The City with Spirit

NOTICE OF MEETING

Notice is hereby given that a **Infrastructure Works and Development Committee** meeting of the Devonport City Council will be held in the Aberdeen Room, Level 2, paranaple centre, 137 Rooke Street, Devonport, on Monday 8 October 2018, commencing at 5:30pm.

The meeting will be open to the public at 5:30pm.

QUALIFIED PERSONS

In accordance with Section 65 of the *Local Government Act 1993*, I confirm that the reports in this agenda contain advice, information and recommendations given by a person who has the qualifications or experience necessary to give such advice, information or recommendation.

Paul West
GENERAL MANAGER

3 October 2018

AGENDA FOR A MEETING OF THE INFRASTRUCTURE WORKS AND DEVELOPMENT COMMITTEE OF DEVONPORT CITY COUNCIL HELD ON MONDAY 8 OCTOBER 2018 AT THE paranaple centre AT 5:30PM

Agenda of a meeting of the Devonport City Council's **Infrastructure Works and Development Committee** to be held in the Aberdeen Room, Level 2, paranaple centre, 137 Rooke Street, Devonport,on Monday 8, October 2018 commencing at 5:30pm.

PRESENT

		Present	Apology
Chairman	Ald L M Perry		
	Ald G F Goodwin		
	Ald A J Jarman		
	Ald L M Laycock		
	Ald J F Matthews		
	Ald A L Rockliff		

IN ATTENDANCE

All persons in attendance are advised that it is Council policy to record Council Meetings, in accordance with Council's Audio Recording Policy. The audio recording of this meeting will be made available to the public on Council's website for a minimum period of six months. Members of the public in attendance at the meeting who do not wish for their words to be recorded and/or published on the website, should contact a relevant Council Officer and advise of their wishes prior to the start of the meeting.

1.0 APOLOGIES

2.0 DECLARATIONS OF INTEREST

3.0 PROCEDURAL

3.1 PUBLIC QUESTION TIME

Members of the public are invited to ask questions in accordance with Council's Public Question Time Policy (Min No 159/17 refers):

1. Public participation shall take place at Council meetings in accordance with Regulation 31 of the *Local Government (meeting Procedures) Regulations 2015.*
2. Public participation will be the first agenda item following the formal motions: Apologies, Minutes and Declarations of Interest.
3. Questions without notice will be dependent on available time at the meeting (with a period of 30 minutes set aside at each meeting).
4. A member of the public who wishes to ask a question at the meeting is to state their name and address prior to asking their question.
5. A maximum of 2 questions per person are permitted.
6. A maximum period of 3 minutes will be allowed per person.
7. If time permits, a third question may be asked once all community members who wish to ask questions have done so. A time limit of 2 minutes will apply.
8. Questions are to be succinct and not contain lengthy preamble.
9. Questions do not have to be lodged prior to the meeting, however they will preferably be provided in writing.
10. A question by any member of the public and an answer to that question are not to be debated.
11. Questions without notice and their answers will be recorded in the minutes.
12. The Chairperson may take a question on notice in cases where the questions raised at the meeting require further research or clarification, or where a written response is specifically requested.
13. Protection of parliamentary privilege does not apply to local government and any statements or discussion in the Council Chambers, or any document produced, are subject to the laws of defamation.
14. The Chairperson may refuse to accept a question. If the Chairperson refuses to accept a question, the Chairperson is to give reason for doing so in accordance with the Public Question Time Policy.

3.2 QUESTIONS ON NOTICE FROM ALDERMEN

At the time of compilation of the agenda no questions on notice from Aldermen were received.

4.0 TENDERS

There are no tenders to consider at this meeting.

The following table details all tenders and contracts which have been entered into by Council above $100,000 for the 2018/2019 financial year.

Contract	Contract Period	Extension Options	$ Value (Excluding GST)	Contractor	Min Ref/ Meeting Date
Contract CT0220 Southern Rooke Street Renewal	January 2019 to April 2019	Not Applicable	$796,635	Kentish Construction & Engineering Co. Pty Ltd	Council 126/18 23/07/2018
Contract 1326 – Supply of Catering and Hospitality Equipment – paranaple convention centre	July-September 2018	Not Applicable	$101,583.59	Tas Hotel & Catering	GFC 47/18 Council 137/18 23/07/2018
Contract 1325 – Cash Collection Services	September 2018 – September 2019	+one+one+ one (4 year total)	$64,300 (Annual)	Southern Cross Protection	Council 147/18 29/8/2018
Contract CT0219-01 – Supply, Delivery and Placement of Hotmix Asphalt	October 2018 – March 2019	Not Applicable	$266,050	Hardings Hotmix Pty Ltd	Council 165/18 24/9/2018
Contract CT0219-02 – Supply, Delivery and Placement of Bituminous Surfacing	October 2018 – March 2019	Not Applicable	$193,675	Hardings Hotmix Pty Ltd	Council 166/18 24/9/2018
Contract CT0234 – Wenvoe Street Reconstruction	October 2018 – December 2019	Not Applicable	$334,852	ATM Civil Constructions	Council 167/18 24/9/2018

5.0 INFRASTRUCTURE AND WORKS REPORTS

5.1 NORTH WEST COASTAL PATHWAY - AMBLESIDE TO LATROBE

File: 32188 D542879

RELEVANCE TO COUNCIL'S PLANS & POLICIES

Council's Strategic Plan 2009-2030:

Strategy 2.3.1 Provide and maintain roads, bridges, footpaths, bike paths and car parks to appropriate standards

SUMMARY

To provide an update on the North West Coastal Pathway project and in particular, the section between Ambleside and Latrobe.

BACKGROUND

Cradle Coast Authority (CCA) completed the North West Coastal Pathway (NWCP) Plan in 2010. The NWCP Plan outlined an indicative route for 110km of path linking communities on the North West Coast. It identified links from Devonport to Leith to the west, Port Sorell to the east and Latrobe to the south.

In August 2017, Council agreed to contribute to the cost of a consultant to progress the project to a development ready stage. Subsequently, CCA engaged Pitt & Sherry to undertake this work.

Pitt & Sherry completed development plans for three sections of the pathway:

- Wivenhoe to Heybridge
- Penguin to Ulverstone
- Leith to Don

The development plan for Leith to Don was noted by Council at its August 2018 meeting (min IWC 32/18 refers).

At the request of the CCA project control group, a fourth development plan was completed for the link between Ambleside and Latrobe, via River Road, which includes sections in both Devonport City Council and Latrobe Council areas. The path alignment is shown in Figure 1 below and this report aims to provide an update on this section of the coastal pathway.

Figure 1: Path alignment - Ambleside to Latrobe

Construction of the four sections would create a continuous link between Sulphur Creek and Latrobe, which is a considerable step towards the original vision of a 110km path linking communities along the coast.

A design for the section of path between Ambleside and Latrobe was developed in 2012 by Council in collaboration with Latrobe Council. Geotechnical and environmental assessments were undertaken by Pitt & Sherry in 2012.

STATUTORY REQUIREMENTS

There are no statutory requirements related to this report.

DISCUSSION

The objectives of the development plan are:

- To summarise the preferred route alignment as agreed with councils
- To review the investigations and design work previously completed in 2012
- To outline the key engineering risks of the design
- To highlight any potential environmental or geoscientific issues
- To summarise preliminary feedback from key stakeholders
- To provide a budget cost estimate for the works, and a review of the previous budget estimate
- To outline the next steps to progress the project to construction stage

The 2012 design proposed a 3 metre path, constructed on the south side of River Road. This path would mostly be on reclaimed land, at a lower level than the road, occasionally rising to utilise existing land where available.

Other options were considered for the path alignment, both within and adjacent to the road reserve, but the option to construct a low level embankment on the side of the Mersey River was assessed to be the most economical option that met the objectives of the Coastal Pathway project.

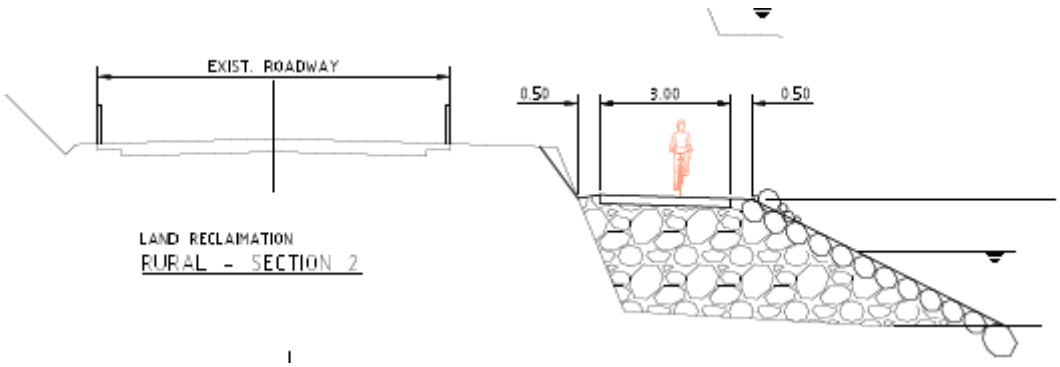

Figure 2: typical low-level path

The development plan recommends the reduction of the path width from 3 metres to 2.5 metres. A 2.5 metre wide path is consistent with other proposed sections of the Coastal Pathway and is significantly lower cost than a wider path when being constructed on reclaimed land.

Some changes to the 2012 design were recommended to accommodate the roadworks completed by Council between 2013 and 2016. Minor adjustments to existing kerbs and barriers will be required.

COMMUNITY ENGAGEMENT

The development plan includes consultation with key stakeholders including:

- Crown Land Services & DPIPWE
- Lobby groups and project supporters
- Council officers

Details of the consultation are available in the attached plan.

FINANCIAL IMPLICATIONS

The development plan includes a review of the cost estimate for the path. The estimated cost of this section of path is $3,900,000 of which around $2,920,000 is for work outside the Devonport City Council municipal boundary. Therefore, the total cost for the path within Devonport's boundary is $980,000.

Funding commitments have been made by the Federal and State Government, with Council required to commit one third of the total cost of the project. A separate report on the funding of the project is provided as part of this agenda.

Based on Council's average maintenance expenditure on transport assets, the pathway from Ambleside to Council's boundary is expected to cost $15,000 annually. It should also be noted that the expected level of service for these assets will be high and that they are relatively remote from most of Council's other high-profile areas. Depreciation is expected to increase by around $12,000 annually as all assets are new and are expected to last between 20 and 100 years.

RISK IMPLICATIONS

Some of the risks to the project have already been controlled as part of the development plan, notably:

- Environmental risks to the project have been identified as low risk based on the outcomes of the desktop study in the development plan.
- Risks to the project associated with stakeholder groups are low as there is no work proposed on private property and there is unlikely to be any issues that prevents obtaining Crown approval for construction

However, there are a number of other identified risks to the project including:

- The vulnerability of the path to climate change and coastal erosion given its location and level. The recommendation of the development plan is to increase the minimum level of the path to RL2.3 (0.5m above current maximum high tide). Sea level rises beyond 0.5m due to climate change will inundate the path at its lowest points.
- The vulnerability of the path to flood water levels is also an issue. River Road was closed during the June 2016 floods and in a similar scenario in future, the path would be well below the flood level. The development plan recommends a study to determine the 1 in 100 year floodwater level of the Mersey River to confirm the minimum level of the path. This study is likely to have a significant cost and if the study recommended raising the design level of the path, then the extra construction cost would also be significant. Alternatively, the risk of inundation could be accepted and access to the path could be controlled by both Councils to minimise the risk to public. In this scenario, construction of the path would have to be adequate to withstand flood events.
- The development plan reports that there is a moderate to high risk of Aboriginal heritage being impacted during this development. A more detailed assessment is required to address this risk.

- The section of coastal pathway from Ambleside to Latrobe includes sections within both Devonport and Latrobe municipal areas. Therefore, cooperation and coordination between the two Councils is required to successfully deliver the project. CCA is expected play a major role in the coordination between Councils.
- The development plan estimate includes a contingency of 10%, or around $82,000 for work in the Devonport municipal area. This is a small contingency for a project at this stage of delivery and of this nature. Significant variations to the scope of the project or other unforeseen issues create a risk that the estimated project cost could be exceeded.
- The construction of this section of coastal pathway requires an increase in Council's operational budget of around $27,000 annually to fund maintenance and depreciation. This is an increase that would have to be considered before the project proceeded.

CONCLUSION

The development plan is a significant step forward for the Coastal Pathway. The alignment proposed in 2012 was confirmed as the preferred alignment and the design was further refined in line with other sections of the Coastal pathway. The estimate was reviewed to provide an updated cost of the work, which is now $3,900,000 of which $980,000 is within the Devonport municipal area.

There are still some risks to the project that are yet to be controlled, notably the design of the path with respect to the major floodwater level. This and other identified risks can be addressed during the design phase of the project.

ATTACHMENTS

⇩1. Coastal pathway - Ambleside to Latrobe - Development plan

RECOMMENDATION

That it be recommended to Council that the report of the City Engineer on the status of the North West Coastal Pathway be received and noted.

Author:	Michael Williams	Endorsed By:	Matthew Atkins
Position:	City Engineer	Position:	Deputy General Manager

North West Coastal Pathway
Development Plan
Ambleside to Latrobe

transport | community | mining | industrial | food & beverage | carbon & energy

Prepared for:	**Cradle Coast Authority (CCA)**
Client representative:	**Nani Clark**
Date:	**29 August 2018** **Rev00**

Inspired thinking embracing
the challenges of a changing world.

pitt&sherry

Table of Contents

Appendices:

Prepared by: ..... Ben Hart Date: 19 August 2018

Reviewed by: ..... Sven Rand Date: 26 August 2018

Authorised by: ..... Ben Hart Date: 29 August 2018

Revision History					
Rev No.	**Description**	**Prepared by**	**Reviewed by**	**Authorised by**	**Date**

pitt&sherry ref: DV17103d001 Latrobe Rep 31P Rev00.DOCX/BJH/tn

1. Introduction

1.1 Background and Objectives

Pitt & Sherry (P&S) were engaged to progress three sections of the North West Coastal Pathway to proof of concept / likely compliance stage as follows:

- Wivenhoe to Heybridge – generally following the Bass Highway
- Penguin to Ulverstone – generally following the Old Coast Rd
- Leith to Don – The route identified by Devonport City Council in their report 'North West Coastal Pathway – Don to Leith' dated 8th February 2016.

P&S have now been engaged to provide a similar development plan for the proposed Latrobe to Ambleside (Devonport) shared pathway.

Much of the design work for this section of pathway has been previously prepared by Devonport and Latrobe Councils. The scope for P&S is to review the work that has been completed, update the cost estimate, and to mould this information into a similar Development Plan that has been prepared for the other three sections of pathway. The Ambleside to Latrobe pathway investigations, design and cost estimate were originally completed in 2012, and while much of this work remains valid, we have reviewed this work and made comments throughout this report where appropriate.

The following background information has been provided by Devonport & Latrobe Council:

- Appendix B – Original 2012 Design Drawings (produced by DCC)
- Appendix D - 2012 Pitt&Sherry – EnviroAssist Devonport City Council Proposed Cycle Way.
- Appendix E - 2012 Pitt&Sherry – Geotechnical Report Devonport City Council Proposed Cycle Way

In addition to reviewing and summarising the previous work, this report applies the same design philosophy concepts from the other three sections to provide consistency across the coastal pathway project.

The objectives of this Development Plan Report are as follows:

- To summarise the preferred route alignment as agreed with Councils
- To review the investigations and design work previously completed in 2012
- To outline the key engineering risks of the design
- To highlight any potential environmental or geoscientific issues
- To summarise preliminary feedback from key stakeholders
- To provide a budget cost estimate for the works, and a review of the previous budget estimate
- To outline the next steps to progress the project to construction stage

2. Route

2.1 Route Details

The route is predominantly within the Latrobe Council limits, with a 1000m section of pathway at the western end within Devonport City Council. The drawings provided in Appendix B provide full details of the route alignment, long and cross sections, levels and typical details. The chainages shown on these drawings start at the western end in Ambleside (Ch 0) through to the eastern end at Bells Parade (Ch 3900). These chainages shall be referenced throughout this document.

Figure 1. Preferred route

The western end of the proposed route begins at the eastern extents of the Ambleside urban area, and continues east along River Road adjacent to the Mersey River for approximately 3.1km until the existing TasWater treatment plant. At this point River Road heads away from the Mersey River, however the proposed pathway continues broadly along the river edge following an existing bush track for a further 800m until the path links with the existing Bells Parade pathway at its eastern extent.

2.2 Reference Documents

The following reference documents have been applied in the consideration of the alignment:

- Austroads Guide to Road Design Part 6A – Paths for Walking and Cycling
- Australian Standards including:
  - AS2156:2001 – Walking Tracks
  - AS5100:2017 - Bridge Design
  - AS2758.6:2009 – Aggregates
- DIER specifications – R22 earthworks and R24 Geotextiles
- Brief Dutch Design Manual for Bicycle and Pedestrian Bridges (BDDM)

3. Pathway Options

The 2012 path design in Appendix B can be broken down into four sections as follows:

- Ch 0 to Ch 700 – Devonport City Council. High level path adjacent to River Road on southern side.
- Ch 700 to Ch 1000 – Devonport City Council. Path at low level on reclaimed land on riverbank.
- Ch 1000 to Ch 3100 – Latrobe Council. Path at low level on reclaimed land on riverbank.
- Ch 3100 to Ch 3900 – Latrobe Council. Path through existing bushland separate from River Road and not on reclaimed land.

The proposed section of pathway between Ch 3100 and Ch3900 is clearly best to be a separate shared pathway through bushland as described above. However for the section from Ch 0 to Ch 3100 there are various options for the path that vary from the 2012 design. In order to demonstrate that all options have been considered, a brief summary of these options is provided below:

a) Shared cycle/pedestrian path on north side of River Road either by widening the existing cuttings or by locating the path further north at the top of the cuttings
b) Shared cycle/pedestrian path immediately adjacent to the south side of River Road (ie. as per the 2012 design between Ch.0 and Ch.700)
c) Cyclists sharing the existing roadway with vehicles with designated bike lanes and a separate footpath to southern side
d) Cyclists sharing the existing roadway with vehicles without designated bike lanes and no separate footpath to southern side (ie. existing scenario)
e) Shared cycle/pedestrian path on the south side of River Road at low level on reclaimed land in the Mersey River estuary (ie. as per the 2012 design between Ch.700 and Ch.3100).

3.1.1 Shared cycle/pedestrian path on north side of River Road either by widening the existing cuttings or by locating the path further north at the top of the cuttings

Much of the route between Ch 0 and Ch 3100 has steep banks on the northern side of the road, and in some areas sheer cliffs that would require substantial engineering works to be undertaken to widen the existing cuttings. The cost of these works would be substantial, and may simply not be feasible from a land stability point of view in some locations.

Going further north and taking a route along the top of the cuttings would be very undulating and exceed the maximum allowable path gradients for cyclists in many locations, with the likely result that many cyclists would not use this path and continue to use the existing River Road as a short cut. The route would need to cut across several properties and significant negotiations with landowners would also be required.

As a result, this option is not a preferred option as has been discounted.

3.1.2 Shared cycle/pedestrian path immediately adjacent to the south side of River Road

This matches the 2012 design between Ch.0 and Ch.700, however east of Ch.700, there is inadequate verge width between the edge of River Road and the top of embankment. As a result, embankment widening would be required on the southern side, or road widening and additional cuttings on the northern side. In both cases this approach is considered substantially more expensive than providing a low-level embankment in the Mersey River.

Of course, where there is sufficient road verge available on the southern side of River Road this option becomes preferred as the costs are much reduced. In addition to the section between Ch.0 and Ch.700, there are isolated sections of track where it is possible to return to road level, and this approach is recommended where practical to do so.

3.1.3 Cyclists sharing the existing roadway with vehicles with designated bike lanes and a separate footpath to southern side

This option has some advantages in that this approach is already adopted by DCC along River Road through Ambleside, so there would be some consistency of approach if this option continued east towards Latrobe.

However, a significant width of roadway is required to adopt this approach (i.e. 1.2m cycle lane, 2.75m traffic lane, 2.75m traffic lane, 1.2m cycle lane, 0.4m kerb and 1.2m wide footpath = 9.5m minimum required seal width, preferably 10.0m seal width).

Site measurements were undertaken on site to determine the current seal width and possible available seal width. While the roadway has sufficient width for this approach between Ch 0 and Ch 700, beyond this point the available width narrows and there is insufficient width without embankment widening on the southern side, or road widening and additional cuttings on the northern side. Therefore there would be significant additional cost to provide the required road seal width.

Therefore, while this approach is feasible from Ch 0 to Ch 700, the option shown in section 3.1.2 is also feasible and provides a better outcome from all road users and path users. Therefore, this option is not preferred.

3.1.4 Cyclists sharing the existing roadway with vehicles without designated bike lanes and no separate footpath to southern side (ie. existing scenario)

This option involves cyclists sharing the existing roadway with vehicles, which is the current situation on River Road. This approach can work successfully on low volume roads where appropriate measures are undertaken to minimize the risk to road users. The volume of vehicles per day on River Road has been advised by Council as approximately 1500-2000 (sum in both directions). The current speed limit is 80km/hr.

To adopt this approach, measures need to be considered to improve safety for cyclists. Examples of measures to minimize the risk to road users are included in Appendix C, and include warning signs, lowering the speed limit, and introduction of speed humps. These measures risk the risk somewhat to cyclists, but the risk remains substantially higher than adopting a separate pathway.

Another issue with the shared roadway option is that of pedestrians, which are not served by this approach. It is not considered appropriate for pedestrians to use a shared roadway and they should not be encouraged to do so. There are isolated sections of available verge along River Road, and these would need to be used by pedestrians, but essentially this approach would not accommodate pedestrian traffic. Given that pedestrian volumes outside urban areas are expected to be low, the above shared roadway approach without footpaths may be acceptable to Council, however it would not meet the intent of the shared pathway project.

On balance while this approach would be substantially less costly than other pathway options, this approach is unlikely to meet community expectations for the coastal pathway project. It is noted that this approach is being considered for sections of road between Penguin and Ulverstone, but the difference is that location is there are no other practical options for the pathway on Penguin Road, which is not the case on River Road.

3.1.5 Shared cycle/pedestrian path on the south side of River Road at low level on reclaimed land in the Mersey River estuary

This approach is the option adopted by the 2012 design between Ch 700 and Ch 3100. Refer Appendix B for details. This option provides good separation of the pathway from traffic and has the added benefit of protecting the toe of the existing River Road embankment. While quite expensive to construct, given the lack of other options between Ch 700 and Ch 3100, this is the considered the best approach.

3.1.6 Preferred Option

Based on the above review of various options it is considered that the 2012 design approach is generally correct and the best option available for each section of the path. While there are minor suggested improvements to the 2012 design (refer section 11 below), the general design and alignment is considered best for project.

It is assumed the 2102 design approach is the preferable option for the remainder of this report.

4. Path Details

4.1 Path Widths

After review of the Austroads guidelines as well as the BDDM, it is considered that the following path widths would be appropriate for this shared pedestrian and cycle path:

- Regional paths or local access paths with low volumes - 2.5m

Whilst wider path widths are considered desirable by Austroads, the above widths are considered reasonable for the expected path volumes. In some locations, due to existing constraints, the path width may need to be locally varied above or below the widths indicated above. Where necessary additional signage should be provided to manage this risk. Blind corners should be avoided.

4.2 Path Gradients

The Austroads design guide recommends a gradient no greater than 5% unless unavoidable. Due to the undulating nature of the coastline and the need to utilize existing infrastructure where possible (e.g. existing highway underpasses), the alignment concept design exceeds this 5% slope on occasions. The BDDM recognizes this will occur and recommends distance limits for these excessive gradients. For example slopes can reach up to 10% but over a maximum distance of 20m.

Where these guidelines can't be met, adequate sight distance should be provided with warning signs as recommended by Austroads. The 2012 design appears to meet the BDDM guidelines.

DDA compliant gradients are unable to be achieved in some locations due to the natural topography and the constraints of existing infrastructure. The Act requires DDA to be complied with as far as possible, however complying in some cases may then mean the introduction of things like switchbacks or rest areas, which can be problematic from a cycling point of view. So in many cases a compromise position is needed to be found based on the expected usage profile for the path location. Compliance will need to be assessed on a case by case basis during the detailed design in conjunction with Council's advice.

4.3 Path Materials

Initial discussions with Council infrastructure managers have recommended:

- Concrete paths are generally preferable in urban areas and residential frontages
- Asphalt paths are generally preferable in rural and recreational areas.
- Where traffic volumes are lower (e.g. outside urban areas) and path users are likely to be more competent, some relaxation of paths standards (eg. gradients, widths, surfacing, corner radii) may be permitted.
- In some rural or lower volume locations with access difficulties or possible ground movement, gravel surfaced paths will be considered
- Galvanized steel barriers are generally preferred except in high corrosion environments where stainless steel or timber may be appropriate
- Barriers that are inclined so that the top rail protrudes slightly into the path are a commonly preferred design.

5. Interaction with Railway Infrastructure

Rail infrastructure in the general area is located on the western side of the Mersey River and consequently the alignment on the east side of the Mersey River does not interact with any rail infrastructure.

6. Interaction with Road Infrastructure

6.1 Shared Pathway adjacent to River Road

From Ch.0 to Ch.700 the preferred route runs alongside River Road at road level. The Austroads Design Guide Part 6A provides guidance on pathway treatments when adjacent to roadways. It is recommended that kerb and channel be provided to delineate the roadway and the shared path, while this is the not the only approach, it is considered preferable given the limited available width. Some of the existing kerb and channel may be reused however some will require relocation.

Austroads does not mandate a barrier between the roadway and shared path as such, but this does depend on factors such as vehicle volumes and speeds. As such consideration should also be given to reducing the speed limit from the existing 80km/hr to 60 or 70km/hr. Reducing to 60km/hr will increase journey time by 11 seconds.

Furthermore, where it is possible for parked cars, a 1.0m shoulder should be provided according to Austroads, however in this location parked cars are not likely and hence this shoulder width could be reduced to perhaps 0.5m.

All of the above considerations should be determined by a risk assessment.

In addition, there are some sections where guard rail is currently installed to protect errant vehicles from steep batters. These existing guardrails would need to be remain with perhaps some offsetting to the outside edge of the shared path where required to suit the available road width. On the southern side of the pathway where adjacent to a steep batter and no guard rail is provided, then pedestrian fencing will be required, and this has been allowed for in the cost estimate.

6.2 Intersections

The alignment concept design does not propose crossing of any existing roadway. The preferred route remains entirely on the southern side of river road until it ends at Bells Parade.

7. Path Structures

7.1 Underpass Structures

No underpass structures are proposed for the alignment concept.

7.2 Bridge Structures

No bridge structures are proposed for the alignment concept.

Several existing culverts under River Road (approx. 27no.) are identified as requiring extensions under the proposed pathway. In addition, the design has identified a further 13no. new culverts that are required for path drainage.

The existing culverts vary from 300mm diameter to 750mm diameter, whilst the new culverts are all 300mm diameter and typically 6m long (refer drawing CT0035-10 in Appendix B).

7.3 Retaining Walls / Reclamation Areas

Various retaining wall structures may be required, particularly between chainages 140 and 280 where the road needs relocation and some additional embankment cut is required. The 2012 design also identified an area of path near the weir in Bells Parade that may require retaining walls.

The 2012 design indicates that for the sections between Ch. 700 and 3100 land reclamation extending up to 10m into the Mersey River may be required and the cycle track will be placed on this reclaimed ground.

8. Environmental

A previous desktop Environmental review was undertaken by Pitt & Sherry and is included in Appendix D.

A range of publicly available spatial datasets including the Tasmanian Natural Values atlas (DPIPWE) were searched for environmental values within proximity of the potential pathway alignments. The environmental assessment has previously identified a broad range of issues and features which must be considered in detailed design including likely presence of threatened flora, habitat for threatened fauna and geoscientific issues including landslip susceptibility. The previous descriptions in Appendix D are summarised and reproduced in this report.

The issues identified will require further on ground detail and specialist assessments but are considered manageable with appropriate risk assessment, mitigation plans and appropriate permits.

8.1 Threatened Flora

One observation record of Pimelea curviflora var. gracilis (slender curved **riceflower) occurs** approximately 180 metres away from the proposed cycleway. The species occurs on the slopes above River Road in the Eucalyptus obliqua dry forest and woodland where it encompasses an area of approximately 9m2. This species is listed as rare under the Threatened Species Protection Act 1995 (Tas) (TSP Act).

During detailed design an on-ground survey will be required to undertake a risk assessment for threatened flora species with permits to disturb/take required if identified.

8.2 Threatened Vegetation

Three threatened vegetation communities listed under Schedule 3A of the Nature Conservation Act 2002 (Tas) occur in the study area.

Wetlands (AWU) occur approximately 500m away from the proposed cycle way on the western side of the Mersey River.

Eucalyptus ovata forest and woodland (DOV) occurs nearby (approximately 5 m) the southern end of the proposed cycle way while at the northern end the proposed cycle way alignment passes through a patch of this vegetation community.

Melaleuca ericifolia swamp forest (NME) occurs opposite (approximately 25 m) the southern extents of the proposed cycle way. Works undertaken for the pathway development will require habitat assessments during detailed design to determine any potential impact on the threatened fauna.

8.3 Threatened Fauna

The study area is relatively rich in observation records of fauna species listed under both the TSP Act and the Environment Protection and Biodiversity Conservation Act 1999 (Cwlth) (EPBC Act).

There are 18 observation records of Prototroctes maraena (Australian grayling) in the study area. These observations are in the upper reaches on the Mersey River in the marine environments opposite the southern extents of the proposed cycle way. This species is listed as vulnerable under the TSP Act and the EPBC Act.

There are 3 observation records of Tyto novaehollandiae subsp. castanops (masked owl) in the study area. These observations are nearby (approximately 30 m) the southern end of the proposed cycle way. The study area also falls within the core habitat mapping for this species. This species is listed as endangered under the TSP Act and vulnerable under the EPBC Act.

There are 2 observation records of Ceyx azureus subsp. diemenensis (Tasmanian azure kingfisher) in the study area. These observations are nearby (approximately 15m) the southern end of the proposed cycle way. This species is listed as endangered under the TSP Act and the EPBC Act.

There is 1 observation record of Haliaeetus leucogaster (white-bellied sea-eagle) and two known nest sites (nest number 853 and 532) in the study area. Nest 853 is located approximately 144 m away from the proposed cycle way while nest 532 is located approximately 150 m away. This species is listed as vulnerable under the TSP Act and migratory under the EPBC Act.

There is 1 observation record of Litoria raniformis (green and gold frog) in the study area. This observation is more than 400 m away from the proposed cycleway. This species is listed as vulnerable under the TSP Act and the EPBC Act.

There is 1 roadkill observation record of Sarcophilus harrisii (Tasmanian devil) in the study area. This observation is on the road near the northern end of the proposed cycle way. This species is listed as endangered under the TSP Act and the EPBC Act.

The study area falls within the core habitat mapping for Lathamus discolor (swift parrot). This species is listed as endangered under the TSP Act and the EPBC Act.

8.4 Declared Weeds

Three weed species listed as declared under the Weed Management Act 1999 (Tas) occur in the study area.

There is 1 observation record of Ulex europaeus (gorse). This observation occurs on Pig Island opposite the southern end of the proposed cycle way.

There are 5 observation records of Cortaderia sp. (pampas grass). One observation occurs approximately 60 m away from the southern end of the proposed cycle way while the other records occur nearby the northern end of the proposed cycle way.

There are 5 observation records of Chrysanthemoides monilifera subsp. monilifera (boneseed). Four of these observations occur nearby the northern end of the proposed cycle way and 1 observation falls within the outer extent of the study area.

8.5 Reserves

The entire proposed cycle way is situated on Public Reserve pursuant to the Crown Lands Act 1976 (Tas).

8.6 Aboriginal Heritage

There are no Tasmanian Aboriginal Site Index (TASI) sites identified within 500m of the proposed cycle way. However, Aboriginal Heritage Tasmania (AHT) "believes that there is a moderate to high risk of Aboriginal heritage being impacted during this development" and have recommended a site assessment be undertaken (refer Appendix D).

8.7 Historic Heritage

There are no historic heritage sites listed under local or national statutory registers within 500 m of the proposed cycle way.

Frogmore (RA 637 Mersey Main Road, Latrobe, 7307, Title reference: 36301/1, PID 7507111), listed under the Tasmanian Heritage Register (ID: 3644), is located on the other side of the Mersey River approximately 127 metres away from the proposed cycle way.

9. Geoscientific issues

9.1 Geoconservation Sites

No geoscientific features of conservation significance have been mapped near the alignment.

9.2 Geotechnical Report

P&S undertook and geotechnical report of the area in 2012 and this is provided in Appendix E.

The key findings relating to the pathway construction are:

- The risk of excessive amounts of soft sediments requiring removal before placement of fill is considered low.
- There is a medium/low risk of existing embankment instability above the path between Ch.700 and Ch. 3100. Vegetation of the current embankments should be disturbed as little as possible to reduce this risk of instability.
- There are areas of deep water channel adjacent to the river banks that may cause additional fill to be required, particularly between Ch.2600 and Ch.3100.

9.3 Landslip Potential

The potential alignment will traverse sections of the coast for which landslide hazards exist. The 1:25,000 scale landslide hazard maps for the Devonport-Forth region published by MRT indicate the presence of 4 'possible' landslides and 1 'active' landslide within the study area.

Close examination of both the landslide hazard maps and aerial photographs shows the 4 'possible' landslides to be located about the southern extent of Ambleside, somewhat distant from the proposed cycleway route, on the moderate to steep hillslopes above and to the west of River Road. The features are difficult to distinguish on the aerial photographs and appear typically small to moderate in size, possibly related to land clearing undertaken several decades or more ago.

The single 'active' landslide within the study area is located below River Road near Ch450m of the proposed cycleway route. The small circular feature appears from both aerial photographs and on-site inspection to have resulted from erosion and undercutting of an over steepened area of road embankment, with continued slow regression of the slope likely to occur into the future.

Indications of active landslide features should be identified during the detailed design and are likely to require a landslide risk assessment and report if found.

9.4 Acid Sulfate Soils

Acid Sulfate Soils (ASS) are common to Tasmania's coastal regions. The study area has a high probability (>70% chance of occurrence in mapping unit) of Coastal acid sulfate soils and Marine subaqueous and intertidal acid sulfate soils. A monitoring and management plan will be required during construction to ensure any potential for disturbance is identified and appropriate mitigation plans are in place to support development.

However, having said this, it is also noted that ´ *It is our opinion that the current design proposal, for which only limited preparatory works or excavations would need to be undertaken, reduces the risk of acid forming ground being exposed. This approach should be extended as far as practicable and where large cut volumes are unavoidable then a detailed assessment of acid sulphate potential of the specific cut area should be undertaken.'*

9.5 Coastal Vulnerability

The pathway will require construction within riverbank sections of the Mersey River and consequently must address the Development standard requirements of the Council interim planning scheme section 10.6 of the E10 Water and Waterways Code.

The development will require assessment to ensure a minimised risk to the function and values of the Mersey River watercourse for a variety of issues including hydraulic performance, potential impacts on amenity and aesthetic appearance. The development must also minimise immediate or cumulative adverse effects including for on coastal landforms, water movement processes and quality. Further the development must minimise adverse effects for risks from natural hazards including coastal erosion, sea level rise, storm surge and potential inundation because of climate change.

The current path design has a finished surface level as low as RL1.9, with highest astronomical tide of RL1.8. This leaves little room for future sea level rise, or indeed wave splash or flooding. Therefore, from a sea level rise point of view a minimum path level of RL2.3 is recommended, and RL2.8 is preferred. However, it is expected the final path RL will be dictated by floodwater levels and not sea level rise. As such, a hydraulic study is recommended to be undertaken to understand the 1 in 100 flood level along the path route.

10. Stakeholders

It is unclear whether any external stakeholders have been consulted regarding this section of pathway as part of the original 2011 design works. As the pathway is primarily along River Road, the number of stakeholders affected is less than other sections of pathway, and the need for early stakeholder consultation is reduced. Nevertheless the following stakeholders are likely to be involved in this project and should be consulted as part of the development application:

- Crown Land Services & DPIPWE (Anne Maginnity)
- Adjacent Private Landowners (Residential and Commercial)
- Coastal Pathway Coalition (Andrew Leary)
- Bicycle Network (Alison Hetherington)
- Safer Roads for Cyclists Tasmania (Keith Price)
- Relevant Councils (including engineering and planning departments)

10.1 Crown Land Services & DPIPWE

P&S discussed the project with Anne Maginnity from DPIPWE. We were informed that there is little point sending through any information to them at this stage, as until a development application is ready to go they won't look at it. However, she commented that in her previous experience there are generally no 'showstoppers' for a pathway such as this provided the normal environmental checks have been done and aboriginal heritage has been consulted.

10.2 Private Landowners (Residential and Commercial)

To our knowledge, private landowners have not been consulted at this stage, but this will need to occur prior to the development application proceeding.

10.3 Coastal Pathway Coalition (Andrew Leary & Ben Kearney)

CCA and P&S met with Andrew Leary and Ben Kearney on 15th February 2018. They were aware of the Ambleside to Latrobe pathway and an outline of the project was provided. No objections were noted.

10.4 Bicycle Network (Alison Hetherington) & Safer Roads for Cyclists (Keith Price)

CCA and P&S met with these groups on 23rd May 2018, and provided an outline of the project. They were aware of the Ambleside to Latrobe pathway and an outline of the project was provided. No objections were noted.

10.5 Councils

While P&S has worked with the technical (engineering) departments of the relevant Councils throughout the concept design process, to our knowledge there has been little engagement with the planning departments of the relevant Councils. Therefore, it is recommended that this development report be provided to the planning department of each Council for comment, prior to work beginning on the Development Applications.

11. Proposed Alterations to the Original 2012 Design

On 12th January 2018, and again 10th August 2018, an inspection of the route and a review of the original 2012 design was undertaken by Pitt & Sherry with representatives from Devonport and Latrobe Councils.

The 2012 design was found to be fit for purpose and still applicable for use in most respects, however the follow changes are suggested, and have been included in the alternative cost estimate provided. For comparison, a cost estimate of the current 2012 design (as per Appendix B) has also been provided:

- Since the original design was completed in 2012, DCC have undertaken substantial roadworks from Ch 0 to Ch 1100 installing new kerbs, widening the road and installing new guard rail. As a result, the 2012 design, in particular from Ch 0 to Ch 700 where the path is at high level, will require updating to suit the new road layout. The alternative cost estimate has in Appendix A has allowed for some changes to kerbs, cyclist fencing and guard rail that is likely to be required to accommodate the pathway, but a full redesign of this section of pathway will be required. Consideration should also be given to reducing the speed limit from Ch.0 to Ch.700 from the existing 80km/hr to 60 or 70km/hr.
- It is suggested to reduce the path width from 3.0m to 2.5m. A path width of 2.5m is considered appropriate for the volume of pedestrians and cyclists expected to use the path. It is important to retain the 0.5m shoulders each side of the path, particularly where no cyclist fencing is provided (i.e. in most locations). The alternative cost estimate in Appendix A has assumed this reduced path width.
- Maintain path level at RL2.3 when on reclaimed land in Mersey River instead of varying between RL1.8 and RL3.8. It is recommended not to go below RL2.3 (refer section 9.5), however it is not considered necessary to bring the path up to higher levels above RL3.0 for many sections along the route. If the path needs to be raised in localized areas due to existing culvert constraints or other issues (e.g. embankment instability) then it is suggested the path gradient be steepened significantly than the current 2012 design to meet these constraints to reduce the required fill quantities. Some allowance for bulk fill savings has been allowed for in the alternative cost estimate.
- In isolated locations particularly around the small headlands along the river bank, such as Ch 1020 to Ch 1100, Ch 1360 to Ch 1440, Ch 1940 to Ch 2020 and Ch 2540 to Ch 2620 it is possible to bring the path back up to road level because there is sufficient road verge on the southern side, which will save imported fill costs. The Geotech report in Appendix E mentions that the headlands are more susceptible to erosion and scour, which provides another reason to divert the path to high level at these locations. Some allowance for bulk fill savings has been allowed for in the alternative cost estimate.

Some additional changes for consideration by Council that have not been included in the alternative cost estimate are:

- Provide fencing between Ch.700 and Ch.3100. The Austroads Design Guide Part 6A recommends fencing minimum 1.2m high be provided adjacent to steep batter slopes (i.e. steeper than 1 in 3). The current batter slopes at river level from Ch. 700 to Ch. 3100 are 1 in 2, and hence fencing is recommended, but is currently not allowed for in the 2012 design. A risk assessment may have already been undertaken as part of the 2012 design and this is why no fence was included, however this should be confirmed. At a minimum, signage warning users of steep edges should be provided and perhaps a widened 1.0m shoulder to allow a run off distance for errant cyclists.
- Further to the above, a possible measure to provide further cost savings would be to increase the steepness of the batter at the river's edge from 1 in 2 to perhaps 1 in 1.5 or even 1 in 1, which would reduce bulk fill volumes. However if a fence is not provided at the top of this batter slope, the increasing steepness of the batter slope increases the risk to path users as described above.
- It is possible to achieve a cost saving by changing surface finish of path between Ch. 3100 to Ch. 3900 to a gravel surface finish (instead of asphalt as per the 2012 design) to match existing Bells Parade paths. Concrete paths can also be considered instead of asphalt however this would result in extra cost.

12. Cost Estimate

Two budget cost estimates have been developed as follows:

- Estimate using the current design completed in 2012 – total $4.54M comprising $1.10M (DCC) and $3.44M (Latrobe).
- An alternative cost estimate including the modifications to the current design suggested in section 11 above – total $3.90M comprising $0.98M (DCC) and $2.92M (Latrobe).

The cost estimate details are provided in Appendix A. All quantities used in the cost estimate have been based quantities from the 2012 design drawings which are assumed as correct, as well as the original 2012 budget estimate.

Note that a budget estimate was completed by DCC as part of the 2012 design, with an estimate total of $2.4M. However, upon review, this estimate has a number of omissions, most notably no allowance for approximately 20,000 cubic metres of bulk fill, as well as no allowance for service relocations or guard rail. As a result, this cost estimate has not been reused as part of Appendix A, but instead a new cost estimate produced using 2018 rates.

It can be seen that the 2012 estimate is significantly less than the revised estimate in Appendix A. It is not clear what implications this has for funding of the pathway, which is assumed to have been based on the 2012 estimate.

13. Next Steps

The following steps are now required to complete the project:

- Revised cost estimates to be reviewed and funding to be committed by local, state and federal governments;
- Confirm additional path cost saving measures are in or out;
- Continue stakeholder engagement: confirm property boundaries, complete risk assessments, approach key landowners, discussions with affected utilities (Tas Networks, TasWater), further discussion with cycling groups as appropriate.
- Complete site aboriginal/environmental assessments as recommended;
- Prepare a Development Application to the relevant Councils and accompanying Crown Land/DPIPWE submission, noting the recommendation to provide this Development Plan to the Planning Department of Councils beforehand so they are aware of the project and can identify any potential issues with the project;
- Upon approval of the Development Application, make any changes to the design as required by the planning permit;
- Make updates to the current detailed design as agreed with Council in particular at Ch.0 to Ch700;
- Procure the construction of the works. This may be done in one package or multiple packages with some works done by Council in-house;
- Supervision and administration of the construction contract including defects liability period.

Appendix A

Budget Cost Estimate

North West Coastal Pathway - Devonport to Latrobe Budget Cost Estimate

Current Design (2012)

Date 19/08/2018
Estimated by B. Hart

DEVONPORT CITY COUNCIL SECTION

Description	Unit	Qty	Rate	Amount
Section 1: Ch 0 to Ch 700 - High level path at road level on southern side				
Preliminaries	item	1	$5,000	$5,000
Earthworks - localised bank removal north side Ch 100-140 and bank widening south side Ch 500-600 inc small retaining walls and traffic mgmt	item	1	$65,000	$65,000
Path construction 3.0m wide	m2	2100	$90	$189,000
Relocate/new kerb and channel for path	m	700	$100	$70,000
Guard rail - relocate existing guard rail as required	m	280	$150	$42,000
Road widening to northern side, redo drains etc	m2	700	$150	$105,000
Pedestrian fencing (river side of track where required)	m	400	$75	$30,000
Signs and line marking	item	1	$10,000	$10,000
Vegetation clearance / resowing landscaping	item	1	$5,000	$5,000
Drainage and new /extended culverts - 1no.	item	1	$20,000	$20,000
Misc - services(unknown)	item	1	$25,000	$25,000
			SUB TOTAL	$566,000

Description	Unit	Qty	Rate	Amount
Section 2: Ch 700 to Ch 1000 - Path at low level on reclaimed land alongside Mersey River				
Preliminaries	item	1	$5,000	$5,000
Bulk fill supply and transport	m3	2200	$15	$33,000
Unload, form and compact fill on site (inc. traffic mgmt)	m3	2200	$60	$132,000
Seawall face (Blue stone and geofabric)	m2	1100	$50	$55,000
Path construction 3.0m wide	m2	900	$90	$81,000
Signs and line marking	item	1	$5,000	$5,000
Vegetation clearance / resowing landscaping	item	1	$5,000	$5,000
Drainage and new /extended culverts - 5no.	item	1	$30,000	$30,000
Misc - services(unknown)	item	1	$10,000	$10,000
				$0
			SUB TOTAL	$356,000
			SECTION TOTAL (DCC)	$922,000
Planning and approvals inc Aborigianl /enviro (0.5%), design (3%), contract admin and mgmt (4%) and project mgmt (1%) - Total 8.5%	8.50%			$78,370
Contingency & Risk (10%) - refer Latrobe risks outlined below	10.00%			$92,200
			DEVONPORT TOTAL	$1,092,570

LATROBE COUNCIL SECTION

Description	Unit	Qty	Rate	Amount
Section 3: Ch 1000 to Ch 3100 - Path at low level on reclaimed land alongside Mersey River				
Preliminaries	item	1	$10,000	$10,000
Bulk fill supply and transport	m3	16600	$15	$249,000
Unload, form and compact fill on site (inc. traffic mgmt)	m3	16600	$60	$996,000
Seawall face (Blue stone and geofabric)	m2	9800	$50	$490,000
Path construction 3.0m wide	m2	6300	$90	$567,000
Relocate/new kerb and channel for path	m	0	$100	$0
Guard rail - relocate existing guard rail as required	m	0	$150	$0
Road widening to northern side, redo drains etc	m2	0	$150	$0
Pedestrian fencing (river side of track where required)	m	0	$75	$0
Signs and line marking	item	1	$5,000	$5,000
Vegetation clearance / resowing landscaping	item	1	$15,000	$15,000
Drainage and new /extended culverts - 22no.	item	1	$140,000	$140,000
Misc - services(unknown)	item	1	$15,000	$15,000
			SUB TOTAL	$2,487,000

Description	Unit	Qty	Rate	Amount
Section 4: Ch 3100 to Ch 3900 - Path through bushland to Bells Parade				
Preliminaries	item	1	$5,000	$5,000
Earthworks - gaining access to site	item	1	$15,000	$15,000
Bulk fill supply and transport	m3	1200	$15	$18,000
Unload, form and compact fill on site (inc. traffic mgmt)	m3	1200	$80	$96,000
Seawall face (Blue stone and geofabric)	m2	0	$50	$0
Path construction 3.0m wide	m2	2400	$90	$216,000
Relocate/new kerb and channel for path	m	0	$100	$0
Guard rail - relocate existing guard rail as required	m	0	$150	$0
Road widening to northern side, redo drains etc	m2	0	$150	$0
Pedestrian fencing (river side of track where required)	m	0	$75	$0
Signs and line marking	item	1	$5,000	$5,000
Vegetation clearance / resowing landscaping	item	1	$20,000	$20,000
Drainage and new /extended culverts - 12no.	item	1	$80,000	$80,000
Misc - services(unknown)	item	1	$15,000	$15,000
				$0
			SUB TOTAL	$470,000
			SECTION TOTAL (LATROBE)	$2,957,000
Planning and approvals inc Aborigianl /enviro (0.5%), design (2%), contract admin and mgmt (3.5%) and project mgmt (0.5%) - Total 6.5%	6.50%			$192,205
Contingency & Risk (10%). Key risks currently not included in cost estimate are: - Risk assessment requires safety fence along top of batter Ch. 720 to Ch. 3100 (not allowed for in existing design) - Soft sediments require removal between Ch.720 to Ch.3100 with extra bulk fill required (risk considered low in geotech report) - Unstable embankments above the pathway between Ch 720 and Ch 3100 requiring additional stabilisation works (risk considered medium/low in geotech report) - Potential deep river channel at rivers edge from Ch.2600 to Ch.3100 requiring additional fill or raising path back up to road level earlier than planned. - Risk of unsuitable bulk fill material available at local quarries resulting in increased transport costs	10.00%			$295,700
			LATROBE TOTAL	$3,444,905
			GRAND TOTAL DCC & LATROBE	$4,537,475

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North West Coastal Pathway - Devonport to Latrobe Budget Cost Estimate

Alternative Design

DEVONPORT CITY COUNCIL SECTION

Date 26/08/2018
Estimated by B. Hart

Description	Unit	Qty	Rate	Amount
Section 1: Ch 0 to Ch 700 - High level path at road level on southern side				
Preliminaries	item	1	$5,000	$5,000
Earthworks - localised bank removal north side Ch 100-140 and bank widening south side Ch 500-600 inc small retaining walls and traffic mgmt	item	1	$45,000	$45,000
Path construction 2.5m wide	m2	1750	$90	$157,500
Relocate/new kerb and channel for path	m	700	$100	$70,000
Guard rail - relocate existing guard rail as required	m	280	$150	$42,000
Road widening to northern & southern sides, redo drains etc	m2	700	$150	$105,000
Pedestrian fencing (river side of track where required)	m	400	$75	$30,000
Signs and line marking	item	1	$10,000	$10,000
Vegetation clearance / resowing landscaping	item	1	$5,000	$5,000
Drainage and new /extended culverts - 1no.	item	1	$20,000	$20,000
Misc - services(unknown)	item	1	$25,000	$25,000
			SUB TOTAL	$514,500

Description	Unit	Qty	Rate	Amount
Section 2: Ch 700 to Ch 1000 - Path at low level on reclaimed land alongside Mersey River				
Preliminaries	item	1	$5,000	$5,000
Bulk fill supply and transport	m3	1800	$15	$27,000
Unload, form and compact fill on site (inc. traffic mgmt)	m3	1800	$60	$108,000
Seawall face (Blue stone and geofabric)	m2	900	$50	$45,000
Path construction 2.5m wide	m2	750	$90	$67,500
Signs and line marking	item	1	$5,000	$5,000
Vegetation clearance / resowing landscaping	item	1	$5,000	$5,000
Drainage and new /extended culverts - 5no.	item	1	$35,000	$35,000
Misc - services(unknown)	item	1	$10,000	$10,000
				$0
			SUB TOTAL	$307,500
			SECTION TOTAL (DCC)	$822,000
Planning and approvals inc Aborigianl /enviro (0.5%), design (3.5%), contract admin and mgmt (4%) and project mgmt (1%) - Total 9%	9.00%			$73,980
Contingency & Risk (10%) - refer Latrobe risks outlined below	10.00%			$82,200
			DEVONPORT TOTAL	$978,180

LATROBE COUNCIL SECTION

Description	Unit	Qty	Rate	Amount
Section 3: Ch 1000 to Ch 3100 - Path at low level on reclaimed land alongside Mersey River				
Preliminaries	item	1	$10,000	$10,000
Bulk fill supply and transport	m3	13200	$15	$198,000
Unload, form and compact fill on site (inc. traffic mgmt)	m3	13200	$60	$792,000
Seawall face (Blue stone and geofabric)	m2	7500	$50	$375,000
Path construction 2.5m wide	m2	5250	$90	$472,500
Signs and line marking	item	1	$5,000	$5,000
Vegetation clearance / resowing landscaping	item	1	$15,000	$15,000
Drainage and new /extended culverts - 22no.	item	1	$160,000	$160,000
Misc - services(unknown)	item	1	$15,000	$15,000
			SUB TOTAL	$2,042,500

Description	Unit	Qty	Rate	Amount
Section 4: Ch 3100 to Ch 3900 - Path through bushland to Bells Parade				
Preliminaries	item	1	$5,000	$5,000
Earthworks - gaining access to site	item	1	$15,000	$15,000
Bulk fill supply and transport	m3	1200	$15	$18,000
Unload, form and compact fill on site (inc. traffic mgmt)	m3	1200	$80	$96,000
Seawall face (Blue stone and geofabric)	m2	0	$50	$0
Path construction 2.5m wide	m2	2000	$90	$180,000
Signs and line marking	item	1	$5,000	$5,000
Vegetation clearance / resowing landscaping	item	1	$20,000	$20,000
Drainage and new /extended culverts - 12no.	item	1	$90,000	$90,000
Misc - services(unknown)	item	1	$15,000	$15,000
				$0
			SUB TOTAL	$444,000
			SECTION TOTAL (LATROBE)	$2,486,500
Planning and approvals inc Aborigianl /enviro (0.5%), design (3%), contract admin and mgmt (3.5%) and project mgmt (0.5%) - Total 7.5%	7.50%			$186,488
Contingency & Risk (10%). Key risks currently not included in cost estimate are: - Risk assessment requires safety fence along top of batter Ch. 720 to Ch. 3100 (not allowed for in existing design) - Soft sediments require removal between Ch.720 to Ch.3100 with extra bulk fill required (risk considered low in geotech report) - Unstable embankments above the pathway between Ch 720 and Ch 3100 requiring additional stabilisation works (risk considered medium/low in geotech report) - Potential deep river channel at rivers edge from Ch.2600 to Ch.3100 requiring additional fill or raising path back up to road level earlier than planned. - Risk of unsuitable bulk fill material available at local quarries resulting in increased transport costs Possible additional savings not currently included in the cost estimate are: - Convert surface finish of path Ch. 3100 to Ch. 3900 (minimum) to gravel surface finish to match existing Bells Parade paths - Increase steepness of batters from existing 2:1 to 1.5:1 or steeper to reduce bulk fill	10.00%			$248,650
			LATROBE TOTAL	$2,921,638
			GRAND TOTAL DCC & LATROBE	$3,899,818

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Appendix B

Design Drawings
(Prepared by DCC – 2012)

DEVONPORT CITY COUNCIL
2011 - 2012 CAPITAL WORKS PROGRAM
RECREATIONAL PATHWAY - AMBLESIDE TO LATROBE
PN CT0035 - DESIGN

GENERAL NOTES:

G1. ALL DIMENSIONS SHOWN SHALL BE VERIFIED ON SITE. ENGINEERING DRAWINGS MUST NOT BE SCALED.
G2. DURING CONSTRUCTION STRUCTURES SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED.
G3. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARD, IPWEA STANDARD DRAWINGS & THE MUNICIPAL STANDARDS SPECIFICATION.
G4. ALL DIMENSIONS WHICH TIE INTO OR OTHERWISE RELATE TO EXISTING STRUCTURES SHALL BE VERIFIED ON SITE PRIOR TO START OF CONSTRUCTION.
G5. CHECK LOCATION AND LEVEL OF SERVICES BEFORE COMMENCING CONSTRUCTION.
G6. REINSTATE ALL DISTURBED SURFACES TO ORIGINAL CONDITION OR BETTER BEFORE PROJECT COMPLETION.
G7. AS BUILT DETAILS ARE TO BE DETAILED ON THE DRAWING AND RETURNED TO THE DESIGN OFFICE VIA THE SUPERVISOR.
G8. THE CONTRACTOR SHALL PREPARE AND PROVIDE THE COUNCIL WITH A SEDIMENT AND EROSION CONTROL PLAN FOR THE WORKS. NO WORK SHALL COMMENCE UNTIL THIS PLAN HAS BEEN APPROVED BY THE COUNCIL.
G9. ALL ASPHALT SEAL SHALL BE PLACED IN ACCORDANCE WITH DIER SPECIFICATION, R55 - ASPHALT PLACEMENT OCTOBER 2009.
G10. ALL LINE MARKING IS TO BE THERMOPLASTIC AND BE INSTALLED BY A DIER APPROVED CONTRACTOR, TO DIER SPECIFICATIONS.
G11. FIBRE REINFORCED CONCRETE - FIBRE TO BE USED IS NOVAMESH 950 AT A RATE OF 2x2.3Kg BAGS PER m^3. NOVAMESH 950 FIBRE REINFORCED CONCRETE IS AVAILABLE FROM HAZELL BROS CONCRETE (BORAL).
G12. TRAFFIC ISLAND INFILL IS TO BE FINISHED WITH "STREET BOND" COLOUR TO BE "PUMKIN SPICE".
G13. SUPPLY, SPREAD, TRIM AND COMPACTION OF SUB BASE AND BASE GRAVEL MATERIALS AS PER DIER SPECIFICATION TO THE DESIGN DEPTHS AND LEVELS.

ROCK RIP-RAP SPECIFICATION:

R1. ROCK TO BE SOUND, DURABLE, IGNEOUS BLUESTONE ROCK WITH SPECIFIC GRAVITY OF 2.4 MINIMUM.

R2. ROCK TO HAVE SHARP EDGES AND ANGULAR FACES. DISCARD WELL ROUNDED ROCKS.

R3. THE MAXIMUM DIMENSION SHALL NOT BE MORE THAN 2x MINIMUM DIMENSION.

CONSTRUCTION NOTES:

C1. FILL MATERIAL TO BE PLACED IN 200mm MAXIMUM LAYERS AND COMPACTED TO 95% MINIMUM DRY DENSITY.

C2. ROCK RIP-RAP TO BE INDIVIDUALLY PLACED BY EXCAVATOR OR EQUIVALENT MACHINERY, AS NO DROPPING OF ROCK ONTO GEOFABRIC IS PERMITTED. CHINK ROCKS TOGETHER SO THAT INTERLOCKING PREVENTS ROCKING.

C3. GEOFABRIC TO HAVE NO PUNCTURES OR TEARS. MINIMUM LAP OF 500mm.

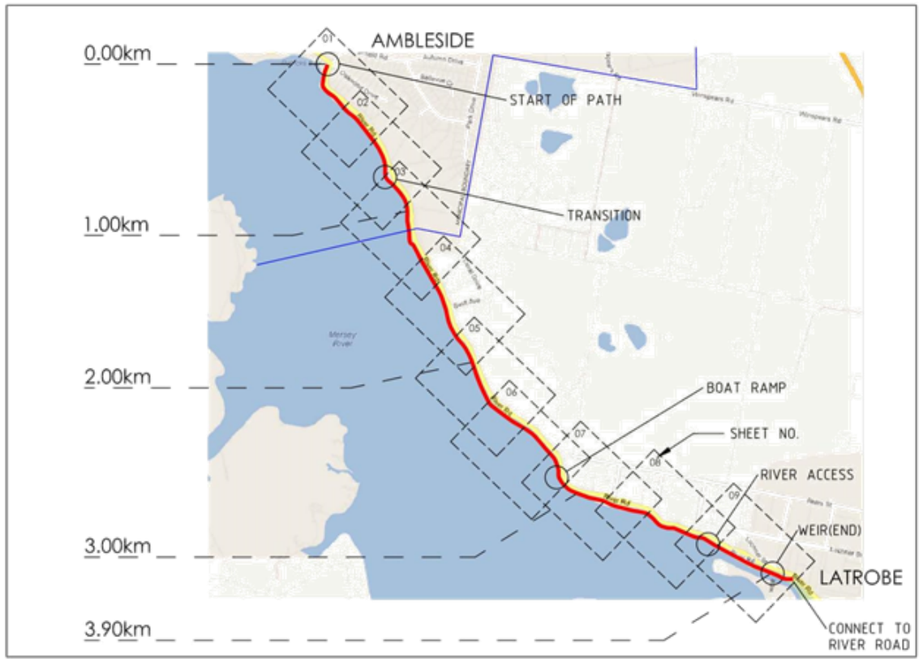
C4. IF BED-ROCK IS ENCOUNTERED DURING EXCAVATION MAKING BURYING OF TOE ROCK ⅔ DEPTH IMPRACTICAL CONTACT DCC DESIGN OFFICER.

C5. EXISTING WEEDS TO BE REMOVED FROM BETWEEN ROCK RIP-RAP.

C6. EXISTING TREES TO BE PRESERVED UNO. SEEK DIRECTION FROM DESIGN OFFICE WITH REGARD TO TREATMENT AND ANY PROPOSED TREE REMOVAL.

DRAWING SCHEDULE

DRAWING NO.	DRAWING TITLE
CT0035-00	DRAWING SCHEDULE AND NOTES
CT0035-01	CYCLEWAY PLAN AND LONG SECTION-1
CT0035-02	CYCLEWAY PLAN AND LONG SECTION-2
CT0035-03	CYCLEWAY PLAN AND LONG SECTION-3
CT0035-04	CYCLEWAY PLAN AND LONG SECTION-4
CT0035-05	CYCLEWAY PLAN AND LONG SECTION-5
CT0035-06	CYCLEWAY PLAN AND LONG SECTION-6
CT0035-07	CYCLEWAY PLAN AND LONG SECTION-7
CT0035-08	CYCLEWAY PLAN AND LONG SECTION-8
CT0035-09	CYCLEWAY PLAN AND LONG SECTION-9
CT0035-10	CONSTRUCTION DETAILS - 1
CT0035-11	CONSTRUCTION DETAILS - 2
CT0035-12	CONSTRUCTION DETAILS - 3



LOCATION PLAN
NTS

CONCRETE HOLD POINTS

INSPECTION	INITIALS	DATE
1. COMPLETION OF EXCAVATION		
2. COMPLETION OF BEDDING MATERIAL		
3. COMPLETION OF REINFORCEMENT & EMBED ITEMS PRIOR TO POURING CONCRETE		
4. COMPLETION OF WORK		

NOTE: THE DESIGN OFFICE SHALL BE GIVEN 24 HOURS NOTICE OF WHEN INSPECTIONS ARE REQUIRED.

PAVEMENT HOLD POINTS

INSPECTION	INITIALS	DATE
1. COMPLETION OF EXCAVATION & PRIOR TO PAVEMENT CONSTRUCTION		
2. PRIOR TO LAYING KERB & CHANNEL		
3. PRIOR TO POURING CONCRETE		
4. COMPLETION OF THE WORK		

NOTE: THE DESIGN OFFICE SHALL BE GIVEN 24 HOURS NOTICE OF WHEN INSPECTIONS ARE REQUIRED.

SETOUT OF WORKS:

THE CONTRACTOR IS TO ENGAGE AN APPROVED SURVEYOR FOR ONSITE SETOUT. SETOUT DETAILS CAN BE PROVIDED TO THE SURVEYOR BY COUNCIL. A MINIMUM OF 7 DAYS NOTICE IS REQUIRED FOR SETOUT INFORMATION FROM THE SUPERINTENDENT.

WARNING
BEWARE OF UNDERGROUND SERVICES
The location of underground services are approximate only and the exact position should be proven on site. No guarantee is given that all services are shown.

PRELIMINARY
NOT for construction

REDUCED SCALE PRINT
DO NOT SCALE

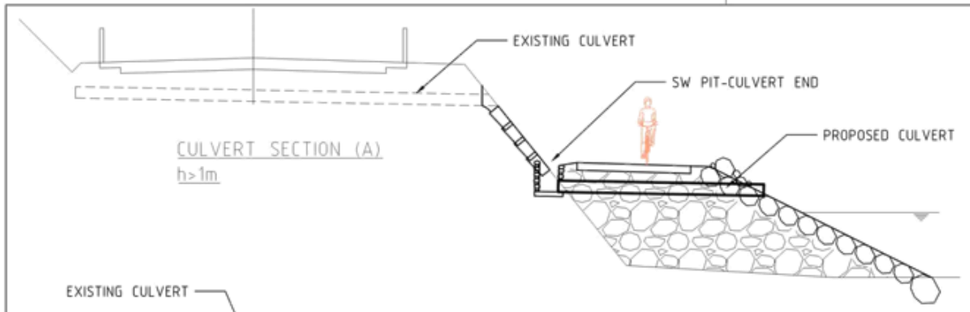
ISSUE	DATE	DESCRIPTION	CHECKED
A	June 2012	ISSUED FOR ESTIMATING AND APPROVAL	

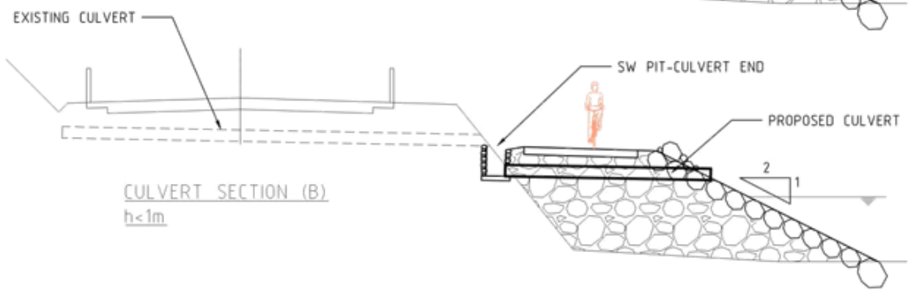
SURVEYED	-	NTS.	APPROVED
DESIGNED	IDC		
DRAWN	IDC	A2	
CHECKED			
DATUM	AHD		

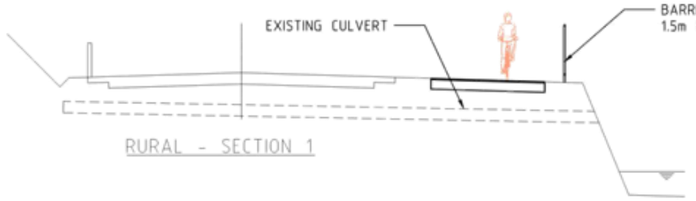
RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

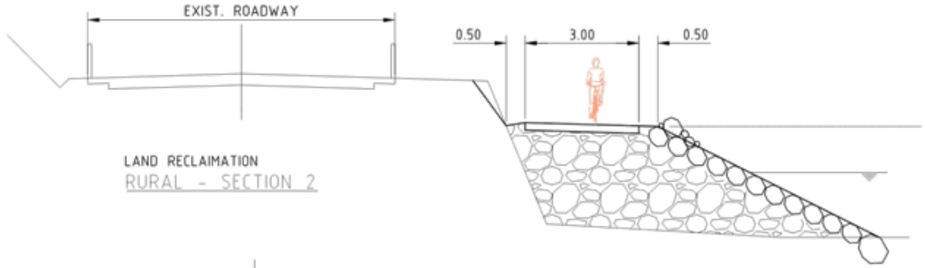
DRAWING SCHEDULE AND NOTES

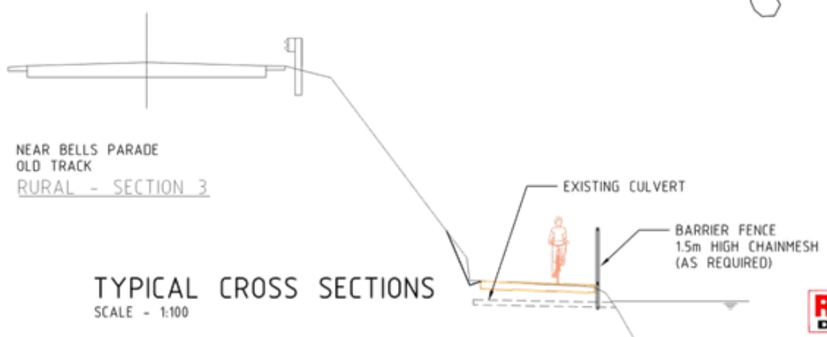
CT0035-00 | A











TYPICAL CROSS SECTIONS
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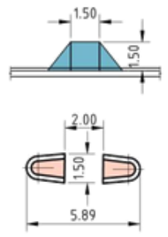
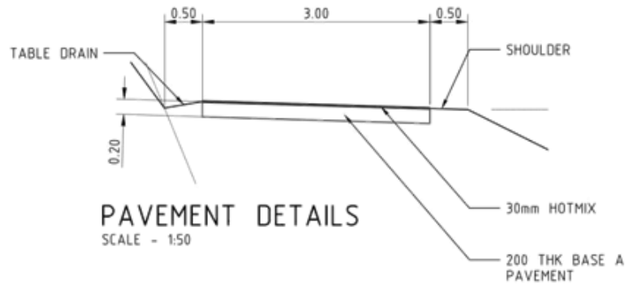
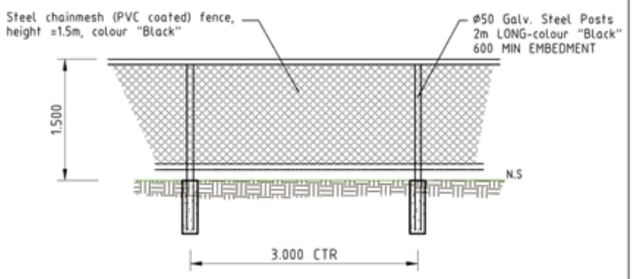


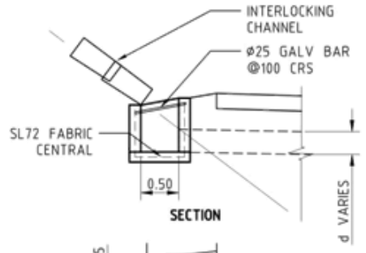
CROSSING DETAILS
SCALE - 1:200

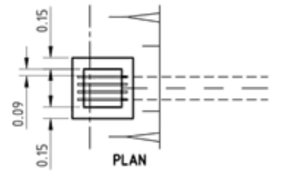


PAVEMENT DETAILS
SCALE - 1:50



BARRIER FENCE DETAILS
SCALE - 1:50





STORMWATER PIT DETAIL
SCALE 1:50

EXISTING CULVERT DETAILS			
CH 3865	ø300	CH 1575	ø300
CH 3805	ø225	CH 1465	ø525
CH 3610	ø300	CH 1355	ø300
CH 3515	ø150	CH 1225	ø300
CH 3485	ø100	CH 1145	ø300
CH 3454	ø100	CH 955	ø300
CH 3080	ø300	CH 890	ø300
CH 3005	ø750	CH 870	ø375
CH 2916	ø450	CH 805	ø300
CH 2700	ø300	CH 740	ø300
CH 2360.	ø375	CH 650	ø300
CH 2260	ø525	CH 605	ø300
CH 2180	ø300	CH 565	ø525
CH 2008	ø300	CH 400	ø750
CH 1920	ø300		
CH 1835	ø525		
CH 1670	ø300		

NEW CULVERT DETAILS			
CH 3745	ø300	6m	
CH 3700	ø300	6m	
CH 3576	ø300	6m	
CH 3460	ø300	6m	
CH 3385	ø300	6m	
CH 3230	ø300	6m	
CH 2970	ø300	6m	
CH 2655	ø300	6m	
CH 2400	ø300	6m	
CH 2080	ø300	6m	
CH 1860	ø300	6m	
CH 1554	ø300	6m	
CH 50	ø300	13.5m	

NB:- EXTEND AS REQUIRED IN ACCORDANCE WITH CULVERT SECTION (A) & (B) ALLOW 6m AT EACH CULVERT LOCATION

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PRELIMINARY
NOT for construction

REDUCED SCALE PRINT
DO NOT SCALE

ISSUE	DATE	DESCRIPTION	CHECKED
A	June 2012	ISSUED FOR ESTIMATING AND APPROVAL	

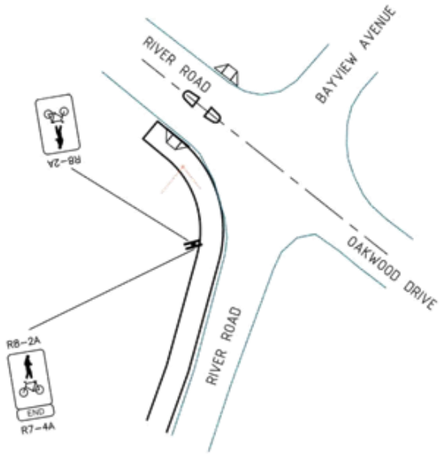
DEVONPORT

SURVEYED	-	NTS.	APPROVED
DESIGNED	IDC		
DRAWN	IDC	A2	
CHECKED			
DATUM	AHD		

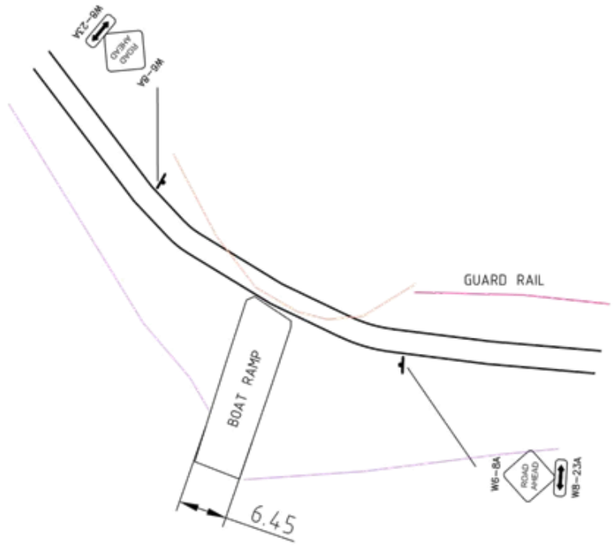
RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

CONSTRUCTION DETAILS - 1

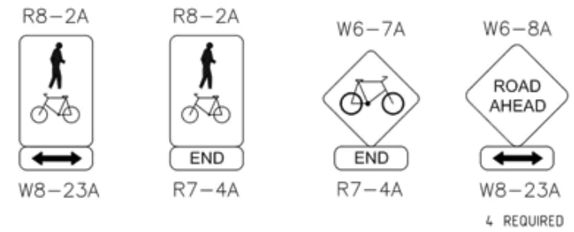
CT0035-10 A



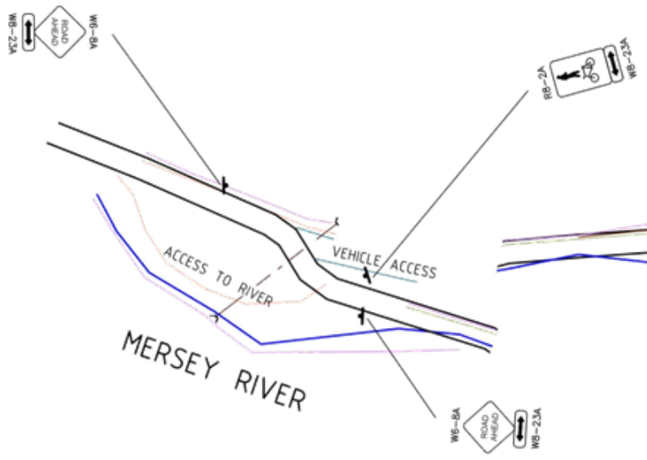
CH 00 SIGNAGE DETAIL
SCALE - 1:500



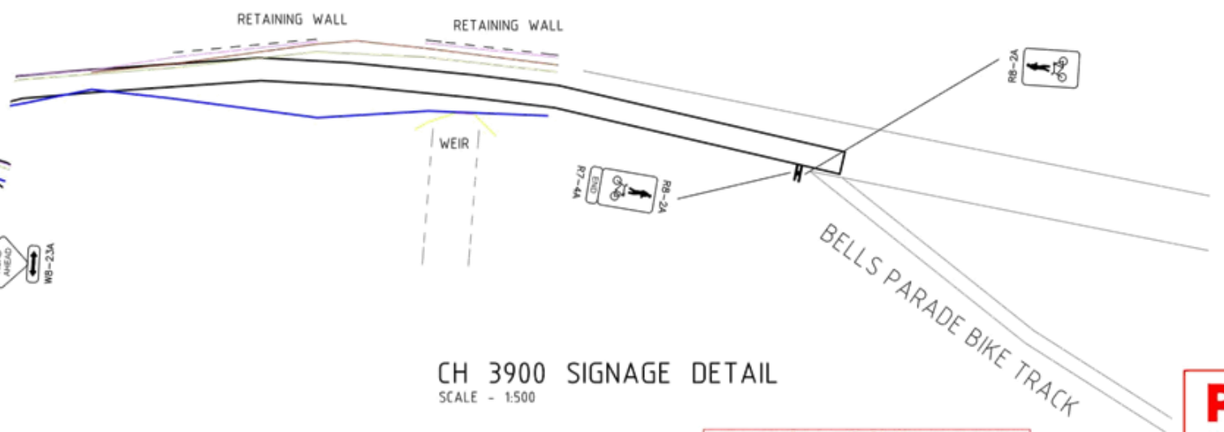
CH 2600 SIGNAGE DETAIL
SCALE - 1:500



SIGNAGE DETAILS
(TO AS1742.9-2000)



CH 3600 SIGNAGE DETAIL
SCALE - 1:500



CH 3900 SIGNAGE DETAIL
SCALE - 1:500

WARNING

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REDUCED SCALE PRINT
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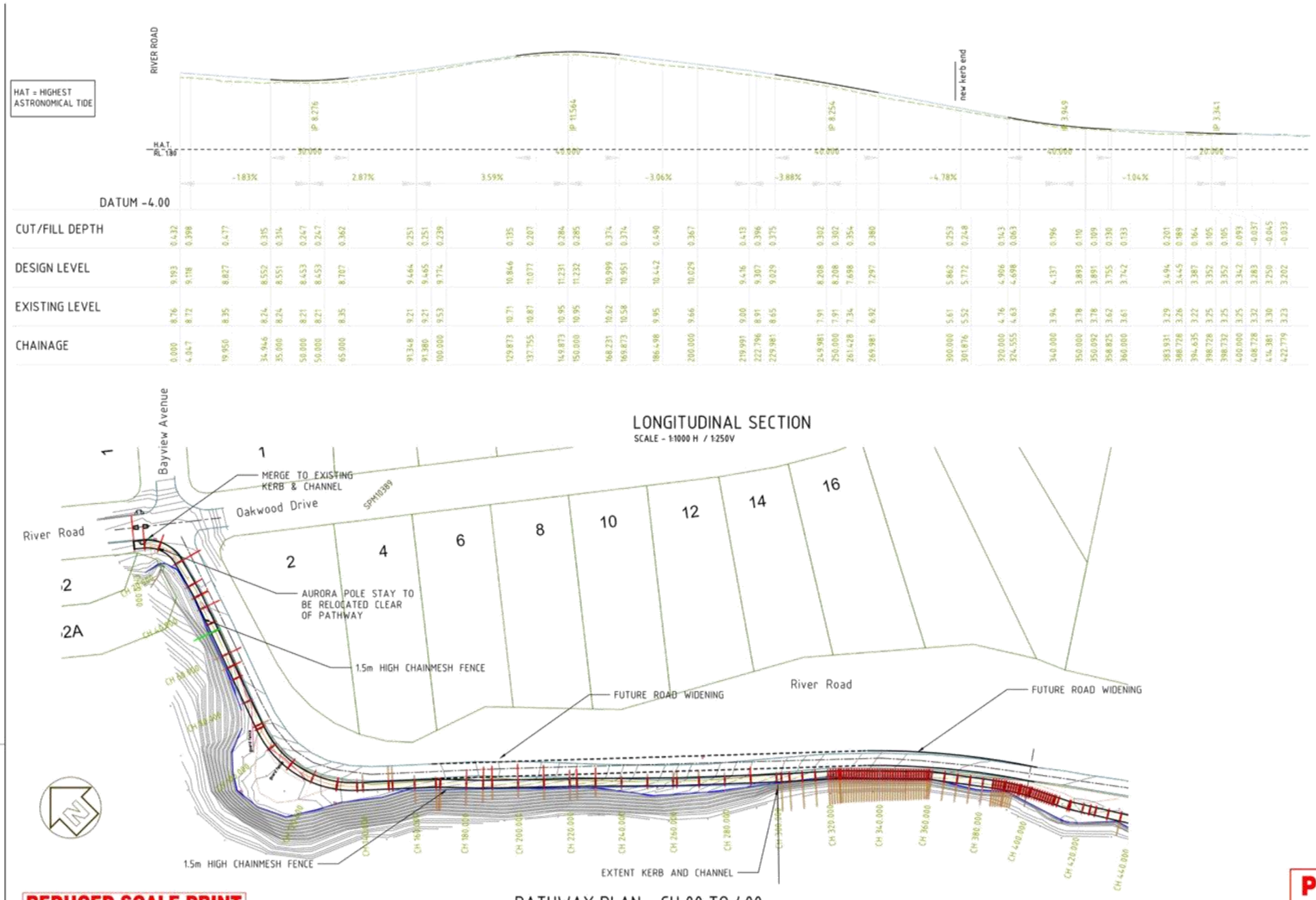
DEVONPORT

SURVEYED	-	NTS.	APPROVED
DESIGNED	IDC		
DRAWN	IDC	A2	
CHECKED			
DATUM	AHD		

RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

CONSTRUCTION DETAILS - 3
PATHWAY SIGNAGE

CT0035-12 A



REDUCED SCALE PRINT
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PRELIMINARY
NOT for construction

ISSUE	DATE	DESCRIPTION	CHECKED
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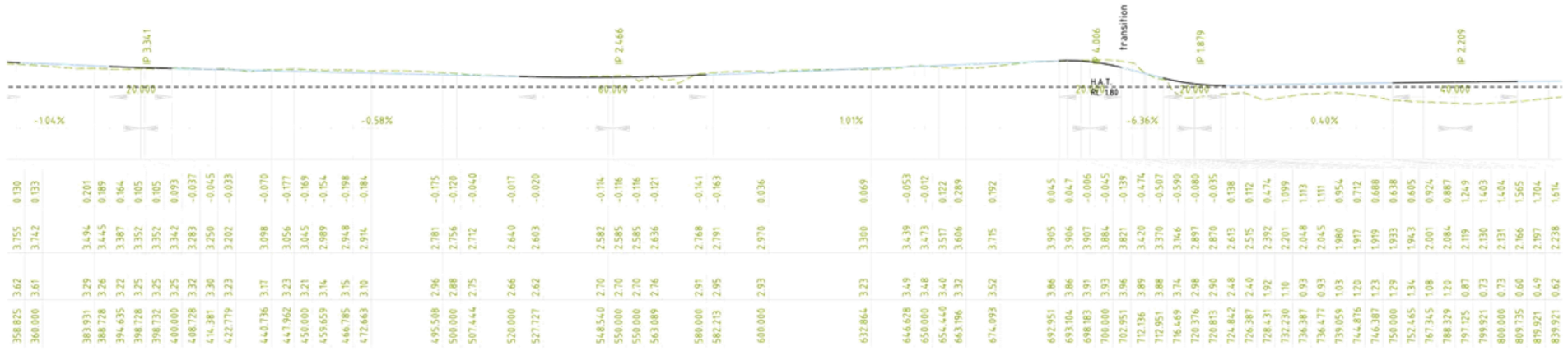
DEVONPORT

SURVEYED	LF & CO	1:1000	APPROVED
DESIGNED	IDC		
DRAWN	IDC	A2	
CHECKED			
DATUM	AHD		

RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011–12

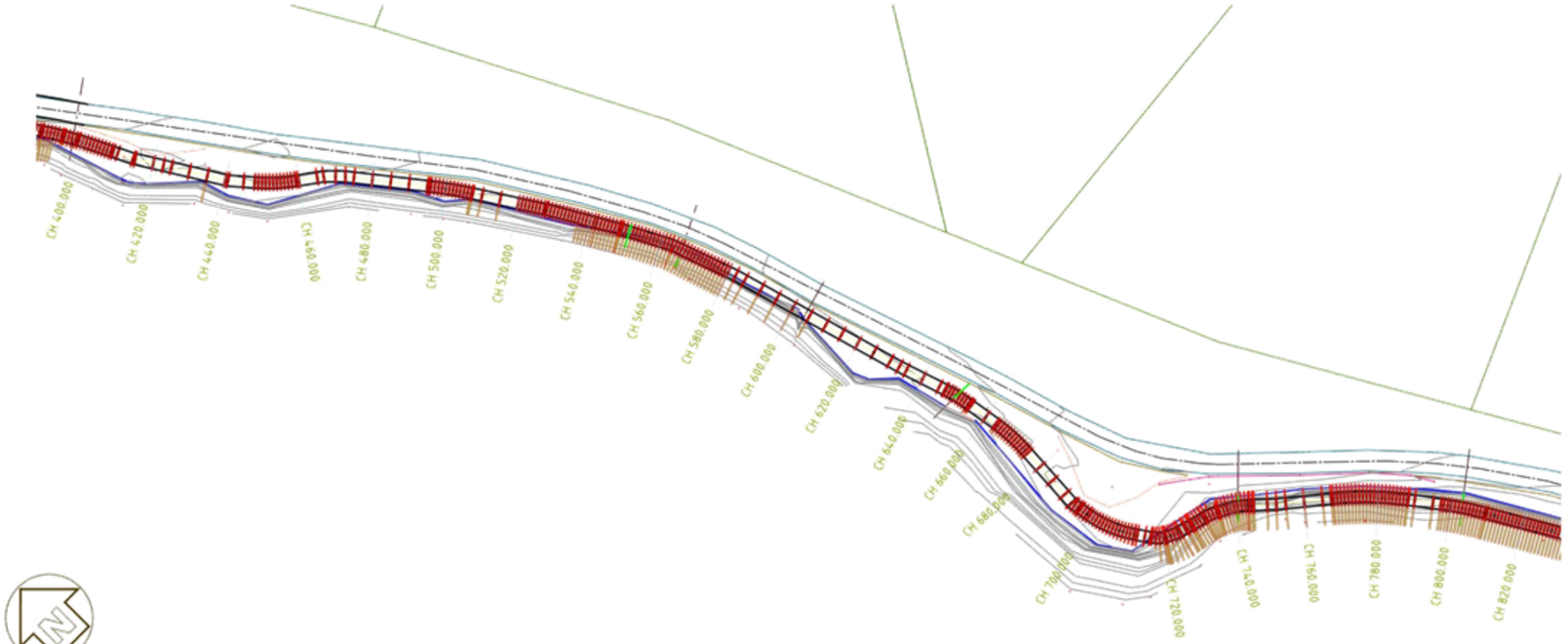
CYCLEWAY PLAN & SECTION
SHEET 1

CT0035-01 A



LONGITUDINAL SECTION

SCALE - 1:1000 H / 1:250 V



LEGEND

- EDGE OF SEAL
- ROAD SHOULDER
- EDGE OF GRAVEL
- TOP BANK
- TOE BANK
- GUARD RAIL
- EDGE PATHWAY

REDUCED SCALE PRINT
DO NOT SCALE

PATHWAY PLAN - CH 400 TO 800

SCALE - 1:1000

PRELIMINARY
NOT for construction

ISSUE	DATE	DESCRIPTION	CHECKED
A	JAN 2012	ISSUED FOR ESTIMATING AND APPROVAL	

DEVONPORT

SURVEYED	LF & CO	1:1000 SCALE	APPROVED
DESIGNED	IDC		
DRAWN	IDC	A2 SIZE	
CHECKED			
DATUM	AHD		

ENGINEER DATE PROJECT

RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

CYCLEWAY PLAN & SECTION
SHEET 2

DRAWING

CT0035-02 A

DRAWING No. ISSUE

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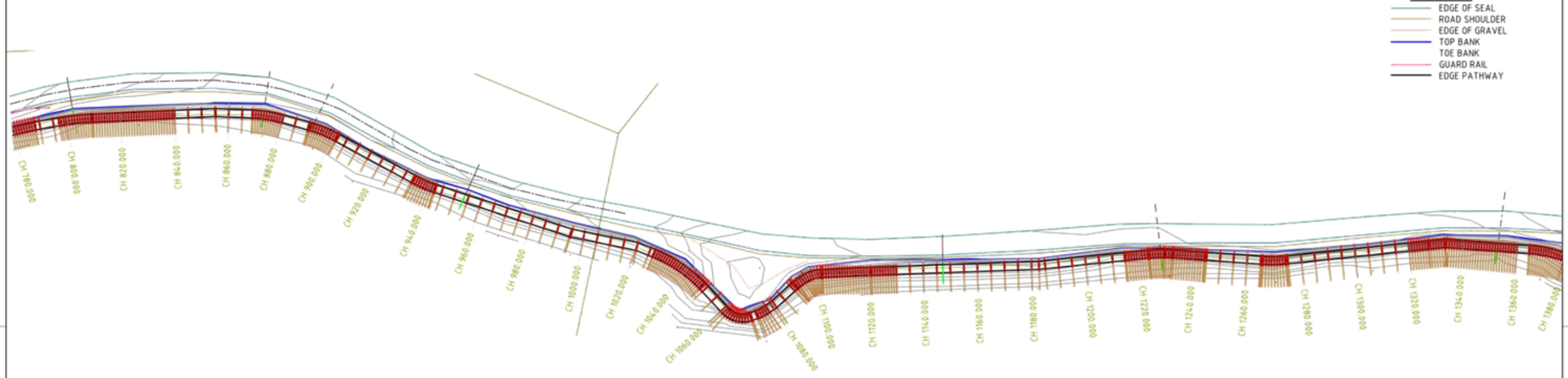
LONGITUDINAL SECTION
SCALE - 1:1000 H / 1:250 V



REDUCED SCALE PRINT
DO NOT SCALE

PATHWAY PLAN - CH 800 TO 1350
SCALE - 1:1000

PRELIMINARY
NOT for construction

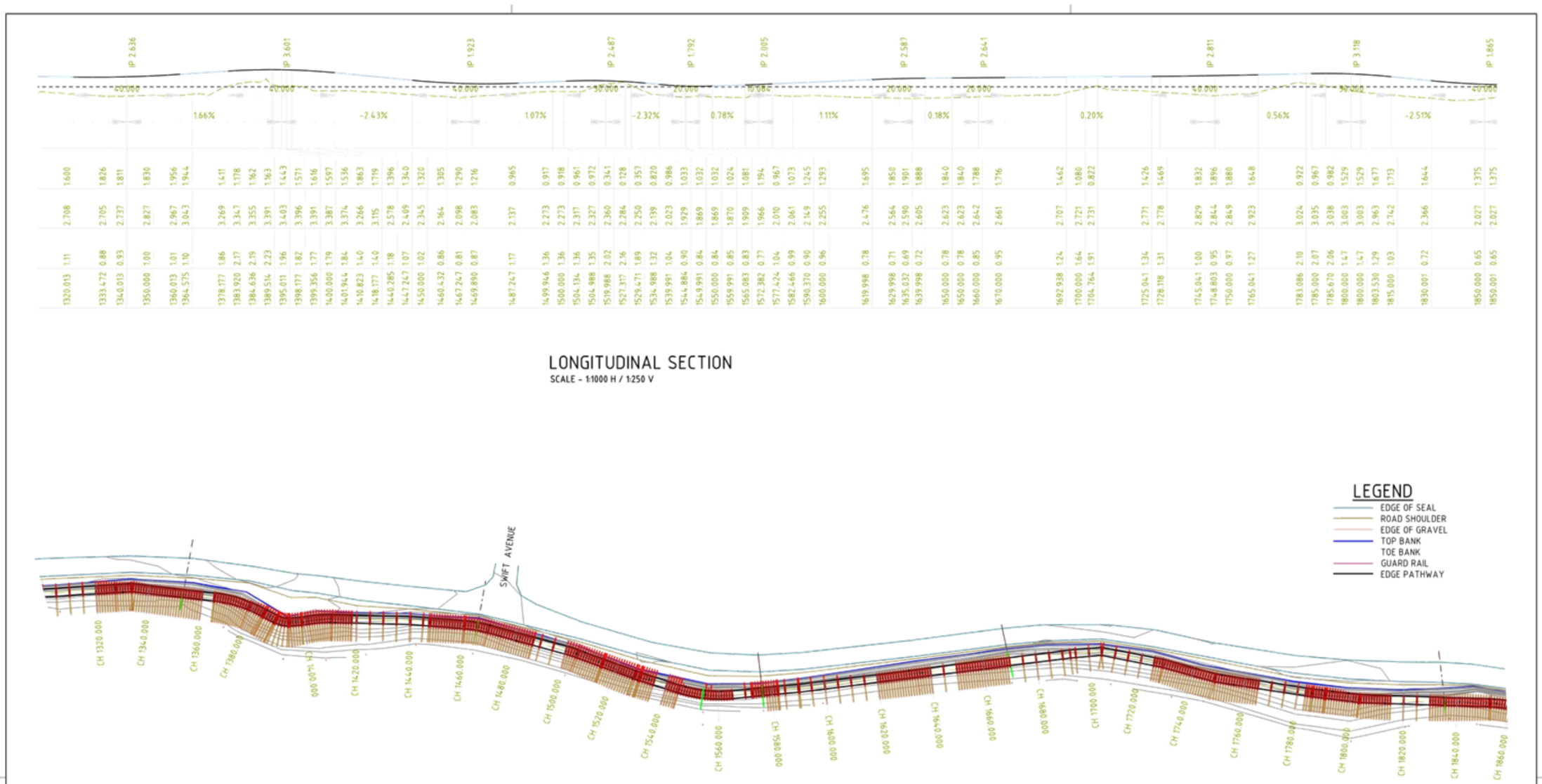
ISSUE	DATE	DESCRIPTION	CHECKED
A	JAN 2012	ISSUED FOR ESTIMATING AND APPROVAL	

DEVONPORT

SURVEYED	LF & CO	1:500	APPROVED
DESIGNED	IDC	SCALE	
DRAWN	IDC	A2	
CHECKED			

RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

CYCLEWAY PLAN & SECTION
SHEET 3



LONGITUDINAL SECTION
SCALE - 1:1000 H / 1:250 V

PATHWAY PLAN - CH 1350 TO 1850
SCALE - 1:1000

REDUCED SCALE PRINT
DO NOT SCALE

PRELIMINARY
NOT for construction

ISSUE	DATE	DESCRIPTION	CHECKED
A	JAN 2012	ISSUED FOR ESTIMATING AND APPROVAL	

DEVONPORT

SURVEYED	LF & CO	1:500	APPROVED
DESIGNED	IDC	SCALE	
DRAWN	IDC	A2	
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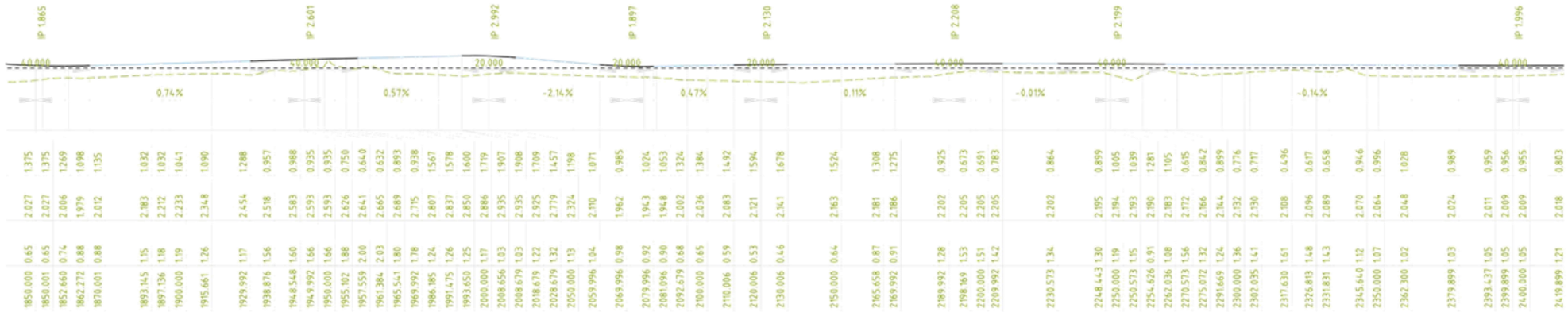
RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

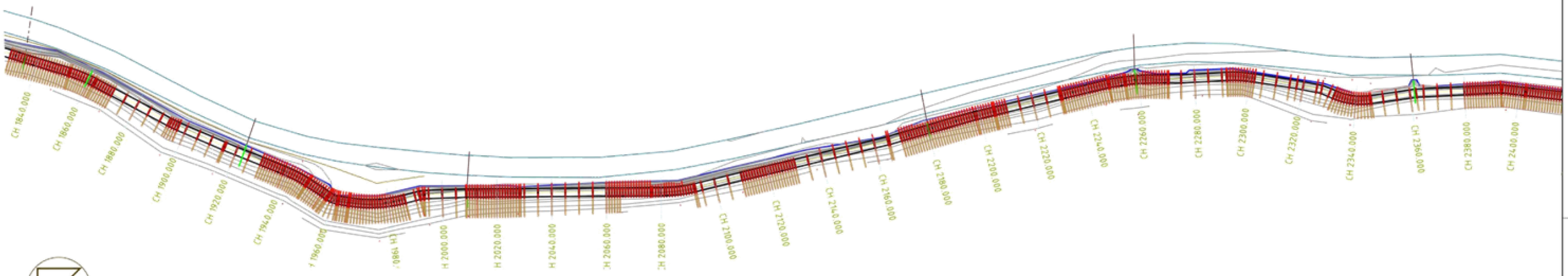
CYCLEWAY PLAN & SECTION
SHEET 4

DRAWING CT0035-04 A



LONGITUDINAL SECTION
SCALE - 1:1000 H / 1:250 V

LEGEND
- EDGE OF SEAL
- ROAD SHOULDER
- EDGE OF GRAVEL
- TOP BANK
- TOE BANK
- GUARD RAIL
- EDGE PATHWAY



REDUCED SCALE PRINT
DO NOT SCALE

PATHWAY PLAN - CH 1850 TO 2400
SCALE - 1:1000

PRELIMINARY
NOT for construction

ISSUE	DATE	DESCRIPTION	CHECKED
A	JAN 2012	ISSUED FOR ESTIMATING AND APPROVAL	

DEVONPORT

SURVEYED	LF & CO	1:500 SCALE	APPROVED ENGINEER
DESIGNED	IDC		
DRAWN	IDC	A2 SIZE	DATE
CHECKED			PROJECT
DATUM	AHD		

RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

CYCLEWAY PLAN & SECTION
SHEET 5

DRAWING CT0035-05 A
DRAWING No. ISSUE

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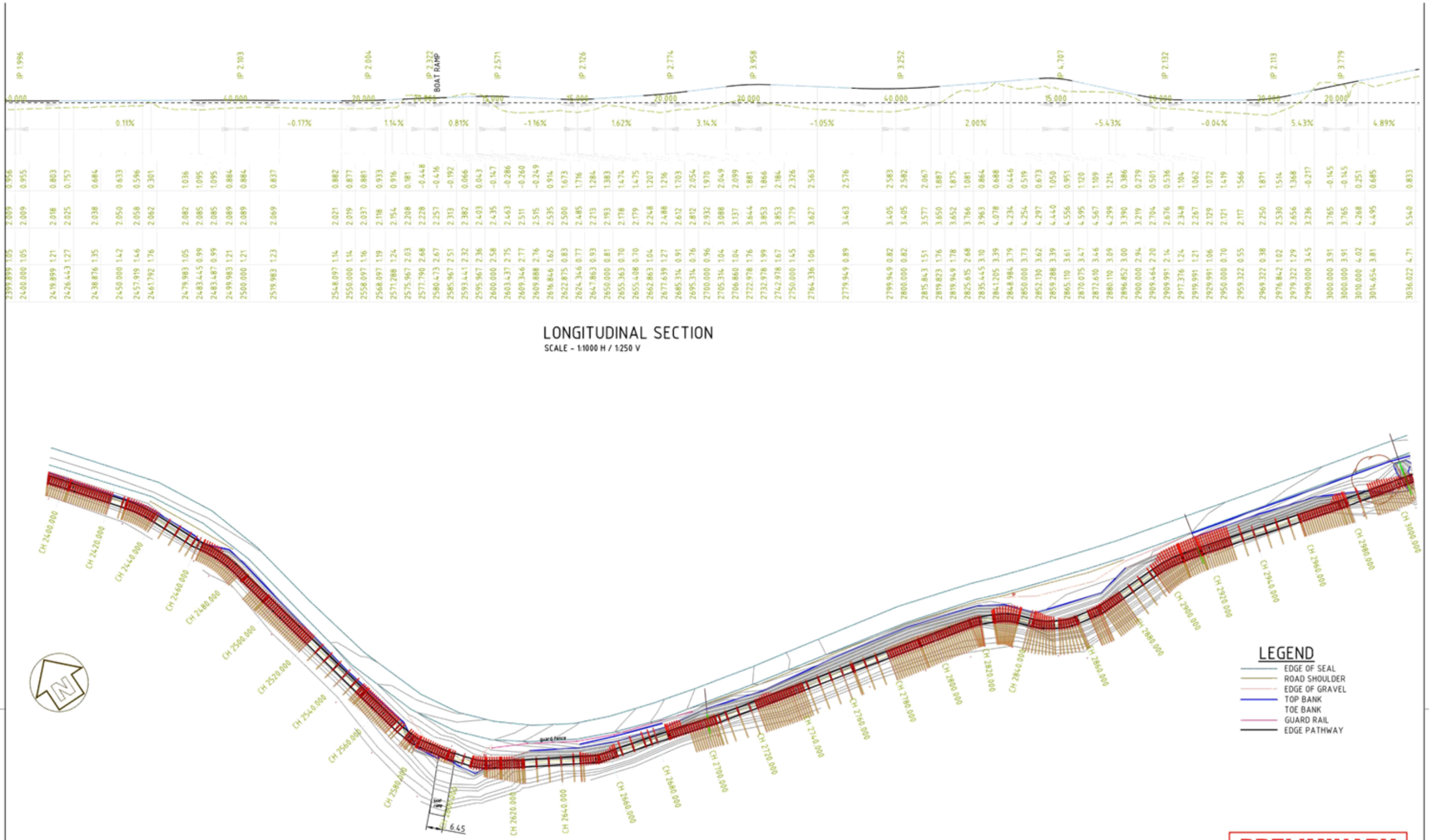


LONGITUDINAL SECTION
SCALE - 1:1000 H / 1:250 V

PATHWAY PLAN - CH 2400 TO 3000
SCALE - 1:1000

REDUCED SCALE PRINT
DO NOT SCALE

PRELIMINARY
NOT for construction

ISSUE	DATE	DESCRIPTION	CHECKED
A	JAN 2012	ISSUED FOR ESTIMATING AND APPROVAL	

DEVONPORT

SURVEYED	LF & CO	1:500 (SCALE)	APPROVED
DESIGNED	IDC		
DRAWN	IDC	A2 (SIZE)	
CHECKED			
DATUM	AHD		

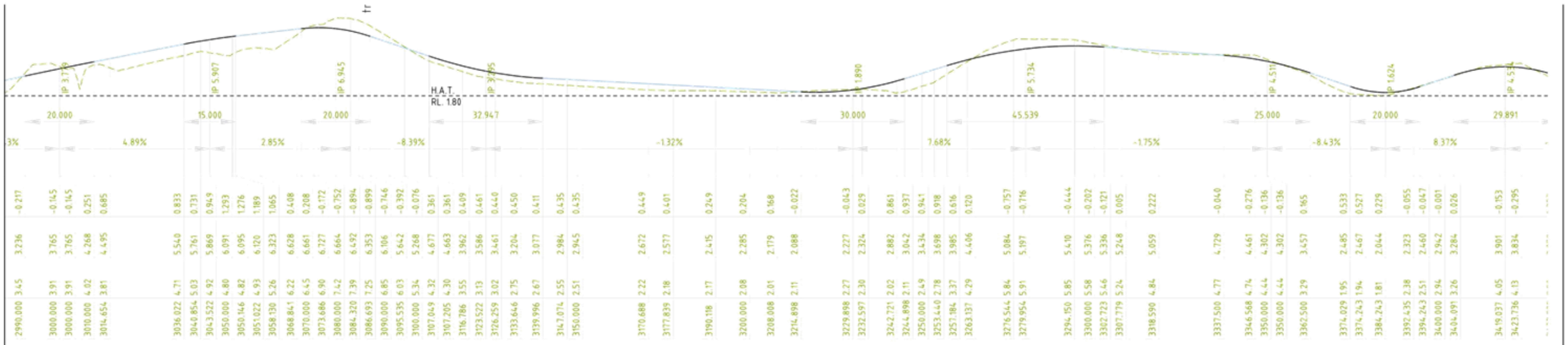
ENGINEER DATE PROJECT

RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

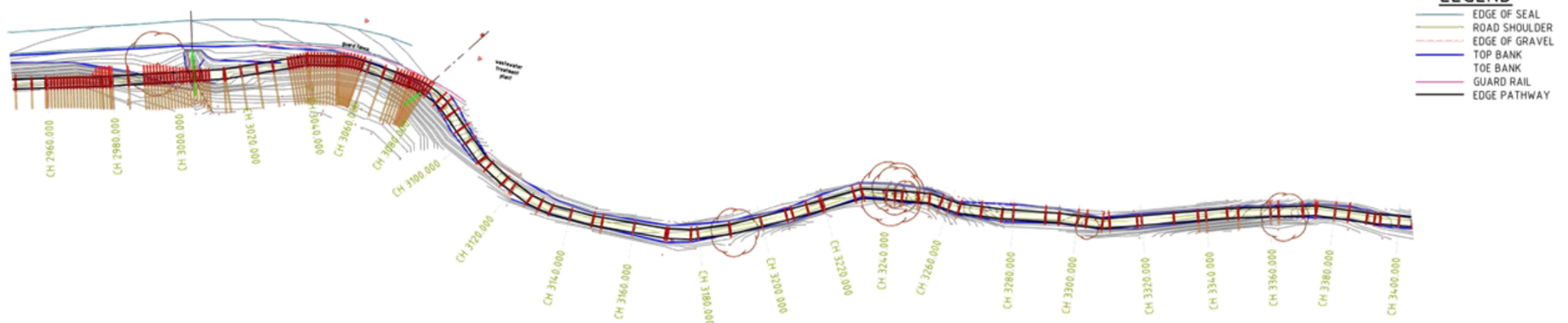
CYCLEWAY PLAN & SECTION
SHEET 6

DRAWING: CT0035-06

DRAWING No. ISSUE: A



LONGITUDINAL SECTION
SCALE - 1:1000 H / 1:250 V



LEGEND
- EDGE OF SEAL
- ROAD SHOULDER
- EDGE OF GRAVEL
- TOP BANK
- TOE BANK
- GUARD RAIL
- EDGE PATHWAY

REDUCED SCALE PRINT
DO NOT SCALE

PATHWAY PLAN - CH 3000 TO 3400
SCALE - 1:1000

PRELIMINARY
NOT for construction

ISSUE	DATE	DESCRIPTION	CHECKED
A	JAN 2012	ISSUED FOR ESTIMATING AND APPROVAL	

DEVONPORT

SURVEYED	LF & CO	1:500 (SCALE)	APPROVED
DESIGNED	IDC		
DRAWN	IDC	A2 (SIZE)	
CHECKED			
DATUM	AHD		

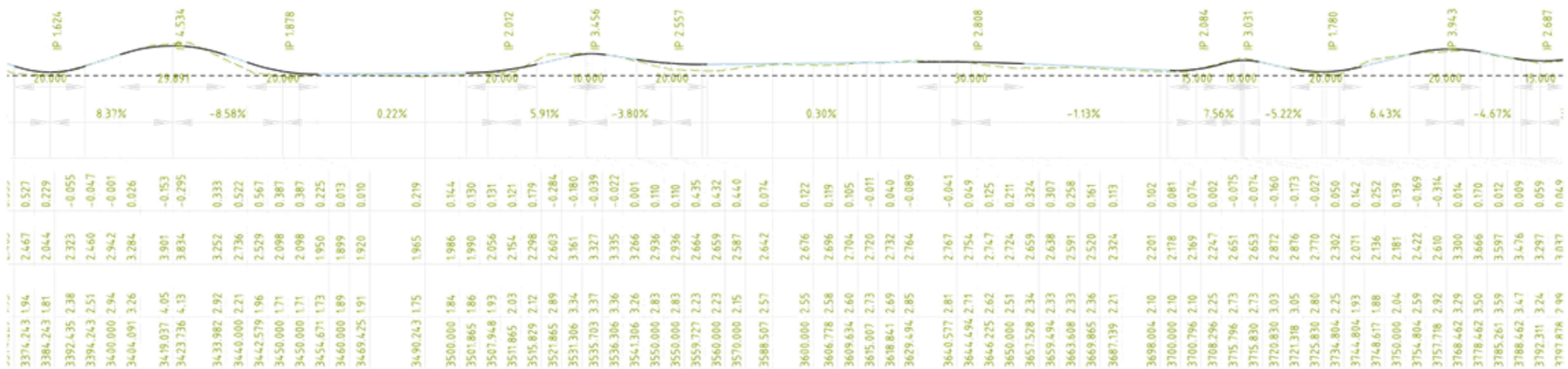
ENGINEER | DATE | PROJECT

RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

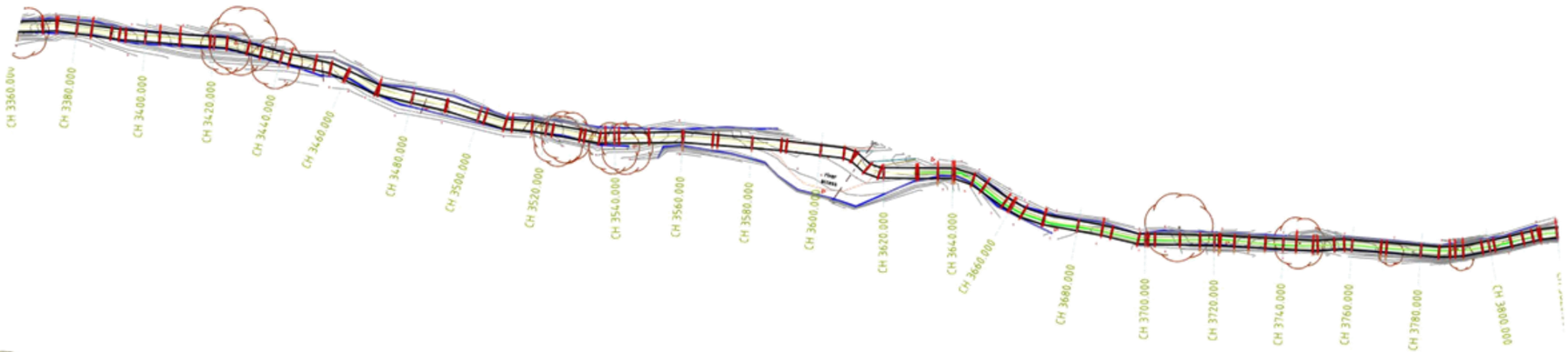
CYCLEWAY PLAN & SECTION
SHEET 7

DRAWING: CT0035-07

ISSUE: A



LONGITUDINAL SECTION
SCALE - 1:1000 H /1:250 V



LEGEND
- EDGE OF SEAL
- ROAD SHOULDER
- EDGE OF GRAVEL
- TOP BANK
- TOE BANK
- GUARD RAIL
- EDGE PATHWAY

REDUCED SCALE PRINT
DO NOT SCALE

PATHWAY PLAN - CH 3400 TO 3800
SCALE - 1:1000

PRELIMINARY
NOT for construction

ISSUE	DATE	DESCRIPTION	CHECKED
A	JAN 2012	ISSUED FOR ESTIMATING AND APPROVAL	

DEVONPORT

SURVEYED	LF & CO	1:500 (SCALE)	APPROVED
DESIGNED	IDC		
DRAWN	IDC	A2 (SIZE)	
CHECKED			
DATUM	AHD		

ENGINEER DATE PROJECT

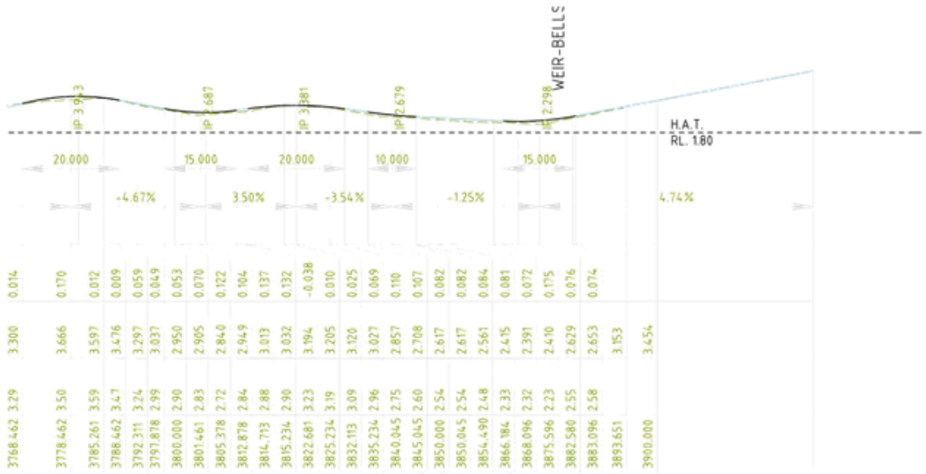
RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

CYCLEWAY PLAN & SECTION
SHEET 8

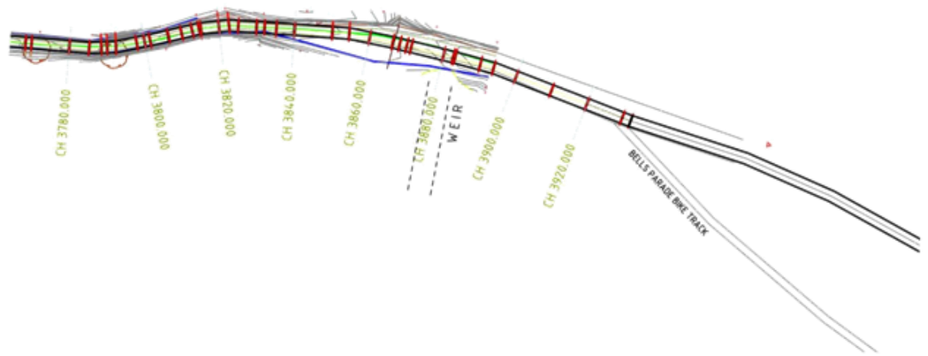
DRAWING

CT0035-08 A

DRAWING No. ISSUE



LONGITUDINAL SECTION
SCALE - 1:1000 H / 1:250 V



LEGEND
- EDGE OF SEAL
- ROAD SHOULDER
- EDGE OF GRAVEL
- TOP BANK
- TOE BANK
- GUARD RAIL
- EDGE PATHWAY

REDUCED SCALE PRINT
DO NOT SCALE

PATHWAY PLAN - CH 3800 TO 3940
SCALE - 1:1000

PRELIMINARY
NOT for construction

ISSUE	DATE	DESCRIPTION	CHECKED
A	JAN 2012	ISSUED FOR ESTIMATING AND APPROVAL	

DEVONPORT

SURVEYED	LF & CO	1:500 SCALE	APPROVED
DESIGNED	IDC		
DRAWN	IDC	A2 SIZE	
CHECKED			
DATUM	AHD		ENGINEER DATE PROJECT

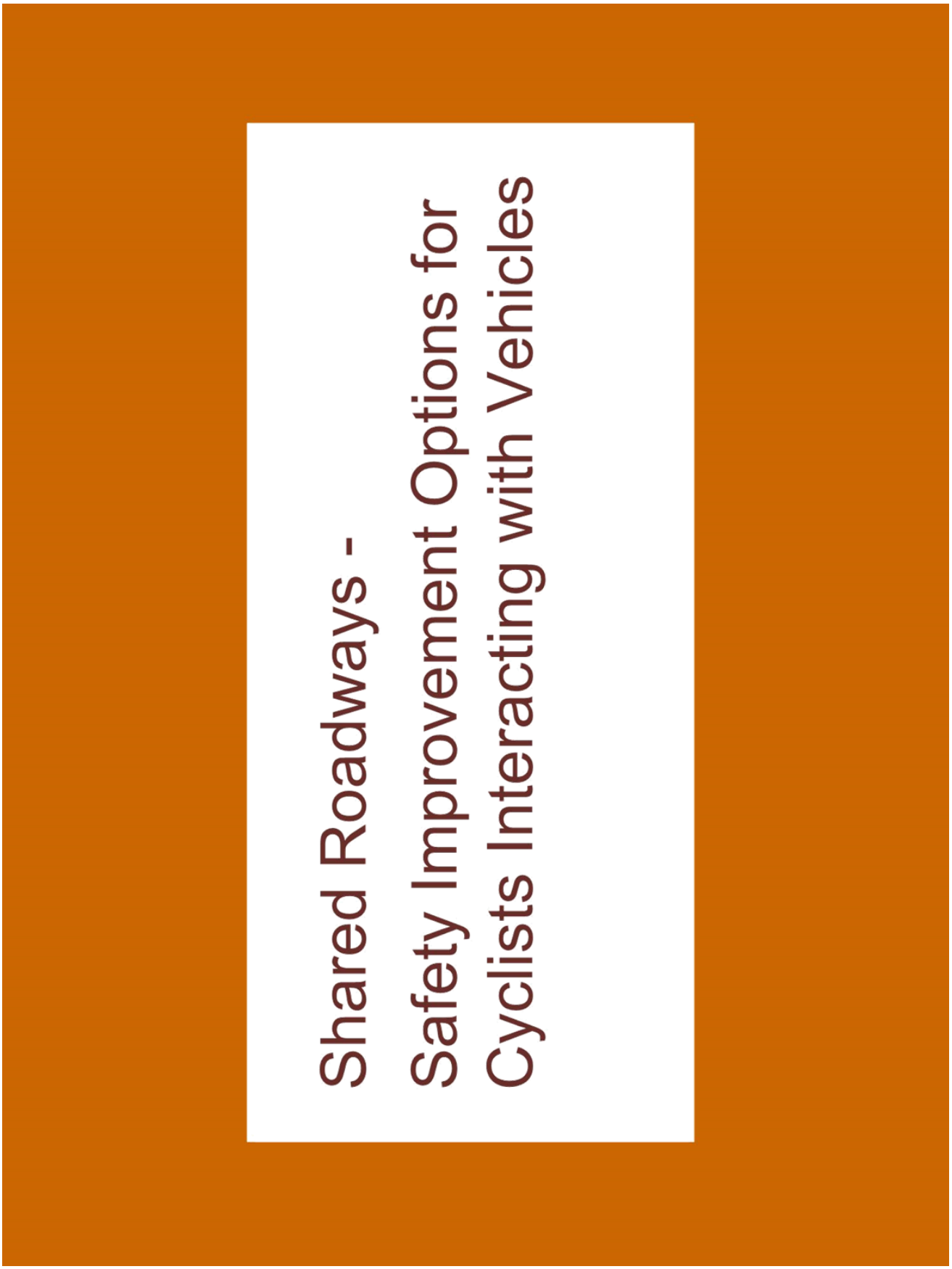
RECREATIONAL PATHWAY
AMBLESIDE TO LATROBE
CW TRANSPORT 2011-12

CYCLEWAY PLAN & SECTION
SHEET 9

DRAWING CT0035-09 ISSUE A

Appendix C

Shared Roadway Safety Improvement Options


Shared Roadways -
Safety Improvement Options for
Cyclists Interacting with Vehicles

Option 1 – Cyclists on Road signs

Pros

-Very low cost ($500 per sign – supply and install)

-Easy to install

-Easy to maintain

-Make drivers aware of the presence of cyclists on road

Cons

-No separation between cyclists and vehicles

-If cyclist numbers are low drivers may ignore signs

Option 1 – Installation of signs

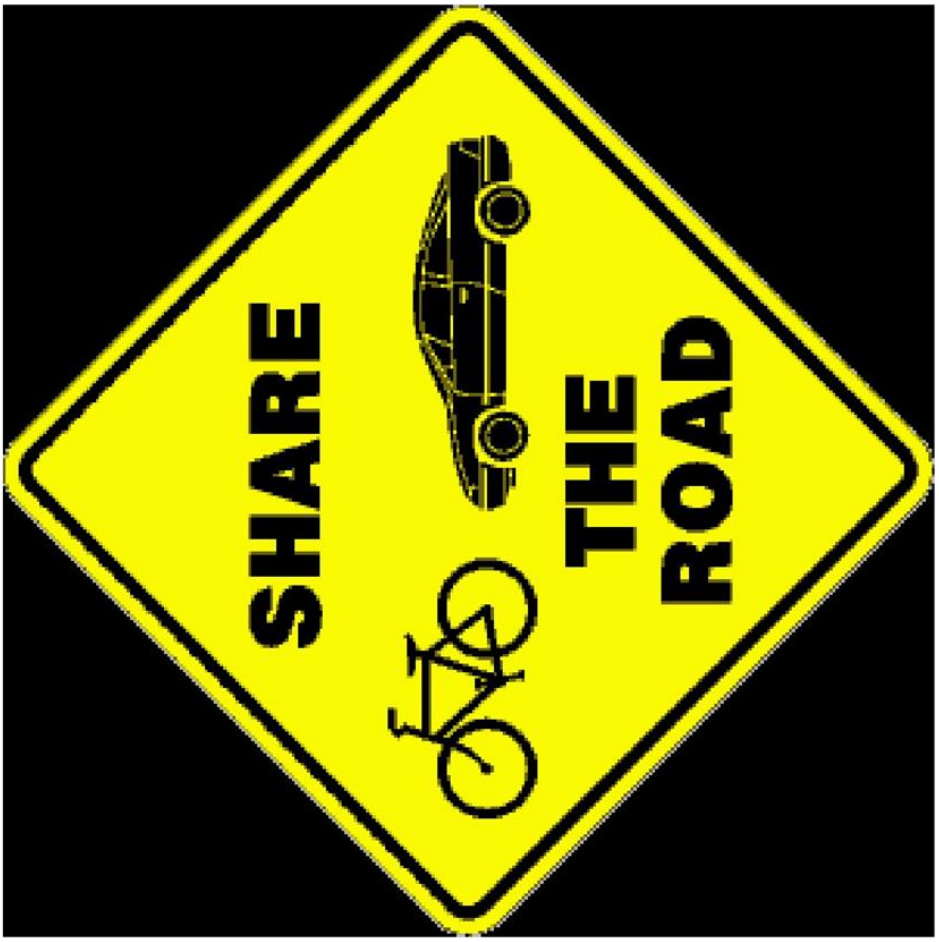
Option 1 – Installation of signs

Option 1 – Installation of signs

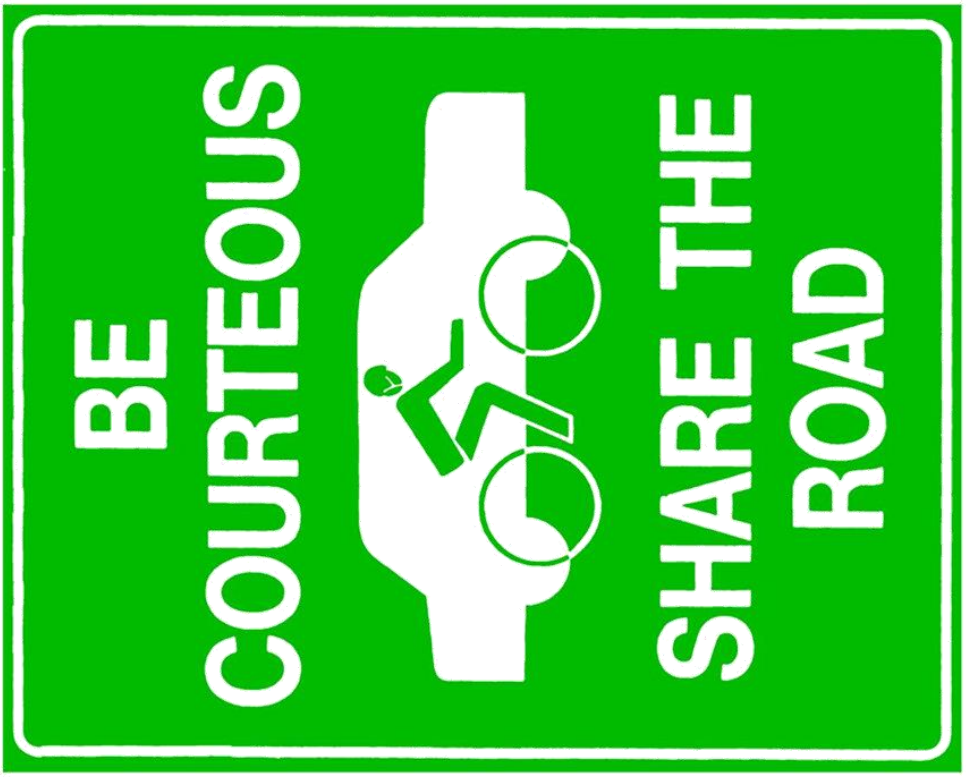
Option 1 – Installation of signs

www.alamy.com - D2CFBN

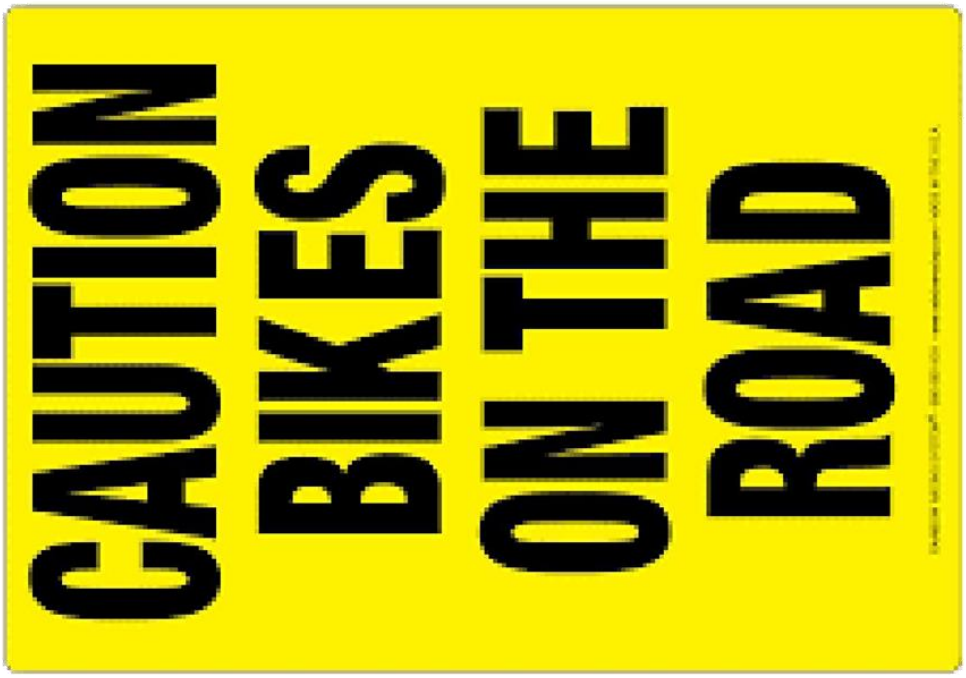
Option 1 – Installation of signs



Option 1 – Installation of signs



Option 1 – Installation of signs



Option 2 – Speed limit reduction

Pros

-Very low cost ($500 per sign)

-Easy to implement

-Likelihood and Consequences of a crash is reduced

Cons

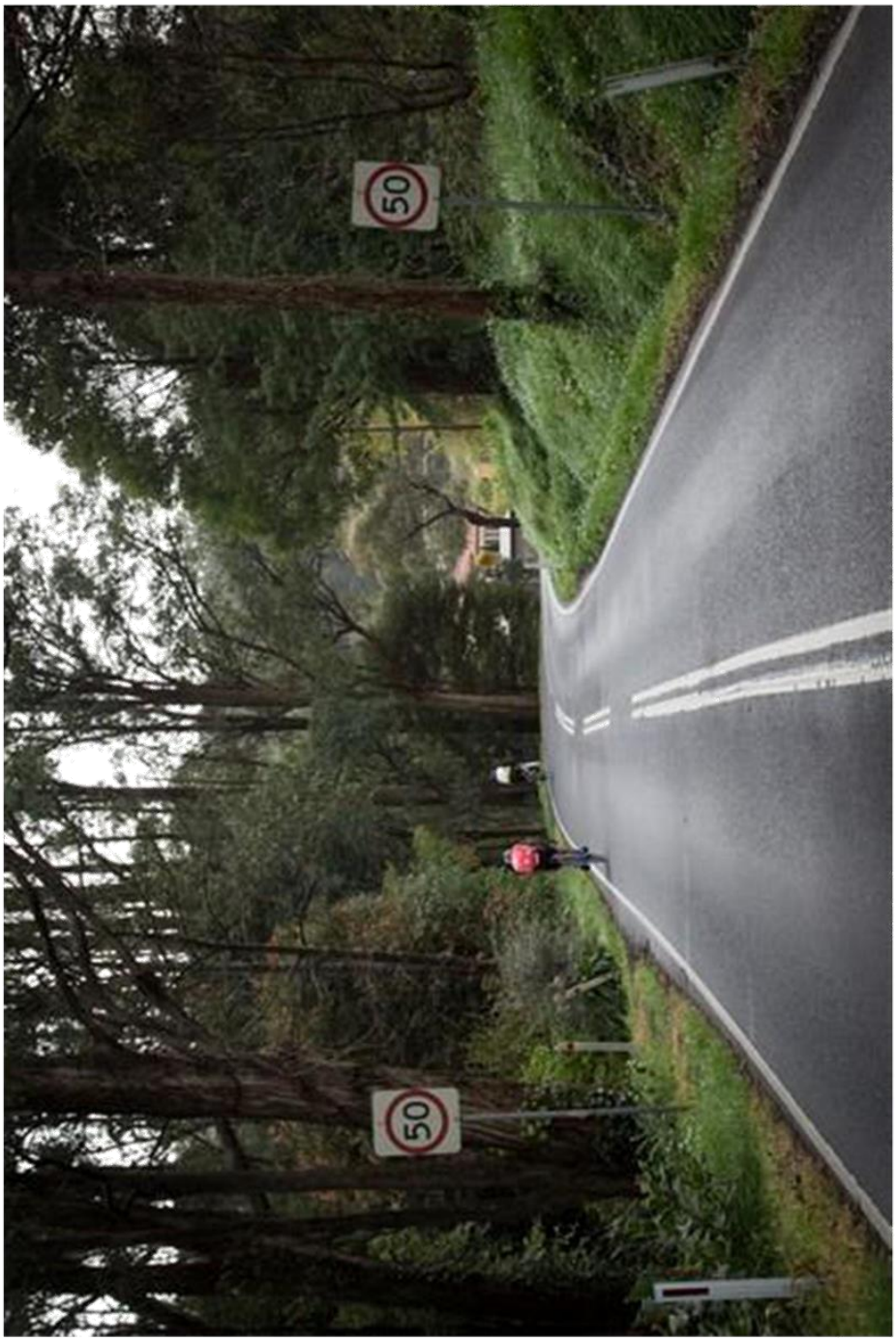
-No separation between cyclists and vehicles

-Hard to patrol & drivers may choose to ignore

-DSG approval required

-Negative driver feedback (already a letter to the editor)

Option 2 – Speed limit reduction



Option 3 – Speed humps

Pros

-Low cost

-Easy to implement

-Helps to ensure lower speeds are maintained

Cons

-No separation between cyclists and vehicles

-Negative feedback from vehicle users likely

-DSG approval required

Option 3 – Speed humps

Option 4 – Combination of Cyclists Signs, Reduced Speed Limits and Speed Humps

Pros

-Very low cost

-Easy to install

-Consequences of a crash is reduced

-Make drivers aware of the presence of cyclists on road

Cons

-No separation between cyclists and vehicles

-Hard to patrol & drivers may choose to ignore

-Negative feedback for vehicle users

Option 5 – Passing Bays

Pros

-Relatively low cost ($15,000 - $40,000 per bay)

-Space away from thoroughfare for cyclists to giveway

-Safer option

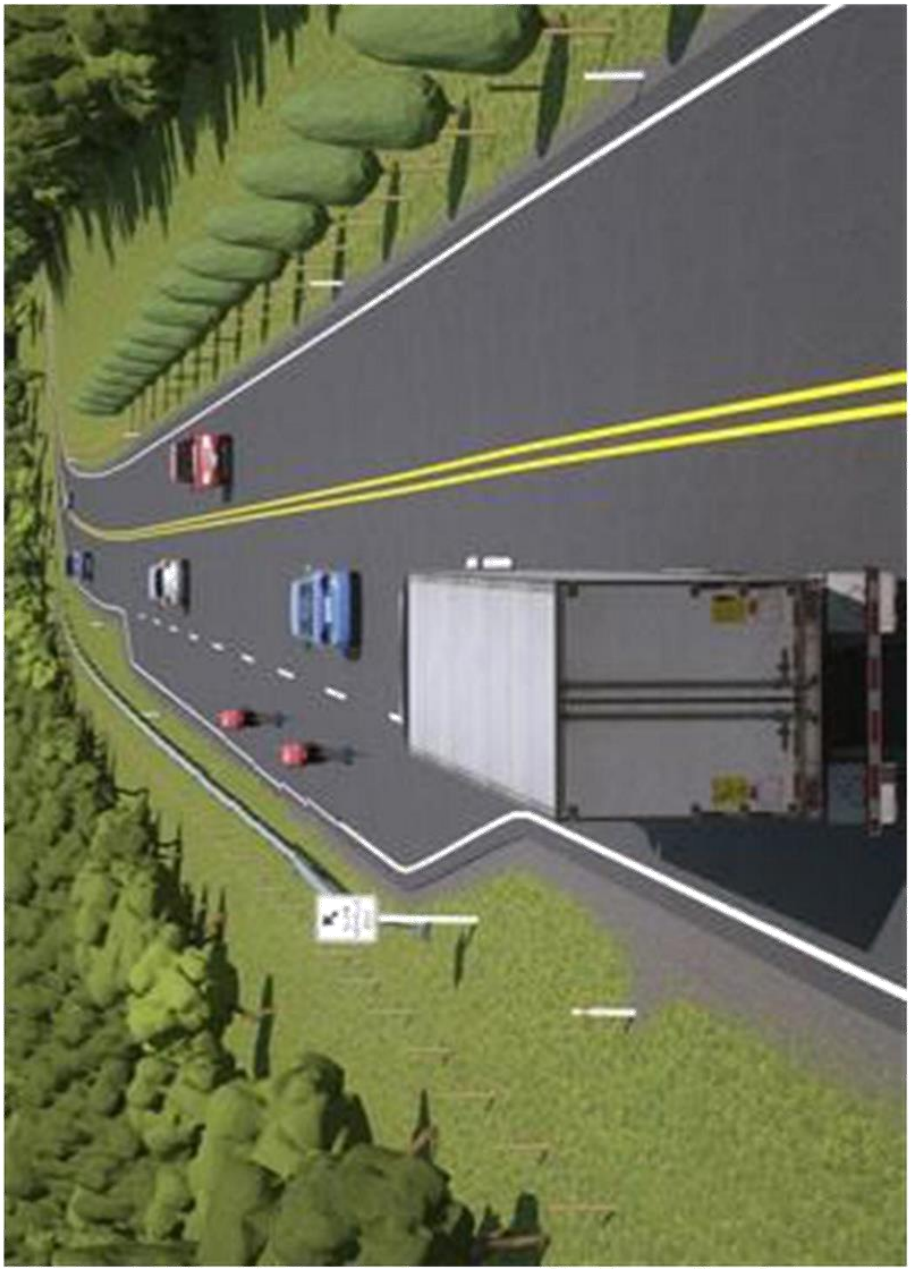
Cons

-Westbound lane has restricted width due to hill

-Cyclists might choose not to use the bay

-No separation between cyclists and vehicles on other sections

Option 5 – Passing Bays



Option 5 – Passing Bays

Option 5 – Passing Bays

Sign legend could be “ Cyclists allow overtaking”

Option 6 – Dutch bike lanes

Pros

-Relatively low cost ($25,000 per km)

-Separate lane for cyclists

-Naturally reduced speed

Cons

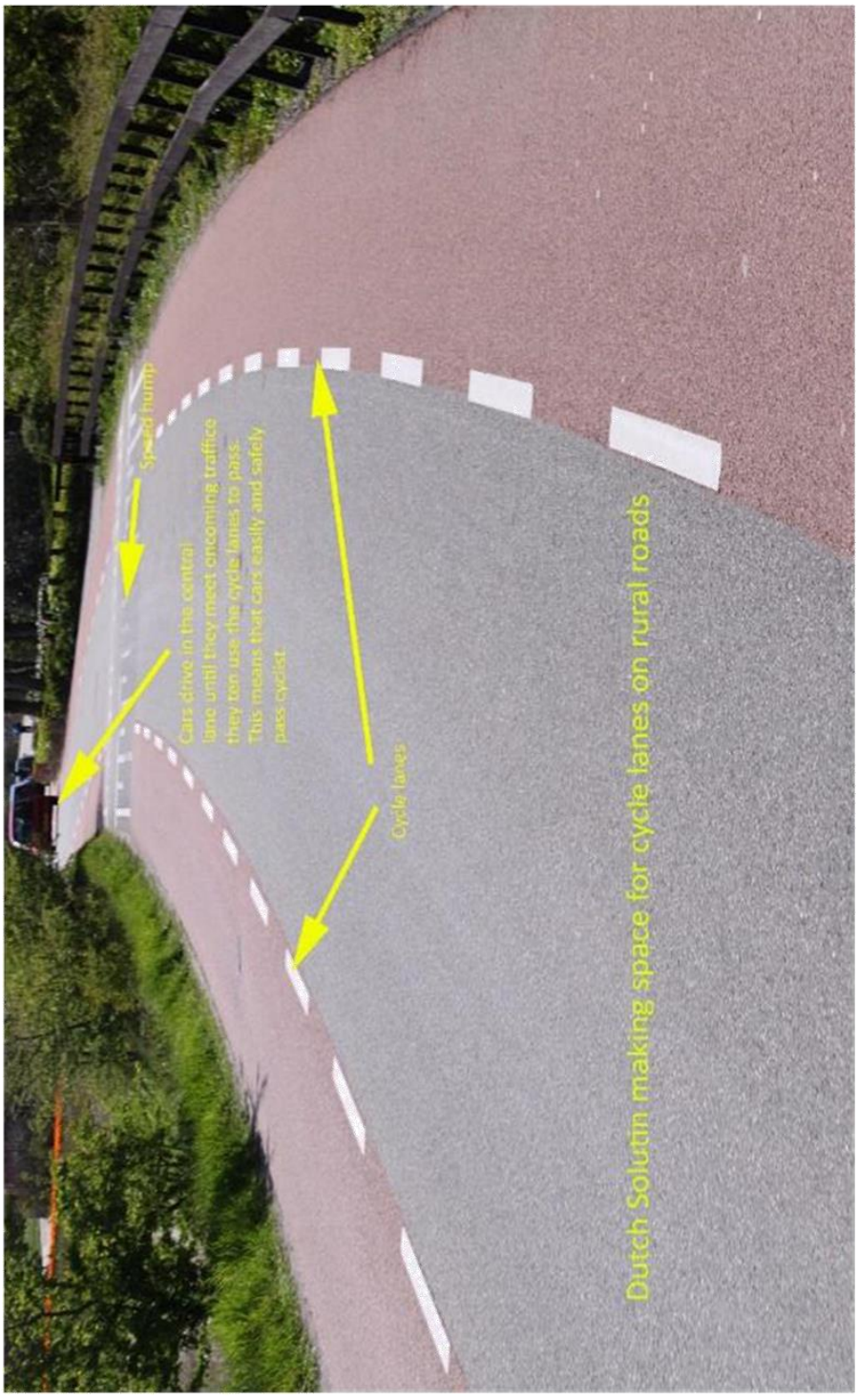
-Possible public rejection

-Confusion when introduced. System not used in Tasmania

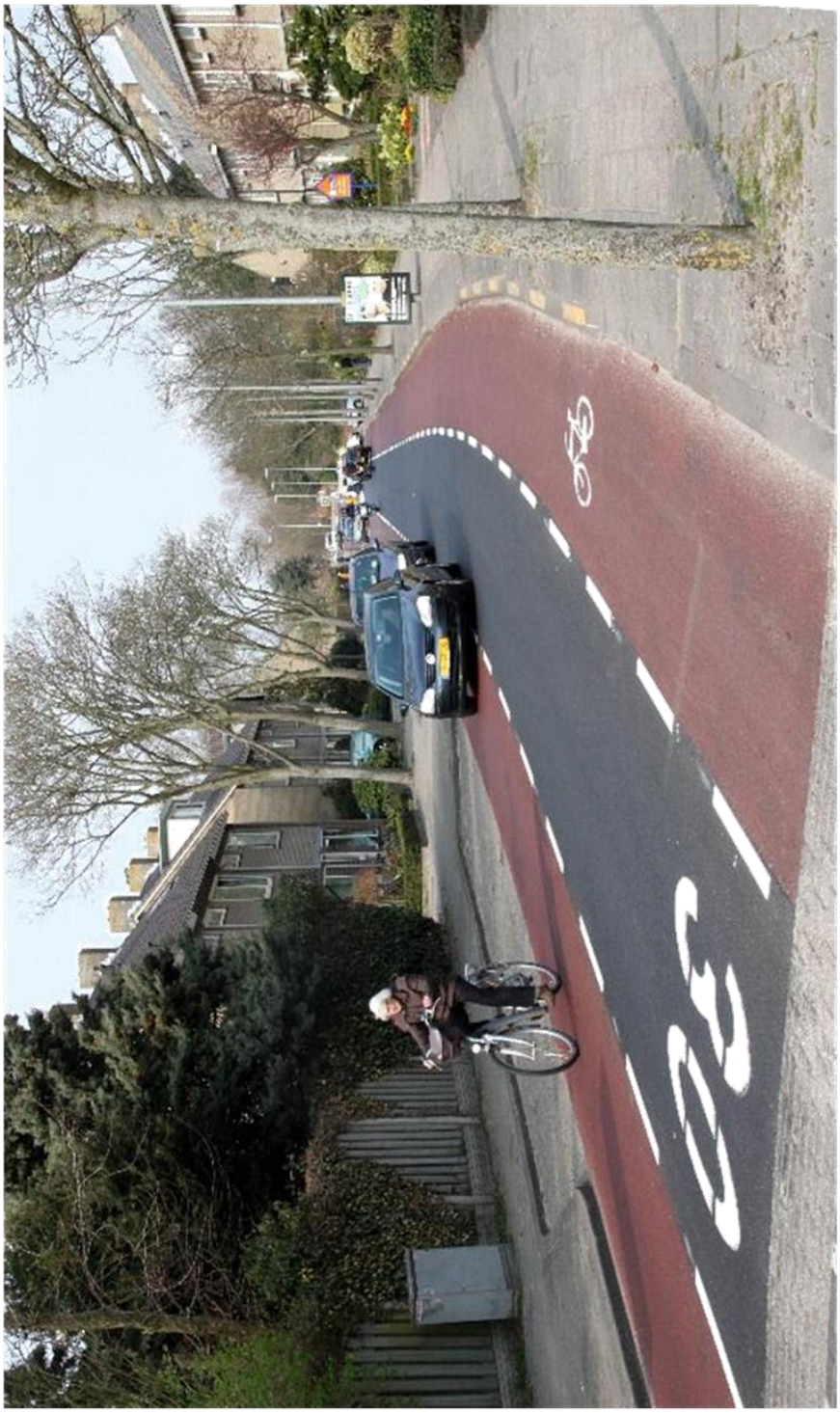
-Sight distances at corners

-Vehicle use expected to be much higher than cycle use

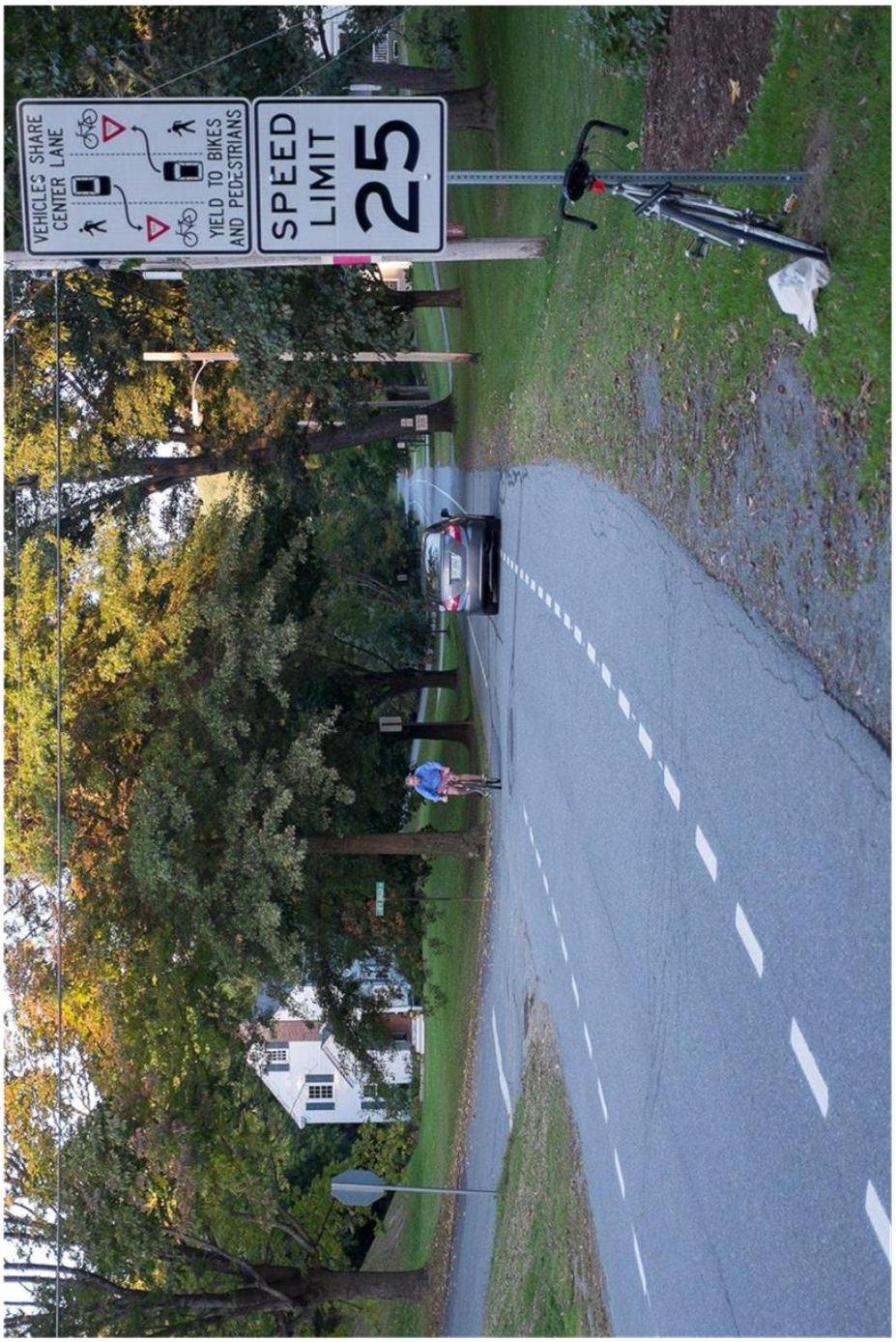
Option 6 – Dutch bike lanes



Option 6 – Dutch bike lanes



Option 6 – Dutch bike lanes



Option 7 – Bicycle activated warning signs

Pros

-Make drivers aware of the presence of cyclists on road

-Draw driver attention more

-Activated by cyclists (manually or by sensors)

-Unlike regular signs provide live (current) information to drivers

Option 7 – Bicycle activated warning signs

Cons

-High cost (around $40,000 per site, more investigation needed)

- Multiple signs needed along route for significant safety improvement

-Possible electrical or mechanical failure

-As a result of above, possible lack of activation

-Motorists could become dependant

-Risk of vandalism

-Regular maintenance

Option 7 – Bicycle activated warning signs

Munna Point Bridge, Noosa Heads, QLD

Option 7 – Bicycle activated warning signs

State Hwy 1, Spring Creek, Marlborough, NZ

Appendix D

Pitt & Sherry Desktop Environmental Review - 2012

EnviroAssist :

Devonport City Council
Proposed Cycle Way

Prepared for:	Devonport City Council
Date:	June 2012 RevA

transport infrastructure | community infrastructure | industrial infrastructure | climate change

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Table of Contents

Prepared by: _____ **Date:** 18 June 2012
Charlie Livesey

Reviewed by: _____ **Date:** 18 June 2012
Doug Tangney

Authorised by: _____ **Date:** 18 June 2012
Andy Turner

Report Revision History

Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date

pitt&sherry ref: LN12120 H001 EnviroAssist Rep 31P RevA/DT/rw

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1. Introduction

Devonport City Council (DCC) has tendered for geotechnical and environmental services for a proposed cycle way in northern Tasmania.

DCC requires any geotechnical or environmental issues to be identified for the proposed cycle way.

This EnviroAssist report has been prepared for the proposed alignment of the cycle way which is depicted below in Figure 1.

The proposed cycle way alignment follows the bank of the Mersey River for a distance of approximately 3.8km. Starting at the weir at Bells parade, the first 600m follows the alignment of an existing historic pavement which is approximately 4 - 6 m lower than River Road. However, from 0.6 to 3.8 km it is understood that land reclamation extending approximately 10m into the Mersey River will be required and the cycle track will be placed on this reclaimed ground. This section of the cycle way traverses a number of headlands and bays, indicating varying geology and/or erosion history along the alignment.

2. EnviroAssist

EnviroAssist is a planning tool which utilises existing databases to assess any risks, constraints and issues for the land in relation to:

- Threatened flora and fauna (both State and Commonwealth)
- Weeds
- Geoconservation
- RAMSAR wetlands
- Tasmanian reserve estate
- Public land classification
- Aboriginal heritage
- Local, State and National historic heritage
- Agricultural land
- Acid sulfate soils
- Geohazrads
- Phytophthora management areas

In this report, the risks, constraints and issues for the land are assessed from within a 500 m buffer of the proposed action. By setting the search parameters up to 500m a reflection of the values of the broader landscape can be identified.

The detailed results and methodology for EnviroAssist are contained in Appendix A of this report. A summary of these results is included within the main text of this report.

Data in relation to Aboriginal heritage can only be obtained by a specific project based application to Aboriginal Heritage Tasmanian (AHT). The response from AHT in relation to the proposed action is contained in **Appendix B**.

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It is important to note that these results indicate those values known to be present on desktop registers. These registers are typically a combination of the results of past field surveys (in the case of threatened flora, fauna and heritage), known land tenure and some risk assessment.

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Figure 1: Location of the proposed cycle way alignment

What this means is that a negative result does not necessarily confirm the absence of any values; it may also indicate that the site has never been surveyed. Accordingly, the results below are an indication of what is known to occur but should not be used as definitive authority for the absence of values.

3. EnviroAssist Results

Table 1 describes the results of EnviroAssist with a 500m buffer of the proposed action. Figure 2 shows the location of values identified in Table 1.

Table 1 - EnviroAssist results within 500 m search radius

Parameter	Results
Threatened Flora	1 observation record of *Pimelea curviflora* var. *gracilis* (slender curved riceflower).
Threatened Vegetation	Wetlands (AWU) *Eucalyptus ovata* forest and woodland (DOV) *Melaleuca ericifolia* swamp forest (NME)
Threatened Fauna	18 observation records of *Prototroctes maraena* (Australian grayling). 3 observation records of *Tyto novaehollandiae* subsp. *castanops* (masked owl). 2 observation records of *Ceyx azureus* subsp. *diemenensis* (Tasmanian azure kingfisher). 2 known nests and 1 observation record of Haliaeetus *leucogaster* (white-bellied sea-eagle). 1 observation record of *Litoria raniformis* (green and gold frog). 1 observation record (roadkill) of *Sarcophilus harrisii* (Tasmanian devil).
Threatened Fauna (based on core habitat mapping)	*Tyto novaehollandiae castanops* (masked owl) *Lathamus discolor* (swift parrot)
Weeds (Introduced Watch List)	1 observation record of *Ulex europaeus* (gorse); 5 observation records of *Cortaderia* sp. (pampas grass); and 5 observation records of *Chrysanthemoides monilifera* subsp. *monilifera* (boneseed).
Geoconservation	No results identified from desktop assessment (within 500m)
RAMSAR Wetlands	No results identified from desktop assessment (within 500m)
Reserve Estate	No results identified from desktop assessment (within 500m)

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Parameter	Results
Public Land classification	Public Reserve
Aboriginal Heritage	No results identified from desktop assessment (within 500m)
Local Historic Heritage	No results identified from desktop assessment (within 500m)
State Historic Heritage	Frogmore, RA 637 Mersey Main Road, Latrobe, 7307, Title reference: 36301/1, PID 7507111
National Heritage	No results identified from desktop assessment (within 500m)
Agricultural Land	Land Class value ≤ 3
Acid Sulfate Soils	Study area has a high probability (>70% chance of occurrence in mapping unit) of Coastal acid sulfate soils and Marine subaqueous and intertidal acid sulfate soils.
Geohazards	Study area has the following geohazards: 1 recent or active landslide 5 x Possible landslide 1x Landslide (Jurassic dolerite and dolerite talus, steep south-west facing slopes)
Phytophthora Management Areas	No results identified from desktop assessment (within 500m).

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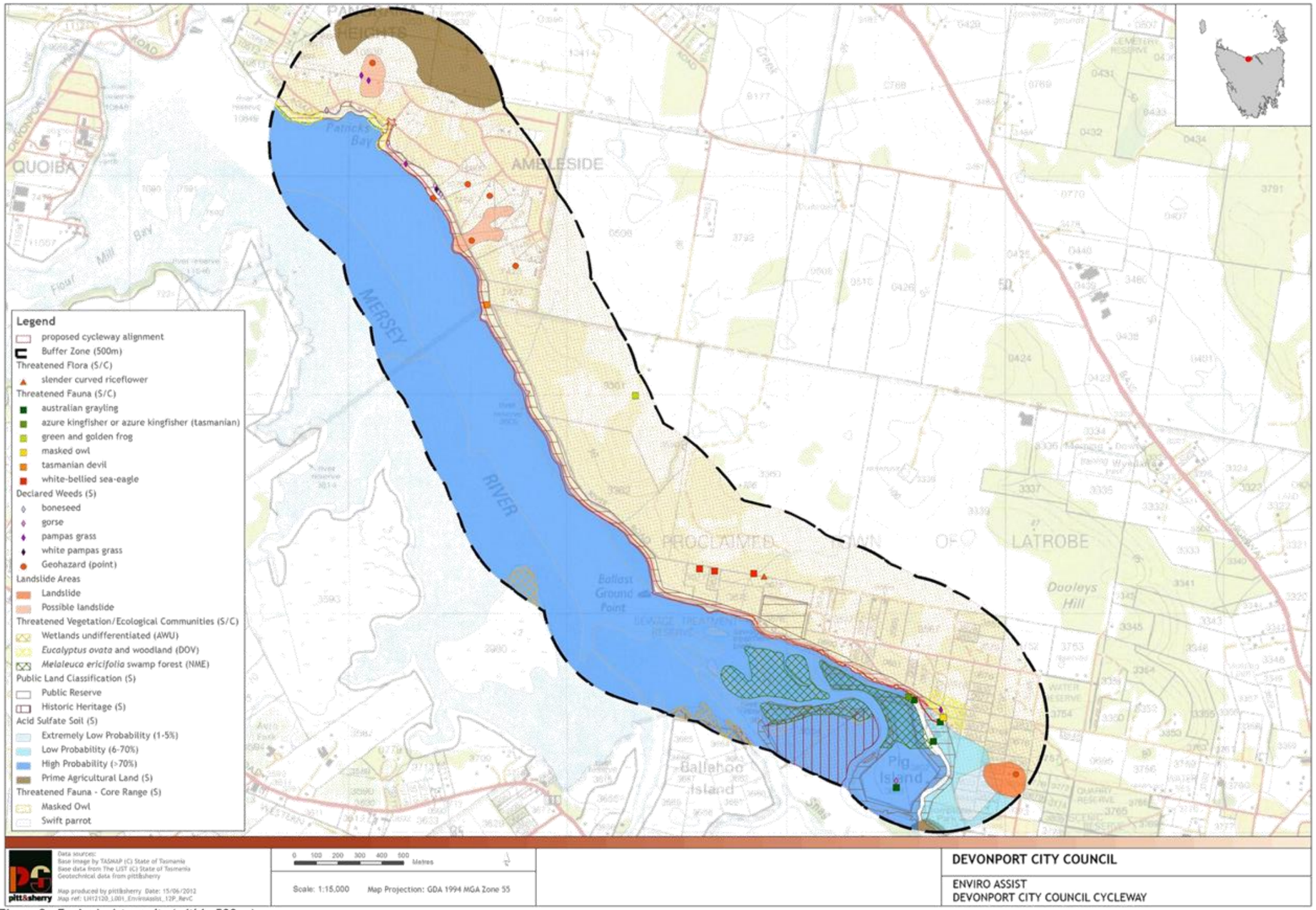

Figure 2 - EnviroAssist results (within 500 m)

3.1 Discussion of Results (within 500 m)

3.1.1 Threatened Flora

One observation record of *Pimelea curviflora* var. *gracilis* (slender curved riceflower) occurs approximately 180 metres away from the proposed cycleway. The species occurs on the slopes above River Road in the *Eucalyptus obliqua* dry forest and woodland where it encompasses an area of approximately 9m^2. This species is listed as rare under the *Threatened Species Protection Act 1995* (Tas) (TSP Act). Further information in relation to this species can be found at the following internet link: http://www.dpipwe.tas.gov.au/inter.nsf/Attachments/SSKA-75D8PZ/$FILE/Pimelea%20curviflora%20var.%20gracilis.pdf

3.1.2 Threatened Vegetation

Three threatened vegetation communities listed under Schedule 3A of the *Nature Conservation Act 2002* (Tas) occur in the study area.

Wetlands (AWU) occur approximately 500m away from the proposed cycle way on the western side of the Mersey River.

Eucalyptus ovata forest and woodland (DOV) occurs nearby (approximately 5 m) the southern end of the proposed cycle way while at the northern end the proposed cycle way alignment passes through a patch of this vegetation community.

Melaleuca ericifolia swamp forest (NME) occurs opposite (approximately 25 m) the southern extents of the proposed cycle way.

3.1.3 Threatened Fauna

The study area is relatively rich in observation records of fauna species listed under both the TSP Act and the Environment Protection and Biodiversity Conservation Act 1999 (Cwlth) (EPBC Act).

There are 18 observation records of Prototroctes maraena (Australian grayling) in the study area. All of these observations are in the upper reaches on the Mersey River in the marine environments opposite the southern extents of the proposed cycle way. This species is listed as vulnerable under the TSP Act and the EPBC Act. Further information in relation to this species can be found at the following internet link: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=26179

There are 3 observation records of Tyto novaehollandiae subsp. castanops (masked owl) in the study area. These observations are nearby (approximately 30 m) the southern end of the proposed cycle way. The study area also falls within the core habitat mapping for this species. This species is listed as endangered under the TSP Act and vulnerable under the EPBC Act. Further information in relation to this species can be found at the following internet link: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=67051

There are 2 observation records of Ceyx azureus subsp. diemenensis (Tasmanian azure kingfisher) in the study area. These observations are nearby (approximately 15m) the southern end of the proposed cycle way. This species is listed as endangered under the TSP Act and the EPBC Act. Further information in relation to this species can be found at the following internet link: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=25977

There is 1 observation record of Haliaeetus leucogaster (white-bellied sea-eagle) and two known nest sites (nest number 853 and 532) in the study area. Nest 853 is located approximately 144 m away from the proposed cycle way while nest 532 is located approximately 150 m away. This species is listed as vulnerable under the TSP Act and migratory under the EPBC Act. Further information in relation to this species can be found at the following internet link: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=943

There is 1 observation record of Litoria raniformis (green and gold frog) in the study area. This observation is more than 400 m away from the proposed cycleway. This species is listed as vulnerable under the TSP Act and the EPBC Act. Further information in relation to this species can be found at the following internet link: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1828

There is 1 roadkill observation record of Sarcophilus harrisii (Tasmanian devil) in the study area. This observation is on the road near the northern end of the proposed cycle way. This species is listed as endangered under the TSP Act and the EPBC Act. Further information in relation to this species can be found at the following internet link: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=299

The study area falls within the core habitat mapping for Lathamus discolor (swift parrot). This species is listed as endangered under the TSP Act and the EPBC Act. Further information in relation to this species can be found at the following internet link: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=744

3.1.4 Weeds

Three weed species listed as declared under the *Weed Management Act 1999* (Tas) occur in the study area.

There is 1 observation record of *Ulex europaeus* (gorse). This observation occurs on Pig Island opposite the southern end of the proposed cycle way. Further information in relation to control and management of this weed can be found at the following internet link: http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LBUN-7NR7W7?open

There are 5 observation records of *Cortaderia* sp. (pampas grass). One observation occurs approximately 60 m away from the southern end of the proposed cycle way while the other records occur nearby the northern end of the proposed cycle way. Further information in relation to control and management of this weed can be found at the following internet link: http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LBUN-8ATW5P?open

There are 5 observation records of *Chrysanthemoides monilifera* subsp. *monilifera* (boneseed). Four of these observations occur nearby the northern end of the proposed cycle way and 1 observation falls within the outer extent of the study area. Further information in relation to control and management of this weed can be found at the following internet link: http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LBUN-7YM63Q?open

3.1.5 Land Tenure

The entire proposed cycle way is situated on Public Reserve pursuant to the *Crown Lands Act 1976* (Tas).

3.1.6 Aboriginal Heritage

There are no Tasmanian Aboriginal Site Index (TASI) sites identified within 500m of the proposed cycle way. However, Aboriginal Heritage Tasmania (AHT) "believes that there is a moderate to high risk of Aboriginal heritage being impacted during this development." See Appendix B for the written response and TASI site mapping from AHT.

3.1.7 Historic Heritage

There are no historic heritage sites listed under local or national statutory registers within 500 m of the proposed cycle way.

Frogmore (RA 637 Mersey Main Road, Latrobe, 7307, Title reference: 36301/1, PID 7507111), listed under the Tasmanian Heritage Register (ID: 3644), is located on the other side of the Mersey River approximately 127 metres away from the proposed cycle way. Further information in relation to this listing can be found at the following internet link: http://www.heritage.gov.au/cgi-bin/ahpi/record.pl?TAS3644

3.1.8 Acid Sulfate Soils

The study area has a high probability (>70% chance of occurrence in mapping unit) of Coastal acid sulfate soils and Marine subaqueous and intertidal acid sulfate soils.

Further information in relation to this matter is discussed in a separate geotechnical report.

3.1.9 Geohazards

The study area has the following geohazards:

- 1 recent or active landslide
- 5 possible landslides
- 1 landslide (Jurassic dolerite and dolerite talus, steep south-west facing slopes)

Further information in relation to these matters is discussed in a separate geotechnical report.

4. Recommendations

On the basis of the results identified it is recommended that the following further investigations be undertaken:

- Flora and fauna field survey (based on observation records of threatened fauna species listed under both the TSP Act and the EPBC Act and the proposed alignment running through a threatened vegetation community listed under Schedule 3A of the *Nature Conservation Act 2002*).
- AHT have found that "there is a moderate to high risk of Aboriginal heritage being impacted during this development; therefore to avoid any impacts and provide mitigation strategies, an Aboriginal heritage assessment should be undertaken."
- Based on the absence of listed (on statutory registers) historic heritage sites on the actual alignment, it is unlikely that a historic heritage survey will be required for the purpose of approvals. This recommendation is based on a desktop assessment only. Historic features that are not contained within statutory registers may exist in the vicinity of the proposed alignment of the cycle way.

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Appendix A

Detailed Results and Methodology for EnviroAssist

pitt&sherry ref: LN12120 H001 EnviroAssist Rep 31P RevA/DT/rw

Results with 500 m Buffer

Assessment	Total Number of Features	Feature Information	Data Sources	Assessment of Risks, Constraints and Issues	Metadata/Limitations	Data Download Date
Threatened flora (point data)	1	1 x *Pimelea curviflora* var. *gracilis* (slender curved riceflower), Point (449007,5436348) +/- 10m., Location description: River Road (slope above), near Latrobe, Individual count: 10 (90% adults, 10% juveniles), Area: 9m^2, Occurring in the *Eucalyptus obliqua* dry forest and woodland	Natural Values Atlas	In relation to flora species listed under the *Threatened Species Protection Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999*.	http://asdd.ga.gov.au/asdd/tech/zap/advanced-full.zap?&target=tas-1&syntax=html&field1=any&field2=any&field3=any&field4=&field5=&field6=anzlic%5Fsearch%5Fword&term1=threatened&term2=&term3=&term4=&term5=&term6=&term7=&op2=and&op1=and&start=7&number=1	24 February 2012
Threatened vegetation	8	2 x records of wetlands (AWU) 3 x records of *Eucalyptus ovata* forest and woodland (DOV) 3 x records *Melaleuca ericifolia* swamp forest (NME)	Natural Values Atlas	In relation to communities listed as threatened under Schedule 3A of the *Nature Conservation Act 2002* and ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999*.	Threatened Vegetation is a derivation of TASVEG (the State wide vegetation map) supplied by Information and Land Services, DPIPWE. Metadata (TASVEG): http://asdd.ga.gov.au/asdd/tech/zap/advanced-full.zap?&target=tas-1&syntax=html&field1=any&field2=any&field3=any&field4=&field5=&field6=anzlic%5Fsearch%5Fword&term1=tasveg&term2=&term3=&term4=&term5=&term6=&term7=&op2=and&op1=and&start=1&number=1	30 March 2011

Assessment	Total Number of Features	Feature Information	Data Sources	Assessment of Risks, Constraints and Issues	Metadata/Limitations	Data Download Date
Threatened fauna (point data)	28	18 x *Prototroctes maraena* (Australian grayling), observation records from the upper Mersey River 3 x *Tyto novaehollandiae* subsp. *castanops* (masked owl) observation records 2 x *Ceyx azureus* subsp. *diemenensis* (Tasmanian azure kingfisher), observation records 3 x *Haliaeetus leucogaster* (white-bellied sea-eagle), RND Nest # 853, RND Nest # 532, 1 observation record 1x *Litoria raniformis* (green and gold frog), observation records 1 x *Sarcophilus harrisii* (Tasmanian devil), roadkill observation record	Natural Values Atlas	In relation to fauna species listed under the *Threatened Species Protection Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999*.	http://asdd.ga.gov.au/asdd/tech/zap/advanced-full.zap?&target=tas-1&syntax=html&field1=any&field2=any&field3=any&field4=&field5=&field6=anzlic%5Fsearch%5Fword&term1=threatened&term2=&term3=&term4=&term5=&term6=&term7=&op2=and&op1=and&start=4&number=1	24 February 2012

Assessment	Total Number of Features	Feature Information	Data Sources	Assessment of Risks, Constraints and Issues	Metadata/Limitations	Data Download Date
Threatened fauna (based on core habitat mapping)	2	1x *Tyto novaehollandiae castanops* (Masked Owl) 1x *Lathamus discolor* (swift parrot)	Natural Values Atlas	In relation to core habitat for fauna species listed under the *Threatened Species Protection Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999*.	http://asdd.ga.gov.au/asdd/tech/zap/advanced-full.zap?&target=tas-1&syntax=html&field1=any&field2=any&field3=any&field4=&field5=&field6=anzlic%5Fsearch%5Fword&term1=threatened&term2=&term3=&term4=&term5=&term6=&term7=&op2=and&op1=and&start=3&number=1	30 March 2011
Weeds (Introduced Watch List)	11	1x *Ulex europaeus* (Gorse) 5 x *Cortaderia* sp. (pampas grass) 5x *Chrysanthemoides monilifera* subsp. *monilifera* (boneseed)	Natural Values Atlas	In relation to the *Weed Management Act 1999*	http://www.thelist.tas.gov.au/asdd/ANZTA0015000084.html	24 February 2012
Geoconservation	0	NA	Tasmanian Geoconservation Database V7.0	In relation to sites of geoconservation significance and sensitivity of disturbance to these sites.	http://asdd.ga.gov.au/asdd/tech/zap/advanced-full.zap?&target=tas-1&syntax=html&field1=any&field2=any&field3=any&field4=&field5=&field6=anzlic%5Fsearch%5Fword&term1=geoconservation&term2=&term3=&term4=&term5=&term6=&term7=&op2=and&op1=and&start=2&number=1	7 September 2011

Assessment	Total Number of Features	Feature Information	Data Sources	Assessment of Risks, Constraints and Issues	Metadata/Limitations	Data Download Date
RAMSAR wetlands	0	NA	LIST Ramsar Wetlands	In relation to listed RAMSAR sites.	http://asdd.ga.gov.au/asdd/tech/zap/advanced-full.zap?&target=tas-1&syntax=html&field1=any&field2=any&field3=any&field4=&field5=&field6=anzlic%5Fsearch%5Fword&term1=ramsar&term2=&term3=&term4=&term5=&term6=&term7=&op2=and&op1=and&start=1&number=1	29 March 2011
Reserve estate	0	NA	LIST Reserve Estate	In relation to reserved areas identified.	http://asdd.ga.gov.au/asdd/tech/zap/advanced-full.zap?&target=tas-1&syntax=html&field1=any&field2=any&field3=any&field4=&field5=&field6=anzlic%5Fsearch%5Fword&term1=reserve&term2=&term3=&term4=&term5=&term6=&term7=&op2=and&op1=and&start=2&number=1	28 February 2011
Public land classification	13	13 x Public Reserve (River Reserve) *Crown Lands Act 1976*	LIST Public Land Classification	In relation to land identified.	http://asdd.ga.gov.au/asdd/tech/zap/advanced-full.zap?&target=tas-1&syntax=html&field1=any&field2=any&field3=any&field4=&field5=&field6=anzlic%5Fsearch%5Fword&term1=public%20land&term2=&term3=&term4=&term5=&term6=&term7=&op2=and&op1=and&start=1&number=1	27 April 2012

Assessment	Total Number of Features	Feature Information	Data Sources	Assessment of Risks, Constraints and Issues	Metadata/Limitations	Data Download Date
Aboriginal heritage	0	NA	Aboriginal Site Index (TASI) site request	In relation to already registered TASI sites.	Not provided	AHT consulted on 13 June 2012 - See Appendix B
Local historic heritage	0	NA	Schedule 2 of the *Latrobe Planning Scheme No. 1 of 1994* Schedule 5 of the *Devonport and Environs Planning Scheme 1984*	In relation to already registered sites at a local level.	This is checked in relation to the listings identified under the relevant Scheme. Some sites are not well defined and ambiguous.	Scheme checked on 5 June 2012
State historic heritage	1	Frogmore, 637 Mersey Main Road, Latrobe, 7307, Title reference: 36301/1, PID 7507111	Tasmanian Heritage Register	In relation to already registered sites at the State level.	Not provided	30 August 2011

Assessment	Total Number of Features	Feature Information	Data Sources	Assessment of Risks, Constraints and Issues	Metadata/Limitations	Data Download Date
National heritage	0	NA	World Heritage Areas Commonwealth Heritage List Spatial Database National Heritage List Spatial Database	In relation to already registered sites at a National level.	http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId=%7B6C54FE6C-2773-47C6-8CBC-4722F29081EF%7D&loggedIn=false http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId=%7B0E1C1328-465A-4E6A-9EC1-60A16D0A30CF%7D&loggedIn=false http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId=%7B4E0D1183-BAB8-4E4C-901E-10B75396D5B5%7D&loggedIn=false	24th February 2012
Agricultural land	2	2 x Land Class value ≤ 3	Land Capability Data (Land Class value ≤ 3)	In relation to the *State Policy on the Protection of Agricultural Land 2009*	Not provided	16th September 2008

Assessment	Total Number of Features	Feature Information	Data Sources	Assessment of Risks, Constraints and Issues	Metadata/Limitations	Data Download Date
Acid sulfate soils	24	13 x Coastal acid sulfate soils, 11 x Marine subaqueous and intertidal acid sulfate soils All have a high probability of occurrence (>70% chance of occurrence in mapping unit).	Inland Areas of Tasmania with potential to contain Acid Sulfate Soil Coastal areas of Tasmania with potential to contain Acid Sulfate Soil Marine Subaqueous and Intertidal areas of Tasmania with potential to contain Acid Sulfate Soil Sampling Sites of Coastal areas of Tasmania with potential to contain Acid Sulfate Soil	In relation to areas of the state with the potential to contain acid sulphate soil.	http://www.thelist.tas.gov.au/asdd/ANZTA0015000078.html http://www.thelist.tas.gov.au/asdd/ANZTA0015000077.html http://www.thelist.tas.gov.au/asdd/ANZTA0015000079.html http://www.thelist.tas.gov.au/asdd/ANZTA0015000083.html	1st December 2009
Geohazards	7	1 x Recent or active landslide 5 x Possible landslide 1x Landslide (Jurassic dolerite and dolerite talus, steep south-west facing slopes)	Landslide point Landslide line Landslide area Proclaimed Landslip A and B areas [Mineral Resources Tasmania]	In relation to mass wasting hazards in the form of landslides and karst subsidence.	http://www.mrt.tas.gov.au/portal/page?_pageid=35,839627&_dad=portal&_schema=PORTAL	27th April 2012

Assessment	Total Number of Features	Feature Information	Data Sources	Assessment of Risks, Constraints and Issues	Metadata/Limitations	Data Download Date
Phytophthora management areas	0	NA	Pc management zones 03_GDA_regions [Department of Primary Industries, Parks, Water and Environment]	In relation to the conservation of Tasmanian plant species and communities threatened by *Phytophthora cinnamomi*.	Schahinger, R., Rudman T., and Wardlaw, T. J. (2003). *Conservation of Tasmanian Plant Species & Communities threatened by Phytophthora cinnamomi. Strategic Regional Plan for Tasmania.* Technical Report 03/03, Nature Conservation Branch, Department of Primary Industries, Water and Environment, Hobart.	24th January 2012

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Appendix B

Response from Aboriginal Heritage Tasmania

pitt&sherry ref: LN12120 H001 EnviroAssist Rep 31P RevA/DT/rw

Response from Aboriginal Heritage Tasmania

Please find attached map of the TASI search.

I have gone through all the records and reports and I have been unable to find any reports of surveys that have been conducted on this area. I have found one report which covers the general area; however there is no mention of the river bank area being surveyed. Therefore AHT would recommend an Aboriginal Heritage Assessment being undertaken, prior to a cycling track being constructed.

AHT believe that there is a moderate to high risk of Aboriginal Heritage being impacted during this development; therefore to avoid any impacts and provide mitigation strategies, an Aboriginal Heritage Assessment should be undertaken.

Thanks

Karen

Karen McFadden
Senior Archaeologist

Aboriginal Heritage Tasmania
Department of Primary Industries, Parks, Water and Environment
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www.aboriginalheritage.tas.gov.au

The attachment in the response from AHT:

N

GDA94 - Zone 55

Devonport City Council

Cycleway Mersey River

Produced by Karen McFadden - Aboriginal Heritage Tasmania

Printed on 13/06/2012

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Appendix E

Pitt & Sherry
Geotechnical Report - 2012

pitt&sherry ref: DV17103d001 Latrobe Rep 31P Rev00.DOCX/BJH/tn

Geotechnical Report:

Devonport City Council Proposed Cycle Way

Prepared for:	Devonport City Council
Date:	June 2012 RevB

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Table of Contents

Prepared by: _____ **Date:** 18 June 2012
Drew Bedelph and David Oldmeadow

Reviewed by: _____ **Date:** 18 June 2012
Derek Pennington

Authorised by: _____ **Date:** 18 June 2012
Peter Douglas

Report Revision History					
Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date

pitt&sherry ref: LN12120 H001 Geotech Rep 31P RevB.docx/DT/rw

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1. Introduction

Devonport City Council (DCC) has tendered for geotechnical and environmental services for a proposed cycle way in northern Tasmania.

DCC requires any geotechnical or environmental issues to be identified for the proposed cycle way.

This technical report has been prepared for the proposed alignment of the cycle way which is depicted below in Figure 1.

The proposed cycle way alignment follows the bank of the Mersey River for a distance of approximately 3.8km. Starting at the weir at Bells parade, the first 600m follows the alignment of an existing historic pavement which is approximately 4 - 6 m lower than River Road.

However, from 0.6 to 3.8 km it is understood that land reclamation extending approximately 10m into the Mersey River will be required and the cycle track will be placed on this reclaimed ground. This section of the cycle way traverses a number of headlands and bays, indicating varying geology and/or erosion history along the alignment.

2. Approach

In this report, the geotechnical risks, constraints and issues for the proposed cycle way are considered.

The following approach was taken:

- Site walkover
- Aerial photograph interpretation of the Mersey River along the proposed alignment, using photographs from 1946, 2009 and 2010. This allows for comment on changes in depositional and erosional patterns and geomorphological features.
- A detailed search of the landslide register for the area as depicted in the Tasmanian landslide map series for Devonport, shallow slide and flow susceptibility Map 5.

3. Mersey River Channel Estuary and Fluvial Environment

3.1 Background Information

The proposed cycleway extends along the right hand bank of the Mersey River as shown in Figure 1.

This section of the Mersey is characterised as a meso-tidal river estuary[1] (estuary zones 1 to 3 in figure 1), and a river delta in the upper part.

The meso-tidal river estuary is characterised by three main zones[2]; zones 1 and 2 consist of extensive mudflats, with water depths at low tide ranging from

[1] Edgar, G.J., Barrett, N.S. and Graddon, D.J., 1999, A classification of Tasmanian estuaries and assessment of their conservation significance using ecological and physical attributes, population and land use. Tasmanian Aquaculture and Fisheries Institute Technical Series Report 2.
[2] R.J. Murphy, C.M. Crawford and L. Barmuta, 2003, Estuarine health in Tasmanian, status and indicators: Water quality, Tasmanian Aquaculture and Fisheries Institute.

approximately 2 to 5 metres within zone 2, and 1 to 2 metres within zone 1. Zone 3 is predominantly an artificial rock wall with a channel over 10 metres deep.
The proposed cycleway route extends along the bank of the river delta zone, and river estuary zones 1 and 2 (see Figure 1).

The Mersey River estuary is identified as being of low conservation significance[3]. The National Land and Water Resources Audit identified the Mersey River estuary as being an extensively modified, wave dominated estuary[4], and it has been classified as being severely altered from natural condition[5].

3.1.1 Key Events

- A port was established in 1855, at the site that is now known as Bells Parade, the start of the proposed cycleway, which formed the main port for the wider region at this time. For a period in the 1880's it was the second major trading port in northern Tasmania. The port had to be regularly maintained against the accumulation of silt in the river, as a result of land clearing and farming upstream.

- In the 1890s the port was no longer viable, and was closed[6].

- In 1968 Parangana Dam was built as part of the Mersey Forth Power Development, to divert water from the Mersey River into the Forth River valley. This caused a significant reduction in the flow of the Mersey River at Liena.

- In 1999 Hydro Tasmania agreed with the Department of Primary Industries Water and Environment (DPIWE) that it would increase the riparian discharge from Parangana Dam, in order to maintain a minimum `environmental' flow in the Mersey River.

- Comparison of the average recurrence intervals under 'natural' (pre 1968) and current conditions (including current 'environmental' flow conditions) shows that the peak discharges that occur every 2, 5, 10, 20, 50 and 100 years are almost identical. Parangana Dam has had little effect on the occurrence of high magnitude flood events[7,8].

- 24 August, 1970, Record flooding occurred in the Mersey River. One fatality was recorded and damage estimated in excess of $5m[9].

- 27 March, 1977, Major flooding occurred in the north-west, leaving 4 houses at Penguin and 14 at Latrobe inundated with mud[10].

---

[3] Edgar, G.J., Barrett, N.S. and Graddon, D.J., 1999, A classification of Tasmanian estuaries and assessment of their conservation significance using ecological and physical attributes, population and land use.
[4] National Land and Water Resources Audit, 2002, Australian Natural Resources Atlas - Water Resources Allocation and Use
[5] Conservation Freshwater Ecosystem Values database (http://www.dpiw.tas.gov.au/internnsf/WebPages/CGRM-7JHVSJ?open).
[6] 2004, SKM, Mersey River Precinct Study.
[7] DPIWE, 1997, State of River Report on the Mersey River, Flow Study.
[8] DPIWE, 2005, Mersey Water Management Plan.
[9] Australian bureau of statistics (http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/1301.6Feature%20Article32000?opendocument&tabname=Summary&prodno=1301.6&issue=2000&num=&view=)
[10] Australian bureau of statistics (http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/1301.6Feature%20Article32000?opendocument&tabname=Summary&prodno=1301.6&issue=2000&num=&view=)

3.2 Current Conditions

The proposed cycle way alignment runs along the right hand bank of the Mersey River for a distance of approximately 3.8 km. The route travels through two distinct channel morphologies, a large open meso-tidal river estuary for first 3200 metres, and a small river delta for the last 600 metres.

The last 600m of the proposed route follows alongside the right bank of a narrow channel, approximately 20 metres wide, that forms the divide between the main land and Pig Island. At the southern end of Pig Island there are a number of small vegetated islands, channels and backwater environments. The delta area at this location is approximately 300-400 metres wide.

Together with Ballahoo Island, Snag Creek and Ballahoo Creek to the west, the area forms a series of tidal mud flats, channels and vegetated islands that form the head of the meso-tidal river estuary proper. The mud flats, exposed at low tide, extend into the estuary for approximately 400 metres from the vegetated islands.

The river estuary widens significantly north of the river delta area, to approximately 1km wide. The estuary is dominated by extensive mudflats and islands on the left, and a deep water channel towards the right, near River Road.

The estuary shore line along the right bank, the proposed cycle way alignment, is characterised by shallow bays and headlands. Tidal mud flats are associated with the small bays. The main channel is only in close proximity to River Road in the vicinity of the sewage treatment plant, in the upper sections of the meso-tidal river estuary proper.

Table 1 shows riverine landscape features along the proposed cycleway.

Bank erosion, and protection, was evident in both the upper river delta zone and the meso-tidal river estuary zone (Table 1). It is likely that the erosional processes differ in the two zones, with fluvial forces dominating in the narrow channel of the river delta zone, and aeolian processes and wave action dominating in the estuary zone. Where the main estuary channel is in close proximity to the right bank near the sewage treatment plant, a mix of erosive processes may be operating.

Table 1 Riverine landscape along the proposed cycleway

	
Bank erosion along path in upper river delta zone of proposed cycle way.	Failing bank protection in upper river delta zone of proposed cycle way.

Main channel abutting bank in upper sections of the meso-tidal river estuary zone.

Bank erosion along right bank of the meso-tidal river estuary zone.

Shallow depositional area within a bay in the meso-tidal river estuary zone. Main channel to right of photograph.

Shallow depositional area within meso-tidal river estuary zone. Bank protection in form of rock rip rap to the left of the photograph.

3.3 Historical Change

Aerial photograph interpretation allows for the analysis of photographs that have been taken in the past that can be contrasted with more recent photos. This can give an insight into how a particular feature, or set of features, has altered, either though anthropogenic influences, natural events, or both.

Aerial photographs of the Mersey River over the proposed cycleway route were obtained from the Geodata Services Branch, Information & Land Services Division, Dept. of Primary Industries Parks, Water & Environment, the Devonport Council and Latrobe Council, for the years 1946, 2009 and 2010.

The 1946 photograph covers the entire proposed cycleway except the very start of the route at Bells' Parade.

The 2009 photograph extends from approximately half way along the proposed cycleway to the northern end, with the 2010 photograph covering the beginning of the cycleway at the southern end to approximately halfway along. For the interpretation, the 2009 and 2010 photographs were combined, with a small length of bank along the proposed cycleway, approximately 310 metres, not represented by the photographs, and hence not included in the interpretation.

Glare was a limiting factor in some areas of the photographs making it difficult to view features, such as channels and depositional zones below the water surface. It was an issue in the northern part of the 1946 photograph and part of the southern area of the 2010 photograph. The photographs were also taken during differing tidal periods.

Where glare was not an issue the mudflats, normally exposed at low tide, could be seen and delineated underwater.

ArcMap software was used to geo-reference and bind the coordinates together, to create a mosaic of images. The key geomorphic features of the 1946 and the 2009 and 2010 combined series were digitised. The 1946 image represents the earliest available image of the area, and provides a reference point from which to assess the level of change in the system over a 63 year period.

The following error levels (RMS error) were associated with the geo-referencing:

- RMS error for the 1946 photograph was 5.8 metres
- RMS error for the 2010 photograph was 1.15 metres
- RMS error for the 2009 unknown (photograph was already geo-referenced)

The following key points were noted (see Figures 2, 3 and 4):

- Overall there has been little change to the system over the 63 year period, which includes the construction of a Dam on the Mersey River, diversion of flows, and two record flood events. The 1946 system is generally as described in section 3.2.
- The size and alignment of the river delta channel that forms the divide between Pig Island and the main land, along which the cycleway is planned, and the general location of the mud flats and position of the deep water channel in relation to the right bank in the meso-tidal estuary proper, has remained largely unchanged over the 63 year period.
- There have however been slight alterations in the alignment of the right bank along which the cycleway is planned, near the small headlands that extend into the meso-tidal estuary (see Figure 1). These changes appear to be localised and real, not an artefact of geo-referencing error. The cause of these alterations is unknown, but may be a result of both natural erosional/depositional processes and anthropogenic disturbances, such as localised fill and land reclamation.
- The greatest level of alteration in the system is associated with the mudflat system and vegetated land on the western side of the meso-tidal estuary. There has been a small reduction in useable/agricultural land on this side of the estuary, as indicated by a retreat in vegetation and conversion of agricultural land and vehicle tracks (observed in the 1946 photograph) into mud flats (where the alignment of old vehicle tracks is still apparent, Figure 3).
- Small areas of land reclamation have also occurred since 1946, converting mudflats into useable terrestrial land surfaces on the western side of the meso-tidal estuary (Figure 3).
- The small amount of land retreat since 1946 maybe due to a reduction in sediment supply and disruption to sediment transport continuity along the Mersey river system.

3.4 Issues of Relevance to Proposed Cycle Way

- The proposed cycleway will result in a small loss of depositional, mud flat area due to potential land reclamation along the meso-tidal estuary section. The impact on sediment dynamics within the system however is expected to be negligible to none.
- The right bank along which the proposed cycle way is planned is not prone to adjustment, except with the possibility of localised adjustment around the small headlands. Note, the cause of the localised channel alignment since 1946 in the vicinity of the headlands is not known. Comment therefore cannot be made on the potential for future adjustment in these areas.

- Erosion on the right hand bank was noted within the meso-tidal estuary and river delta areas. The processes of erosion likely differ in these two areas, with fluvial forces acting on the banks in the narrow channels within the river delta area, and wind and wave attack acting on the banks in the meso-tidal estuary proper.
- The key area for consideration is the right bank of the upper estuary, immediately downstream of the river delta zone, where the deep water channel abuts the bank (see Figures 1 & 3). Any reclamation of the channel in this area will involve large amounts of material, which will be exposed to fluvial erosive forces during large flood events, and potentially wind and wave attack during certain storm events. Depending on the amount of deep water channel reclaimed, it may also cause some reworking of the mudflats to the west of the channel, possible resulting in mobilisation and transport of sediment, and localised loss of mud flat area. This mudflat area would potentially need to be considered in any acid sulfate soil assessment undertaken (see below).

4. Geological and Geotechnical Conditions

4.1 General

The assessment of geological and engineering aspects of the proposed development has been based primarily on information obtained from the detailed site walkover, which was conducted over the course of two days in May 2012.

The walkover was undertaken by Drew Bedelph, Engineering Geologist from **pitt&sherry**'s Hobart office, in the company of Ian Cute from Devonport City Council, and comprised the mapping of topographic, geological and structural features along the 4km length of the proposed cycleway route.

4.2 Site Walkover Findings

The findings of the site walkover are summarised in Table 2 below, which incorporates information on geology, indicative slope angles, identified geotechnical issues and an assessment of likely fill depths.

Table 2 Summary of Findings

Chainage Interval (m)	Geology	Indicative Slope Angle (deg)	Anticipated Fill Depth Range (m)	Identified Geotechnical Issues
3940 - 3060 (walking track)	Colluvium/ sandstone	-	Localised filling only required	- Erosion/scour - Inundation - Unstable areas upslope of track - Poor drainage conditions
3060 - 2600 (River Road)	Dolerite/ Sandstone	30 with locally steeper zones	Up to 10	- Large fill volumes required - Presence of soft sediments at toe of fill embankment - Erosion/Scour
2600 - 1850 (River Road)	Sandstone/ Dolerite	Sub-vertical (erosion)	0-2	- Erosion/scour
1850 - 1050 (River Road)	Dolerite/ Weathered Dolerite/ Sandstone	40 with locally steeper zones	Up to 5	- Large fill volumes required - Presence of soft sediments at toe of fill

				embankment - Localised road embankment failures - Erosion/Scour
1050 - 450	Sandstone/ Dolerite	Sub-vertical (erosion)	0-2	- Erosion/scour
450 - 100	Dolerite	30-40 with locally steeper zones	Up to 10	- Large fill volumes required - Presence of soft sediments at toe of fill embankment - Erosion/Scour
100 - 0	Dolerite	-	0	- No issues identified

The existing walking track between Ch3940m and 3060m is prone to inundation and scour, as it is positioned directly adjacent the river channel, and close to water level. This is evidenced by recent failures along the edge of the river, particularly in the vicinity of the weir at Bells Parade, and recent deposition of debris above the high tide level along both sides of the channel. Two large sections of track, close to Bells Parade, have also been recently retained to prevent failure of the weak colluvial materials on the slope above the track.

From Ch3060m through to CH100m, where the cycleway is to be constructed along the river side of the existing pavement, there are recurring issues of scour and failure of over-steepened road embankments, and drainage infrastructure that would require modification or re-routing. Large volumes of fill material would be required in several sections (Ch3060m – Ch2600m, Ch1850m – Ch1050m and Ch450m – Ch100m), with batters likely to be founded either partially or wholly on soft sediments. Separate retaining structures may be necessary within these areas, in order to minimise the potential for erosion and settlement of any proposed fills.

The sourcing of suitable fill to construct the cycleway may prove difficult, given the potential volumes and coarseness required to resist the erosive forces present in the river environment. Most quarries in the Devonport region supply sub-100mm sized basalt aggregate, typically sourced from finely columnar-jointed deposits, whereas more massive (ie. Cobble to boulder) sized material would be required for the project.

4.3 Geology

The geology of the study area is shown on Figure 5, which has been adapted from the most recent series of 1:25,000 Mineral Resources Tasmania maps for the Tasmanian land area.

The study area is characterised by Jurassic aged dolerite, which underlies the majority of the proposed route between Ambleside(Ch0m) and the sewage treatment plant near Latrobe (Ch3100m). The dolerite body extends across the hill slopes to the east of the site, and stretching both south towards Latrobe and north towards Devonport, with higher elevations about Ambleside capped by Tertiary aged basalt.

Abundant exposures of dolerite were noted in road cuttings and along the foreshore adjacent River Road, with the material typically appearing moderately to extremely weathered in nature, and in places mantled by a thin (<1m) layer of loose doleritic colluvium. Consistent with the geology map, a band of extremely weathered dolerite was noted in road cuttings between Ch1250m and Ch1450m.

Despite its weathered nature, the dolerite generally appears competent and stable, with small, localised failures noted to have occurred in the overlying colluvial layer rather than the in situ dolerite material.

South of the sewage treatment plant, the site walkover revealed the dolerite to be largely obscured by deposits of Quaternary aged colluvium, ranging from less than a metre to several metres in thickness. The colluvium contains predominantly angular to subangular dolerite clasts of generally cobble to boulder size, with a matrix of sandy, low plasticity clay. The generally weak, non cohesive nature of the colluvium is best evidenced by abundant shallow failures in cuttings between the sewage treatment plant and Bells Parade, both upslope and down slope of the road.

Permian aged sandstone was noted in road cuttings between Ch880m and Ch1250m, and Ch2450 and Ch2780m, consistent with those areas indicated on Figure 5. The sandstone in these areas presents as moderately to extremely weathered, sub-horizontally bedded to weakly cross-bedded, competent material.

Despite the geology map indicating the presence of Permian aged sandstone outcrop adjacent the river in the vicinity of Bells Parade and Pig Island (Ch3270m-Ch3820m), only small exposures of sandstone were noted in cuttings along the walking track alongside the river. For the most part, the sandstone was observed to be overlain by colluvium in this area.

4.4 Geohazards

4.4.1 Landslides

The 1:25,000 scale landslide hazard maps for the Devonport-Forth region published by MRT indicate the presence of 4 'possible' landslides and 1 'active' landslide within the study area, the locations of which are shown on Figure 5.

Close examination of both the landslide hazard maps and aerial photographs shows the 4 'possible' landslides to be located about the southern extent of Ambleside, somewhat distant from the proposed cycleway route, on the moderate to steep hillslopes above and to the west of River Road. The features are difficult to distinguish on the aerial photographs and appear typically small to moderate in size, possibly related to land clearing undertaken several decades or more ago.

The single 'active' landslide within the study area is located below River Road near Ch450m of the proposed cycleway route. The small circular feature appears from both the aerial photographs and on-site inspection to have resulted from erosion and undercutting of an over steepened area of road embankment, with continued slow regression of the slope likely to occur into the future.

Interestingly, the MRT maps show no landslides having occurred in the weak, low-cohesion colluvial materials present between the sewage treatment plant and Bells Parade, despite the presence of recent small failures and creep-related features on the hillslopes above the road.

4.4.2 Acid Sulphate Soils

The study area has a high probability (>70% chance of occurrence in mapping unit) of Coastal acid sulphate soils and Marine subaqueous and intertidal acid sulfate soils (Figure 6).

Acid sulphate soils when disturbed and exposed to oxygen through drainage or excavation can produce sulphuric acid in large quantities through oxidation.

There is no legislation directly relevant to acid sulphate soils in Tasmania, however, potential impacts may come under the "general environmental duty" section of the Environmental Management and Pollution Control Act 1994, such that:

"A person must take such steps as are practicable or reasonable to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused, by an activity conducted by that person."[11]

Given that the study area has a high probability of acid sulphate soil occurrence, if the project will excavate 100m^3 of soil or sediment, or will involve the dumping or filling of land with more than 500m^3 of soil to a depth of greater than 0.5m then, a desk top risk assessment should be undertaken[12]. All disturbances to the groundwater hydrology or surface drainage patterns in coastal areas below 20 metres AHD should be investigated.

4.5 Issues of Relevance to Proposed Cycle Way

- There is evidence of erosion and / or scour along the existing river frontage, and construction of the proposed cycle path will have to consider carefully the selection and placement of materials to counter this.
- At the Latrobe end of the proposed track, there is evidence of inundation during flood / tidal events. This should be considered in the context of sea level rise and final levels of the track.
- Unstable areas both upslope and down slope of the existing road been noted between in Table 2.
- Poor drainage conditions are evident with the existing road way and upgrading these should be included in the design of the cycle way.
- Since significant reclamation is required for a large part of the proposed track, large fill volumes would be required. In producing this report, no consideration has been given to assessing the soil conditions over the lateral extent of the proposed reclamation. It is possible / likely that there is a significant depth of soft soil deposits, and these will not only settle as reclamation is carried out, but will also take a long time to settle.
- At chainage 450 there is a land slip that is likely to continue moving, resulting in settlement that may need remediation.

5. Recommendations and further work

- Consult with the EPA to determine the need to undertake a risk assessment for acid sulphate soils;
- Bank erosion is evident, and likely due to different processes, depending on location within the river delta/meso-tidal estuary system. Protection of the proposed cycle way embankments will be required. The level of protection will depend on the processes involved and location. An assessment of the potential erosive forces along the length of the proposed cycleway, and appropriate bank protection methodologies, should be undertaken;
- An assessment of channel reclamation will be required, accounting for necessary bank batters and erosion protection. This should target the upper estuary where the deep water channel abuts the bank, and in particular identify any loss or impingement to the deep water channel in this area. Depending on the potential for alteration to the deep water channel, an assessment of the potential impact of the cycleway on the mudflats to the west of the channel should be undertaken.
- Carry out probing to assess the extent and thickness of soft sediments that would underlie reclamation areas.

[11] Tasmanian Acid Sulfate Soil Management Guidelines, Department of Primary Industries, Parks, Water and the Environment Sustainable Land Use.
[12] Tasmanian Acid Sulfate Soil Management Guidelines, Department of Primary Industries, Parks, Water and the Environment Sustainable Land Use.

- Obtain bathymetric data where reclamation is required, and combine this with probing information to enable an assessment of required material volumes to be made. This is likely to be large considering this to be a project where reclamation may not be financially justifiable.
- Assess the likely cost of reclamation activities.
- Consider and compare the costs of reclamation with other options such as a lightweight jetty structure that runs for the chainages where reclamation would be significant.

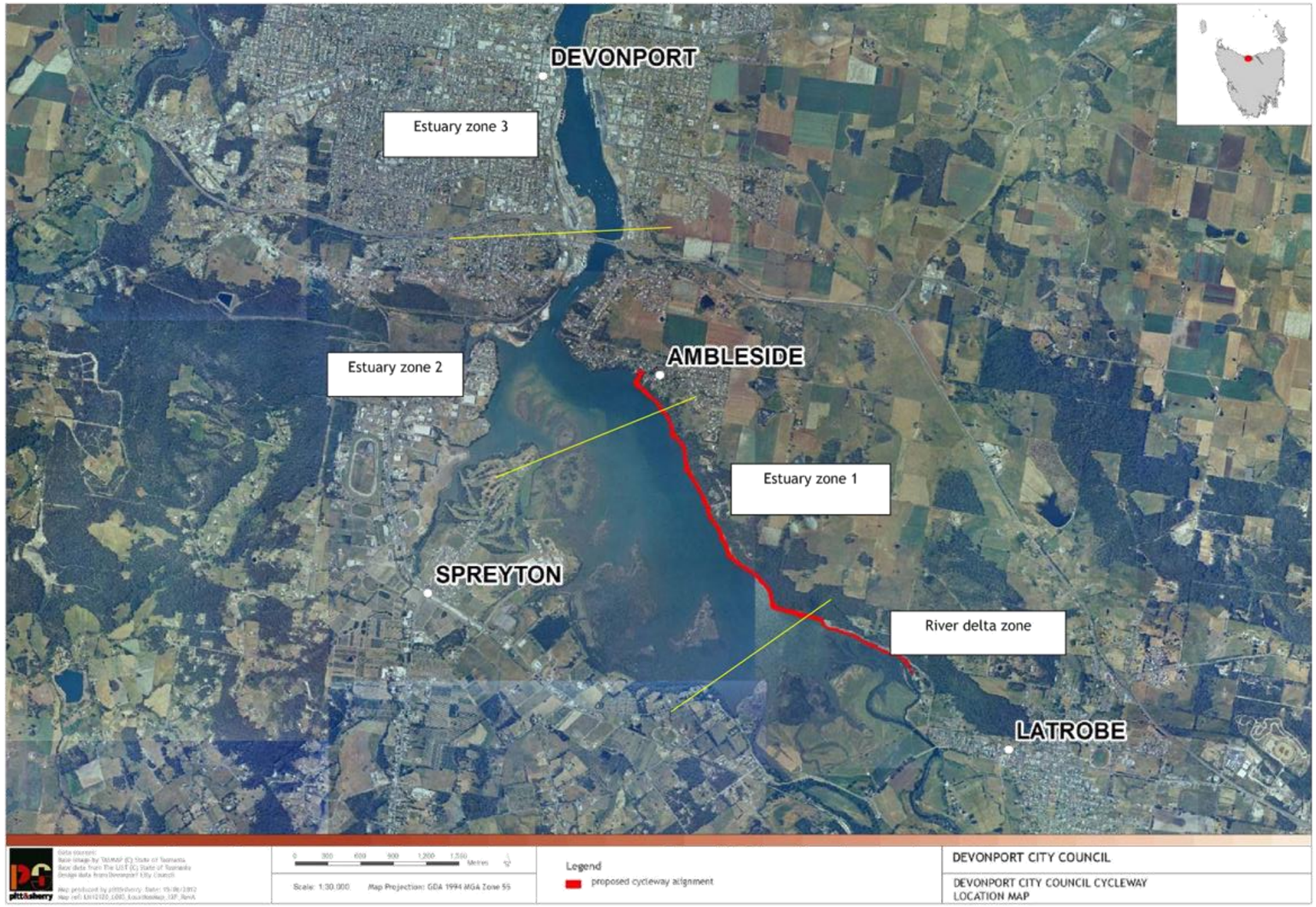

Figure 1: Location of the proposed cycle way alignment (see section 3.1 for explanation of zones)

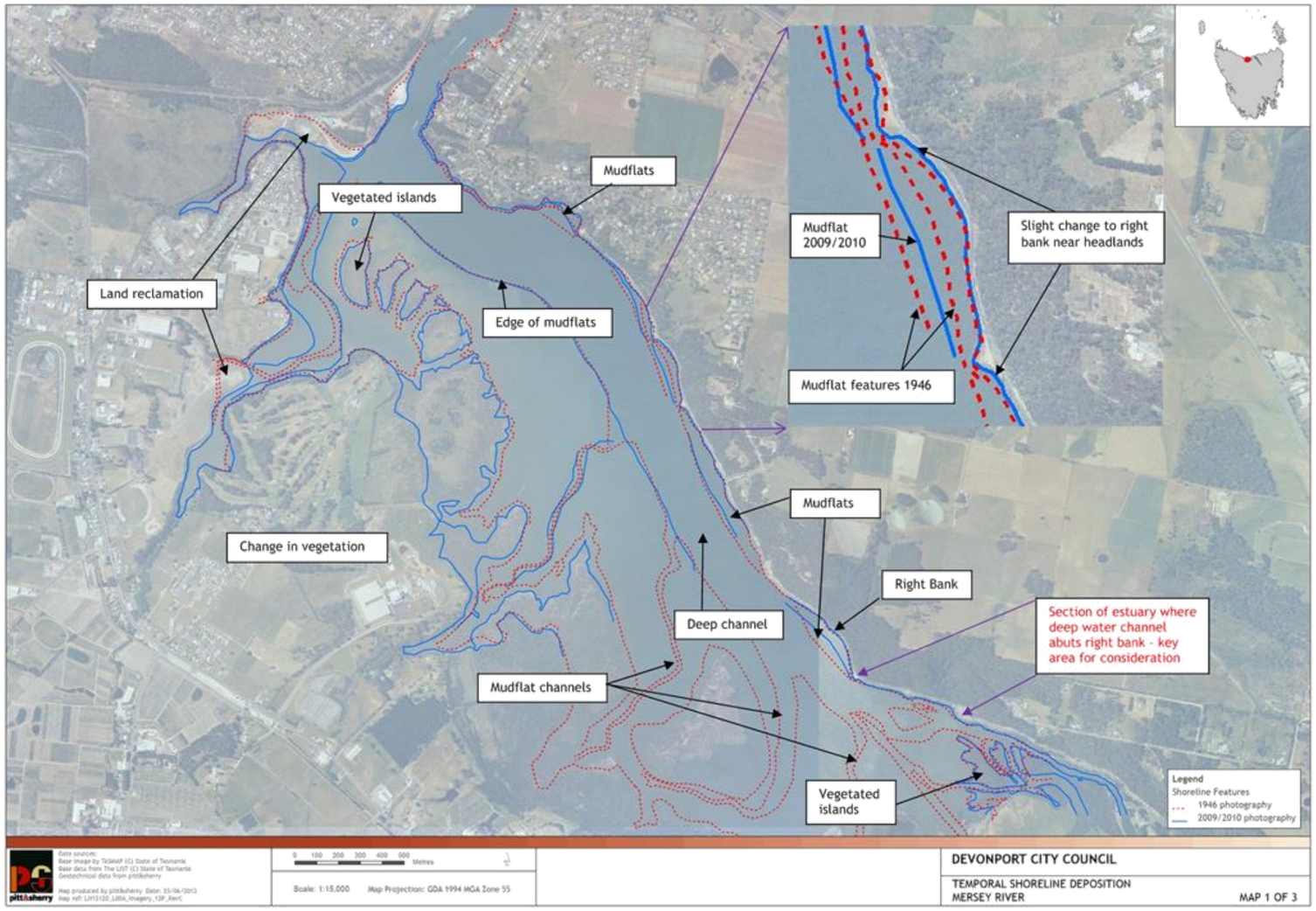

Figure 2 - Channel 1946 (Red dashed line) and 2009 (blue line north and west), 2010 (blue line south east) (Background photo is just for illustration, it was not used in the analysis)(Blue line shows extent of 2009/2010 photographs).

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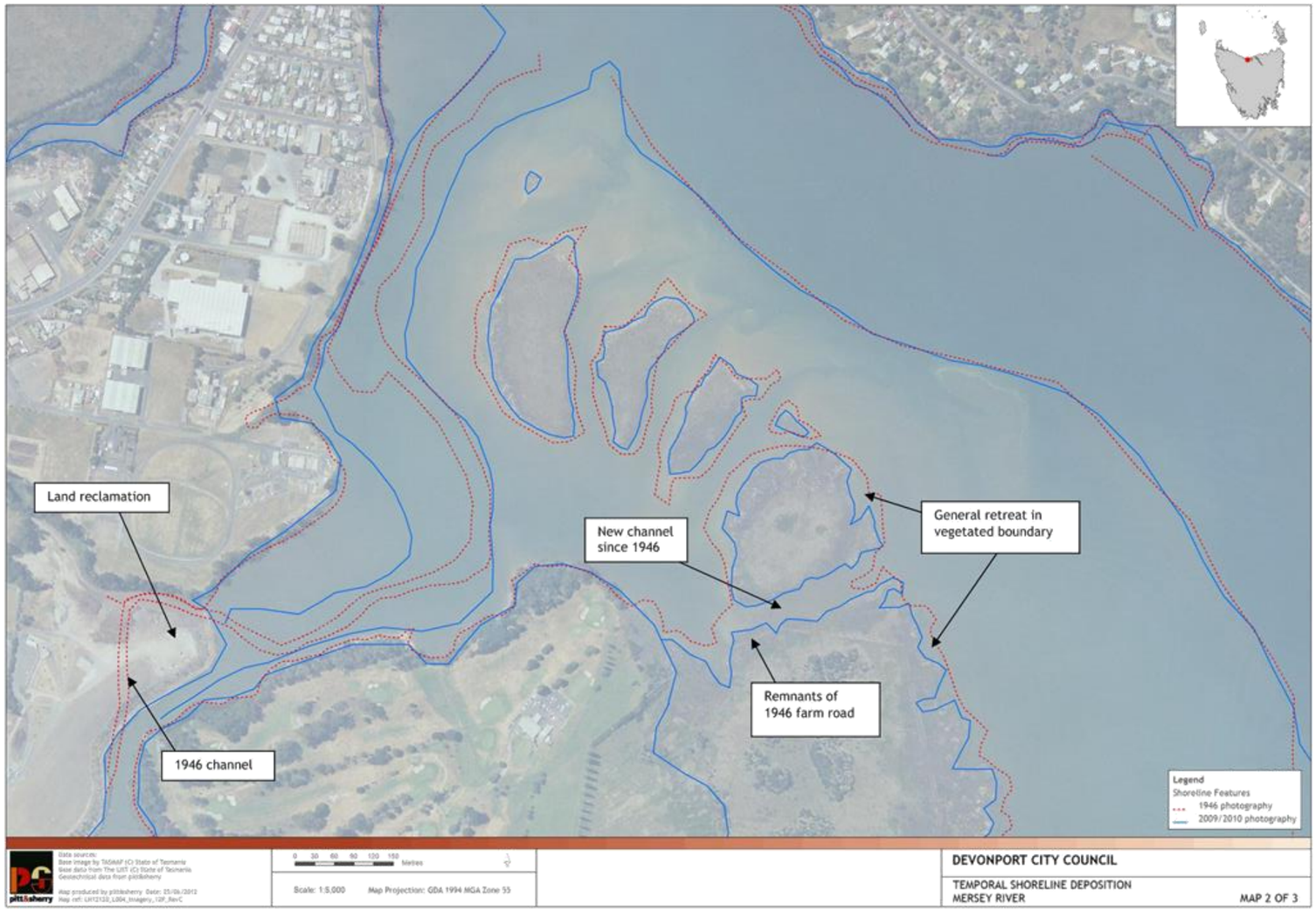

Figure 3 - Channel 1946 (red dashed line) and 2009 (blue line), northern end (Background photo is just for illustration, it was not used in the analysis).

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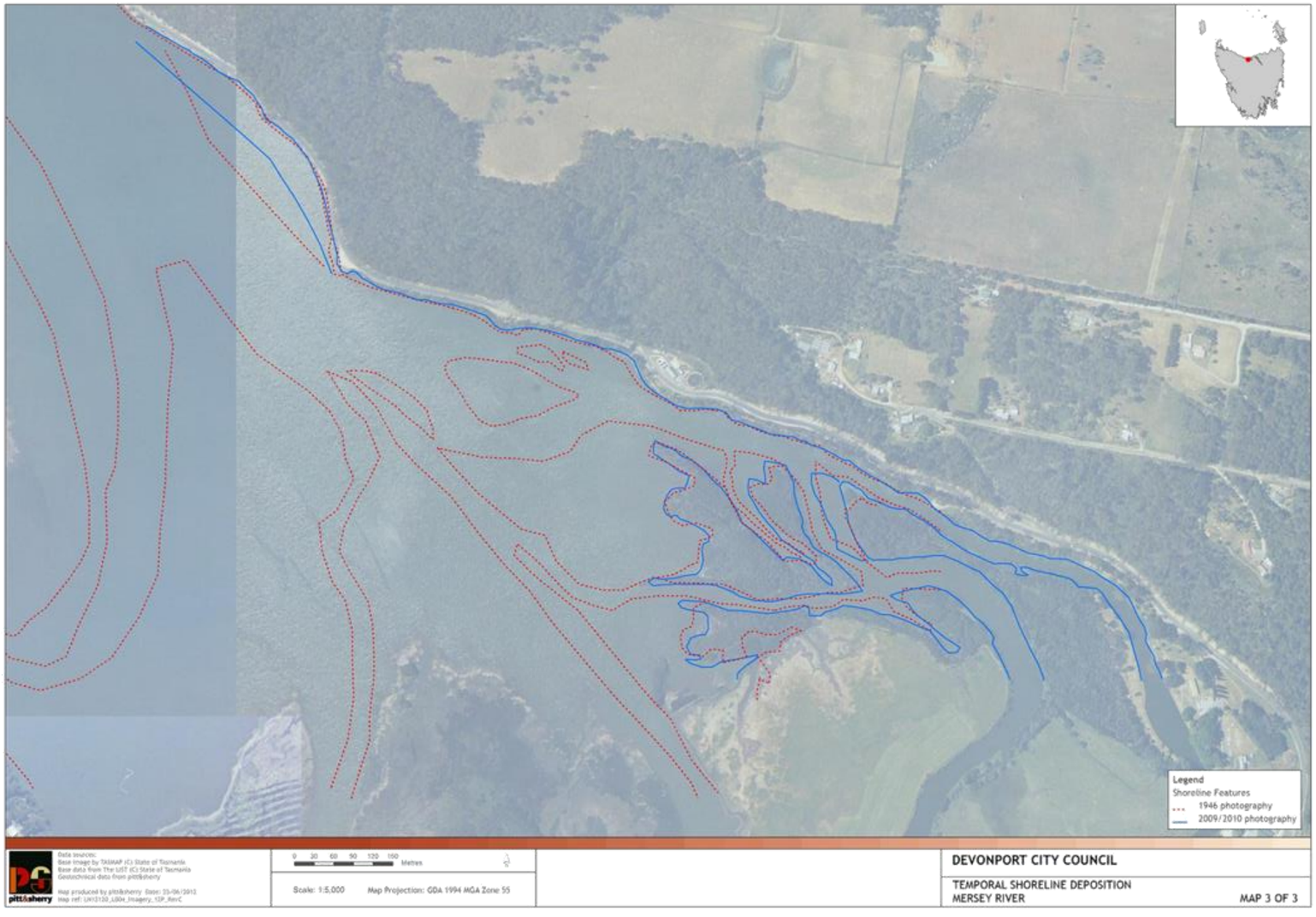

Figure 4 - Channel 1946 (red dashed line) and 2010 (blue line), southern end (Background photo is just for illustration, it was not used in the analysis) (Blue line shows extent of 2010 photograph).

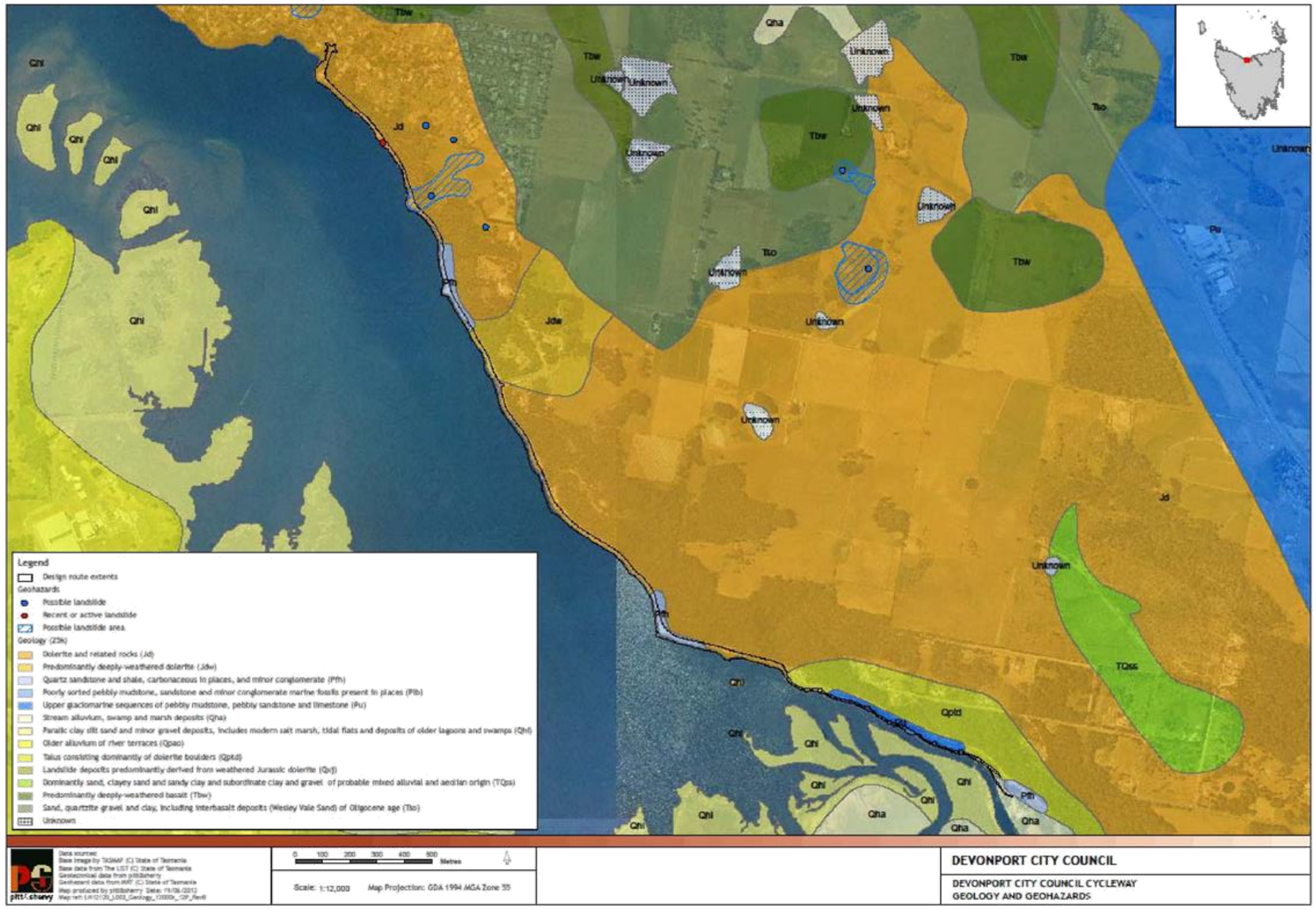

Figure 5: Geology and geohazards of the study area

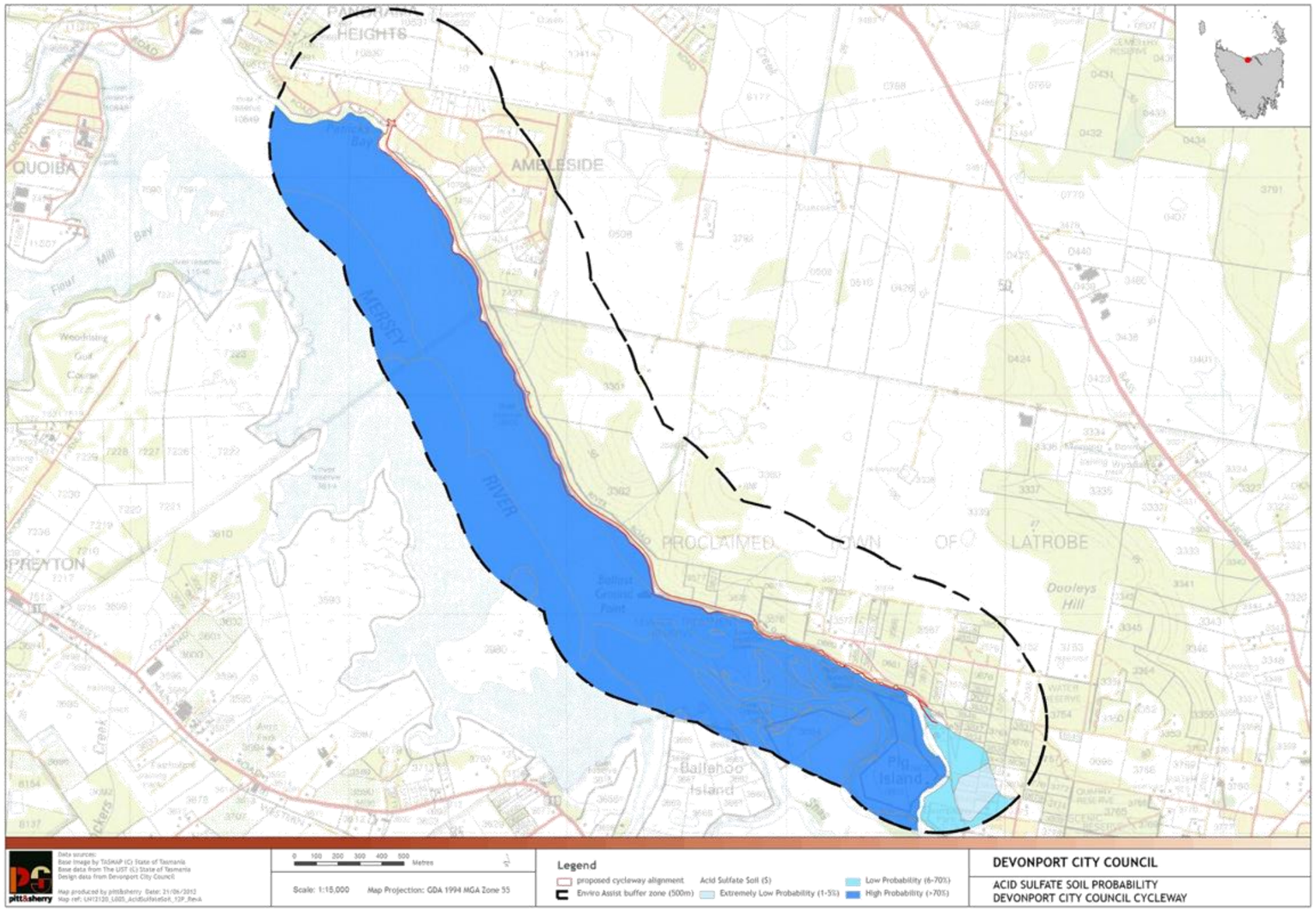

Figure 6 - Probability of Acid Sulphate Soil (within 500 m)

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5.2 NORTH WEST COASTAL PATHWAY - FUNDING OPTIONS

File: 32188 D545727

RELEVANCE TO COUNCIL'S PLANS & POLICIES
Council's Strategic Plan 2009-2030:

Strategy 2.3.1 Provide and maintain roads, bridges, footpaths, bike paths and car parks to appropriate standards

SUMMARY
This report presents the funding model for the Coastal Pathway Project and proposes options for Council to commit to funding its portion of the project

BACKGROUND
Cradle Coast Authority (CCA) completed the North West Coastal Pathway (NWCP) Plan in 2010. The NWCP Plan outlines indicative routes for 110km of path linking communities on the North West Coast. It identifies links to be constructed from Devonport to Leith to the west, Port Sorell to the east and Latrobe to the south.

In August 2017, Council agreed to contribute to the cost of a consultant to progress the project to a development ready stage. Subsequently, CCA engaged Pitt & Sherry to undertake this work.

Pitt & Sherry completed development plans for three sections of the pathway:

- Wivenhoe to Heybridge
- Penguin to Ulverstone
- Leith to Don

The development plan for Leith to Don was noted by Council at its August 2018 meeting (min IWC 32/18 refers).

At the request of the CCA project control group, a fourth development plan was completed for the link between Ambleside and Latrobe, via River Road. This plan is the subject of separate report.

Construction of the four sections would create a continuous link between Wivenhoe and Latrobe, which is a considerable step toward the original vision of a 110km path linking communities along the coast.

Federal and State Governments have committed funding to the project but require a commitment as soon as possible for the remaining funds from Councils before funds will be released.

STATUTORY REQUIREMENTS
There are no statutory requirements related to this report.

DISCUSSION
The Federal and State Governments have committed $4,800,000 each to the Coastal Pathway project, which represents two thirds of the total estimated cost of the four sections that are required for a continuous path between Sulphur Creek and Latrobe. The section from Wivenhoe to Heybridge is not included in this funding commitment.

CCA have assessed the cost estimates for the four sections included and allocated costs to each council accordingly. Based on the cost of path sections within each councils area,

the total cost to Devonport City Council would be $1,600,000. A breakdown of the project costs and funding sources is:

Section	Cost	Federal	State	Other Councils	DCC
Wivenhoe to Heybridge*	$9.6M	N/A – no confirmed funding for this section			
Sulphur Creek to Penguin**	$2.9M	$1.0M	$1.0M	$0.9M	-
Penguin to Ulverstone	$3.6M	$1.2M	$1.2M	$1.2M	-
Leith to Don	$3.9M	$1.3M	$1.3M	$0.027M	$1.273M
Ambleside to Latrobe	$3.9M	$1.3M	$1.3M	$0.973M	$0.327M
Total	**$14.3M**	**$4.8M**	**$4.8M**	**$3.2M**	**$1.600M**

A condition of the $4,800,000 Federal Government funding is that the grant must be acquitted by 30 June 2020. This means that at least one third of the project must be completed by the deadline.

A likely cashflow model would be for around 50% of the expenditure to be incurred in 2019-20 with the remaining 50% in 2020-21.

Therefore, to fund the local government funded component of the Coastal Pathway within the Devonport municipal area, Council will be required to commit $1,600,000 in its capital works program over the next two financial years (2019-20 and 2020-21).

Council's forward capital works program 2018-2023, adopted in June 2018 includes some of the required funding. Funding already available is:

Year	Project name	Budget
2019-20	Future - Prioritisation projects to be identified	$315,000
2019-20	Maidstone Park gymnastic club car park contribution*	$150,000
	2019-20 subtotal	**$465,000**
2020-21	Future - Prioritisation projects to be identified	$525,000
2020-21	Bike Riding Strategy action - River Rd link to Latrobe	$242,000
	2020-21 subtotal	**$767,000**
	Total	**$1,232,000**

Council has $1,232,000 available towards it share of the project cost in the next two financial years, leaving a shortfall of $368,000. There appears to be two options available to meet this requirement, including:

- Deferring listed projects to a total value of $368,000
- Increasing capital expenditure.

COMMUNITY ENGAGEMENT

Consultation on the Coastal Pathway project has been undertaken by various entities including CCA and the coastal pathway coalition. The sections within Devonport are included in Council's Bike Riding Strategy 2015-2020, which was released for public consultation prior to adoption. As part of the development plans, key stakeholders were engaged, with generally positive outcomes.

It is likely that there is strong community support for the project.

FINANCIAL IMPLICATIONS

Council's forward capital works program has $1,232,000 currently available in 2019-20 and 2020-21 for the Coastal Pathway project. This leaves a shortfall of $368,000 which needs to be made up to meet Council's funding commitment to the project.

During budget deliberations for the 2019-20 and 2020-21 budgets, consideration will need to be given to the best way to meet Council's funding commitment to the project.

The predicted maintenance and depreciation cost of the pathway is estimated to be $130,000 which will need to be considered from 2021-22 onwards.

RISK IMPLICATIONS

Both the options described above create a risk for Council. Deferring listed projects is likely to be opposed by supporters of those projects, while, increasing capital expenditure has an impact on Council's LTFP. However, both these risks are minor compared to the risk of missing the opportunity to have two-thirds of the funding of a major project funded externally. This would occur if Council resolved not to commit funding to the Coastal Pathway project over the next two financial years as it is likely that the Federal Government funding would be withdrawn.

The external funding component is likely to be capped, meaning cost overruns will have to be borne by Council. Cost estimates include a contingency, but if this is exceeded then there may be additional costs to Council. Establishing good project management practices within the project will minimise the risk to Council.

Construction of the project creates new assets which Council must maintain. The ongoing maintenance and depreciation costs must be considered by Council in future budgets.

CONCLUSION

The design and planning for the Coastal Pathway between Sulphur Creek and Latrobe is well advanced. The commitment of $4,800,000 from each of the Federal and State governments creates an excellent opportunity for the project to progress, provided Council commit to contributing their component. Council's component is $1,600,000 of which $1,232,000 is already available in the forward capital works program. A further $368,000 can be made available by deferring other projects or increasing Council's total capital expenditure. The preferred option can be determined during next year's budget deliberations.

ATTACHMENTS

Nil

RECOMMENDATION

That it be recommended to Council that the report of the City Engineer be noted and that:

1. Council write to the Cradle Coast Authority to confirm it will commit $1,600,000 to the Coastal pathway project in 2019-20 and 2020-21; and
2. consider necessary budget adjustments during the 2019/20 budget deliberations.

Author:	Michael Williams	Endorsed By:	Matthew Atkins
Position:	City Engineer	Position:	Deputy General Manager

5.3 PEDESTRIAN STRATEGY 2016-2021 - YEAR TWO STATUS UPDATE

File: 26157 D546143

RELEVANCE TO COUNCIL'S PLANS & POLICIES

Council's Strategic Plan 2009-2030:

Strategy 2.3.1 Provide and maintain roads, bridges, footpaths, bike paths and car parks to appropriate standards

SUMMARY

To report to Council on the progress of the actions outlined in the Devonport City Council Pedestrian Strategy 2016-2021.

BACKGROUND

Council's Pedestrian Strategy 2016-2021 (the Strategy) was adopted in December 2016.

The objective of the Strategy is to make walking in Devonport safe and convenient and to enable and encourage walking as a mode of transport.

The Strategy action plan identifies 11 actions required to achieve the objective. The Strategy is available from Council's website:

http://www.devonport.tas.gov.au/Council/Publications-Plans-Reports/Council-Plans-Strategies

STATUTORY REQUIREMENTS

There are no statutory requirements relating to this report.

DISCUSSION

Implementation of the Strategy is largely the responsibility of the Infrastructure and Works Department, with input from internal and external stakeholders.

Of the 11 actions, 1 is complete, 5 are well underway or ongoing, and 5 are yet to commence. Details of the status of each action are attached to this report.

Key developments in the last year include:

- Actions 1 & 2: Footpath compliance audits have continued in year two of the strategy. Analysis of the data collected to date has resulted in the footpath in Edward Street being renewed in 2017-18, with footpaths in Steele Street and Wenvoe Street to be renewed in 2018-19 to improve pedestrian accessibility. More projects are proposed in Council's forward capital works program.
- Action 4: The Mersey Bluff Traffic Parking and Pedestrian Study noted by Council at its August 2018 meeting (Min IWC 29/18 refers) recommends improved route signage within the precinct. Part of the $200,000 budget allocation in 2018-19 will be used to make these improvements. Further improvements will be scheduled to align with the construction of the Coastal Pathway and the Living City Waterfront Precinct.
- Action 6: Council's roads and stormwater service level document has been updated to include the path hierarchy. This allows future revision of the document to vary the maintenance service level based on the hierarchy level. For example, a CBD footpath (very high walkability) may have more stringent definitions of a defect and shorter response times to rectify the defect than those in a suburban cul-de-sac (low walkability).

- Action 11: Council delivered two projects in 2017-18 funded by the Department of State Growth's "*Safer Roads: Vulnerable Road User*" program:
    - Forth Road pedestrian crossing ($43,000)
    - Forbes Street pedestrian crossing ($48,000)

    A further two submissions have been made to the same program in 2018-19:
    - Steele Street pedestrian facilities ($80,000)
    - Valley Road pedestrian facilities ($40,000 additional to Council's allocation)

    These projects strongly align with the objective of the Strategy.

COMMUNITY ENGAGEMENT

No community engagement has been undertaken in preparation of this report. However, consultation with relevant stakeholders is undertaken as part of the investigation of pedestrian related issues and the implementation of projects when appropriate. This has occurred as part of the following projects in the previous year:

- Coles Beach/Back Beach pedestrian improvements
- Mersey Bluff pedestrian improvements

Furthermore, multiple requests and enquiries regarding footpath and other pedestrian issues are received by Council. Each request is responded to based on its merits using the Strategy as a guide.

FINANCIAL IMPLICATIONS

The audit results to date have generated many potential projects. Projects will need to be prioritised using the path hierarchy and considered as part of future budget deliberations. Council's forward capital works program includes an allocation each year to address priority projects.

RISK IMPLICATIONS

Implementation of the Strategy action plan will ensure that the pedestrian network meets the requirements of the community into the future.

CONCLUSION

Progress has been made to implement the actions listed in the Devonport City Council Pedestrian Strategy 2016-2021 since its adoption in December 2016.

ATTACHMENTS

⇩1. Pedestrian Strategy 2016-2021 - Action List - Year Two Status

RECOMMENDATION

That it be recommended to Council that the report of the City Engineer be received and Council note the status of actions listed in the Pedestrian Strategy.

Author:	Michael Williams	Endorsed By:	Matthew Atkins
Position:	City Engineer	Position:	Deputy General Manager

PEDESTRIAN STRATEGY 2016-2021 – YEAR TWO STATUS

Definitions;

OG - Ongoing – day to day tasks which are budgeted for annually

ST - Short Term – 1 to 2 years, MT Medium Term – 2 to 5 years, LT Long Term – 5 to 15 years

Resources required

A-OPEX -Annual Operational Expenditure – staffing or operational resource allocated as part of the annual plan

F-OPEX -Future Operational Expenditure – identified increased requirements for future consideration in annual allocation

F-CAPEX –Future Capital Expenditure – identified infrastructure requirements

No.	Action	Resources	Responsibility	Timeframe	Status
1	Undertake audit of existing facilities for Very High Walkability Areas High and Medium Walkability Areas Low and Very Low Walkability Areas	A-Opex	Infrastructure and Works Department	 ST – Year 1 MT – Year 2 MT – Year 3	 Underway Underway To commence 2019-20
2	Undertake gap analysis and develop prioritised works program for Very High Walkability Areas High and Medium Walkability Areas Low and Very Low Walkability Areas	A-Opex	Infrastructure and Works Department	 ST – Year 1 MT – Year 2 MT – Year 3	 Underway Underway To commence 2019-20
3	Confirm consistent naming convention for key routes including sub-routes	A-Opex	Infrastructure and Works Department and Community Services Department	ST – Year 1	Yet to commence. Likely to be incorporated with Coastal Pathway construction and branding
4	Review all route signage and develop program for improvement	A-Opex	Infrastructure and Works Department	MT – Year 2	Underway. Work is proposed at Mersey Bluff, with further work likely to be incorporated with

					Coastal Pathway construction and branding
5	Review all promotional material and develop program for improvement	A-Opex	Community Services Department	MT – Year 2	Yet to commence
6	Review service level to integrate inspection programs and intervention levels with hierarchy	A-Opex	Infrastructure and Works Department	ST – Year 1	Completed in the service level review for 2017-18.
7	Develop and implement a plan to promote a 'park and walk' program	A-Opex	Community Services Department	MT – Year 3	To commence 2019-20
8	Consider walking as a key event component when considering support or sponsorship	A-Opex	Community Services Department and General Management Department	OG	Yet to commence
9	Develop and implement a program of walking focussed initiatives	A-Opex	Community Services Department	MT – Year 2	To commence 2019-20
10	Undertake specific consultation on pedestrian issues annually	A-Opex	Infrastructure and Works Department and General Management Department	OG	Ongoing - Consultation occurred on pedestrian focused capital projects at Mersey Bluff and Coles Beach
11	Identify and pursue grants and other external funding for prioritised projects	A-Opex	Infrastructure and Works Department and Community Services Department	OG	Ongoing – part of East Devonport foreshore path upgraded as part of fitness equipment project. Two grant submissions made for $120,000 for pedestrian improvements

6.0 INFRASTRUCTURE AND WORKS BI-MONTHLY UPDATE

6.1 DEVELOPMENT AND HEALTH SERVICES REPORT

File: 29543 D544825

RELEVANCE TO COUNCIL'S PLANS & POLICIES
Council's Strategic Plan 2009-2030:

Strategy 5.4.1 Provide timely, efficient, consistent and quality services which are aligned with and meet our customers needs

SUMMARY
This report provides a summary of the activities undertaken by the Development and Health Services Department for the months of August and September 2018.

BACKGROUND
This report is provided to the bi-monthly Infrastructure, Works and Development Committee meeting to summarise the activities of the Development and Health Services Department in the preceding two months.

The Council functions undertaken by the Department are:

- Planning;
- Building and Plumbing Services;
- Environmental Health;
- Animal Control; and
- Risk and Regulatory Compliance Services.

STATUTORY REQUIREMENTS
In carrying out its activities, the Development and Health Services Department is required to ensure compliance with a substantial amount of legislation and regulation. The principal legislation administered by the Department includes the:

- *Local Government Act 1993*
- *Land Use Planning and Approvals Act 1993*
- *Building Act 2016*
- *Building Regulations 2016*
- *Public Health Act 1997*
- *Food Act 2003*
- *Environmental Management and Pollution Control Act 1994*
- *Dog Control Act 2000*
- *Devonport Interim Planning Scheme 2013*
- *Work Health and Safety Act 2012*

DISCUSSION

1. State Planning Scheme/Local Provisions Schedules

Council is continuing to progress the preparation of the draft Local Provisions Schedules (LPS). The State Government have advised all Councils that they have a desire for all LPS across the State to be lodged with the Tasmanian Planning Commission (TPC) by 30 June 2019. Council have committed to a program to have a draft LPS prepared for the TPC that is in line with the June 2019 deadline.

Once the draft LPS is prepared it will be subject to a statutory public exhibition period and assessment by the TPC.

The State Government is proposing amendments to the *Land Use Planning and Approvals Act 1993* (LUPPA) to streamline the LPS process and enable the progression of a LPS to the public exhibition phase in a timelier manner.

The current process requires the Tasmanian Planning Commission to undertake a rigorous assessment of a draft LPS against the requirements of LUPAA before the draft LPS is publicly exhibited. These legislative amendments are expected to be finalised within the next few months.

2. Building Control

The *Building Legislation (Miscellaneous Amendments) Bill 2018* has now been passed by the House of Assembly and is currently at the first reading stage in the Legislative Council.

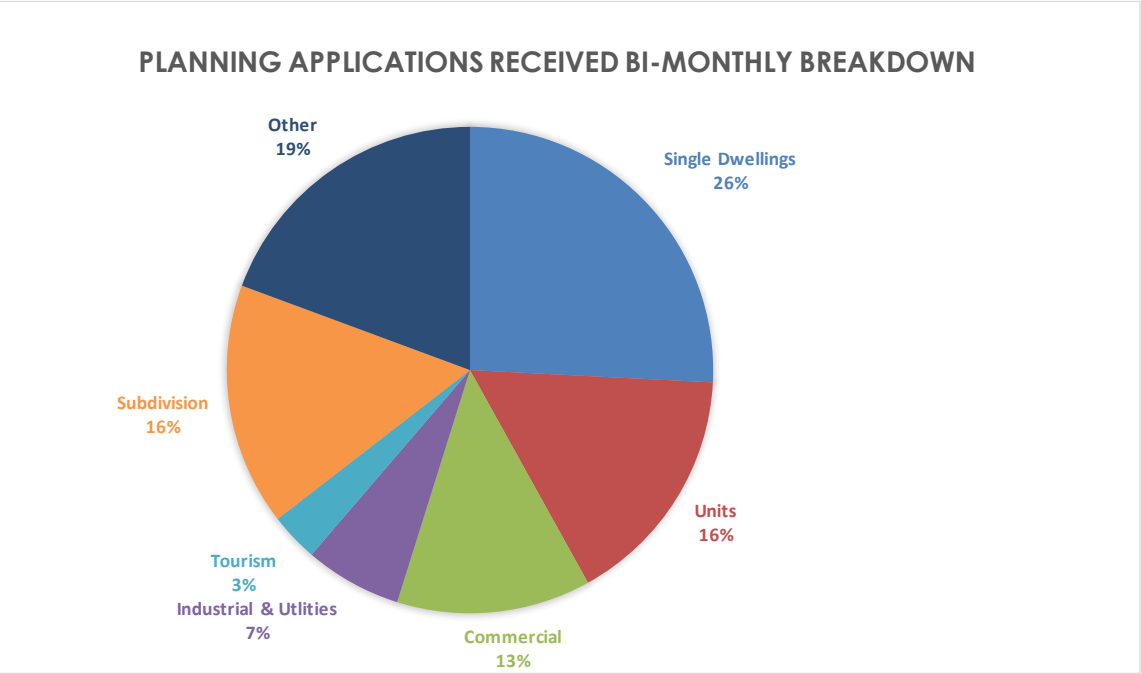
Consumer Building & Occupational Services (CBOS) hosted a Permit Authority Forum. The forum provided advice and information on the following:

Extension of time for Expiring Building Permits to allow for completion of outstanding building and plumbing works. Existing Building and Plumbing Permits that were issued prior to 2017 without an expiry date are now valid until 31 December 2018.

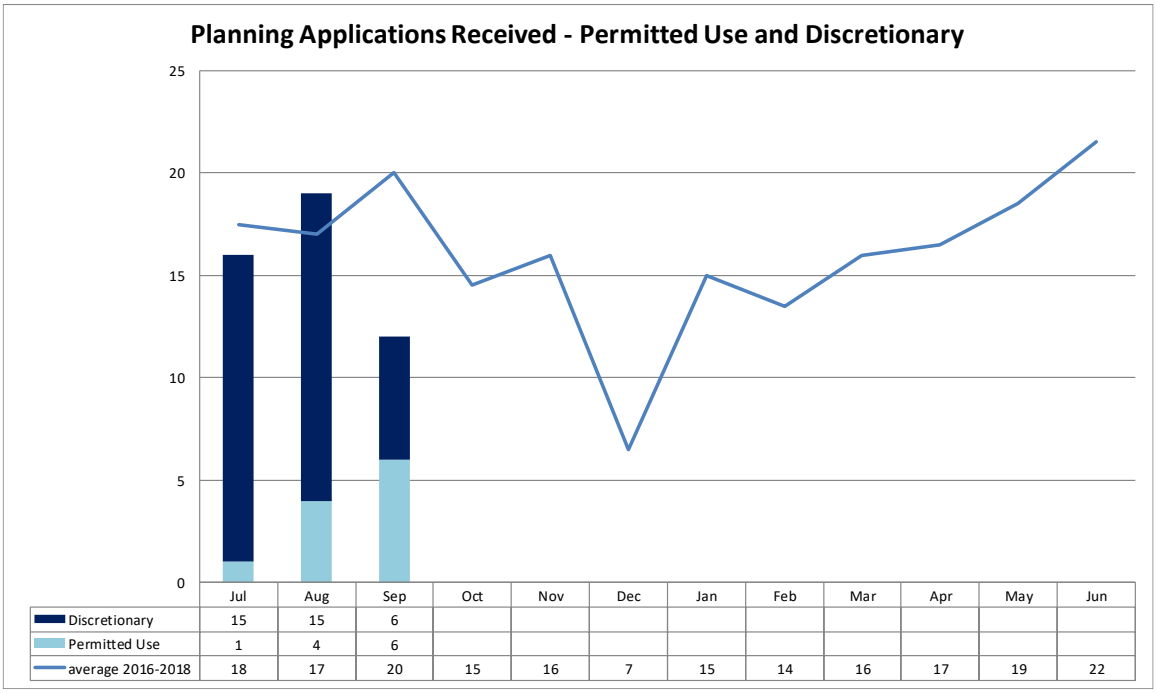
- The ability for Builders to be licensed to carry out roof plumbing work on their own projects.
- When the clock starts for assessments of a Building or Plumbing Permit, and
- Proposed changes to the National Construction Code & Plumbing Code of Australia are to be released in May 2019.

3. Planning

3.1. The following graph details the breakdown of planning applications received during August and September:



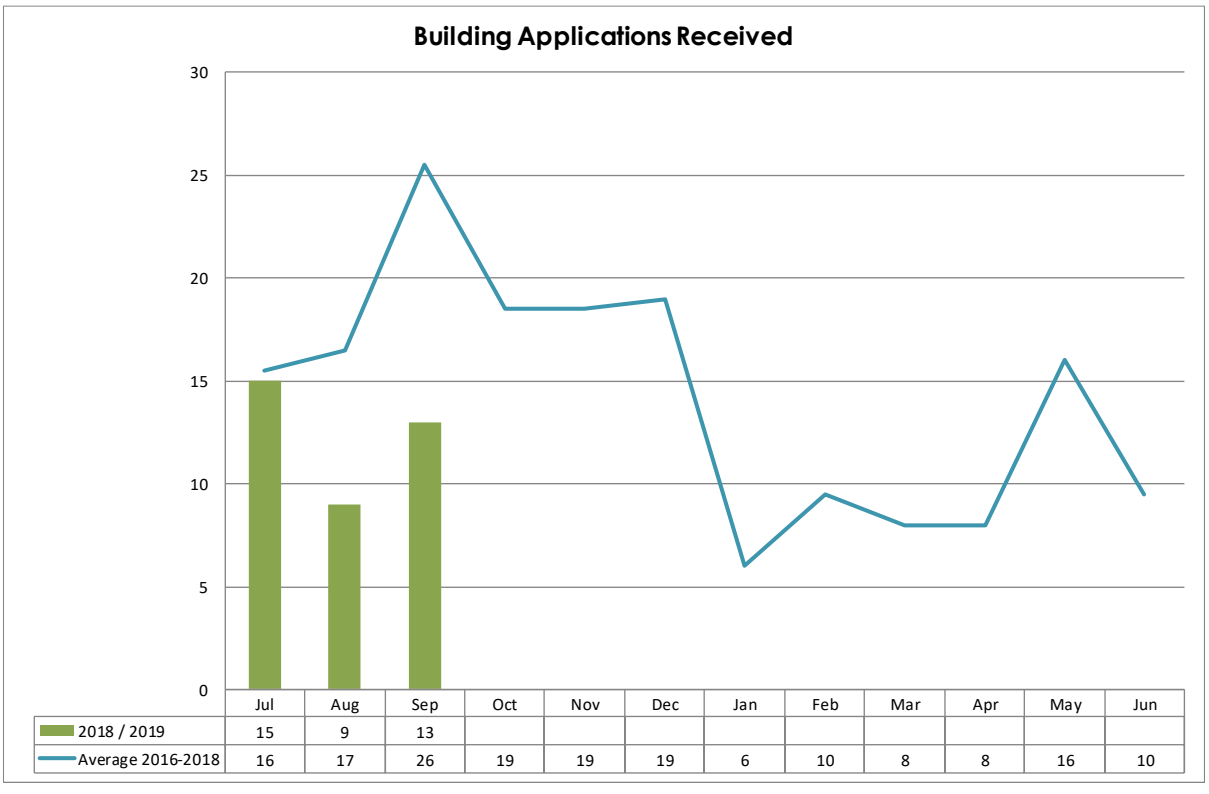
3.2. Twenty one Discretionary Planning Applications and ten Permitted Use Planning Applications were received in August and September. The following graph details the number of Planning Applications received compared to previous years:



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Discretionary	15	15	6									
Permitted Use	1	4	6									
average 2016-2018	18	17	20	15	16	7	15	14	16	17	19	22

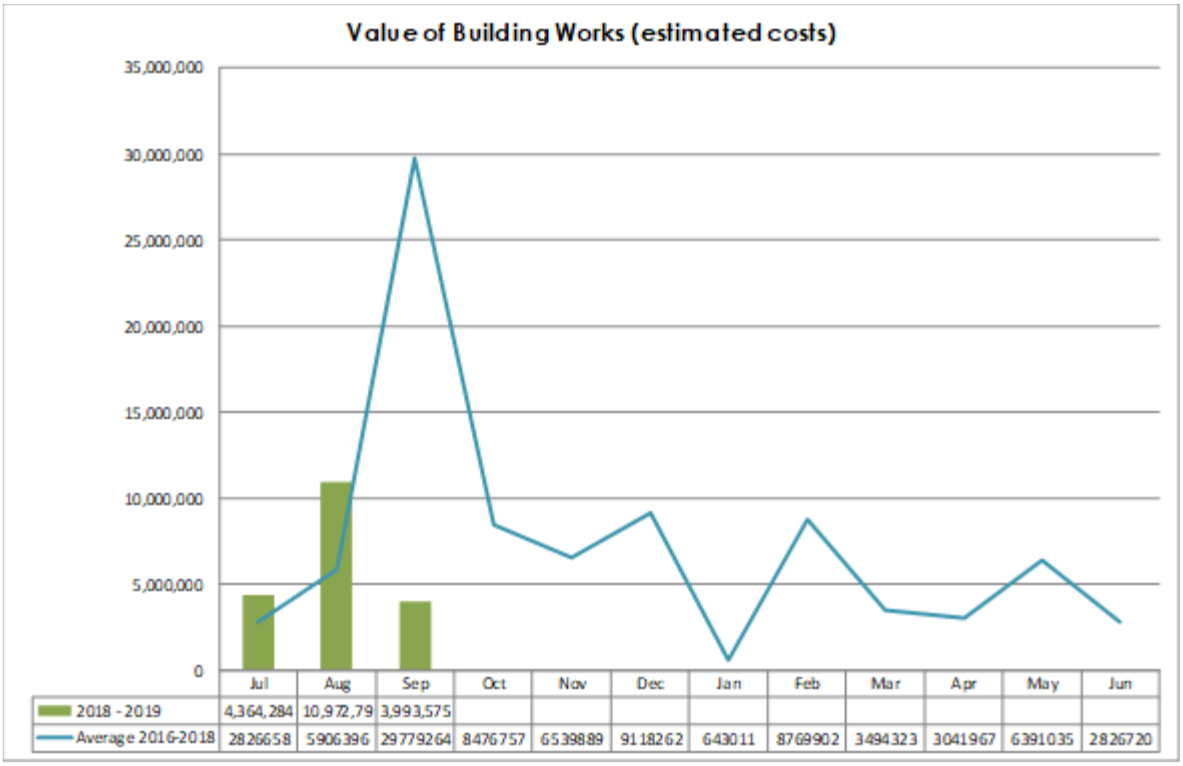
4. Building/Plumbing

4.1. Nine Building Applications were received in August and thirteen Building Applications were received in September. The following graph details the Building Applications compared to previous years:



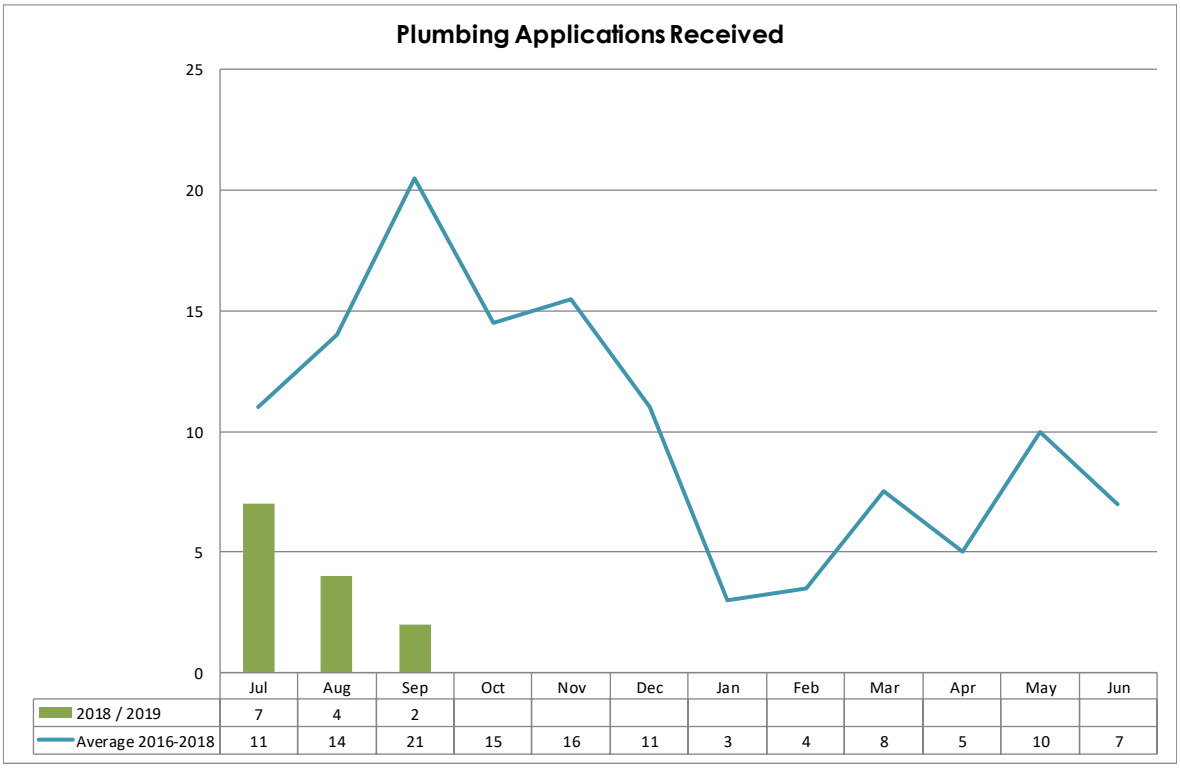
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2018 / 2019	15	9	13									
Average 2016-2018	16	17	26	19	19	19	6	10	8	8	16	10

4.2. Building Applications for $10,972,796 worth of building works was received in August and $3,993,575 worth of building works was received in September. The following graph details the value of buildings works received through Building Applications compared to previous years:



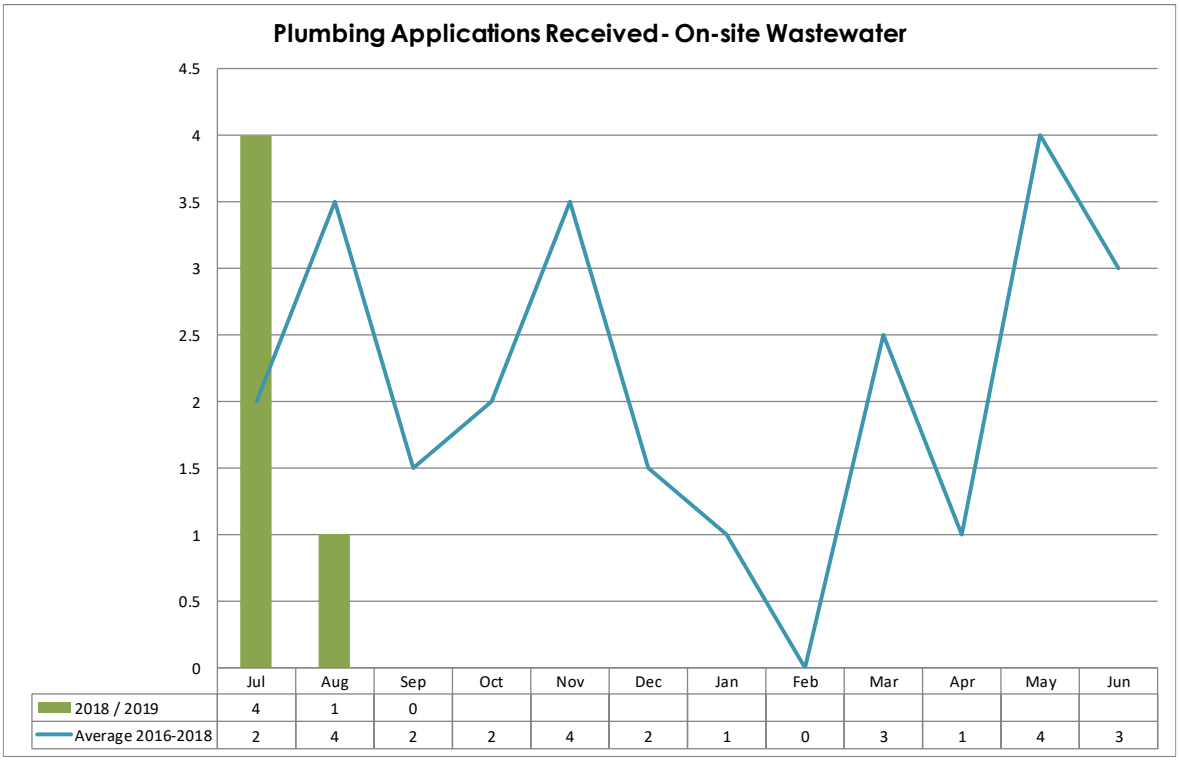
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2018 - 2019	4,364,284	10,972,79	3,993,575									
Average 2016-2018	2826658	5906396	29779264	8476757	6539889	9118262	643011	8769902	3494323	3041967	6391035	2826720

4.3. Four Plumbing Applications were received in August and two Plumbing Applications were received in September. The following graph details the Plumbing Applications compared to previous years:



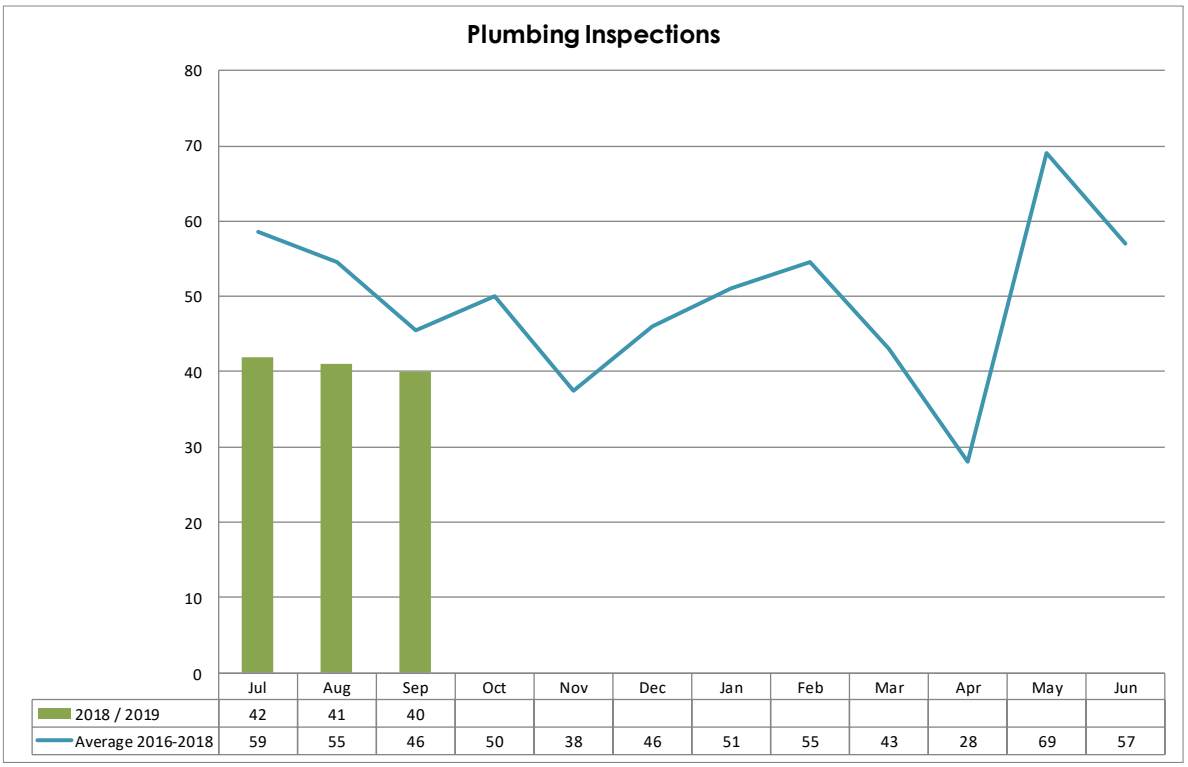
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2018 / 2019	7	4	2									
Average 2016-2018	11	14	21	15	16	11	3	4	8	5	10	7

4.4. One Plumbing Application for on-site wastewaster was received in August and September. The following graph details the Plumbing Applications for on-site wastewater received this year compared to previous years:



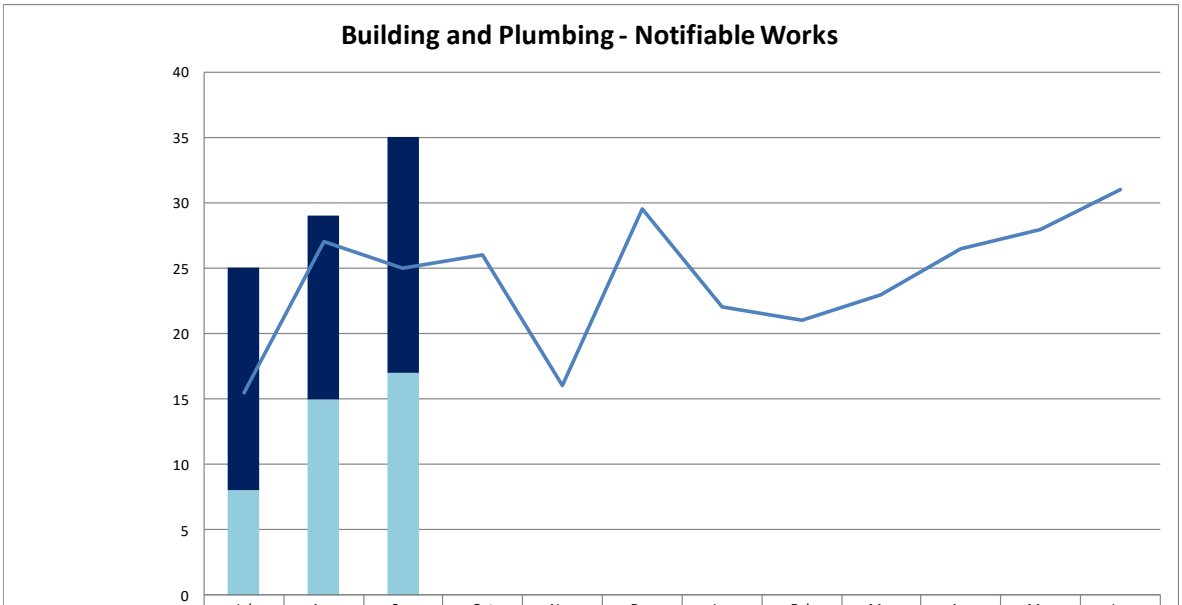
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2018 / 2019	4	1	0									
Average 2016-2018	2	4	2	2	4	2	1	0	3	1	4	3

4.5. 41 plumbing inspections were carried out in August and 40 plumbing inspections were carried out in September. The following graph details the number of plumbing inspections carried out this year compared to previous years:



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2018 / 2019	42	41	40									
Average 2016-2018	59	55	46	50	38	46	51	55	43	28	69	57

4.6. The following graph details that the notifiable works received for building and plumbing that have been issued this year compared to previous years:



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Plumbing	17	14	18									
Building	8	15	17									
average 2016-2018	16	27	25	26	16	30	22	21	23	27	28	31

5. Environmental Health

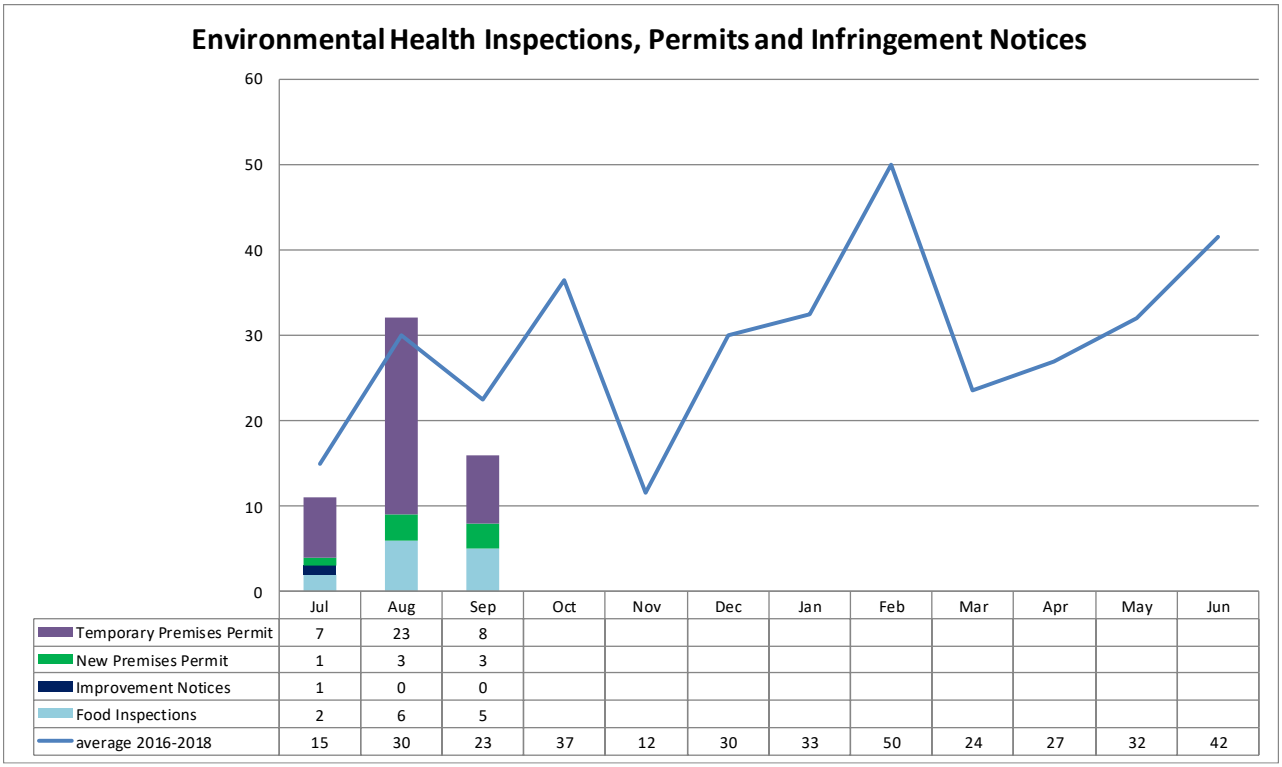
5.1. The draft *Environmental Management and Pollution Control (Smoke) Regulations 2018* has been on public display. A submission was provided to LGAT who coordinated a joint response on behalf of Local Government.

5.2. Water sampling was undertaken at all Council owned drinking fountains as part of a program driven by the State Government. The results from some locations did not meet the guidelines. Further testing is being undertaken in those areas to confirm the cause. It is anticipated that all fountains will be in full working order for summer.

5.3. The school immunisation program was undertaken. 209 students received the Gardasil vaccine and 223 students received the Boostrix vaccine.

5.4. The Department of Health and Human Services will be holding a community immunisation clinic for meningococcal vaccines in late October. The clinic will be held in the paranaple centre.

5.5. The following graph details the inspections, permits and infringement notices that have been issued by the Environmental Health Officers this year compared to previous years:



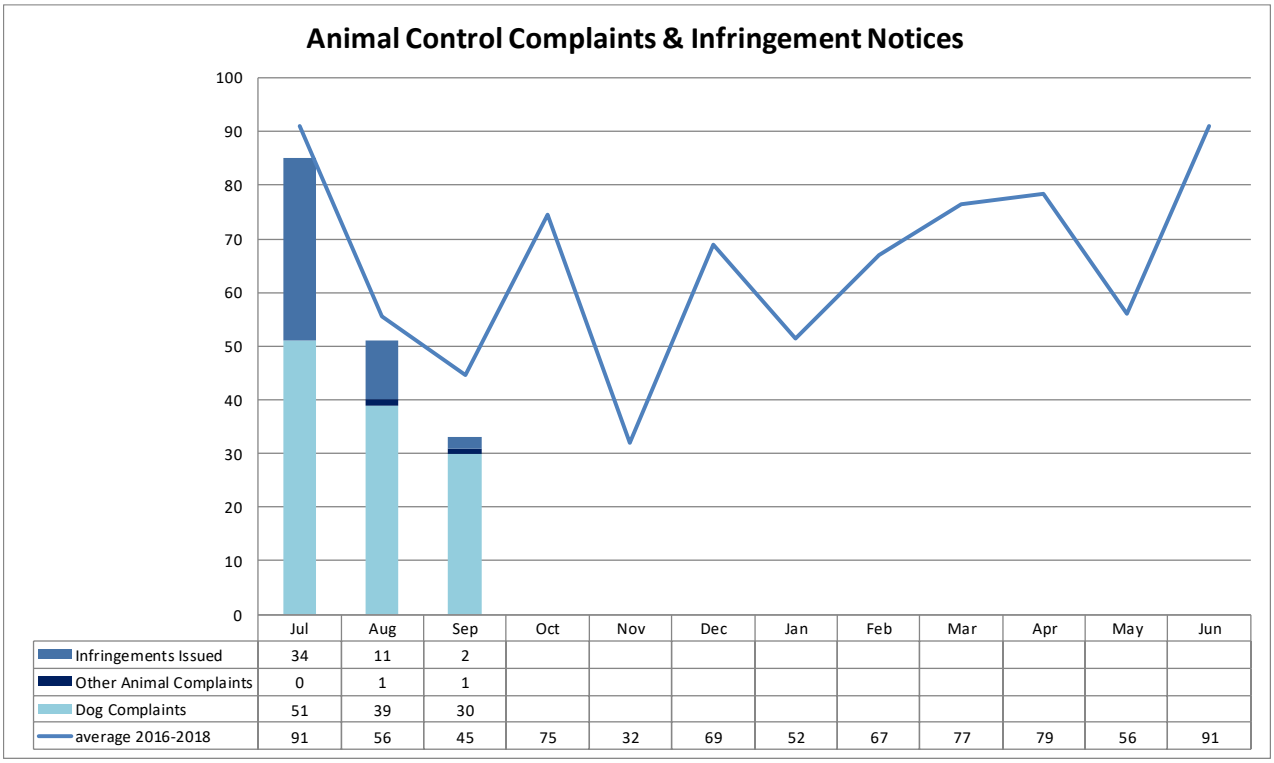
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Temporary Premises Permit	7	23	8									
New Premises Permit	1	3	3									
Improvement Notices	1	0	0									
Food Inspections	2	6	5									
average 2016-2018	15	30	23	37	12	30	33	50	24	27	32	42

6. Animal Control

6.1. Until the end of September 4,295 dogs were registered in the municipality.

6.2. In August and September, a total of 69 dog complaints were received. These complaints predominately related to barking dogs. All complaints were responded to within one – two working days.

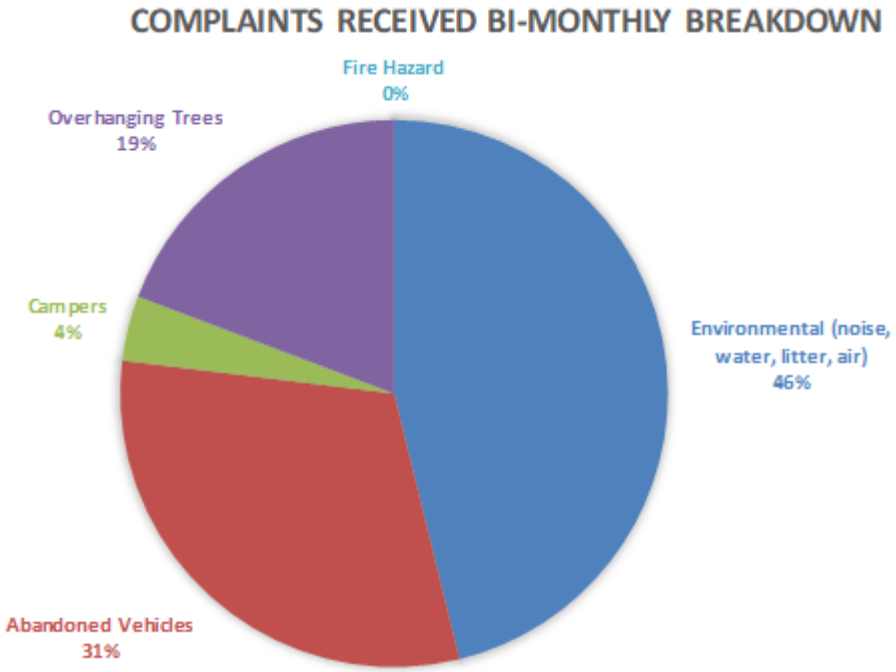
The following graph details the number of animal complaints for this financial year compared to the same period last year:



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Infringements Issued	34	11	2									
Other Animal Complaints	0	1	1									
Dog Complaints	51	39	30									
average 2016-2018	91	56	45	75	32	69	52	67	77	79	56	91

7. Risk and Compliance

7.1. The following graph details the breakdown of the complaints received by the Risk Department during August and September:



7.2. 13 internal incidents and three external incidents were reported during August and September. The following table details the types of incidents:

Internal Incident Type	No. of Reports	Description
Personal Injury	3	• Injured foot • Bruised thumbs • Sliced finger
Property Damage	4	• Immunisation fridge power fault • Damaged to Council vehicle • Damage to parking ticket machine • Loss of property
Motor Vehicle	5	• Reversed into object • Bogged on grass • Passing vehicle hit open door • Hit object
Hazard	1	• Heat pump exposed to weather
Near Hit	1	• Personal safety

External Incident Type	No. of Reports	Description
Personal Injury	2	• Trip & fall
Property Damage	1	• Fence damaged by weed spray

The following table details the breakdown of potential and actual insurance claims:

	Internal Incidents	External Incidents
Potential Claims	1	0
Potential Claim Costs	$7,000	$0
Actual Claims	1	0
Actual Claim Costs	TBC	$0

COMMUNITY ENGAGEMENT

The information provided above details any issues relating to community engagement.

FINANCIAL IMPLICATIONS

Any financial implications arising out of this report will be reported separately to Council.

RISK IMPLICATIONS

There are no specific risk implications as a result of this report.

CONCLUSION

This report is provided for information purposes only about the activities of the Development and Health Services Department in August and September 2018.

ATTACHMENTS

Nil

RECOMMENDATION

That it be recommended to Council that the Development and Health Services Report be received and noted.

Author:	Kylie Lunson	Endorsed By:	Matthew Atkins
Position:	Acting DHS Manager	Position:	Deputy General Manager

6.2 INFRASTRUCTURE AND WORKS REPORT

File: 29528 D545493

RELEVANCE TO COUNCIL'S PLANS & POLICIES
Council's Strategic Plan 2009-2030:

Strategy 5.2.2 Develop an integrated approach to promoting, marketing and supporting a culture of "volunteerism" in our community

SUMMARY
This report provides a summary of the activities undertaken by the Infrastructure and Works Department during the months of August and September 2018.

BACKGROUND
The report is provided to the Infrastructure, Works and Development Committee and aims to update Aldermen and the community on matters of interest. The functional areas of Council covered by this report are:

- Asset Management Program (forward planning and maintenance)
- Capital Works
- Roads, Footpaths and Cycleways
- Streetscape Design (including lighting, signs, furniture, vegetation)
- Stormwater Management
- Traffic Management
- Waste Management
- Recreation Reserves (including playgrounds, parks and gardens)
- Sporting Grounds and Facilities
- Tracks and Trails
- Public Buildings (including public halls, toilets)
- Marine Structures (including jetties, boat ramps)
- Recreation and open space planning

STATUTORY REQUIREMENTS
Council is required to comply with the provisions of the *Local Government Act 1993* and other relevant legislation.

DISCUSSION

1. 2018/2019 Capital Works Program

1.1. The 2018/2019 Capital Works Program is progressing with some projects already completed, others underway and many more in the design or planning phases. The August monthly capital works report which combines both the physical progress and the financial status has been attached to this report. This report excludes projects to be carried forward from 2017-18, which are still to be finalised as part of the delayed end of year audit process.

1.2. Southern Rooke Street renewal - Work in an isolated area on the east side of the street has been undertaken to coincide with a planned shutdown of the adjacent business. The main portion of the work is scheduled to commence in January 2019.

1.3. Victoria Parade path renewal – this project is complete, providing a wider path north of the boat ramp

1.4. Don River bank stabilisation – this project is complete, repairing erosion to the river bank that was beginning to impact the path.

1.5. Victoria Parade (Cenotaph) car park improvements – construction is nearing completion. This project increases the number of spaces and improves access to the Cenotaph and the coastal pathway

1.6. Parker and Ronald Street safety improvements – $270,000 has been secured for the construction of a new roundabout. Design is underway, with construction expected early in 2019.

1.7. Miandetta playground – consultation is underway with two options being proposed for consideration. Reponses will be considered before an order is placed later in the year

Shot Tower - Option

Includes swings, slides, climbing structure and twin flying shot tower

Adventure - Option

Includes swings, slides, climbing structure and rope climbing

PROJECT: Miandetta Park Playground Equipment Options Plan

1.8. Tugrah Road – a design is underway on the project to seal part of the gravel section of Tugrah Road.

1.9. East Devonport all abilities ramp – Council has issued an order for the design and construction of the all abilities ramp between the car park at Melrose Street and Flour Mill Bay. Council is managing the project on behalf of Devonport South East Rotary Club who secured a grant for the project.

1.10. Mersey Bluff– following the delivery of the Mersey Bluff Precinct Pedestrian Parking and Traffic Study, design is now underway on the two highest priority projects; Bluff Road pedestrian improvements and signage throughout the precinct. Work is progressing to deliver these projects before summer.

1.11. Preparation work is underway for reseal program. Patching will occur on roads to be resealed including James Street, North Fenton Street, Oldaker Street, Forbes Street, Sorell Street, and Bay Drive to ensure the roads are in a suitable condition prior to resealing later in the year.

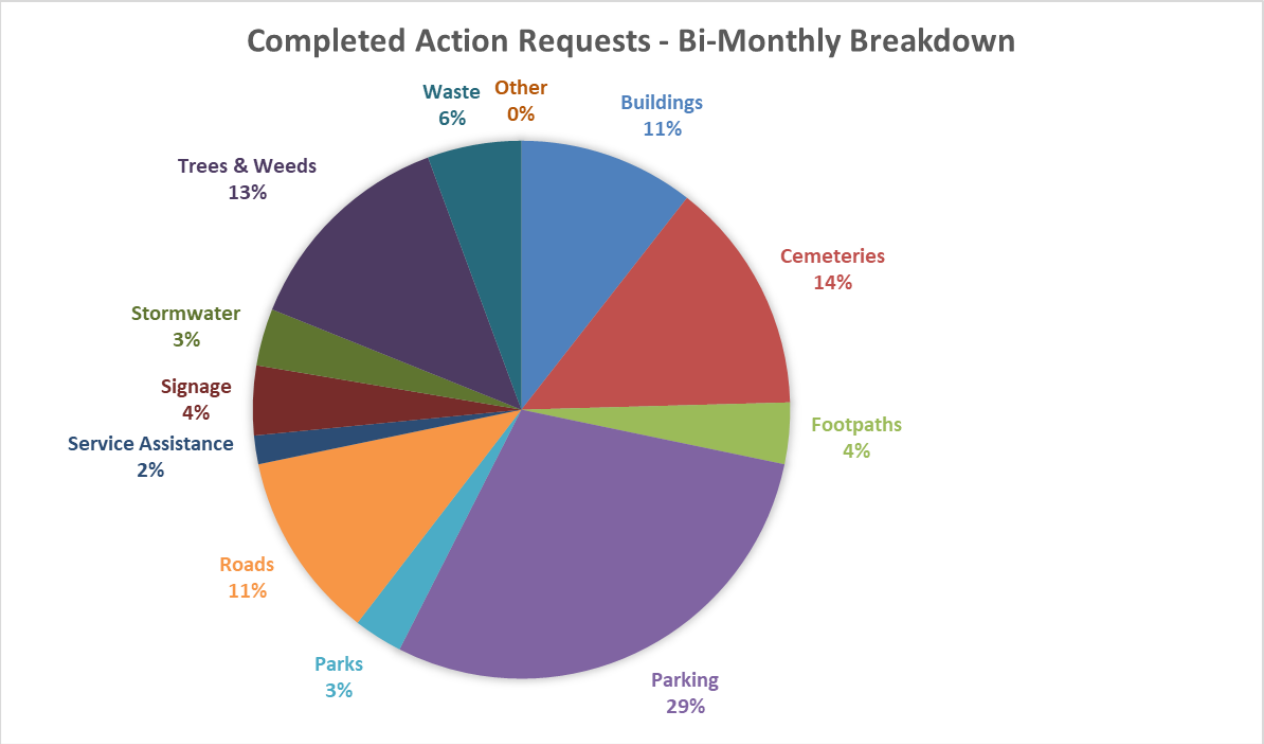
1.12. The plant and fleet replacement program is underway, with tenders open for a side loader garbage truck, quotations received for a van and order placed for a variable message sign. The rear loader garbage truck has been delivered and is now in service.

2. Management

2.1. The following table is a summary of the action requests for the Infrastructure and Works Department:

Balance of Action Requests as at 31/7/2018	545
Number of Action Requests created in August	462
Number of Action Requests completed in August	407
Balance of Action Requests as at 31/8/2018	600

2.2. The following graph details the breakdown of the action requests completed during August:



3. Technical and Engineering

3.1. Three submissions have been made to the Federal Government's black spot program:

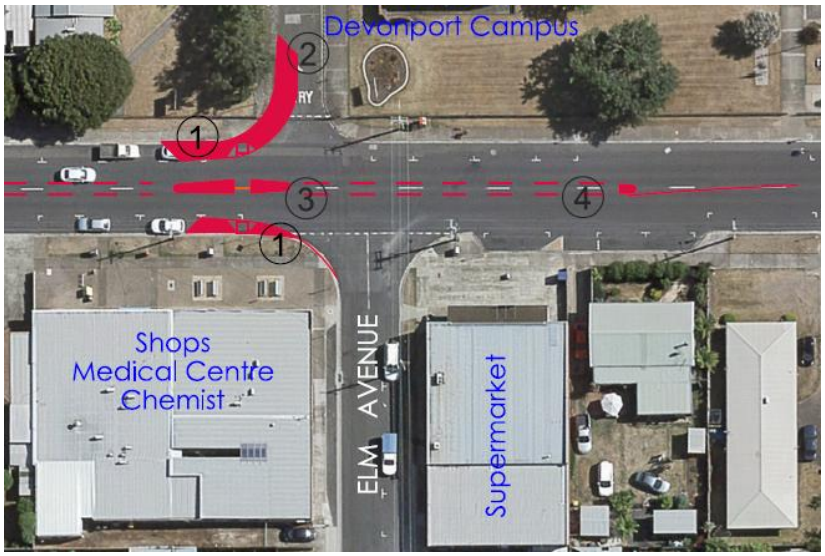
- Construction of a new roundabout at the intersection of Stewart Street and Fenton Street ($415,000);
- Construction of a new roundabout at the intersection of Berrigan Road and Lyons Avenue ($400,000);
- Improved street lighting at the Middle Road and Bass Highway interchange ($35,000).

These submissions have been made as each of the sites has a poor crash record that would be addressed by the proposed works. Funding announcements are expected in 2019.

3.2. Two submissions have been made to the Department of State Growth's Safer Roads: Vulnerable Road User program. The submissions are for:

- Two pedestrian islands on Steele Street near Broadhurst Avenue $80,000;
- Pedestrian safety improvements at the intersection of Valley Road and Elm Avenue ($40,000 to supplement Council's budget allocation).

These projects are in Council's forward capital works program, but external funding would allow them to be constructed in 2018-19. Announcements are expected later in 2018.

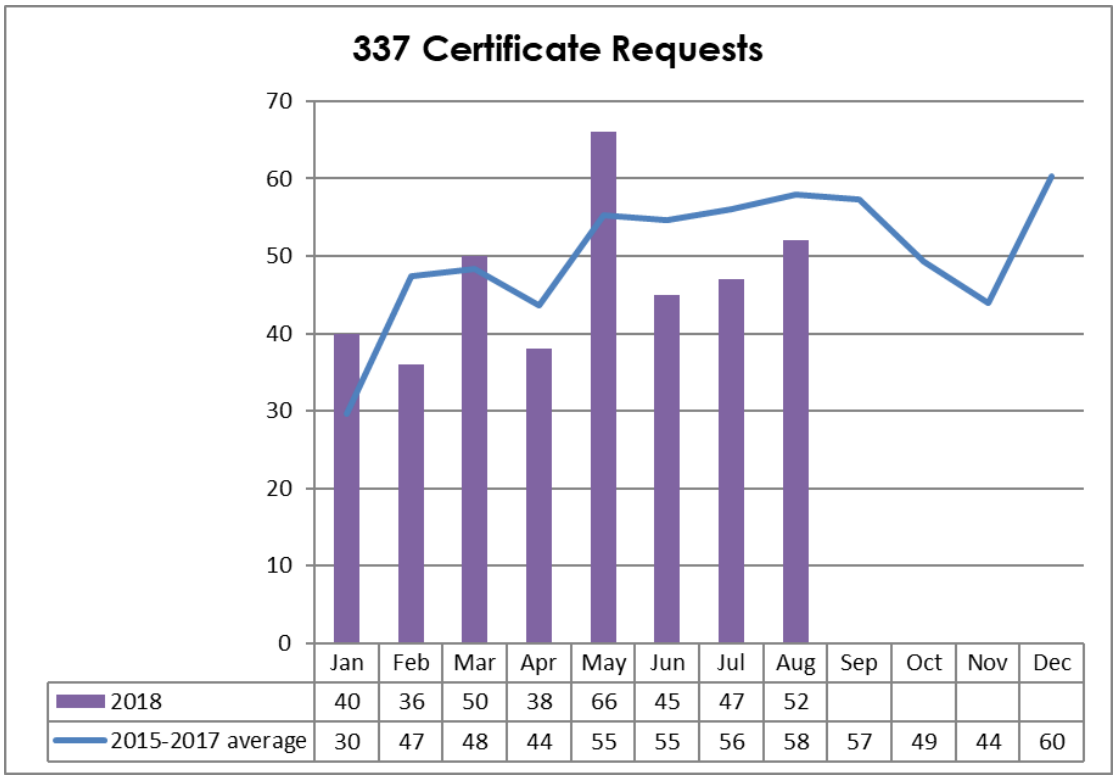


3.3. Cradle Coast Authority have delivered a development plan for the Coastal Pathway between Ambleside and Latrobe and have secured $9.6M funding from Federal and State Governments for the project. Separate reports detail the development plan and the funding model for the project.

3.4. Work is being done in conjunction with Tasrail to repair assets and reinstate services following the train derailment in September.

3.5. The survey of stormwater catchments in the Bluff and West Devonport areas has been completed and the survey of stormwater assets in the Spreyton catchments has commenced. This work is part of the ongoing project to develop a stormwater management plan as required by the *Urban Drainage Act 2013*.

3.6. 52 Section 337 Certificates were processed in August. The following graph details the 337 Certificates that have been assessed by the Infrastructure and Works Department this calendar year compared to previous years:



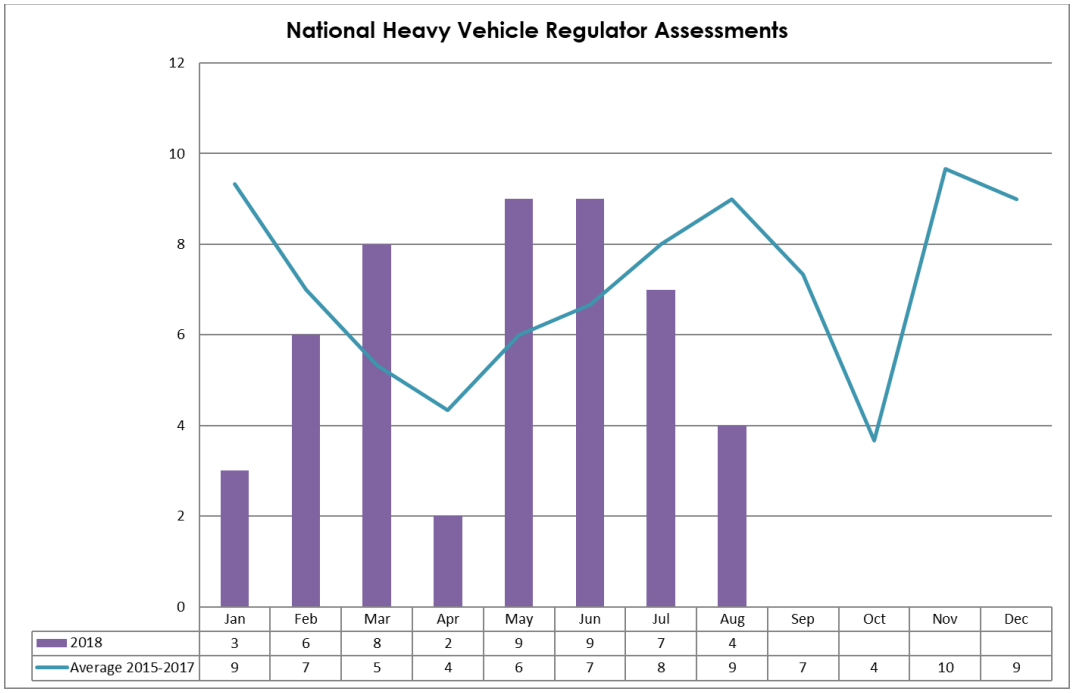
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	40	36	50	38	66	45	47	52				
2015-2017 average	30	47	48	44	55	55	56	58	57	49	44	60

3.7. The following is a summary of the projects capitalised in August.

Number of projects capitalised in August	21
Total value of capitalisations in August	$2.52M
Total value of Works in Progress (WIP) as at 31/8/18	$56.3M*
Number of projects awaiting capitalisation next month	5

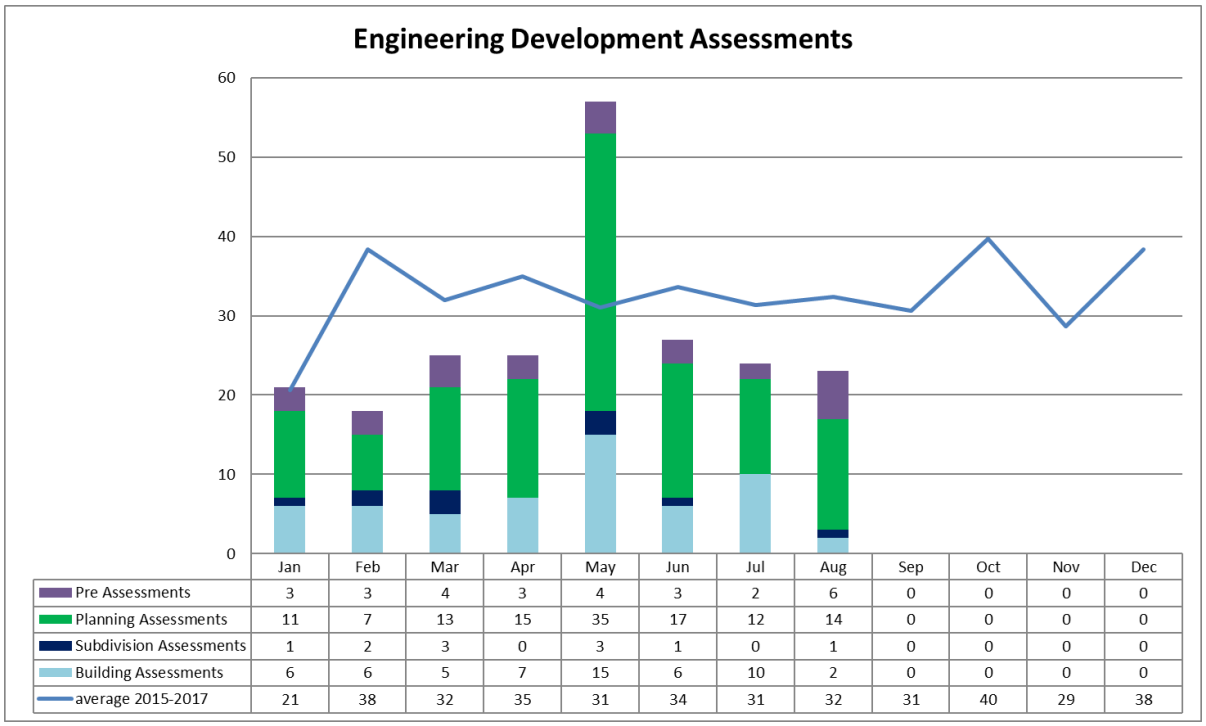
* includes $50.9M LIVING CITY costs yet to be capitalised

3.8. Four National Heavy Vehicle Regulator Assessments were completed in August. The following graph details the National Heavy Vehicle Regulator Assessments that have been issued this year compared to previous years:



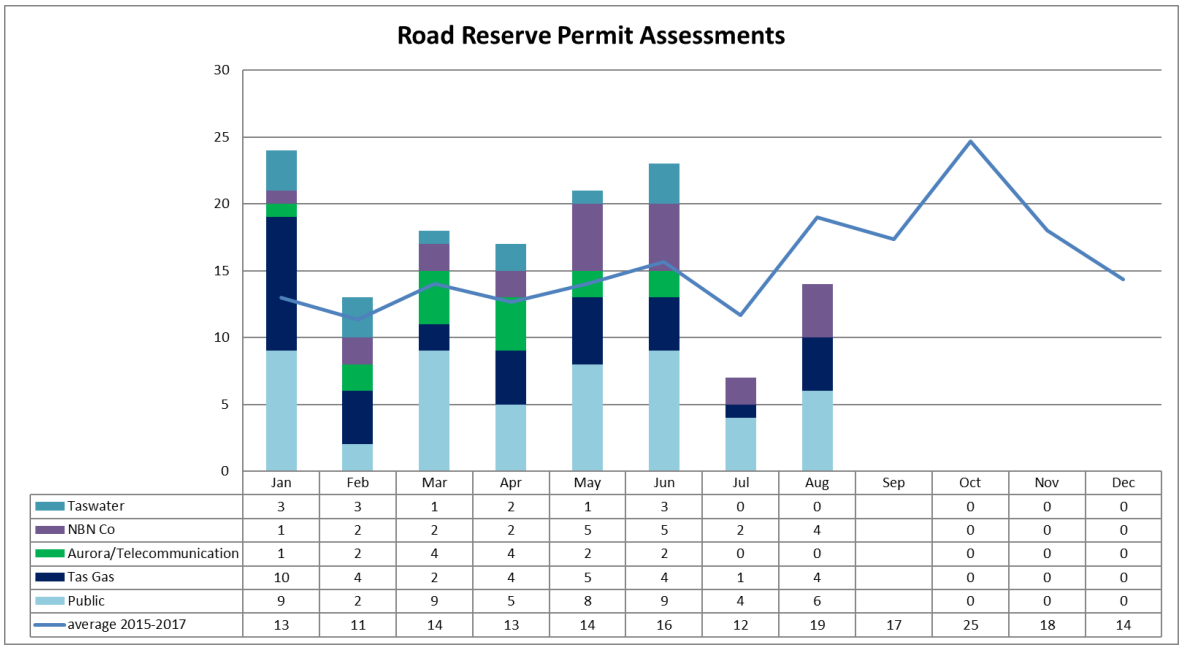
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	3	6	8	2	9	9	7	4				
Average 2015-2017	9	7	5	4	6	7	8	9	7	4	10	9

3.9. The following graph details the Engineering Assessments for Development Applications that were completed last year compared to previous years:



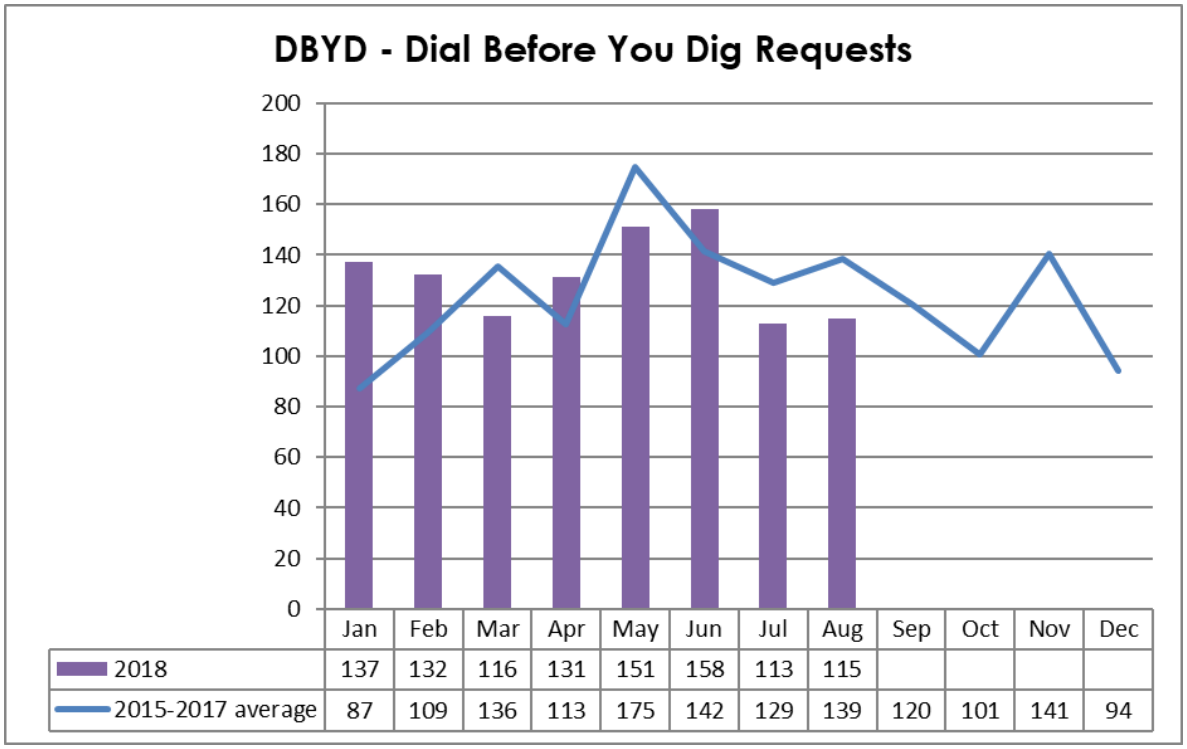
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pre Assessments	3	3	4	3	4	3	2	6	0	0	0	0
Planning Assessments	11	7	13	15	35	17	12	14	0	0	0	0
Subdivision Assessments	1	2	3	0	3	1	0	1	0	0	0	0
Building Assessments	6	6	5	7	15	6	10	2	0	0	0	0
average 2015-2017	21	38	32	35	31	34	31	32	31	40	29	38

3.10. Fourteen Road Reserve Permits were issued in August. The following graph details the permits that were issued this year compared to previous years:



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Taswater	3	3	1	2	1	3	0	0		0	0	0
NBN Co	1	2	2	2	5	5	2	4		0	0	0
Aurora/Telecommunication	1	2	4	4	2	2	0	0		0	0	0
Tas Gas	10	4	2	4	5	4	1	4		0	0	0
Public	9	2	9	5	8	9	4	6		0	0	0
average 2015-2017	13	11	14	13	14	16	12	19	17	25	18	14

3.11. 115 Dial Before You Dig requests were processed in August. The following graph details the Dial Before You Dig requests that have been processed this year compared to previous years:



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	137	132	116	131	151	158	113	115				
2015-2017 average	87	109	136	113	175	142	129	139	120	101	141	94

4. Operational Contracts

4.1. The following table details the contracts managed within the Infrastructure and Works Department that have been extended this financial year:

Contract	Contract Period	Extension Options	$ Value (Excluding GST)	Contractor
Contract - 1276 Waste Transfer	30/11/2017 option 1+1	The original contract signed in June 2014 was for a 36 month period and had an option for two 12 month extensions. Further to a review the option for the additional 12 months was accepted.	$247,159 per annum	Veolia Environmental Services
Tree Maintenance and Removal Services	30/4/2018 option 1+1	The original contract signed in May 2017 was for a 12 month period and had an option for a further one year plus one year extension. Further to a review the option for the additional 12 months was accepted.	Schedule of Rates	A1 Trees
Contract - 1288 Security Patrol & Associated Services	30/6/2015 option 1+1	The original contract signed in May 2015 was for a 24 month period and had an option for a further one year plus one year extension. Further to a review the option for the additional 12 months was accepted.	$32,738 per annum	JRB Protection
Contract 1314 Supply & Delivery of Pre-mixed Concrete	30/06/2018 option 1+1	The original contract signed in June 2017 was for a 12 month period and had an option for two 12 month extensions. Further to a review the option for the additional 12 months was accepted.	Schedule of Rates	Boral Construction Materials

5. Civil Works and Stormwater Maintenance

5.1. Maintenance in accordance with the Service Level Document, undertaken in August and September included:

- Repair of Arden Avenue following water damage
- Completion of scheduled maintenance inspections
- Renewal of poor condition street name signs
- Open drain clearing and patching on Kelcey Tier Road

5.2. In October and November, it is anticipated that civil works and stormwater maintenance works will include:

- Open drain clearing – various locations
- Patching on major roads including William Street, Formby Road, Don Road, Tarleton Street
- Re sheeting of unsealed roads including Durkins Road an Webberleys Road
- Repairs to the erosion of the Victoria Parade foreshore near George Street that was damaged during storms in July

6. Parks and Reserves Maintenance

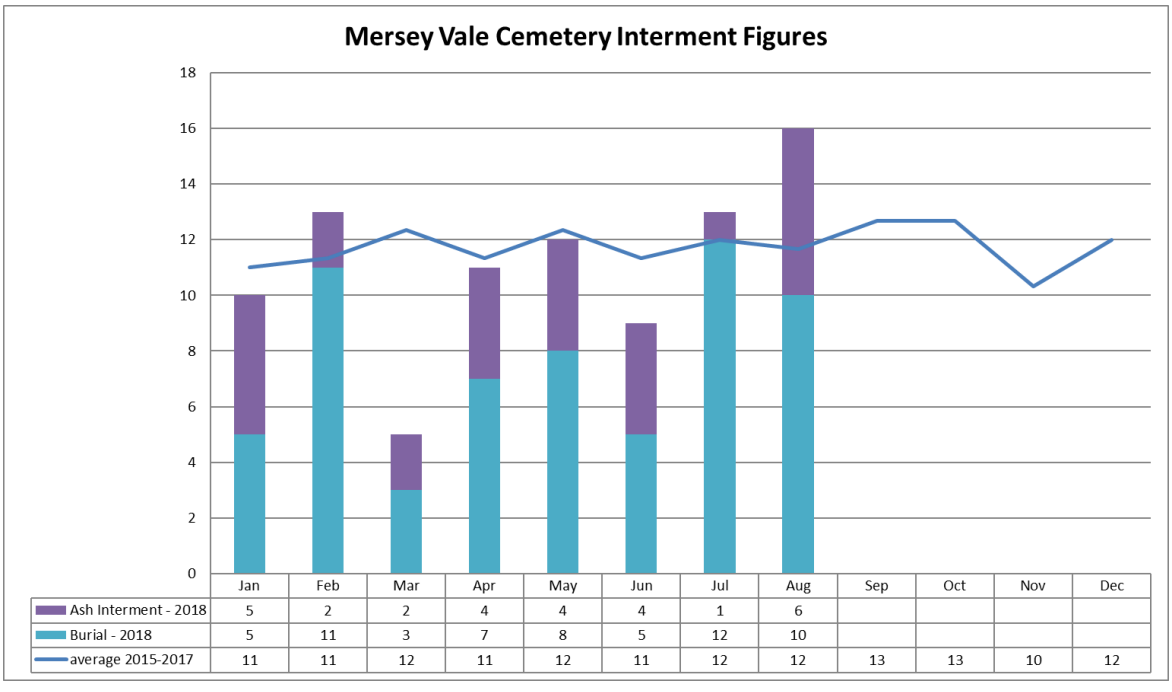
6.1. Maintenance in accordance with the Service Level Document, undertaken in August and September included:

- Renovation of Devonport Oval cricket wicket area
- Service level mowing
- Transition of configuration of seven sports fields from winter sports to summer sports

6.2. In October and November, it is anticipated that parks and reserves maintenance works will include:

- Service level mowing
- Replacement of street trees as identified in inspections

6.3. Mersey Vale Memorial Cemetery interment figures for last year compared to previous years are as follows:



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ash Interment - 2018	5	2	2	4	4	4	1	6				
Burial - 2018	5	11	3	7	8	5	12	10				
average 2015-2017	11	11	12	11	12	11	12	12	13	13	10	12

7. Building and Facilities Maintenance

7.1. Maintenance in accordance with the Service Level Document, undertaken in August and September included:

- Recoat foyer floor at Devonport Surf Club
- Stain timber handrails at Devonport Surf Club
- Assemble new park furniture
- Renovate planter boxes at aquatic centre carpark
- Install chicken wire to make boardwalk non-slip at Mary Street wetlands

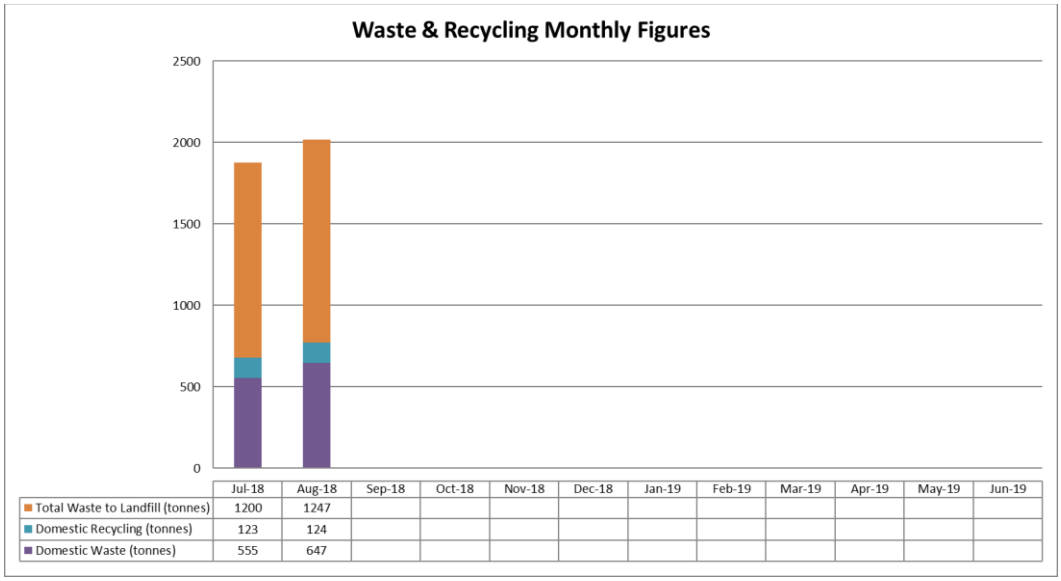
7.2. In October and November, it is anticipated that building and facilities maintenance works will include:

- Sports ground changeovers (goal posts etc)
- Painting of Reg Hope Park amenities block

8. Waste Management Operations

8.1. Waste Management Services were conducted in accordance with the Service Level Document during August and September.

8.2. The following graph details the volumes of waste and recycling from the domestic collection services and the total volume of waste to landfill from the Spreyton Waste Transfer Station:



8.3. The following table details the monthly figures for the Spreyton Waste Transfer Station:

Item	August 2018	18/19 YTD	17/18 Total	16/17 Total	15/16 Total
Asbestos – large loads	1.06 tonnes	2.42 tonnes	9.94 tonnes	11.02 tonnes	12.8 tonnes
Asbestos – small loads	10 m^3	28 m^3	191 m^3	205 m^3	218m^3
Mattresses	116	182	828	695	500
Vehicle Loads – up to 0.5m^3	465	874	5,117	4,859	7,958
Vehicle Loads – 0.5m^3 to 1.5m^3	1,210	2,236	11,724	13,985	12,492
Vehicle Loads – 1.5m^3 to 2m^3	279	548	6,380	6,422	6,548
DCC Garbage Trucks (Domestic & Commercial Collection Services)	773 tonnes	1,438 tonnes	9,207 tonnes	9,192 tonnes	9,376 tonnes
Steel Recycling	85 tonnes	175 tonnes	845 tonnes	897 tonnes	843 tonnes
e-Waste	12 tonnes	12 tonnes	12 tonnes	0 tonnes	9.9 tonnes
Tyres	34	65	348	293	359

COMMUNITY ENGAGEMENT

The information provided above details any issues relating to community engagement.

FINANCIAL IMPLICATIONS

Any financial or budgetary implications relating to matters discussed in this report will be separately reported to Council.

RISK IMPLICATIONS

Any specific risk implications have been outlined in the discussion above. Any specific issue that may result in any form of risk to Council is likely to be the subject of a separate report to Council.

CONCLUSION

This report is provided for information purposes only and to allow Council to be updated on activities undertaken by the Infrastructure and Works Department.

ATTACHMENTS

⇩1. Capital works - August 2018

RECOMMENDATION

That it be recommended to Council that the Infrastructure and Works report be received and noted.

Author:	Michael Williams	Endorsed By:	Matthew Atkins
Position:	City Engineer	Position:	Deputy General Manager

Capital Works Income & Expenditure Report August 2018

		Funding 2018/19				Expenditure 2018/19			Balance	Performance Measures			
		Annual Budget	Additional Funds Carried forward & adjustments	Total Budget Available	External Funding Included in Total	Actual	Commitments	Total Expenditure	Remaining Funds	Works Start	Works Completion	% Budget	Comments
Summary													
Open Space & Recreation		1,950,200	319,969	2,270,169	62,500	122,624	54,901	177,525	2,092,644				
Buildings & Facilities		80,000	-	80,000	-	8,720	-	8,720	71,280				
Stormwater		1,180,000	16,404	1,196,404	-	25,858	14,900	40,758	1,155,646				
Transport		4,340,000	829,115	5,169,115	492,146	60,562	972,241	1,032,802	4,136,313				
Living City		3,000,000	-	3,000,000	1,000,000	2,354,533	340,634	2,695,167	304,833				
Plant & Fleet		827,000	418,510	1,245,510	-	-	351,529	351,529	893,981				
Other Equipment		479,000	90,000	569,000	-	5,632	52,475	58,107	510,893				
Total Capital Works		11,856,200	1,673,998	13,530,198	1,554,646	2,577,930	1,786,679	4,364,609	9,165,589				
Open Space & Recreation													
CP0145	Victoria Parade Lighting Stage 2	85,000		85,000		859	-	859	84,141	Nov-18	Dec-18	1.0%	Quotations have been requested
CP0146	Mersey Vale Cemetery - Lighting Renewal	56,000		56,000		122	-	122	55,878	Jun-19	Jun-19	0.2%	
CP0147	Playground Equipment Renewal - East Devonport Foreshore	80,000		80,000		284	-	284	79,716	Feb-19	Mar-19	0.4%	Quotations have been requested, public consulation to follow
CP0148	Maidstone Park - Netball Goalposts Replacement	8,000		8,000		-	-	-	8,000	Oct-18	Oct-18	0.0%	
CP0149	Path Renewal - Victoria Parade	133,000		133,000		28,753	3,518	32,271	100,729	Complete	Complete	24.3%	Work complete, awaiting invoices
CP0150	Maidstone Park - Replace Ground Lighting	125,000	-	125,000	62,500	-	-	-	125,000	Apr-19	Apr-19	0.0%	
CP0151	Maidstone Park - Gymnastics Club Car Park	150,000		150,000		349	-	349	149,651	Jun-19	Jun-19	0.2%	
CP0152	Bluff Plaza - Replace Electrical Cabinet	15,000		15,000		372	-	372	14,628	Oct-18	Oct-18	2.5%	
CP0153	Mersey Vale Cemetery - Future Ash Internment Columns - Memorial Garden	30,000		30,000		4,382	11,455	15,836	14,164	Oct-18	May-19	52.8%	Columns have been ordered
CP0154	Dog Exercise Park - Dog Agility Equipment & Drink Fountain	15,000		15,000		-	-	-	15,000	Jun-19	Jun-19	0.0%	
CP0155	Aquatic Centre Carpark - Tree Planter Surrounds	7,200		7,200		1,856	-	1,856	5,344	Oct-18	Oct-18	25.8%	
CP0156	Pioneer Park - Installation of Park Furniture	20,000		20,000		-	-	-	20,000	May-19	May-19	0.0%	
CP0157	Highfield Park - Installation of Park Furniture	20,000		20,000		-	-	-	20,000	Mar-19	Mar-19	0.0%	
CP0158	Mersey Vale Cemetery - Modern Burial Stage 2	1,050,000		1,050,000		512	-	512	1,049,488	Dec-18	Jun-19	0.0%	
CP0159	Don Reserve - Bank Stabilisation	18,000		18,000		18,793	2,150	20,943	(2,943)	Complete	Complete	116.4%	
CP0160	Horsehead Creek - Bank Stabilisation between Horsehead Creek & Waterfront Complex	38,000		38,000		889	-	889	37,111	Dec-18	Dec-18	2.3%	
CP0161	New Playground Equipment - Miandetta Park	100,000		100,000		-	-	-	100,000	Feb-19	Mar-19	0.0%	Quotations have been requested, public consulation to follow
	Total Open Space & Recreation	**1,950,200**	**319,969**	**2,270,169**	**62,500**	**122,624**	**54,901**	**177,525**	**2,092,644**			**7.8%**	
Buildings & Facilities													
CB0092	Installation of Public Toilet - Don Hall	80,000		80,000		8,720	-	8,720	71,280	Aug-18	Mar-19	10.9%	Linking path complete
	Total Facilities	**80,000**	**-**	**80,000**	**-**	**8,720**	**-**	**8,720**	# **71,280**			**10.9%**	

		Funding 2018/19				Expenditure 2018/19			Balance	Performance Measures			
		Annual Budget $	Additional Funds Carried forward & adjustments $	Total Budget Available $	External Funding Included in Total $	Actual $	Commitments $	Total Expenditure $	Remaining Funds $	Works Start Month	Works Completion Month	% Budget Spent	Comments
Transport													
CT0218	Street Light Provision	60,000		60,000		-	37,380	37,380	22,620	Aug-18	Nov-19	62.3%	Order issues for poles in Formby Rd, Oldaker St, Friend St, Orion Court
CT0219	Reseal Program 2018-2019	700,000		700,000		2,932	-	2,932	697,068	Oct-18	Feb-19	0.4%	Tenders being assessed
CT0220	Southern Rooke Street Renewal	1,000,000		1,000,000		2,796	894,492	897,288	102,712	Jan-19	May-19	89.7%	Minor works underway. Main construction phase to commence in January 2019
CT0221	Triton Road Safety Improvements	75,000		75,000		-	-	-	75,000	Feb-19	Feb-19	0.0%	
CT0222	Coles Beach/Back Beach Pedestrian Links	80,000		80,000		1,794	-	1,794	78,206	Nov-18	Dec-18	2.2%	Consultation complete. Design progressing.
CT0223	Intersection Improvements - Valley Road & Elm Avenue	80,000		80,000		357	-	357	79,643	Feb-19	Mar-19	0.4%	
CT0224	Footpath Connection - Thomas Street	15,000		15,000		234	-	234	14,766	TBA	TBA	1.6%	Design progressing
CT0225	New Street Light - Wright Street and Tarleton Street	15,000		15,000		-	-	-	15,000	May-19	May-19	0.0%	
CT0226	Intersection Safety Improvements - Parker Street and Ronald Street	270,000		270,000	270,000	-	-	-	270,000	Feb-19	Apr-19	0.0%	Design progressing
CT0227	Don Road Safety Barrier Renewal - West of Hillcrest Road	50,000		50,000		-	-	-	50,000	Jun-19	Jun-19	0.0%	
CT0228	Road Traffic Device Renewal	25,000		25,000		-	-	-	25,000	Jun-19	Jun-19	0.0%	
CT0230	Transport Minor Works	45,000		45,000		-	-	-	45,000	Dec-18	Jun-19	0.0%	
CT0231	Works Depot Carpark - Retaining Wall Renewal	30,000		30,000		-	-	-	30,000	Jan-19	Feb-19	0.0%	
CT0232	Parking Infrastructure Renewal 2018-19	25,000		25,000		-	-	-	25,000	Nov-18	Nov-18	0.0%	
CT0233	Adelaide Street Kerb Renewal	210,000		210,000		-	-	-	210,000	Mar-19	Apr-19	0.0%	
CT0234	Wenvoe Street Renewal - Steele Street to Carpark	420,000		420,000		22,047	1,148	23,195	396,805	Oct-18	Dec-18	5.5%	Tenders being assessed
CT0235	Clayton Drive Renewal - East of Hillwood Rise	130,000		130,000	-	4,835	1,548	6,383	123,617	Nov-18	Dec-18	4.9%	Tender advertised
CT0236	Winspears Road Renewal - Stage 1	250,000		250,000	222,146	-	-	-	250,000	Mar-19	May-19	0.0%	
CT0237	Intersection Renewal - Melrose Road and Buster Road (Aberdeen)	120,000		120,000		-	-	-	120,000	Nov-18	Dec-18	0.0%	Design progressing
CT0238	Montague Street Renewal - Arthur Street to Lower Madden Street	130,000		130,000		3,360	-	3,360	126,640	Mar-19	Apr-19	2.6%	
CT0239	Steele Street Footpath Renewal - Rooke Street to Wenvoe Street - South Side	60,000		60,000		1,732	-	1,732	58,268	Oct-18	Dec-18	2.9%	Tenders being assessed
CT0240	North Street renewal - William Street threshhold	130,000		130,000		12,026	427	12,453	117,547	Oct-18	Nov-18	9.6%	Construction pending
CT0241	Tugrah Road - Seal Part of Gravel Section	105,000		105,000		-	-	-	105,000	Jan-18	Jan-18	0.0%	
CT0242	Victoria Parade Car Park (Cenotaph) Carpark Improvements	140,000		140,000		8,047	1,996	10,043	129,957	Sep-18	Oct-18	7.2%	Construction underway
	Northern Rooke St Renewal - Design Only	50,000		50,000		-	-	-	50,000			0.0%	Expenditure included in CB0068 - Living City
	Total Transport	**4,340,000**	**829,115**	**5,169,115**	**492,146**	**60,562**	**972,241**	**1,032,802**	**4,136,313**			**20.0%**	

		Funding 2018/19				Expenditure 2018/19			Balance	Performance Measures			
		Annual Budget $	Additional Funds Carried forward & adjustments $	Total Budget Available $	External Funding Included in Total $	Actual $	Commitments $	Total Expenditure $	Remaining Funds $	Works Start Month	Works Completion Month	% Budget Spent	Comments
Stormwater													
				-		-	-	-	-			#DIV/0!	
CS0072	Pit Replacements 2018-19	50,000		50,000		17,424	-	17,424	32,576	Aug-18	Feb-19	34.8%	Various locations completed, other pending
CS0073	Minor Stormwater Works	30,000		30,000		-	-	-	30,000			0.0%	
CS0074	William SW Catchment Upgrade - Stage 8	600,000		600,000		-	-	-	600,000	Jan-19	May-19	0.0%	Design progressing
CS0075	Stormwater Outfall Risk Management - Mersey River	30,000		30,000		410	-	410	29,590	Oct-18	Dec-18	1.4%	
CS0076	Brooke St Upgrade - Caroline Catchment Stage 1	200,000		200,000		-	-	-	200,000	Jun-19	Jun-19	0.0%	
CS0077	Stormwater Renewal - 37 Victoria Parade	20,000		20,000		2,944	-	2,944	17,056	Oct-18	Oct-18	14.7%	Construction pending
CS0078	Madden St Stormwater Renewal - Aylett to Gunn	75,000		75,000		-	-	-	75,000	Nov-18	Nov-18	0.0%	
CS0079	Stormwater Renewal - 215-221 Tarleton St	50,000		50,000		676	-	676	49,324	Nov-18	Nov-18	1.4%	Design progressing
CS0080	York St stormwater renewal	25,000		25,000		-	-	-	25,000	Jan-19	Apr-19	0.0%	
	Southern Rooke St Stormwater Renewal	100,000		100,000					100,000			0.0%	included in CT0220
	Total Stormwater	**1,180,000**	**16,404**	**1,196,404**	**-**	**25,858**	**14,900**	**40,758**	**1,155,646**			**3.4%**	
Plant & Fleet													
CF0024	Non-Hire Plant Replacement Plan 18/19 (including disposal proceeds)	44,000	66,981	110,981		-	-	-	110,981	Sep-18	Apr-19	0.0%	Puchases scheduled throughout the year
CF0022	Fleet Replacement Plan 18/19 (including disposal proceeds)	198,000		198,000		-	-	-	198,000	Oct-18	Jun-19	0.0%	Puchases scheduled throughout the year
	Total Plant & Fleet	**827,000**	**418,510**	**1,245,510**	**-**	**-**	**351,529**	**351,529**	**893,981**			**28.2%**	
Other Equipment													
CE0009	Office Equipment	203,000		203,000		5,632	23,421	29,053	173,947	Jun-19	Jun-19	14.3%	
CC0012	Information Technology - Renewal & Upgrades	276,000	90,000	366,000		-	29,054	29,054	336,946	Jun-19	Jun-19	7.9%	
	Total Other Equipment	**479,000**	**90,000**	**569,000**	**-**	**5,632**	**52,475**	**58,107**	**510,893**			**10.2%**	
TOTAL CAPITAL EXPENDITURE - EXCLUDING LIVING CITY		**8,856,200**	**1,673,998**	**10,530,198**	**554,646**	**223,397**	**1,446,046**	**1,669,443**	**8,860,755**			**15.9%**	
Living City													
CB0068	Living City - Strategic Initiatives	3,000,000	-	3,000,000	1,000,000	2,354,533	340,634	2,695,167	304,833	Sep-18	Jun-19	89.8%	
	Total Living City	**3,000,000**	**-**	**3,000,000**	**1,000,000**	**2,354,533**	**340,634**	**2,695,167**	**304,833**			**89.8%**	
TOTAL CAPITAL EXPENDITURE - INCLUDING LIVING CITY		**11,856,200**	**1,673,998**	**13,530,198**	**1,554,646**	**2,577,930**	**1,786,679**	**4,364,609**	**9,165,589**			**32.3%**	

7.0 CLOSURE

There being no further business the Chairman declared the meeting closed at …… pm.