

LAVERS HILL TO CROWES AND MELBA GULLY CONCEPT PLANS FOR AN OFF-ROAD TRAIL REPORT



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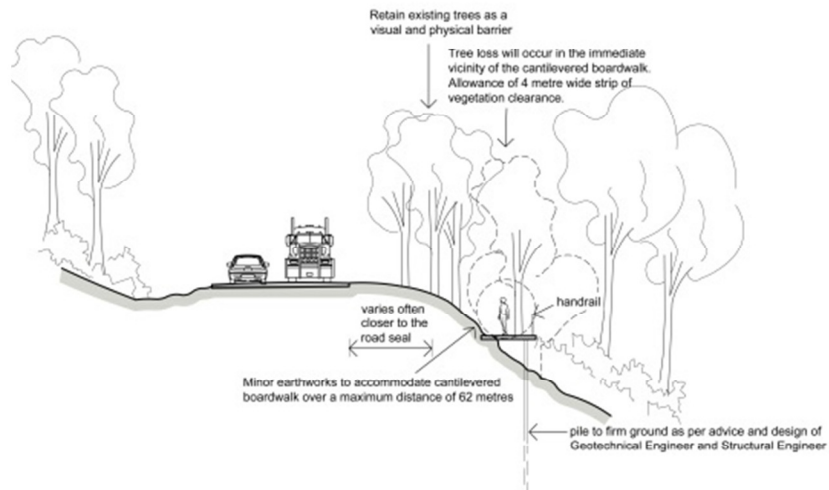
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Colac Otway Shire Council

July 2016

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FOR COLAC OTWAY SHIRE COUNCIL

Final Report August 2016

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Nicole Frampton (Colac Otway Shire Council)
Members of the Lavers Hill and District Progress Association
Members of the Old Beechy Rail Trail Committee

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Appendix 1 – Ecological vegetation classes map for Lavers Hill by Practical Ecology’s Lincoln Kern.

Appendix 2 – Schematic diagram by Traffix Group’s Brent Hodges of the proposed road crossing on the Great Ocean Road.

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1 Executive Summary

The local Lavers Hill and District Progress Association's intention for an off-road trail from Lavers Hill to Crowes and Melba Gully was determined as physically achievable, following the ground truthing field assessment and consultation with stakeholder groups. The preferred route has been plotted following the testing of the community's proposed route with the local Lavers Hill and District Progress Association, Council officers and the Consultant Team.

The purpose of developing concept plans for the off-road trail is to provide the Lavers Hill and District Progress Association and the Colac Otway Shire Council with a report that can be used to seek support for external funding for the design, documentation, project management and construction of the off-road trail. The project has included preparation of a layout concept plan with accompanying track notes, preparation of a vegetation impact report, seek VicRoads approval of the one road crossing of the Great Ocean Road (approval in principle given by VicRoads in mid-June) and preparation of the opinion of probable cost for design, construction management and construction of the trail and associated infrastructure. Colac Otway Shire Council have worked closely with the Lavers Hill community to realise the Concept Plans which tested the community's preferred alignment for an off-road trail between Lavers Hill and Crowes then to Melba Gully picnic area, a length of approximately 3.9 kilometres.

The proposed 3.9 kilometre long trail connecting the core town centre of Lavers Hill to the well-established visitor facilities at the Parks Victoria managed Melba Gully picnic facilities, will provide the opportunity to leverage the existing tourist visitation to the area. The trail will provide visitors with another activity and experience, with the potential to linger longer and spend money at Lavers Hill. The provision of this trail will assist in developing the local economy, given there are four shops providing food services and a motel in Lavers Hill.

The trail will be used by locals, some have already indicated they will use the trail as part of their recreation and exercise regime.

While the preferred route of the off-road trail doesn't strictly follow the former Old Beechy railway line that once linked Lavers Hill to Crowes, it does directly connect to three historic sites of particular relevance to the former Old Beechy railway line. They are the Crowes Buffer Stop (end of the line) with its existing interpretive information, the former Crowes railway station site and associated reservoir tank and exposed railway tracks within the grassed roadside verge midway between the Lavers Hill P-12 School and Melba Gully Road. The ultimate connection with safety warning signage and trail linking Lavers Hill with Melba Gully is a strategic advantage in building upon the already established facilities at either end of the 3.9 kilometre trail. The Old Beechy Rail Trail Committee are keen to have the township section of the former railway line established as a loop trail, extending from the Blackwood Gully Tea Rooms to near the Lavers Hill P-12 College. If this were to happen in the future, there would be potential for the connection of a trail from Lavers Hill to Ferguson.

Ongoing maintenance of the trail will involve periodic top-up of the gravel surface on an as needed basis. A vegetation-free canopy zone is required to prevent injury to trail users. Trimming of overhanging tree and shrub branches will need to be attended periodically to provide safe access for pedestrians and cyclists using the track. Council will need to budget for ongoing maintenance and at least, annual inspections of boardwalks, surfacing, warning signage, overhanging vegetation and washouts at drainage culverts.

2 Introduction

The Lavers Hill and District Progress Association had undertaken preliminary site assessments of various alternatives to establish an off-road trail linking Lavers Hill to Crowes and south to the existing Parks Victoria picnic reserve and toilet facilities at Melba Gully. The community's preliminary preferred route was tested during the site assessment inspection by the Consultant Team and alternative sections discussed and reviewed with the Association and Council's Project Manager. The trail's route is approximately 3.9 kilometres from the core township area to the existing Melba Gully car park and interpretive signage.

The Old Beechy Rail Trail Committee expressed interest in the review of ideas and plans as they indicated they would like to see as much of the proposed off-road trail located directly on the Old Beechy railway line that once connected Colac to Crowes.

The Old Beechy Rail Trail is of significance as it was a narrow gauge railway line that connected Colac and Beech Forest. The railway operated between 1902 and 1962. The extension to Crowes was constructed in 1911. The railway ran mixed trains of passengers and goods, such as timber, cattle, potatoes, cheese and other horticultural and agricultural produce.

During the ground truthing field assessments of various alternative sections, it became clear that use of the entire, or even a majority of the former Old Beechy railway alignment was not practical as the last half of the Old Beechy railway line from Lavers Hill to Crowes is now located on a timber plantation and resurrection of a trail on the former railway line alignment would be vulnerable to damage through planting, maintenance and tree felling operations. In some other sections the railway line ran through private property.

There is an existing concrete path within the core township area to Lavers Hill P-12 College. By using the existing concrete path between the core township zone to Lavers Hill P-12 College, the need to establish a trail on the former Old Beechy railway line is reduced. The Old Beechy railway line route to the south side of the township should remain as an alternative route in the future not only to link with the preferred trail route to Melba Gully, but also providing a short 2 kilometre circuit loop within the Lavers Hill township. The former railway line route within the township zone is overgrown by shrubs and blackberries for approximately 50% of its length. There are opportunities to use portions of the former railway line alignment that is now incorporated within the existing powerline easement and a short length linking the former Crowes station site across Melba Gully Road to the Crowes Buffer Stop.

PRINCIPLES:

Several principles were established by the Lavers Hill and District Progress Association, Council's Project Manager and the Consultant Team as benchmarks to underpin the feasibility assessment process at the commencement of the study.

These were:

- User safety with physical and visual separation of the off-road trail to the Great Ocean Road. The separation provides trail user safety and allows for retention of indigenous vegetation to the immediate edge of the road shoulder, thereby maintaining the scenic roadside landscape.
- Minimise the extent of native vegetation clearance.
- Use existing flat ground and parts of the former Old Beechy railway line alignment where possible.
- Maintain visual sight lines of driveway entrances to private properties and the trail. Signage to warn pedestrians and cyclists of private driveways which the off-road trail crosses will need to be provided.

- Minimise road crossing points particularly on the Great Ocean Road, which is a busy road with buses, cars and trucks.
- Provide interpretive and directional signage along the trail.
- Provide specific safety warning signage on procedures for days of Extreme and Code Red fire danger.
- Use boardwalks to negotiate the perimeter of two steep gullies in the middle section of the trail.
- Minimise the length of the off-road trail on private land.
- Discuss the alignment options with the Old Beechy Rail Trail Committee.

Safety for trail users was the primary concern for Colac Otway Shire Council, the Lavers Hill and District Progress Association and the Consultant Team in planning of the trail. Linked with safety for trail users was the retention of the roadside's scenic character. This particular section of the Great Ocean Road is frequented by many international and interstate tourists unfamiliar with the heavily trafficked road and local climatic conditions. The road is also a route regularly used by trucks travelling in both directions. The parameters of trail user safety and scenic character mutually worked together to determine the off-road trail to run parallel to much of the Great Ocean Road Reserve, through maintaining a strip of existing indigenous vegetation parallel to the road as a visual barrier and providing a 5-8 metres setback from the road seal.

As the surrounding region is extremely vulnerable to bushfire events, warning signage will need to be installed at access points along the trail (6 locations) advising of closure of the trail on Extreme and Code Red Days. 'A' frame boards should be provided along the trail to CFA requirements. The setting out of the 'A' frame boards would be controlled on a daily basis by members of the local community.

Land ownership was a consideration in the assessment of the route of the trail. As with most railway lines in Victoria, many railway formations were converted to private ownership several decades ago and logistics of land acquisition, risk management, conflicts of access and rural farming operations, are common issues that arise in planning and use of particularly rail trails.

The Lavers Hill and District Progress Association advised that their planned route did not extend into privately owned land with the exception of two short sections near the Parkwood Estate Cottages, the other a short length on Melba Gully Road.

The preferred route links the centre of Lavers Hill township with the Lavers Hill P-12 College a distance of just under one kilometre using the existing 1.5 metre wide concrete path on the north side of the Great Ocean Road which meanders through Lavers Hill. At the west of the Lavers Hill P-12 College the off-road trail follows an embankment then crosses the Great Ocean Road approximately 150 metres west of the College. During the study process, VicRoads gave their approval in principle of the proposed road crossing, provided that the legal warning signs are provided, the two existing 60 Kph signs are relocated to appropriate distances either side of the road crossing and existing Blackwood Wattle trees be trimmed on the inside radial curve of the road west of the proposed crossing.

The off-road trail runs parallel to the Great Ocean Road to Crowes with two sections requiring boardwalks of approximately 62 and 45 metres in length.

The proposed off-road trail route of approximately 440 metres east of Crowes follows the old road formation which remains as cleared land and a section in the middle follows a powerline easement that may well be part of the Old Beechy railway formation. Using these two cleared sections free of indigenous vegetation, reduces the overall extent of indigenous vegetation clearance. The approximate length of indigenous vegetation to be cleared is 740 linear metres.

There are sites of interest along the route being the presence of remnant railway tracks, the former railway station site at Crowes and the restored buffer stop with its existing interpretive information.

The Old Beechy Rail Trail Committee members suggested the trail extend from the former Crowes Station Site to the Crowes Buffer Stop. The gradient is flat and would allow people with mobility impairments to access the interesting buffer stop display which they otherwise would miss out visiting. Their suggestion for this route has been adopted in the preferred trail layout.

The idea of an underpass under the Great Ocean Road was raised during the consultation process by a respondent and by a Senior Traffic Management Officer at VicRoads. The underpass would provide more flexibility in the location of a crossing point along the trail route than an on-grade crossing. The concern with the proposal for an underpass is providing the room at each opening for the DDA compliant ramp approaches to the approach and departure sides and personal safety issues in a quiet area. Due to the significant amount of civil works required, the cost for an underpass is very high, in the vicinity of several hundreds of thousands of dollars. Based on this information, an on-road crossing has been proposed rather than an underpass.

There are four trail layout plans L1-L4 and an accompanying sheet of cross sections being plan L5. Track notes describing the off-road trail and information on the off-road trail's distances are provided within this report on the preferred route plans L1-L4.

3 Process

Colac Otway Shire Council facilitated the initial on-site inspection meeting with the Lavers Hill and District Progress Association and the Consultant Team in late May 2016.

The briefing and tour was attended by Council's Project Manager Ms Nicole Frampton, seven members of the Lavers Hill and District Progress Association and four members of the Consultant Team.

Consultant Team members included:

Gianina Lopez, Landscape Architect

Michael Smith, Landscape Architect, Urban Designer and Horticulturist

Lincoln Kern, Principal of Practical Ecology

Brent Hodges, Traffic Engineer from Traffix Group

A 'mud map' layout for the off-road trail had already been prepared by representatives of the Lavers Hill and District Progress Association. The intent of the initial inspection was to test the proposed off-road trail route, to discuss alternative routes and consider functions of land ownership if required and consider functions of vegetation clearance, user safety and roadside visual amenity. At the inspection the practicality of reuse of sections of the former Old Beechy railway line alignment was considered, including the use of the powerline easement and part of the former Great Ocean Road which is the section east of Crowes.

The group walked the intended trail route as proposed by the Lavers Hill and District Progress Association and Old Beechy Rail Trail Committee and made various adjustments based on user safety, limiting the road crossing points, drainage infrastructure required and negotiating the two steep gullies that virtually skirted the edge of the Great Ocean Road. Two members of the Consultant Team and Council's Project Manager met with three representatives of the Old Beechy Rail Trail Committee the day following the initial trail inspection of the trail route with Council's Project Manager and the Lavers Hill and District Progress Association. Representatives of the Old Beechy Rail Trail Committee advised that the route should use the former railway alignment as much as possible. This group then walked the town section of the former Old Beechy railway line where possible. A considerable length of the former railway line is covered in Blackberry and undergrowth which prevented access to approximately 50% of the 1.2 kilometre Laves Hill town section of the former Old Beechy railway line. The group visited several sections to the north side of the Great Ocean Road where the Old Beechy railway line has now been 'swallowed up' by timber logging operations. On inspection of the former Old Beechy railway line alignment within the timber plantation, the Old Beechy Rail Trail Committee representatives advised that it was not practical to have the proposed off-road trail on the former railway line within the plantation. They advised that the most practical route for the off-road trail was the south side of the Great Ocean Road. Representatives of the Committee asked if the township route could be placed on plans as a possible future walking loop for the Lavers Hill township and also a future connection for the Lavers Hill to Crowes and Melba Gully off-road trail (this has been noted on the concept plans). Their suggestion of continuation of the new trail from the former Crowes Station site through to the Crowes Buffer Stop has been accommodated on the final feasibility layout plan L3 to provide access for people of all abilities to safely walk from the town to the Crowes Buffer Stop site which has good interpretive information and significant railway artefacts.

Lincoln Kern the Principal Ecologist of Practical Ecology, assessed as an overview the extent vegetation loss which is estimated in the order of 740 linear metres of the 1,918 linear metres from Melba Gully Road to the Lavers Hill P-12 College. Brent Hodges a Senior Traffic Engineer with Traffix Group reviewed the community's proposed options for road crossing points and dismissed all three ideas as unsuitable on the grounds of vehicle speed (80 Kph) and poor pedestrian/motorist sightlines. A suitable single crossing point was determined close to Lavers Hill P-12 College. VicRoads were approached on the basis that the two existing 60 Kph speed signs be relocated at the appropriate distances further west and east of their respective current locations. In mid-June 2016 VicRoads gave their approval in principle of a road crossing approximately 150 metres west of the college.

The Consultant Team prepared a route plan as four large scale plans accompanied by track or trail notes. The layout plans were presented at a community drop-in event conducted at the Lavers Hill Community Hall on Saturday afternoon 11th June. Participants who attended were strongly in favour of the trail route.

Following the meeting, large format plans were displayed in Lavers Hill.

The opinion of probable costs was prepared to cover the planning, design and documentation then project management and construction of the off-road trail with the intensive construction from the Lavers Hill P-12 College to the Melba Gully car park.

4 Description of the Off-Road Trail

The community's idea of a walking and bicycle trail connecting Lavers Hill to Crowes and Melba Gully is to provide a safe and pleasant walking and cycling trail within public land and pass points of historical and environmental interest, and provide interpretive and directional signage. It is important that the road crossings and driveway entrances be provided with appropriate warning signage and devices for the safety of trail users. It is envisaged the trail would be a 2 metre wide gravel path with potential to upgrade to a hard surfaced path in the future (similar to the recent construction of the Old Beechy Rail Trail from Beech Forest to Ferguson).

From the core town centre of Lavers Hill at Yatzies Café beginning at the bus stop, the trail is on an existing 1.5 metre wide concrete footpath that is in good condition. There is a 32 metre length of timber boardwalk that forms the path just west of the public toilets. The existing concrete footpath gently meanders past residential properties and several businesses to finish at the Lavers Hill K-12 College. At the College, the proposed off-road trail follows the vegetated embankment above the Great Ocean Road. The precise college boundary title on the embankment is unknown and the title alignment will need to be resolved in the next stage of planning the trail. Once on more level ground the trail is on a wide grassed nature strip with several cherry trees parallel to the road. As the trail route from the school to Crowes could run on either side of the road, detailed inspection with two local interest groups, has resolved that west of the college's embankment the safest and the practical long term route, without interference with logging and plantation operations, is to run the trail to the south side of the Great Ocean Road.

The trail crosses the Great Ocean Road at an existing orange coloured 'School Ahead' sign at right angles to an existing large dead tree. This avoids a pinch point further east on the south side of the Great Ocean Road. This road crossing is subject to the VicRoads approval of the existing 60 Kph sign being moved approximately 130 metres west and trimming some indigenous vegetation which forms a hedge row, limiting sightlines particularly on the inside radius curve to the north side of the Great Ocean Road.

Now on the south side of the Great Ocean Road, the trail connects through a short length of what appears to be private property (initial alignment will need to be agreed to by the property owner), then connects along a powerline easement of slashed grass to then re-emerge along the roadside at Nellie Nook's driveway. A very interesting feature at the row of Leyland Cypress trees is the presence of the former railway line tracks within the grassed road reserve. There are two short 2-3 metre lengths of railway tracks. This site is worthy of interpretation in a covert manner to avoid possible theft or vandalism of the rails. From this area the trail follows at the roadside verge and a key parameter for this section is to maintain a line of existing indigenous vegetation, not only as a physical and psychological safety barrier, but as a strip of vegetation that retains the existing roadside character and amenity from a scenic perspective. The separation with a buffer of existing vegetation of between 4-7 metres between the road seal and the trail provides safety to trail users and a more pleasant experience than a trail located on the road shoulder. There are two sections towards Crowes that require approximately 45 and 62 metres of boardwalk cantilevered to the embankment slope. Boardwalks will need handrails and materials can be the inert type of weld lock and hardened recycled plastics for longevity and grip. There will be a need for indigenous vegetation clearance to facilitate the trail between the abovementioned private property and the former road formation.

Towards Crowes, approximately 440 metres from the Melba Gully turnoff from the Great Ocean Road, the trail follows a well-formed and cleared length of the former Great Ocean Road formation. The trail connects well with an existing cleared area of approximately 3,000 square metres, that was the former Crowes Station site. Currently it is a flat area and has been used as a stockpile site. The site is worthy of interpretation and there is an old Cordyline tree beside a large Messmate Gum near the roadside. The Cordyline has been identified as being of heritage significance and must be protected. Further into the bushland there is a former water tank and bridge worthy of directional and interpretive signage.

There are two proposed connections from the former railway station site. The first is in a direct line along the former Old Beechy Railway to the Crowes buffer stop, a distance of approximately 140 metres. This trail crosses Melba Gully Road approximately 42 metres from the white line edge of the Great Ocean Road and has a key advantage for mobility impaired people to access the interesting historic site of the Crowes buffer stop on a flat gradient. The existing interpretive information on the Old Beechy Railway and restoration of the Crowes buffer stop is very interesting.

The second trail runs through recently cleared blackberry vegetation and an open clearing to cross the Melba Gully Road approximately 50 metres from the white line edge of the Great Ocean Road. This track would easily lead to the existing earthen car park of the rail head and buffer stop. To access the interpretive information, there is a rather difficult track and formed steps to negotiate that are unsuitable for people with limited mobility.

From the Crowes Buffer Stop car park which is approximately 130 metres south of the Great Ocean Road, the trail can follow the west side of Melba Gully Road without much need for new infrastructure and earthworks. There is a 60 to 70 metres length midway along the intended route where the 3 metre wide road easement drops away from the road. To provide a trail, the treatment to this section requires one of three options (a) earthworks and drainage works on the opposite side of the road to facilitate construction of the trail for the 60 to 70 metre section, (b) a boardwalk cantilevered midway down the embankment profile, or (c) access within the private property to which the owner of the property has already granted approval in principle. Fencing would need to be provided or the current boundary fence relocated 2 to 3 metres into the private property for the 60 to 70 metre length.

Following from the embankment treatment, apart from a 60 Kph speed sign and either diverting to the roadside (preferable) or construction of a 10-15 metre long boardwalk to negotiate a steep gully edge at the speed sign, the trail connects easily along the southwest side of the lower carpark to the interpretive signage about Melba Gully. The length of the trail from the Great Ocean Road is 1,028 metres.

Melba Gully is ecologically interesting as one of the wettest places in Victoria and as a consequence, has a significant Myrtle Beech forest with fern gullies support a range of birds and mammals. Along the walking tracks glow worms can be observed at night.

5 Preliminary Assessment of Native Vegetation Losses and Offsets for the Proposed Shared Path from Lavers Hill and Crowes, Colac Otway Shire

Introduction

A concept plan for the proposed shared trail between Lavers Hill and Crowes has been developed by Michael Smith and Associates. The shared trail would be constructed between Lavers Hill and the former Crowes Station site at the road that leads to Melba Gully in the Otway Ranges National Park.

The shared path was designed collaboratively with a team of consultants led by Michael Smith and Associates, representatives of Colac-Otway Shire Council and the Lavers Hill and District Progress Association. Practical Ecology was part of the design team and was able to inspect the potential trail footprint with ecological values considered through the design process. It was possible to design a shared off-road trail through areas of cleared land and/or areas of minimal ecological value. This was of course possible because of the disturbed nature of roadside vegetation along the Great Ocean Road. These roadsides have all likely been cleared in the past and have ongoing disturbance even if some areas have regenerated native vegetation.

The proposed trail alignment is approximately 3.9 kilometres from the core Lavers Hill township zone intersection to the entry to Melba Gully picnic facilities. Along this length there is only an estimated 740 linear metres of native vegetation required to be cleared. This is an excellent outcome from the design process.

This part of Victoria has high rainfall and supports vigorous and luxuriant native vegetation when it is allowed to grow. It is also likely that much of this landscape was cleared for farming in the past and the native vegetation along the Great Ocean Road is a product of disturbance. Several areas of native vegetation do need to be cleared for the shared trail but they are disturbed examples of the original native vegetation with different indigenous species dominating in different circumstances.

Information about rare or threatened flora and fauna in the local landscape was also taken into account in the design process. Local records of rare and threatened flora and fauna and information about their habitat needs were sourced prior to the site inspection. It was possible during the site inspection and design process to determine that none of the roadside vegetation was likely to be habitat for the rare or threatened flora and fauna species recorded in the local areas.

This report will describe the native vegetation that would be removed for the shared trail, estimate the required offsets and estimated costs. As this project was to develop a concept plan it was not possible to undertake the detailed work necessary to do a detailed assessment of the native vegetation to be lost and strictly define the offsets. However, it has still been possible to define the likely losses effectively and provide a reasonable estimate of the offsets required as well as the likely costs for the required offsets.

Native Vegetation and Threatened Flora and Fauna

The areas of native vegetation that will be required to be cleared are highlighted on the concept plans for the shared trail. There are only limited sections within the whole that would need to be cleared. Most of the areas to be cleared do meet the strict definition of remnant native vegetation and habitat zones, but are disturbed examples of the original vegetation.

The areas of remnant vegetation to be cleared are likely to be comprised of Ecological Vegetation Class 30 Wet Forest. A map of the Ecological Vegetation Classes (EVCs) in the local area is attached at the end of this report; it indicates that the vegetation along the road is either EVC 30 Wet Forest or EVC 201 Shrubby Wet Forest. EVC 201 Shrubby Wet Forest is “largely restricted to western and northern and ridgelines” while most of the vegetation effected is sheltered on the south side of the ridge where the Great Ocean Road was built. Both EVCs are considered to have a Bioregional Conservation Status of “Least Concern” in the Otway Ranges Bioregion which means that more 90% of the pre-European extent of the vegetation still remains.

The areas of EVC 30 Wet Forest that would be lost if the shared trail was built are consistently disturbed examples of the EVC but with different dominant species. The areas along the road were likely to have been cleared in the past and the regeneration that has occurred is typically of a limited group of indigenous species. The following conditions exist along the road and are representative of different areas:

- The road reserve in front of the Lavers Hill College is dominated by introduced trees and shrubs but have some indigenous shrubs present.
- The areas distributed for a few hundred metres on the south side of the Great Ocean Road just west of the proposed crossing are dominated by Blackwood *Acacia melanoxylon* and various shrubs. The typical overstorey tree Mountain Ash *Eucalyptus regnans* is not present and Blackwoods likely dominate these sites because the seeds were stored in the soil after clearing, could regenerate and other tree species haven't had the opportunity to regenerate on the sites.
- The embankment on the south side of the Great Ocean Road on the west end of Map 2 of 5 of the Concept Plan is dominated by Prickly Tea-tree *Leptospermum juniperinum* and small trees. Small shrubs were the first species to have a chance to regenerate and they have grown to dominate.

The above conditions are repeated in different areas of native vegetation loss. In general, none of the vegetation to be cleared is pristine nor of a high quality.

Local records of rare or threatened flora and fauna species were also reviewed and considered in the design process. It was found that most records of relevant threatened species were limited to wet gullies in the local area and are more typical of the Cool Temperate Rainforest that would occur in such gullies. In addition, disturbed roadsides are unlikely to contain habitat for rare or threatened species because of the limited habitat components present after past clearing and among the ongoing disturbance of a busy road. It is unlikely that the habitat along the road is providing habitat for any rare or threatened flora and fauna species.

It was found that the native vegetation that would likely be lost to build the shared trail is comprised of disturbed examples of the “least concern” EVC Wet Forest and that it is unlikely that rare or threatened flora and fauna species occur in the habitat present. The construction of the shared trail is unlikely to have an impact on any significant habitats. However, if native vegetation is cleared then there will be the requirement to provide offsets and the likely offsets required are calculated in the next section. A planning permit will be required to clear any native vegetation and offsets will very likely be required.

Offset Estimates and Potential Costs

The required approach to determining required offsets when a permit is obtained for clearing remnant native vegetation usually involves mapping the exact areas to be cleared and determining habitat scores of vegetation to be cleared. That information is then provided in spatial data files to Native Vegetation Support at the Department of Environment, Land, Water and Planning (DELWP) who then develops a Biodiversity Information and Offset Report that identifies the exact amount of offsets required. However, as this project is just at the concept plan stage the offset requirements are simply estimated to the best degree possible.

The losses were calculated as follows:

Area of loss: 740 m long x 4 m wide~ = 2960 m² or 0.296 ha

Area of loss (0.296 ha)

x likely habitat score (0.60[^])

x strategic biodiversity score (0.90^{*})

= 0.1598 General Biodiversity Equivalency Units

0.1598 General Biodiversity Equivalency Units

x offset multiplier 1.5 = 0.2398 GBEUs

~As based on data provided by Michael Smith and Associates with a 1m construction impact estimated on either side of the 2 m trail.

^Visually estimated based on my experience and is a cautiously high estimate.

**Sourced from Biodiversity Interactive Mapping. Most of the corridor is mapped as having a Strategic Biodiversity Score of 0.80 to 1.00.*

GBEUs cost between \$120K and \$180K so this offset might cost more because of the high Strategic Biodiversity Score. The likely offset cost is at least \$30K but with cautiousness it may be more reasonable to estimate a cost of up to \$50K excluding GST. As the required offsets usually need to be purchased in the “offset market” it is hard to be sure of the cost until the exact offset requirement is known and an offset is purchased.

Please note as well that the possibility of Species-specific offsets being required exists. These would be required if there is modelled habitat for certain rare or threatened flora and fauna species lost above a certain threshold. However, the level of Species-specific offsets would be similar to the amount of general offsets required because the level of offset units are very similar and are calculated according to the area affected. Species-specific offsets can also be more expensive than general offsets but usually not more than 10 or 20%.

Conclusion

It was found that the native vegetation that would likely be lost to build the shared trail is comprised of disturbed examples of the “least concern” EVC Wet Forest and the construction of the shared trail is unlikely to have an impact on any significant habitats.

Native vegetation offsets will be required and will likely cost up to \$50,000.

This report is only a preliminary assessment based on a general assessment of the possible impacts of the shared trail construction and a detailed vegetation assessment will be required when more detailed designs are completed and a planning permit is applied for. It is unlikely that the small level of clearing required will be problematic for the planning permit application process as the losses are unlikely to be significant in the context of Victorian biodiversity.

References

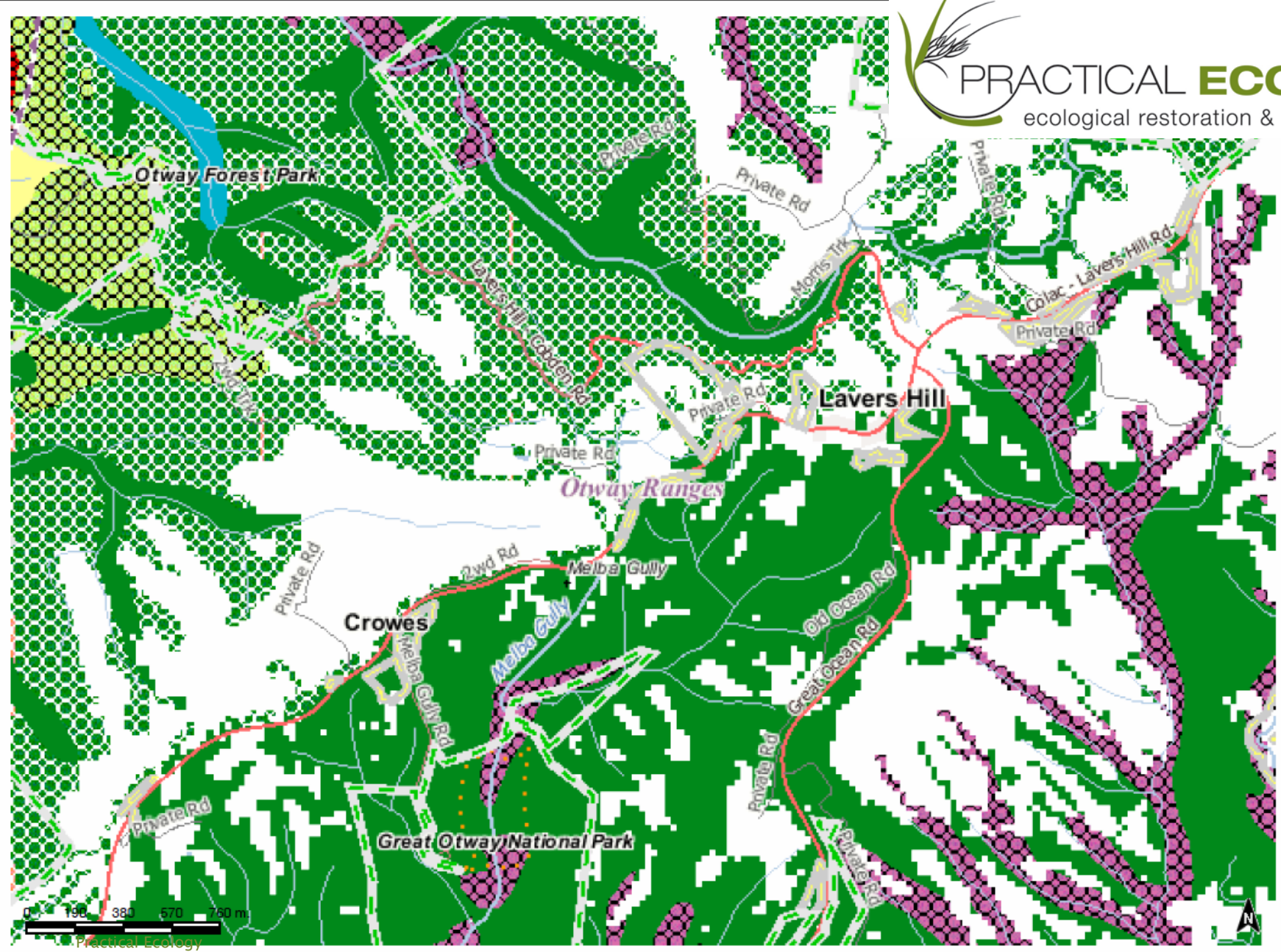
- DEPI (May 2013) *Biodiversity Assessment Guidelines*. The State Department of Environment and Primary Industries, Melbourne.
- DELWP (2016) *Biodiversity Interactive Mapping: Ecological Vegetation Classes*.
- DELWP (2016) *Biodiversity Interactive Mapping: Strategic Biodiversity Scores*.
- DELWP (2016) *Biodiversity Interactive Mapping: Threatened Flora and Fauna Records*.
- DSE (?) *Bioregional Conservation Status for BioEVC*. Sourced from DELWP website.
- DSE (?) *EVC 30: Wet Forest*. Sourced from DELWP website.
- DSE (?) *EVC 201: Shrubby Wet Forest*. Sourced from DELWP website.

Prepared by Lincoln Kern 1st July 2016



Practical Ecology

PO Box 228 Preston Victoria 3072 Office: 2B Stott Street Preston Victoria p 03 9484 1555 f 03 9484 9133
e enquiries@practicalecology.com.au www.practicalecology.com.au



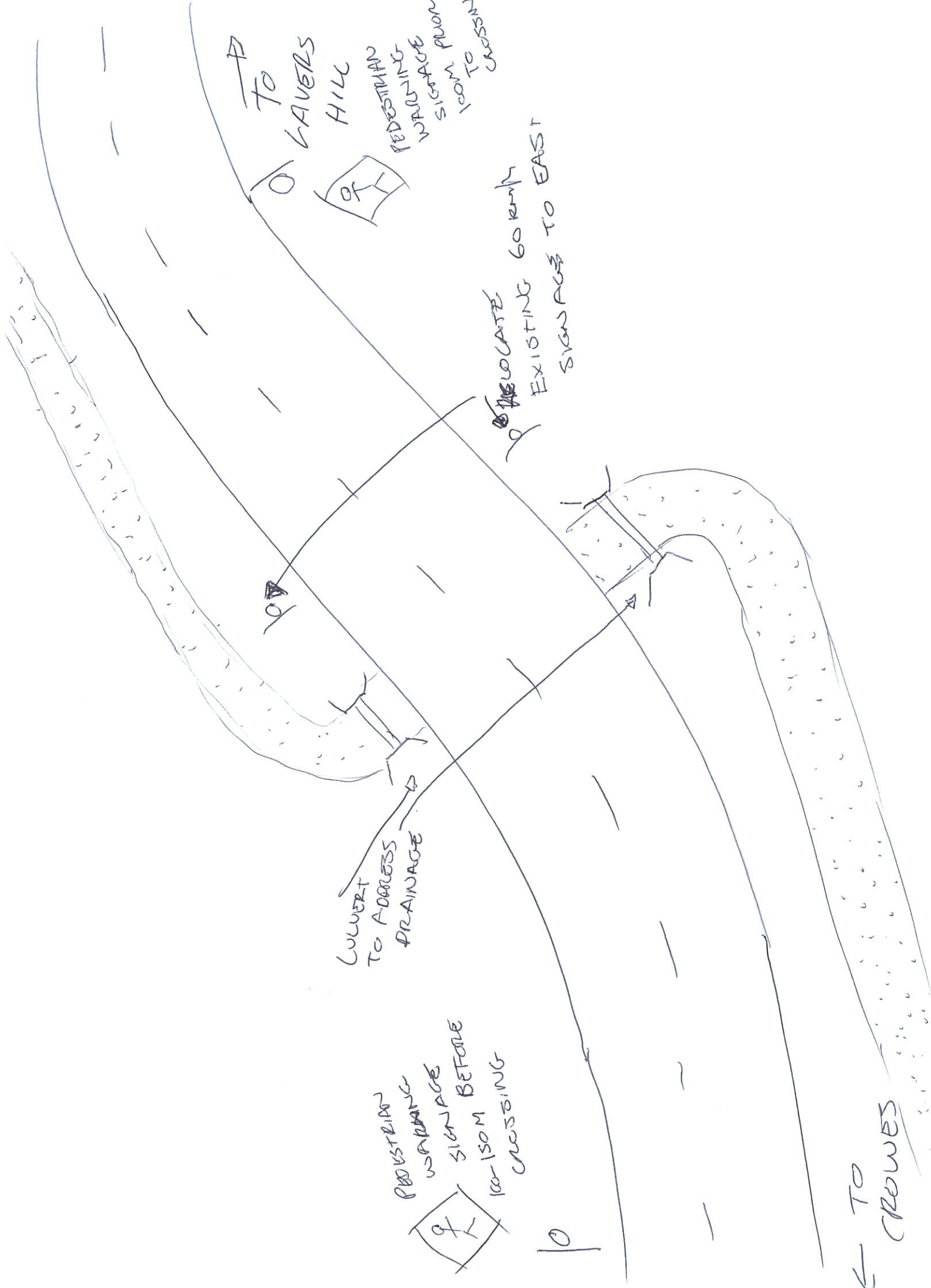
	BIOREGION BOUNDARY
	PARK or RESERVE BOUNDARY
	OTHER PUBLIC LAND BOUNDARY
ROADS	
	Freeway
	Highway
	Main Road
	Secondary Road
	Local Road
	2WD (Unsealed)
	4WD Only
	Walking or Cycle Track
WATERCOURSES	
	UNNAMED DRAINAGE LINES
ECOLOGICAL VEGETATION CLASSES	
	30 Wet Forest
	201 Shrubby Wet Forest
	45 Shrubby Foothill Forest
	21 Cool Temperate Rainforest
	18 Riparian Forest
	48 Healthy Woodland
	8 Wet Heathland
WATERBODIES	
	Watercourse Area
	Permanent Waterbody
	Wetland Area
	Inundation Area
	BUILT UP AREAS

0 190 380 570 760 m

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Disclaimer: This map is a snapshot generated from Victorian Government data. This material may be of assistance to you but the State of Victoria does not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes. While we endeavour to keep the information up to date and correct, we accept no responsibility for errors or for any consequences arising from the use of the information. For more information on this information should make appropriate enquiries to assess the currency of the data.

Map Scale 1:21,673



TO HAVERS HILL



PEDESTRIAN WARNING SIGNAGE 100M PRIOR TO CROSSING

RELOCATE EXISTING 60 km/h SIGNAGE TO EAST

CULVERT TO ADDRESS DRAINAGE

PEDESTRIAN WARNING SIGNAGE 100-150 M BEFORE CROSSING



← TO CROWES

Mike Smith

From: Brent Hodges <brent@traffixgroup.com.au>
Sent: Friday, 10 June 2016 11:42 AM
To: Glenn.Blundell@roads.vic.gov.au
Cc: Michael (mike@msalandurb.com.au); nicole.frampton@colacotway.vic.gov.au
Subject: RE: Lavers Hill to Crowes - Off-Road Trail Feasibility Study

Hi Glenn,

Thanks for the feedback. Obviously there will be more design work in the future if the path is feasible from a funding perspective.

We will include a note on the plans that a Road Safety Audit would need to be conducted at a future design stage.

Regards,

Brent Hodges

Senior Traffic Engineer

TraffixGroup

<http://www.traffixgroup.com.au>

Suite 8, 431 Burke Road
Glen Iris Victoria Australia 3146

Email: brent@traffixgroup.com.au

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From: Glenn.Blundell@roads.vic.gov.au [mailto:Glenn.Blundell@roads.vic.gov.au]

Sent: Friday, 10 June 2016 9:48 AM

To: Brent Hodges <brent@traffixgroup.com.au>

Subject: RE: Lavers Hill to Crowes - Off-Road Trail Feasibility Study

Hi Brent,

VicRoads in principle supports the proposal - extension of the 60km/h zone west. Obviously further down the track, we assume a road safety audit would be undertaken?

Glenn Blundell

Senior Traffic Management Officer

VicRoads - South Western Region

29 Jamieson Street, Warrnambool, 3280

T 03 5561 9203

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CONCEPT PLANS FOR THE LAVERS HILL TO CROWES AND MELBA GULLY OFF-ROAD TRAIL

COLAC OTWAY SHIRE COUNCIL

MICHAEL SMITH & ASSOCIATES
LANDSCAPE ARCHITECTURE AND URBAN DESIGN



OPINION OF PROBABLE COSTS

Postal: 5 Jervis Street, Camberwell Vic 3124
Office: 1st Floor, 407 Whitehorse Road, Balwyn Vic 3103
Telephone 03 9830 0414 Facsimile 03 9830 2555
Mobile 0418 172 863 Email mike@msalandurb.com.au

Based on plans L1 to L5 Rev A (dated 17.06.2016)
DATE 22.06.2016

ITEM		UNIT	QTY	RATE	COST (\$)
1.00	COUNCIL'S CO-ORDINATION OF PLANNING DESIGN AND DOCUMENTATION AND PROJECT MANAGEMENT				
	Council officer planning, Council input to the design and documentation, then the project management during construction.	Item	-	-	\$15,000
2.00	PLANNING APPROVAL				
	Planning approval, including report and Council officer's time, including an independent planner's report.	Item	-	-	\$2,500
3.00	CULTURAL HERITAGE DUE DILIGENCE REVIEW				
	On site walk through by an experienced CHMP Archaeologist to assess for indigenous culture artefacts. Mostly on already disturbed ground, therefore due diligence level is likely to be acceptable.	Item	-	-	\$2,000
	Removal of overhanging tree limbs to trees 1-2 metres beyond the four metre wide corridor.	Item	-	-	\$3,000
4.00	VEGETATION OFF SET PLANNING AND PLANTING				
	Preparation of the vegetation offset report and further inspection along the trail's length by Practical Ecology. Report prepared as part of the planning submission.	Item	-	-	\$3,000
	Offset requirement planting of replacement of approximately 740 linear metres of indigenous vegetation.	Item	-	-	\$50,000
5.00	FIELD SURVEY FROM LAVERS HILL P-12 COLLEGE TO MELBA GULLY CAR PARK				
	Filed survey of section from Lavers Hill to College to the Melba Gully car park approximately 2.8 kilometres. Undertake a feature and levels survey, plot existing trees of over 250mm ø at 1.4 metres above ground level. Plot existing thickets of vegetation within a five metre corridor of the intended trail. Plot roadside signs, power poles, driveway entrances, fencelines and gates.	Item	-	-	\$15,000
6.00	GEOTECHNICAL INVESTIGATION AND REPORTING				
	Field inspection take 15 bore holes (10 at boardwalks). Field samples to laboratory test, CBR, PI. Slump. Note on plan. Prepare the geotechnical report with focus on the two boardwalk sections. To inform the structural and civil design and documentation.	Item		-	\$8,000

7.00	STRUCTURAL AND CIVIC DESIGN DEVELOPMENT DESIGN AND DOCUMENTATION				
	Field visit, ground truthing with the feature and levels survey plan. Confirm major earthwork sections and boardwalk sections. Peg out the boardwalk sections. Tag the intended route with marker tape.	Item	-	-	\$3,000
	Civil and structural design development and documentation. Engineering Certifications of structural boardwalks and handrail design. Earthworks from minor to major trimming. Preparation of AutoCAD plans, cross sections and performance specification notes.	Item	-	-	\$20,000
8.00	GREAT OCEAN ROAD CROSSING POINT				
	To the location on plan L2 approximately 150 metres west of Lavers Hill P-12 College - Vic Roads approval following their site inspection and documentation/application	Item	-	-	\$3,000
	Installation of warning signs and relocation of signs.	Item	-	-	\$20,000
	Formation of path at right angles to the road. Culvert drainage either side			-	\$5,000
	Lopping of trees to internal edge of Blackwoods between the road crossing and 60Kph sign.	Item	-	-	\$8,000
9.00	MELBA GULLY ROAD CROSSING POINT				
	To the location on plan L4 - Council review as Council road. Provision of warning signs.	Item	-	-	\$3,000
10.00	TRAFFIC MANAGEMENT				
	Traffic management plan documentation Provide traffic signage and at times an attendant to manage vehicle movements on the busy road for trucks and machinery accessing work areas in tree felling, earthworks, path and boardwalk construction, track surfacing over a 30-40 day construction period.	Item	-	-	\$3,000
	Static signage set up and moving signage.	Days	30	700	\$21,000
	Traffic management attendants on site with a ute. Allow for several occasions of lane closures.	Days	10	300	\$3,000
11.00	CONSTRUCTION OF TRAIL FROM P-12 COLLEGE TO CROWES				
	General set up and pegging out route.	Item	-	-	\$5,000
	General bulk earthworks and ground profiling to approximately 750 metres, length 4 metres width.	Lm	20	750	\$15,000
	Contractors establishment and site compounds, sheds, toilet facilities including project management.	Item	-	-	\$12,000
	Indigenous vegetation clearance 740 lm of 4 metre width corridor	Days	40	600	\$24,000
	Trimming and earthworks in general to approximately 1200 Linear metres between Lavers Hill P-12 College and Crowes. Allow for 175 mm depth and cartage/disposal.	m ²	2400	15	\$36,000
	Trimming and earthworks at approaches to boardwalks	Item	-	-	\$6,000
	Trimming to old road and powerline easement approximate length 700 Lm, removal 175 mm depth and cartage/disposal.	Lm	700	10	\$3,500

12.00	CONSTRUCTION OF TRAIL ON MELBA GULLY ROAD				
	Trimming and earthworks in general 864 metres from the Great Ocean Road to the start of the existing car park at Melba Gully. Allow for 175 mm depth and cartage/disposal.	m ²	1,728	10	\$17,280
13.00	BOARDWALKS				
	Two weldlok FD385 fibre reinforced plastic mesh boardwalks with deep piles to solid ground. Boardwalks 1.5 metres wide with handrails.	Lm	107	2,000	\$214,000
14.00	SURFACING OF THE TRAIL FROM LAVERS HILL P-12 COLLEGE TO CROWES AND CROWES TO MELBA GULLY				
	2.0 metre wide crushed rock base to 75mm depth over compacted site soil. Includes old road formation and powerline easement, 1920 linear metres.	m ²	3,840	10	\$38,400
	2.0 metre wide Scoria Tuff as surfacing to 100mm depth. Includes old road formation and powerline easement 1,920 linear metres	m ²	3,840	12	\$46,080
	Floodway and culvert drains at various locations to divert water away from the surface.	Item	-	-	\$20,000
	Ballast/salamander rock to fill depressions associated with earthworks trimming and culvert drainage.	Item	-	-	\$10,000
	2.0 metre wide crushed rock base to 75 mm depth over compacted site soil, 864 linear metres on Melba Gully Road.	m ²	1,728	10	\$17,280
	2.0 metre wide Scoria Tuff as surfacing to 100mm depth, 864 linear metres on Melba Gully Road.	m ²	1,728	12	\$20,736
	Ballast/salamander rock to fill depressions.	Item	-	-	\$1,000
15.00	FURNITURE				
	Provide seats and picnic tables at particular points. Allow three points along the trail for picnic tables and bench seats. Three wheelchair accessible picnic tables and concrete surround.	ea	3	2,500	\$7,500
	Three seats (no concrete surround).	ea	3	1,000	\$3,000
16.00	SIGNAGE (INTERPRETIVE AND DIRECTIONAL)				
	Provide directional and interpretive signage. Allow for artwork, written content, fabrication and installation. Signage at commencement point, i.e. core town, mid point of Crowes and Melba Gully. Directional and distance signage.	Item	-	-	\$15,000
	Interpretive signage at the former station site, rail tracks and in town.	Item	-	-	\$25,000
	Provide fire safety warning signage at key access points on the trail, six locations advising of procedures for Extreme Fire Days and Code Red Fire Days. Provide a link to Apps and/or website/s. Provide 'A' frame boards at three locations controlled by local community members.				
	6 signs and installation	Item	6	1,100	\$6,600
	3' A' frame boards	Item	3	700	\$2,100

17.00	CONTINGENCY SUM				
	Allow 10% sum contingency sum for unforeseen crcumstances and cartage/cost escallations/confined working site conditions.				\$73,298
TOTAL (Excluding GST)					\$732,976.00
10% Contingency Sum					\$73,297.60
ADD 10% GST					\$80,627.36
TOTAL (Including GST)					\$886,900.96