<b>Total for Pond 7</b>				<b><u>\$433,944</u></b>
<b>8.7</b>	<b>Pond 11 (LIPS 1545)</b>						
			Construction (inc. inlet and outlet)	3000	m <sup>3</sup>	@ \$21.00	\$63,000
			Landscaping	1000	m <sup>2</sup>	@ \$12.00	\$12,000
							<u>\$75,000</u>
			Plus Contingencies			@ 20%	\$15,000
			Engineering Design and Supervision			@ 12%	\$10,800
							<u>\$100,800</u>
			Land purchase (LIPS 1950)	0.4	ha	@ \$50,000.00	\$20,000
			<b>Total for Pond 11</b>				<b><u>\$120,800</u></b>

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>8.8</b>	<b>Pond 11a (LIPS 1549)</b>						
			Construction (inc. inlet and outlet)	5800	m <sup>3</sup>	@ \$21.00	\$121,800
			Landscaping	1200	m <sup>2</sup>	@ \$12.00	\$14,400
							<u>\$136,200</u>
			Plus Contingencies			@ 20%	\$27,240
			Engineering Design and Supervision			@ 12%	\$19,613
							<u>\$183,053</u>
			Land purchase (LIPS 1953)	0.7	ha	@ \$40,000.00	\$28,000
			<b>Total for Pond 11a</b>				<b><u>\$211,053</u></b>
	<b>Roading Associated (LIPS 1551)</b>						
			300mm	350	m	@ \$385.00	\$134,750
			Open drain adjacent to S H 29	200	m	@ \$36.00	\$7,200
			Cost sharing - 100 % SIF contribution				<u>\$141,950</u>
<b>8.9</b>	<b>Pond 12 (LIPS 280243)</b>						
			Construction (inc. inlet and outlet)	27000	m <sup>3</sup>	@ Actual cost	\$465,609
			Landscaping	3000	m <sup>2</sup>	@ Actual cost	\$135,605
			1050mm class Z to link ponds	120	m	@ Actual cost	\$20,123
			Land purchase	3.0	ha	@ Actual cost	\$87,500
			<b>Total for Pond 12</b>				<b><u>\$708,837</u></b>
	<b>Roading Associated (LIPS 280244)</b>						
			300mm	240	m	@ Actual cost	\$26,640
			Cost sharing - 37% SIF contribution				<u>\$26,640</u>
<b>8.10</b>	<b>Pond 12b (LIPS 280245)</b>						
			Construction (inc. inlet and outlet)	6000	m <sup>3</sup>	@ Actual cost	\$111,363
			Landscaping	2000	m <sup>2</sup>	@ Actual cost	\$90,403
			Land purchase	0.8	ha	@ Actual cost	\$16,000
			<b>Total for Pond Lake 12b</b>				<b><u>\$217,766</u></b>
<b>8.11</b>	<b>Pond 13,14,15,16 – Lake (LIPS 1554)</b>						
			Cut to waste	150000	m <sup>3</sup>	Estimate	\$1,500,000
			Construction (inc. inlet and outlet)	50,000	m <sup>3</sup>		\$350,000
			Landscaping (2,500m x 2m)	50,000	m <sup>2</sup>		\$1,400,000
							<u>\$3,250,000</u>
			Plus Contingencies			@ 20%	\$650,000
			Engineering Design and Supervision			@ 6%	\$234,000
							<u>\$4,134,000</u>
			Land purchase (LIPS 1962)	12.0	ha	@ \$20,000.00	\$240,000
			<b>Total for Pond 13,14,15,16</b>				<b><u>\$4,374,000</u></b>
	<b>Roading Associated (LIPS 1656)</b>						
			300mm	540	m	@ \$385.00	\$207,900
			450mm	588	m	@ \$423.00	\$248,724
			600mm	342	m	@ \$651.00	\$222,642
			1200mm - flat grade	522	m	@ \$999.00	\$521,478
			Cost sharing – 37 % SIF contribution				<u>\$1,200,744</u>

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>8.12</b>	<b>Pond 17 - detention dam (LIPS 1555)</b>						
			Construction (inc. inlet and outlet)	10000	m <sup>3</sup>	@ \$90.00	\$900,000
			Landscaping	5000	m <sup>2</sup>	@ \$12.00	\$60,000
							<u>\$960,000</u>
			Plus Contingencies			@ 20%	\$192,000
			Engineering Design and Supervision			@ 12%	\$138,240
							<u>\$1,290,240</u>
			Land purchase (LIPS 1956)	1.2	ha	@ \$15,000.00	\$18,000
			<b>Total for Pond 17</b>				<b><u>\$1,308,240</u></b>
			<b>Pond 18 (LIPS 1557) - REMOVED</b>				
<b>8.14</b>	<b>Pond 19 (LIPS 1558) - REMOVED</b>						
	<b>Roading Associated (LIPS 1676)</b>						
			300mm	720	m	@ \$423.000	\$304,560
			Cost sharing - 37 % SIF contribution				<b><u>\$304,560</u></b>
<b>8.15</b>	<b>Pond 21 (LIPS 1563)</b>						
			Construction (inc. inlet and outlet)	4000	m <sup>3</sup>	@ \$21.00	\$84,000
			Landscaping	2000	m <sup>2</sup>	@ \$12.00	\$24,000
							<u>\$108,000</u>
			Plus Contingencies			@ 20%	\$21,600
			Engineering Design and Supervision			@ 12%	\$15,552
							<u>\$145,152</u>
			Land purchase (LIPS 1962)	0.6	ha	@ \$40,000.00	\$24,000
			<b>Total for Pond 21</b>				<b><u>\$169,152</u></b>
<b>8.16</b>	<b>Pond 25 (LIPS 1564)</b>						
			Construction (inc. inlet and outlet)	7000	m <sup>3</sup>	@ \$21.00	\$147,000
			Landscaping	1000	m <sup>2</sup>	@ \$12.00	\$12,000
							<u>\$159,000</u>
			Plus Contingencies			@ 20%	\$31,800
			Engineering Design and Supervision			@ 12%	\$22,896
							<u>\$213,696</u>
			Land purchase (LIPS 1964)	0.8	ha	@ \$40,000.00	\$32,000
			<b>Total for Pond 25</b>				<b><u>\$245,696</u></b>
	<b>Roading Associated (LIPS 1565)</b>						
			300mm	90	m	@ \$385.00	\$34,650
			450mm	240	m	@ \$423.00	\$101,520
			525mm	300	m	@ \$423.00	\$126,900
			Cost sharing - 100 % SIF contribution				<b><u>\$263,070</u></b>
<b>8.17</b>	<b>Floodway F1 (LIPS 1566)</b>						
			Construction (clearing and formation)	133000	m <sup>3</sup>	@ \$3.60	\$478,800
			Landscaping	7500	m <sup>2</sup>	@ \$12.00	\$90,000
							<u>\$568,800</u>
			Plus Contingencies			@ 20%	\$113,760
			Engineering Design and Supervision			@ 12%	\$81,907
							<u>\$764,467</u>
			Land purchase (LIPS 1966)	13.3	ha	@ \$18,000.00	\$239,400
			<b>Total for Floodway F1</b>				<b><u>\$1,003,867</u></b>

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>8.19</b>	<b>Floodway F3 (LIPS 1568)</b>						
	1100m x 30m average width						
	Construction (clearing and formation)			33000	m <sup>3</sup>	@ \$3.60	\$118,800
	Landscaping			3300	m <sup>2</sup>	@ \$12.00	\$39,600
							\$158,400
	Plus Contingencies					@ 20%	\$31,680
	Engineering Design and Supervision					@ 12%	\$22,810
							\$212,890
	Land purchase (LIPS 1968)			3.3	ha	@ \$15,000.00	\$49,500
	<b>Total for Floodway F3</b>						<b>\$262,390</b>
<b>8.20</b>	<b>Floodway F4 (LIPS 1569)</b>						
	1000m x 30m average width						
	Construction (clearing and formation)			30000	m <sup>3</sup>	@ \$3.60	\$108,000
	Landscaping			3000	m <sup>2</sup>	@ \$12.00	\$36,000
							\$144,000
	Plus Contingencies					@ 20%	\$28,800
	Engineering Design and Supervision					@ 12%	\$20,736
							\$193,536
	Land purchase (LIPS 1965)			3.0	ha	@ \$15,000.00	\$45,000
	<b>Total for Floodway F4</b>						<b>\$238,536</b>
<b>8.21</b>	<b>Dam 21 (LIPS 1646)</b>						
	Construction (clearing and formation)			15000	m <sup>3</sup>	@ \$21.00	\$315,000
	Landscaping			3000	m <sup>2</sup>	@ \$12.00	\$36,000
							\$351,000
	Plus Contingencies					@ 20%	\$70,200
	Engineering Design and Supervision					@ 12%	\$50,544
							\$471,744
	Land purchase (LIPS 2125)			1.5	ha	@ \$40,000.00	\$60,000
							<b>\$531,744</b>
<b>8.22</b>	<b>Pond 16 (LIPS 2218)</b>						
	Construction (clearing and formation)			18000	m <sup>3</sup>	@ \$21.00	\$378,000
	Landscaping			7500	m <sup>2</sup>	@ \$12.00	\$90,000
							\$468,000
	Plus Contingencies					@ 20%	\$93,600
	Engineering Design & Supervision					@ 12%	\$67,392
							\$628,992
	Land Purchase (Accounted for in 8.17 Floodway F1)				ha	@	\$0
							<b>\$628,992</b>
<b>TOTAL FOR PYES PA WEST</b>							<b>\$13,982,213</b>



## 10.0 Welcome Bay

Three catchments have been considered in the planning for stormwater detention and treatment. One is the gully to the west of Resolution Dr, the second is the land to the east of Waitaha Rd and the third is the large gully between Waitaha Rd and Waikite Rd.

The gully that runs along the western side of the urban growth area boundary, west of Langstone St and through the Johnston Reserve was considered for stormwater treatment but discounted due to the length of the stream running through reserve/marsh land in Johnston Reserve.

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>10.1</b>	<b>Resolution Rd Catchment (W2 and W3)</b>						
	The area south and west of Resolution Rd drains to an identified natural ponding site near Resolution Rd. Shrimpton & Lipinski report 12004 of 16 January 1995 refers. Subsequent developments to this report result in only ponds W2 and W3 being required.						
<b>10.1.1</b>	<b>Pond W2 (LIPS 280137)</b>						
						Actual cost	\$90,764
						Actual cost	\$14,747
				1250	m <sup>2</sup>	Actual cost	\$10,000
							<u>\$115,511</u>
<b>10.1.2</b>	<b>Pond W3 (LIPS 280138)</b>						
						Actual cost	\$136,039
						Actual cost	\$27,166
							<u>\$163,205</u>
				1.00	ha	Actual cost	\$28,400
						Actual cost	\$10,010
							<u>\$38,410</u>
	<b>Roading Associated (LIPS 280139)</b>						
				100	m	Actual cost	\$8,028
			<b>Total, Resolution Road Catchment</b>				<u><b>\$325,154</b></u>
<b>10.2</b>	<b>Waitaha Rd South (W4) (LIPS 280140)</b>						
	The identified pond site below the Resolution Rd intersection is adequate to serve this relatively small catchment on the east side of Waitaha Rd.						
						Actual cost	\$151,478
				2500	m <sup>2</sup>	Actual cost	\$21,752
							<u>\$173,230</u>
				0.40	ha	Actual cost	\$32,608
			<b>Total, Waitaha Rd South Total</b>				<u><b>\$205,838</b></u>
<b>10.3</b>	<b>Waitaha Rd North (W5) (LIPS 280141)</b>						
	This small catchment currently under development by Landcorp requires a treatment pond opposite James Cook Dr. A small bund is required on the roadside to increase the ponding volume. Some of the property to the north could be piped to this pond (in preference to direct to the Harbour) so two land owners are involved.						
						Actual cost	\$43,247
						Actual cost	\$161,848
				1000	m <sup>2</sup>	Actual cost	\$10,770
							<u>\$215,865</u>
				0.08	ha	Actual Cost	\$15,500
							<u>\$231,365</u>
	<b>Additional Rooding Associated (LIPS 1175)</b>						
				520	m @	\$423.00	\$219,960
			<b>Total, Waitaha Rd North</b>				<u><b>\$451,325</b></u>

Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>10.4</b>	<b>Welcome Bay: Waioraki Stream (W6)</b>					
	This area lies between Waitaha, Waikite and Kaitemako Rds to the south of Welcome Bay Rd.					
	A ponding site has been previously identified approximately 150 m above Welcome Bay Rd within the Greenbelt Zone. A smaller area is also identified for the minor catchment on the Welcome Bay Rd corner. There is adequate volume in the existing valley zoned Greenbelt to store and treat stormwater before it enters the reticulation in Owens Park.					
	The large catchment area, most of which is not zoned for future development, requires a large volume for storm attenuation and water quality improvement.					
	A prospective dam site approx 150 metres south of Welcome Bay Rd has been used for attenuation and water quality improvement.					
	<b>Design (LIPS 280223)</b>				Actual cost	\$42,213
	Channel improvements upstream (LIPS 280265)				Actual cost	\$30,000
						<u>\$72,213</u>
	<b>Roading Associated (LIPS 280224)</b>					
		Waikite Rd/Welcome Bay Rd – designed	254	m	Actual cost	\$76,200
		Waikite Rd (adjacent to Reservoir)- designed	662	m	Actual cost	\$60,459
		Waikite Rd (South)	386	m	Actual cost	\$72,681
					Subtotal Roding	\$209,340
	<b>Total, Waioraki Stream</b>					<u><b>\$281,553</b></u>
	<b>TOTAL FOR WELCOME BAY</b>					<u><b>\$1,263,870</b></u>

## 11.0 Papamoa

The Papamoa area has been divided up into four catchments, being Maranui St, Harrisons Cut, Grant Place and Marjorie Lane.

Through all four of these catchments runs the Wairakei Stream. The western end of this stream (Between Domain Road and Evans Road) discharges to the ocean via Harrisons Cut while the remainder of the stream, east of Domain Road, falls to the east and has only one small outlet to the ocean at Grant Place and no other direct outlet to either the Kaituna River or the ocean, relying on soakage and evaporation to control its water levels.

Tauranga City Council has applied to Environment BOP for a Comprehensive Catchment Consent for the Wairakei Stream catchment and as part of this application has carried out extensive modelling of the catchment. This modelling was initially carried out on the basis of a 2%AEP storm (50yr) and confirmed previous reports that had indicated that building platform levels had to be at least 5.0m (Moturiki Datum) to ensure that there was 0.5m clearance between floor levels and stream levels in this event. Subsequently development of the Wairakei area was planned and the design criteria for this development required the stormwater design to include a 1%AEP storm (100yr) event and this raised the flood levels in the Wairakei stream by 0.1m and consequently the building platforms for this area have been increased to 5.1m (Moturiki Datum). The modelling has also confirmed that there is sufficient storage capacity within the stream bed and proposed storage ponds to allow development to proceed, including the proposed Wairakei area, without the need to establish any outlets to either the ocean or the Kaituna river. However, before any further development in the Te Tumu area, (east of Wairakei) an outlet to the Wairakei Stream will be required and this is currently proposed to be constructed to the Kaituna River and will operate when the storm exceeds the 5%AEP event.

The principle used in all catchments was to provide large storage areas in the form of wide, open drains or detention ponds that will detain the stormwater and release it over a long period such that the downstream flow, particularly to the drains discharging into the upper harbour, will not substantially increase.

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>11.1</b>	<b>Papamoa: Maranui Street Catchment</b>						
	Channels have been designed to serve the urbanised catchments for this area, most of which currently has no stormwater outlet. The previously favoured ocean outfall has been rejected due to the high environmental cost.						
	The two existing outlets, one a 1200mm dia culvert under S H 2 and ECMT railway in Council's pipeline (sewer discharge) easement and an under and over culvert into the Mangatawa drain near the rail bridge. Both of these would need upgrading and/or an additional outlet between them constructed to service a fully urbanised catchment.						
	<b>Estimate</b>						
	<b>NOTE:</b> Much of the earthworks for the channels will be done in conjunction with the adjoining owners where the cut material will be used for fill on their land. In these cases the cost of the earthworks would be shared and the cost to Council would be \$2 - \$4 a cubic metre. However, there will be other cases where the channel excavation will need to be carted off site at a cost of \$12 - \$15 per cubic metre. A rate of \$6.80 has been used for these estimates being an average of the two.						
<b>11.1.1(a)</b>	<b>Channel through Maungatawa block (LIPS 1561)</b>						
				21000	m <sup>3</sup>	@ \$8.00	\$168,000
				340	m	@ \$80.00	\$27,200
				383	m	@ \$1,133.00	\$433,939
							629,139
			Plus Contingencies			@ 10%	\$62,914
			Plus Design and Supervision			@ 12%	\$83,046
							<u>\$775,099</u>

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	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>11.1.1(b) Channel parallel to S H 2 (LIPS 280284)</b>							
	Earthworks	(LIPS 280284)		12900	m <sup>3</sup>	Actual cost	\$156,657
	Landscaping	(LIPS 280284)		240	m	Actual cost	\$29,796
							<u>\$186,453</u>
	525mm dia pipe	<b>(LIPS 1562)</b>		240	m @	\$307.00	\$73,680
		Plus Contingencies			@	10%	\$7,368
		Plus Design and Supervision			@	12%	\$9,726
							<u>\$90,774</u>
							<u>Total Channel parallel to SH 2</u>
							<u>\$277,227</u>
<b>11.1.2 Channel parallel to S H 2 through 2A</b>							
	Earthworks	(LIPS 280285)		9300	m <sup>3</sup>	Actual cost	\$112,940
	Landscaping	(LIPS 280285)		212	m	Actual cost	\$26,319
							<u>\$139,259</u>
	525mm dia pipe	<b>(LIPS 1567)</b>		212	m @	\$307.00	\$65,084
	1800mm dia. pipe			180	m	\$2,060.00	\$370,800
							<u>\$435,884</u>
		Plus Contingencies			@	10%	\$43,588
		Plus Design and Supervision			@	12%	\$57,537
							<u>\$537,009</u>
							<u>Total Channel parallel to S H 2 through 2A</u>
							<u>\$676,268</u>
<b>11.1.3(a) Channel on 2A / 4B boundary (LIPS 1570)</b>							
	Earthworks			20300	m <sup>3</sup> @	\$8.00	\$162,400
	Pipe from Sandhurst Subdn. to Gravatt Rd			330	m @	\$1,120.00	\$369,600
	Landscaping			400	m @	\$57.00	\$22,800
							<u>\$554,800</u>
		Plus Contingencies			@	10%	\$55,480
		Plus Design and Supervision			@	12%	\$73,234
							<u>\$683,514</u>
<b>11.1.3(b) Channel parallel to S H 2 through 4B</b>							
	Earthworks	(LIPS 280286)		10700	m <sup>3</sup>	Actual cost	\$83,521
	525mm dia pipe	(LIPS 1571)		252	m @	\$307.00	\$77,364
	Landscaping	(LIPS 1571)		252	m @	\$80.00	\$20,160
							<u>\$97,524</u>
		Plus Contingencies			@	10%	\$9,752
		Plus Design and Supervision			@	12%	\$12,873
							<u>\$120,150</u>
							<u>Total Channel parallel to S H 2 through 4B</u>
							<u>\$203,671</u>
<b>11.1.4 Channel through 4A</b>							
	Earthworks	(LIPS 280287)		9500	m <sup>3</sup>	Actual cost	\$105,685
	525mm dia pipe	(LIPS 1572)		256	m @	\$307.00	\$78,592
	Landscaping	(LIPS 1572)		256	m @	\$57.00	\$14,592
							<u>\$93,184</u>
		Plus Contingencies			@	10%	\$9,318
		Plus Design and Supervision			@	12%	\$12,300
							<u>\$114,803</u>
							<u>Total channel through 4A</u>
							<u>\$220,488</u>

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	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>11.1.5(a) Channel within 7B</b>							
		Earthworks (LIPS 280288)		10500	m <sup>3</sup>	Actual cost	\$22,988
		Landscaping (LIPS 2144)		210	m	@ \$57.00	\$11,970
		Plus Contingencies				@ 10%	\$1,197
		Plus Design and Supervision				@ 12%	\$1,580
							\$14,747
				<b>Total Channel within 7B</b>			<b>\$37,735</b>
<b>11.1.5(b) Channel Parallel to S H 2 through 7B</b>							
		Earthworks (LIPS 280289)		2400	m <sup>3</sup>	Actual cost	\$32,053
		525mm dia pipe (LIPS 2145)		351	m	@ \$307.00	\$107,757
		Landscaping (LIPS 2145)		351	m	@ \$80.00	\$28,080
							\$135,837
		Plus Contingencies				@ 10%	\$13,584
		Plus Design and Supervision				@ 12%	\$17,930
							\$167,351
				<b>Total Channel parallel to S H 2 through 7B</b>			<b>\$199,404</b>
<b>11.1.6 Channel parallel to S H 2 through Stormwater Reserve (LIPS 1574)</b>							
		Earthworks		900	m <sup>3</sup>	\$8.00	\$5,900
		Landscaping		103	m	@ \$80.00	\$8,240
							\$14,140
		Plus Contingencies				@ 10%	\$824
		Plus Design and Supervision				@ 12%	\$1,088
							\$16,052
<b>11.1.7 Channel parallel to S H 2 through Lot 1 DPS 65969</b>							
		Earthworks (LIPS 280290)		13300	m <sup>3</sup>	Actual cost	\$105,422
		Landscaping (LIPS 2146)		293	m	@ \$80.00	\$23,440
							\$23,440
		Plus Contingencies				@ 10%	\$2,344
		Plus Design and Supervision				@ 12%	\$3,094
							\$28,878
				<b>Total Channel parallel to S H 2 through Lot 1 DPS 65969</b>			<b>\$134,300</b>
<b>11.1.8 Channel parallel to S H 2 through Lot 1 DPS 46979</b>							
		Earthworks (LIPS 280291)		2500	m <sup>3</sup>	Actual cost	\$45,190
		Landscaping (LIPS 2147)		338	m	@ \$80.00	\$27,040
							\$27,040
		Plus Contingencies				@ 10%	\$2,704
		Plus Design and Supervision				@ 12%	\$3,569
							\$33,313
				<b>Total Channel parallel to S H 2 through Lot 1 DPS 46979</b>			<b>\$78,503</b>
<b>11.1.9 Channel on 7D east boundary (to School)</b>							
		Earthworks – Construction (LIPS 280292)				Actual cost	\$173,876

Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>11.1.9 Channel on 7D east boundary (to School)</b>						
	Landscaping (LIPS 2148)		700	m @	\$57.00	\$39,900
						\$39,900
						\$3,990
						\$5,267
						\$49,157
		Total Channel on 7D east boundary (to School)				<u>\$223,033</u>
<b>Gloucester St Culverts (LIPS 1575)</b>						
			3	Qty @	\$51,650.00	\$154,950
						\$154,950
		Plus Contingencies		@	10%	\$15,495
		Plus Design and Supervision		@	12%	\$20,453
						<u>\$190,898</u>
	Upgrade/duplicate existing culvert under S H 2 to Mangatawa drain (LIPS 280115)				Actual cost	<u>\$332,434</u>
	Upgrade - deepen and widen existing channel to harbour (LIPS 280116) (Half share - other half from Mangatawa Drainage District)		1	Qty }		
	Landscaping/Planting		4440	m }	Actual cost	<u>\$124,183</u>
	Land Purchase (LIPS 280293)		5.5	ha	Actual cost	\$3,456,365
	Land Purchase (LIPS 1577)		5.7	ha @	\$700,000	\$3,990,000
	Survey and Negotiations			@	7.5%	\$299,250
						<u>\$7,745,615</u>
<b>Roading Associated (LIPS 1044)</b>						
	Maranui St		750	m @	\$423.00	<u>\$317,250</u>
		<b>Total Maranui Street S/W Catchment</b>				<u><b>\$12,235,673</b></u>
<b>11.2 Papamoa: Harrisons Cut Catchment</b>						
The development of Royal Palm Beach Estate covers a substantial portion of this catchment including Harrisons Cut. The development includes reshaping of the waterways and ponding/treatment areas above Papamoa Beach Rd.						
The channel from Papamoa Beach Rd to the beach requires upgrading and protection as well as planting to provide vegetative treatment to the stormwater discharged.						
<b>(LIPS 280117)</b>						
	Replace existing culvert		1	Qty	Actual cost	\$440,301
	Protection works downstream from Beach Rd		1	Qty	Actual cost	\$117,541
	Channel earthworks		100,000	m <sup>3</sup>	Actual cost	\$238,234
	Culvert behind Novelle Grove (675 dia)		270	m	Actual cost	\$79,911
						<u>\$875,987</u>
	Construct open drain - Regal Waters (LIPS 280118)		625	m	Actual cost	\$290,106
	Landscaping/Planting (LIPS 2168)		625	m	\$57.00	\$35,625
						<u>\$325,731</u>
	Upgrade Evans Rd. Culvert (2x1050) (LIPS 280119)		70	m	Completed	\$59,476
	Inlet / outlet structures etc (LIPS 280119)			L.S.	Completed	\$23,508

Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
						\$82,984
		Upgrade Hartford Rd. culvert (2x1.5 box) (LIPS 280120)	45	m	Actual cost	\$65,000
		Upgrade Domain Rd, culvert (2.5x1.2 box) (LIPS 280121)			Actual cost	\$256,711
		Land Purchase (LIPS 280122) (RPB)	14.40	ha	Actual cost	\$1,063,282
		Land Purchase (LIPS 280122) (Regal Waters)	5.50	ha	Actual cost	\$377,894
		Survey and Legal costs (LIPS 280122)			Actual cost	\$34,594
		Survey and Legal costs (LIPS 280122) Te Parawaitai			Actual cost	\$45,000
						<u>\$1,520,770</u>
<b>Roading Associated</b>						
		Papamoa Beach Rd/Harrisons Cut (LIPS 280123)	400	m	Actual cost	<u>\$71,624</u>
		Domain Rd (LIPS 992)	600	m	@ \$423.00	\$253,800
		Twin 1600 dia Culverts (LIPS 922)			Eng Est.	\$193,781
		Plus Engineering Design and Supervision				\$48,400
						<u>\$495,981</u>
		<b>Total Papamoa Harrisons Cut S/W Catchment</b>				<u><u><b>\$3,694,788</b></u></u>

**11.3 Grant Place Catchment**

Improvements are required to the Wairakei Stream from Opal Dr South to improve the storage capacity and flow characteristics.

These should be only partially SIF and Council-funded, as this drain benefits both the existing and the future development.

**11.3.1 Main Channel (Wairakei Stream) (LIPS 280124)**

This allows for the upgrading of the Wairakei Stream and the provision of a control gate at the inlet of Grant Place culvert.

		Grant Place control gate		Qty	Actual cost	\$89,465
		Main drain channel	1950	m	Actual cost	\$542,566
		Extend discharge point from the Commercial zone to the Wairakei stream. (750mm dia.)	400	m	Actual cost	\$161,417
		Landscaping/Planting	587	m	Actual cost	\$44,043
		Landscaping/Planting (LIPS 2166)	1363	M	\$80.00	\$109,040
						<u>\$946,531</u>
<b>Roading Associated</b>						
		Parton Rd Culvert (as for Domain Rd) (LIPS 280125)	1	Qty	Actual cost	\$171,589
		Opal Dr Culvert (LIPS 280126)	1	Qty	Actual cost	\$155,637
						<u>\$327,226</u>
		Land Purchase (LIPS 280127)	12.20	ha	Actual cost	\$453,140
		Survey and Negotiation			Actual cost	\$5,508
						<u>\$458,668</u>
		<b>Total for Main Channel</b>				<u><u><b>\$1,732,425</b></u></u>

Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>11.3.2</b>	<b>Johnson Estate - Tara Rd</b>					
Two side channels are required from the Wairakei Stream as far south as Doncaster Dr to service the area between Parkdale and Papamoa Sports Centre.						
The land outside of the Urban Growth Area between Doncaster Dr, Domain Rd and Tara Rd drains to the south into the Bells Rd District Drain.						
<b>11.3.2(a)</b>	<b>Western Channel 20 metres wide x 280m</b>					
	Earthworks (LIPS 280297)		5600	m <sup>3</sup>	@ Actual Cost	\$41,289
	Landscaping/Planting (LIPS 2035)		280	m	@ \$57.00	\$15,960
						<u>\$57,249</u>
		Plus Contingencies			@ 20%	\$3,192
		Plus Engineering Design and Supervision			@ 12%	\$2,298
						<u>\$62,739</u>
<b>11.3.2(b)</b>	<b>Eastern Channel (Alice Johnson Reserve Boundary) 20 metres wide x370m (LIPS 2037)</b>					
	Earthworks		7400	m <sup>2</sup>	@ Actual Cost	\$45,288
	Landscaping/Planting		370	m	@ \$57.00	\$21,090
						<u>\$66,378</u>
		Plus Contingencies			@ 20%	\$4,218
		Plus Engineering Design and Supervision			@ 12%	\$3,037
						<u>\$73,633</u>
	Land Purchase (LIPS 280246)		1.30	ha	Actual cost	<u>\$601,251</u>
	<b>Roading Associated</b>					
	Simpsons Rd (LIPS 280128)		1000	m	Actual cost	\$179,015
	Parton Rd (LIPS 1026)		1050	m	Eng. Est.	\$765,000
					Subtotal Roding	<u>\$944,015</u>
	<b>Total Johnson Estate -Tara Rd.</b>					<u><b>\$1,681,638</b></u>
	<b>Total Grant Place S/W Catchment</b>					<u><b>\$3,414,603</b></u>
<b>11.4</b>	<b>Papamoa: Marjorie Place Catchment</b>					
Allowance has been made to maximise the storage capacity of the Wairakei Stream and that part of the Wairakei development, on the southern side of the stream and within the Wairakei catchment, has allowed for large detention ponds to be constructed to ensure that the increased runoff from development is contained within that development and does not result in increased flow in the Wairakei Stream.						
Stormwater modelling work has confirmed that the development currently allowed for in the Papamoa and Wairakei structure plan areas does not require the construction of an outlet to the stream to either the ocean or the Kaituna River. What has also been confirmed is that prior to the start of any development of the Te Tumu area, an outlet will be required and this is currently proposed to be to the Kaituna River. A nominal amount has been allowed for in this section of the development contributions policy to provide for a contribution to the cost of this outfall from the Papamoa area. This estimate is not based on any design information.						
<b>11.4.1</b>	<b>Wairakei Stream channel (Parton Rd - Marjorie Lane) (LIPS 280268)</b>					
			2436	m	Actual cost	<u>\$792,487</u>
	Channel – Earthworks (LIPS 995)		1764	m	\$300.00	\$529,200
	Landscaping and Planting (LIPS 995)		3661	m	\$80.00	\$292,880
						<u>\$822,080</u>
		Plus Contingencies			@ 25%	\$205,520
		Plus Engineering Design and Supervision			@ 12%	\$123,312
						<u>\$1,150,912</u>

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	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
<b>11.4.1(a)</b>	Wairakei Stream re-alignment and Landscaping (LIPS 2014)			539	M		<u>\$300,000</u>
	Land Purchase (LIPS 280305)			46	ha	Actual cost	\$1,419,508
	Land Purchase (LIPS 2197)			17.00	ha		\$680,000
	Survey and Negotiation					@ 7.5%	\$51,000
							<u>\$2,150,508</u>
<b>11.4.2</b>	<b>Wairakei Stream – Eastern outlet to Kaituna River (LIPS 1177)</b>						
	Earthworks			150,000	m <sup>3</sup>	@ \$8.00	\$1,200,000
	Culverts, headwalls, non return gate					Estimate	\$350,000
							<u>\$1,550,000</u>
	Contingencies					@ 25%	\$387,500
	Plus Design and Supervision					@ 12%	\$232,500
							<u>\$2,170,000</u>
	Land Purchase (LIPS 1178)			7.75	ha	@ \$120,000	\$930,000
	Survey and Negotiation					@ 7.5%	\$69,750
							<u>\$999,750</u>
	<b>Roading Associated</b>						
	Papamoa Beach Rd/Motiti Rd (LIPS 280279)			710	m	Actual Cost	\$30,987
	Papamoa Beach Rd/Karewa Pde/Short (LIPS 280280)			1340	m	Actual Cost	\$600,553
	Papamoa Beach Rd/Marjorie Lane (LIPS 280281)			399	m	Actual Cost	\$189,383
						Subtotal Roding	<u>\$820,923</u>
<b>11.4.3</b>	<b>Parton Rd/Tara Rd</b>						
	Three hectares of land on this corner is zoned residential, and a 600mm dia pipe is required to dispose of stormwater from this land into the main drain. This pipe has been laid through the Gordon Spratt Reserve and the cost is shared on a proportion of the total catchment basis with the reserve. The cost is the actual cost and includes 7.4 % P&G.						
	Total cost = \$191200						
	Efford Block Share = 3.002 / 23.723 x \$191200 (LIPS 280129)					Actual cost	\$24,200
	<b>Total Parton Rd/Tara Rd</b>						<u>\$24,200</u>
	<b>Total Marjorie Place S/W Catchment</b>						<u><b>\$8,408,272</b></u>
<b>11.5</b>	<b>Future Business Area (Catchment No.34) (LIPS 280130)</b>						
	A stormwater channel 600 m long needs to be constructed to provide drainage for this area. The width varies from 25 to 30 m wide.						
	Earthworks			12000	m <sup>3</sup>	Actual cost	\$166,640
	Landscaping/Planting			600	m	Actual cost	\$30,000
							<u>\$196,640</u>
	Plus Contingencies					10%	\$3,000
							<u>\$199,640</u>
	Land Purchase			1.40	ha	Actual cost	\$348,118
	Survey and Negotiation					Actual cost	\$4,186
							<u>\$352,304</u>
	<b>Total for Catchment No. 34</b>						<u><b>\$551,944</b></u>
							<u><b>\$28,304,740</b></u>

## 12.0 Wairakei

	Diameter	Type	Comment	Distance	Unit	Unit Cost	Extension
12	WAIRAKEI		INFORMATION TO COME IN FUTURE YEARS				

### 13.0 Tauriko Business Estate

Design parameters are based on the discharge from the detention/ treatment ponds being 50 percent less than the pre-development discharge for a 2 percent AEP storm event.

The area comprises two catchments, one draining to the Wairoa River through an existing culvert below SH 29 near the Belk Rd intersection and the second, larger catchment discharging to the Kopurererua Stream. The structure plan is divided into four sub-catchments, which discharge to a total of seven ponds including pond G12A located on structure plan SP 13, Pyes Pa West.

Runoff is calculated assuming 100 percent site covered with impervious surface materials for the developable areas with the ponds and reticulation designed accordingly. Every lot will have a connection to the reticulation.

All the pond areas will be developed to an ecological functional state and landscaped. The landscaping costs make an allowance for grass cover, specimen trees, shrubs and wetland planting.

Where indicated on the structure plan, the walkways and cycleways located around the perimeter of a pond or in a floodway will double as maintenance access tracks, provide access for services corridors and provide public amenity.

The construction costs of the walkways/cycleways are included in the stormwater cost estimates. The land costs for purchasing access strips are included in the transportation costs estimates. Pond slopes are designed to be no steeper than 1:3 which is considered to be a safe and readily maintainable slope.

Internal reticulation will generally follow the road network and the allocation of SIFs is restricted to items that service the whole development or areas of disparate ownership.

Road related stormwater costs are included in the roading cost where appropriate.

Pond locations including floodways are shown on Structure Plan SP 14. (Note that the final area required will be determined in final design).

Valuations for the purchase of various land areas for detention ponds and floodways are based on valuations prepared by 3D Consultancy Registered Valuers.

#### **Stormwater Pond Contributions**

Tauranga City Council has reached a funding agreement with IMF New Zealand Limited regarding stormwater pond development contributions. (The Dataworks number for the funding agreement including drawing SK110 Rev 3 is 1226653) The agreement refers to the attached drawing titled "Pond Catchment Areas For Development Contributions" SK 110 Rev 3 dated 2 November 2006 and stormwater pond costs only. The principals of the agreement are as follows:

#### **Ponds G12A, A, B2, D1 and D2**

Ponds G12A, A, B2, D1 and D2 serve catchments that are exclusively owned by IMF.

Ponds G12A, A, B2, D1 and D2 will be constructed by IMF, or subsequent landowners within the catchments shown on the above mentioned drawing. Construction includes inlet and outlet structures and landscaping in consultation with TCC development Engineers and is subject to any Engineering Approval conditions.

No Development Contributions will be collected by TCC or reimbursement claimed by IMF or subsequent landowners within the catchments shown on the above mentioned drawing for these ponds. Stormwater SIFs for other stormwater infrastructure will still be payable.

Ponds will be vested in TCC by IMF or subsequent landowners as per the Development Contributions Policy and normal procedure.

IMF shall advise any potential purchasers of land owned by IMF (or subsidiaries etc) within the catchments of Ponds G12A, A, B2, D1 and D2 of landowner obligations to construct ponds and / or portions of ponds as per conditions above i.e. engineering approval, inlet, outlet, landscaping.

#### Ponds B1 and C

The catchments for ponds B1 and C include landowners other than IMF.

IMF will construct ponds B1 and C including inlet and outlet structures and landscaping, in consultation with TCC development engineers and subject to any engineering approval conditions.

The cost of construction and pond land is to be divided by the stormwater catchment area (divisor) for each pond, as per the TCC Development Contributions Policy. Resulting in pond B1 costs / Household Unit Equivalent and pond C1 costs / Household Unit Equivalent (HUE).

No development contributions will be collected from IMF for ponds B1 and C. Based on the attached drawing titled "Pond Catchment Areas For Development Contributions" SK 110 Rev 2 dated 31 November 2006. Development contributions will be charged to "land owned by others" shown on the drawing.

As the "land owned by others" pay costs / HUE and provided the relevant ponds have been constructed, IMF will be reimbursed at the costs/HUE rate in accordance with TCC Development Contributions Policy.

IMF will receive reimbursement only up to the dollar value of Development Contributions collected for each of Ponds B1 and C.

IMF shall advise any potential purchasers of land owned by IMF (or subsidiaries etc) within the catchments of Ponds B1 and C of landowner obligations to construct ponds and / or portions of ponds. Construction includes inlet and outlet structures and landscaping in consultation with TCC development engineers and will be subject to any engineering approval conditions.

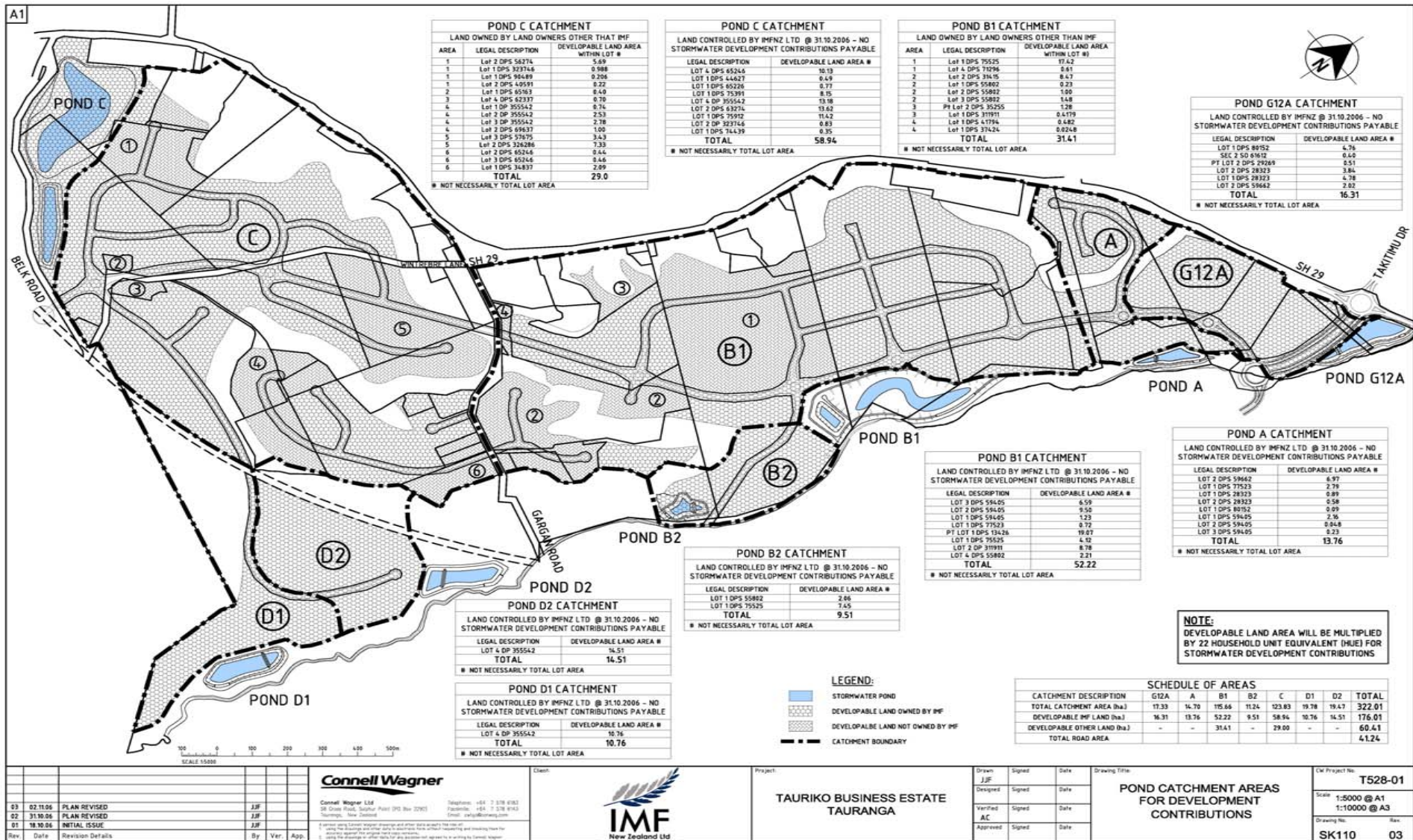
Values for ponds B1 and C are to be initially set by TCC in consultation with a registered valuer as per the land area categories, and areas shown in the attached section 13 calculations. Initial 2007/2008 Development Contributions will be based on these areas and values. Pond land values will be updated by a TCC engaged registered valuer annually, and incorporated into the TCC Development Contributions Policy.

#### **Application of Contributions**

All Household Unit Equivalents (HUE) will pay a Tauriko Stormwater SIF, based on the "Tauriko Stormwater SIF Items" summary.

In the Pond B1 and Pond C catchments owned by "other owners" as at 31 October 2006 on the attached drawing titled "Pond Catchment Areas For Development Contributions" SK 110 Rev 2 dated 31 October 2006. Household Unit Equivalents (HUE) will pay either a Pond B1 or Pond C share per HUE based on the "Items for Pond B1 and C Agreement" summary. PLUS a Tauriko Stormwater SIF, based on the "Tauriko Stormwater SIF Items" summary.

In the Pond G12A, A, B2, D1 and D2 catchments all HUEs will pay a Tauriko Stormwater SIF, based on the "Tauriko Stormwater SIF Items" summary.



	Diameter	Type	Comment	Quantity	Unit	Unit Cost	Extension
<b>13</b>	<b>TAURIKO BUSINESS ESTATE</b>						
<b>13.1</b>	<b>Pond B1</b>		<b>(LIPS 1458)</b>				
	Earthworks			130,000	m <sup>3</sup>	@ \$8.00	\$1,040,000
	Pipework		900mm dia.	130	m	@ \$685.00	\$89,050
	Manholes			3	No.	@ \$8,731.00	\$26,193
	Landscaping			28,400	m <sup>2</sup>	@ \$12.00	\$340,800
	Spillway			135	m	@ \$189.00	\$25,515
	Outlet Structure			3	No.	@ \$6,095.00	\$18,285
							<u>\$1,539,843</u>
			Contingencies			@ 12%	\$184,781
			Design and Supervision			@ 12%	\$206,955
			<b>TOTAL CONSTRUCTION COSTS</b>				<u><u>\$1,931,579</u></u>
	<b>Land Purchase</b>		<b>(LIPS 1458)</b>				
	Low lying non-developable			1.64	ha	@ \$40,000	\$65,600
	Low lying developable			2.83	ha	@ \$475,000	\$1,344,250
	Developable			3.49	ha	@ \$888,800	\$3,101,912
							<u>\$4,511,762</u>
			Survey and Negotiation			@ 7.5%	\$338,382
							<u>\$4,850,144</u>
			<b>TOTAL POND B1 COST</b>				<u><u>\$6,781,723</u></u>
	<b>Reticulation</b>						
	<b>Spine Rd North of Gargan Rd to Pond B1 (LIPS 1600)</b>						
	450mm dia		Type 3 conditions	160	m	@ \$278.00	\$44,480
	600mm dia		Type 3 conditions	80	m	@ \$371.00	\$29,680
	675mm dia		Type 3 conditions	230	m	@ \$421.00	\$96,830
	900mm dia		Type 3 conditions	80	m	@ \$685.00	\$54,800
	1200mm dia		Type 3 conditions	160	m	@ \$1,035.00	\$165,600
	1350mm dia		Type 3 conditions	160	m	@ \$1,248.00	\$199,680
	1500mm dia		Type 3 conditions	210	m	@ \$1,495.00	\$313,950
	1650mm dia		Type 3 conditions	100	m	@ \$1,646.00	\$164,600
							<u>\$1,069,620</u>
			Contingencies			@ 12%	\$128,354
			Design and Supervision			@ 12%	\$143,757
			<b>TOTAL CONSTRUCTION COSTS</b>				<u><u>\$1,341,731</u></u>
	<b>Gargan Plateau to Spine Rd and Pond B1 (LIPS 1602)</b>						
	Costs identified for possible future urbanisation of Gargan Plateau to ensure future infrastructure options are covered						
	900mm dia		Type 3 conditions (With Antiscour Blocks)	200	m	@ \$685.00	\$137,400
							<u>0</u>
							\$137,400
			Contingencies			@ 12%	\$16,440
			Design and Supervision			@ 12%	\$18,413
			<b>TOTAL CONSTRUCTION COSTS</b>				<u><u>\$171,853</u></u>

	Diameter	Type	Comment	Quantity	Unit	Unit Cost	Extension	
<b>13.2</b>	<b>Pond C (LIPS 1607)</b>							
		Earthworks		130,000	m <sup>3</sup>	@ \$8.00	\$1,040,000	
		Pipework	1800mm dia.	55	m	@ \$2,060.00	\$113,300	
		Manholes		3	No.	@ \$8,731.00	\$26,193	
		Landscaping		46,800	m <sup>2</sup>	@ \$12.00	\$561,600	
		Spillway		150	m	@ \$189.00	\$28,350	
		Outlet Structure		3	No.	@ \$6,095.00	\$18,285	
							<u>\$1,787,728</u>	
		Contingencies				@ 12%	\$214,527	
		Design and Supervision				@ 12%	\$240,271	
		<b>TOTAL CONSTRUCTION COSTS</b>					<u><b>\$2,242,526</b></u>	
		<i>Note: No allowance has been made to relocate the gas main. This is not a SIF item</i>						
	<b>Land Purchase (LIPS 1607)</b>							
		Low lying Developable Land		8.15	Ha	@ \$95,000.00	\$774,250	
		Developable Land		5.11	Ha	@ \$200,000.0	\$1,022,000	
							<u>\$1,796,250</u>	
		Survey and Negotiation				@ 7.5%	\$134,719	
		<b>TOTAL LAND COSTS</b>					<u><b>\$1,930,969</b></u>	
		<i>Note: The \$95,000/ha and \$200,000/ha rate are based on buying land today on the basis that adjacent land will be developable in expected timeframes (i.e. year 2016 to 2021)</i>						
		<i>No change in the Pond C area has been made to accommodate the Belk Rd re-alignment as part of the Belk Rd/S H 29 intersection improvements. Additional land that is currently outside the Structure Plan area will be used to balance any Pond C land taken by the Belk Rd re-alignment</i>						
		<b>TOTAL POND C COST</b>					<u><b>\$4,173,495</b></u>	
	<b>Reticulation</b>							
	<b>Gargan Road to Spine Road and Pond C1 (LIPS 1603)</b>							
		Costs identified for possible future urbanisation of Gargan Plateau to ensure future infrastructure options are covered						
		1050mm dia	Type 1 conditions	450	m	@ \$1,035.00	\$465,750	
							<u>\$465,750</u>	
		Contingencies				@ 12%	\$55,890	
		Design and Supervision				@ 12%	\$62,597	
		<b>TOTAL CONSTRUCTION COSTS</b>					<u><b>\$584,237</b></u>	
	<b>Spine Road from Gargan Road to Pond C (LIPS 1605)</b>							
		1050mm dia	Type 3 conditions	480	m	@ \$858.00	\$411,840	
		1200mm dia	Type 3 conditions	240	m	@ \$1,035.00	\$248,400	
		1500mm dia	Type 3 conditions	230	m	@ \$1,495.00	\$343,850	
		1650mm dia	Type 3 conditions	240	m	@ \$1,646.00	\$395,040	
		2400mm dia	Type 3 conditions	112	m	@ \$4,638.00	\$519,456	
							<u>\$1,918,586</u>	
		Contingencies				@ 12%	\$230,230	
		Design and Supervision				@ 12%	\$257,858	
		<b>TOTAL CONSTRUCTION COSTS</b>					<u><b>\$2,406,674</b></u>	
<b>13.3</b>	<b>Reticulation to Pond B2 (LIPS 1609)</b>							
		900mm dia	Type 3 conditions	160	m	@ \$685.00	\$109,600	
							<u>\$109,600</u>	
		Contingencies				@ 12%	\$13,152	
		Design and Supervision				@ 12%	\$14,730	
		<b>TOTAL CONSTRUCTION COST</b>					<u><b>\$137,482</b></u>	

	Diameter	Type	Comment	Quantity	Unit	Unit Cost	Extension
<b>13.4</b>	<b>Reticulation to Pond D2 (LIPS 1682)</b>						
	1650mm dia		Type 3 conditions	100 m	@	\$1,646.00	\$164,600
							<u>\$164,600</u>
			Contingencies		@	12%	\$19,752
			Design and Supervision		@	12%	\$22,122
			<b>TOTAL CONSTRUCTION COST</b>				<u><u>\$206,474</u></u>
<b>13.5</b>	<b>Stormwater Bypass Channel at Pond C (LIPS 1683)</b>						
			Channel to discharge stormwater from pre-development catchment	900 m	@	\$31.00	\$27,900
							<u>\$27,900</u>
			Contingencies		@	12%	\$3,348
			Design and Supervision		@	12%	\$3,750
			<b>TOTAL CONSTRUCTION COST</b>				<u><u>\$34,998</u></u>
<b>13.6</b>	<b>Floodway Catchment A (LIPS 1001)</b>						
			1.5km x 10m average width				
			Construction (clearing and formation) & Landscaping	2500 m	@	Actual cost	21,717
			Construction (clearing and formation) & Landscaping	12500 m <sup>2</sup>		\$3.50	\$43,750
			Landscaping	5000 m <sup>3</sup>	@	\$12.00	\$60,000
			Land Purchase	0.247 ha	@	Actual cost	\$8,080
			Land Purchase	1.250 ha	@	\$40,000	\$50,000
			<b>Total for Floodway A</b>				<u><u>\$183,547</u></u>
<b>13.7</b>	<b>Floodway F2 - Associated with Pond G12A located in SP13 (LIPS 1001)</b>						
			Construction (clearing and formation)			Actual cost	\$15,806
			Land Purchase	0.4 ha		Actual cost	\$16,920
			<b>Total for Floodway F2</b>				<u><u>\$32,726</u></u>
<b>13.8</b>	<b>Floodway Catchment B (LIPS 1611)</b>						
			1100m x 30m average width				
			Construction (clearing and formation)	22000 m <sup>2</sup>	@	\$3.50	\$77,000
			Landscaping	7600 m <sup>3</sup>	@	\$12.00	\$91,200
							<u>\$168,200</u>
			Contingencies		@	20%	\$33,640
			Engineering Design and Supervision		@	12%	\$24,221
							<u>\$226,061</u>
			Land purchase	2.22 ha	@	\$40,000	\$88,800
			<b>Total for Floodway B</b>				<u><u>\$314,861</u></u>
<b>13.9</b>	<b>Floodway Catchment D (LIPS 1613)</b>						
			1000m x 30m average width				
			Construction (clearing and formation)	45800 m <sup>2</sup>	@	\$3.50	\$160,300
			Landscaping	15600 m <sup>2</sup>	@	\$12.00	\$187,200
							<u>\$347,500</u>
			Contingencies		@	20%	\$69,500
			Engineering Design and Supervision		@	12%	\$50,040
							<u>\$467,040</u>
			Land purchase	4.58 ha	@	\$40,000	\$183,200
			<b>Total for Floodway D</b>				<u><u>\$650,240</u></u>
<b>13.10</b>	<b>Walkways / Cyclepaths (also serves as pond maintenance access corridor)</b>						
	<b>Metal Walkway/Cycleway (also serves as pond maintenance access)</b>						
	Construct 2.5m wide path, 150mm thick metal walkway with treated timber edging						
	(a)		From pond G12A to Kennedy Rd extn (LIPS 1001)	400 m		Actual cost	\$10,281

Diameter	Type	Comment	Quantity	Unit	Unit Cost	Extension
(a)		From pond G12A to Kennedy Rd extn (LIPS 1001)	1560	m	@ \$60.00	\$93,600
(b)		From Access C around pond C (LIPS 1616)	1690	m	@ \$60.00	\$101,400
(c)		From Access D to Kennedy Rd extension (LIPS 1616)	940	m	@ \$60.00	\$56,400
<b>Concrete Walkway/Cyclepath</b>						
Construct 2.5m wide 100mm thick concrete path on subgrade						
(a)		Access A (LIPS 1001)	50	m	Actual cost	\$6,000
(b)		Access D (LIPS 1616)	60	m	@ \$120.00	\$7,200
(c)		Access C - cost in sewer pump station access 15.6				
<b>Total walkway cyclepath construction</b>						<b>\$274,881</b>
Note: Fencing costs to access ways are developer's cost						
<b>TOTAL FOR TAURIKO</b>					<b>TOTAL</b>	<b>\$17,294,922</b>

STORMWATER DEVELOPMENT IMPACT FEES - LOCAL INFRASTRUCTURE (SIF)								
LIPS ID	PROJECT	TOTAL PROJECT COST	SIF FOR GROWTH AREA (% of total project cost)	RATES IMPACT (% of total project cost)	SIF OTHER AREA(S) OR BIF	SUBDIVISION IMPACT FEE (Local Services)		
						COST	HUEs	COST PER UNIT
	<b>BETHLEHEM</b>							
	<i>Bethlehem Triangle</i>							
280102	Ponds A1 & A2	\$171,726	100	0		\$171,726	2850	\$60.25
280272	Pond A3	\$186,351	100	0		\$186,351	2850	\$65.39
280103	Pond A4	\$55,736	100	0		\$55,736	2850	\$19.56
280104	Pond A5	\$223,857	100	0		\$223,857	2850	\$78.55
280105	Pond A6	\$132,310	100	0		\$132,310	2850	\$46.42
280106	Pond A7	\$276,385	100	0		\$276,385	2850	\$96.98
280107	Pond B1	\$401,455	100	0		\$401,455	2850	\$140.86
	<b>Roading Associated:</b>							
280108	Moffat Rd	\$286,460	54	46		\$154,688	2850	\$54.28
280110	South Cambridge	\$433,200	36	64		\$155,952	2850	\$54.72
280109	Cambridge	\$581,450	28	72		\$162,806	2850	\$57.12
1360	Beaumaris Blvd	\$500,000	100	0		\$500,000	2850	\$175.44
		<b>\$3,248,932</b>						
	<b>NE Bethlehem</b>							
280238	Pond C	\$504,836	93.71	0	6.29	\$473,082	2850	\$165.99
280239	Pond D	\$319,470	100	0		\$319,470	2850	\$112.09
280240	Pond D – Roding Associated	\$150,197	100	0		\$150,197	2850	\$52.70
1573	Pond E – Construction & Landscaping	\$91,485	100	0		\$91,485	2850	\$32.10
280222	Pond E – Land Purchase	\$71,100	100	0		\$71,100	2850	\$24.95
1578	Pond E - Reticulation	\$479,108	100	0		\$479,108	2850	\$168.11
280271	Pond E – Roding Associated	\$86,426	100	0		\$86,426	2850	\$30.32
2127	Pond E - Roding Associated	\$96,250	100	0		\$96,250	2850	\$33.77
981	Pond F	\$118,662	100	0		\$118,662	2850	\$41.64
1580	Pond F – Reticulation	\$339,669	100	0		\$339,669	2850	\$119.18
1581	Pond G	\$112,733	100	0		\$112,733	2850	\$39.56
1582	Pond G - Reticulation	\$289,717	100	0		\$298,717	2850	\$101.66
280241	Pond H	\$169,218	80	0	20	\$135,374	2850	\$47.50
280269	Pond H – Roding Associated	\$193,938	100	0		\$193,938	2850	\$68.05

STORMWATER DEVELOPMENT IMPACT FEES - LOCAL INFRASTRUCTURE (SIF)								
LIPS ID	PROJECT	TOTAL PROJECT COST	SIF FOR GROWTH AREA (% of total project cost)	RATES IMPACT (% of total project cost)	SIF OTHER AREA(S) OR BIF	SUBDIVISION IMPACT FEE (Local Services)		
						COST	HUEs	COST PER UNIT
280242	Carmichael Ponds Development	\$2,184,733	66.5	30	3.5	\$1,452,847	2850	\$509.77
		<b>\$5,207,542</b>						
	<i>Cost of Inflation</i>	\$102,287	100	0		\$102,287	2850	\$35.89
	<i>Cost of Capital</i>	\$823,337	100	0		\$823,337	2850	\$288.89
	<b>TOTAL BETHLEHEM SIF</b>	<b>\$9,382,097</b>				<b>\$7,756,950</b>		<b>\$2,721.74</b>
	<b>PYES PA</b>							
280131	Pond 1	\$53,926	100	0		\$53,926	1838	\$29.34
280132	Pond 2	\$93,357	100	0		\$93,357	1838	\$50.79
280133	Pond 3	\$580,653	100	0		\$580,653	1838	\$315.92
280134	Pond 4	\$171,287	100	0		\$171,287	1838	\$93.19
	<i>Roading Associated:</i>							
280267	Pyes Pa/Cheyne Rd	\$344,630	36	64		\$124,067	1838	\$67.50
280136	Pyes Pa Road	\$777,138	36	64		\$279,770	1838	\$152.21
280135	Cheyne Rd	\$524,290	94	6		\$492,833	1838	\$268.14
	<i>Cost of Inflation</i>	\$0	100	0		\$0	1838	\$0.00
	<i>Cost of Capital</i>	\$164,152	100	0		\$164,152	1838	\$89.31
	<b>TOTAL PYES PA SIF</b>	<b>\$2,709,433</b>				<b>\$1,960,044</b>		<b>\$1,066.40</b>
	<b>OHAUITI</b>							
280111	McFetridge Lane Pond	\$156,015	100	0		\$156,015	1296	\$120.38
280112	McFetridge Lane Pond - Roading Associated	\$210,258	29	71		\$60,975	1296	\$47.05
280113	Hollister Lane	\$323,640	100	0		\$323,640	1296	\$249.72
280114	Hollister Lane Pond - Roading Associated	\$143,900	100	0		\$143,900	1296	\$111.03
	<i>Cost of Inflation</i>	\$0	100	0		\$0	1296	\$0.00
	<i>Cost of Capital</i>	\$119,686	100	0		\$119,686	1296	\$92.35
	<b>TOTAL OHAUITI SIF</b>	<b>\$953,499</b>				<b>\$804,215</b>		<b>\$620.54</b>
	<b>WELCOME BAY</b>							
280137	Pond W2	\$115,511	100	0		\$115,511	1260	\$91.68
280138	Pond W3	\$201,615	100	0		\$201,615	1260	\$160.01
280139	Pond W3 – Roading Associated	\$8,028	95	5		\$7,627	1260	\$6.05
280140	Pond W4 - Waitaha Road South	\$205,838	100	0		\$205,838	1260	\$163.36
280141	Pond W5 - Waitaha Road North	\$231,365	100	0		\$231,365	1260	\$183.62
1175	Pond W5 - Additional Roading Associated	\$219,960	95	5		\$208,962	1260	\$165.84
280223	Pond W6 - Welcome Bay: Waioraki Stream	\$42,213	100	0		\$42,213	1260	\$33.50
280265	Pond W6 - Channel improvements	\$30,000	100	0		\$30,000	1260	\$23.81
	Pond W6 - Waikite Rd - Roading Associated	\$209,340	91	9		\$190,499	1260	\$151.19
280224	<i>Cost of Inflation</i>	\$56,146	100	0		\$56,146	1260	\$44.56
	<i>Cost of Capital</i>	(\$54,256)	100	0		(\$54,256)	1260	(\$43.06)
	<b>TOTAL WELCOME BAY SIF</b>	<b>\$1,265,760</b>				<b>\$1,235,520</b>		<b>\$980.57</b>

STORMWATER DEVELOPMENT IMPACT FEES - LOCAL INFRASTRUCTURE (SIF)								
LIPS ID	PROJECT	TOTAL PROJECT COST	SIF FOR GROWTH AREA (% of total project cost)	RATES IMPACT (% of total project cost)	SIF OTHER AREA(S) OR BIF	SUBDIVISION IMPACT FEE (Local Services)		
						COST	HUEs	COST PER UNIT
	<b>PAPAMOA</b>							
	<b>Maranui Street Catchment</b>							
1561	Channel through Mangatawa Block	\$775,099	100	0		\$775,099	8050	\$96.29
280284	Channel parallel to SH2	\$186,453	100	0		\$186,453	8050	\$23.16
1562	Channel parallel to SH2	\$90,774	100	0		\$90,774	8050	\$11.28
280285	Channel parallel to SH2 through 2A	\$139,259	100	0		\$139,259	8050	\$17.30
1567	Channel parallel to SH2 through 2A	\$537,009	100	0		\$537,009	8050	\$66.71
1570	Channel on 2A/4B boundary	\$683,514	100	0		\$683,514	8050	\$84.91
280286	Channel parallel to SH2 through 4B	\$83,521	100	0		\$83,521	8050	\$10.38
1571	Channel parallel to SH2 through 4B	\$120,150	100	0		\$120,150	8050	\$14.93
280287	Channel through 4A	\$105,685	100	0		\$105,685	8050	\$13.13
1572	Channel through 4A	\$114,803	100	0		\$114,803	8050	\$14.26
280288	Channel with 7B	\$22,988	100	0		\$22,988	8050	\$2.86
2144	Channel with 7B	\$14,747	100	0		\$14,747	8050	\$1.83
280289	Channel parallel to SH2 through 7B	\$32,053	100	0		\$32,053	8050	\$3.98
2145	Channel parallel to SH2 through 7B	\$167,351	100	0		\$167,351	8050	\$20.79
1574	Channel parallel to SH2 through stormwater reserve	\$16,052	100	0		\$16,052	8050	\$1.99
280290	Channel parallel to SH2 through Lot1 DPS 65969	\$105,422	100	0		\$105,422	8050	\$13.10
2146	Channel parallel to SH2 through Lot1 DPS 65969	\$28,878	100	0		\$28,878	8050	\$3.59
280291	Channel parallel to SH2 through Lot1 DPS 46979	\$45,190	100	0		\$45,190	8050	\$5.61
2147	Channel parallel to SH2 through Lot1 DPS 46979	\$33,313	100	0		\$33,313	8050	\$4.14
280292	Channel on 7D east boundary (to school)	\$173,876	100	0		\$173,876	8050	\$21.60
2148	Channel on 7D east boundary (to school)	\$49,157	100	0		\$49,157	8050	\$6.11
1575	Gloucester Street Culverts	\$190,898	100	0		\$190,898	8050	\$23.71
280115	Upgrade/duplicate existing culvert under SH2	\$332,434	100	0		\$332,434	8050	\$41.30
280116	Upgrade/deepen & widen existing channel	\$124,183	100	0		\$124,183	8050	\$15.43
1577	Land Purchase	\$4,289,250	100	0		\$4,289,250	8050	\$532.83
280293	Land Purchase	\$3,456,365	100	0		\$3,456,365	8050	\$429.31
1044	Roading Associated	\$317,250	67	33		\$212,558	8050	\$26.40
		<b>\$12,235,673</b>						
	<b>Harrison Cut Catchment</b>							
280117	Channel & Culverts	\$875,987	59	41		\$516,832	8050	\$64.20
280118	Construct open drain - Regal Waters	\$325,731	59	41		\$192,181	8050	\$23.87
280119	Upgrade Evans Rd culvert	\$82,984	59	41		\$48,961	8050	\$6.08
280120	Upgrade Hartford Rd culvert	\$65,000	59	41		\$38,350	8050	\$4.76
280121	Upgrade Domain Rd culvert	\$256,711	59	41		\$151,459	8050	\$18.81
280122	Land Purchase	\$1,520,770	100	0		\$1,520,770	8050	\$188.92
280123	Papamoa Beach Rd - Rooding Assoc	\$71,624	67	33		\$47,988	8050	\$5.96

STORMWATER DEVELOPMENT IMPACT FEES - LOCAL INFRASTRUCTURE (SIF)								
LIPS ID	PROJECT	TOTAL PROJECT COST	SIF FOR GROWTH AREA (% of total project cost)	RATES IMPACT (% of total project cost)	SIF OTHER AREA(S) OR BIF	SUBDIVISION IMPACT FEE (Local Services)		
						COST	HUEs	COST PER UNIT
992	Domain Rd - Rooding Associated	\$495,981	67	33		\$332,307	8050	\$41.28
		<b>\$3,694,788</b>						
	<b>Grant Place Catchment</b>							
280124	Main Channel – Wairakei Stream	\$946,531	80.26	0	19.74	\$759,686	8050	\$94.37
280125	Main Channel - Parton Rd Culvert	\$171,589	84	16	0	\$144,135	8050	\$17.90
280126	Main Channel - Opal Dr Culvert	\$155,637	84	16	0	\$130,735	8050	\$16.24
280127	Main Channel - Land Purchase	\$458,668	80.26	0	19.74	\$368,127	8050	\$45.73
2035	Johnson Estate - Western Channel	\$62,739	80.26	0	19.74	\$50,355	8050	\$6.26
2037	Johnson Estate - Eastern Channel	\$73,633	80.26	0	19.74	\$59,098	8050	\$7.34
280246	Johnson Estate - Land Purchase	\$601,251	80.26	0	19.74	\$482,564	8050	\$59.95
280128	Johnson Estate - Rooding Associated	\$179,015	84	16	0	\$150,373	8050	\$18.68
1026	Parton Rd - Rooding Associated	\$765,000	84	16	0	\$642,600	8050	\$79.83
280129	Parton Rd/Tara Rd Land Purchase	\$24,200	80.26	0	19.74	\$19,423	8050	\$2.41
		<b>\$3,438,263</b>						
	<b>Marjorie Place Catchment</b>							
280268	Wairakei Stream - Channel	\$792,487	80.26		19.74	\$636,050	8050	\$79.01
995	Wairakei Stream - Earthworks & Landscaping	\$1,150,912	80.26	0	19.74	\$923,722	8050	\$114.75
2014	Wairakei Stream realignment & Landscaping	\$300,000	80.26	0	19.74	\$240,780	8050	\$29.91
280305 2197	Wairakei Stream - Land Purchase	\$2,150,508	80.26	0	19.74	\$1,725,998	8050	\$214.36
1177	Wairakei Stream Res - Eastern outlet	\$2,170,000	80.26	0	19.74	\$1,741,642	8050	\$216.35
1178	Eastern Outlet - Land Purchase	\$999,750	40	0	60.00	\$399,900	8050	\$49.68
280279 281	Papamoa Beach Rd - Rooding Associated	\$820,923	67	33	0.00	\$550,018	8050	\$68.33
		<b>\$8,384,580</b>						
280130	Future Business Area	\$551,944	80.26	0	19.74	\$442,990	8050	\$55.03
	<b>Cost of Inflation</b>	\$1,944,880	100	0	0.00	\$1,944,880		\$241.60
	<b>Cost of Capital</b>	(\$1,017,440)	100	0		(\$1,017,440)	8050	(\$126.39)
	<b>TOTAL PAPAMOA SIF</b>	<b>\$29,232,181</b>				<b>\$25,375,057</b>		<b>\$3,152.18</b>
	<b>PYES PA WEST</b>							
1531	Pond 1	\$289,901	100	0		\$289,901	3007	\$96.41
1923	Pond 1 - Land	\$19,800	100	0		\$19,800	3007	\$6.58
1675	Pond 1 South Collector - Rooding Associated	\$146,300	37	63		\$54,131	3007	\$18.00
1532	Pond 2	\$227,405	100	0		\$227,405	3007	\$75.63
1951	Pond 2 - Land	\$45,000	100	0		\$45,000	3007	\$14.97
1533	Pond 3	\$229,824	100	0		\$229,824	3007	\$76.43
1952	Pond 3 - Land	\$45,000	100	0		\$45,000	3007	\$14.97
1536	Pond 3 Pyes Pa & Kennedy Rd - Rooding Associated	\$185,460	100	0		\$185,460	3007	\$61.68
1538	Pond 5	\$173,376	100	0		\$173,376	3007	\$57.66

STORMWATER DEVELOPMENT IMPACT FEES - LOCAL INFRASTRUCTURE (SIF)								
LIPS ID	PROJECT	TOTAL PROJECT COST	SIF FOR GROWTH AREA (% of total project cost)	RATES IMPACT (% of total project cost)	SIF OTHER AREA(S) OR BIF	SUBDIVISION IMPACT FEE (Local Services)		
						COST	HUEs	COST PER UNIT
1954	Pond 5 - Land	\$28,000	100	0		\$28,000	3007	\$9.31
1540	Pond 6	\$172,166	100	0		\$172,166	3007	\$57.26
2066	Pond 6 - Land	\$28,000	100	0		\$28,000	3007	\$9.31
1542	Pond 7	\$370,944	100	0		\$370,944	3007	\$123.36
2065	Pond 7 - Land	\$63,000	100	0		\$63,000	3007	\$20.95
1545	Pond 11	\$100,800	100	0		\$100,800	3007	\$33.52
1950	Pond 11 - Land	\$20,000	100	0		\$20,000	3007	\$6.65
1549	Pond 11a	\$183,053	100	0		\$183,053	3007	\$60.88
1953	Pond 11a - Land	\$28,000	100	0		\$28,000	3007	\$9.31
1551	Pond 11a Hastings Rd - Roading Associated	\$141,950	100	0		\$141,950	3007	\$47.21
280243	Pond 12	\$708,837	100	0		\$708,837	3007	\$235.73
280244	Pond 12 North Collector - Roading Associated	\$26,640	37	63		\$9,857	3007	\$3.28
280245	Pond 12b	\$217,766	100	0		\$217,766	3007	\$72.42
1554	Ponds 13-16	\$4,134,000	100	0		\$4,134,000	3007	\$1,374.79
1962	Ponds 13-16 - Land	\$240,000	100	0		\$240,000	3007	\$79.81
1656	Ponds 13-16 Kennedy Rd extn - Roading Associated	\$1,200,744	37	63		\$444,275	3007	\$147.75
1555	Pond 17	\$1,290,240	100	0		\$1,290,240	3007	\$429.08
1956	Pond 17 - Land	\$18,000	100	0		\$18,000	3007	\$5.99
1676	Pond 19 South Collector - Roading Associated	\$304,560	37	63		\$112,687	3007	\$37.47
1563	Pond 21	\$145,152	100	0		\$145,152	3007	\$48.27
1961	Pond 21 - Land	\$24,000	100	0		\$24,000	3007	\$7.98
1564	Pond 25	\$213,696	100	0		\$213,696	3007	\$71.07
1964	Pond 25 - Land	\$32,000	100	0		\$32,000	3007	\$10.64
1565	Pond 25 Kennedy Rd - Roading Associated	\$263,070	100	0		\$263,070	3007	\$87.49
1566	Floodway F1	\$764,467	100	0		\$764,467	3007	\$254.23
1966	Floodway F1 - Land	\$239,400	100	0		\$239,400	3007	\$79.61
1568	Floodway F3	\$212,890	100	0		\$212,890	3007	\$70.80
1968	Floodway F3 - Land	\$49,500	100	0		\$49,500	3007	\$16.46
1569	Floodway F4	\$193,536	100	0		\$193,536	3007	\$64.36
1965	Floodway F4 - Land	\$45,000	100	0		\$45,000	3007	\$14.97
1646	Dam 21	\$471,744	100	0		\$471,744	3007	\$156.88
2125	Dam 21 - Land	\$60,000	100	0		\$60,000	3007	\$19.95
2218	Pond 16	\$628,992	100	0		\$628,992	3007	\$209.18
	<b>Cost of Inflation</b>	\$2,332,740	100	0		\$2,332,740	3007	\$775.77
	<b>Cost of Capital</b>	\$300,249	100	0		\$300,249	3007	\$99.85
	<b>TOTAL PYES PA WEST SIF</b>	<b>\$16,615,202</b>				<b>\$15,557,908</b>		<b>\$5,173.90</b>
	<b>WEST BETHLEHEM</b>							
280255	Reticulation Block A	\$557,844	100	0		\$557,844	442	\$1,262.09
1659	Reticulation Block B	\$408,324	100	0		\$408,324	442	\$923.81
280298	Reticulation Block C	\$168,153	100	0		\$168,153	442	\$380.44
	<b>Roading Associated</b>							
1583	Bethlehem Rd from Carmichael North	\$92,810	100	0		\$92,810	442	\$209.98

Schedule 1 - Part 4 – Local Infrastructure - Stormwater

STORMWATER DEVELOPMENT IMPACT FEES - LOCAL INFRASTRUCTURE (SIF)								
LIPS ID	PROJECT	TOTAL PROJECT COST	SIF FOR GROWTH AREA (% of total project cost)	RATES IMPACT (% of total project cost)	SIF OTHER AREA(S) OR BIF	SUBDIVISION IMPACT FEE (Local Services)		
						COST	HUEs	COST PER UNIT
280282	Carmichael Road - Eastern End	\$165,077	100	0		\$165,077	442	\$373.48
1661	Carmichael Road - Eastern End	\$107,800	100	0		\$107,800	442	\$243.89
280283	Parau Farms Reticulation	\$31,086	100	0		\$31,086	442	\$70.33
1662	Parau Pond Farms	\$173,810	100	0		\$173,810	442	\$393.24
	<b>Downstream Infrastructure</b>							
280238	Pond C (1050mm pipe only)	\$504,836	6.29	0	93.71	\$31,754	442	\$71.84
280241	Pond H	\$169,218	20	0	80	\$33,844	442	\$76.57
280242	Carmichael Farm Ponding Area	\$2,184,733	3.5	30	66.5	\$76,466	442	\$173.00
	<b>Cost of Inflation</b>	\$43,440	100	0	0.00	\$43,440	442	\$98.28
	<b>Cost of Capital</b>	\$1,249,645	100	0	0.00	\$1,249,645	442	\$2,827.25
	<b>Subtotal</b>	<b>\$5,856,778</b>				<b>\$3,140,055</b>		<b>\$7,104.20</b>
	<b>Less reduction adopted by Council</b>							<b>(\$2558.29)</b>
	<b>TOTAL WEST BETHLEHEM SIF</b>							<b>\$4,545.91</b>
	<b>TAURIKO BUSINESS ESTATE</b>		<b>I</b>					
	<b>Items for Pond B1 and C Agreement</b>							
1458	Pond B1*	\$6,781,723	100	0		\$6,781,723	1840	\$3,685.72
	<b>Cost of Inflation</b>	\$0	100	0		\$0	1840	\$0.00
		<b>\$6,781,723</b>				<b>\$6,781,723</b>		<b>\$3,685.72</b>
1607	Pond C*	\$4,173,495	100	0		\$4,173,495	1935	\$2,156.84
	<b>Cost of Inflation</b>	\$805,444	100	0		\$805,444	1935	\$416.25
		<b>\$4,978,939</b>				<b>\$4,978,939</b>		<b>\$2,573.09</b>
	<b>Tauriko Stormwater SIF Items</b>							
1600	Spine Road North of Gargan Rd to Pond B1	\$1,341,731	100	0		\$1,341,731	5203	\$257.88
1602	Gargan Plateau to Spine Rd and Pond B1	\$171,853	100	0		\$171,853	5203	\$33.03
1603	Gargan Rd to Spine Rd and Pond C1	\$584,237	100	0		\$584,237	5203	\$112.29
1605	Reticulation Pond C	\$2,406,674	100	0		\$2,406,674	5203	\$462.56
1609	Reticulation Pond B2	\$137,482	100	0		\$137,482	5203	\$26.42
1682	Reticulation Pond D2	\$206,474	100	0		\$206,474	5203	\$39.68
1683	Stormwater bypass channel at Pond C	\$34,998	100	0		\$34,998	5203	\$6.73
1001	Floodway Catchment A	\$183,547	100	0		\$183,547	5203	\$35.28
1001	Floodway F2	\$32,726	100	0		\$32,726	5203	\$6.29
1611	Floodway Catchment B	\$314,861	100	0		\$314,861	5203	\$60.52
1613	Floodway Catchment D	\$650,240	100	0		\$650,240	5203	\$124.97
	<b>Walkway/Cyclepaths</b>							
1001	From Pond G12A Kenedy Rd Extn	\$103,881	100	0		\$103,881	5203	\$19.97
1616	From Access C/from Access D	\$165,000	100	0		\$165,000	5203	\$31.71

STORMWATER DEVELOPMENT IMPACT FEES - LOCAL INFRASTRUCTURE (SIF)								
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						COST	HUEs	COST PER UNIT
1001	Concrete walkway/cyclepath - Access A,C,D	\$6,000	100	0		\$6,000	5203	\$1.15
	Subtotal of Tauriko Stormwater SIF Items	\$6,339,704				\$6,339,704		\$1,218.47
	<b>Cost of Inflation</b>	\$983,055	100	0		\$983,055	5203	\$188.94
	<b>Cost of Capital</b>	\$177,370	100	0		\$77,370	5203	\$34.09
		<b>\$7,500,129</b>				<b>\$7,322,759</b>		<b>\$1,441.50</b>
	<b>Tauriko Stormwater SIF Items *</b>	<b>\$19,260,791</b>				<b>\$14,822,888</b>		

\*Refer "Application of Contributions" at front of Tauriko Business Estate Stormwater section

