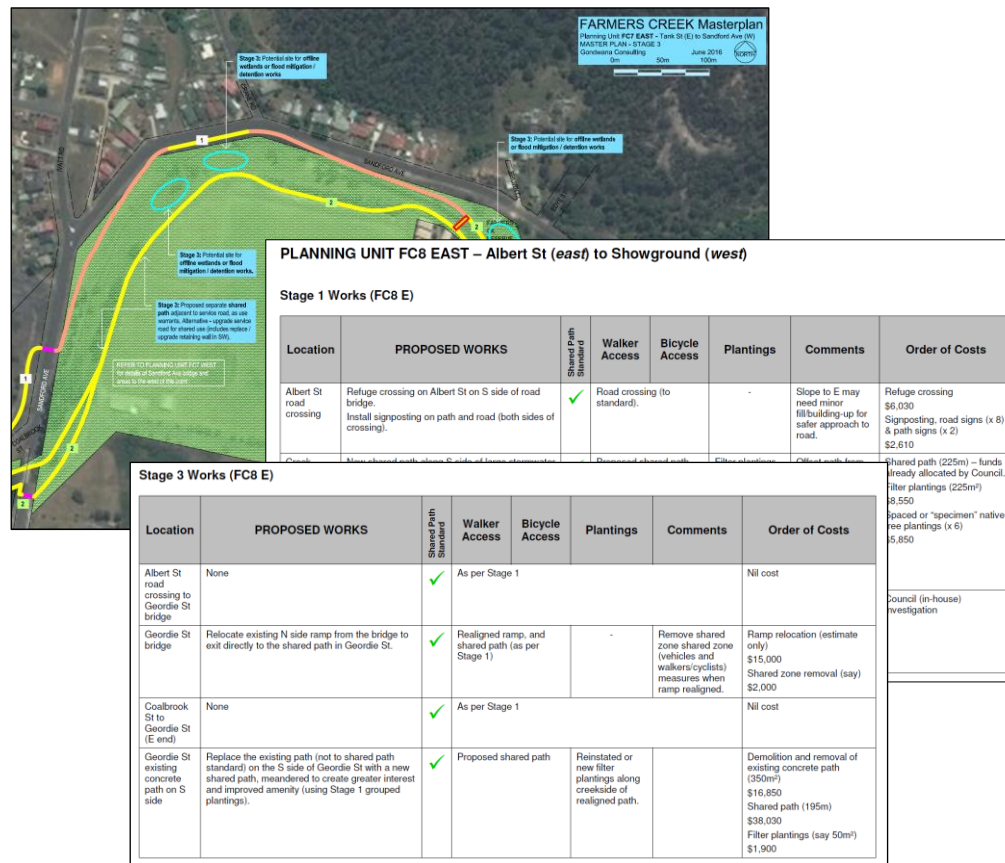


# Farmers Creek Precinct Masterplan

## Appendix 4 Implementation and Cost Estimate Schedules



**for Lithgow City Council**  
**Final Draft V4**  
24 January, 2017

# Farmers Creek Precinct Masterplan

## Appendix 4 – Implementation and Cost Estimate Schedules

### for Lithgow City Council

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CONTROLLED DOCUMENT

“Farmers Creek Precinct Masterplan: Appendix 4 – Implementation and Cost Estimate Schedules”

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V 1	May '16	Internal working draft (not issued)
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for **Lithgow City Council**  
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## Appendix 4

# IMPLEMENTATION AND COST ESTIMATE SCHEDULES

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### Introduction

The following Implementation and Cost Estimates Schedules provide an itemised list of the **actions**, predominantly tangible on-ground works (ranging from shared path construction and other “hard” works to weeding and riparian vegetation community restoration measures), for each **planning unit** along Farmers Creek and grouped by **stage** (timing). A separate table is provided for each of the three stages in a planning unit (where relevant), with staging of the recommended works reflecting the prioritised, or sequential, upgrading of the creek corridor that underpins the masterplan – as described in Sections 6.4 to 6.6 (in the body of the masterplan – see separate document). The Implementation and Cost Estimates Schedules should be read with reference to the masterplan figures for each planning unit (or units), as included in these Sections.

For each development or management action, grouped by stage within the specified planning unit, the Implementation and Cost Estimates Schedule includes the following information:

- location (working upstream to downstream within a planning unit)
- a brief summary description of the work or action;
- whether the action will deliver a shared path to the intended standard (✓ yes or ✗ no);
- the resulting access provided for walkers and for cyclists;
- associated amenity plantings and landscape actions – both aesthetic and environmental measures;
- any specific comments relating to the work or action; and
- an order of cost for the work or action (in many cases broken down into an action’s broad constituent components).

Weed control and native vegetation community restoration measures are grouped, and costed, separately at the beginning of each “stage table” for those planning units where these works are proposed (Planning Units FC1, FC2, FC3, FC4, FC5, VoCC2, FC6, SMC2, FC7-East and FC9).

### Proposed Staging

Enhancement of the Farmers Creek corridor has been planned as a staged process – with most initiatives or actions requiring sequential and co-ordinated implementation, while some could potentially be undertaken alone.

For the purposes of this masterplan the following three stages, and associated implementation periods, have been identified:

- Stage 1 – 1 to 4 years;
- Stage 2 – 5 to 10 years; and
- Stage 3 – 11 years and beyond.

These should be considered very indicative only, and interpreted as a planning framework only. The actual timing on masterplan actions will very much depend on Council’s budget cycles and competing priorities, levels of community support for the project, possible complimentary or related works, works, supplementary funding possibilities, and many other factors.

### Basis for Order of Costs, and Limitations

As detailed in the following Implementation and Cost Estimates Schedules, order of cost estimates have been prepared on an item-by-item basis for

each of the proposed actions and works. The cost basis and other information on which these estimates are formulated have been drawn from a number of sources, including:

- advice from Council regarding local (Lithgow) rates;
- industry charge-out and rate guidelines - notably the *Guideline Schedule of Rates for Landscape Works* by the Landscape Association of NSW and ACT;
- advice from commercial suppliers – such as Landmark (bridges and park furniture), Bluedog Fences Australia (for cycleway barriers/railings), Ingal Civil Products (for road barriers), and others;
- publicly available catalogues and price lists from commercial suppliers; and
- cost data from comparable/previous projects (by Gondwana Consulting and others).

Further details of the rates used in the preparation of the order of cost estimates are included in the “Source Data for Order of Cost Estimates” Table at the rear of the Implementation and Cost Estimates Schedules. The assumptions, inclusions/exclusions and “model” works/treatments

underlying the order of cost estimates are also noted at the end of this table (and further discussed in Section 7.1.2 in the body of the masterplan – see separate document).

All order of cost estimates are in 2016 dollars.

Order of cost estimates have not been prepared for some of items. This is mainly the case where the required or recommended works are dependent on a preceding investigation (such as an engineering or safety assessment) beyond the scope of this masterplan, or negotiation with a third party (most often Rail Corp), that will determine the full nature and scope, and likely cost, of an action. Where this is the case these exclusions are noted at the estimated total cost total for the stage and planning unit in question.

The order of cost estimates do not include design and approval expenses have not been included in the order of cost estimates. See Section 7.1.2 in the body of the masterplan (see separate document) for discussion of these “front end” project expenses.

## PLANNING UNIT FC1 – Lower (Historic) Dam (*north-east*) to End of Bells Rd (north of Water Treatment Plant) (*south/south-west*)

### Stage 1 Works (FC1)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
S-W boundary of Newnes State Forest on Bells Rd (track) – just N of second creek crossing	Installations of heavy duty lockable vehicle gate.	X	Existing vehicle track		-	Negotiation and agreement with Forestry Corporation of NSW required. Warranted to control unauthorised vehicle access to track beyond end of private landholdings (into Newnes State Forest and dams). Locate on a naturally confined (defensible) section of the track to assist in effectiveness.	NPWS style heavy-duty vehicle gate (with protected lock) \$3,200
<b>Total Order of Cost FC1 (Stage 1) \$3,200</b>							

## Stage 2 Works (FC1)

- No separate/additional Stage 2 “hard” or “soft” works proposed (i.e. development of shared path, recreation facilities and amenity or other plantings). Weeding and native vegetation planting / regeneration measures only.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Targeted weed control works at scattered low density weed locations						
	<ul style="list-style-type: none"> <li>Low concentration (5-25% cover) weed areas (600m<sup>2</sup> total – estimate only, small infestations mainly along access road and at usage sites): <ul style="list-style-type: none"> <li>primary weeding</li> </ul> </li> <li>year 1 follow-up weeding</li> </ul>		n/a		Knock down weeding only, follow-up plantings not required.	Assumed that small size and isolated nature of weed infestations areas will allow for regeneration from surrounding native bushland.	870
			n/a		-	Only required at 50% of original sites (i.e., 300m <sup>2</sup> total.	300
<b>Total Order of Cost FC1 (Stage 2)* \$1,170</b>							
* all estimated Stage 2 costs are for weed control works							

## Stage 3 Works (FC1)

- No separate/additional Stage 2 or Stage 3 works proposed.
- Continue targeted weed control works if and where required (not costed).

## PLANNING UNIT FC2 – End of Bells Rd (north of Water Treatment Plant) (east) to Ida Falls Creek (west)

### Stage 1 Works (FC2)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Between end of Bells Rd (north of Water Treatment Plant) & bridge at Ida Falls Creek	None	X	Existing road shoulder along north side of Bells Rd	Existing road pavement	-	Signposting or on-pavement marking, and pedestrian warning signs, may be warranted.	(Advisory road signs - pedestrian warning signs) (x4) \$1,080
<b>Total Order of Cost FC2 (Stage 1)*</b>							<b>\$1,080</b>
<b>Notes</b>							
Vegetated (but weedy) creek corridor will act to filter local surface stormwater entering the creek channel.							

## Stage 2 Works (FC2)

- Confirm public land boundaries (and clearly mark on-ground) and negotiate removal of encroachments.
- Undertake weed control works and native plantings to creek corridor (as below), with the view to locating a path along the creek corridor in future Stage 3.
- No separate/additional Stage 2 “hard” or “soft” works proposed (i.e. development of shared path, recreation facilities and amenity or other plantings). Weeding and native vegetation planting / regeneration measures only.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Undertake weed control works and native vegetation planting / regeneration to creek corridor (in advance of development of shared path, recreation facilities and amenity or other plantings in Stage 3).						
	<ul style="list-style-type: none"> <li>• Low concentration (5-25% cover) weed areas (3,600m<sup>2</sup>): <ul style="list-style-type: none"> <li>▫ primary weeding sweep, mulch (at 10% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	8,990
	<ul style="list-style-type: none"> <li>▫ year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	3,930
	<ul style="list-style-type: none"> <li>▫ year 2 weeding</li> </ul>		n/a		-	-	3,240
	<ul style="list-style-type: none"> <li>▫ year 3 weeding</li> </ul>		n/a		-	-	2,700
	<ul style="list-style-type: none"> <li>▫ year 4 weeding</li> </ul>		n/a		-	-	2,340
	<ul style="list-style-type: none"> <li>▫ year 5 weeding (final)</li> </ul>		n/a		-	-	1,800
	<ul style="list-style-type: none"> <li>• Medium concentration (25-50% cover) weed areas (2,190m<sup>2</sup> total): <ul style="list-style-type: none"> <li>▫ primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	11,550



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit (cont'd)	▫ year 1 weeding and replacement plantings		n/a		-	Replacement of 20% of original stock	3,820
	▫ year 2 weeding		n/a		-	-	3,290
	▫ year 3 weeding		n/a		-	-	2,740
	▫ year 4 weeding		n/a		-	-	2,410
	▫ year 5 weeding (final)		n/a		-	-	1,870
<b>Total Order of Cost FC2 (Stage 2)* \$52,950</b>							
* all estimated Stage 2 costs are for weed control and native vegetation planting / regeneration works along the creek corridor (bed and banks)							
* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense							
<b>Notes</b>							
Originally vegetated (but weedy) creek corridor, and proposed native species riparian plantings and revegetation of the creek corridor (after weed control), will act to filter local surface stormwater entering the creek channel.							
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							

### Stage 3 Works (FC2)

- Ensure public land boundaries are observed, with progressive removal of encroachments (and no new encroachments).
- Continue weed control works and native plantings to creek corridor if and where required (not costed).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
North end of Bells Rd (north of Water Treatment Plant)	Formalise existing adhoc parking (define extent of parking with sandstone blocks), but retain as unsealed in-situ surface. Provide low-key picnic facilities on adjacent grassy creek bank.	✓	n/a		Amenity plantings for parking area and picnic facilities. Filter plantings on downslope side of parking area to contain/filter run-off from unsealed parking area.	Eastern terminus of shared path. Facility node overlooking scenic section of creek with old sandstone walling. Parking area provides a "jumping off" point for walking and cycling access along track to N.	Earthworks for levelling/trimming ad hoc parking area (estimate only) \$3,000 Sandstone blocks/barriers (x 25) \$4,880 Seat & picnic (platform) table \$4,200 Filter plantings (say 30m²) \$1,140 Amenity plantings (say 20m²) \$800
Between end of Bells Rd (north of Water Treatment Plant) & single lane culvert (on bend)	Compacted gravel shared path along W side shoulder of Bells Rd. Install bollards to separate vehicles from shared path at SW end of Water Treatment Plant (and elsewhere along W side of Plant as required).	✓	Proposed shared path (compacted gravel)		-	-	Compacted shared path (205m, 492m²) \$25,590 Bollards (say 30) \$5,100

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Single lane culvert (on bend in Bells Rd)	Widen/duplicate single lane culvert to NW of existing, with separation/safety railing if required, to provide shared path crossing of drain. Alternatives would be a sealed floodway crossing for shared path, or a separate low-level short bridge or boardwalk (shared path width), both located NW of existing culvert.	✓	Proposed culvert and shared path (compacted gravel)		-		Costed for a low-level boardwalk (8m, railings not required as <1m drop). \$20,000
Between single lane culvert (on bend in Bells Road) & E end of Crown land block (on N side of Bells Rd)	Compacted gravel shared path along N side shoulder of Bells Rd. Install safety railing above steep drop to creek, and between shared path and road carriageway, for 35m section on N side of slight curve on Bells Rd.	✓	Proposed shared path (compacted gravel)		-	May require extension/realignment (and/or lane marking) on 35m section of Bells Rd where shared path located along N edge of existing sealed carriageway.	Compacted shared path (175m, 420m²) \$21,840 Bollards (say 30) \$5,100 Safety railings (35m full barrier style & 35m partial barrier style) \$24,500 Road line marking (95m) \$510
Crown land block (on N side of Bells Rd)	Compacted gravel shared path deviating away from Bells Rd through Crown land (closer to creek corridor).	✓	Proposed shared path (compacted gravel)		Amenity plantings. (NSRP)	Amenity plantings limited by overhead power lines. Safety railings may be warranted where path re-joins proposed road should route at each end of this deviation.	Compacted shared path (95m, 228m²) \$11,860 Amenity plantings (say 30m²) \$1,200

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Between W end of Crown land block (on N side of Bells Rd) and Ida Falls Creek bridge	Compacted gravel shared path along N side shoulder of Bells Rd.	✓	Proposed shared path (compacted gravel)		-	-	Compacted shared path (210m, 504m²) \$26,210
Ida Falls Creek bridge	Mark path along north side of road bridge, with physical separation (kerb) from existing carriageway and safety railings (to standard) both sides (would require reduce traffic flow to one lane, with necessary signposting).  Pinch point – proposed path would not be to shared path width (due to limited width of existing bridge), cyclists to give way to walkers.  Sealed path approaches to W and E (connecting to compacted gravel shared path in E).	✗	Proposed path	Proposed path - cyclists to give way to walkers (or use adjacent roadway)	(NSRP)	Constrained by width of existing road. To accommodate a shared would require widening or replacing the existing bridge, or a separate bridge to shared path standard.	Kerb separation (10m) and pavement improvements (x 6m²) \$1,460 Safety railings (16m full barrier style & 16m partial barrier style) \$11,200 Shared path approaches, concrete (10m) \$1,950 Warning signs (x 4) \$1,000
<b>Total Order of Cost FC2 (Stage 3)* \$171,540</b>							
* includes \$3,140 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements * excludes any on-going weed control works and native plantings to the creek corridor (if and where required after implementation of Stage 2 measures) * assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense							
<b>Notes</b>							
NSRP Proposed native species riparian plantings and revegetation of the creek corridor along the shared path's route (Stage 2) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path.							

## PLANNING UNIT FC3 – Ida Falls Creek (east) to Victoria Ave (west)

### Stage 1 Works (FC3)

- Confirm public land boundaries (and clearly mark on-ground) and negotiate removal of encroachments.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Between Ida Falls Creek bridge & Bells Rd Lane	None	✗	Existing concrete footpath on N side of Bells Rd	Existing road pavement	-	Narrow footpath. Signposting or on-pavement marking may be warranted.	Nil cost
Oakey Park	None	✗	Informal access through park – grassed surface	Informal access through park – grassed surface	Native tree plantings on park perimeter	Existing male and female (accessible) toilets in park, and tap (drinking water) on side of male toilet.	Trees (x 14) \$13,650
Between Brewery Lane & existing footpath at Hay St footbridge	Concrete footpath along N side of Bells Rd (standard to match existing footpath to W) to link to existing Bells Rd footpath at Hay St footbridge. Layback kerb at SW corner of Brewery Lane.	✗	Proposed concrete footpath on N side of Bells Rd	Existing road pavement	-	To connect existing Bells Rd footpath to Oakey Park.	Footpath (65 x 0.9m, 59m <sup>2</sup> ) and layback kerb \$5,300
Bells Rd, between Hay St footbridge & Victoria Ave	None	✗	Existing concrete footpath on N side of Bells Rd	Existing road pavement	-	Narrow footpath. Signposting or on-pavement marking may be warranted.	Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
							<b>Total Order of Cost FC3 (Stage 1)* \$18,950</b>
* includes \$13,650 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense							
<b>Notes</b>							
Vegetated (but weedy) creek corridor will act to filter local surface stormwater entering the creek channel.							

## Stage 2 Works (FC3)

- Ensure public land boundaries are observed, with progressive removal of encroachments (and no new encroachments).
- Undertake weed control works and native plantings to creek corridor (as below), with the view to locating a path along the creek corridor in Stage 2 and in future in Stage 3.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Undertake weed control works and native vegetation planting / regeneration to creek corridor and surrounds (in conjunction with, or preferably in advance of, development of shared path, recreation facilities and amenity or other plantings).						
	<ul style="list-style-type: none"> <li>• Medium concentration (25-50% cover) weed areas (6,240m<sup>2</sup> total – does not include any areas of Oakey Park or Mill Street reserves beyond the riparian corridor): <ul style="list-style-type: none"> <li>▫ primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	32,890
	<ul style="list-style-type: none"> <li>▫ year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	10,870
	<ul style="list-style-type: none"> <li>▫ year 2 weeding</li> </ul>		n/a		-	-	9,360
	<ul style="list-style-type: none"> <li>▫ year 3 weeding</li> </ul>		n/a		-	-	7,800
	<ul style="list-style-type: none"> <li>▫ year 4 weeding</li> </ul>		n/a		-	-	6,870
	<ul style="list-style-type: none"> <li>▫ year 5 weeding (final)</li> </ul>		n/a		-	-	5,310

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit (cont'd)	<ul style="list-style-type: none"> <li>High concentration (&gt;70% cover) weed areas (8,080m<sup>2</sup> total – includes wide band of <i>Gleditzia</i> spp. along N edge of Oakey Park reserve and S side of Island Pde): <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 80% coverage), supply and plant-out tubestock</li> <li>year 1 weeding and replacement plantings</li> <li>year 2 weeding</li> <li>year 3 weeding</li> <li>year 4 weeding</li> <li>year 5 weeding (final)</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 4m <sup>2</sup> (i.e. 2.9m spacings).	Includes establishment watering and plant guards.	73,190
			n/a		-	Replacement of 20% of original stock	19,220
			n/a		-	-	15,760
			n/a		-	-	13,340
			n/a		-	-	11,320
			n/a		-	-	9,300
Between Ida Falls Creek bridge & Bells Rd Lane	None	✗	As per Stage 1				Nil cost
Oakey Park	Shared path along W side of Bells Rd Lane, and extend kerb/gutter on Bells Rd Lane to formalise crossing point (links to existing footpath to E). Shared path along N side of park (S of creek), overlooking creek.	✓	Proposed shared path		Amenity plantings. (NSRP)	Existing male and female (accessible) toilets in park, and tap (drinking water) on side of male toilet.	Shared path (35m) \$6,830 Formed kerb/gutter (10m) and layback kerb \$1,820 Shared path (155m) \$30,230 Amenity plantings (say 120m <sup>2</sup> ) \$4,800



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Brewery Lane bridge	Upgrade timber plank path on E side of one-lane bridge, and install safety railing.	✗	Proposed upgraded path on E side of bridge	Existing road pavement (or dismount and use footpath)	-	Upgrading Brewery Lane bridge/path will require engineering input and detailed design (widening path's bridge crossing to 2.4m standard would probably necessitate rebuilding the current single lane bridge). Bridge crossing remains not to standard - a "pinch point". Extend kerbside railing to S of bridge (to provide safety for 90° bend at path-footpath junction).	Brewery Lane bridge/path upgrades subsequent to engineering input and detailed design – to be determined.
Brewery Lane, N side of bridge	Zebra crossing over Brewery Lane (N side of bridge). Install warning/safety signs on Brewery Lane, and Island Pde, and path approaches (both sides of crossing).	✓	Proposed road crossing (to standard)		-	Zebra crossing warranted due to proximity of Zig Zag Public School.	Zebra crossing (including on-road marking and layback kerbs each side) \$3,800 Warning signs (x 5) \$1,800

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
E side of Brewery Lane	Replace existing footbridge (not to standard, and fenced and signposted as "closed") with short bridge, to shared path standard, over roadside drain.	✓	Proposed short bridge (shared path standard)		-	Requires clarification of tenure boundaries and removal of fences/encroachments (in Stage 1) (now fenced off and signposted as "Private No Entry", despite being public creek corridor).	Bridge (12m) \$80,000
Creek corridor, between Brewery Lane & Mills St	Shared path along N-W side of creek - at rear of Zig Zag Public School and across S-E side of Mills St Park.	✓	Proposed shared path		Some tree removal may be required behind school. Amenity plantings in park. (NSRP)	Short section of fill and armoured embankment, or boardwalk, may be needed in N-E (depending on tenure boundaries). Liaise with Zig Zag Public School re boundaries and student safety. Ensure clear/safe access between school and creek for continued educational use.	Shared path (140m) \$27,300 Elevated boardwalk (10m) \$25,000 Fill and retaining wall (30m est.) \$5,600 Amenity plantings (say 40m²) \$1,600

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Mills St footbridge	None	✗	Existing footbridge		-	Narrow footbridge (not to standard, cyclists to dismount). Links to Oakey Park. Additional safety railing may be warranted at S-E end.	Safety railings (2 x 4m, partial barrier style) \$2,240
Mills St	Blistered or refuge crossing. Install signposting on road and approaches (both sides of crossing).	✓	Road crossing (to standard).		-		Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610
Creek corridor, between Mills St & Hay St footbridge	Shared path along N-W side of creek. Install bollards to separate vehicles from proposed shared path (at S-E end of Hay St).	✓	Proposed shared path		Amenity plantings. (NSRP)		Shared path (85m) \$16,580 Bollards (x4) \$680 Amenity plantings (say 50m²) \$2,000
Hay St footbridge	Upgrade short bitumen path at N end of footbridge to concrete linking to proposed shared path. Install "wing" railings at S end approach to footbridge.	✗	Existing footbridge		-	Narrow footbridge (not to standard - cyclists to dismount). Links to existing footpath along N side of Bells Rd. "Wing" railings required at S end due to sloped path down from Bells Rd footpath.	Shared path (10m) \$1,950 Safety railings (6m, partial barrier style) \$1,680

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Bells Rd, between Hay St footbridge & Victoria Ave	None	X	As per Stage 1				Nil cost
Total Order of Cost FC3 (Stage 2)* \$437,780							
* excludes upgrades to Brewery Lane bridge/path subsequent to engineering input and detailed design (to be determined)							
* includes \$3,600 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
* includes \$215,230 for weed control works and native vegetation planting / regeneration to the creek corridor (bed and banks)							
* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense							
Notes							
NSRP	Proposed native species riparian plantings and revegetation of the creek corridor along the shared path's route (this Stage) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path.						
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							

### Stage 3 Works (FC3)

- Continue weed control works and native plantings to creek corridor if and where required (not costed).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Between Ida Falls Creek bridge & Bells Rd Lane	Extend/upgrade footpath to shared path standard along N side of Bells Rd.	✓	Proposed shared path		May require removing and replacing street trees.	May require relocating kerb and reducing Bells Rd carriageway, as well as "splits" or "pinch points" around power poles.	Remove existing kerb and margin (1.2m wide) of bitumen roadway, fill to verge level, and new kerb and gutter (215m) \$49,000 Remove existing concrete footpath (215m), fill, and top dress and returf \$14,960 Shared path (215m) \$41,930 Kerb laybacks (x2) \$1,040 Street trees (semi-mature trees x 8) \$1,660
Oakey Park	None	✓	As per Stage 2. Existing male and female (accessible) toilets in park, and tap (drinking water) on side of male toilet.				Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Oakey Park footbridge (off Bells Rd Lane)	Upgrade, or replace, existing narrow timber footbridge with shared use bridge (to standard).	✓	Proposed shared use bridge.		-	Both bridge approaches will require upgrading to shared path standard and to achieve safe gradients - especially N side – or incorporate in bridge design. Part of Oakey Park “local loop”, and alternative link to using the not-to-standard single lane Brewery Lane bridge (from Stage 2).	Remove existing bridge (estimate only) \$50,000 Replacement bridge (25m) \$208,900 Bridge approaches (fill/ramp, shared path and railings – estimate only, will depend on final bridge design and alignment) \$22,000
Island Pde, between Bragg St & Brewery Lane	Shared path along N side of creek, offset from S side of road.	✓	Proposed shared path		(NSRP)	Possible additional street tree or amenity plantings, if room. Part of Oakey Park “local loop”, and alternative link to using the not-to-standard single lane Brewery Lane bridge (from Stage 2).	Shared path (125m) \$24,380 Amenity plantings (say 80m²) \$3,200
Brewery Lane road crossing	None	✓	As per Stage 2. Route crosses Brewery Lane as unmarked crossing, with warning/safety signs on Brewery Lane, and Island Pde, alerting drivers to path users crossing road.				Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Brewery Lane, between single lane bridge & Mill St	Shared path along E side of creek, offset from W side of road.  Mills St footbridge connects to shared path (from Stage 2) on NW side of creek.	✓  ✗	Proposed shared path (beside Brewery Lane)	Cyclists to dismount if/when using Mill St footbridge, or use adjacent Mill St causeway	Amenity plantings along road. (NSRP)	Part of Oakey Park "local loop". Set path back from scarp along E side of creek. Mills St footbridge not to standard for shared use, "pinch point" (but alternative shared path, from Stage 2, on NW side of creek).	Shared path (120m) \$23,400 Amenity plantings (say 100m²) \$4,000
Creek corridor, between Brewery Lane and Mills St	None	✓	As per Stage 2 - shared path along N-W side of creek at rear of Zig Zag Public School and across S-E side of Mills St Park.				Nil cost
Mills St footbridge	None	✗	As per Stage 2 - existing narrow footbridge, not to standard for shared use (cyclists to dismount if/when using).				Nil cost
Mills St, & between Mills St & Hay St footbridge	None	✓	As per Stage 2.				Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, between Hay St & Victoria Ave *	<p>Shared path along N side of creek (from Hay St).            Bridge (approx. 20m long), to shared path standard - angled across creek.            Shared path along S side of creek.            Bridge (approx. 30m long), to shared path standard, over creek - angled across creek and grades up from E to W.            Shared path along S side of creek, on elevated bench (to Victoria Ave), may require short sections of elevated boardwalk.</p>	✓	Proposed shared path and bridges		2-3 large introduced trees ( <i>Gleditzia</i> spp.) may require removal at W end. Screen plantings to adjoining private properties. (NSRP)	<p>Requires clarification of land tenure and boundaries and removal of encroachments (in Stage 1) – at present considerable lawn/garden and storage encroachments into public creek corridor. Hydraulic investigations required re proposed bridges. Possible elevated boardwalk sections(s) at W end may require railing to one side (depending on proximity of steep sloped banks). Alternative roadside route identified (see note *).</p>	<p>Shared path (20m) \$4,120            Bridge (E) (20m) \$144,000            Shared path (85m) \$16,580            Bridge (W) (30m) \$275,000            Shared path (30m) \$6,450            Elevated boardwalk (5m) \$12,500            Screening plantings (say 120m<sup>2</sup>) \$12,480</p>



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Victoria Ave	Upgrade and extend safety railings (both sides) on existing footpath on E side of single lane bridge.	X	Existing footpath on E side of bridge	Existing road pavement (or dismount and use footpath)	-	Extend kerbside railing to N of bridge (to provide safety for 90° bend at path-footpath junction). Bridge crossing remains not to standard – a “pinch point”. Upgrading path’s bridge crossing to 2.4m standard would require widening or rebuilding bridge.	Safety railings (18m & 25m, full barrier style) \$18,060
<p style="text-align: right;"><b>Total Order of Cost FC3 (Stage 3)* \$933,660</b></p> <p>* includes \$21,250 for associated landscape works, to enhance the path’s amenity/appearance and to support WSUD and water quality improvements</p> <p>* excludes any on-going weed control works and native plantings to the creek corridor (if and where required after implementation of Stage 2 measures)</p> <p>* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders’ expense</p>							
<b>Notes</b>							
<p>* If the proposed creek corridor route between Hay St and Victoria Ave is not viable an alternative route (Option 3a), suitable for upgrading to shared path standard, is possible via:</p> <ul style="list-style-type: none"> <li>• upgrading the Hay Street footbridge;</li> <li>• upgrading the footpath along the N side of Bells Rd, between the Hay St bridge to Victoria Ave; and</li> <li>• upgrading the footpath along the E side of Victoria Ave, between Bells Rd and the single lane bridge.</li> </ul>							
NSRP	Proposed native species riparian plantings and revegetation of the creek corridor along the shared path’s route (Stage 2) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path.						

## PLANNING UNIT FC4 – Victoria Ave (east) to State Mine Rail Line (at Drurie St) (west)

### Stage 1 Works (FC4)

- Confirm public land boundaries (and clearly mark on-ground) and negotiate removal of encroachments.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Bells Rd - between Victoria Ave & rail bridge underpass (at Drurie St & Wetlands Lane)	None	✗	Existing concrete footpath on north side of Bells Rd	Existing road pavement	-	Narrow footpath. Signposting or on-pavement marking may be warranted.	Nil cost
Under rail bridge, at Drurie St & Wetlands Lane	Install safety railing, to standard, on road edge of existing narrow path	✗	Existing concrete footpath on north side of Inch St / Bells Rd	Existing road pavement	-	Safety issue, narrow path curving adjacent to road edge under bridge.	Railings (full barrier style) (20m) \$8,400
<b>Total Order of Cost FC4 (Stage 1)* \$8,400</b>							
* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense							
<b>Notes</b>							
Vegetated (but weedy) creek corridor will act to filter local surface stormwater entering the creek channel.							

## Stage 2 Works (FC4)

- Ensure public land boundaries are observed, with progressive removal of encroachments (and no new encroachments).
- No separate/additional Stage 2 “hard” or “soft” works proposed (i.e. development of shared path, recreation facilities and amenity or other plantings). Weeding and native vegetation planting / regeneration measures only.
- Undertake weed control works and native plantings to creek corridor (as below), with the view to locating a path along the creek corridor in Stage 2 and in future in Stage 3.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Undertake weed control works and native vegetation planting / regeneration to creek corridor (in conjunction with, or preferably in advance of, development of shared path, recreation facilities and amenity or other plantings). Only works located within the public land estate have been costed below (note – two sections of the actual/physical creek corridor, totalling 290m, are located within private land in this Planning Unit).						
	<ul style="list-style-type: none"> <li>• Low concentration (5-25% cover) weed areas (980m<sup>2</sup> total): <ul style="list-style-type: none"> <li>▫ primary weeding sweep, mulch (at 10% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	2,450
	<ul style="list-style-type: none"> <li>▫ year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	1,080
	<ul style="list-style-type: none"> <li>▫ year 2 weeding</li> </ul>		n/a		-	-	890
	<ul style="list-style-type: none"> <li>▫ year 3 weeding</li> </ul>		n/a		-	-	740
	<ul style="list-style-type: none"> <li>▫ year 4 weeding</li> </ul>		n/a		-	-	640
	<ul style="list-style-type: none"> <li>▫ year 5 weeding (final)</li> </ul>		n/a		-	-	490

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit (cont'd)	<ul style="list-style-type: none"> <li>Medium concentration (25-50% cover) weed areas (4,430m<sup>2</sup> total): <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	23,350
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	7,720
	<ul style="list-style-type: none"> <li>year 2 weeding</li> </ul>		n/a		-	-	6,650
	<ul style="list-style-type: none"> <li>year 3 weeding</li> </ul>		n/a		-	-	5,540
	<ul style="list-style-type: none"> <li>year 4 weeding</li> </ul>		n/a		-	-	4,880
	<ul style="list-style-type: none"> <li>year 5 weeding (final)</li> </ul>		n/a		-	-	3,770
	<ul style="list-style-type: none"> <li>High concentration (&gt;70% cover) weed areas (1,110m<sup>2</sup> total): <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 80% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 4m <sup>2</sup> (i.e. 2.9m spacings).	Includes establishment watering and plant guards.	10,060
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	2,650
	<ul style="list-style-type: none"> <li>year 2 weeding</li> </ul>		n/a		-	-	2,170
	<ul style="list-style-type: none"> <li>year 3 weeding</li> </ul>		n/a		-	-	1,840
	<ul style="list-style-type: none"> <li>year 4 weeding</li> </ul>		n/a		-	-	1,560
	<ul style="list-style-type: none"> <li>year 5 weeding (final)</li> </ul>		n/a		-	-	1,280

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
<b>Total Order of Cost FC4 (Stage 2)* \$77,760</b>							
* all estimated Stage 2 costs are for weeding and native vegetation planting / regeneration areas along the creek corridor (bed and banks) * assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense							
<b>Notes</b>							
Originally vegetated (but weedy) creek corridor, and proposed native species riparian plantings and revegetation of the creek corridor (after weed control), will act to filter local surface stormwater entering the creek channel.							
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							

### Stage 3 Works (FC4)

- Continue weed control works and native plantings to creek corridor if and where required (not costed).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Victoria Ave	Zebra crossing at south end of Victoria Ave bridge. Install signposting on path and road (both sides of crossing).	✓	Proposed road crossing (to standard)		-	Additional road surface and kerb may be required on W side of road. Zebra crossing the most practical due to limited carriageway width.	Zebra crossing (including on-road marking , layback kerbs each side, and warning signs x 6) \$5,330
Creek corridor, between Victoria Ave & N end of Brook St *	Shared path, as elevated boardwalk, along S side of creek (approx. 75m long, W from Victoria Ave). Bridge (approx. 15m long), to shared path standard, over large drainage invert on S side of creek (at W end of proposed boardwalk). Shared path on-ground along S side of creek, from bridge through to drainage reserve and creek (Crown land) corridor off N end of Brook St.	✓	Proposed shared path – elevated boardwalk and bridge (to standard) and creekside shared path		(NSRP)	Chicanes needed before (W of) proposed Victoria Ave road crossing. Route located on narrow strip of Council land on S side of creek (and creek corridor).	Elevated boardwalk (75m) \$187,500 Bridge (15m) \$98,600 Shared path (60m) \$11,700 Chicanes (1 pair) \$350

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, between N end of Brook St & Brook St Park *	Shared path on-ground along S side of creek. Set back from eroding creek bank	✓	Proposed shared path		Amenity plantings. Screen plantings to adjacent residence. (NSRP)	Route runs through drainage reserve and creek (Crown land) corridor, but substantial encroachment by adjacent private property to be rectified first. Eroding S bank of creek may require stabilisation, and/or safety railing, if path in proximity.	Shared path (45m) \$9,270 Amenity plantings (say 20m <sup>2</sup> ) \$800 Screen plantings (say 40m <sup>2</sup> ) \$2,080
Brook St Park *	Shared path along E and S margins of park (E of exiting playground and along N side of Brook St). Provide park furniture and amenity plantings. Reinforce vegetated connection between creek corridor and adjacent bush slope to N.	✓	Proposed shared path		Amenity plantings in park.	Align path through the open space to access the existing playground and to retain usefulness of remnant land. Potential site to link revegetated creek corridor to larger bushland area, on private land, to N (wildlife and habitat link).	Shared path (80m) \$15,600 Amenity plantings (say 80m <sup>2</sup> ) \$3,200 Park furniture \$6,000

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Brook St, between Brook St Park & Bells Rd	Shared path on W side of Brook St	✓	Proposed shared path (cyclist could also use Brook St, low traffic road, if they choose)		Trimming or removal of some existing street trees, and replacement plantings, may be warranted.	Off creek corridor – but better links proposed shared path, and Brook St Park, to Bells Rd (and possible alternative routes * and **).	Shared path (95m) \$18,530 Street trees (semi-mature trees x 4) \$830
Creek corridor, W of Brook St Park **	Shared path on S side of creek	✓	Proposed shared path		Amenity plantings. (NSRP)	Mostly along mown grassy creek bank. Used for informal vehicle access to rear of private properties (vehicle barriers/control warranted) and large encroachment by adjacent private property at SW end of Brook St Park.	Shared path (100m) \$19,890 Amenity plantings (say 100m²) \$4,000
Creek corridor, N of 160 & 162 Bells Rd **	Bridge (approx. 50m long) or sequential bridges (2 x 25m long), to shared path standard, curving (or angled) over creek – from S side in E, to N side creekbank in centre, and back to S side in W	✓	Proposed shared path – bridge (to standard)		(NSRP)	Creek corridor narrows to 10m wide, with steep banks both sides and residences close to S side top bank. Acquisition of land on N side would simplify alignment and reduce bridge length.	Bridges (2 x 25m) \$417,800 Linking section of shared path (8m) \$1,560



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, N of disused road alignment off Bells Rd (between 162 & 166 Bells Rd) ** °	Shared path on S side of creek, set back from creek edge and bars.	✓	Proposed shared path		Amenity plantings. Screen plantings to adjacent private properties. (NSRP)	Low-lying section of creekbank, path design should allow for periodic flooding and short section(s) of low boardwalk may be required. Minor floodway needed for constructed drain discharging from S. Large encroachment by lawns and gardens of adjacent private properties.	Shared path (80m) \$15,600 Low level boardwalk (20m) \$36,000 Amenity plantings (say 30m²) \$1,200 Screen plantings (say 50m²) \$2,600
Creek corridor, N of 166 Bells Rd (to Rail Corp land in W) ** °	Shared path, as elevated boardwalk, along S side of creek (approx. 45m long, to Rail Corp land in W).	✓	Proposed shared path		(NSRP)	Narrow creek bank at rear of private property. Encroachment by lawn and gardens of adjacent private property.	Elevated boardwalk (45m) \$112,500
Rail Corp land, S side of creek ** °	Shared path on S side of creek	✓	Proposed shared path		Screening plantings to adjacent industrial premises. (NSRP)	Agreement of Rail Corp required. Requires removal of substantial amount of stored/dumped materials from adjacent industrial premises and some site clean-up or rehabilitation.	Shared path (155m) \$30,230 Screen plantings (say 190m²) \$9,880

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Rail Corp land, W end adjacent to State Mine Rail Line) ** °	<b>S Option</b> - Shared path on S side of creek – as on-ground shared path leading to tunnel under rail line, ° <b>or</b> <b>N Option</b> - Part as an on-ground shared path (E end) and part as an elevated boardwalk (approx. 40m long) leading to under existing rail bridge over creek (W end). °	✓	Proposed shared path, or shared path and elevated boardwalk		(NSRP)	Agreement of Rail Corp, and State Mine Rail Line owners, required. Part of N option boardwalk could use remnant piers on E side of rail bridge. Refer to FC5 for details of proposed routes, and alternative, at State Mine Rail Line.	See FC5 (Stage 3) for order of cost estimate for <b>N Option</b> .
<p style="text-align: right;"><b>Total Order of Cost FC4 (Stage 3)* \$1,009,490</b></p> <p>* includes \$24,590 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements</p> <p>* excludes any on-going weed control works and native plantings to the creek corridor (if and where required after implementation of Stage 2 measures).</p> <p>* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense</p>							
<b>Notes</b>							
<p>* If the proposed creek corridor route between Victoria Ave and Brook St Park is not viable an alternative route (Option 3a), suitable for upgrading to shared path standard, is possible via:</p> <ul style="list-style-type: none"> <li>providing a refuge crossing on Victoria Ave at Bells Rd; and,</li> <li>upgrading the footpath along the N side of Bells Rd, between Victoria Ave and Brook St.</li> </ul>							
<p>** If the proposed creek corridor route between Brook St and the State Mine Rail Line (at Drurie St) is not viable an alternative route (Option 3b), suitable for upgrading to shared path standard, is possible via:</p> <ul style="list-style-type: none"> <li>the proposed shared path on the west side of Brook St, from Brook St Park to Bells Rd; and</li> <li>upgrading the footpath along the N side of Bells Rd, between Brook St and the rail bridge underpass (at Drurie St &amp; Wetlands Lane), including the Stage 1 safety railing works and existing path (not to shared path standard) under the rail bridge.</li> </ul>							

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
°	<p>The W end of the proposed creek corridor route, between the disused road alignment off Bells Rd (between 162 &amp; 166 Bells Rd) and the State Mine Rail Line (at Drurie St) is only viable if:</p> <ul style="list-style-type: none"> <li>• Rail Corp agrees for the path to pass over their block at the N end of Wilson St (S side of Farmers Creek); and</li> <li>• the owners of the State Mine Rail Line agree to the path passing across their rail corridor (via a tunnel under rail line [S option], or as an elevated boardwalk under existing rail bridge over creek [N option]).</li> </ul> <p>If neither are achievable then an alternative route is possible - leaving the creek corridor via the drainage reserve between 162 &amp; 166 Bells Rd (via a short section of elevated boardwalk), linking to the existing disused Bells Rd alignment (part [in E] is a compacted gravel road which would require sealing as a shared path, and part [in W] is an existing sealed road surface that would require separation/demarcation as a shared path), connecting W to the existing footpath along the N side of Bells Rd which would require upgrading W to the rail bridge underpass (at Drurie St &amp; Wetlands Lane) (including the Stage 1 safety railing works and existing path [not to shared path standard] under the rail bridge. This alternative route is not mapped separately on the FC4 Stage 3 Masterplan.</p>						
NSRP	<p>Proposed native species riparian plantings and revegetation of the creek corridor along the shared path's route (Stage 2) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path.</p>						

## PLANNING UNIT FC5 – State Mine Rail Line and Drurie St (east) to Burton St (west)

### Stage 1 Works (FC5)

- Confirm public land boundaries (and clearly mark on-ground) and negotiate removal of encroachments – across whole planning unit.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Inch St, between rail bridge underpass & Burton St	None	✗	Existing concrete footpath on N and W side of Inch St	Existing road pavement	-	Narrow footpath. Signposting or on-pavement marking may be warranted.	Nil cost
Inch St at Saywell St Park / Lake Pillans	Refuge crossing over Inch St, between the northern and southern portions of Saywell St Park. Install signposting on road and approaches (both sides of crossing).	✓	Proposed road crossing (to standard)		-	-	Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610
Burton St between Inch St & creek corridor/ channel	Footpath (not to shared path standard) on NE side of Burton St, and continuing along creekbank to proposed causeway crossing (refer FC6).	✗	New footpath	Existing road pavement	Filter plantings along creekside of path. Amenity plantings.	New footpath 1.2m wide, or to match existing Inch St footpath. Not to shared path standard – will become a “redundant” connection if/when Stage 2 works undertaken.	Footpath (180m, 1.2m wide) \$17,280 Filter plantings (55m²) \$2,090 Amenity plantings (say 40m²) \$1,600
<b>Total Order of Cost FC5 (Stage 1)* \$29,610</b>							
* includes \$3,690 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense							

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
<b>Notes</b>							
Vegetated (but weedy) creek corridor will act to filter local surface stormwater entering the creek channel.							

## Stage 2 Works (FC5)

- Ensure public land boundaries are observed, with progressive removal of encroachments (and no new encroachments).
- Undertake weed control works and native plantings to creek corridor (as below) with the view to locating a path along the creek corridor in Stage 2 and in future in Stage 3.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Undertake weed control works and native vegetation planting / regeneration to creek corridor (in conjunction with, or preferably in advance of, development of shared path, recreation facilities and amenity or other plantings).						
	<ul style="list-style-type: none"> <li>• Low concentration (5-25% cover) weed areas (5,480m<sup>2</sup> total – includes 4,000m<sup>2</sup> area of Crown Land abutting N side of creek NW of State Mine Rail Line bridge): <ul style="list-style-type: none"> <li>▫ primary weeding sweep, mulch (at 10% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	13,680
	<ul style="list-style-type: none"> <li>▫ year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	5,990
	▫ year 2 weeding		n/a		-	-	4,940
	▫ year 3 weeding		n/a		-	-	4,110
	▫ year 4 weeding		n/a		-	-	3,570
	▫ year 5 weeding (final)		n/a		-	-	2,740

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit (cont'd)	<ul style="list-style-type: none"> <li>Medium concentration (25-50% cover) weed areas (5,740m<sup>2</sup> total): <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	30,260
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	10,000
	<ul style="list-style-type: none"> <li>year 2 weeding</li> </ul>		n/a		-	-	8,610
	<ul style="list-style-type: none"> <li>year 3 weeding</li> </ul>		n/a		-	-	7,180
	<ul style="list-style-type: none"> <li>year 4 weeding</li> </ul>		n/a		-	-	6,320
	<ul style="list-style-type: none"> <li>year 5 weeding (final)</li> </ul>		n/a		-	-	4,880
	<ul style="list-style-type: none"> <li>High concentration (&gt;70% cover) weed areas (2,690m<sup>2</sup> total): <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 80% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 4m <sup>2</sup> (i.e. 2.9m spacings).	Includes establishment watering and plant guards.	24,370
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	6,400
	<ul style="list-style-type: none"> <li>year 2 weeding</li> </ul>		n/a		-	-	5,250
	<ul style="list-style-type: none"> <li>year 3 weeding</li> </ul>		n/a		-	-	4,440
	<ul style="list-style-type: none"> <li>year 4 weeding</li> </ul>		n/a		-	-	3,770
	<ul style="list-style-type: none"> <li>year 5 weeding (final)</li> </ul>		n/a		-	-	3,100

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Inch St, between rail bridge underpass & Burton St	None	✗	As per Stage 1				Nil cost
Inch St at Saywell St Park / Lake Pillans	None	✓	As per Stage 1				Nil cost
Atkinson St between Inch St & Laidley St	None	✗	Use existing concrete path on W side of Atkinson St and bridge	Existing road pavement	-	Links Inch St to proposed creek corridor Stage 2 route (Atkinson to Burton Sts). Narrow footpath along road edge (especially in S) with obstructing power pole at corner of Atkinson and Inch Sts – suitable for walkers only (cyclists on road). Safety railings kerbside on bridge (W side) may be warranted if usage levels greatly increase.	Nil cost



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Atkinson - Laidley Sts open space (W side)	Shared path through park, along E and S margins	✓	Proposed shared path		Filter plantings along creekside of path (along park's SW margin). Amenity plantings.	Align path in park to retain usable open space. Join Atkinsons St footpath N of bus shelter (on more gentle slope).	Shared path (55m) \$10,700 Filter plantings (25m²) \$950 Amenity plantings (say 50m²) \$2,000
Creek corridor between Atkinson St & W/SW of end of Burton St	Shared path, mostly as elevated boardwalk, along N side of creek (approx. 75m of boardwalk) W from Atkinson - Laidley Sts W side open space. Shared path on-ground on N side of creek (may require a short, 15m, section of elevated boardwalk at W end) off private property corner (following encroachment removal and fence realignment)	✓	Proposed shared path – elevated boardwalk creekside shared path		Limited amenity plantings (narrow corridor). (NSRP)	Old brick wall on N side creekside (at SW corner of Atkinson - Laidley Sts W side open space) requires structural assessment. Section of boardwalk above steep creekside may require safety railing (one side) for 50 metres. Private property encroachment (fenced) at W end (opposite Burton St).	Elevated boardwalk with safety railing (partial barrier style) one side only (50m) \$145,000 Elevated boardwalk (25m & 15m) \$100,000 Shared path (120m) \$25,100 Amenity plantings (say 30m²) \$1,200
Burton St between Inch St & creek corridor/channel	None	✗	As per Stage 1. This link becomes redundant (as the main shared route) once the proposed shared path is developed along the creek corridor between Burton St and Atkinson St in Stage 2.				Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Total Order of Cost FC5 (Stage 2)* \$434,560							
* includes \$4,150 for associated landscape works, to enhance the path’s amenity/appearance and to support WSUD and water quality improvements							
* includes \$149,610 for weed control works and native vegetation planting / regeneration to the creek corridor (bed and banks)							
* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders’ expense							
Notes							
NSRP	Proposed native species riparian plantings and revegetation of the creek corridor along the shared path’s route (this Stage) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path.						
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							

### Stage 3 Works (FC5)

- Continue weed control works and native plantings to creek corridor if and where required (not costed).
- Potential site for an offline wetland or flood mitigation/detention works on the creekflat on the N side of Farmers Creek, NW of the State Miner Rail Line bridge, on a Crown Land parcel adjacent to the creek corridor. Hydraulic engineering investigations required, and agreement/consent from Department of Industry (Lands). Order of cost would be subject to size and final design. A wetland at this site could be connected to, and enhance the visual and recreation appeal of, the Saywell Street Park immediately to the SW.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, between Rail Corp land (FC4) & Saywell St, including State Mine Rail Line *	<p><b>S Option</b> – Shared path through tunnel under the rail embankment (linking to Rail Corp land to E, refer FC4), then on-ground shared path along S side creekbank to Saywell St, *</p> <p><b>or</b></p> <p><b>N Option</b> - Elevated boardwalk under the rail bridge on S side of creek and up onto creek to W (approx. 40-45m long), safety railings needed along much of boardwalk, then on-ground shared path along S side creekbank to Saywell St. *</p>	✓	Proposed shared path, or elevated boardwalk and shared path		Amenity plantings. (NSRP)	Agreement of State Mine Rail Line owners required. Tunnel (S option) could widen/extend an existing tunnel part way through embankment from W. Part of elevated boardwalk (N option) could be attached to S abutment of existing rail bridge – but structural engineering and hydraulic performance assessments required.	<p><b>N Option costed</b></p> <p>Elevated boardwalk/bridge (with railings), under rail bridge (45m) (estimate only, cost will be dependent on final design, support/anchor methods and alignment)</p> <p>\$450,000</p> <p>Shared path (55m)</p> <p>\$11,930</p> <p>Amenity plantings (say 40m²)</p> <p>\$1,600</p>

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Saywell St Park, adjacent to Saywell St & Inch St	Shared path along E side of park, adjacent to Saywell St. Upgrade existing footpath along Inch St, S side of park, to shared path standard.	✓	Proposed shared path		Native tree planting to perimeter of park	Paths are aligned to retain usable open space in Saywell St Park.	Shared path (120m, Saywell St) \$23,400 Widen footpath to shared path (180m x 1.5m, Inch St) \$21,600 Spaced or "specimen" trees (x 8) \$7,800
Saywell St Park, adjacent to Farmers Creek	Shared path to perimeter of park, along top of creek bank. Path "junction" at W end of Saywell St Park - creekside shared path links NW to proposed bridge over Farmers Creek and S to Inch St, as well as shared path directly linking proposed bridge to Inch St (and further link, via upgraded footpath along Inch St footpath, to Lake Pillans Wetlands).	✓	Proposed shared path		Additional amenity tree and shrub plantings along creek, and at path junction. (NSRP)	Path alignment at the N end of Saywell St is routed to avoid the cut banks on Saywell Park boundary. Paths are aligned to retain usable open space in Saywell St Park. Reinforce existing creekside plantings.	Shared path (235m, creekside in Saywell St Park) \$45,830 Shared path junction (40m) \$7,800 Amenity plantings (say 120m²) \$4,800
Saywell St Park, creek corridor at NW end **	Bridge (approx. 25m long), to shared path standard, angled over creek.	✓	Proposed shared path – bridge (to standard)		(NSRP)	Aligned SE to NW.	Bridge (25m) \$208,900

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, between Saywell St Park & Atkinson - Laidley Sts open space (E side) **	Shared path, as elevated boardwalk with safety railing creekside, along N side of creek (approx. 45m long, at rear of 17 & 19 Laidley St).	✓	Proposed shared path - elevated boardwalk		Limited amenity plantings (narrow corridor). (NSRP)	Narrow creekbank with steep drop to channel - flooding and hydraulic performance impacts of structure may be warranted. Sections of boardwalk above steep creekbank likely to require safety railing (one side) (approx. 30m).	Elevated boardwalk with safety railing (partial barrier style) one side only (30m) \$87,000 Elevated boardwalk (15m) \$37,500 Amenity plantings (say 50m²) \$2,000
Atkinson - Laidley Sts open space (E side) **	Shared path around S perimeter, and across to NW corner, of open space.	✓	Proposed shared path		Native plantings to perimeter of park and along creek edge. Filter plantings along creekside of path (along park's S margin).	Path alignment in the open space to skirt the perimeter to retain usable open space.	Shared path (60m) \$11,700 Filter plantings (35m²) \$1,330 Amenity plantings (say 30m²) \$1,200
Atkinson St **	Zebra or refuge crossing on Atkinson St, on S side of Laidley St. Install signposting on road and approaches (both sides of crossing).	✓	Proposed road crossing (to standard)		-	-	Zebra crossing (including on-road marking , layback kerbs each side, and warning signs x 6) \$5,330

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor between Atkinson St & W/SW of end of Burton St	None	✓	As per Stage 2.				Nil cost
Burton St between Inch St & creek corridor/channel	None	✗	As per Stage 1. This link becomes redundant (as the main shared route) once the proposed shared path is developed along the creek corridor between Burton St and Atkinson St in Stage 2.				Nil cost
Total Order of Cost FC5 (Stage 3)* \$929,720							
* includes \$18,730 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
* excludes any on-going weed control works and native plantings to the creek corridor (if and where required after implementation of Stage 2 measures).							
* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense							
Notes							
* The proposed creek corridor route between the Rail Corp land (refer FC4), across the State Mine Rail Line corridor, to Saywell St is only viable if: <ul style="list-style-type: none"><li>Rail Corp agrees for the path to pass over their block at the N end of Wilson St (S side of Farmers Creek, refer FC4) on the E side of the State Mine Rail Line;</li><li>the owners of the State Mine Rail Line agree to the path passing across their rail corridor (via a tunnel under rail line [S option], or as an elevated boardwalk under existing rail bridge over creek [N option]); and</li><li>these works are feasible, from a financial and engineering perspective.</li></ul> If this proposed creek corridor route is not achievable then an alternative route (Option 3b), suitable for upgrading to shared path standard, is possible via: <ul style="list-style-type: none"><li>upgrading the footpath along the N side of Inch St, between the rail bridge and Drurie St (with the additional option of continuing this upgraded footpath from Drurie St to Saywell St), and;</li><li>providing a shared path on the E side of Drurie St, between Inch St to the N end of Drurie St (linked to the proposed on-ground shared path along the S side of the creek between Drurie St and Saywell St).</li></ul>							

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
**	<p>If the proposed creek corridor route between Saywell St Park and Atkinson St is not viable an alternative route (Option 3a), suitable for upgrading to shared path standard, is possible via:</p> <ul style="list-style-type: none"> <li>• upgrading the footpath along the N side of Inch St, between Saywell St Park and Atkinson St;</li> <li>• providing a refuge or zebra crossing on Atkinson St, at Inch St, and;</li> <li>• upgrading the footpath along the W side of Atkinson St from Inch St to Laidley St to shared path standard (may require reducing road carriageway width) and installing (adjusting) existing safety railings on the Atkinson St bridge (and new kerbside railing if required).</li> </ul>						
NSRP	<p>Proposed native species riparian plantings and revegetation of the creek corridor along the shared path's route (Stage 2) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path.</p>						

## PLANNING UNIT VoCC3 NORTH and SOUTH – Inch St (*north*) to Main Western Railway (*south*) and Inch Street (*south-west*)

### Stage 1 Works (VoCC3 N & S)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Inch St, at Saywell St Park / Lake Pillans	Refuge crossing over Inch St, between the northern and southern portions of Saywell St Park. Install signposting on road and approaches (both sides of crossing).	✓	Proposed road crossing (to standard)		-	Links to footpath (proposed for future upgrading to shared path) along S side of main/N Saywell St Park	See FC5 (Stage 1) for order of cost
Saywell St Park (south)	New shared path through Saywell St Park to Lake Pillans Wetlands (N end). Park furniture (including seating, bubbler and shade) adjacent to the playground for dual use.	✓	Proposed shared path		Scattered amenity plantings along path (limited by park's role as floodway)	Adjacent to playground, but elsewhere adjacent to park perimeter to retain usable open space.	Shared path (110m) \$21,450 Amenity plantings (say 50m²) \$2,000 Park furniture (seating and bubbler) \$5,100 Shade shelter (35m², tensioned shade sail on galvanised steel posts) \$14,000



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Lake Pillans Wetlands, N end	<p>Entry node at N boundary to wetlands - including seating, cycle racks and exclusion devices to prevent bicycle access to footpath.</p> <p>New footpath from entry point E/SE to connect with existing loop path (E side)</p> <p>New shared path approaches (N and SW) and proposed bridge (approx. 30m long), to shared path standard, across narrow NW section of Lake Pillans (N end).</p>	✓	Proposed footpath and proposed shared path	Proposed shared path		No bicycle access proposed on loop walks around Lake Pillans (kissing gate, stile, crush/race, etc.) could be used to prevent bicycle access). Existing day use facilities at Lake Pillans, but vehicle access/parking requires definition and containment.	<p>Shared path (25m) \$4,880</p> <p>Bridge (30m) \$275,000</p> <p>Shared path (35m) \$6,830</p> <p>Seat (x 1), bike racks (x 4) &amp; chicanes (x 3) \$3,230</p> <p>Footpath 1.2m wide (95m, 114m²) \$9,120</p>
Lake Pillans Wetlands, W side	<p>Widen existing (new) concrete path along W side of Lake Pillans to shared path standard - from boardwalk in N to path junction in S.</p> <p>Bike racks and bicycle exclusion devices at W entry to existing Lake Pillans boardwalk.</p> <p>Bike racks and bicycle exclusion devices at S track junction and entry to Lake Pillans path network.</p>	✓	Proposed shared path		Amenity plantings (trees in grass) along widened shared path on W side of wetlands.	Kissing gate, stile, crush/race, etc. could be used to prevent bicycle access.	<p>Widen path to shared path width (175m, 210m²) \$16,800</p> <p>Bike racks (x 4) &amp; chicanes (x 3) \$1,430</p> <p>Bike racks (x 4) &amp; chicanes (x 3) \$1,430</p> <p>Amenity plantings (say 80m²) \$3,200</p>

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Lake Pillans Wetlands (S) to Blast Furnace Park (E side)	New pedestrian-only steps (sealed/concrete) from Lake Pillans path network S junction winding upslope to top of rise (E side of Blast Furnace Park). Relocate sculptures and seats on existing switchback concrete path to proposed pedestrian-only steps.	✗	Use proposed pedestrian-only steps, and existing path (not to standard)	Use existing path (not to standard)	Provide "malleable" plantings at turn on switchback path. Indigenous tree plantings on grassed slope around the existing path and proposed steps.	Existing switchback concrete path available (but not recommended) for shared use (not to standard) and the only route for bicycle use. Existing sculptures and seats beside switchback path are a hazard for cyclists.	Concrete steps and landings (40m) \$28,000 Relocate sculptures and seats (estimate only) \$1,500 "Malleable plantings" at switchback (20m²) \$1,040 Spaced or "specimen" native trees (x 6) \$5,850
Blast Furnace Park (E side)	None	✗	Use existing path (not to standard)		Potential for amenity/shade plantings across open grassed terrace – if consistent with Heritage Management Plan	Existing sheltered picnic tables at top of rise	Nil cost
Blast Furnace Park car park	New footpath (not to standard) across S side of heritage area – to link existing paths (not to standard) on E and W sides of car park and grassed area	✗	Use existing paths and proposed link footpath (not to standard)	Use existing paths and proposed link (not to standard), or through car park		Existing paths (not to standard) on W side continues S, adjacent to driveway, to Blast Furnace Park Rd	Footpath 1.2m wide (65m, 78m²) \$6,240

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Blast Furnace Park Rd	Unmarked road crossing. Traffic calming device west of road crossing point.	✗	Unmarked road crossing		Ensure clear visibility on approaches to crossing	Low speed environment (plus proposed traffic calming device for vehicles approaching from W)	Raised threshold \$4,000
Blast Furnace Park Rd to Inch St	New shared path on grassy slope S side of Blast Furnace Park Rd between carpark in E and Inch St in W - linking heritage features adjacent to the rail line.	✓	Proposed shared path		Amenity plantings (indigenous trees in grass and clumped mixed plantings) – if consistent with Heritage Management Plan.	Refer to Heritage Management Plan re additional pre-requisites, investigations and conditions.	Shared path (280m) \$60,200 Amenity plantings (say 150m²) \$6,000 Spaced or “specimen” trees (x 6) \$5,850
Inch St road crossing (at Blast Furnace Park Rd)	Refuge crossing on Inch St, S of Blast Furnace Park Rd. Install signposting on path and road (both sides of crossing).	✓	Proposed road crossing (to standard)		-	Links to existing footpaths on W side of Inch St – N to Farmers Creek and S-SW along sculpture walk to CBD.	Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Inch St (Blast Furnace Park Rd) to Burton St	None	X	Use existing footpath on W side of Inch St	Use road pavement	-	Links SW end of path through Lake Pillans Wetlands and Blast Furnace Park to Burton St and connections to Farmers Creek – offering a larger loop route (Farmers Creek - Lake Pillans Wetlands - Blast Furnace Park).	Nil cost
<p style="text-align: right;"><b>Total Order of Cost VoCC3 N &amp; S (Stage 1)* \$491,790</b></p> <p>* includes \$23,940 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements</p> <p>* excludes costs of Lithgow City Council's current, and on-going, landscape maintenance/management works at the Lake Pillans Wetlands and Blast Furnace Park</p>							

## Stage 2 Works (VoCC3 N & S)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Inch St crossing (at Saywell St Park) to S track junction at Lake Pillans Wetlands	None,	✓	As per Stage 1 (no separate/additional proposed Stage 2 works)				Nil cost
Lake Pillans Wetlands (S) to Blast Furnace Park (E side)	Upgrade/widen existing switchback path to shared path standard - for 2 way bicycle use and shared use (mobility scooter, elderly, all-abilities access).	✓	Upgraded switchback path or pedestrian -only steps, (from Stage 1)	Upgraded switchback path	-	Gradients of switchback path require checking for all-abilities access standards	Upgrade/widen existing switchback path to shared path (1.2m for 95m, 114m <sup>2</sup> ) \$9,120
Blast Furnace Park (E side)	Upgrade/widen existing footpath to shared path standard across open grassed terrace E side of Blast Furnace Park	✓	Proposed shared path			Within the context of the proposed redevelopment of the Blast Furnace heritage site, and as consistent with Heritage Management Plan.	Upgrade/widen existing footpath to shared path (1.2m for 90m, 108m <sup>2</sup> ) \$8,640

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Blast Furnace Park heritage site & car park	Upgrade/widen existing paths (existing and from Stage 1), through main heritage site and carpark to shared path standard	✓	Proposed shared path		Landscape treatments as consistent with Heritage Management Plan	Existing brick path N of Blast Furnace Park Rd removed and replaced by concrete shared path. Within the context of the proposed redevelopment of the Blast Furnace heritage site, and as consistent with Heritage Management Plan.	Upgrade/widen existing path to shared path (1.2m for 65m, 78m²) \$6,240 Remove brick path and replace with shared concrete path (30m) \$6,850
Blast Furnace Park Rd to Inch St	None	✓	As per Stage 1				Nil cost
Inch St former rail bridge	Investigate possible use of disused rail bridge over Inch St as alternative/additional link between Blast Furnace Park and Inch St (and beyond).	n/a	To be determined			Could connect with proposed shared path along grassed slope S of Blast Furnace Park Rd as addtioabl/alternati ve route to Inch St W footpath (via stairs off rail bridge (but unsuitable for cyclists).	Council (in-house) investigation

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Inch St (Blast Furnace Park Rd) to Burton St	None	✓	As per Stage 1				Nil cost
Total Order of Cost VoCC3 N & S (Stage 2)* \$30,850							
* includes \$5,000 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
* excludes costs of Lithgow City Council's current, and on-going, landscape maintenance/management works at the Lake Pillans Wetlands and Blast Furnace Park.							

### Stage 3 Works (VoCC3 N & S)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Inch St crossing (at Saywell St Park), through Lake Pillans Wetlands & Blast Furnace Park to Inch St (S)	None	✓	As per Stages 1 and 2				Nil cost
Inch St (Blast Furnace Park Rd) to Burton St	Upgrade footpath on W side of Inch to shared path.	✓	Proposed shared path		Street trees	Reduce road pavement as required to accommodate shared path with nature strips either side. Reinforcing the larger loop route (Farmers Creek - Lake Pillans Wetlands - Blast Furnace Park). Works to Inch Street road corridor may require heritage assessment (passes through Inch Street Heritage Conservation Area [local significance] and constituent heritage items).	Remove existing kerb and margin (2.5m wide) of bitumen roadway (W side), fill to level of adjacent, and new kerb and gutter (420m) \$119,070 Remove existing concrete footpath (420m), fill, and top dress and returf \$29,140 Shared path (420m) \$81,900 Kerb laybacks (x3) \$1,560 Street trees (x 16) \$3,310



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
<b>Total Order of Cost VoCC3 N &amp; S (Stage 3)* \$234,980</b>							
* includes \$3,310 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
* excludes costs of Lithgow City Council's current, and on-going, landscape maintenance/management works at the Lake Pillans Wetlands and Blast Furnace Park.							

## PLANNING UNIT VoCC2 – opposite, west of, Berry St (*south*) to opposite, east of, Boundary St (*north*)

### Stage 1 Works (VoCC2)

- Confirm public land boundaries (and clearly mark on-ground) and negotiate removal of encroachments (not costed).
- No separate Stage 1 “hard” or “soft” works proposed (i.e. development of shared path, recreation facilities and amenity or other plantings), due to isolation of the middle/upper reaches of Vale of Clwydd Creek from remainder of the public land estate and limited connectivity to the existing path network.

### Stage 2 Works (VoCC2)

- Ensure public land boundaries are observed, with progressive removal of encroachments (and no new encroachments).
- No separate Stage 1 “hard” or “soft” works proposed (i.e. development of shared path, recreation facilities and amenity or other plantings), due to isolation of the middle/upper reaches of Vale of Clwydd Creek from remainder of the public land estate and limited connectivity to the existing path network. Weeding and native vegetation planting / regeneration measures only – building on previous weed control and revegetation measures undertaken by Council S and N of Mort St.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	<p>New, or on-going (current “low” weed density areas), weeding and native vegetation planting / regeneration areas.</p> <ul style="list-style-type: none"> <li>• Previous weed control and revegetation sites now rated as low concentration (5-25% cover) weed areas (9,056m<sup>2</sup> total - in two areas, 2,016 m<sup>2</sup> south of Mort Rd and 7,040m<sup>2</sup> north of Mort Rd): <ul style="list-style-type: none"> <li>▫ follow-up weeding and replacement plantings (over 50% of area) in previously treated site south of Mort Rd - 2,016 m<sup>2</sup></li> </ul> </li> </ul>						
			n/a		Replacement planting density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Follow-up weeding of previously treated sites costed at “maintenance weeding – year 1” rates)	2,480

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit (cont'd)	<ul style="list-style-type: none"> <li>follow-up weeding and replacement plantings (over 70% of area) in previously treated site North of Mort Rd - 7,040m<sup>2</sup></li> </ul>		n/a		Replacement planting density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Follow-up weeding of previously treated sites costed at "maintenance weeding – year 1" rates)	9,290
	<ul style="list-style-type: none"> <li>year 2 weeding (both areas - 9,056m<sup>2</sup> total)</li> </ul>		n/a		-	-	8,160
	<ul style="list-style-type: none"> <li>year 3 weeding (both areas - 9,056m<sup>2</sup> total)</li> </ul>		n/a		-	-	6,800
	<ul style="list-style-type: none"> <li>year 4 weeding (both areas - 9,056m<sup>2</sup> total)</li> </ul>		n/a		-	-	5,890
	<ul style="list-style-type: none"> <li>year 5 weeding (final) (both areas - 9,056m<sup>2</sup> total)</li> </ul>		n/a		-	-	4,530
	<ul style="list-style-type: none"> <li>Medium concentration (25-50% cover) weed areas (1,374m<sup>2</sup>):               <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	10,930
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	2,400
	<ul style="list-style-type: none"> <li>year 2 weeding</li> </ul>		n/a		-	-	2,070
	<ul style="list-style-type: none"> <li>year 3 weeding</li> </ul>		n/a		-	-	1,720
	<ul style="list-style-type: none"> <li>year 4 weeding</li> </ul>		n/a		-	-	1,520
	<ul style="list-style-type: none"> <li>year 5 weeding (final)</li> </ul>		n/a		-	-	1,170

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
	<ul style="list-style-type: none"> <li>High concentration (&gt;70% cover) weed areas (1,490m<sup>2</sup> total): <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 80% coverage), supply and plant-out tubestock</li> <li>year 1 weeding and replacement plantings</li> <li>year 2 weeding</li> <li>year 3 weeding</li> <li>year 4 weeding</li> <li>year 5 weeding (final)</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 4m <sup>2</sup> (i.e. 2.9m spacings).	Includes establishment watering and plant guards.	13,500
			n/a		-	Replacement of 20% of original stock	3,550
			n/a		-	-	2,910
			n/a		-	-	2,460
			n/a		-	-	2,090
			n/a		-	-	1,720
<b>Total Order of Cost VoCC2 (Stage 2)* \$83,190</b>							
<p>* all estimated Stage 2 costs are for new weeding and native vegetation planting / regeneration areas, or for follow-up and on-going measures to support previous weeding and native vegetation planting / regeneration areas, along the creek corridor (bed and banks)</p> <p>* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense</p>							
<b>Notes</b>							
Originally vegetated (but weedy) creek corridor, and proposed native species riparian plantings and revegetation of the creek corridor (after weed control), will act to filter local surface stormwater entering the creek channel.							
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							
Liaison will be required with upstream private landholders to ensure effectiveness of public land weed control and revegetation measures and limit reinvasion from upstream.							

### Stage 3 Works (VoCC2)

- No separate/additional Stage 3 works proposed.
- Continue weed control works and native plantings to creek corridor if and where required (not costed).

## PLANNING UNIT FC6 – Burton St (east) to Tank St (west)

### Stage 1 Works (FC6)

- Undertake weed control works and native plantings to creek corridor (as below), to support the location/upgrading a shared path along the creek corridor (in this Stage 1).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Undertake weed control works and native vegetation planting / regeneration to creek corridor (in conjunction with, or preferably in advance of, development of shared path, recreation facilities and amenity or other plantings).						
	<ul style="list-style-type: none"> <li>Low concentration (5-25% cover) weed areas (13,390m<sup>2</sup> total):                             <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 10% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	33,410
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	14,610
	<ul style="list-style-type: none"> <li>Medium concentration (25-50% cover) weed areas (5,850m<sup>2</sup> total):                             <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	30,840
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	10,190

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek crossing, W/SW of end of Burton St	Large stepping stones set into creek bed and banks (for approx.. 8 m on banks and bed), 150-200mm "freeboard" above normal flow level (suitable for walkers only not to standard)	✗	Proposed stepping stone creek crossing	Existing road network – Guy, Laidley and Atkinson STs	(NSRP)	On-road alternative route for cyclists re-joins Stage 1 route at Inch St. Crossing not suitable for mobility scooters. Not to shared path standard – will become a "redundant" connection if/when Stage 2 works undertaken (in FC5).	\$1,600 (8 sandstone blocks – 500 x 500 x 2000mm – supply only)
Creek corridor, between Burton St crossing & State Mine Creek	Shared path through existing open space along N side of creek	✓	Proposed shared path		Amenity plantings – "island" plantings of native trees, low shrubs and grasses. (NSRP)	On lower terrace beside channel in E and higher terrace above channel in W.	Shared path (150m) \$30,130 Amenity plantings (say 200m²) \$8,000

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
State Mine Creek crossing	Bridge (approx. 12m long), to shared path standard, over creek	✓	Proposed shared path – bridge (to standard)		-	Safety rails required on both sides of bridge. Located S of Guy St dead end and Armco railing. Low-level boardwalk (1 m above bed level) with ramped (excavated) approaches would be a cheaper alternative.	Bridge (12m) \$80,000
Creek corridor, between Guy St & Macauley St	Shared path through existing (and possibly enlarged) open space on N side of creek. Park seating in Guy St open space (and shelter or other facilities if open space enlarged).	✓	Proposed shared path		Provide tree plantings to creek edge of Guy St open space. Remove Poplars close to creekbank (at corner of Guy and Macauley Sts) and replace with native trees. (NSRP)	Skirt path to S edge of perimeter of existing (and possibly enlarged) park along creek bank. Realigning Guy St (to create larger park) would also allow a section of former carriageway to be repurposed as shared path.	Shared path (140m) \$27,300 Spaced or “specimen” tree plantings (x 6) \$5,850 Park furniture \$2,450

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Between Macauley St & Tank St	Shared path above NW side of creek, off SE side of Macauley St. Upgrade short section of existing footpath approach to Tank St bridge to shared path standard.	✓	Proposed shared path		Provide shade trees along path alignment (N side). Plantings of native grasses between Macauley St and shared path. Plantings on S side of creek to screen industrial premises. (NSRP)	Offset path from Macauley St road pavement and provide bollard or safety railings as required. Contain/prevent roadside parking to protect path and users.	Shared path (330m) \$63,100 Bollards (say 35) \$5,950 Edge plantings (Macauley St, say 250m²) \$9,500 Screening plantings (say 700m², at 4 plants per m²) \$26,600
Tank St	Zebra or refuge crossing on Tank St at Macauley St Install signposting on path and road (both sides of crossing).	✓	Proposed road crossing (to standard)		-	Traffic engineering input required to ensure safe positioning and appropriate crossing type (zebra or refuge).	Zebra crossing (including on-road marking, layback kerbs each side, and warning signs x 6) \$5,330
<b>Total Order of Cost FC6 (Stage 1)* \$354,860</b>							
* includes \$49,950 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
* includes \$89,050 for weed control works and native vegetation planting / regeneration to the creek corridor (bed and banks)							
<b>Notes</b>							
NSRP Proposed native species riparian plantings and revegetation of the creek corridor along the shared path's route (this Stage) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path.							
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							



## Stage 2 Works (FC6)

- No separate/additional Stage 2 “hard” or “soft” works proposed (i.e. development of shared path, recreation facilities and amenity or other plantings).
- Ongoing weed control works and native plantings to creek corridor (as below) - to support Stage 1 weeding and native vegetation planting / regeneration areas, and further enhance the setting/amenity of the shared path along the creek corridor from Stage 1.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Continue weed control works within Stage 1 weeding and native vegetation planting / regeneration areas. <ul style="list-style-type: none"> <li>Low concentration (5-25% cover) weed areas (13,390m<sup>2</sup> total): <ul style="list-style-type: none"> <li>year 2 weeding</li> <li>year 3 weeding</li> <li>year 4 weeding</li> <li>year 5 weeding (final)</li> </ul> </li> <li>Medium concentration (25-50% cover) weed areas (5,850m<sup>2</sup> total): <ul style="list-style-type: none"> <li>year 2 weeding</li> <li>year 3 weeding</li> <li>year 4 weeding</li> <li>year 5 weeding (final)</li> </ul> </li> </ul>		n/a		-	-	12,060
			n/a		-	-	10,050
			n/a		-	-	8,710
			n/a		-	-	6,700
			n/a		-	-	8,780
			n/a		-	-	7,320
			n/a		-	-	6,440
			n/a		-	-	4,980
<b>Total Order of Cost FC6 (Stage 2)* \$65,040</b>							
* all estimated Stage 2 costs are for on-going weed control works, to support Stage 1 weeding and native vegetation planting / regeneration areas along the creek corridor (bed and banks)							
<b>Notes</b>							
Proposed ongoing weed control and native species riparian plantings and revegetation of the creek corridor, and along the shared path's route (Stage 1) will act to filter stormwater running off the path surface (and other local surface stormwater) and negate the need for specific filter strip plantings along the creekside of the path.							

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							

### Stage 3 Works (FC6)

- No separate/additional Stage 3 works proposed.
- Continue weed control works and native plantings to creek corridor if and where required (not costed).
- Two potential sites for offline wetlands or flood mitigation/detention works on the lower broad creekflats on the S side of Farmers Creek, opposite Guy St and the (existing) Guy-Macauley Sts intersection. Hydraulic engineering investigations required. Order of cost would be subject to size and final design. Wetland opposite Guy St open space would enhance the visual and recreation appeal of this area.

## PLANNING UNIT SMC2 – confluence with Farmers Creek (*south*) to NW of end of Pillans Rd (*north*)

### Stage 1 Works (SMC2)

- Confirm public land boundaries (and clearly mark on-ground) and negotiate removal of encroachments.
- No separate Stage 1 “hard” or “soft” works proposed (i.e. development of shared path, recreation facilities and amenity or other plantings) due to limited extent and poor connectivity of public land along the State Mine Creek corridor. Weeding and native vegetation planting / regeneration measures only (Council weed control and revegetation measures are at present underway in this area).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Undertake weed control works and native vegetation planting / regeneration to public lands along the creek corridor – treating majority of available public lands (including creek bed/banks, slopes, creek flats or overbank flow areas and benches).						
	<ul style="list-style-type: none"> <li>• Medium concentration (25-50% cover) weed areas (2,230m<sup>2</sup> total):                             <ul style="list-style-type: none"> <li>▫ primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li> <li>▫ year 1 weeding and replacement plantings</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	11,760
	<ul style="list-style-type: none"> <li>• High concentration (&gt;70% cover) weed areas (12,103m<sup>2</sup> total):                             <ul style="list-style-type: none"> <li>▫ primary weeding sweep, mulch (at 80% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		-	Replacement of 20% of original stock	3,890
			n/a		Plant-out density of 1 plant per 4m <sup>2</sup> (i.e. 2.9m spacings).	Includes establishment watering and plant guards.	109,630

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
	▫ year 1 weeding and replacement plantings		n/a		-	Replacement of 20% of original stock	28,780
<p style="text-align: right;"><b>Total Order of Cost SMC2 (Stage 1)* \$154,060</b></p> <p>* all estimated Stage 1 costs are for weeding and native vegetation planting / regeneration areas within the public lands along the creek corridor (bed and banks)</p> <p>* excludes current weed control and native vegetation planting / regeneration area along that section of State Mine Creek W and NW of the N end of Pillans Rd (works underway and [initial] funds committed/allocated).</p> <p>* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense</p>							
<b>Notes</b>							
Public land along State Mine Creek within this Planning Unit comprises a mix of Council owned/managed land, Crown land, and road reserves. Sections of the actual/physical creek channel, in the centre and N of this Planning Unit, are within private land.							
Originally vegetated (but weedy) creek corridor, and proposed native species riparian plantings and revegetation of the creek corridor (after weed control), will act to filter local surface stormwater entering the creek channel.							
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							
Liaison will be required with upstream private landholders (especially properties with areas of extensive/dense weeds along the creek corridor) to ensure effectiveness of public land weed control and revegetation measures and limit reinvasion from upstream.							

## Stage 2 Works (SMC2)

- Ensure public land boundaries are observed, with progressive removal of encroachments (and no new encroachments).
- No separate Stage 1 “hard” or “soft” works proposed (i.e. development of shared path, recreation facilities and amenity or other plantings) due to limited extent and poor connectivity of public land along the State Mine Creek corridor. Weeding and native vegetation planting / regeneration measures only.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Continue weed control works within Stage 1 weeding and native vegetation planting / regeneration areas (including follow-up/maintenance weeding in the previous [current/Stage 1] Council weeding and revegetation area off N end of Pillans Rd).						
	<ul style="list-style-type: none"> <li>• Medium concentration (25-50% cover) weed areas (2,230m<sup>2</sup> from Stage 1 [above] and 3,805m<sup>2</sup> of previous [current/Stage 1] area = 6,035 m<sup>2</sup> total):               <ul style="list-style-type: none"> <li>▫ year 2 weeding</li> <li>▫ year 3 weeding</li> <li>▫ year 4 weeding</li> <li>▫ year 5 weeding (final)</li> </ul> </li> <li>• High concentration (&gt;70% cover) weed areas (12,103m<sup>2</sup> total):               <ul style="list-style-type: none"> <li>▫ year 2 weeding</li> <li>▫ year 3 weeding</li> <li>▫ year 4 weeding</li> <li>▫ year 5 weeding (final)</li> </ul> </li> </ul>						
			n/a		-	-	9,060
			n/a		-	-	7,550
			n/a		-	-	6,640
			n/a		-	-	5,130
			n/a		-	-	23,610
			n/a		-	-	19,970
			n/a		-	-	16,950
			n/a		-	-	13,920

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
<p style="text-align: right;"><b>Total Order of Cost SMC2 (Stage 2)* \$102,830</b></p> <p>* all estimated Stage 2 costs are for on-going weed control works, to support Stage 1 weeding and native vegetation planting / regeneration areas along the creek corridor (bed and banks)</p> <p>* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense</p>							
<b>Notes</b>							
Public land along State Mine Creek within this Planning Unit comprises a mix of Council owned/managed land, Crown land, and road reserves. Sections of the actual/physical creek channel, in the centre and N of this Planning Unit, are within private land.							
Originally vegetated (but weedy) creek corridor, and proposed native species riparian plantings and revegetation of the creek corridor (after weed control) (Stages 1 and 2), will act to filter local surface stormwater entering the creek channel.							
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							
Liaison will be required with upstream private landholders (especially properties with areas of extensive/dense weeds along the creek corridor) to ensure effectiveness of public land weed control and revegetation measures and limit reinvasion from upstream.							

### Stage 3 Works (SMC2)

- No separate/additional Stage 3 works proposed.
- Continue weed control works and native plantings to creek corridor if and where required (not costed).

## PLANNING UNIT FC7 EAST – Tank St (east) to Sandford Ave (west)

### Stage 1 Works (FC7 E)

- Confirm public land boundaries (and clearly mark on-ground) as/where required.
- Undertake weed control works and native plantings to creek corridor (as below), to support the location/upgrading a shared path along the creek corridor (in this Stage 1 and later Stages 2 and 3).
- Undertake progressive removal of introduced trees (e.g. Poplars and Pines) and undertake native plantings (including native trees where overhead power lines and space permits) to the creek corridor (banks and creek flats in east, and overbank flats along canal section) with, or preferably in advance of, development of shared path along the creek corridor (Stage 1 onwards) (not costed).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	<p>Undertake weed control works and native vegetation planting / regeneration to creek corridor E/upstream of channelised (concrete) section of creek (in conjunction with, or preferably in advance of, development of shared path, recreation facilities and amenity or other plantings).</p> <ul style="list-style-type: none"> <li>Medium concentration (25-50% cover) weed areas (5,380m<sup>2</sup> total):</li> </ul>						

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
	<ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Mulching (at 35% cover) and planting out (all) limited to semi-natural creek corridor in E, and along banks of engineered/ trapezoid channel in W (before concrete canal). Includes establishment watering and plant guards.	27,180
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	9,330
Creek corridor, between Tank St & W end of "dog park"	New shared path W of Tank Street, and upgrade/replace existing path with shared path to W end of "dog park", on N side of creek	✓	Proposed shared path		Filter plantings along creekside of path (if required, i.e. prior to weed control and revegetation of adjacent creekline, otherwise NSRP). Amenity plantings.	Align new shared path closer to the creek corridor (avoid existing trees).	Demolition and removal of bitumen path \$2,570 Vegetation clearing (say) \$500 Shared path (215m) \$41,930 Filter plantings (215m <sup>2</sup> ) (if required) \$8,170 Amenity plantings (say 200m <sup>2</sup> ) \$8,000



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Large canal, Beynon St to Crane Rd	Investigate measures to increase the habitat value of existing large constructed stormwater canal (e.g. embedded rock bars)	n/a	n/a	n/a	-	Implement if minimal detriment to hydraulic and flood mitigation performance, and can be adequately maintained	Council (in-house) investigation
Creek corridor & along Sandford Ave, between W end of "dog park" & Crane Rd	No path works. Stormwater filter and amenity plantings only	✗	Existing bitumen path (not to shared path standard)	Existing bitumen path (not to shared path standard), or adjacent roadway	Filter plantings along creekside of existing path. Undertake tree plantings between existing path and Sandford Ave in area W of "dog park" (where overhead power lines permit).	Existing path on N side of large stormwater canal in E and S side of Sandford Ave in W. Signposted as a shared path, but not to (2.4m) standard.	Filter plantings (310m²) \$11,780 Spaced or "specimen" native tree plantings (x 5) \$4,880
Sandford Ave, roadside W of Crane Rd to drainage line	Safety railings and tree plantings (with barrier surrounds) where path adjoins road pavement in Sandford Ave	✗	Existing bitumen path along creek side of Sandford Ave	Existing bitumen path (not to shared path standard), or adjacent roadway	Plant native trees with barrier surrounds where path adjoins road pavement in Sandford Ave (NSRP)	Vehicle barrier/railing along road edge (e.g. post and cable) - requires traffic engineering input to ensure proposed works meet relevant standards (and don't pose a risk to vehicles or path users). Existing path is signposted as a shared path, but not to (2.4m) standard.	Armco road/vehicle barrier (100m) \$42,600 Semi-mature trees in architectural tree guards (x 7) \$8,890

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Sandford Ave, W of Marjorie Jackson Oval	No path works, amenity plantings only	X	Existing bitumen path (not to shared path standard)	Existing bitumen path (not to shared path standard), or adjacent roadway	Undertake tree plantings between Sandford Ave and the creek, where overhead power lines and space permits. (NSRP)	Existing path is signposted as a shared path, but not to (2.4m) standard.	Spaced or "specimen" tree plantings (x 12) \$11,700
<b>Total Order of Cost FC7 E (Stage 1)* \$177,530</b>							
* includes \$53,420 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
* includes \$36,510 for weed control works and native vegetation planting / regeneration to the creek corridor (bed and banks)							
<b>Notes</b>							
NSRP Proposed native species riparian plantings and revegetation of the creek corridor along the shared path's route (this Stage) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path (except when adjacent to existing stormwater canals where revegetation efforts will be restricted).							
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							

## Stage 2 Works (FC7 E)

- Ongoing weed control works and native plantings to creek corridor (as below) - to support Stage 1 weeding and native vegetation planting / regeneration areas, and further enhance the setting/amenity of the shared path along the creek corridor (as developed/upgraded over all Stages).
- Continue progressive removal of introduced trees (e.g. Poplars and Pines) and undertake native plantings (including native trees where overhead power lines and space permits) to the creek corridor (banks and creek flats in east, and overbank flats along canal section) with, or preferably in advance of, development of shared path along the creek corridor (not costed).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Continue weed control works within Stage 1 weeding and native vegetation planting / regeneration areas. <ul style="list-style-type: none"> <li>• Medium concentration (25-50% cover) weed areas (5,380m<sup>2</sup> total):               <ul style="list-style-type: none"> <li>▫ year 2 weeding</li> <li>▫ year 3 weeding</li> <li>▫ year 4 weeding</li> <li>▫ year 5 weeding (final)</li> </ul> </li> </ul>						
			n/a		-	-	8,070
			n/a		-	-	6,730
			n/a		-	-	5,920
			n/a		-	-	4,580
Creek corridor, between Tank St & W end of "dog park"	none	✓	As per Stage 1				Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, between W end of "dog park" & proposed bridge to Marjorie Jackson Oval	Upgrade/replace existing path with shared path on N side of creek	✓	Proposed shared path		As per Stage 1 – retain or new filter plantings along creekside of existing path.		Demolition and removal of bitumen path \$2,400 Shared path (105m) \$20,480
Creek corridor, opposite N end of Beynon St	Bridge (approx. 20m long), to shared path standard, across large stormwater canal	✓	Proposed shared path – bridge (to standard)		-	Safety rails required on both sides of bridge, and along canal edge on both approaches. Bridge crosses canal at 90°, from NE (below Sandford Ave) to SW (onto bench beside canal, off NE corner of Marjorie Jackson Oval).	Bridge (20m) \$144,000 Safety railings (partial barrier style) (4 x 5m) \$5,600

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Marjorie Jackson Oval, N side	Shared path along S side of creek, up slope to W and along N side of Marjorie Jackson Oval. Upgrade stormwater canal railings to safety standard.	✓	Proposed shared path		Filter plantings along creekside of path (along bench beside stormwater canal). Supplementary amenity plantings along path on N side of oval (to reinforce existing line of native trees). Route path to avoid existing trees and root zones.	From proposed bridge over large stormwater canal – route runs W along bench, then up/across slope to top of bank (at NE corner of Marjorie Jackson Oval) then along N side of oval. . Path may need protection (separation) from spectators' vehicles and adhoc parking on N side of oval (bollards or low post-and-rail timber fencing).	Shared path (215m) \$43,530 Safety railings (partial barrier style) (45m) \$12,600 Bollards (48 over 145m) \$8,160 Filter plantings (40m²) \$1,520 Supplementary amenity plantings (say 100m²) \$4,000
Marjorie Jackson Oval, W side	None	✗	Use existing service road (not to standard)		-	Substandard surface. Shared route with spectators' vehicles when oval in use (and service vehicles) – potential congestion and safety issues.	Nil cost
<p style="text-align: right;"><b>Total Order of Cost FC7 E (Stage 2)* \$267,590</b></p> <p>* includes \$5,520 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements</p> <p>* includes \$25,300 for on-going weed control works, to support Stage 1 weeding and native vegetation planting / regeneration areas along the creek corridor (bed and banks)</p>							

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Notes							
Stage 1 route along S and E side of Sandford Ave (and crossing Sanford Ave and Coalbrook St in FC7 West) would remain available following development of proposed Stage 2 links (as per table above) – offering a possible “local loop” (Beynon St to Coalbrook St).							
NSRP	Proposed native species riparian plantings and revegetation of the creek corridor along the shared path’s route (Stages 1 and 2) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path (except when adjacent to existing stormwater canals where revegetation efforts will be restricted).						
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							

### Stage 3 Works (FC7 E)

- Potential site for a small offline wetland or flood mitigation/detention works on the creekflat on the N side of Farmers Creek, W of the existing dog park and S of Sandford Ave. Hydraulic engineering investigations required. Order of cost would be subject to size and final design. Wetland opposite Guy St open space would enhance the visual and recreation appeal of this area.
- Two potential sites for offline wetlands or flood mitigation/detention works on the creekflats on the S side of Farmers Creek, inside the sweeping bend opposite Sandford Ave.
- Hydraulic engineering investigations required for all wetland or flood mitigation/detention works. Orders of cost would be subject to size and final design.
- Wetlands would enhance the visual and recreation appeal of these areas.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Tank St, far NW end & existing bridge	Upgrade existing footpath on W side of Tank St to shared path standard (as far as possible) – for 65-70m to S from junction with proposed shared path (Stage 1) and road crossing in N.  Includes widening of existing footpath on W side of bridge to shared path standard (if possible, likely to be restricted), adding safety railings to kerbside edge and upgrading existing railing on W side to standard.	<div>✓</div> <div>✗</div>	Proposed shared path (and existing footpath on E side of bridge)  Possible “pinch point”.	Proposed shared path (dismount and use W footpath across bridge), or use existing road pavement	-	Widening existing W footpath across bridge likely to be restricted due to carriageway width and traffic safety/engineering requirements.	Widened footpath (30m S from bridge, and 10m N of bridge with fill) \$8,530 Safety railings (25m & 35m, full barrier style) \$28,200

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, between Tank St & opposite NE bend of Clarice St	On-ground shared path W from Tank St (N side of deep stormwater swale, and to S of Sewage Pumping Station).  Bridge (approx. 35m long), to shared path standard, angled across deep stormwater swale – from SE corner of Sewage Pumping Station in E to rear fence of private property in W.	✓	Proposed shared path and bridge (to standard)		Filter plantings along path beside deep stormwater swale. Amenity and screening plantings (to Sewage Pumping Station and private property).	Safety rails required on both sides of bridge and extending beside deep stormwater swale in W. Remove existing safety railing (not to standard) above retaining wall at end of laneway (local access point, vehicle barrier may be required).	Shared path (25m) \$4,880 Bridge (35m) \$350,000 Additional safety railings (15m, partial barrier style) \$4,200 Filter plantings (25m²) \$950 Amenity plantings (say 100m²) \$4,000 Screening plantings (say 75m²) \$3,900
Creek corridor, between creekside opposite NE bend of Clarice St & NW corner of Heffernan Place Park	Shared path along S side of creek	✓	Proposed shared path		Amenity plantings - using native trees and shrubs - along shared path and in Heffernan Place Park (consider CPTED to avoid safety issues). Avoid existing trees and root zones when aligning path along N side of Heffernan Place Park. (NSRP)	Along bench above S side of creek, mown grass at rear of private property in E. Along N side of Heffernan Place Park in W. Heffernan Place Park could be “activated” with seating, shelter and other park furniture (depending on subsidence issues).	Shared path (205m) \$39,980 Amenity plantings (say 500m²) \$20,000



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, between NW corner of Heffernan Place Park & proposed bridge	Shared path along S side of creek, down slope W from Heffernan Place Park and along bench beside large stormwater canal to proposed bridge (from Stage 2). Upgrade existing safety railing adjacent to the concrete canal to standard.	✓	Proposed shared path		Filter plantings between path and edge of large stormwater canal.	Avoid existing trees and root zones on bank and along bench beside large stormwater canal, as far as possible (some short sections of low-level boardwalk over root zones may be warranted). Links to Marjorie Jackson Oval to W.	Shared path (90m) \$19,350 Upgrade safety railings (60m, partial barrier style) \$16,800 Filter plantings (45m²) \$1,710
Marjorie Jackson Oval, N side (including bridge off oval's NE corner)	None	✓	As per Stage 1				Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Marjorie Jackson Oval, W side	Shared path (as warranted by use/demand) - separated from existing service road (preferred, depending on use/demand).	✓	Proposed shared path		Amenity plantings. (NSRP)	Fill may be required in places to run path W of service road. Alternative is upgrading the existing service road to function as a shared path (and replace or upgrade the substandard retaining wall to the oval adjacent to service road in SW), but potential conflicts with oval users and vehicles at peak periods.	Shared path (340m) \$66,300 Amenity plantings (say 150m <sup>2</sup> ) \$6,000
<b>Total Order of Cost FC7 E (Stage 3)* \$574,800</b>							
* includes \$36,560 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
<b>Notes</b>							
Stage 1 and 2 links (Beynon St to across Sanford Ave and Coalbrook St in FC7 West) would remain available following development of proposed Stage 3 links (as per the table above) – offering a possible larger “local loop” (Tank St to Coalbrook St), also with internal loop options.							
NSRP Proposed native species riparian plantings and revegetation of the creek corridor along the shared path's route (Stages 1 and 2) will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path (except when adjacent to existing stormwater canals where revegetation efforts will be restricted).							

## PLANNING UNIT FC7 WEST – Sandford Ave (east) to Albert St (west)

### Stage 1 Works (FC7 W)

- Confirm public land boundaries (and clearly mark on-ground) and negotiate removal of encroachments.
- Undertake progressive removal of introduced trees (e.g. Poplars and Pines) and undertake native plantings (including native trees where overhead power lines and space permits) to the creek corridor (overbank flats along canal) with, or preferably in advance of, development of shared path along the creek corridor (Stage 1 onwards) (not costed).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Sandford Ave road crossing (N of Coalbrook St)	Refuge crossing on Sandford Ave N of Coalbrook St, to connect to end of existing bitumen path (not to standard), on E side of road. Install signposting on path and road (both sides of crossing).	✓	Road crossing (to standard).		-	Traffic engineering investigation required to locate crossing at the safest location	Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610
Sandford Ave to Coalbrook St	New shared path along W side of Sandford Ave and N side of Coalbrook St	✓	Proposed shared path		Bush regeneration and native species plantings to the adjoining Hermitage Site Park (unmanaged contaminated lands block NW of junction of Sandford Ave and Coalbrook St) to provide biodiversity link to vegetated hillslope to NW.	Set back from edge of carriageway for safety, bollard separation if/where required	Shared path (115m) \$22,430 Bollards (10 over 20m) \$1,700 (Bush regeneration on Hermitage Site Park block not costed, as is an adjunct/link to creek corridor)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Coalbrook St road crossing (W of Sandford Ave)	Refuge crossing on Coalbrook St, W of Sandford Ave. Install signposting on path and road (both sides of crossing).	✓	Road crossing (to standard).		-	Traffic engineering investigation required to locate crossing at the safest location	Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610
Creek corridor, N of Sandford Lane	Bridge (approx. 10m long), to shared path standard, across narrow concrete canal. Short section of new path N to proposed refuge crossing on Coalbrook St	✓	Proposed shared path – bridge (to standard)		“Barrier” plantings along edge of canal at both approaches to bridge	Flat to N (to proposed refuge crossing), slightly sloped bank to S. May need to be adjusted depending on extent of proposed channelisation and flood mitigation works on this section creek.	Bridge (10m) \$65,800 Shared path (10m) \$1,950 “Barrier” plantings (say 40m²) \$2,080
Creek corridor, N & W edge of Glanmire Oval	New shared path along S and E side of Farmers Creek - along N and W margin of Glanmire Oval. Low boardwalk over tree root zone of mature Eucalypt at N edge of oval.	✓	Proposed shared path		Proposed native plantings between the path and canal, including filter strips and supplementary amenity plantings (to reinforce existing large trees, but consider CPTED to avoid safety issues)	Path alignment to negotiate the outer boundaries of sports (cricket) fields. Path aligned between the existing (old) shelter shed and large canal in SW. M/F toilets available in Glanmire Oval	Shared path (390m) \$76,050 Low-level boardwalk (say 12m) \$21,600 Filter plantings (selected lengths, not continuous, say 300m²) \$14,400 Supplementary amenity plantings (say 200m²) \$8,000

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, S side, E of Albert Ave	New shared path through open space SW of Glanmire Oval	✓	Proposed shared path		Proposed native plantings - including filter strips (where path proximate to canal) and extensive area of amenity plantings between the path and canal (consider CPTED to avoid safety issues), and screen plantings to Sewage Pumping Station	Path aligned between cricket nets and large canal, then veering S of Sewage Pumping Station and SW towards S end of Albert St bridge.	Shared path (130m) \$25,350 Filter plantings (say 25m²) \$950 Amenity plantings (say 1,300m²) \$52,000 Screening plantings (say 30m²) \$1,560
Large canal, E of Albert St	Investigate measures to increase the habitat value of existing large constructed stormwater canal (e.g. embedded rock bars)	n/a	n/a	n/a	-	Implement if minimal detriment to hydraulic and flood mitigation performance, and can be adequately maintained	
<p style="text-align: right;"><b>Total Order of Cost FC7 W (Stage 1)* \$311,150</b></p> <p>* includes \$78,990 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements</p> <p>* excludes bush regeneration and native species plantings to the Hermitage Site Park block</p> <p>* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense</p>							

## Stage 2 Works (FC7 W)

- Ensure public land boundaries are observed, with progressive removal of encroachments (and no new encroachments).
- Continue progressive removal of introduced trees (e.g. Poplars and Pines) and undertake native plantings (including native trees where overhead power lines and space permits) to the creek corridor (overbank flats along canal) with, or preferably in advance of, development of shared path along the creek corridor (not costed).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, Marjorie Jackson Oval SW entry	New shared path adjacent to access/service road off Sandford Ave. Provide pedestrian/cyclist access in existing fence, on S side of Farmers Creek at club rooms.	✓	Proposed shared path		Amenity plantings. Filter plantings along creekside of path.	Locate opening to west of existing power pole; Adjust boundary fencing at to accommodate shared path.	Shared path (125m) \$24,380 Adjustments to existing metal post-and-rail fence (say) \$600 Filter plantings (125m²) \$4,750 Amenity plantings (say 50m²) \$2,000
Sandford Ave road crossing	Refuge crossing on Sandford Ave S of road bridge. Install signposting on path and road (both sides of crossing). Adjust fencing at entry to Marjorie Jackson Oval (on Sandford Ave) to provide pedestrian/cyclist access.	✓	Road crossing (to standard).		-	S end of existing road bridge, traffic engineering investigation required to locate crossing at the safest location.	Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610 Adjustments to existing metal post and wire mesh fence (say) \$800

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Sandford Ave, W of road bridge to proposed shared path/bridge	Widen/upgrade existing footpath, from E end of proposed road crossing to 90° bend onto ramp/path, to shared path. Install safety railing along road edge at “dog-leg”. New shared path along S side of creek, from W side of Sandford Ave down slope to creekbank at proposed short bridge over narrow canal.	✓	Proposed shared path		Amenity plantings between creek and path and screen plantings to adjacent residence (consider CPTED to avoid safety issues).	Fill and retaining needed to support widening of footpath (safety railing may be needed along top of wall). Fill and retaining may be required on upper/ramp section of path from Sandford Ave down to creekbank.	Widened footpath (10m, with fill and retaining wall) \$3,500 Kerbside safety railing (10m, full barrier style) \$4,200 Shared path (65m, with fill and short retaining wall) \$16,880 Filter plantings (40m²) \$1,520 Amenity plantings (say 20m²) \$800 Screening plantings (say 25m²) \$1,300
NE corner of Glanmire Oval to Albert St	None	✓	As per Stage 1				Nil cost
Total Order of Cost FC7 W (Stage 2)* \$69,370							
* includes \$8,850 for associated landscape works, to enhance the path’s amenity/appearance and to support WSUD and water quality improvements							
* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders’ expense							

### Stage 3 Works (FC7 W)

- Potential site for a small offline wetland or flood mitigation/detention works on the narrow creekflat on the N side of Farmers Creek, S of Coalbrook St. Hydraulic engineering investigations required. Order of cost would be subject to size and final design.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Sandford Ave & Coalbrook St (N of bridge)	None	✓	As per Stage 1				Nil cost
Creek corridor, Marjorie Jackson Oval SW entry road (upper level)	None	✓	As per Stage 2				Nil cost



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, Marjorie Jackson Oval SW entry (under road bridge)	New shared path from entry to oval service road in SW, obliquely down creekbank to canal bench, then W along creekside bench to under road bridge.	✓	Proposed shared path - under bridge (and upper level shared path from Stage 2)		Amenity plantings (consider CPTED to avoid safety issues). Filter plantings along creekside of path.	Path could be aligned along existing ramp down creekbank in NE. Path design should provide for occasional flooding. Lighting warranted under bridge. Gutters under bridge warrant filling or piping. Retain higher level shared path beside entry road (as per Stage 2).	Shared path (100m) \$20,100 Lighting (solar) (say) \$2,500 Filter plantings (75m²) \$2,850 Amenity plantings (say 50m²) \$2,000
Creek corridor, W of Sandford Ave to proposed shared path/bridge (under road bridge)	New shared path under the road bridge then W to join the existing shared path at proposed shared path/bridge. Install safety railings where canal is less than 1.5m from path.	✓	Proposed shared path - under bridge (and upper level shared path from Stage 2)		Offset path from the canal by a planted strip (safety and filter plantings). Adjust amenity plantings from Stage 2 as needed (consider CPTED to avoid safety issues).	Path design should provide for occasional flooding. (Lighting warranted under bridge - costed above). Gutters under bridge warrant filling or piping. Retain shared path access to Sandford Ave (as per Stage 2).	Shared path (65m) \$12,680 Safety railings (40m, partial barrier style) \$11,200 Filter plantings (40m²) \$1,520

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Sandford Ave road crossing to proposed shared path/bridge (upper level)	None	✓	As per Stage 2				Nil cost
NE corner of Glanmire Oval to Albert St	None	✓	As per Stage 1				Nil cost
Total Order of Cost FC7 W (Stage 3)* \$52,850							
* includes \$6,370 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							

## PLANNING UNIT FC8 EAST – Albert St (east) to Showground (west)

### Stage 1 Works (FC8 E)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Albert St road crossing	Refuge crossing on Albert St on S side of road bridge. Install signposting on path and road (both sides of crossing).	✓	Road crossing (to standard).		-	Slope to E may need minor fill/building-up for safer approach to road.	Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610
Creek corridor, Albert St to James St oval	New shared path along S side of large stormwater canal.	✓	Proposed shared path		Filter plantings along creekside of path. Native tree plantings along S side of path (where space permits).	Offset path from canal fence to allow a planting strip. Small retaining wall may be required along oval fence where proximate to canal. Check land tenure/boundary in vicinity of sewer vent.	Shared path (225m) – funds already allocated by Council. Filter plantings (225m²) \$8,550 Spaced or “specimen” native tree plantings (x 6) \$5,850
Large canal, W of Albert St to Geordie St bridge	Investigate measures to increase the habitat value of existing large constructed stormwater canal (e.g. embedded rock bars)	n/a	n/a	n/a	-	Implement if minimal detriment to hydraulic and flood mitigation performance, and can be adequately maintained	Council (in-house) investigation

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, James St oval to Geordie St bridge	No path works. Plant spaced large native trees to oval side of path, in E, where space permits.	✓	Existing shared path		Tree plantings. Filter plantings along creekside of existing path, where space permits.	Links to Skate Park, Tony Luchetti Sportsground and Showground, and Aquatic Centre. M/F toilets available in the Showgrounds and at the Aquatic Centre.	Filter plantings (155m <sup>2</sup> ) \$5,890 Spaced or "specimen" native tree plantings (x 4) \$3,900
Geordie St bridge	None	✓	Existing bridge (to shared path standard)		-		
Creek corridor, Geordie St bridge to Coalbrook St	Defined shared zone (vehicles and walkers/cyclists) at intersection of bridge NE ramp and Geordie St Lane.  New shared path along W side of Geordie St Lane	✗  ✓	Proposed shared zone  Proposed shared path	Proposed shared zone  Proposed shared path	-	Define shared zone by speed humps or raised thresholds each end, road marking and signage,	Raised thresholds (x 2) \$8,000 Road marking (painted shared zone) (80 m <sup>2</sup> ) \$3,920 Warning signs (x 4) \$1,000 Shared path (35m) \$6,830
Geordie St (E end curve)	Install safety railings where existing path is adjacent to road pavement on curve (higher vehicle speeds)	✓	Existing shared path		-	Edge of concrete path drops 100mm to road carriageway on bend, railing warranted.	Safety railings (20m & 15m, full barrier style) \$14,700

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Geordie St existing concrete path on S side	None	X	Existing concrete path (not to shared path standard)	Existing concrete path (not to shared path standard) or adjacent road	Amenity plantings to N side of existing path (to increase amenity and allow future "meandering" path alignment). Enhance amenity plantings and new filter plantings along creekside of path.	Existing concrete path is not to shared path standard width - but straight alignment and high visibility enables reasonably safe shared use at present. Consider CPTED issues in plantings.	Amenity plantings (say 400m <sup>2</sup> ) \$16,000 Filter plantings (selected lengths, not continuous, say 140m <sup>2</sup> ) \$5,320
Creek corridor, Show-ground side	No path works	n/a	n/a	n/a	Progressive removal of introduced trees (e.g. Poplars) and undertake native tree plantings to ameliorate view of Showground boundary fence.	No public access along Showground's N chainmesh fence and unmanaged grass bank, lone tree plantings acceptable.	Semi-mature trees (x 18) \$3,730
<b>Total Order of Cost FC8 E (Stage 1)* \$92,330</b>							
* includes \$49,240 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							

## Stage 2 Works (FC8 E)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Albert St road crossing to Show-ground	None	✓	As per Stage 1				Nil cost
Show-ground, George Coates St to Geordie St bridge	New shared path (short) from existing shared path to George Coates St. Raised/threshold crossing of George Coates St at Showground entry to access pedestrian gate/entry to W Upgrade showground boundary fence along shared path to galvanised tubular steel fencing.	✓	Shared path (as per Stage 1) plus link to Showground entry		-	Select a more aesthetic fence design while maintaining a secure boundary (galvanised tubular steel fencing).	Shared path (3m) \$590 Raised/threshold road crossing (larger element at Showground entry) \$5,000 Boundary security fence (galvanised tubular steel style) (110m) \$22,500
Creek corridor, Geordie St bridge to Geordie St	None	✓	As per Stage 1				Nil cost
Total Order of Cost FC8 E (Stage 2)* \$28,090							

### Stage 3 Works (FC8 E)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Albert St road crossing to Geordie St bridge	None	✓	As per Stage 1				Nil cost
Geordie St bridge	Relocate existing N side ramp from the bridge to exit directly to the shared path in Geordie St.	✓	Realigned ramp, and shared path (as per Stage 1)	-	Remove shared zone shared zone (vehicles and walkers/cyclists) measures when ramp realigned.	Ramp relocation (estimate only) \$15,000 Shared zone removal (say) \$2,000	
Coalbrook St to Geordie St (E end)	None	✓	As per Stage 1				Nil cost
Geordie St existing concrete path on S side	Replace the existing path (not to shared path standard) on the S side of Geordie St with a new shared path, meandered to create greater interest and improved amenity (using Stage 1 grouped plantings).	✓	Proposed shared path	Reinstated or new filter plantings along creekside of realigned path.		Demolition and removal of existing concrete path (350m²) \$16,850 Shared path (195m) \$38,030 Filter plantings (say 50m²) \$1,900	

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Show-ground, NE side	New shared path – continuing W/NW from existing concrete path at Geordie St bridge, along S side of canal for 155m, before grading upslope through existing Showground chain mesh fence (to be relocated) to N side of Showground.	✓	Proposed shared path		Amenity plantings, and new filter plantings along canal side of path.	Fill and retaining needed to support path immediately W of at Geordie St bridge, with safety railing along edge (and elsewhere close to canal edge). New relocated chain mesh fencing to Showground (2.1m high with barbed wire top, to match existing).	Fill and retaining wall (45m est.) \$11,140 Shared path (240m) \$47,800 Safety railings (70m, full barrier style) \$29,400 Remove chain mesh fence (65m) \$590 New chainmesh fence (2.1m with barbed top) (65m) \$4,490 Filter plantings (say 140m²) \$5,320 Amenity plantings (say 150m²) \$6,000
<b>Total Order of Cost FC8 E (Stage 3)* \$178,520</b>							
* includes \$13,220 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
<b>Notes</b>							
Stage 3 development of a new shared path along the south side of the canal (between the Geordie St bridge and the Geordie St causeway, see also Planning Unit FC8 West) would be dependent on negotiating access/use of the north-east corner of the Ferrero Australia Pty Ltd landholding (west of the tributary stormwater canal along the Showground's western edge). If this can be agreed, and this southern shared path is developed it offers the option of leaving the existing concrete path on the north side of the canal (paralleling south of Geordie St) in its present condition, which is not to shared path standard, as a walkers only link (and also offering a minor "local loop" for walkers only).							



## PLANNING UNIT FC8 WEST – Showground (east) to Tourist Information Centre (TIC) (west)

### Stage 1 Works (FC8 W)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Geordie St (east of the causeway), existing concrete path on S side to opposite access road to tip	None	✗	Existing concrete path (not to shared path standard)	Existing concrete path (not to shared path standard) or adjacent road	Tree plantings to N side of existing path (to increase amenity and allow future "meandering" path alignment). Enhance amenity plantings and new filter plantings along creekside of path.	Existing concrete path is not to shared path standard width - but straight alignment and high visibility enables reasonably safe shared use at present. Consider CPTED issues in plantings.	Amenity plantings (say 600m <sup>2</sup> ) \$24,000 Filter plantings (selected lengths, not continuous, say 240m <sup>2</sup> ) \$9,120
Creek corridor, Show-ground side (east of the causeway)	No path works	n/a	n/a	n/a	Progressive removal of introduced trees (e.g. Poplars) and undertake native tree plantings to ameliorate view of Showground boundary fence.	No public access along Showground's N chainmesh fence and unmanaged grass bank, lone tree plantings acceptable.	Semi-mature trees (x 18) \$3,730

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Geordie St causeway	New shared path from end of existing path to NW end of proposed footbridge over the canal	✓	Proposed shared path		New filter plantings along creekside of path.	Ensure visibility on approach to turn onto proposed bridge (and future road crossing to link to FC9)	Shared path (30m) \$5,850 Filter plantings (30m²) \$1,140
Geordie St causeway	Bridge (approx. 20m long), to shared path standard, across narrow stormwater canal and banks	✓	Proposed shared path – bridge (to standard)		-	Shorter bridge possible, but less desirable due to flood susceptibility and sloped approach ramps each side	Bridge (20m) \$144,000
Geordie St, west of causeway (E)	New shared path from end S end of proposed footbridge over the canal then along top of bank on S side of Farmers Creek and then along naturestrip on S-SW side of Geordie St (W of the causeway, N of Ferrero Plant)	✓	Proposed shared path		Amenity plantings between path and road. New filter plantings along creekside of path (in E).	Path will require benching (cut-and-fill) into bank on the SW side of Geordie St, with possible and retaining in places.	Shared path (145m) \$31,180 Filter plantings (45m²) \$1,710 Amenity plantings (20m²) \$800
Geordie St, west of causeway (mid-block)	Refuge crossing over Geordie St (mid-block). Short run of kerb and gutter along SW side of road at crossing. Install signposting on path and road (both sides of crossing).	✓	Road crossing (to standard).		-		Refuge crossing \$6,030 Kerb and gutter (2 x 6m) \$1,300 Signposting, road signs (x 8) & path signs (x 2) \$2,610

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Geordie St, west of causeway (W)	New shared path along NE side of Geordie St to railway line.	✓	Proposed shared path		-	Extend the kerb and gutter on the NE side of Geordie St E to the proposed refuge/zebra crossing. Flood sign may need adjustment to allow safe clearance.	Shared path (145m) \$31,180 Kerb and gutter (65m) \$7,020
Geordie St, rail line crossing	New pedestrian / cycle crossing over rail line, on N side. Adjust barriers and signs at the rail line to accommodate a safe crossing point.	✓	Rail crossing (to standard).		-	Consultation with Rail Corp required. Extend the kerb and gutter on the NE side of Geordie St W to the proposed rail crossing.	Shared path rail crossing, to Rail Corp specifications - cost to be determined Kerb and gutter (10m) \$1,080

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Geordie St (TIC parking area)	Shared path along the TIC side of the western rail fence.  Shared path (including marked road crossing) across the TIC parking area to the existing zebra crossing on Geordie St at the TIC.	✓	Proposed shared path		Amenity plantings along path (where possible).	Low retaining may be required along edge of rail fence. Existing M/F toilets and information at the TIC. Links to shared path (to standard) S from TIC then into urban footpath network (not to shared path standard). Safety issue with traffic exiting Great Western Highway across existing shared path S of TIC requires attention/action.	Shared path (35m) \$6,830 Line marking (broad) (40m²) \$1,960
<p style="text-align: right;"><b>Total Order of Cost FC8 W (Stage 1)* \$279,540</b></p> <p>* excludes cost of proposed rail crossing to Rail Corp specifications (cost to be determined)  * includes \$40,500 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements</p>							

## Stage 2 (FC8 W)

- No separate/additional Stage 2 works proposed.

### Stage 3 Works (FC8 W)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Geordie St (east of the causeway)	Replace the existing path (not to shared path standard) on the S side of Geordie St with a new shared path, meandered to create greater interest and improved amenity (using Stage 1 grouped plantings).	✓	Proposed shared path		Reinstated or new filter plantings along creekside of realigned path.		Demolition and removal of existing concrete path (550m²) \$26,400 Shared path (305m) \$59,480 Filter plantings (say 80m²) \$3,040
Creek corridor, Show-ground side (east of the tributary stormwater canal)	New shared path along N side of Showground, section of existing degraded (un-used) bitumen to be removed and chain mesh fence to be relocated.	✓	Proposed shared path		Amenity plantings (reinforce plantings from Stage 1)	Remove degraded (un-used) bitumen, topdress and grass where not used for path or plantings. New relocated chain mesh fencing to Showground (2.1m high with barbed wire top, to match existing).	Remove chain mesh fence (200m) \$1,800 Remove bitumen (1,700m²) \$32,300 Shared path (205m) \$40,180 Topdress and grass seeding (by machine) (1,090m²) \$3,270 New chainmesh fence (2.1m with barbed top) (185m) \$12,770 Amenity plantings (say 300m²) \$12,000

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor - tributary stormwater canal (from north)	Bridge (approx. 10m long), to shared path standard, across narrow concrete canal. (Enters Ferrero Australia Pty Ltd landholding in W – see Notes.)	✓	Proposed shared path – bridge (to standard)		Filter plantings beside path, on both sides of canal.	Safety railings (full barrier style) along each side of path “funnelling” onto bridge – on both approaches.	Bridge (10m) \$65,800 Safety railings (16m, full barrier style) \$6,720 Filter plantings (say 20m²) \$780
Creek corridor – between tributary stormwater canal and Geordie St causeway	New shared path along S side of canal, connecting to proposed bridge across main Farmers Creek canal (from Stage 1) in W. (Across Ferrero Australia Pty Ltd landholding – see Notes.)	✓	Proposed shared path		Amenity plantings (in E). Filter plantings along canal side of path (in W).	Security fence likely to be required between path and remainder of Ferrero Australia Pty Ltd landholding.	Shared path (120m) \$23,400 New chainmesh fence (2.1m with barbed top) (170m) \$11,730 Amenity plantings (say 150m²) \$6,000 Filter plantings (say 35m²) \$1,370
Geordie St causeway & west to the TIC)	None	✓	As per Stage 1				Nil cost
Total Order of Cost FC8 W (Stage 3)* \$307,040							
* includes \$23,190 for associated landscape works, to enhance the path’s amenity/appearance and to support WSUD and water quality improvements							
Notes							
Stage 3 development of a new shared path along the south side of the canal (between the Geordie St bridge and the Geordie St causeway, see also Planning Unit FC8 West) would be dependent on negotiating access/use of the north-east corner of the Ferrero Australia Pty Ltd landholding (west of the tributary stormwater canal along the Showground’s western edge). If this can be agreed, and this southern shared path is developed it offers the option of leaving the existing concrete path on the north side of the canal (paralleling south of Geordie St) in its present condition, which is not to shared path standard, as a walkers only link (and also offering a minor “local loop” for walkers only).							

## PLANNING UNIT FC9 SOUTH – Geordie St Causeway (*south*) to Council Depot/Storage Area (*north*)

### Stage 1 Works (FC9 S)

- Confirm public land boundaries and clearly mark on-ground (and negotiate removal of any encroachments).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Geordie St	Zebra or refuge crossing on Geordie St (east of the causeway). Install signposting on path and road (both sides of crossing). Replace existing concrete blocks at Geordie St boundary with bollards/barriers to accommodate shared access but to prevent vehicle access (and planted mound to prevent vehicle access).	✓	Proposed road crossing (to standard)		-	Traffic engineering input required to determine safest location. Ensure visibility on approaches to proposed crossing.	Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610 Bollards (10 over 20m) \$1,700 Planted mound (20m) \$2,400
Creek corridor north-west of Geordie St crossing	Shared path (compacted gravel) from the proposed refuge/zebra crossing along the creek edge of the open grassed area adjacent to the depot service road.	✓	Proposed shared path		Amenity plantings along path across open grassed area (consider CPTED to avoid safety issues). (VCC)	Connects into Council depot service road at north end of open grassed area	Compacted shared path (120m, 288m²) \$14,980 Amenity plantings (say 125m²) \$5,000
Creek corridor (east side), Council depot service road	None	✗	Existing grassed verge (W side of service road)	Existing service road	(VCC)	Provide wayfinding and safety signage	Signs \$1,260

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
<p style="text-align: right;"><b>Total Order of Cost FC9 S (Stage 1)* \$33,980</b></p> <p>* includes \$5,000 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements</p> <p>* assumes encroachments into public creek corridor removed (and boundaries re-fenced if necessary, and practical) at private landholders' expense</p>							
<b>Notes</b>							
Only the creek channel (mostly) and NE creek bank/slope (entirely) are within public land. Private landholdings extend to creek channel on SW side (and include the creek channel in places in SE and centre of this Planning Unit).							
VCC	Existing well vegetated creek corridor will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path (along east side of creek corridor).						



## Stage 2 Works (FC9 S)

- Ensure public land boundaries are observed, with progressive removal of any encroachments (and no new encroachments).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Geordie St crossing & grassed area to north-west St crossing	None	✓	As per Stage 1				Nil cost
Creek corridor, Council depot service road	New compacted gravel shared path, between creek corridor and service road - as warranted by use/demand. Bollard separated from service road as required.	✓	Proposed shared path		(VCC)		Compacted shared path (350m, 840m²) \$43,680 Bollards (say 20) \$3,400
Creek corridor, north end of Council depot service road	No path works. Simple bird hide in bank of northern sewage pond – on east side of service access.	n/a	n/a	n/a	-	Simple structure with viewing slot in lower part of existing wire mesh fence and safety barrier along rear/road side. Provide interpretation if use warrants.	Bird hide (estimate only) \$5,000
<b>Total Order of Cost FC9 S (Stage 2) \$52,080</b>							
* assumes encroachments into public creek corridor removed, and boundaries re-fenced if necessary, at private landholders' expense							
<b>Notes</b>							
VCC	Existing well vegetated creek corridor will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path (along east side of creek corridor).						

### Stage 3 Works (FC9 S)

- Undertake weed control works and native plantings to creek corridor (as below) to enhance the setting/amenity of the upgraded shared path along the creek corridor as well as for improved biodiversity and water quality outcomes.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	<p>Undertake weed control works and native vegetation planting / regeneration to creek corridor (in conjunction with, or preferably in advance of, development of shared path, recreation facilities and amenity or other plantings). Only works located within the public land estate have been costed below (i.e. most of the creek channel and NE bank, and all of the NE creek slope).</p> <ul style="list-style-type: none"> <li>Low concentration (5-25% cover) weed areas (1,670m<sup>2</sup> total): <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 10% coverage), supply and plant-out tubestock</li> <li>year 1 weeding and replacement plantings</li> <li>year 2 weeding</li> <li>year 3 weeding</li> <li>year 4 weeding</li> <li>year 5 weeding (final)</li> </ul> </li> </ul>						
			n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	4,170
			n/a		-	Replacement of 20% of original stock	2,250
			n/a		-	-	1,510
			n/a		-	-	1,260
			n/a		-	-	1,090
			n/a		-	-	860

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit (cont'd)	<ul style="list-style-type: none"><li>Medium concentration (25-50% cover) weed areas (5,940m² total):<ul style="list-style-type: none"><li>primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li><li>year 1 weeding and replacement plantings</li><li>year 2 weeding</li><li>year 3 weeding</li><li>year 4 weeding</li><li>year 5 weeding (final)</li></ul></li><li>High concentration (&gt;70% cover) weed areas (1,160m² total):<ul style="list-style-type: none"><li>primary weeding sweep, mulch (at 80% coverage), supply and plant-out tubestock</li><li>year 1 weeding and replacement plantings</li><li>year 2 weeding</li><li>year 3 weeding</li><li>year 4 weeding</li><li>year 5 weeding (final)</li></ul></li></ul>		n/a		Plant-out density of 1 plant per 10m² (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	31,310
			n/a		-	Replacement of 20% of original stock	10,350
			n/a		-	-	8,910
			n/a		-	-	7,430
			n/a		-	-	6,540
			n/a		-	-	5,050
			n/a		Plant-out density of 1 plant per 4m² (i.e. 2.9m spacings).	Includes establishment watering and plant guards.	10,510
			n/a		-	Replacement of 20% of original stock	2,760
			n/a		-	-	2,270
			n/a		-	-	1,920
			n/a		-	-	1,630
			n/a		-	-	1,340
Geordie St crossing	None	✓	As per Stage 1				Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, Geordie St entry	Upgrade compacted gravel path (from Stage 1) to concrete shared path - as warranted by use/demand.	✓	Proposed (concrete) shared path		(NSRP)		Shared path, concrete (120m) \$23,400
Creek corridor, Council depot service road	Upgrade compacted gravel path (from Stage 2) to concrete shared path - as warranted by use/demand. Bollard separated from service road as required.	✓	Proposed shared path		(NSRP)	Additional locations having bollard separation from service road may be required – due to likely higher bicycle speeds on sealed path.	Shared path, concrete (350m) \$68,250 Bollards (say 20) \$3,400
<b>Total Order of Cost FC9 S (Stage 3) \$196,210</b>							
* includes \$101,160 for weed control works and native vegetation planting / regeneration to the creek corridor (bed and banks)							
<b>Notes</b>							
Only the creek channel (mostly) and NE creek bank/slope (entirely) are within public land. Private landholdings extend to creek channel on SW side (and include the creek channel in places in SE and centre of this Planning Unit).							
NSRP Proposed native species riparian plantings and revegetation of the creek corridor along the shared path's route (this Stage), and originally well vegetated creek corridor, will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path (along east side of creek corridor).							
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							

## PLANNING UNIT FC9 NORTH – Council Depot/Storage Area (*south*) to Coerwull Rd (*north*)

### Stage 1 Works (FC9 N)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, Council depot	Relocate stored items from the creek side of the service road within the storage depot, and define boundary (bollards or large block) between shared access route on the creek side and the depot area and service road. Provide wayfinding and safety signage.	✗	Defined shared access route (slashed grass)		(VCC)	Provide slashed grass route on creek side of bollards/block, may require minor site levelling (post depot modifications)	Depot modifications – funded from Council operational budget Sandstone blocks (say 9) \$1,760 Bollards (say 25) \$4,250 Signs \$470
Creek corridor, Council depot to Chivers Close footbridge	None	✗	Existing slashed grassed route on E side of creek		(VCC)	Existing slashed grassed route on public land. Provide wayfinding signage.	Signs \$360

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Farmers Creek, Chivers Close footbridge	Undertake safety inspection and upgrade existing footbridge to ensure safe for use (include upgrading bridge safety railings as required). Additional “wing” safety railings may be needed on S side, due to sloped approach down laneway and steep creekbanks.	✗	Existing footbridge (not to standard)	Existing footbridge (not to standard)	-	Cyclists recommended to dismount.	Council (in-house) investigation and safety inspection Safety railings and other bridge upgrades subsequent to safety inspection – to be determined. “Wing” safety railings (partial barrier style) (2 x 6m) \$3,360
Chivers Close footbridge to Evans Close (grassed laneway to Chivers Close, then along Chivers Close and Fullagar Ave)	None	✗	Not recommended for walkers. Walker connection via creek corridor and Evans Close (see below)	Existing grassed laneway from bridge to Chivers Close. Existing road pavement in Chivers Close and Fullagar Ave	-	Provide wayfinding signage (including separating routes for walker and bicycle users). Existing street trees/plantings.	Signs \$600

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Farmers Creek, Chivers Close footbridge to SPS access lane (off Evans Close)	None	✗	Existing mown grass route on SW side of creek.	Not recommended for cyclists. Bicycle route exits via grassed laneway to Chivers Close (see above).	Screen plantings around SPS - but maintaining ready access as required. (VCC)	Narrow grassy bench at rear of private properties between Chivers and Evans Close is now is mown/maintained by residents. Council may need to monitor condition, and take over maintenance if required. Provide wayfinding signage.	Sign \$120 Screening plantings (say 10m²) \$530
Evans Close, bitumen laneway to SPS and nature strip along NW side (to Fullagar Avenue)	None	✗	Existing bitumen access lane to SPS, and nature strip along NW side of Evans Close.	Not recommended for cyclists (see above).	-	Provide wayfinding signage. Existing street trees/plantings.	Signs \$480
Coerwull Rd (south from Fullagar Ave)	None	✗	No footpath or formed – marked route	Existing road shoulder cycle path	-	Southbound road shoulder cycle path along E side of Coerwull Rd is signposted at intersection with Fullagar Ave - but not marked on ground and largely non-existent.	Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
							<b>Total Order of Cost FC9 N (Stage 1)* \$11,930</b>
* includes \$530 for associated landscape works, to enhance the path's amenity/appearance * excludes safety railings and other bridge upgrades subsequent to an engineering and safety inspection (to be determined)							
<b>Notes</b>							
VCC	Existing well vegetated creek corridor will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path (along east side of creek corridor).						



## Stage 2 Works (FC9 N)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Creek corridor, Council depot to Chivers Close footbridge	New shared compacted gravel path to NE side of creek	✓	Proposed shared path		Amenity plantings may be warranted to screen views to tip to NE, or to add variety to alignment. (VCC)	Meander path within public land corridor. Connects with compacted gravel shared path, in FC9 (South), in S past Council depot.	Compacted shared path (355m, 852m²) \$44,300 Amenity plantings (say 300m²) \$12,000
Chivers Close footbridge	Replace or upgrade existing footbridge to shared path standard (approx. 25 m long), including improved gradient of approaches and deck	✓	Proposed shared path – bridge (to standard)		-	Replace/upgrade bridge as warranted by use/demand. Realign SW end of bridge, or approach, to accommodate sharp curve in shared path to the NW (see below). Safety railings (full barrier style) abutting each side of SW end of bridge.	Remove existing bridge (estimate only) \$50,000 Replacement bridge (25m) \$208,900 Safety railings (2 x 5m, full barrier style) \$4,200

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Farmers Creek, Chivers Close footbridge to SPS access lane (off Evans Close)	New shared path along bench at rear of private properties.	✓	Proposed shared path		Screen plantings to adjoining private properties, where space permits. (VCC)	Sweeping bend required off SW end of Chivers Close bridge (as wide as space permits, for sharp curve to NW), and level path surface with existing utility access pit. Short sections of fill and retaining needed to support shared path (offset from rear fences), safety railing may be needed along top of wall in places. Provide wayfinding signage.	Fill and retaining wall (25m est.) \$5,530 Shared path (65m) \$12,680 Safety railings (20m, partial barrier style) \$5,600 Signs \$240 Screening plantings (say 30m²) \$1,560

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
SPS access lane (off Evans Close)	Patch and level existing bitumen service access and match to concrete shared path at bottom/N end	✓	Existing bitumen service access.		-	Sweeping bend required off bottom/N end of service access from laneway (as wide as space permits, for sharp curve to NW). Safety railing required on bend, due to sloped approach down laneway and steep creekbanks (but not obstructing access to SPS). Limited space for plantings.	Patch and level existing bitumen service access (20m² est.) \$1,260 Safety railing (5m, partial barrier style) \$1,400

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Evans Close NW (SPS access lane to Fullagar Avenue)	New shared path – mostly along verge, with detour onto “protected blister” on carriageway across front of Methven House and pine trees on street front.	✓	Proposed shared path		Replacement, or additional, street trees as required.	Match shared path on verge into existing driveways. Path kinks onto bitumen roadway of Evans Close for 30m across front of Methven House (including gravel driveway and flanking pine trees), separated from road by raised kerb (signposted) and ramps/laybacks at each end on/off shared path on verge.	Shared path, concrete (90m) \$17,550 Remove existing kerb (2 x 4m) \$390 Remove existing roadway bitumen (strip, 9m <sup>2</sup> total) \$180 Raised kerb (extruded concrete, 30m) \$3,240 Kerb layback/ramps (2 x 4m) \$870 Bitumen patching (say 15m <sup>2</sup> ) \$950 Warning sign (post chevrons, or road narrows) (x 2) \$540 Street trees (semi-mature trees x 3) \$620
Evans Close to Willow Place (along Fullagar Ave)	New shared path along verge on NE side of Fullagar Ave	✓	Proposed shared path		Replace street trees as required	Match shared path on verge into existing driveways.	Shared path, concrete (110m) \$21,450 Kerb laybacks (x 2) \$780 Street trees (semi-mature trees x 4) \$830

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
							<b>Total Order of Cost FC9 N (Stage 2)* \$395,070</b>
* includes \$15,010 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
<b>Notes</b>							
VCC	Existing well vegetated creek corridor will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path (along east side of creek corridor).						

### Stage 3 Works (FC9 N)

- Undertake weed control works and native plantings to creek corridor (as below) to enhance the setting/amenity of the upgraded shared path along the creek corridor as well as for improved biodiversity and water quality outcomes.

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Entire Planning Unit	Undertake weed control works and native vegetation planting / regeneration to creek corridor (in conjunction with, or preferably in advance of, upgrading/development of shared path, recreation facilities and amenity or other plantings).						
	<ul style="list-style-type: none"> <li>Medium concentration (25-50% cover) weed areas (6,000m<sup>2</sup> total): <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 35% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 10m <sup>2</sup> (i.e. 4.5m spacings).	Includes establishment watering and plant guards.	31,620
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> </ul>		n/a		-	Replacement of 20% of original stock	10,470
	<ul style="list-style-type: none"> <li>year 2 weeding</li> </ul>		n/a		-	-	9,000
	<ul style="list-style-type: none"> <li>year 3 weeding</li> </ul>		n/a		-	-	7,500
	<ul style="list-style-type: none"> <li>year 4 weeding</li> </ul>		n/a		-	-	6,600
	<ul style="list-style-type: none"> <li>year 5 weeding (final)</li> </ul>		n/a		-	-	5,100
	<ul style="list-style-type: none"> <li>High concentration (&gt;70% cover) weed areas (4,270m<sup>2</sup> total): <ul style="list-style-type: none"> <li>primary weeding sweep, mulch (at 80% coverage), supply and plant-out tubestock</li> </ul> </li> </ul>		n/a		Plant-out density of 1 plant per 4m <sup>2</sup> (i.e. 2.9m spacings).	Includes establishment watering and plant guards.	38,680

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
	<ul style="list-style-type: none"> <li>year 1 weeding and replacement plantings</li> <li>year 2 weeding</li> <li>year 3 weeding</li> <li>year 4 weeding</li> <li>year 5 weeding (final)</li> </ul>		n/a		-	Replacement of 20% of original stock	10,160
			n/a		-	-	8,330
			n/a		-	-	7,050
			n/a		-	-	5,980
			n/a		-	-	4,920
Creek corridor, Council depot to Chivers Close footbridge	Upgrade to concrete shared path (from Stage 2 compacted gravel path) along NE side of creek - as warranted by use/demand.	✓	Proposed shared path		(NSRP)	Meander path within public land corridor. Connects with upgraded concrete path (Stage 3), in FC9 (South), in S past Council depot.	Shared path, concrete (355m) \$69,230
Chivers Close footbridge	None	✓	As per Stage 2				Nil cost
Chivers Close footbridge to Willow Place (along Fullagar Ave)	None	✓	As per Stage 2				Nil cost
Cooerwull Rd (south from Fullagar Ave)	None	✓	As per Stage 2				Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Total Order of Cost FC9 N (Stage 3)*    \$214,640							
* includes \$145,410 for weed control works and native vegetation planting / regeneration to the creek corridor (bed and banks)							
Notes							
NSRP	Proposed native species riparian plantings and revegetation of the creek corridor along the shared path's route (this Stage), and originally well vegetated creek corridor, will act to filter stormwater running off the path surface and negate the need for specific filter strip plantings along the creekside of the path (along east side of creek corridor).						
Refer to weed density mapping in body of Masterplan for location and extent of various weed control and native revegetation / regeneration areas referenced above.							



**PLANNING UNIT FC10 (SE and NW) – Fullagar Ave (east) and Coerwull Rd rail bridge (south) to Great Western Hwy (north-west)**  
**(and connecting south-east along Coerwull Rd to the Tourist Information Centre)**

**Stage 1 Works (FC10 SE & NW)**

- No Council managed lands. Weed control works and native plantings to the creek corridor (bed and banks) could only be undertaken in collaboration with other public land owners/managers or private landholders (not costed).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Fullagar Ave (at Willow Place) to proposed crossing point in Coerwull Rd	New shared concrete path on NE side of Fullagar (NW from Willow Place), then new compacted gravel path along N-NE side of Coerwull Rd. Bollard/barrier separation may be warranted where path is close to shoulder of Coerwull Rd.	✓	Proposed shared path		-	Concrete path from Willow Place to the end of existing residential development. Compacted gravel path west of the urban area. Existing power poles may be pinch (or split) points.	Shared path, concrete (140m) \$27,300 Compacted path (125m, 300m²) \$15,600 Bollards (say 30) \$5,100
Coerwull Rd	Refuge crossing on Coerwull Rd (mid-block). Install signposting on path and road (both sides of crossing).	✓	Proposed road crossing (to standard)		-	Consider other traffic calming measures on Coerwull Rd to slow traffic to at least the speed limit (e.g. reduce the speed limit).	Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Coerwull Rd (W)	New shared path (compacted gravel) on S side of Coerwull Rd, from mid-block crossing to the proposed roadside viewing point to heritage rail viaduct. Seating at viewing point.	✓	Proposed shared path		Potential for amenity plantings where available space (where path veers away from road, but still in road reserve)	Proposed roadside viewing point to heritage rail viaduct (approx. opposite 81 Coerwull Rd) is W end point of shared path – unless/until proposed access and works on Rail Corp land are agreed.	Compacted shared path (125m, 300m²) \$15,600 Amenity plantings (say 100m²) \$4,000 Seating \$3,600
Coerwull Rd (S & E) (S from Fullagar Ave)	None	✗	No pedestrian use.	Signposted (but largely non-existent) on road cycle path	-	Southbound road shoulder cycle path along E side of Coerwull Rd (S from Fullagar Ave) is signposted in part at present, but not marked on ground and largely non-existent.	Nil cost
<b>Total Order of Cost FC10 SE &amp; NW (Stage 1)* \$28,240</b>							
* includes \$4,000 for associated landscape works, to enhance the path's amenity/appearance and to support WSUD and water quality improvements							
* excludes any weed control works and native plantings to the creek corridor (bed and banks) in collaboration with other land holders or managers							
<b>Notes</b>							
No cadastral creek corridor, creek is entirely on private landholdings except where it crosses Rail Corp and Roads and Maritime Services lands.							

## Stage 2 Works (FC10 SE & NW)

- No Council managed lands. Weed control works and native plantings to the creek corridor (bed and banks) could only be undertaken in collaboration with other public land owners/managers or private landholders (not costed).

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Cooerwull Rd (E) (W of urban area)	Upgrade to concrete shared path (from Stage 2 compacted gravel path) along N-NE side of Cooerwull Rd - as warranted by use/demand.	✓	Proposed shared path		-	Additional locations having bollard separation from nearby carriageway may be required – due to likely higher bicycle speeds on sealed path.	Shared path, concrete (125m) \$24,380 Bollards (say 20) \$3,400
Cooerwull Rd (refuge crossing midway)	None	✓	As per Stage 2				Nil cost

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Cooerwull Rd (W)	Upgrade to concrete shared path (from Stage 2 compacted gravel path) on S side of Cooerwull Rd, from mid-block crossing to the proposed roadside viewing point to heritage rail viaduct - as warranted by use/demand.	✓	Proposed shared path		-	Additional locations having bollard separation from nearby carriageway may be required in E – due to likely higher bicycle speeds on sealed path. Proposed roadside viewing point remains W end point of shared path – unless/until proposed works on Rail Corp land are agreed.	Shared path, concrete (105m) \$20,480 Bollards (say 15) \$2,550
Fullagar Ave – NW end	Refuge crossing on Fullagar Ave (SE of the intersection with Cooerwull Rd). Install signposting on path and road (both sides of crossing).	✓	Proposed road crossing (to standard)		-	Traffic engineering input required to determine safest location.	Refuge crossing \$6,030 Signposting, road signs (x 8) & path signs (x 2) \$2,610
Cooerwull Rd (south from Fullagar Ave)	New shared path along verge - harden/pave (bitumen or concrete) - along E side of Cooerwull Rd and around into Fullagar Ave (S side) to proposed refuge crossing. <b>Not warranted unless/until proposed works on Rail Corp land are agreed.</b> Alternative is formalise/upgrade southbound road shoulder	✓ ✗	Proposed shared path (if Rail Corp access and works agreed)	No pedestrian use	Possible street tree/amenity plantings - but restricted by multiple driveways	Connects to upgraded southbound road shoulder cycle path, in FC10 (South-east) – both options.	<b>Alternative costed</b> (formalise/upgrade southbound road shoulder cycle path on E side of Cooerwull Rd) \$4,600
				Cooerwull Rd road shoulder cycle path			

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
	cycle path on E side of Coerwull Rd N from rail overpass (and continuing into Fullagar Ave in N to proposed refuge crossing).						(for 230m of line marking, stencils and signs only – no allowance for any pavement works)
Coerwull Rd road crossing	Refuge crossing on Coerwull Rd (midblock between rail underpass and Fullagar Ave). <b>Not warranted unless/until proposed works on Rail Corp land are agreed.</b>	✓	Proposed road crossing (to standard) (if Rail Corp access and works agreed)		-	Traffic engineering input required to determine safest location for road crossing (on slight rise with sightlines in both directions)	<b>Not costed</b> (not warranted unless/until proposed works on Rail Corp land are agreed)
Coerwull Rd (E side footpath, N of rail underpass)	Widen existing footpath on W side of Coerwull Rd to shared path width, and install safety railings roadside, north of rail underpass to proposed refuge crossing. <b>Not warranted unless/until proposed works on Rail Corp land are agreed.</b>	✓	Proposed shared path (if Rail Corp access and works agreed)		-	Link to steps, and bike ramp, from the west on Rail Corp land (if installed). Dependent of degree to which road carriageway (including southbound on-road cycleway) can be narrowed.	<b>Not costed</b> (not warranted unless/until proposed works on Rail Corp land are agreed)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Cooerwull Rd (N & W)	New northbound on road or road shoulder cycle path along W and S side of Cooerwull Rd - from rail underpass (or shared path north of underpass if upgraded following Rail Corp agreement) N and W to proposed mid-block refuge crossing on Cooerwull Rd (W), 440 metres. Signpost to standard.	✗	No pedestrian use	Proposed on road cycle path	-	Part of larger on road cycle route linking back to TIC (plus connection to viewing point to heritage rail viaduct and possible cycling loop with FC9). Space or bollard separation may be required on inside of bend opposite Fullagar Ave.	\$8,800 (for line marking, stencils and signs only – no allowance for any pavement works)
Cooerwull Rd - rail underpass	Signpost rail underpass as pinch point for on road should cycle path	✗	No pedestrian use	Proposed on road cycle path	-		Signs \$540

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Cooerwull Rd (S & E)	Southbound road shoulder cycle path along E and N sides of Cooerwull Rd – south form rail underpass to TIC (Geordie St), 850 metres. Signpost to standard.	✗	No pedestrian use.	Proposed on road cycle path	-	Formalise/upgrade southbound road shoulder cycle path along E side of Cooerwull Rd (is signposted in part at present, but not marked on ground and largely non-existent). Part of larger on road cycle route linking back to TIC (plus connection to viewing point to heritage rail viaduct, and possible cycling loop with FC9).	\$17,000 (for line marking, stencils and signs only – no allowance for any pavement works)
Cooerwull Rd (S & E)	Northbound road shoulder cycle path along W and S sides of Cooerwull Rd – from TIC (Geordie St) N and W to rail underpass, 850 metres. Signpost to standard.	✗	No pedestrian use.	Proposed on road cycle path	-	Part of larger on road cycle route linking TIC to viewing point to heritage rail viaduct, and possible cycling loop with FC9.	\$17,000 (for line marking, stencils and signs only – no allowance for any pavement works)
<b>Total Order of Cost FC10 SE &amp; NW (Stage 2)* \$107,390</b>							
* works requiring (or consequent to) negotiation and agreement with Rail Corp have not been costed							
* excludes any weed control works and native plantings to the creek corridor (bed and banks) in collaboration with other land holders or managers							
<b>Notes</b>							
No cadastral creek corridor, creek is entirely on private landholdings except where it crosses Rail Corp and Roads and Maritime Services lands.							

**Rail Corp Land and associated works (require negotiation with, and approval from, Rail Corp to proceed)  
NOT STAGED AND NOT COSTED (pending Rail Corp negotiations and design requirements)**

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Coerwull Rd, from heritage rail viewing point to Farmers Creek	Shared path (compacted gravel) on S side of Coerwull Rd, W from proposed roadside viewing point to heritage rail viaduct	✓	Proposed shared path		Potential for amenity plantings where available space (where path veers away from road, but still in road reserve)	Follows former road alignment W to creek	Not costed (pending Rail Corp negotiations and design requirements)
Farmers Creek	Bridge (approx. 35m long), to shared path standard, obliquely across Farmers Creek	✓	Proposed shared path – bridge (to standard)		-	Downstream (S) of James Kirkwood Bridge	Not costed (pending Rail Corp negotiations and design requirements)
Informal parking area, SW of James Kirkwood Bridge	Shared path (compacted gravel) from proposed bridge to start (downslope end) of existing service access road. Formalise existing informal parking area, and rationalise existing entry/exits. Control access (vehicle gate) to existing service road (authorised vehicles only).	✓	Proposed shared path		Amenity plantings as part of parking area formalisation.	Consider CPTED issues in carpark designs and plantings.	Not costed (pending Rail Corp negotiations and design requirements)
Service road from informal parking up slope & curve to HV power lines	Seal service road on steep sloped section on curve, and provide chicanes to slow cycles (removable for service access). Upgrade gravel service access road as use and/or maintenance and/or impact management requirements warrant.	✗	Access along existing service road – not to shared path standard		-	Provide wayfinding and safety signs	Not costed (pending Rail Corp negotiations and design requirements)



Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Service road along & across slope to lower heritage rail viaduct	None	✗	Access along existing service road – not to shared path standard		-	Under HV power lines.	Nil cost
Downslope from service road to NW side of Farmers Creek (below heritage rail viaduct)	Gravel and in-situ walking track, with drainage protection and wayfinding – for pedestrian access only. Bike racks at upper trackhead beside service road. Seating or picnic tables on creekbank, and interpretive signage. Weed removal and indigenous plantings down slope and on creekbank.	✗	Pedestrian access only, on walking track	No cyclist access	Amenity paintings at seating/picnic area.	Provide wayfinding and safety signs	Not costed (pending Rail Corp negotiations and design requirements)
Service road over lower heritage rail viaduct	Lockable gates at each end of rail viaduct. Safety railings to viaduct (sensitive design and installation - railings must be sensitive to the heritage character and fabric of the structure, and be removable, and sensitive to site's visual qualities). Secure open access to live rail line upslope (up steps) off SE end of viaduct.	✗	Access along existing service road – not to shared path standard		-	Use of viaduct for safe public access will require heritage approvals (for access, safety improvements, and associated works). Investigate feasibility of enabling access to small viewing platform (contained, secure) to both viaducts - beside live rail line on upper level in SE.	Not costed (pending Rail Corp negotiations and design requirements)

Location	PROPOSED WORKS	Shared Path Standard	Walker Access	Bicycle Access	Plantings	Comments	Order of Costs
Service road from lower heritage rail viaduct to above Coerwull Rd	None	X	Access along existing service road – not to shared path standard		-	May require drainage and surface works at some locations to support easier access/use. Along S side of caravan park.	Nil cost
E end of service road to Coerwull Rd below	Steps, with associated bicycle ramp (centre or side) from service road above to Coerwull Rd (and existing footpath) below.	X	Proposed steps for walkers	Bike ramp, cyclists to dismount	-	Hardened (concrete/brick) steps, potentially with switchback. Chicanes warranted on upslope approach/entry.	Not costed (pending Rail Corp negotiations and design requirements)

## Source Data for Order of Cost Estimates

Item / Description	Rate (\$)	Unit	Source / Basis of Cost Estimate
<b>“HARD” WORKS (BUILT INFRASTRUCTURE AND FACILITIES)</b>			
<b>Path Works</b>			
Concrete path, reinforced concrete 100mm thick (for 2.4 metre width) – with minimal preparatory site works or earthworks (such as in existing, largely level, open space settings – e.g. margins of Glanmire Oval) <sup>2</sup>	195	linear metre	Base rate supplied by Lithgow City Council – \$80/m <sup>2</sup> (inclusive of labour)
Concrete path, reinforced concrete 100mm thick (for 2.4 metre width) – with minor site/earth works (such as minor cut/fill or benching, levelling, trimming cuttings or banks – including final levelling and compaction) <sup>2</sup>	206	linear metre	Base rate supplied by Lithgow City Council – \$80/m <sup>2</sup> (inclusive of labour)
Concrete path, reinforced concrete 100mm thick (for 2.4 metre width) – with considerable preparatory site/earth works (longitudinal cut-and-fill, or cross-section cut-and-fill, of up to 500 millimetres – e.g. undulating creek banks or cross slopes – with final levelling and compaction) <sup>2</sup>	215	linear metre	Base rate supplied by Lithgow City Council – \$80/m <sup>2</sup> (inclusive of labour)
Concrete path, reinforced concrete 100mm thick (for 2.4 metre width) – with significant preparatory site/earth works (such as both longitudinal and cross-section cut-and-fill – e.g. steeply sloped banks or mounds of fill – with final levelling and compaction) <sup>2</sup>	235	linear metre	Base rate supplied by Lithgow City Council – \$80/m <sup>2</sup> (inclusive of labour)
Concrete - reinforced concrete 100mm thick (inclusive of labour) <sup>1</sup>	80	square metre	Lithgow City Council
Bitumen (new) - 50mm thick (AC10) on recycled road base (100mm thick and includes grading, rolling and 95% standard compaction – by machine)	75	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Bitumen (50mm thick, AC10) – patching over in-situ surface	63	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Steps – concrete on-ground (1.5m wide, tread 350mm and riser 175mm) with regular landings, includes form up and concrete broom finish, and allowance for considerable preparatory site/earth works (longitudinal cut-and-fill, or cross-section cut-and-fill, of up to 500 millimetres)	700	linear metre	Base rate supplied by Lithgow City Council (\$80/m <sup>2</sup> inclusive of labour) and <i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Compacted crushed sandstone/gravel path, with timber or recycled plastic edging (for minimum 150mm depth and >2m path width) (includes grading, rolling and 95% standard compaction – by machine)	54	square metre	Comparable/previous projects (by Gondwana Consulting and others) and <i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values).
Sandstone blocks/barriers, wheel sawn “A” grade blocks (500 x 500 x 2,000mm) – as stepping stones (installation by LCC)	195	each	Commercial catalogue (Kimberley Sandstone Sydney)

Item / Description	Rate (\$)	Unit	Source / Basis of Cost Estimate
On-road cycleway - for line marking, stencils and signs only (no allowance for any pavement works) (no allowance for intersection modifications)	20	linear metre	Average cost only (strongly dependent on character of existing road network) - Bicycle Network and comparable/previous projects (by Gondwana Consulting and others)
<b>Boardwalks and Bridges</b>			
Boardwalk (low level) – on-ground (no railing) 2.4m wide, all hardwood materials (decking, toerails and bearers/floaters)	1,800	linear metre	Commercial provider and comparable/previous projects (by Gondwana Consulting and others)
Boardwalk (elevated) – elevated with low footings, but low level (no railing), 2.4m wide, all hardwood materials (on decking, toerails and footings) <sup>3</sup>	2,500	linear metre	Commercial provider and comparable/previous projects (by Gondwana Consulting and others)
Boardwalk (elevated) – elevated with taller footings (allowing for high footings on one side only, low footing on opposite side) with safety railing (partial barrier style) on one side only, all hardwood materials (on decking, toerails and footings) <sup>3</sup>	2,900	linear metre	Commercial providers (boardwalk and barrier) and comparable/previous projects (by Gondwana Consulting and others)
Bridge – straight and level, “K1103 Condamine” bridge or similar – 15m long (constructed/installed)	98,600	each	Commercial provider (Landmark Products Pty Ltd)
Bridge – straight and level, “K1103 Condamine” bridge or similar – 20m long (constructed/installed)	144,000	each	Commercial provider (Landmark Products Pty Ltd)
Bridge – straight and level, “K1103 Condamine” bridge or similar – 20m long (constructed/installed)	208,900	each	Commercial provider (Landmark Products Pty Ltd)
<b>Railing, Fencing and Barriers</b>			
Safety railings, full barrier (enclosed panels) with high bump rail, “CycSafe” Fencing or similar (for runs under 100m, includes end terminations)	420	linear metre	Commercial provider (Bluedog Fences)
Safety railings, partial barrier (open panels) with high bump rail, “CycSafe” Fencing or similar (for runs under 100m, includes end terminations)	280	linear metre	Commercial provider (Bluedog Fences)
Boundary security fence - galvanised tubular steel fencing (“Diplomat” or similar pressed form spear fencing)	205	linear metre	Commercial provider (ARC Fences)
Boundary security fence – galvanised chain mesh, 2,100mm high tubular posts topped with 3-strand barbed wire	69	linear metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Bollards (recycled plastic 1,500 x 111mm, square)	170	each	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Post and cable (metal) vehicle barrier (for carpark definition and vehicle control, not a safety barrier)	115 m	linear metre	Comparable/previous projects (by Gondwana Consulting and others)
Heavy-duty vehicle gate (with protected lock)	3,200	each	NPWS and comparable/previous projects (by Gondwana Consulting)
Sandstone blocks/barriers, wheel sawn “A” grade blocks (500 x 500 x 2,000mm) – as vehicle barriers (installation by LCC)	195	each	Commercial catalogue (Kimberley Sandstone Sydney)

Item / Description	Rate (\$)	Unit	Source / Basis of Cost Estimate
<b>Park Furniture / Facilities</b>			
Bench seat	650	each	Averaged (price will vary by style/material) from - <i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values) and commercial catalogues (various)
Seat (backed)	1,800	each	
Picnic setting (table and two attached bench seats)	2,500	each	
Picnic table (platform)	2,400	each	
Water bubbler (stand- alone, and allowing for 20m water line connection)	1,500	each	
Bike racks (single “loop” style)			<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
<ul style="list-style-type: none"> <li>rack (“loop”) only</li> <li>rack (“loop”) on concrete pad</li> </ul>	105 225	each each	
Bike racks - 3 rack frame (holds 6 bikes), galvanised steel (excludes footing, supply only)	550	each	Commercial catalogue (Seton Australia)
Shade shelter – prefabricated galvanised steel posts and tensioned shade sail	400	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
<b>Road Crossings and Road Infrastructure</b>			
Zebra crossing - including on-road linemarking and layback kerbs each side (for 2 lane bitumen road, excludes any road pavement works)			<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values) – totalled (by component)
<ul style="list-style-type: none"> <li>without signs</li> <li>with signs (4 road signs and 2 path signs)</li> </ul>	3,800 5,330	each each	
Refuge crossing - including bitumen excavation/removal, new median islands (x 2, concrete), central grab rails (x 2), remove existing kerbs and replace with kerb laybacks (x 2), linemarking (for 2 or 3 lane bitumen road, excludes any road pavement widening/works)			<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values) – totalled (by component)
<ul style="list-style-type: none"> <li>without signs</li> <li>with signs (8 road signs and 2 path signs)</li> </ul>	6,030 8,640	each each	
Chicanes or “grab rails” (galvanised steel)	175 350	each pair	Commercial catalogue (Seton Australia)
Raised threshold (“speed hump”), 1.5m across with ramped approaches, includes painting/linemarking (for 2 lane bitumen road)	4,000	each	Comparable/previous projects (by Gondwana Consulting and others) and <i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values) – totalled (by component)
Kerb layback/crossing – concrete (cast in-situ)	130	linear metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Kerb and guttering - extruded concrete	108	linear metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
<b>Signs and Linemarking</b>			
Sign – on shard path (600 x 600mm) and galvanised steel post (installation by LCC)	225	each	Commercial catalogue (Seton Australia)

Item / Description	Rate (\$)	Unit	Source / Basis of Cost Estimate
Sign – on road (600 x 600mm) and galvanised steel post (installation by LCC)	270	each	Commercial catalogue (Seton Australia)
Signs – wayfinding/directional (metal post and arrow)	105	each	NPWS and comparable/previous projects (by Gondwana Consulting)
Road linemarking (75mm wide, single coat onto bitumen)	5	linear metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Road linemarking - - wide bands (for zebra crossings) or large chevrons (single coat onto bitumen)	49	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Road/vehicle barrier or guard rail (Armco or similar) <ul style="list-style-type: none"><li>guard rail (for runs &lt;100m) supplied and installed</li><li>end assembly supplied and installed</li></ul>	400 1,300	linear metre each	Commercial provider (Ingal Civil)
<b>Demolition, Fill and Retaining Walls</b>			
Break-up and remove concrete slab (100mm reinforced)	48	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Break-up (concrete saw) and remove concrete kerb and gutter	48	linear metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Break-up, strip and remove bitumen paving	19	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Remove chain mesh fencing – 1,800 or 2,100mm high	9	linear metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Fill (mix of crushed rock and recycled concrete, with compacted upper layer sand bed), filling and compaction by machine	80	cubic metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Levelling and final trim, by machine	4	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Surface compaction (plate compactor)	2	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Retaining wall – blockwork (up to 1.5 m high, in 200mm high coursing, and including footings and capping)	225	linear metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values) – totalled (by component)
<b>“SOFT” WORKS (LANDSCAPE WORKS AND AMENITY PLANTINGS)</b>			
Filter strip plantings (see below for components): <ul style="list-style-type: none"><li>in grassed/managed open space sites</li><li>in sites previously subject to clearing, weed control and revegetation</li></ul>	38 39	square metre square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values) – totalled (by component)
Amenity plantings, including “island” plantings (see below for components): <ul style="list-style-type: none"><li>in grassed/managed open space sites</li><li>in sites previously subject to clearing, weed control and revegetation</li></ul>	40 41	square metre square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values) – totalled (by component)
Screening plantings, and “barrier” or malleable plantings (see below for components):			

Item / Description	Rate (\$)	Unit	Source / Basis of Cost Estimate
<ul style="list-style-type: none"><li>in grassed/managed open space sites</li><li>in sites previously subject to clearing, weed control and revegetation</li></ul>	52	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values) – totalled (by component)
	53	square metre	
Spaced or “specimen” native trees, with surrounding planted bed (approx. 5 x 5m) (see below for components).	975	each	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Street trees (semi-mature, 75 litre container)	207	each	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Tree guards – large (1,400 x 600 mm), architectural/feature style	1,060	each	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Top dressing (10mm), by hand	4	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Top dressing (10mm), by machine (3-10 tonnes)	1-2	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Turf/grass (couch or kikuyu), hand laid	9	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Top dressing (10mm, by hand) and turf/grass (couch or kikuyu, hand laid)	13	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Top dressing (10mm, by hand) and seeding (by machine)	5	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Top dressing (10mm, by machine) and seeding (by machine)	2-3	square metre	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
<b>WEED CONTROL AND NATIVE VEGETATION REPLANTING / REGENERATION</b>			
<b>High concentration weed zones (&gt;70% cover) – woody, climbing and herbaceous weeds (riparian zone)</b>			
Primary bush regeneration weeding sweep (see below for methods)	3.20	square metre	Combined sources - comparable/previous projects (by Gondwana Consulting and others), Lithgow City Council, commercial providers, commercial catalogues, and <i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Supply and install weed-free mulch (75mm depth, coarse/ripped mulch, machine supply and spread) to suppress weed regrowth and retain soil moisture (until planted vegetation establishes) – over cleared/exposed areas only <sup>4</sup>	5.90	square metre	
50mm (250ml) tubestock (bulk 400+) – supply only	1.60	each	
75mm (“Forestry”) tubestock (bulk 200+) – supply only	1.80	each	
Tubestock planting out and establishment watering	1.60	each	
Tree guards (bulk 250+) – LDPE, 450mm high, vented, including 600mm bamboos stakes (x3)	1.25	each	
Maintenance weeding – year 1 (excludes replacement plantings)	2.15	square metre	
Replacement plantings – estimated to allow for 10-20% of original planting volumes (undertaken in year 1)	20% of original planting volumes		
Maintenance weeding – year 2	1.95	square metre	
Maintenance weeding – year 3	1.65	square metre	
Maintenance weeding – year 4	1.40	square metre	

Item / Description	Rate (\$)	Unit	Source / Basis of Cost Estimate
Maintenance weeding – year 5	1.15	square metre	
<b>Medium concentration weed zones (25-50% cover) – woody, climbing, herbaceous and grassy weeds (riparian zone and adjacent areas)</b>			
Primary bush regeneration weeding sweep (see below for methods)	2.75	square metre	Combined sources - comparable/previous projects (by Gondwana Consulting and others), Lithgow City Council, commercial providers, commercial catalogues, and <i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Supply and install weed-free mulch (75mm depth, coarse/ripped mulch, machine supply and spread) to suppress weed regrowth and retain soil moisture (until planted vegetation establishes) – over cleared/exposed areas only <sup>5</sup>	5.90	square metre	
50mm (250ml) tubestock (bulk 400+) – supply only	1.60	each	
75mm (“Forestry”) tubestock (bulk 200+) – supply only	1.80	each	
Tubestock planting out and establishment watering	1.60	each	
Tree guards (bulk 250+) – LDPE, 450mm high, vented, including 600mm bamboos stakes (x3)	1.25	each	
Maintenance weeding – year 1 (excludes replacement plantings)	1.65	square metre	
Replacement plantings – estimated to allow for 10-20% of original planting volumes (undertaken in year 1)	20% of original planting volumes		
Maintenance weeding – year 2	1.50	square metre	
Maintenance weeding – year 3	1.25	square metre	
Maintenance weeding – year 4	1.10	square metre	
Maintenance weeding – year 5	0.85	square metre	
<b>Low concentration weed zones (5-25% cover) – mainly grassy or herbaceous and climbing weeds, with occasional or scattered woody weeds (riparian zone and adjacent areas)</b>			
Primary bush regeneration weeding sweep (see below for methods)	1.45	square metre	Combined sources - comparable/previous projects (by Gondwana Consulting and others), Lithgow City Council, commercial providers, commercial catalogues, and <i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Supply and install weed-free mulch (75mm depth, coarse/ripped mulch, machine supply and spread) to suppress weed regrowth and retain soil moisture (until planted vegetation establishes) – over cleared/exposed areas only <sup>6</sup>	5.90	square metre	
50mm (250ml) tubestock (bulk 400+) – supply only	1.60	each	
75mm (“Forestry”) tubestock (bulk 200+) – supply only	1.80	each	
Tubestock planting out and establishment watering	1.60	each	
Tree guards (bulk 250+) – LDPE, 450mm high, vented, including 600mm bamboos stakes (x3)	1.25	each	
Maintenance weeding – year 1 (excludes replacement plantings)	1.00	square metre	
Replacement plantings – estimated to allow for 10-20% of original planting volumes (undertaken in year 1)	20% of original planting volumes		
Maintenance weeding – year 2	0.90	square metre	
Maintenance weeding – year 3	0.75	square metre	
Maintenance weeding – year 4	0.65	square metre	



Item / Description	Rate (\$)	Unit	Source / Basis of Cost Estimate
Maintenance weeding – year 5	0.50	square metre	
<b>Other</b>			
Herbicide spraying, by knapsack (>500 square metres)	0.85	square metres	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)
Herbicide spraying, by machine (>1,000 square metres)	0.85	square metres	<i>Guideline Schedule of Rates for Landscape Works (2013)</i> , Landscape Association of NSW and ACT (CPI adjusted to 2016 values)

#### Notes:

- <sup>1</sup> Construction or installation included, unless otherwise noted.
- <sup>2</sup> Orders of cost for concrete paths are based on the following assumptions:
  - a local square metre construction cost of \$80, including labour, as advised by Lithgow City Council;
  - no subgrade or road base, or special drainage works included;
  - all excavations and cut-and-fill the works can be undertaken by a small machine;
  - costed for works in light soil;
  - no imported fill required;
  - vegetation clearing not included;
  - on-pavement marking and general wayfinding not included; and
  - retaining walls have been costed separately.
- <sup>3</sup> Orders of cost for elevated boardwalks assume hand dug or machine excavated timber footings in concrete, cost for galvanised/metal footings or driven pile footings would be extra.
- <sup>4</sup> Allow for mulch coverage of 80% of total site areas in high percentage weed cover zones (>70% cover areas).
- <sup>5</sup> Allow for mulch coverage of 35% of total site areas in medium percentage weed cover zones (25-50% cover areas).
- <sup>6</sup> Allow for mulch coverage of 10% of total site areas in low percentage weed cover zones (5-25% cover areas).
- <sup>4 5 6</sup> Mulch cost have been quoted at commercial rates, savings would be possible if Council sources/generates mulch from its other open space and vegetation management activities (also applies for other “soft” landscape works and amenity plantings).

#### General Exclusions

The following items are not included in the order of cost estimates:

- survey costs - for public land boundary determination, path alignment (where required), infrastructure set-out, etc.;
- re-fencing of private property boundaries following the removal of encroachments (both assumed to be a the landholder’s expense);
- risk and/or public safety assessments;
- soil, contamination, geotechnical or subsidence investigations;
- flooding investigations;
- engineering details/specifications where required (unless specifically identified or otherwise indicated for particular items);
- design and approval costs (unless specifically identified);
- disposal fees for demolition materials and waste;

- erosion and sediment control works, during and after construction;
- on-pavement marking and general wayfinding for the sealed shared path;
- costs of Lithgow City Council's current, and on-going, landscape maintenance/management works at the Lake Pillans Wetlands and Blast Furnace Park; and
- spot removal of introduced trees (e.g. Poplars and Pines) and replacement native tree plantings.

### **Bridges – Components and Inclusions/Exclusions**

Cost estimates are based on standard, straight and level, "K1103 Condamine" bridges (Landmark Products Pty Ltd) at a range of lengths - "short" 15m, and "long" 20m and 25m - and 2.5m clear width. Designed to 3kPa loads, not designed for flood or vehicle loads. Assumes 3.5 x 0.45 x 0.6m abutments and 2 bored piers at each end, as well as assumed class S or M soil conditions. Includes:

- hot dipped galvanised exposed steel beams, bearers and bike rails;
- LOSP treated, factory stained, pine timber joists and plates;
- open grid FRP decking (19 x 19 mm) on "short" bridges, and ACQ treated hardwood timber decking on "long" bridges;
- hot dipped galvanised steel baluster posts and balustrade panels on "short" bridges, and hardwood baluster posts and LOSP treated factory stained pine timber balustrade panels with hardwood timber cap rail on "long" bridges;
- galvanised fixings (stainless steel anti vandal fastening system for baluster post, baluster panels and bike rails);
- abutment design;
- engineers certification and building application drawings; and
- delivery, unloading and installation of bridge (including construction of abutments).

No allowance for - building approvals, scour protection of abutments, soil investigation and report, rock excavation, concrete pumping, and bollards at either end of bridge and lead-ons.

### **Amenity Plantings and Landscape Works – Components**

All plant supply and planting-out costs are on the basis of a "planting hole" 200 millimetres wider and 200 millimetres deeper than the respective container and backfilling with an imported topsoil mix (including fertiliser), watering-in and establishment watering – rather than overall ground or planting bed preparation.

Orders of cost for **filter strip plantings** have been estimated on the basis of:

- minimum width of 1 metre (although filter strips could be substantially wider than this in many places - depending on the final path alignment and detailed site layout);
- native grasses and/or sedges (where suitable) sourced and planted as 75 millimetre tubestock (\$5.10 per tubestock, at "commercial" site rates and allowing for planting into prepared "planting holes" with establishment measures – as above);
- planting density of 4 tubestock per square metre;
- plant guards of polythene tube 450 x 350 millimetre with 3 bamboo stakes (\$1.95 each);
- mulched (rather than weed or erosion control matting) to 75 millimetre minimum depth with "forest mulch" or similar (at \$10.05 per square metre, for supply and spread by hand);
- edge management by herbicide application (Council's current practice), rather than a hard/constructed edge; and
- pre-treatment weed control, by herbicide spraying from knapsacks, where warranted (allowed for in sites previously subject to clearing, weed control and revegetation where residual weed propagules/regrowth may be an issue – not required in grassed/managed open space sites) (\$0.85 per square metre).

Giving estimated orders of cost (rounded) for filter strip plantings of:

- \$38 per square metres - in grassed/managed open space sites; and
- \$39 per square metres - in sites previously subject to clearing, weed control and revegetation.

Orders of cost for **amenity plantings**, including “island” plantings, have been estimated at a per ten square metre rate, on the basis of:

- typical amenity plantings comprising planted “islands” - with 1 native tree per 10 square metres and native grasses, groundcovers and low shrubs (to 1 metre, in recognition of CPTED constraints) at a planting density of 4 tubestock per square metre;
- trees sourced and planted as 5 litre (200 millimetre) advanced pots (\$15.30 per pot, at “commercial” site rates and into larger prepared “planting holes” with establishment measures as above, and additional follow-up watering);
- native grasses, groundcovers and low shrubs sourced and planted as 75 millimetre tubestock (\$5.10 per tubestock, at “commercial” site rates and into prepared “planting holes” with establishment measures – as above);
- plant guards of polythene tube 450 x 350 millimetre with 3 bamboo stakes (\$1.95 each);
- mulched (rather than weed or erosion control matting matting) to 75 millimetre minimum depth with “forest mulch” or similar (at \$10.05 per square metre, for supply and spread by hand);
- edge management by herbicide application (Council’s current practice), rather than a hard/constructed edge; and
- pre-treatment weed control, by herbicide spraying from knapsacks, where warranted (allowed for in sites previously subject to clearing, weed control and revegetation where residual weed propagules/regrowth may be an issue – not required in grassed/managed open space sites) (\$0.85 per square metre).

Giving estimated orders of cost (rounded) for amenity (“island”) plantings of:

- \$400 per 10 square metres (or \$40 per square metre) - in grassed/managed open space sites; and
- \$408 per 10 square metres (or \$40.80 per square metre) - in sites previously subject to clearing, weed control and revegetation.

Orders of cost for **screening plantings** (and “barrier” or malleable plantings) have been estimated on the basis of:

- native shrubs (mainly, plus some understorey grasses) sourced and planted as 75 millimetre tubestock (\$5.10 per tubestock, at “commercial” site rates and into prepared “planting holes” with establishment measures – as above);
- planting density of 6 tubestock per square metre;
- plant guards of polythene tube 450 x 350 millimetre with 3 bamboo stakes (\$1.95 each);
- mulched (rather than weed or erosion control matting matting) to 75 millimetre minimum depth with “forest mulch” or similar (at \$10.05 per square metre, for supply and spread by hand);
- edge management by herbicide application (Council’s current practice), rather than a hard/constructed edge; and
- pre-treatment weed control, by herbicide spraying from knapsacks, where warranted (allowed for in sites previously subject to clearing, weed control and revegetation where residual weed propagules/regrowth may be an issue – not required in grassed/managed open space sites) (\$0.85 per square metre).

Giving estimated orders of cost (rounded) for filter strip plantings of:

- \$52 per square metre - in grassed/managed open space sites; and
- \$53 per square metre - in sites previously subject to clearing, weed control and revegetation.

Orders of cost for **spaced or “specimen” native trees** have been estimated at a per square metre rate, on the basis of:

- larger native trees typically located at 20 metre centres (within grass or open space areas) in a planted bed, approximately 5 x 5 metres, of native grasses and low shrubs (to 1 metre, in recognition of CPTED constraints);
- trees sourced and planted as 5 litres (200 millimetre) advanced pots (\$15.30 per pot, at “commercial” site rates and into larger prepared “planting holes” with establishment measures, as above, and additional follow-up watering);
- native grasses and low shrubs sourced and planted as 75 millimetre tubestock (\$5.10 per tubestock, at “commercial” site rates and into prepared “planting holes” with establishment measures – as above);
- plant guards of polythene tube 450 x 350 millimetre with 3 bamboo stakes (\$1.95 each);
- mulched (rather than weed or erosion control matting matting) to 75 millimetre minimum depth with “forest mulch” or similar (at \$10.05 per square metre, for supply and spread by hand);
- edge management by herbicide application (Council’s current practice), rather than a hard/constructed edge; and

- pre-treatment weed control, by herbicide spraying from knapsacks, where warranted (allowed for in sites previously subject to clearing, weed control and revegetation where residual weed propagules/regrowth may be an issue – not required in grassed/managed open space sites) (\$0.85 per square metre).  
Giving an estimated order of cost (rounded) for each spaced/specimen native tree and surrounding planted bed of \$975 per tree (and bed).

### **Weed Control and Native Vegetation Replanting / Regeneration - Components**

Measures allowed for in primary bush regeneration weeding sweep costs (by weed concentration zones):

- high concentration weed zones (>70% cover) – cut and paint woody weeds, drill and inject larger woody weeds, scrape and paint climbers, hand weed around native plants, herbicide spraying of climbing and herbaceous weeds (where damage to native species unlikely), and on-site chipping of treated woody weeds;
- medium concentration weed zones (25-50% cover) – cut and paint woody weeds, scrape and paint climbers, hand weed around native plants, and herbicide spraying all weed forms (where damage to native species unlikely); and
- low concentration weed zones (5-25% cover) – principally hand weed around native plants and spot spraying of herbaceous and grassy weeds (where damage to native species unlikely), slashing where practical, and with occasional scrape and paint climbers and cut and paint woody weeds.

Tubestock planting densities across weed control and revegetation areas:

- high concentration weed zones (>70% cover) – 1 plant per 4m<sup>2</sup> (2,500 plants per hectare) or 2.9m spacings;
- medium concentration weed zones (25-50% cover) – 1 plant per 10m<sup>2</sup> (1,000 plants per hectare) or 4.5m spacings; and
- low concentration weed zones (5-25% cover) – 1 plant per 10m<sup>2</sup> (1,000 plants per hectare) or 4.9m spacings.