VIASTRADA

TRAFFIC ENGINEERING AND PLANNING

Little River Railtrail
River Road Section
Concept Scheme Alignment Plan

Report prepared for
Selwyn District Council

ViaStrada Ltd

April 2011

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Summary

ViaStrada has been engaged by Selwyn District Council (SDC) on behalf of the Christchurch-Little River Railtrail Trust to provide a report and scheme alignment plans for a proposed 6 km long section of the Christchurch to Little River Railtrail (CLRRT) to run alongside the Halswell River from the Tullet Block at Collins Road East to Macartneys Road south of Lincoln.

The details and information in this report can be used to inform:

- specific design and construction requirements
- resource and building consent processes
- funding applications
- consultation

The planning for this section of the CLRRT has been underway since 2006 and has been contentious with land owners on both sides of the Halswell River. Property owners on the eastern side of the river have made use of the esplanade reserve along the river bank, and in some cases incorporating it into working areas of their farms and constructing buildings and structures on the reserve.

In 2010 SDC confirmed a route for this section of trail that alternates between both sides of the river to minimise conflict with landowners and to avoid unsuitable river bank profiles. The exact location of new bridge crossings will be finalised during the construction phase.

The majority of this new section of the CLRRT will be a 2.5 m wide, unsealed trail constructed at grade. If necessary, short sections of timber retaining or timber boardwalk will be required to suit river bank profiles or ground conditions. Post and wire fencing will be installed along the trail as required to separate users from farm stock and barriers and landscaping will be installed where the trail runs close to River Road.

The potential conflict point where the cycle trail crosses Geddes stock route will be addressed by taking the trail under the stock route through a box culvert structure, similar to a stock crossing structure under a road.

ViaStrada understands there was concern about the cycle trail from the neighbouring land owners and that no formal consultation has occurred since 2006-07 pending further details becoming available. Now that further details and information have been established through this report we recommend that dialogue with the neighbouring land owners is re-opened.

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1 Introduction

ViaStrada has been engaged by Selwyn District Council (SDC) on behalf of the Christchurch-Little River Railtrail Trust (the Trust) to provide a report and scheme alignment plans for a proposed section of the Christchurch to Little River Railtrail (CLRRT) to run alongside the Halswell River from the Tullet Block at Collins Road East to Macartneys Road.

The planning for this section of the CLRRT has been underway since 2006 and has been contentious with land owners on both sides of the Halswell River.

ViaStrada confirm that the route of the trail detailed in this report is in general accordance with the alignment resolved by SDC as follows:

> *'That Council confirms the route of the Christchurch to Little River Railtrail utilising the public road reserve alongside the Halswell River from Collins Road East to McCartneys Road, in particular the intention to use the true left side of the river from Greenpark Road to McCartneys Road'.*
>
> *Selwyn District Council, April 2010*

ViaStrada understands that SDC will be responsible for the facilitating the construction of this section of the trail at the Trusts cost. Once complete it will then be managed and maintained by SDC on behalf of users and the wider community

This report should be read in conjunction with ViaStrada drawings:

Little River Rail Trail: Tullet Block to Macartneys Road

- Drawing No. 000 – Key Plan
- Drawing No. 001 – Segment 1 (0.0m to 1050m), Segment 2 (1050m to 1630m)
- Drawing No. 002 – Segment 3 (1630m to 2030m), Segment 4 (2030m to 3250m)
- Drawing No. 003 – Segment 4 (3250m to 3940m), Segment 5 (3940m to 4800m)
- Drawing No. 004 – Segment 5 (4800m to 4950m), Segment 6 (4950m to 5830m)

2 Trail Segments

This trail project is approximately 5.83 km long. To make it easier to identify and describe the route, this report breaks the trail into 6 segments and discusses each segment in more detail in Section 5.

Table 1: Route segments

Segment Number	***Description***	***Chainage***
Segment 1	Tullet block to 1st new bridge	0 to 1050
Segment 2	1st new bridge to Davis Rd bridge	1050 to 1630
Segment 3	Davis Rd bridge to 2nd new bridge	1630 to 2030
Segment 4	2nd new bridge to private bridge	2030 to 3940
Segment 5	Private bridge to Gebbes bridge	3940 to 4950
Segment 6	Gebbes bridge to 3rd new bridge	4950 to 5830

3 Barriers and Fences

Separation from stock

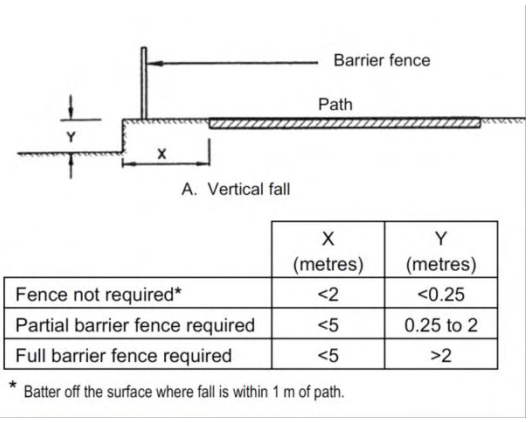
It is recommended that post and wire type fencing is installed to separate trail users from stock where necessary. The location and extent of post and wire fencing will need to be determined and agreed on site when the trail route has been confirmed. Sections of the fenced corridor created may range in width from 5m – 10m depending on site conditions.

Separation from road

Where the trail runs in close proximity to high speed roads (greater than 60 Km/hr), it is recommended that log rail type barriers are installed. Landscaping and planting maybe used to provide a higher sense of visual and physical separation where appropriate.

Delineation and Falling hazard

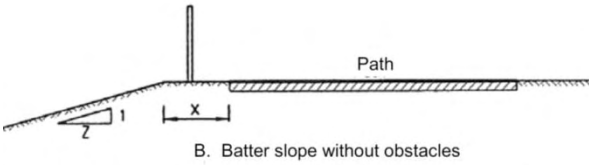
There will be several locations where barriers and fences are required for safety and delineation. Guidance is given in the Austroads Guide to Road Design - Part 6A-Pedestrian and Cyclist Paths, Section 7.7.2 and the ViaStrada NZ Cycle Trail Design Guide to determine the suitable fence and or barrier treatments.



A. Vertical fall

	X (metres)	Y (metres)
Fence not required*	<2	<0.25
Partial barrier fence required	<5	0.25 to 2
Full barrier fence required	<5	>2

* Batter off the surface where fall is within 1 m of path.



B. Batter slope without obstacles

	X (metres)	Z (metres)
Fence not required	<1 1 to 5	>8 >3
Partial barrier fence required	<5	1 to 3
Full barrier fence required	<5	<1

Figure 1: Austroads fence requirements

The Austroads guide (Figure 1) refers to full or partial barrier fence treatments. The partial barrier fence as shown in Figure 2 will be suitable for the majority of CLRRT. Fencing requirements for the Davis Road bridge and any other areas with a drop greater than 2 m will need to be confirmed by the contractor with SDC.

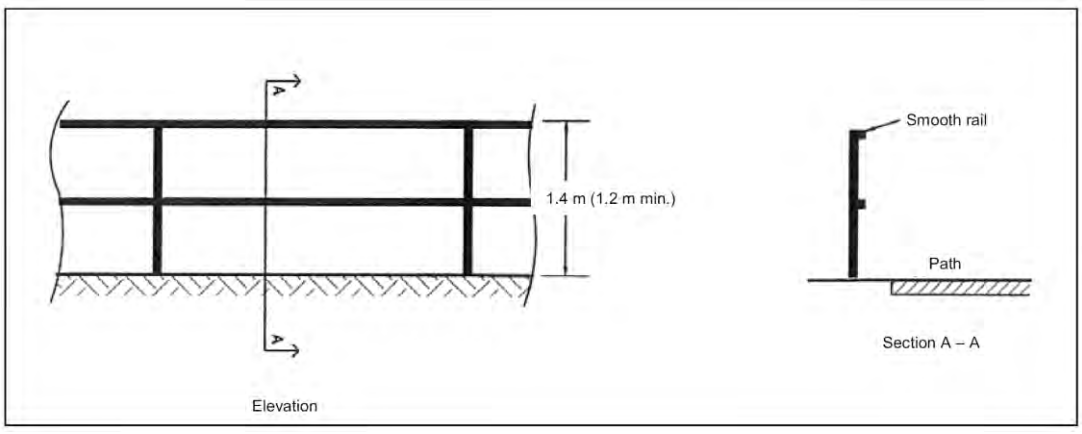


Figure 2: Austroads partial barrier fence treatment

NZ Cycle Trail Design Guide, Section 3.5 and Table 16 gives horizontal clearances (Figure 3) used for improved barrier design relating to sloping handrails and retaining walls.

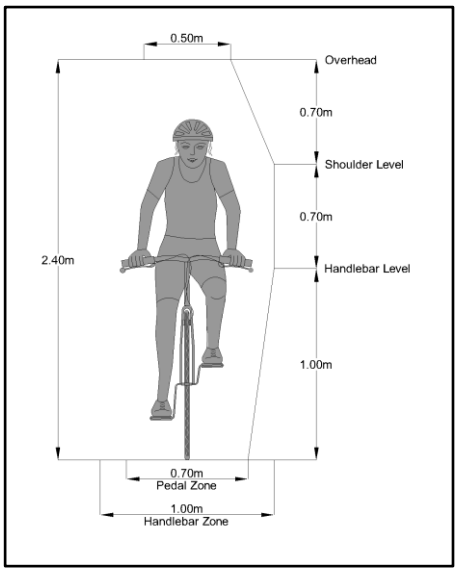


Figure 3: NZ Cycle Trail Design Guide clearances

4 Trail Drainage

The cycle trail should be constructed so that water does not pond on the surface and debris do not wash on to the path during heavy rain. The path should have adequate cross fall and catch drains to collect water and prevent water and debris flowing onto the path. Figure 4 shows Austroads trail drainage examples.

It is envisaged that storm water drainage will not point discharge directly into the Halswell River, but will filter through the grass berms to remove contaminants and attenuate storm water velocity prior to entering the river.

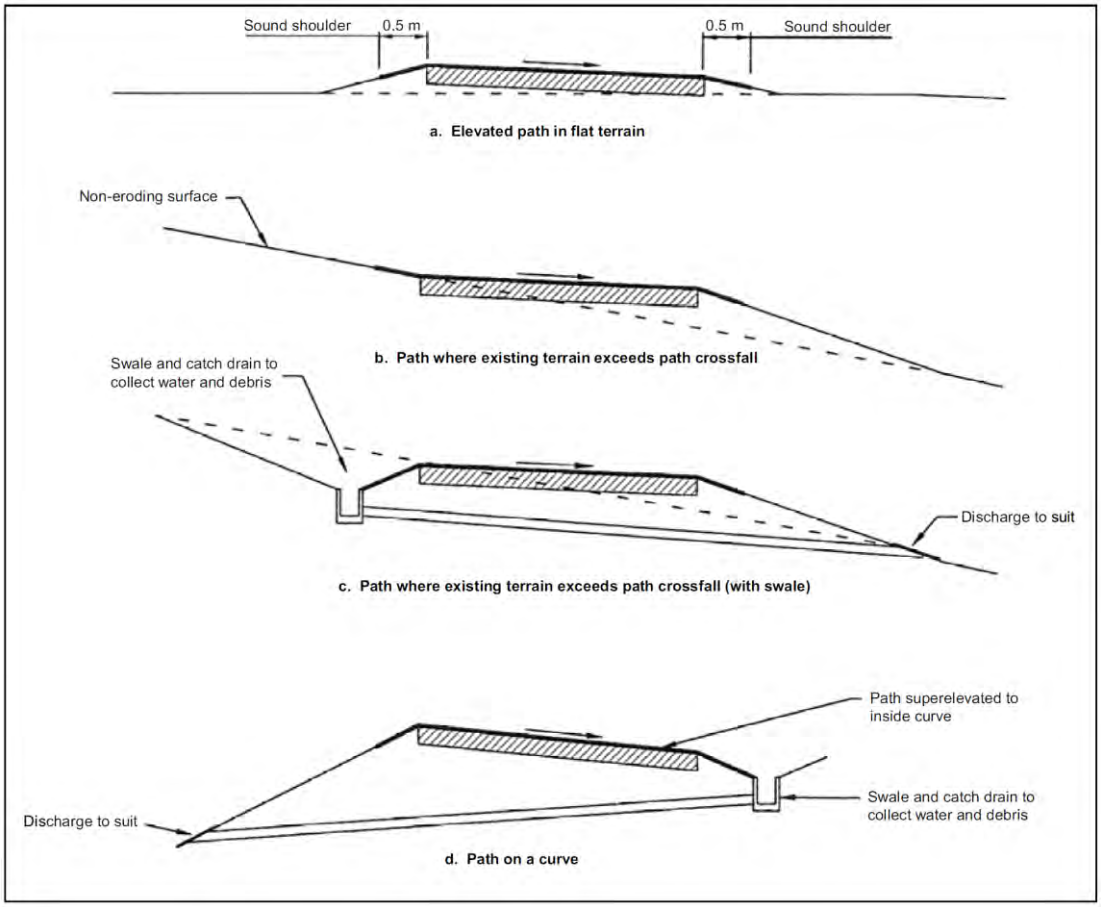


Figure 4: Austroads trail drainage

5 Proposed Trail Cross Sections

The existing terrain available to the trail varies as it travels from the Tullet Block to Macartneys Road. It is envisaged that the majority of the trail will be the 'Type A' cross section shown below in Section 5.1. This is a 2.5 m wide unsealed trail, constructed at grade

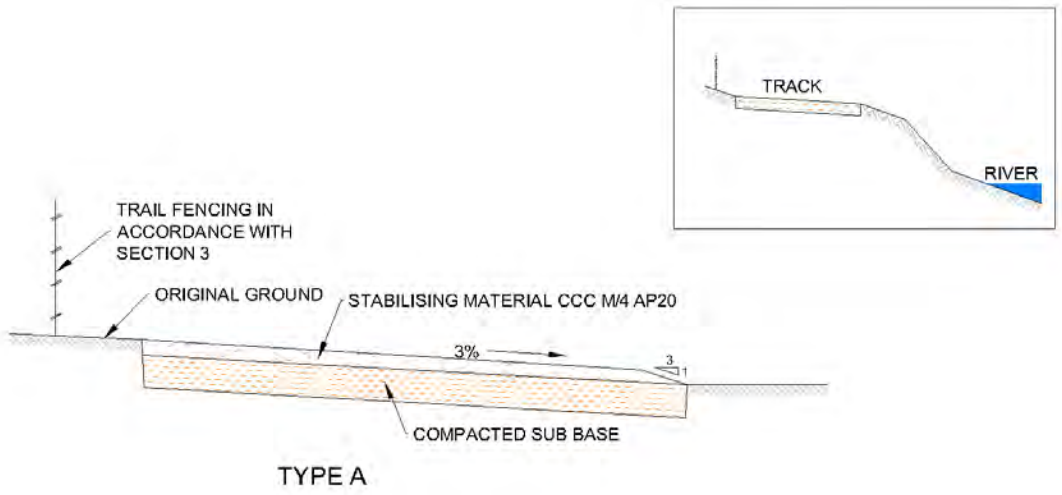
Sections 5.2 to 5.4 show the other proposed cross sections that could be installed to suit the terrain available.

It is noted that some sections of the trail may require timber batten edges to confine the trial and provide a definite trail edge line.

The recent earthquakes have caused some damage to River Road and the river banks through lateral spreading and subsidence. The construction of the trail will need to take account of this where it may create an issue beyond what can normally accommodated within the typical cross sections proposed.

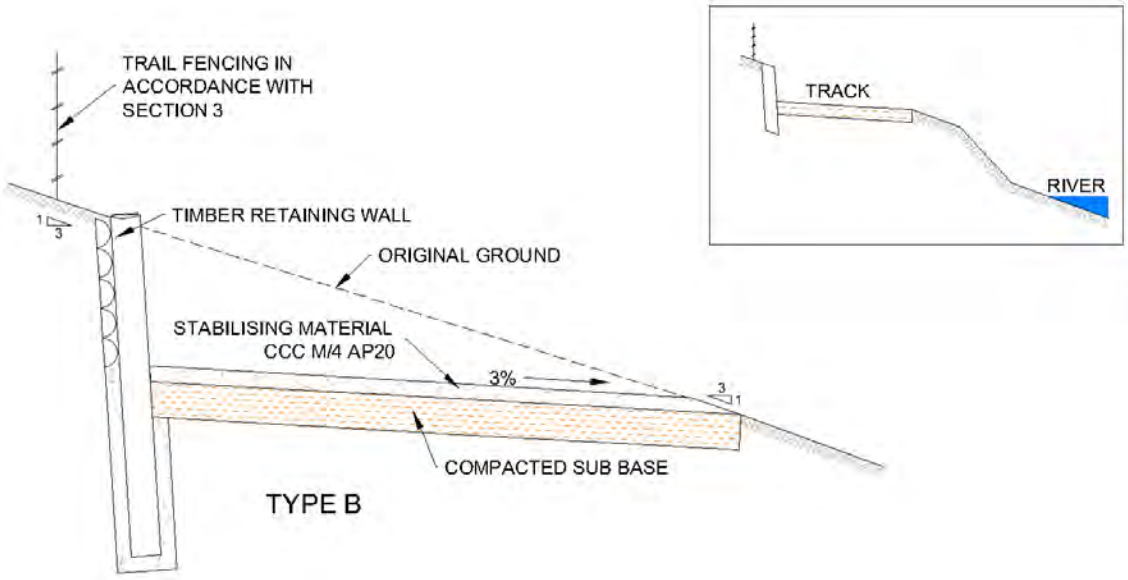
Where earthquake damage occurs the contractor will seek advice from the SDC engineer on appropriate remediation and reinstatement works to facilitate the trail.

5.1 Type A Cross Section – Basic Trail

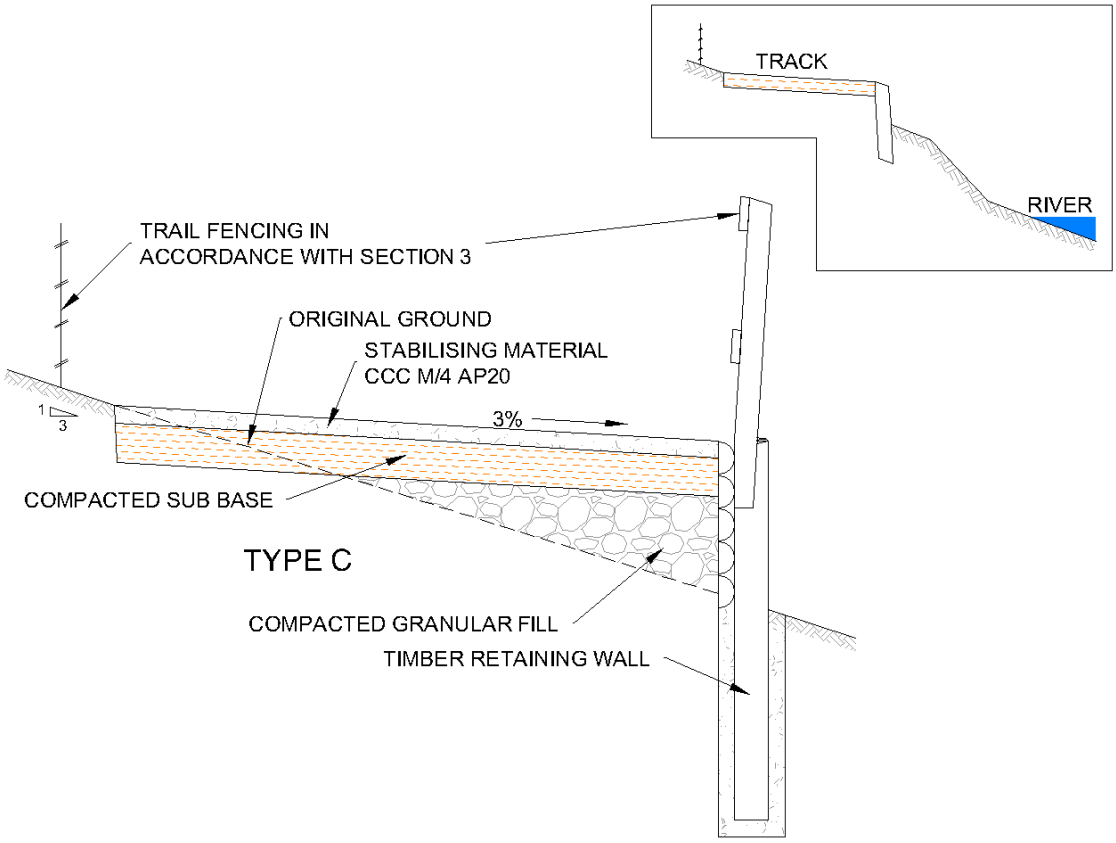


TYPE A

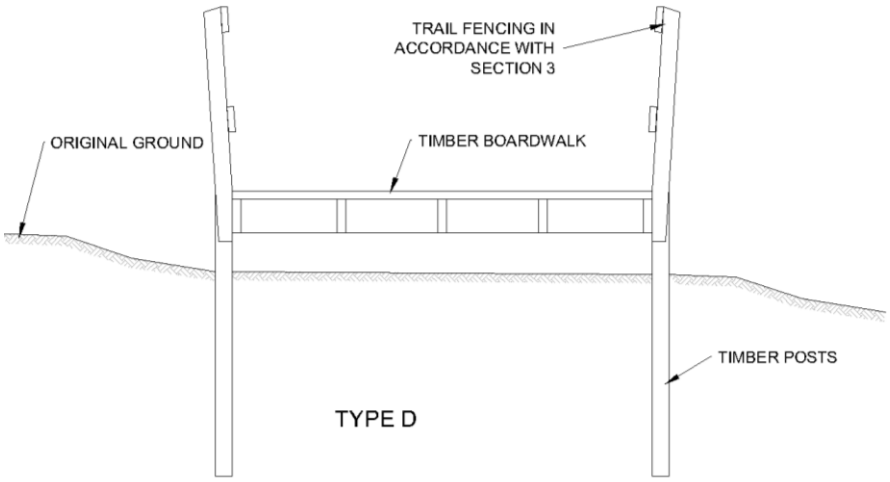
5.2 Type B Cross Section – Road Side Retaining Wall



5.3 Type C Cross Section – River Side Retaining Wall



5.4 Type D Cross Section – Timber Boardwalk



5.5 Typical Bridge Detail

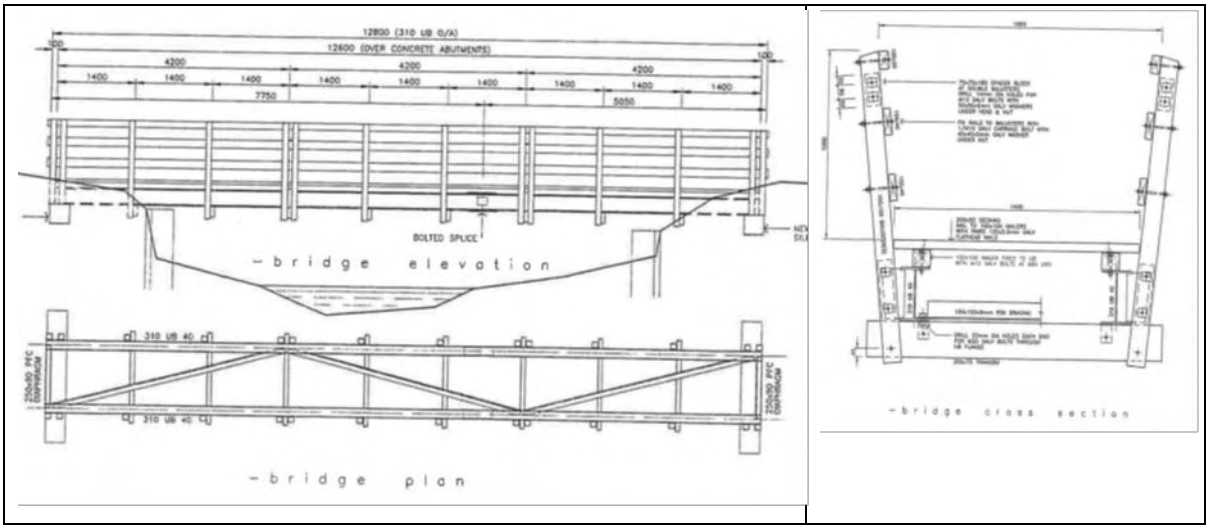


Figure 5: Existing CLRRT bridge details

Figure 5 is a drawing of CLRRT Bridge No. 10, designed by Evans, Douglas Consulting Engineers, which is in use on an existing section of the CLRRT. This style and type of bridge could be used on this section but would subject to specific site design requirements at the locations proposed. SDC and the Trust may wish to nominate Evans, Douglas Consulting Engineers as the design engineers for the three new bridges on this section to promote consistency on the CLRRT.

All new bridges must span the river with no foundations constructed within the waterway unless specifically consented to do so. Suitable waterway clearances are required to maintain clearance from flood levels and to allow unimpeded access along the river by recreational craft and for river cleaning equipment.

All bridges will need to have building consents and resource consents obtained and approved prior to construction. Any resource consents will be obtained by SDC on behalf of the Trust and all other consents to be obtained by the successful trail building contractor or their nominated sub- contractor.

6 Proposed Trail Design

6.1 Segment 1 – Chainage 0 to 1050 m

For ease of identification and description, Segment 1 has been further broken down into Segments 1A & 1B.

6.1.1 Segment 1A – Chainage 0.00 to 330 m

This segment starts where the trail leaves the Tullet block (chainage 0.00) and enters Collins Road East road reserve.

It is proposed that the trail crosses Collins Road at the Tullet Block corner where there is good intervisibility in both directions. The trail then runs in the berm on the southern side of Collins Road until it meets River Road (Figure 6). At River Road the trail turns right and runs in the berm on the south western side of River Road (Figure 7) to chainage 330 m. At chainage 330 m, the trail crosses River Road.

The roadsides adjoining the sealed section of Collins Road East between the bend and River can be used as car parking areas for trail users wishing to access the trail at this point. The berms may need to be excavated and suitably sized and compacted aggregate placed to form an all-weather parking area. Speed calming measures may need to be considered to encompass the sealed section to control vehicle speeds if this becomes an issue.

Figure 6: Collins Rd from River Rd

Figure 7: Berm beside River Rd

Design Issues

Collins Road East

Collins Road East is a currently a shingle road with build ups of large river stones along the edges of the road that are very difficult to cycle through. These would be a particular problem for younger children and less confident cyclists. Council is extending the existing 50m long section of seal originating from the River Road intersection to the bend where the trail will exit the Tullet Block.

Cyclist warning signs (MOTSAM PW-35) should be installed on Collins Road East and small Give Way signs (MOTSAM RG-6) should be installed on the rail trail (Figure 8).

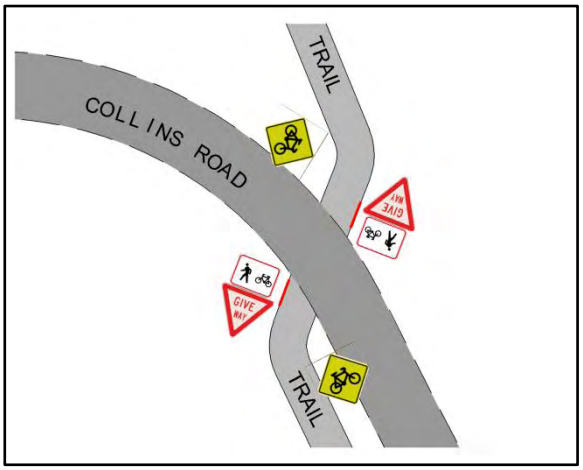


Figure 8: Trail crossing Collins Rd

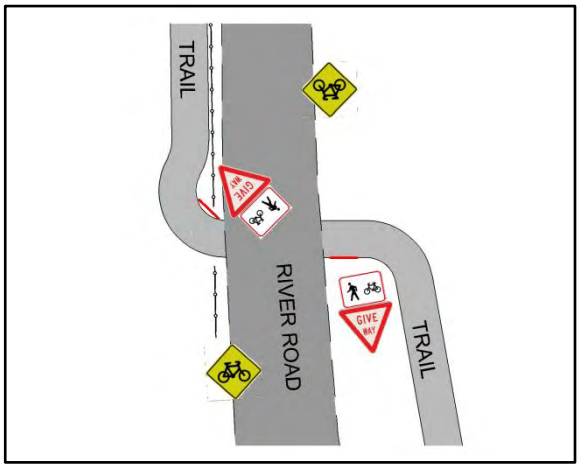


Figure 9: Trail crossing River Rd

River Road

The berm on the south western side of River Road is approximately 4.5 m wide and it is recommended that a log rail type barrier (Figure 10) is installed between the trail and River Road in this area.

There is excellent visibility in both directions where the trail crosses River Road. However, although this section of River Road has an AADT of only approximately 200 to 300, the speed limit is 100km/h and safety barriers and holding rails should be installed at this point to prevent young children from inadvertently crossing River Road without due care or supervision.

Cyclist warning signs (MOTSAM PW-35) should be installed on River Road and small Give Way signs (MOTSAM RG-6 with supplementary shared user sign) should be installed on the rail trail as shown on Figure 9.

Proposed Trail Construction

It is envisaged that Segment 1A trail construction will be Type A

6.1.2 Segment 1B – Chainage 340 to 1050 m.

The trail will continue on the western bank of the Halswell River to 1st new bridge at chainage 1050m.

Figure 10: Example of log rail type barrier

Figure 11: Western bank of river

Design Issues

The river bank in this section is quite wide with room for the Type A trail (Figure 11) within the terraced area of the river banks. However, the trail may be below the road in some parts which could be unpleasant when vehicles go past on a wet day. This could be mitigated with landscape planting as part of this work or as a future project by the Trust. This would be integrated with wider landscaping works to develop the area with other facilities such as seats and picnic tables as the opportunity and room allows in this area.

Proposed Trail Construction

It is envisaged that trail construction in this segment will be Type A.

6.1.3 Segment 1 Bridge – Chainage 1050 m

At the end of Segment 1, the trail crosses to the eastern side of the river via the 1st new bridge.

Design Issues

It is envisaged that the bridge location shown on plan is indicative and the actual bridge location in the vicinity will be identified by the bridge and SDC engineers in conjunction with the contractor, to suit the river bank profile and any consenting requirements.

Proposed Bridge Construction

It is expected that the bridge will be a 'farm' type bridge similar to those already in place on the CLRRT (Figure 12). The new bridge would be wider to accommodate two way flow and possibly maintenance vehicles. The bridge would be designed and built by the successful trail contractor or their nominated subcontractor. Refer to Section 5.5 for bridge details.

Figure 12: Existing CLRRT trail bridge

6.2 Segment 2 – Chainage 1050 to 1610 m

Segment 2 of the trail starts on the eastern side of the river and runs from the 1st new bridge generally southwards using Gilmours Road (Figure 13) to the existing bridge at Davis Road (Figure 14).

Figure 13: Gilmours Rd

Figure 14: Davis Rd bridge

Design Issues

This section of Gilmours Road is an unsealed public road that is not currently maintained by SDC. It will need to be upgraded with a suitable surface for cyclists. It is envisaged that the road would be sealed, which should reduce on-going maintenance costs and provide both the adjoining property owners and rail trail users an all-weather carriageway that SDC would then maintain. Speed calming measures may need to be utilised to control vehicle speeds if this becomes an issue.

Trees and vegetation should be cleared or thinned at vehicle crossings and at the Gilmours and Davis Road intersection to provide good inter-visibility between cyclists, road users, and possible farm vehicles. Where houses are in close proximity to the road, landscape planting can be used to provide further separation, privacy and screening.

Although these local roads carry little traffic, cyclist warning signs (MOTSAM PW-35) should be installed on Davis Road and River Road and small Give Way signs (MOTSAM RG-6 with supplementary shared user sign) should be installed on the rail trail as shown on Figure 15 and Figure 16.

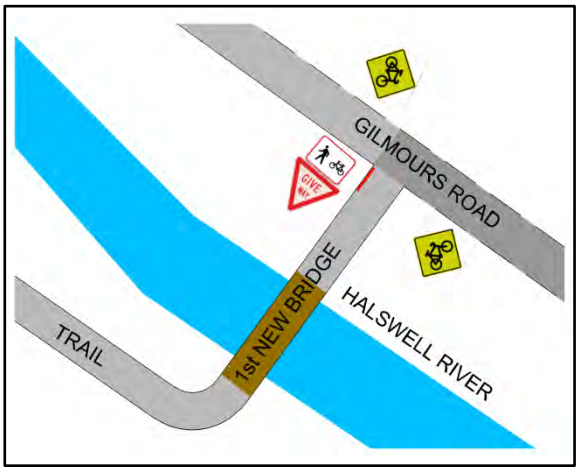


Figure 15: Trail intersecting Gilmours Rd

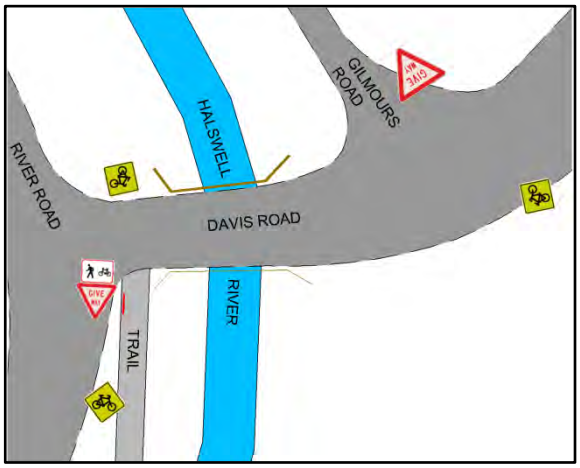


Figure 16: Trail intersecting Davies Rd

Proposed Trail Construction

It is envisaged that trail construction in this segment would be to SDC rural road construction standards with the successful contractor providing a suitable sealed surface for cyclists and other users.

6.2.1 Segment 2 - Existing Bridge at Davies Road – Chainage 1620 m

At the end of Segment 2, the trail crosses to the western side of the river over the existing Davis Road bridge.

Design Issues

As noted in 6.2, although these local roads carry little traffic, it is recommended that signage is installed as shown in Figure 16.

The bridge railings will need to be upgraded to comply with barriers and fences as discussed in section 3.

Existing Bridge Treatment

The bridge railing upgrade will be required to be provided by the successful trail contractor.

Any existing guardrail on River Road will need to be re configured to suit the cycle trail route. The contractor will need to confirm and get approval for the guardrail treatment with SDC prior to construction.

6.3 Segment 3 – Chainage 1630 to 2010 m

Segment 3 starts on the western side of the river from the Davis Road bridge and runs generally southwards beside River Road (Figure 17) to chainage 2010 m where the 2nd new bridge takes the trail back to the eastern side of the river.

Design Issues

The river bank in this section is considered sufficient for the Type A trail. However, the trail may be below the road in some parts which could be unpleasant when vehicles go past on a wet day. This could be mitigated with landscape planting as part of this work or as a future project.

As River Road approaches the intersection with Carters Road, the eastern river bank becomes narrow and steep (Figure 18) and would be a difficult location to construct the trail and bridge. For this reason, it is proposed that the 2nd new bridge is located at approximate chainage 2020 where the river bank profile appears to be more suitable.

Figure 17: River Rd opposite Gilmours farm

Figure 18: Western river bank before Carters Rd

Proposed Trail Construction

It is envisaged that the majority of Segment 3 trail construction would be Type A with short lengths of Type B or Type C if required to suit variations in the riverbank profile.

6.3.1 Segment 3 – 2nd New Bridge – Chainage 2020 m

At the end of Segment 3, the trail crosses to the eastern side of the river at the 2nd new bridge.

Design Issues

It is proposed that the 2nd new bridge is located at approximate chainage 2020 where the river bank profile is more suitable to accommodate the bridge.

It is envisaged that the bridge location shown on plan is indicative and the actual bridge location will be identified by the bridge and the SDC engineer in conjunction with the contractor, to suit the river bank profile and any consenting requirements.

Proposed Bridge Construction

It is expected that the bridge will be a ‘farm’ type bridge similar to those already in place on the CLRRT. The new bridge should be wider to accommodate two way flow and

possibly maintenance vehicles. The bridge would be designed and built by the successful trail contractor or their nominated subcontractor. Refer to Section 5.5 for bridge details.

6.4 Segment 4 – Chainage 2030 to 3940 m

Segment 4 of the trail starts on the eastern side of the river at the 2nd new bridge and runs generally south eastwards along the top of the river bank to chainage 3940 where the trail crosses an unsealed farm track that connects to River Road over a private bridge.

Design Issues

For the majority of Segment 4, there is room for the trail on the eastern bank, however, there are some stands of significant trees beside the river and it is likely that the trail may be required to narrow and weave between trees in some places. This tree work will involve the contractor working with the SDC arborist to oversee the removal and preservation of any trees plus the communication with local residents who may have an association with the trees.

It will also be necessary for the trail to cross large irrigation pipes in some locations and close by to associated pumping sheds (Figure 19 & Figure 20). It is proposed that to traverse pipe work or other water conveyances this is done by a raised timber boardwalk structure or by burying the lengths of irrigation pipe as if practical.

The security of the pumping sheds and facilities will also need to be addressed. It is expected that these will need to be suitably enclosed and/or fenced to both prevent any unauthorised tampering, and also to protect trail users from the operation of unprotected machinery. Both of these aspects will need the discussion with the owners of the equipment and the SDC Engineer and Contractor on the best practical arrangements necessary.

Figure 19: Irrigation pipes on trail route

Figure 20: Irrigation pipes on trail route

At chainage 3940, the trail crosses a private farm access track. Whilst there is unlikely to be many vehicles on this track, it will be important that there is good inter-visibility between access track users and trail cyclists. Trees and vegetation should be cleared or thinned to provide good inter-visibility between all access track users, including possible farm vehicles.

Although the access track carries little traffic, cyclist warning signs (MOTSAM PW-35) should be installed on the access track and small Give Way signs (MOTSAM RG-6 with supplementary shared user sign) should be installed on the rail trail similar to Figure 8.

Proposed Trail Construction

It is envisaged that the majority of Segment 4 trail construction would be Type A, possibly with short lengths of raised timber boardwalk (Type D) to clear irrigation pipes etc… where required. The trail will be required to weave between trees and possibly narrow (2m minimum width over short sections 2m - 5m) in some places. If the trail is narrowed to less than 2m, and the narrowing is obscured by trees, advance warning signs may be required.

The proposed route and other issues like the proximity to river water pumping facilities and tree constraints should be identified by the contractor and discussed with the landowner and the SDC engineer to determine how these will be best resolved, prior to construction.

6.5 Segment 5 – Chainage 3940 to 4950 m

Segment 5 of the trail starts from the unsealed farm track at the private bridge (Figure 21) and continues on the north eastern side of the river. It initially runs eastwards along the top of the riverbank to chainage 4330 where the trail meets the Geddes stock race beside the east side of the river.

ViaStrada understand that the trail will then utilise the Geddes stock race (Figure 22) which is currently located on public road reserve to the Geddes stock bridge at chainage 4950. The stock race will be required to be relocated off public road reserve, or at least repositioned not to impede use of the trail, while also continuing to be effective for stock movements.

In conjunction with any necessary fencing, plant screening could also be used to achieve this.

Figure 21: Start of Segment 5

Figure 22: Geddes stock race

Design Issues

Geddes stock race is an existing unsealed track which will need to be upgraded to a suitable standard for cyclists. It will not be acceptable for stock to share any portion of this section of the trail with cyclists. Mr Geddes and SDC will need to agree and arrange a suitable alternate location for his stock race.

Proposed Trail Construction

It is envisaged that the first part of Segment 5 trail from chainage 3940 to 4330 would be Type A construction.

The successful contractor will need to identify what work is required to upgrade the Geddes stock race (chainage 4330 to 4950) to a suitable surface standard for cyclists.

6.5.1 Segment 5 Stock Route Underpass – Chainage 4950

At the end of Segment 5, the trail meets the Geddes private stock bridge (Figure 23). Dairy stock and farm vehicles use this bridge on a daily basis. It is desirable that there is no conflict between trail users, farm vehicles and stock, therefore three possible solutions were considered.

1. Gates on the trail at the stock route.

   - This was discarded as unacceptable to the CLLRT Trust and Mr Geddes as these have ongoing. Conflict, maintenance and operational use issues.

2. Ramp the trail up and over the stock route.

   - This was discarded following discussion with Mr Geddes regarding the size of farm vehicle that use the bridge. The implication being that there is an expected high cost to achieve the required clearance height of any over bridge structure, plus the visual impact of such a structure.

3. Drop the trail under the stock route crossing.

   -The trail could be taken under the stock trail via a concrete box culvert, in a similar manner to a stock underpass under a road. This option was discussed onsite and supported by Mr Geddes and the SDC engineer. The SDC is familiar with this type of solution working in other Selwyn locations relating to stock crossings.

Option 2 and 3 are in keeping with discussions between SDC and Mr Geddes that any crossing should be “grade separated” to avoid issues between trail users and crossing of stock that interferes with the safe and efficient operation of either the trail or farming operations. Option 3 is the preferred option and is discussed further in the ‘Design Issues’ section.

Design Issues

The trail can ramp down (Option 3) and pass through a box culvert (Figure 24) with suitable head room clearance for cyclists. The floor of the box culvert would probably not be far above the river level. It is proposed that drainage is configured so that water run off is discharged to infiltrate the grass banks before entering the river to avoid any untreated point discharges. In times of high river levels, the culvert can flood and then drain freely as the river level recedes. The trail profile in the culvert must not be subject to ponding and be able to self drain.

ECan will need to be consulted on river levels for normal flow conditions and during flood events to agree the design floor level for the under pass. This information was not available during the preparation of this report.

The contractor, or nominated subcontractor, is to obtain topographical riverbank survey and flooding information regarding river levels and trail levels required, and to confirm proposed construction levels for the underpass, including consents, to be approved by the SDC engineer.

Figure 23: Geddes bridge

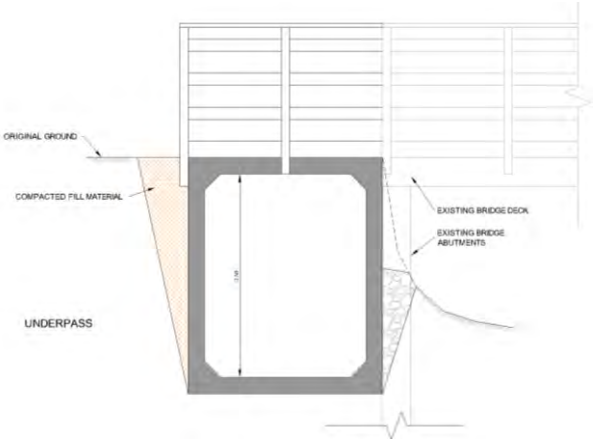


Figure 24: Section through underpass

Proposed Underpass Construction

It is proposed that the underpass will be constructed of box culverts similar to a stock underpass. The SDC and Trust may wish to nominate Johnston Excavating and Drainage as the nominated subcontractor for the underpass as they have a good local track record and are experienced in this type of work.

Based on the advice of Johnston's, some details on the final positioning and configuration of the underpass may change to reflect what is practical and achievable based on actual site conditions, design flood levels and the views of the contractor with the SDC Engineer in collaboration.

6.6 Segment 6 – Chainage 4950 to 5850 m

Segment 6 of the trail starts on the eastern side of the river on the southern end of the Geddes stock route underpass and continues southwards along the top of the river bank to approximate chainage 5800 - 5850 where the 3rd new bridge will take the trail to meet the existing section of trail on the western bank of the river. The existing section of the trail between the underpass and the 3rd bridge on the western side will revert back to Mr Geddes to be used as a stock route.

ViaStrada understands this reflects an agreement between the SDC and Mr Geddes to enable the new section of pathway to be accommodated on the eastern side. Should this existing section on the western side remain, then this would encourage the underpass crossing to be avoided, putting cyclists directly onto River Road. This would not meet the intent of the pathway, which is to safely locate the trail along the river banks and not on trafficked roads in this area.

Design Issues

The SDC scheme plan alignment for the trail extends another 300 m to Macartneys Road on the eastern side of the river before crossing via a new bridge to the west side. However, it would appear from inspection of a boundary plan overlay on the aerial photo that at around chainage 6050, there is insufficient room for the trail between the property boundary and the river.

It is therefore proposed that the trail cross to the western bank at approximately chainage 5810, where it will meet the existing section of trail constructed under a previous contract. Options to continue the trail on the eastern side of the river to Macartneys Road can be investigated further based on actual site conditions and constraints, and if feasible this could still occur.

Proposed Trail Construction

It is envisaged that the majority of Segment 6 trail construction would be Type A.

6.6.1 Segment 6 – 3rd New Bridge – Chainage ±5810 m

At the end of Segment 6, the trail crosses to the western side of the river on the 3rd new bridge to meet an existing section of the trail.

Design Issues

It is envisaged that the actual bridge location will be identified by the contractor at the best location to meet the existing section of cycle trail. This location will need to be agreed on by the bridge and the SDC engineers in conjunction with the contractor, to suit the river bank profile and any consenting requirements.

Proposed Bridge Construction

It is expected that the bridge will be a 'farm' type bridge similar to those already in place on the CLRRT. The bridge would be designed and built by the successful trail contractor or their nominated subcontractor. Refer to Section 5.5 for bridge details.

6.7 Unstable or Swampy Areas

If the trail is required to cross any unstable or swampy areas, it will be achieved with a section of raised timber boardwalk as shown in trail Type D. This section of trail is expected to be identified by the successful contractor and its location and extents will need to be defined and agreed by the SDC engineer. There could be a likelihood of this at approximately Chainage 5400 where it maybe more economic and efficient to relocate the pathway away from the edge of the river to avoid unstable or swampy areas.

6.8 Consents

The Trust already holds resource consent for pathway construction works along the western side of the Halswell River. This is part of wider resource consent obtained in 2005 used to enable the construction of other parts of the trail south of Macartneys Road through to Motukarara. Further consents will be required to utilize the eastern side of the river that were not envisaged at that time, and for the proposed bridges. All bridges will need to have building consents obtained and approved prior to construction. Any resource consents will be obtained by SDC on behalf of the Trust and all other consents to be obtained by the successful trail building contractor or their nominated sub-contractor.

6.9 River Cleaning

To maintain efficient flows, Environment Canterbury undertakes routine cleaning of the Halswell River using a weed cutting barge and a drag line. The river is an important land drainage and storm water conveyance system serving the upstream areas around Tai Tapu and the Port Hills, especially in flood times. The operation of the drag line requires access to river banks to undertake its work while the resulting spoil is placed on banks in places.

ViaStrada understand that SDC has had some discussions with ECan about how the trail maybe accommodated and how this may relate to river cleaning operations. The alignment shown represents this, however more subtle adjustments maybe be necessary during the construction phase to address any specific localised concerns. It has also been

discussed that spoil maybe need to "cleaned to truck" to avoid interference with the pathway from deposited spoil.

The successful contract should check and confirm the final alignment with ECan and their river cleaning contractor to identify any operational conflicts and provide practical solutions.

7 Rough Order Costs

A Rough Order Cost (ROC) estimate has been provided by GHD Ltd Christchurch. This gives an indication of the expected costs for funding and associated approvals and applications to secure the trail.

Christchurch Little River Rail Trail
Tullet Block to Macartneys Road

Item	Type	Quantity	Unit	Rate	Cost
Trail	Trail Type A	4580	m	90	412,200
	H5 timber board & batten edges FOR Trail type A (both sides)	1000	m	20	20,000
	Trail Type B	100	m	190	19,000
	Trail Type C	100	m	250	25,000
	Trail Type D	100	m	350	35,000
	Chip seal	3,000	m2	20	60,000
	Type A weave through dense trees	200	m	150	30,000
	Upgrade Gebbes stock track to Type A standard (2.5m wide)	620	m	40	24,800
	Landscape zone between road & Trail	1	LS	5,000	5,000
Structures	Bridge	3	No.	30,000	90,000
	Underpass	1	No.	30,000	30,000
Fencing	Stock (Post & wire)	4,000	m	45	180,000
	Roadside (Log rail)	200	m	550	110,000
	Falling (Post & rail)	200	m	150	30,000
	Davis Rd bridge upgrade	30	m	300	9,000
Drainage	Catch drains and pipe work	20	No.	1,000	20,000
Street furniture	MOTSAM Signs	30	No.	400	12,000
	Holding rails	10	No.	500	5,000
Trees	Trim, thin, fell and remove large trees	20	No.	1,000	20,000
Traffic control	Temporary traffic management	1	LS	5,000	5,000
				30% Contingency	342,600
				Total	**$1,484,600**

To prepare the ROC GHD have made the following assumptions

1. The estimate is for a rough order cost only
2. The retaining walls for Type B and C paths will be less than 1 metre in height, otherwise there will be further drainage considerations.
3. There is no allowance for significant ground water issues with the underpass and that positive drainage will be available to a nearby waterway.
4. Assume that the underpass will be 6 metres long.
5. The chipsealing includes trimming of existing surface, basecourse dressing and forming, minimal flanking, chipsealing and to be used only by cyclists.

6. Log rails are to NZTA standards and include only two sections with end terminal points.
7. Allowance for drainage is to include 150 mm diameter culverts with stacked rock headwalls.
8. The chip sealing amount has been removed, following information from SDC on 15/4/11.

8 The Construction Contract

The cost of a comprehensive topographical survey of the river, banks and reserve extents would be high. Therefore it is proposed that the physical route of the trail will be identified and marked out by the successful contractor prior to construction, working to an approved set of guidelines, and seeking CLRRT and SDC approvals as required to proceed.

The CLRRT construction contract should require the contractor to be familiar with the requirements of Austroads Guide to Road Design - Part 6A - Pedestrian and Cyclist Paths and the NZ Cycle Trail Design Guide.

It is recommended that the construction contract is a “measure and value” type contract, where a Schedule of Prices is used based on the anticipated length of each of the typical cross section types, structures, fencing etc. and other items of work. The Contractor, through a tendering process, would submit a rate for each scheduled item and is paid accordingly for the extent of each item actually installed as agreed by the SDC Engineer. Section 7 goes a significant way towards the compilation of the Schedule of Prices for use in the tendering process.

The bridges and box culvert would be a design-build basis, with inclusive costs nominated at time of tender.

The contractor would also provide a rate to weave the trail through the sections of dense trees where the SDC arborist advises on route choice and tree retention. Tree thinning and felling would be undertaken by the contractor as part of this.

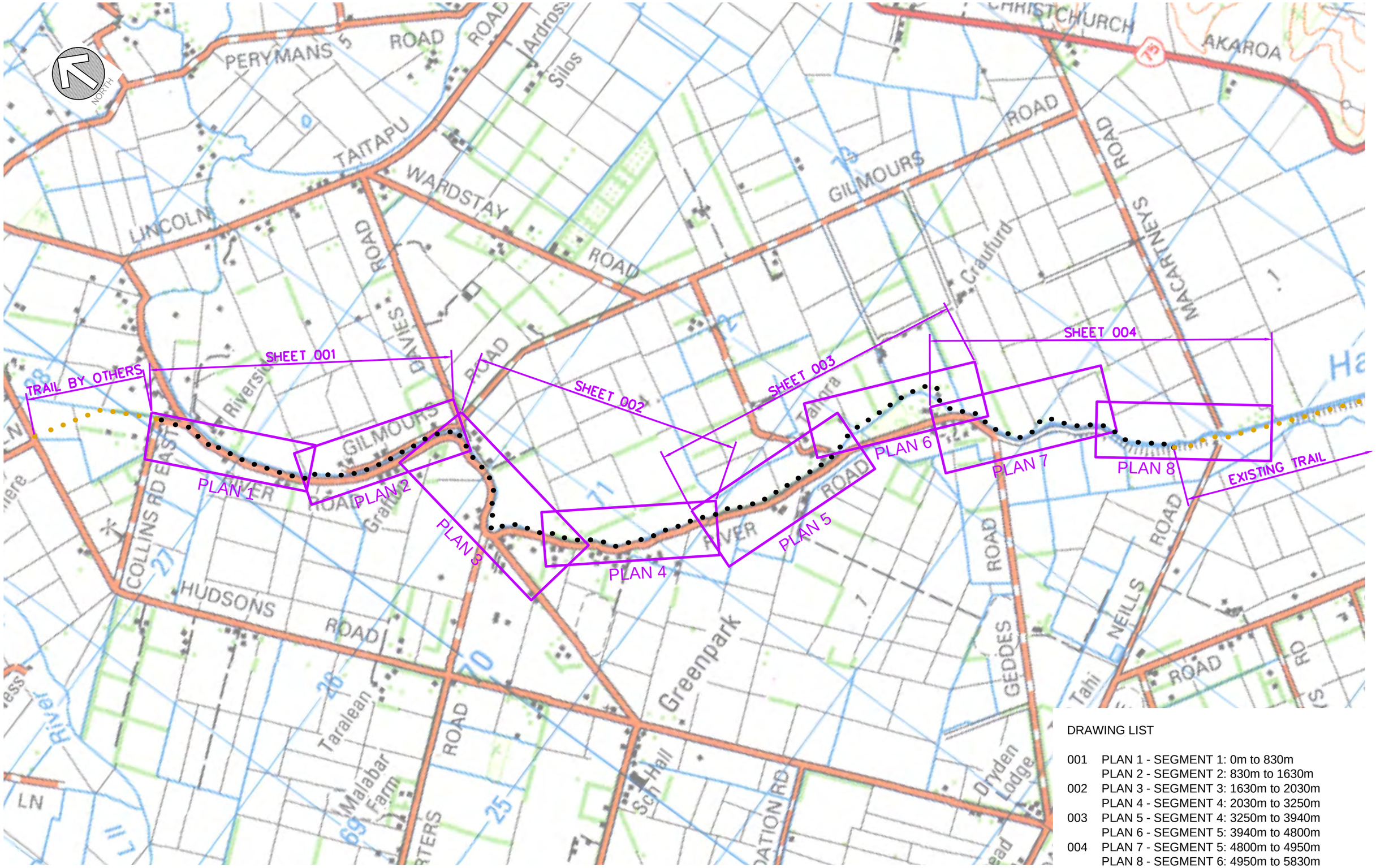
It is recommended that the Contractor mark out the proposed trail route in 500 m sections and identify the proposed trail type (A, B, C, D or other) and bridge locations. This is to be approved on site by the SDC engineer (and CLRRT Trust if required) prior to construction proceeding on that section.

9 Recommendations

That this report is sufficient to inform the alignment, crossings and local treatments for the Christchurch to Little River Railtrail, to run alongside the Halswell River from the Tullet Block at Collins Road East to Macartneys Road south of Lincoln.

This report can be used to inform the Trust on the feasibility and expected cost of this section of the trail and other processes such as securing consents and the development of a construction contract.

ViaStrada understands there has been concern about the cycle trail from the neighbouring land owners and that no formal consultation has occurred since 2006 pending further details becoming available. Now that further details and information have been established through this report we recommend that dialogue with the neighbouring land owners is re-established.



DRAWING LIST

001 PLAN 1 - SEGMENT 1: 0m to 830m
PLAN 2 - SEGMENT 2: 830m to 1630m
002 PLAN 3 - SEGMENT 3: 1630m to 2030m
PLAN 4 - SEGMENT 4: 2030m to 3250m
003 PLAN 5 - SEGMENT 4: 3250m to 3940m
PLAN 6 - SEGMENT 5: 3940m to 4800m
004 PLAN 7 - SEGMENT 5: 4800m to 4950m
PLAN 8 - SEGMENT 6: 4950m to 5830m

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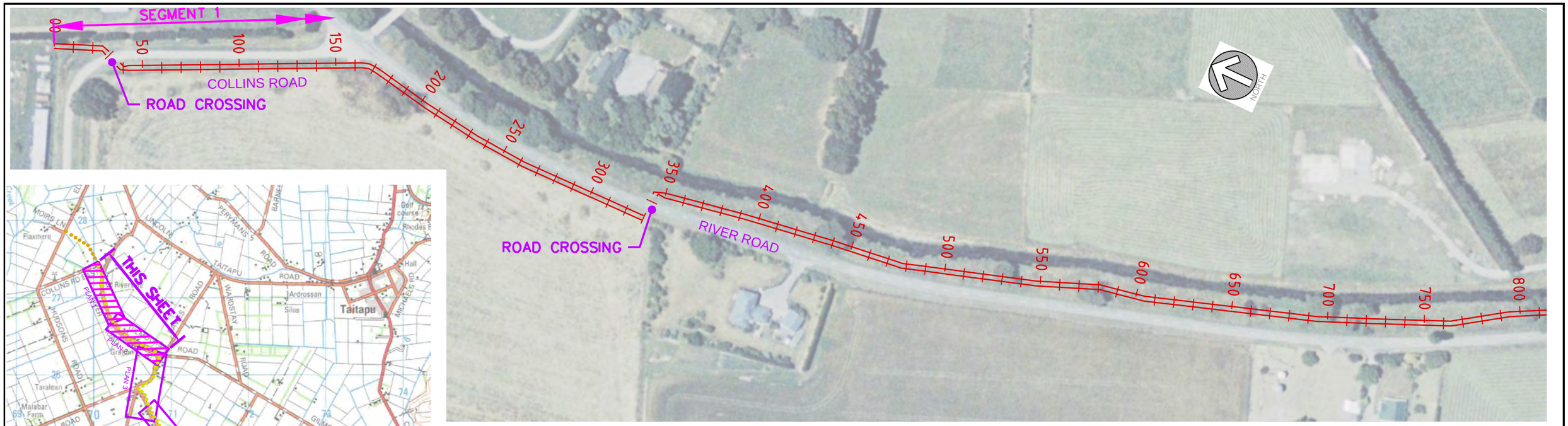
selwyn DISTRICT COUNCIL

LITTLE RIVER RAIL TRAIL: RIVER ROAD SECTION

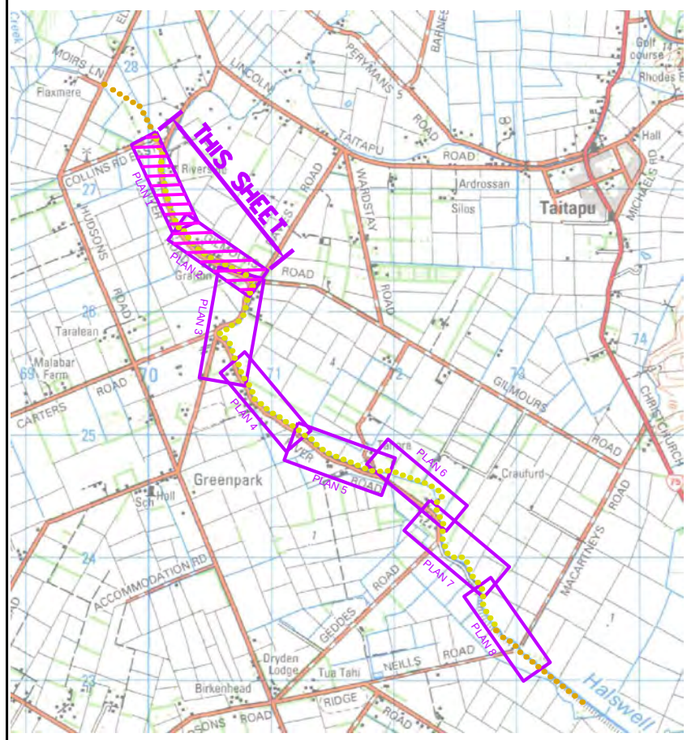
KEY PLAN

Date. 03.2011
SCALE (A3) 1: 2000
Drawn by. R Houghton
Drawing No. 000

R:\PROJECTS\601 TO 800\751 TO 775\753 SDC CLRRT CYCLE PATH LINK\753 CLRRT LINCOLN-MOTUKARARA MAP.DWG



PLAN 1



KEY PLAN

PLAN 2

VIASTRADA TRAFFIC ENGINEERING AND PLANNING	PO BOX 22 458, CHRISTCHURCH 8142 03 366 7605 WWW.VIASTRADA.CO.NZ	selwyn DISTRICT COUNCIL	LITTLE RIVER RAIL TRAIL: RIVER ROAD SECTION SEGMENT 1: 0m TO 830m. SEGMENT 2 830m TO 1630m	Date. 03.2011 Drawn by. R Houghton	SCALE (A3) 1:2000 Drawing No. 001

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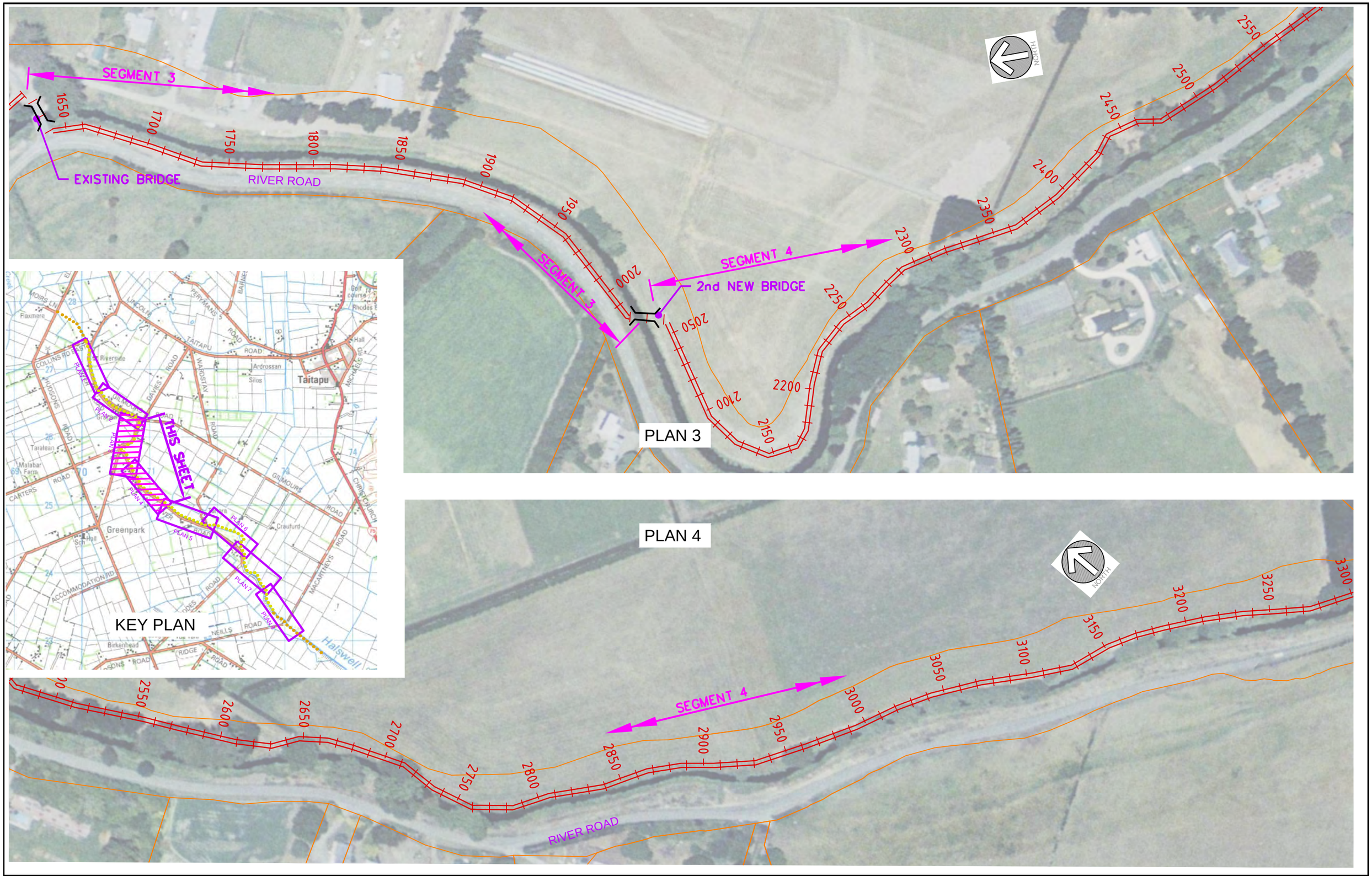

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LITTLE RIVER RAIL TRAIL: RIVER ROAD SECTION

SEGMENT 3: 1630m TO 2030m. SEGMENT 4: 2030m TO 3250m

Date.	SCALE (A3)
03.2011	1:2000
Drawn by. R Houghton	Drawing No. 002

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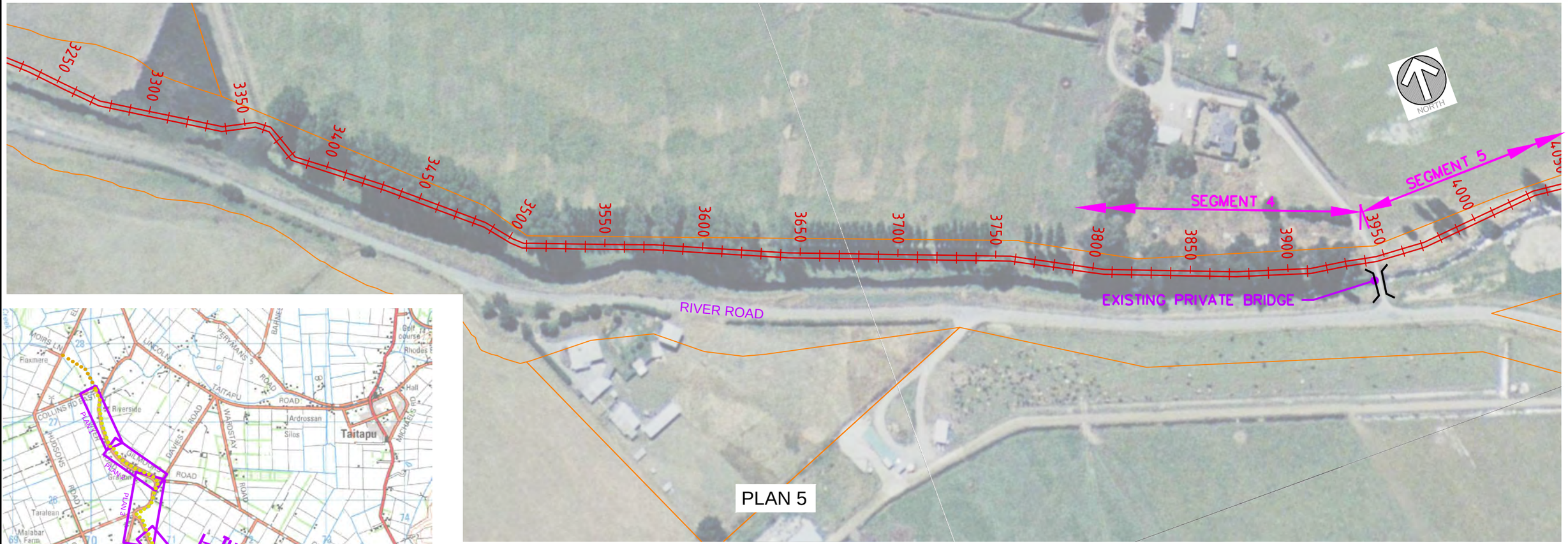

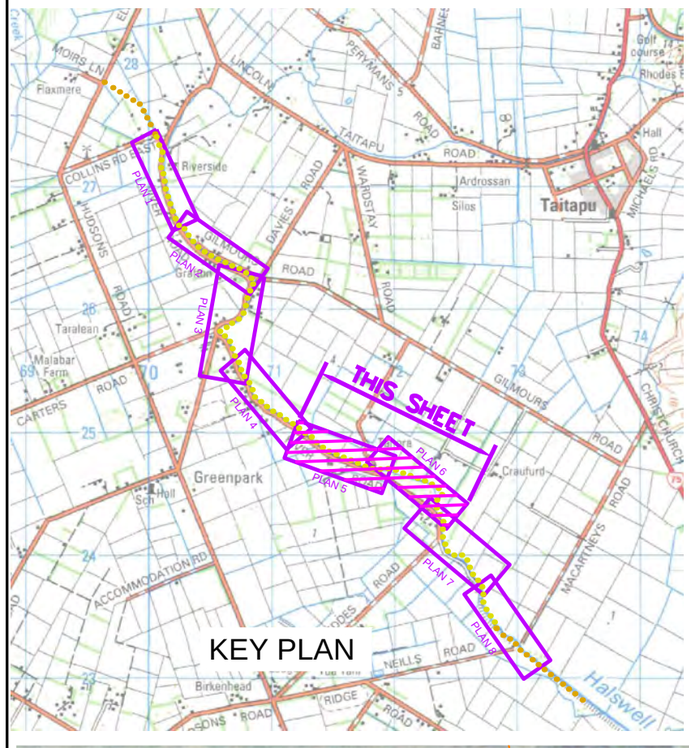

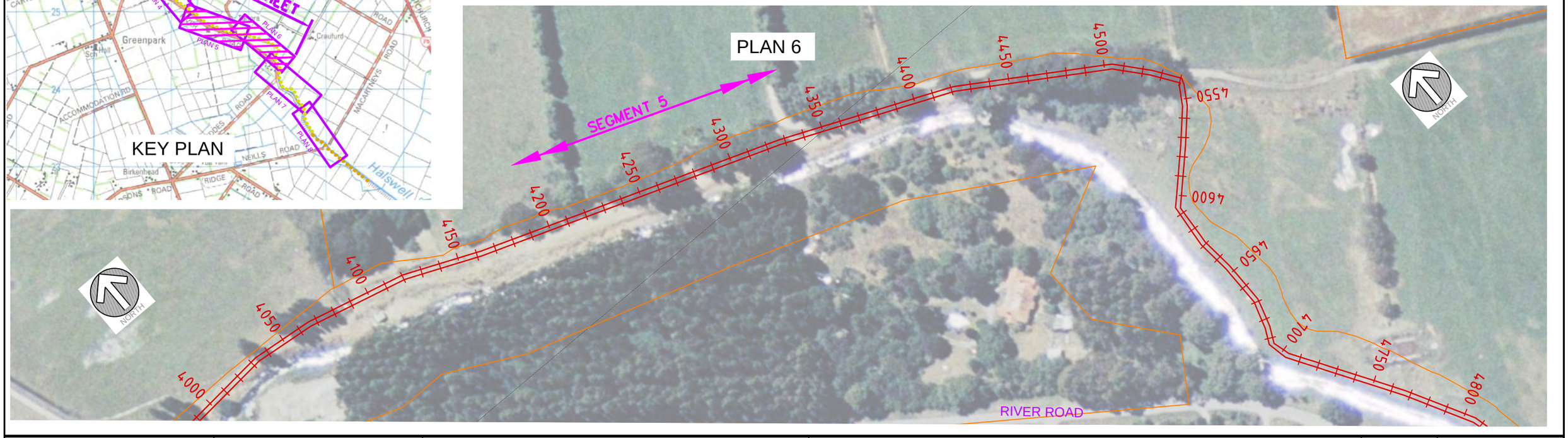

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LITTLE RIVER RAIL TRAIL: RIVER ROAD SECTION

SEGMENT 4: 3250m TO 3940m. SEGMENT 5: 3940m TO 4800m

Date. 03.2011

SCALE (A3) 1:2000

Drawn by. R Houghton

Drawing No. 003

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RIVER ROAD

4700 4750 4800 4850 4900 4950

SEGMENT 5

NEW UNDERPASS

SEGMENT 6

5000 5050 5100 5150 5200 5250 5300 5350 5400 5450 5500

GEDDES ROAD

PLAN 7

NORTH

KEY PLAN

THIS SHEET

PLAN 8

5500 5550 5600 5650 5700 5750 5800 5850 5900 5950 6000 6050 6100 6150 6200 6250 6300

SEGMENT 6

3rd NEW BRIDGE

EXISTING TRAIL

NEILLS ROAD

NORTH

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LITTLE RIVER RAIL TRAIL: RIVER ROAD SECTION

SEGMENT 5: 4800m TO 4950m. SEGMENT 6: 4950m TO 5830m

Date. 03.2011

Drawn by. R Houghton

SCALE (A3) 1:2000

Drawing No. 004

R:\PROJECTS\601 TO 800\751 TO 775\753 SDC CLRRT CYCLE PATH LINK\753 CLRRT LINCOLN-MOTUKARARA MAP.DWG