

COLAC-BEECH FOREST-CROWES RAILWAY

CONSERVATION MANAGEMENT PLAN

**Prepared for Colac-Otway Shire
By**

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Contents

1. Executive Summary

2. History

- 2.1 Preface
- 2.2 Site History
 - 2.2.1 The Formation
 - 2.2.2 Bridges
 - 2.2.3 Buildings
 - 2.2.4 Service Infrastructure
- 2.3 Use of the Site
- 2.4 Historical Associations
- 2.5 Documented Alterations to the Fabric

3. Physical Evidence

- 3.1 The Formation
- 3.2 Bridges
- 3.3 Buildings
- 3.4 Service Infrastructure
- 3.5 Changes to the Fabric

4. Cultural Significance

- 4.1 Analysis
- 4.2 What is Significant?
 - 4.2.1 The Formation as Fabric
- 4.3 How is it Significant?
- 4.4 Why is it Significant?
 - 4.4.1 Discussion
 - 4.4.2 Rationale
- 4.5.1 Significance of Components
- 4.5.2 Archaeological Significance
- 4.5.3 Discussion
- 4.5.4 Rationale

5. Conservation Policy

- 5.1 Introduction
- 5.2 General Policy
 - 5.2.1 Surviving Formation
 - 5.2.2 Formation not Evident
- 5.3 Fabric
 - 5.3.1 Recommendation on Fabric
- 5.4 Use
 - 5.4.1 Recommendations on Use
- 5.5 Future Development and Control of Physical Intervention
- 5.6 Heritage Protection Strategies
- 5.7 Significant Sites and Elements
- 5.8 Recommendations, Works and Maintenance
- 5.9 Interpretation
- 5.10 Management
 - 5.10.1 Arrangements
 - 5.10.2 Security
 - 5.10.3 Maintenance
- 5.11 Further research
- 5.12 Proposed Planning Controls

6. Conservation Action

- 6.1 Statutory Protection
- 6.2 Prioritised Schedule of Work
 - 6.2.1 Immediate Priority
 - 6.2.2 Short term Priority

- 6.2.3 Long Term Priority
- 6.3 Financial and Technical Assistance
 - 6.3.1 Financial Assistance
 - 6.3.2 Technical Assistance
 - 6.3.3 Lodgement of Plan

7. Sources and Bibliography

8. Appendices

- A. Detail description**
- B. Gradients and Curves Diagrams**
- C. Route Maps**
- D. Condition Report**
- E. Heritage Guidelines**
- F. Burra Charter**

1. Executive Summary

The Colac–Otway Shire commissioned Norman Houghton in March 2003 to prepare a Conservation Management Plan for the former Colac-Beech Forest-Crowes railway route.

1. Terms of Reference

The Conservation Management Plan for the Colac-Beech Forest-Crowes railway was authorised by the Colac Otway Shire following a recommendation from the Old Beechy Line Rail Trail Committee that consideration needs to be given to the conservation of the former railway's existing formation. This recommendation is derived from one of the findings in the Old Beechy Line Rail Trail Concept Plan (June 2000) that the historical and cultural significance of the site be identified before any works are undertaken.

2. Method

The purpose of this report is to provide an assessment of the historical and cultural significance, if any, applying to the existing formation of the former railway through a physical investigation of the site and using other available information.

The outcomes of this report solely relate to the opportunities and constraints of the existing formation and associated sites from a heritage viewpoint.

The report reflects the principles embodied in the Australia ICOMOS Burra Charter, which is the standard national conservation document in Australia. The Burra Charter is included in this report as Appendix F.

3. Definition of the Site

The site is a man made land form encompassing a uniform ribbon of earthworks from 3.6 metres to 40 metres in width and 71 kms in length running from the Colac Railway Station in a generally southerly direction for 48 route kms to Beech Forest and then generally westerly for 22.5 route kms to a little distance beyond Lavers Hill.

4. The Original Designers and Constructors

The Colac-Beech Forest-Crowes Railway was designed and constructed by the Victorian Railways from 1900 to 1902 for the Colac to Beech Forest section and from 1909 to 1911 for the Beech Forest to Crowes section.

5. Historical Background

The Colac-Beech Forest-Crowes narrow gauge railway served as the major transport conduit to the West Otway Ranges for many decades. The railway enabled this hitherto undeveloped region to advance economically and provided the impetus for the creation of settlements and communities. The line closed as an operating railway in 1962 and today has its extant remains in private and public ownership that are used for various purposes. One proposed new purpose is the creation of a Rail Trail along portions of the formation.

6. Integrity

The railway has been closed for over 30 years but fading or obliteration of the remains by human and natural intervention has neither been systematically relentless nor comprehensive and the formation is substantially intact for approximately 48 kms out of the original 71 kms length. Overall, the integrity is high.

7. Cultural Heritage Significance

State owned narrow gauge railways in Victoria were a rarity in a broad gauge system and their introduction represented an alternative response to the problem of building expensive broad gauge railways to serve remote and mountainous regions at a time of tight public finance.

There were four narrow gauge State Railways built in Victoria from 1899 to 1911 and of these examples the surviving formation of the Colac-Beech Forest-Crowes railway is the only relatively intact exemplar of a state owned narrow gauge mountain railway that fulfilled a regional economic development role.

The railway formation has claims for local heritage significance and strong grounds for State significance

8. Conservation Policies

While the railway formation has claims for its cultural significance, the existing remains provide many opportunities for development as a Rail Trail in accordance with the Australia ICOMOS Burra Charter and the recommendations listed in the report.

9.2 Fabric

It is recommended that the existing formation be conserved as representing its condition in 1962 when the railway was closed and the rails removed.

9.3 Utilisation

It is recommended that the land forming the existing formation and associated sites continue to be used for agricultural, forestry and other existing purposes.

It is recommended that the actual road bed of the existing formation be conserved and maintained as a uniformly graded way and that it continue to be used for livestock, vehicular and pedestrian traffic.

It is recommended that the land forming the existing formation be kept clear and open for potential use as a Rail Trail and that no permanent structures, works, excavations or obliterations of or to the fabric intrude onto this concept.

Where there is no obvious visual evidence of the former rail route, it is recommended that the route be kept clear of permanent and substantial structures.

9.4 Current and Future Developments

It is recommended that modifications to the surviving formation be in accordance with this Conservation Management Plan and with the Planning Permits issued by the Colac-Otway Shire

9.5 Statutory Protection

The Colac-Beech Forest-Crowes railway formation is not currently listed with the Australian Heritage Commission, the Heritage Council of Victoria, the Colac Otway Shire Planning Scheme nor the National Trust of Australia (Victoria).

The Colac-Beech Forest-Crowes railway route is protected as a non-aboriginal archaeological site more than 50 years old under the provisions of the Heritage Act 1995 but is not listed on the Victorian Heritage Inventory.

It is recommended that a layered approach be taken to Statutory Protection through local planning levels in the first instance, followed by higher State protection if considered appropriate at a future date. To this end the following applies.

It is recommended that the surviving formation and associated sites be individually listed and protected in the Colac-Otway Shire Planning Scheme, with a Heritage Overlay placed over the site.

It is recommended that the Colac-Beech Forest-Crowes railway route in its entirety be acknowledged in a suitable form in the Colac Otway Shire Planning Scheme consistent with the long term plans of the Old Beechy Line Rail Trail Committee.

It is recommended that the railway route be acknowledged in the Colac Otway Shire Planning Scheme's proposed Heritage Overlay for the site as a non-aboriginal archaeological site under the Heritage Act 1995.

It is recommended that the site should also be considered for nomination onto the Victorian Heritage Register of the Victorian Heritage Council.

9.6 Recommendations, Works and Maintenance

This report establishes a range of Recommendations and Short and Long Term Works and Maintenance items for the conservation, restoration, repair and reconstruction of the surviving formation and associated sites.

9.7 Interpretation

It is recommended that appropriate interpretation of the surviving formation and associated sites be provided.

9.8 Statutory Constraints

It is recommended that all works and proposed alterations to the surviving formation and associated sites be carried out in accordance with the appropriate Building Codes of Australia and Health and Safety regulations.

9.9 Management

It is recommended that the surviving formation and associated sites be appropriately managed with due consideration given to the conservation, restoration, maintenance, security and responsible use of the fabric.

9.10 Arrangements

Current and future owners/occupiers along the railway route should have knowledge of the works and maintenance plans in this report. In most cases owners/occupiers are best to do nothing and leave the railway formation and associated land forms as they are.

10. Acknowledgements

The Consultant acknowledges the assistance provided by Peter Evans.

2. History

2.1 Preface

The Otway Ranges in Victoria's south west region were virtually impenetrable and of little economic value to the Colony until the 1870s when the railway era arrived. The Ranges were encircled or driven into by the Geelong to Colac railway (1877), the Moriac to Wensleydale railway (1890), the Birregurra to Forrest railway (1891), the Camperdown to Timboon railway (1892) and the Colac to Beech Forest (1902) and Crowes railway (1911).

The railways provided the first all-weather, fast and reliable transport services into a area characterised by dense timber and high rainfall and enabled closer settlement and timber winning to begin on a systematic scale.

The Colac to Crowes railway differed from the others in that it was a 2ft 6 in (762 mm) gauge line specifically designed for rugged terrain.

2.2 Site History

Introduction

The heavily timbered central portion of the West Otway Ranges was opened for agricultural selection in 1884 and within ten years more than 250 allotments had been taken up. The type of selector who arrived in the Otways tended to be of slender means and this, together with the 1890 Bank Crash and its aftermath, meant that selectors were compelled to depend on their wits and brawn to derive a living under the difficult physical and financial conditions in the Otways.

Settlers had to contend with primitive living conditions, lack of medical, educational and cultural facilities, bushfire in summer and what seemed like incessant rain in winter, but the greatest difficulty was that of access. There were no roads worthy of the name and during the winter it became physically impossible to undertake any sort of a journey.

The only all-weather form of transport was a railway and at that time no railway existed in that part of the Otways.

One result of the transport crisis was that the timber on settlers' blocks, worth millions of dollars if it could be taken to market, was seen as a nuisance and hindrance to cultivation and with official sanction much of it was destroyed by ringbarking and fire. By 1899 approximately half of the 54,000 hectares occupied in the West Otways had been ruined as a timber production source. When a settler had cleared a few hectares the land was used for grazing, vegetable and fruit growing and egg production but not much else because it was pointless growing any surplus if no means existed to transport it from the farm.

The Colac Shire Council was the local government authority in charge of the area and although the question of building roads and tramways south into the bush from Colac was discussed in the 1870s and 1880s nothing was done apart from making marginal improvements to existing tracks. The Shire did not have the revenue base from an undeveloped area of forest to fund transport improvements.

Government Action

It fell to the colonial government to remedy the deficiency.

In 1884 a trial survey for a broad gauge line from Colac to the top of the Otway Ridge, about 50 kms from Colac, was run through the forest but no further action was taken. This survey became a sore point with selectors for many claimed they had taken up their blocks under the impression that a railway would soon be built, but had seen no progress in the years since they had arrived. Another survey in 1889 proved just as inconclusive because of the enormous costs involved in laying a broad gauge railway in such difficult terrain. The railway could have been routed to Gellibrand at a high, but economically justifiable, cost but south from there the nature of the plunging spurs up to the main ridge meant that steep gradients and sharp curves would be necessary and could only be secured at a prohibitive cost.

The financial depression of the 1890s ended any hopes of expending vast sums of public money on such a railway and there the matter rested for many years.

Cheap Railway

There were pressures elsewhere to find a means to construct cheap railways to the undeveloped parts of Victoria and in 1894 the question of using narrow gauge railways was referred to the Parliamentary Standing Committee on Railways for consideration. The Victorian Railways (VR) was opposed to the narrow gauge notion because it would introduce a non-standard operating regime with extra costs but the Standing Committee pressed on and came up with the recommendation in 1895 that narrow gauge lines be introduced in sparsely settled districts.

The Committee next considered the localities for these lines and in 1896 named 14 places for further detailed study. Four localities were ultimately selected, Warburton, Whitfield, Gembrook and Beech Forest, and of these Warburton was subsequently built as a broad gauge line because of vigorous opposition by the VR to narrow gauge. The other three were built as narrow gauge lines in 1899, 1900 and 1902 respectively and a fourth was added in 1910 at Walhalla.

Construction

Construction of the Beech Forest railway began in 1900 and the 47.7 kms length of rails reached the terminus in March 1902. Further agitation by settlers along the Ridge and to the west as far as Princetown resulted in the railway being extended from Beech Forest to Crowes. This 22.5 kms extension was built from 1909 to 1911.

The Beech Forest railway was an immediate success. It provided a fast, convenient, all weather means of access between Colac and the forest and facilitated the development of the region.

Timber Industry

Although the railway was built to assist and develop agriculture, it was the timber industry that boomed at first. Settlers with forested blocks either went into the sawmilling trade themselves or engaged professional sawmillers to clear their holdings. In the period from 1902 to 1929 the railway was predominately a timber line and in broad figures the railway was fed by the output of 100 sawmills to 1950. The sawmillers built timber tramways to the nearest rail siding to convey their outputs from the mill to rail truck.

Timber products that flowed out of the forest on the railway were firewood, palings, mining props and laths, charcoal, sleepers, posts, piles, barrel staves, furniture and carriage timbers and sawn timber for building purposes.

By 1906 there were some 600 cubic metres per month carried on the railway and this rose to 2,700 cubic metres per month by the early 1920s. In 1921, for instance, the railway carried 37,000 cubic metres of timber and this represented around 10% of total Victorian production. The timber traffic fluctuated according to general economic conditions and this peak was not maintained but, nevertheless, timber remained the cornerstone of traffic for decades.

The undeveloped nature of the road system meant that all heavy loading went by rail and this situation persisted until the 1950s. The role of rail in an emergency was amply demonstrated in 1939 to 1941 following the 1939 bushfires when salvage logging was underway to retrieve as much fire damaged timber as possible. Some 23,000 tonnes of timber loadings passed through the Beech Forest station in 1940. The one other timber peak was from 1958 to 1960 when thinnings from the Aire Valley plantations were railed from Beech Forest.

Produce

Other products whose outputs were stimulated by the railway were root crops such as potatoes and turnips, cheese and cream, livestock and lime. In time the area around Weeaprounah became a prime potato production zone. Limestone deposits at Kawarren were developed as soon as the railway was built and this trade provided substantial loadings through to 1958.

The other role of the railway was as a transport conduit for the wider region. Railheads were established at Gellibrand for the Carlisle River area, Beech Forest for Tanybryn and Apollo Bay and Lavers Hill for Princetown, Johanna and Kennedys Creek. A passenger coach service operated from Beech Forest for Apollo Bay and road transport services for goods, cream and mail ran from there and the other main stations.

Passengers

Passenger traffic was catered for through passenger cars being attached to the goods trains, but there was no exclusive passenger service apart from occasional pic-nic trains. In the period from 1902 to 1929 when the sawmills were at their peak the level of passenger traffic was very heavy. A refreshment room was provided at Gellibrand for through trains and at Beech Forest a tea stall supplied refreshments, fruit and newspapers. By 1930 passenger traffic had fallen away and remained at negligible levels thereafter.

A pivotal service of the railway was to transport road gravel and thousands of tonnes was delivered to all points along the railway after 1919 to enable the Otway Shire Council and the Country Roads Board to build farm access roads and developmental roads.

No Profits

The railway was not a profitable undertaking for most of its life and only showed a favourable balance sheet from 1905 to 1911 and in 1919. The reasons for this were many. Most of the loading was outwards and the comparatively small amounts of inwards traffic meant that many of the truck kilometres generated from Colac to Beech Forest were not earning revenue. The outwards traffic was mostly bulk commodities of

timber, lime and potatoes, which were low rate items, and since rates were based on the broad gauge (for uniformity) they tended to be uneconomic on the narrow gauge. Working expenses were high because of the staffing levels occasioned by the need for numerous track gangs to maintain the many curved and frequently wet permanent way and the need for staff at the closely spaced crossing stations.

But the major cause of the unprofitability was the basic operating feature of the railway, namely that many trains were needed to transport the large tonnages because of the limited loads capable of being hauled over the steep gradients by the small locomotives. The tonnage generated by the line should have given an adequate financial return but as it had to be dribbled out of the Otways in many short trains it became a liability.

Train Running

Train running was initially based on locomotives at Colac, Beech Forest and Crowes and an extensive service provided almost daily passages each way. The Colac and Beech Forest locos ran a shuttle service between these two places, while the Crowes loco exclusively ran along the Ridge to Beech Forest and return. At the peak in the early 1920s there were five NA locomotives working the line.

The small NA locomotives were part replaced in 1926 by a Garratt type locomotive and this larger and more powerful machine enabled many operating economies to be introduced. Services were trimmed to suit the lesser number of trains being run and by 1929 the basing of locomotives at Beech Forest and Crowes had ceased and all train running then originated from Colac. The long trip to Crowes was covered by a two day service, with the train crews stopping overnight at the Crowes station.

Closure Threat

The financial losses incurred by the railway were twice examined by the Parliamentary Standing Committee on Railways, first in 1917 and second in 1931.

The first enquiry looked at the causes and the freight rate and type anomalies and made recommendations for various economy measures to limit the operating deficit.

The second enquiry was far more searching. By this time an all weather road had been opened between Colac and Gellibrand, a circuitous road via Forrest, Tanybryn and Olangolah opened to Beech Forest and a direct road from Gellibrand to Beech Forest was in the planning stages (and it opened in 1934). These new roads and the rise of motor vehicle cartage took away some railway loading.

The Parliamentary enquiry heard evidence from the VR Commissioners that the Beech Forest railway was in a hopeless financial position and one of the options considered was for closure. However, the railway was reprieved because road transport was not then capable of meeting the region's needs, because it was hoped that traffic levels would lift after the economic climate improved, because local government was terrified of the costs it would have to bear to build and maintain an extensive road system and because Country Party influence in Government favoured retention of the rail service.

Traffic Improvement

Traffic levels did improve from 1932 and the railway survived for another 30 years.

The railway was then staffed and run at the minimal level required for safety and satisfactory operations. The line had been built with second-hand rails and maintenance continued with this second-hand stock. Sleepers, which had been sourced locally as fresh cut, were then issued as second-hand broad gauge stock with the ends docked to

fit the narrow gauge existing formation and stone ballast was supplemented with coal cinders from the loco depots at Colac and Geelong.

Staff levels along the route were then limited to track maintenance gangs at Colac, Gellibrand, Beech Forest and Wyelangta and a Travelling Station Master based at Beech Forest. The operating crews were provided from Colac. By 1942 the TSM position at Beech Forest had been abolished and all operations run from Colac. The train service throughout the war years was mostly daily on account of the demands of the war economy and road transport being curtailed by petrol and rubber rationing.

Part Closure

The timetable changes and economies in the 1930s rendered the Beech Forest to Crowes extension less useful to consignors as time went on and in 1954 the line was closed beyond Weeaprounah on account of poor loading levels. Potato loadings from Weeaprounah and Ferguson became the mainstay of traffic at the furthest end of the line. Timber traffic revived from the mid 1930s and remained at reasonable levels until around 1950 from Lavers Hill, Beech Forest and Gellibrand and eventually fell away because rail transport became too slow, cumbersome and expensive for house lots of sawn timber delivered outside the area. The multiple handling involved in the road/rail/Colac transfer/rail/road process from the mill to building block could not be economically justified.

After 1945 the timber production area shifted from immediate proximity to the railway to the huge areas of untracked forests south and east of Beech Forest and a whole new regime of timber winning was begun. The railway played little role in the new methods and technology which was based on crawler tractors, compact motor winches, chain saws and heavy duty motor trucks. The railway had thrived in the timber tramway and steam winch era and this was now finished.

Goods Traffic

The major items of outwards freight on the railway in the 1950s were timber, potatoes and lime and the inwards were groceries, beer, household supplies, superphosphate, road gravel and salt (for butter making). The train service from 1946 comprised a regular weekly trip from Colac to Crowes and return, taking two days, and extra trains as required in the potato season.

The VR was aware of the deteriorating state of the locos and rolling stock on the Beech Forest railway and looked at introducing diesel traction but the cost of track renewal to take a diesel loco and the limited prospects for new traffic put paid to this. A second Garratt loco was assigned to Colac in 1954, surplus from the closure of the Walhalla line, and some of the lineside infrastructure was renewed at the same time, so the VR was not considering an immediate abandonment of the service. The train service from 1954 was a weekly trip from Colac to Weeaprounah and return on a same day basis. An occasional extra service was run for loading at Kawarren or Gellibrand as required.

Pic-nic Trains

In 1959 the Colac Kanyana Committee jointly organised with the Australian Railway Historical Society and the VR for a set of narrow gauge passenger excursion cars to be transferred to Colac and pic-nic trips along the railway were run for the next couple of years.

Final Closure

By the late 1950s the Garratt locos were nearing the end of their economically repairable lives (being over 30 years old) and the only substantial traffic offering was softwood billets from the Aire Valley plantation. When this billet traffic peaked and declined and the ageing loco boilers were requiring more frequent and costlier repairs to maintain, the VR referred the line's future to the Joint Transport Research Committee for report. The Minister for Transport was then informed in November 1960 of the Committee's findings that the railway be closed in 1961 and the Minister agreed to act on the findings. Some local political action delayed the closure by one year while urgent road building works put the new Charleys Creek Road in commission between Gellibrand and Ferguson. The railway finally closed on 30 June 1962.

2.2.1 The Formation

The Colac to Beech Forest Railway was a narrow gauge mountain railway that was designed to secure communication between the broad gauge rail network at Colac, 133 metres ASL, and Beech Forest, 47 km to the south and situated at 532 metres ASL. The route was not a simple linear one on a constant rising grade because the intervening topography has several east-west flowing watercourses whose valleys had to be negotiated on a north-south axis. This entailed a climb from Colac to the divide between Barongarook Creek and Boundary Creek before dropping into the Boundary Creek valley, then another climb into the Ten Mile Creek Valley and a drop into the Loves Creek Valley and subsequent continuation to the floor of the Gellibrand River Valley at 75 metres ASL. From Gellibrand the climb to Beech Forest entailed a vertical rise of 457 metres over 19 kms along the face of a long rising spur to the main Otway Ridge. The ruling gradient for the railway was 1 in 30.

A variety of topography was met en-route and this challenged the engineering solutions. The rail route was constructed with the minimum amount of earthworks consistent with the terrain being passed over.

The track was laid with mostly 30 kg/metre iron rails to a gauge of 2ft 6 ins (762mm) on 5ft 6in (1676mm) sleepers resting on sand/gravel/cinder ballast 150 mm deep. Where possible, the route was laid onto the natural surface with a roadbed comprising a very low earthen mound 3.6 metres wide and an occasional slight cut out of the high spots here and there. A drainage ditch was provided on both sides of the mound in the cuttings.

This surface laid line was characteristic of the section from Colac to Elliminyt and in many sections along the Ridge from Beech Forest to Crowes.

In other sections a low embankment 3.6 metres wide and from 50 cms to 2 metres in height was built to maintain an even track bed in undulating terrain or to gain elevation/descent to a hilltop or spur. A low cut from 50 cms to 2 metres was required on the uphill side in those sections running along the sides of the more gently sloping hills and some box cuttings from 50 cms to 3 metres deep were required at rises. In the box cuttings the roadbed width was slightly less than for the embankments and was set at 3.3 metres. This earthwork arrangement was characteristic of the sections from near Elliminyt to Barongarook, from Birnam to Gellibrand, from Gellibrand southwards for 3 kms.

The hillier sections required more extensive earthworks and in the true mountain sections of the route such as the head of the Ten Mile Creek to Birnam and from 3 kms south of Gellibrand to Beech Forest there was a pattern of engineering works that showed this characteristic of the railway.

There was a pattern of low embankments up to 3 metres high with borrow pits on either side, deep cuttings from 2 metres to 10 metres and further extensive embankments up to 10 plus metres with borrow pits/quarries at one end in the face near the cutting on one or both ends. The larger embankments had a generously proportioned concrete culvert under them for water to pass through, while the smaller ones had a narrow pipe, rectangular wooden openings or an agricultural drain or sometimes nothing at all depending on the waterlogged nature or not of the immediate surrounds.

In the mountain sections the engineering solution was to build the roadbed on the extremity of the outer edge of the facing slope to minimise deep earthworks and use many and tight curves to follow the general contour. In numerous sections the roadbed was placed so that the uphill bench wall was less than 2 metres high but the downhill roadbed face fell away for several metres. In the more precipitous sections such as between Gellibrand and Banool, between McDevitt and Dinmont and The Tanks to near Wyelangta there was a pattern of construction that saw a sequence of cutting, embankment, cutting, embankment mostly formed with curves. To be specific, the road bed characteristics of these parts of the route was as a low uphill wall cut or shallow sloping batter where possible, cuttings up to a usual 3 to 4 metres deep (but some examples being up to 7 metres deep) through the protruding rises and slopes, and embankments over the dips between the cuttings. Where the dips proved unusually deep or more than 3 to 4 metres between the rails and inboard towards the natural surface face of the slope, the embankment was extended as an inboard flat up to 10 metres wide. This would allow for surface drainage to prevent undermining of the embankment and did away with the need to build a bridge.

The cuttings and embankments were generally of short length and for this reason the few longer cuttings stand out. The area with the longest and deepest cuttings and the largest embankments was along the head of the Ten Mile. The cuttings mostly have a sloping batter and vertical walled ones are uncommon except from near McDevitt to Beech Forest. The reason for this is that vertical cuttings were subject to slips and over the subsequent years of operation the walls were cut back.

2.2.2 Bridges

There were not many timber bridges on the route as the engineers preferred on economic and maintenance grounds to use earth fill to cross the gullies having an intermittent water flow. Timber bridges were used in wet areas and over the more substantial watercourses and very steep gullies. There were eleven bridges between Colac and Beech Forest and one between Beech Forest and Crowes. The bridges were built to a standard VR design for the narrow gauge. Originally some local timbers were used but over time these were found to be too 'soft' for the task and all subsequent repairs, maintenance and rebuilds after floods and bushfires used bridging timbers from Northern Victoria and Gippsland.

2.2.3 Buildings

The infrastructure at the station sites was minimal. All of the buildings were either standard VR wooden portable type or standard corrugated iron passenger shelter and all were placed on the surface, without raised platforms as on the VR broad gauge. Goods sheds were more solidly built on site and these were platform types of timber (as at Barongarook and Wyelangta) or corrugated iron as at Gellibrand, Beech Forest, Lavers Hill and Crowes. Ramped platforms for moving farm machinery and vehicles into and out of rail trucks were originally provided at Weeaprounah and Wyelangta but rail users eventually requested their removal because they interfered with traffic circulation in the goods yard. Cranes for the timber trade were a rarity and were provided only at Beech Forest and Wyelangta.

Staff housing was provided at a number of locations using the standard VR dwelling designs. There were single houses at Barongarook, Banool, Wimba, Weeaprounah and Lavers Hill, two at Wyelangta, three at Gellibrand and Crowes and five at Beech Forest.

2.2.4 Service Infrastructure

The servicing needs of the locomotives represented substantial fixtures and these comprised water points at Barongarook Water, Gellibrand, Wimba, Dinmont, Beech Forest, Kincaid and Crowes, loco sheds at Beech Forest and Crowes and a coal stage at Beech Forest. The water points required weirs or pumps, concrete reservoirs, piping and elevated tanks.

Distance markers were provided along the entire railway by means of heavy, concrete triangular posts showing a number from 96 to 139, representing miles from Melbourne. The posts were painted white with black numbering.

Communication along the full length of the railway from the Colac Station Master's office was through a telephone circuit line carried on poles (some wooden, some iron) set at the side of the track and with a line connection to each station. In case of breakdown or emergency between stations, the guards van on each train was equipped, from 1941, with a portable telephone and clips to enable the train crew to connect to the wires.

2.3 Use of the Site

The site (formation) was used as a transport conduit for the people and industries of the West Otway Ranges at a time when road transport was primitive and undeveloped in such a wet mountainous area. The railway carted the freight in and out of the Otways and the people and industries carted their freight to and from the railway stations and sidings.

Inwards loading for domestic, commercial, agricultural and industrial purposes was almost exclusively carried by the railway from 1902 until the late 1920s and in diminishing reliance through to 1962. Outwards loading of mainly bulk commodities such as lime, potatoes and timber was the mainstay of the railway throughout its life.

The railway was used for social, recreational and cultural purposes through special trains for events held all along the line and at Colac, such as Sports Days, Horse Races, Agricultural Shows and pic-nics, in the period from 1902 until 1939.

The role of the railway as an exclusive transport mode began to decline from the late 1920s but its role as a heavy hauler for industry and agriculture remained undiminished through to the 1950s owing to the condition of the road network and legislative and road engineering restrictions on competition.

2.4 Historical Associations

The Colac-Beech Forest-Crowes railway stands as a rare engineering feature in the Victorian rail network and was one of only five narrow gauge lines built and the longest and most intricate of the three that can be described as true narrow gauge mountain railways.

The locomotives employed on the railway were rare and unusual and fine examples of imported technology adapted for local use.

From an overall perspective, the railway was an essential facilitator of economic development in the West Otway Ranges and Victoria's South West region would have been poorer by decades without it.

2.5 Documented Alterations to Fabric

Over the life of the railway there were numerous minor modifications to the earthworks and bridges owing to earth slips, washaways, floods and bushfires. Oral testimony and documentary sources indicate the rebuilding of bridges, the shortening of bridges though extending earthworks, alterations to the batters in cuttings to overcome landslips, widening cuttings to minimise earthslips onto the rails and reconfiguring embankments and cuttings following washaways. The same sources indicate that there were frequent changes to the buildings at the stations and sidings were relaid, lengthened or pulled up to suit traffic requirements. There was frequent bushfire damage and destruction to sleepers, bridges, buildings and telephone poles and these items were replaced as required. All of these modifications were carried out in keeping with the materials and methods used in the original construction.

Since the railway closed there have been no documented sources of evidence on changes to the fabric.

3. Physical Evidence

3.1 The Formation as Fabric

The physical evidence of the site is best represented in the earthworks that define the existing formation and as described at 2.2.1. The need for a uniform gradient has resulted in the actual roadbed for the sleepers and rails being a distinct and continuous 3.6 metre wide, evenly graded, ribbon imposed on the terrain. In the more gentle terrain the road bed is a slight indent or embank against the surrounding landscape, while in the hillier sections it is a succession of embankments and cuttings ranging from half a metre to seven metres vertical section. The larger embankments have concrete or wooden culverts underneath and most of these remain intact.

The full station sites were generally long, flat areas and these are extant as such although many have sheds and other structures on them. The Sidings and Stopping Places were required to be only as long as was necessary for operational purposes and these are represented by narrow benches situated close to the main line. The Stopping Places were marked by name boards and have no obvious remains.

3.2 Bridges

The small number of bridges along the existing formation highlights the reliance the Engineers placed on earth forms as a construction technique and bridges are not a feature of this mountain railway. Of the 11 bridges between Colac and Banool, six are extant and in derelict condition. The other five bridges have been removed in the course of road works or replaced by landholders with constructions of a different form. The single bridge at Lavers Hill has some extant remains.

3.3 Buildings

The service buildings connected with the railway were all standard portables or simple frame and iron sheds and all have been removed. Staff housing is extant at Gellibrand where there are two dwellings and at Beech Forest where there are two dwellings. These structures are not subject to any recommendation in this Report as they are listed in the Colac Otway Shire Heritage Study by Mary Sheehan.

3.4 Service Infrastructure

The water collection and take-off infrastructure for locomotive purposes is extant at Elliminyt, Ten Mile, Wimba, Dinmont, Beech Forest, Kincaid and Crowes.

3.5 Changes to the Fabric

There have been multiple changes to the formation and associated sites in varying degrees along the entire railway. On closure of the railway, the rails and most of the sleepers together with the light ballast were removed throughout except for several road crossings along the ridge where the rails and sleepers remained trapped in the bitumen. A major rebuild and realignment of the ridge road in the 1970s then removed these remnant rails except for one (bypassed) road crossing near Crowes. Agriculture has obliterated the fabric for around one third of the length of the railway and short lengths here and there have been incorporated into timber plantations with a consequent loss of definition. Long sections of the existing formation have been turned into light farm

roads or heavy haul logging access tracks. Other sections have been converted into cattle pads and yet other lengths have been incorporated within paddock boundaries and left to grow pasture.

A calculation of the destroyed lengths totalling 22.6 kms is as follows:

Near Tulloh, 800 metres

Near Birnam, 500 metres

Lovat to Gellibrand, 3.2 kms

Near Wimba, 500 metres

Near Devitt Bros Siding to Beech Forest, 3.6 kms

Near Buchanan to Kincaid, 8 kms

Wyelangta to Lavers Hill, 5 kms

Near Lavers Hill to Crowes 1 km

The balance comprising 48.4 kms of surviving formation sites is in varying condition. The existing formation is obliterated at all road crossings but the rest is mostly in good, rather than fair, condition, and several lengths can be classed as excellent.

There were 28 stations and stopping places along the railway and the current evidence for these is as follows.

Elliminyt, Coram, Barongarook Water (1), Barongarook Ballast Siding, Barongarook Water (2), Banool Ballast Siding, Wimba, Ditchley and Wyelangta are as left when the rails were pulled up.

Barongarook, Banool, McDevitt and The Tanks have minor modifications.

Hitts Siding and Stalker have a degree of modification.

The remaining 14 sites, including Colac, have experienced major modifications that have materially affected their integrity.

There are many sections that have survived more or less intact and the existing formation has been preserved where farmers have either done nothing and left the site untouched or put a hard surface on the roadbed and used the bed as a light vehicle road. From observation, it seems that the roadbed has best been preserved where a hard surface has been put on it and the bed used as a road. The hard surface prevents water penetration and constant use encourages preservation and maintenance.

Where the roadbed has been used as a cattle pad there is some damage, particularly in cuttings or natural surface areas where churning interferes with drainage and the surface turns to a muddy bog.

Where the roadbed in cuttings has been left untouched and has not been churned by cattle, there is a tendency for water logging, with consequent potential to undermine and damage the fabric.

Some sections of roadbed have been used by softwood and hardwood loggers and have been widened, sometimes up to twice the original width, and, in places, a hard surface of 50 mm to 100 mm blue metal laid down.

The original telephone line from Colac to Beech Forest was strung along railway poles and when the railway closed the aerial wire was replaced with an underground line that was entrenched in the road bed in many areas. This operation involved driving vehicles along the road bed and using a trench digger and this has compromised the surface.

The Otway's soil condition is a soft one and the railway earthworks are easily disturbed by machinery. Along the ridge between Beech Forest and Crowes the roadbed that has disappeared was obliterated either by ploughing or incorporation into the main road that was realigned and straightened in 1974.

In many areas the railway reserve for its full width has not been disturbed and the undergrowth and tree cover remain as they were when the railway was operating.

4. Cultural Significance

4.1 Analysis

The site is significant for the following reasons:

1. It is Victoria's sole surviving relatively intact example of a developmental narrow gauge mountain railway designed to bring rail communication to a remote region.
2. Of the former VR narrow gauge railways it retains the most complex suite of features in regard to operating systems, complexity of construction and route selection.
3. It is the most representative exemplar of a railway as an economic developer and community builder to the Colac and South West Region.
4. The rail route remains contain physical evidence from the past that provides solid evidence of important elements of human settlement. This evidence can add to our existing understanding of the past that is currently, and almost exclusively, derived from the documentary record.

4.2 What is significant?

4.2.1 The Formation as Fabric

The surviving formation of the former Colac-Beech Forest-Crowes railway with its roadbed, earthworks and associated features is the evidence of how a systematic and uniformly graded penetration of a rugged landscape could be achieved using what was then a light weight railway for heavy haulage. The man-made land forms demonstrate the use made of on site materials via pick and shovel construction techniques to put together the existing formation. The small number of bridges on the railway shows the primacy of land-cut-and-fill as a construction technique.

The extant fabric represents the state of the railway as at its closure in 1962 following the removal of rails and this fabric is the basis for assessing its significance.

The existing formation runs from the Colac railway yard, with some gaps, to just past Devitt Bros Siding, near Beech Forest and three sections along the Otway Ridge at Buchanan, near Kincaid and at Lavers Hill. There are also several specific features and relics outside the immediate surviving formation.

The existing formation can be divided into several representative sections reflecting the terrain passed over and demonstrating how to secure a workable gradient. The extant sections are as follows:

1. From Colac railway yard, south side, Colac to Shorts Road, Barongarook which section demonstrates a existing formation in foothill terrain.
2. From Shorts Road, Barongarook to Alford's Road, Barongarook which section demonstrates the long and low cuttings and embankments required to surmount a low divide.
3. From Alford's Road, Barongarook to Cashins Road, Birnam which section demonstrates the lead into, the passage through and the lead out of a mountain

section. This section has the longest and largest cuttings and embankments anywhere on the railway.

4. From Cashins Road, Birnam to Lovat at 762044-231355 where the main road intersects and obliterates the existing formation, which section demonstrates a streamside parallel route.
5. From the south side of the Gellibrand caravan park for 2.2 kms to 762044-205310 which section demonstrates the foothill lead into a mountainous section via rises and short plateaux.
6. From 762044-205310 to immediately south of Devitt Bros Siding at 762044-240222 which section demonstrates all the characteristics of a mountain railway.
7. At Beech Forest township, east end abutting the hotel, which section is the remnants of the railway yard and the reversing loop for turning trains. Reversing loops were rare in Victoria on any gauge and this example is unique to the narrow gauge.
8. At Beech Forest township, west end, from near Public Hall and westwards for approximately 700 metres, currently a walking track, which section demonstrates the roadbed traversing a multi headed gully.
9. From near Kincaid 752012-152195 to near Wyelangta 752012-138184, which section demonstrates a mountain railway alignment along a ridge top.
10. From near Lavers Hill 752012-078157 and westwards for 800 metres to 752012-071156 which sections shows a south facing, multi curved alignment.
11. At Crowes station and environs where rails, infrastructure and a vegetation sample remain intact

Within the sections listed above are some specific sites and relics as follows:

1. bridge remains at 726134-263513
2. bridge remains at 726134-265508
3. bridge remains at 726134-265504
5. railway reservoir
6. sleeper in gravel road near Tulloh station site 726133-258478
7. pick marks in cutting wall near Coram
8. 101 mile post
9. sleeper impressions in low cutting near 103 mile post
10. 103 mile post
11. boiler ash heaps at Barongarook Water (2) stop.
12. 106 mile post
13. bridge remains at Kwarren 762133-271378
14. bridge remains at Kwarren 762133-269376
14. Banool Ballast Siding formation and quarry.
16. bridge remains near Banool Ballast Siding 762044-212301
17. cutting road bed not compromised by machinery near Banool 762044-214299
18. four sleepers in road at Wimba station site
19. water collection point at Wimba
20. remains of overhead road bridge near McDevitt
21. horseshoe cutting with near vertical walls and original camber (super elevation) intact near Dinmont 762044-227242
22. railway telephone pole near Dinmont 762044-226236

23. water tank at Dinmont
24. pipeline for Dinmont water tank in road bed near Dinmont
25. pick marks in cutting wall near Devitt Bros Siding
26. collecting weir and race for water supply at Beech Forest
27. collecting weir for water supply at The Tanks
28. bridge remains at Lavers Hill
29. rails intact at bypassed road crossing near Crowes
30. palm tree and cypress near Crowes station office site from 1916 era
31. in ground tank for water supply at Crowes
32. buffer stop as reconstructed following 1942 derailment
33. collecting weir for water supply in gully westwards of station site.

4.3 How is it Significant?

The existing formation of the former Colac–Beech Forest–Crowes railway is of historical, technical, economic and social significance.

4.4 Why is it Significant?

4.4.1 Discussion

State owned narrow gauge railways in Victoria are a rarity in a broad gauge system and their introduction represented a response to the problem of building expensive broad gauge railways to rugged areas at a time of tight public finance.

There were four narrow gauge State Railways built in Victoria from 1899 to 1911 to serve remote and mountainous locations.

Of these four, the two from Ferntree Gully to Gembrook and Moe to Walhalla have been compromised in various ways. The Gembrook line has been built over from Ferntree Gully to Belgrave and from there to Gembrook it has been regraded in parts and had a modern tourist railway put on top of it. The station sites and other features have been reconstructed to suit modern conditions and do not faithfully resemble the original facilities in many respects.

The Moe to Walhalla line has been built over in parts, some sections put under water and has had a modern railway, complete with new bridges and rolling stock, built on top at the terminus end. This restoration has not always been sympathetic to heritage.

The other two narrow gauge lines, Wangaratta to Whitfield and Colac to Crowes, are substantially intact as road beds, even though the rails were lifted many years ago. The Whitfield line was intended to be a mountain railway through an extension to Tolmie but this was not built and the line remains as originally laid on the flat country to the south-east of Wangaratta.

The Colac-Beech Forest-Crowes railway was built to serve a purpose and this was as a developer of the hitherto unrealised economic potential of the region. Prior to the railway being built the West Otway Ranges was a burden to the Colac Shire Council that generated comparatively little rate revenue and was an area that the Shire found difficult to administer because of the lack of roads. The settlers had a trying time

attempting to make a living from a difficult environment and the failure rate was high. The West Otways were going nowhere without a railway.

Once the railway opened, the timber industry could develop and expand and provide timber to the people and industries of Victoria and the farmers could begin producing root crops, dairy products and animal products for the regional economy. This economic activity in turn promoted the development of communities along the entire length of the line and in the areas served by the line as a rail-head. The communities initiated or advanced by the railway were those at Barongarook, Kawarren, Gellibrand, Banool, Beech Forest, Olangolah, Ferguson, Weeaprounah, Wyelangta, Lavers Hill, Johanna, Yuulong, Princetown, Lower Gellibrand and Kennedys Creek. Apollo Bay benefitted from the Beech Forest railway as its rail head from 1902 to 1927 when an alternative all weather road was opened to Forrest.

The Colac to Crowes railway thus has significance for its role in developing a regional economy.

In terms of Victorian railway history the Beech Forest line represents the pinnacle of the narrow gauge, mountain concept. The railway was the longest both in route, 71 kms, and operation, 60 years, and possessed some unusual features such as the balloon loop at Beech Forest, the working of the one line in two separate divisions between 1911 and 1929 and a complex roster of locomotive workings to handle the line's traffic. In addition, the geographical setting made the line one of the most difficult on the Victorian Railway's system eg: of the first 48 kms of track between Colac and Beech Forest only nine were straight, more than 150 curves were sited on the 19 kms section between Gellibrand and Beech Forest and of these curves 60 were either 60, 50 or 40 metres radius, 1 in 30 was the ruling gradient and much of the line was laid in the region of the State's wettest area as shown by Weeaprounah's average annual rainfall of 2040 mm.

4.4.2 Rationale

The Colac to Crowes line is Victoria's sole surviving relatively intact example of a narrow gauge, mountain railway designed to bring rail communication to a remote region and facilitate economic development. The main features of the railway amply demonstrate the narrow gauge, the steep gradients, the many tight curves, the numerous embankments and cuttings and the closely spaced stations en-route, with their rudimentary facilities. The evidence is substantial and tangible.

4.5 Significance of Components

Colac-Beech Forest-Crowes railway surviving formation and associated sites meet the following criteria for Assessment of Cultural Heritage Significance as adopted by the Heritage Council of Victoria. The criteria are provided as Appendix E.

Criterion A: The historical importance, association with or relationship to Victoria's history of the place or object.

Rationale

The Colac-Beech Forest-Crowes railway surviving formation has associations with the brief era of Victorian Railways narrow gauge construction and with its facilitation of economic development in an environment from 1902 to 1940 when roads did not always provide an all-weather solution to the transportation problems of the district.

The existing formation is the sole surviving, relatively intact example of the narrow gauge mountain railway concept, which was a time specific response to an engineering problem in an otherwise Victoria-wide broad gauge rail system.

The existing formation is the pre-eminent surviving example of a narrow gauge mountain railway built to the contemporary standards of the Victorian Railways and designed to achieve a uniform and workable gradient in difficult terrain.

The existing formation demonstrates through its comparative placement alongside undulating, narrow and waterlogged roads and tracks that it was the only safe, all weather form of access to the Otway Ranges and, as a consequence, was the economic and social lifeline for the mud-bound settlers and industries for several decades.

Criterion C: The place or object's potential to educate, illustrate or provide further scientific investigation in relation to Victoria's cultural heritage.

Rationale

The Colac-Beech Forest-Crowes railway existing formation is the most accessible, safely approached, easily visible and experiential place of all the narrow gauge mountain railways built in Victoria.

The site is recommended for consideration of LOCAL significance under the Colac Otway Shire Planning Scheme.

The site is recommended for consideration of STATE significance in the Victorian Heritage Register.

4.5.2 Archaeological Significance

The site has significance in archaeological terms.

4.5.3 Discussion.

Archaeology is the study of physical evidence from the past. An archaeological site can include below ground features such as building foundations, wells, weirs, fence posts, poles, machinery foundations and remain and artefacts. Archaeological sites provide solid evidence of important elements of human settlement and activity and can provide confirmation to the documentary record or new insights into existing perceptions and opinions.

Archaeological investigation can tell us about the way people lived, what techniques and processes were used in domestic, agricultural, industrial and commercial activities. It is important from a cultural viewpoint that sites of human activity deemed to be of archaeological value not be disturbed before an archaeological investigation is undertaken lest important evidence be destroyed, disturbed or displaced. The original context is very important to archaeology.

There are several sites of archaeological value along the existing formation and these are:

1. sleeper imprints and mound in undisturbed state at Barongarook
2. boiler ash heaps at Barongarook Water (2) stop
3. cutting road bed not compromised by machinery near Banool
4. cutting with original camber intact near Dinmont

5. railway telephone pole near Dinmont
6. boiler ash deposits at The Tanks
7. palm tree and cypress tree near Crowes station office

4.5.4 Rationale

The Colac-Beech Forest-Crowes railway route and associated sites has potential archaeological value for understanding a transport conduit.

5. Conservation Policy

5.1 Introduction

The following Conservation Policy has been developed in accordance with the Australia ICOMOS Burra Charter. It accounts for the future needs and requirements of the Old Beechy Line Rail Trail Committee, landholders along the surviving formation and the heritage values underpinning the requirements of the Colac Otway Shire Planning Scheme

The following provides specific recommendations and rationale applicable to the railway surviving formation.

5.2 General Policy

5.2.1 Surviving Formation

The retention of the existing formation of the Colac-Beech Forest-Crowes railway should be the uppermost priority and the context of the site enhanced wherever possible.

It is recommended that the conservation, maintenance and future development of the existing formation be carried out in accordance with the Australia ICOMOS Burra Charter. The definitions of the Burra Charter are as follows:

Conservation means all the processes of looking after a place so as to retain its cultural significance. It includes maintenance and may according to circumstances include preservation, restoration, reconstruction and adaptation.

Maintenance means the continuous protective care of the fabric, contents and setting of a place and is to be distinguished from repair. Repair involves restoration or reconstruction and should be treated accordingly.

Preservation means maintaining the fabric of a place in its existing state and retarding deterioration.

Restoration means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

Reconstruction means returning a place as nearly as possible to a known earlier state and is distinguished by the introduction of materials (old or new) into the fabric.

Adaptation means modifying a place to suit proposed compatible uses.

Rationale

Approximately two thirds of the original existing formation is extant and in fair to good condition. The damage to the extant existing formation can be appropriately restored and/or reconstructed without diminishing the significance of the place.

5.2.2 Formation not Evident

Where there are no obvious surviving surface indications of the former railway route and associated earthworks, it is recommended that the alignment be kept clear of permanent and substantial structures and excavations. This recommendation is in accordance with the Old Beechy Line Rail Trail Report, June 2000, as Objective 7.1.2 to... *Preserve the concept and integrity of the Old Beechy Line....* through the development of the Rail Trail.

5.3. Fabric

The fabric of the railway comprises the earth forms imposed on the terrain and described at 2.2.1. These artificial earth forms are now part of the landscape and the associated excavations and constructions are measures of how the forms came about.

The distinguishing feature of the railway is as a relatively flat and evenly graded road bed set against a background of rugged terrain and narrow, twisting roads and tracks. This distinction is the essential character of the railway.

5.3.1 Recommendation on Fabric

It is recommended that the surviving formation and its associated road bed, drains, cuttings, embankments and borrow pits be conserved to represent the state of the railway as at its closure in 1962, following the removal of rails.

5.4 Use

The current and future use of the surviving formation (as the fabric) has a number of potentials that may or may not conflict with existing uses and expectations. The rights and needs of all parties must be kept in mind by policy planners and implementers. The surviving formation currently held in private ownership represents productive land so consultation with land owners and communities along the former railway on issues concerning use of the formation is essential.

The notion that the railway will ever be rebuilt is highly unlikely. Studies by West Coast Rail and others have costed even a limited restoration at millions of dollars and business plans highlight the difficulty of earning a return on invested capital. One use of the former railway's existing formation is to establish it as a recreational and cultural experience by forming a walking trail along its unencumbered level surface.

5.4.1 Recommendations on Use

It is recommended that the land forming the entire width of the existing formation and associated sites continue to be used for agricultural, forestry and other existing purposes.

It is recommended that the actual road bed of the existing formation be conserved and maintained as a uniformly graded way and that it continue to be used for livestock, vehicular and pedestrian traffic.

It is recommended that the land forming the existing formation be kept clear and open for potential use as a Rail Trail and that no permanent structures, works, excavations or obliterations of or to the fabric intrude onto this concept.

Where there is no obvious visual evidence of the former rail route, it is recommended that the route be kept clear of permanent and substantial structures.

5.5 Future Development and Control of Physical Intervention

The Old Beechy Line Rail Trail Committee wishes to develop a walking track along sections of the formation and will be required to exercise a leadership role in this regard by seeking the co-operation of landowners for its plans. The Colac Otway Shire will need to take into consideration the many and varied factors in the issue.

It is recommended that all future developments to the Colac-Beech Forest-Crowes railway formation be carried out according to:

1. Australia ICOMOS Burra Charter
2. Conservation Policy, Recommendations & Works & Maintenance Items in this Report
3. Planning permits issued by the Colac Otway Shire.

Rationale

There needs to be a regulatory framework to protect the potential of the existing formation and prevent a casual or interventionist approach by landowners. Any such authorised intervention should be in accordance with recognised standards and procedures in the conservation field.

5.6 Statutory Protection Strategies

There are currently no statutory protection provisions applying to the Colac-Beech Forest-Crowes railway formation. The route of the former railway is not listed with the Australian Heritage Commission, the Heritage Council of Victoria, the Colac Otway Shire Planning Scheme or the National Trust of Australia (Victoria).

The route is not listed on the Victorian Heritage Inventory although it could be automatically protected from unauthorised excavations as a non-aboriginal archaeological site more than 50 years old under the provisions of the Heritage Act.

It is desirable that some form of statutory protection be given to the Colac-Beech Forest-Crowes railway formation because it is a site of significance and has several archaeological features. There are levels of protection and one strategy could be for local planning scheme protection in the short term while at the same time acknowledging the possibility of protection at a higher level at a future date.

It is recommended that the surviving formation and associated sites be individually listed on the Colac Otway Shire Planning Scheme with a Heritage Overlay and that all works on or to the formation be referred to the Shire for Planning and Building Permits.

It is recommended that the railway route along its entire length be acknowledged in a suitable form in the Colac Otway Shire Planning Scheme consistent with the long term plans of the Old Beechy Rail Trail Committee.

It is recommended that the railway route be acknowledged in the Colac Otway Shire Planning Scheme's proposed Heritage Overlay for the site as a non-aboriginal archaeological site under the Heritage Act 1995.

It is recommended that consideration be given to nominating the surviving formation of the Colac-Beech Forest-Crowes railway for the Victorian Heritage Register of the Victorian Heritage Council.

Rationale

There needs to be regulatory provisions for the protection of the existing fabric and a framework for existing and future uses.

The surviving formation has all the claims for a site of significance and no actions should be taken in-situ that will compromise or cause potential loss or damage to the fabric.

5.7 Significant areas and Elements

The Conservation Policy applies to the following significant sites and elements:

1. From Colac railway yard, south side, to Shorts Road, Barongarook
2. From Shorts Road, Barongarook to Alfords Road, Barongarook
3. From Alfords Road, Barongarook to Cashins Road, Birnam.
4. From Cashins Road, Birnam to Lovat at 762044-231355 where the main road intersects and obliterates the existing formation.
5. From the south side of the Gellibrand caravan park for 2.2 kms to 762044-205310
6. From 762044-205310 to immediately south of Devitt Bros Siding at 762044-240222.
7. At Beech Forest township, east end, which section is the reversing loop for turning trains.
8. At Beech Forest township, west end, from near Public Hall and westwards for approximately 700 metres, currently a walking track.
9. From near Kincaid 752012-152195 to near Wyelangta 752012-138184.
10. From near Lavers Hill 752012-078157 and westwards for 800 metres to 752012-071156.
11. At Crowes station and environs where rails, infrastructure and vegetation samples remain intact

Within the sections listed above are some specific sites and relics as follows:

1. bridge remains at 726134-263513
2. bridge remains at 726134-265508
3. bridge remains at 726134-265504
5. railway reservoir
6. sleeper in gravel road near Tulloh station site 726133-258478
7. pick marks in cutting wall near Coram

8. 101 mile post
9. sleeper impressions in low cutting near 103 mile post
10. 103 mile post
11. boiler ash heaps at Barongarook Water (2) stop.
12. 106 mile post
13. bridge remains at Kawarren 762133-271378
14. bridge remains at Kawarren 762133-269376
14. Banool Ballast Siding formation and quarry.
16. bridge remains near Banool Ballast Siding 762044-212301
17. cutting road bed not compromised by machinery near Banool 762044-214299
18. four sleepers in road at Wimba station site
19. water collection point at Wimba
20. remains of overhead road bridge near McDevitt
21. horseshoe cutting with near vertical walls and original camber (super elevation) intact near Dinmont 762044-227242
22. railway telephone pole near Dinmont 762044-226236
23. water tank at Dinmont
24. pipeline for Dinmont water tank in road bed near Dinmont
25. collecting weir and race for water supply at Beech Forest
26. collecting weir for water supply at The Tanks
27. bridge remains at Lavers Hill
27. rails intact at bypassed road crossing near Crowes
28. palm tree and cypress near Crowes station office site from 1916 era
29. in ground tank for water supply at Crowes
30. buffer stop as reconstructed following 1942 derailment
31. collecting weir for water supply in gully westwards of station site.

5.8 Recommendations, Works and Maintenance.

This section should be read in conjunction with the Condition Report at Appendix D. In general terms the existing formation is to be maintained as a clear and level path to reflect the character of a railway alignment and be protected from water penetration and churning by vehicle wheels through the application of a hard surface to those lengths to be used as a Rail Trail.

The railway was ballasted with Barongarook sand, Banool sandstone, Penshurst volcanic scoria and locomotive firebox coal cinders. It is desirable that the hard surfacing materials be of like materials. Vehicle use should be kept to an absolute minimum after resurfacing.

It is recommended that the integrity of the cuttings and embankments be respected and there be no modifications without a permit being issued. It is desirable that embankments not be cut through to provide cross-wise access, not have ramps built for side access, not be used for livestock yards and loading races and not be used as the wall for a dam. It is preferable in the circumstance where cuttings are deemed too narrow for the passage of heavy and wide vehicles engaged in logging that the cuttings be bypassed via the outer slope.

Soil conditions do not allow for the reinstatement of cutting earthworks to their original profile and solidity so where cutting walls are unavoidably to be compromised it is preferable that the downslope, and usually the shorter side, is to be the one affected. The

uphill batter defines the main cut into the slope to gain a workable gradient and this should not be compromised.

Reconstruction

It is recommended that consideration be given to reconstructing the road bed indent, embank or mound in those sections where it has been obliterated, faded or significantly altered at the locations listed below. This recommendation is from a heritage viewpoint only and does not identify an immediate time frame for these works.

1. the 800 metres section at Tulloh (subject to owner consent)
2. the 300 metres section at Birnam on public land
3. the 500 metres section at Birnam on private land (subject to owner consent)
4. parts of the 2 kms section between the Gellibrand Caravan Park and the link road between the old and new Beech forest Roads on public land
5. a 900 metres length a little north of the Banool station that has been widened to 8 metres (subject to owner consent)
6. the 250 metres section a little south of the Banool station and leading west (subject to owner consent)
7. parts of the 500 metres section near Wimba (subject to owner consent)
8. parts of the 800 metres section running westwards from Lavers Hill towards Crowes (subject to owner consent)

It is recommended that consideration be given to the reconstruction of the seven bridges between Colac and Kwarren and the one bridge near Banool.

It is recommended that passenger shelter sheds be reconstructed at Coram and McDevitt as these sites are the most accessible, visible and appropriate.

It is recommended that the siding formation at Hitts Siding be reconstructed and a sample length of narrow gauge track be built thereon, together with a sample length of 3 ft gauge wooden tramway. This site is on public land and is the most suitable, accessible, visible and appropriate site for this demonstration along the entire route.

Preservation

It is recommended that consideration be given to preserving the following features by maintaining them and monitoring condition and taking appropriate steps to retard deterioration:

1. railway reservoir earthworks at Elliminyt
2. sleeper in gravel road at Tulloh
3. 101 mile post
4. 103 mile post
5. 106 mile post
6. Banool Ballast Siding and formation
7. Four sleepers in road at Wimba
8. water collection point at Wimba
9. Remains of overhead road bridge near McDevitt
10. Water tank at Dinmont
11. Pipeline for Dinmont water tank in road bed near Dinmont
12. Water collection point and channel at Beech Forest
13. Reservoir for water supply at The Tanks stop
14. Rails intact at a bypassed road crossing near Crowes

15. In ground tank for water supply at Crowes
16. Buffer stop at Crowes
17. Reservoir for water supply collection at Crowes.

Preservation and Maintenance

It is recommended that consideration be given to preserving and maintaining the following:

1. sleeper impressions and track bed mound near Barongarook
2. boiler ash heaps at Barongarook Water (2) stop
3. cutting road bed not compromised by machinery near Banool
4. cutting with original camber intact near Dinmont
5. railway telephone pole near Dinmont
6. boiler ash deposits at The Tanks
7. palm tree and cypress tree near Crowes station office

5.9 Interpretation

It is recommended that appropriate interpretation be provided to give an understanding and appreciation of the history, design and construction of the Colac-Beech Forest-Crowes railway.

Rationale

Interpretation provides appropriate ways of highlighting the important components and fabric of the site to a wide audience.

Interpretative signs are recommended at all the station, siding and stopping place sites. The Old Beechy Rail Trail Committee has already developed the layout, content and form for these signs and it is recommended that its program be implemented.

In addition, interpretative signs are recommended at those sites demonstrating construction or engineering features. These are at the Railway Reservoir to explain its history, at the Ten Mile to highlight this section having the largest earthworks on the entire line, at the Ten Mile water tank site to illustrate the locomotive operating requirement for water, at Gellibrand to mention it being the lowest point on the railway and comment on the steep grades into and out of Gellibrand, at the Banool Ballast Siding site to mention facts and figures on the multi-curved section thereabouts, at the overhead bridge site near McDevitt to explain the route of the old road and the constant changes to road routes by the Otway Shire, at the reversing loop at Beech Forest to explain its purpose, at Buchanan to mention it being the highest point on the railway and at somewhere near The Tanks stop to highlight the nature and reason for the twisting and deeply entrenched earthworks thereabouts.

5.10 Management

It is recommended that the appropriate management of the Colac-Beech Forest-Crowes railway formation includes the conservation, restoration, maintenance, security and responsible use of the existing fabric.

The current and future owners/occupiers have a responsibility to ensure that appropriate strategies take account of the above recommendation.

5.10.1 Arrangements

The current and future owners/occupiers should have knowledge of the plans that address the Recommendation, Works and Maintenance items in this Report.

In most cases owners/occupiers are best to do nothing and leave the existing formation and associated land forms as they are.

5.10.2 Security

The site is a robust land form so there are no security concerns at the present but in the future there will be issues to be addressed about possible vandalism and graffiti to infrastructure, signs or devices erected as part of the Rail Trail.

5.10.3 Maintenance

Management works undertaken to date to maintain and service the Rail Trail route have been performed by landowners and government agencies. In future maintenance works will need to be undertaken by the Old Beechy Line Rail Trail Committee in co-operation with land owners.

The Old Beechy Line Rail Trail Concept Report (Parklinks, 2000), identifies a wide range of maintenance issues for which responsibility should reside with the Old Beechy Line Rail Trail Committee and this Report does not propose to repeat these. In brief these issues relate to trail maintenance, fire protection, weed control, land care, fencing, picnicking and camping areas and rubbish collection.

5.11 Further Investigation and Research

Records concerned with the railway and land use along its route can be located at the Public Record Office, The Australian Railway Historical Society, the Colac Historical Society and the State Library of Victoria.

The railway has been closed for over 30 years and the organisation that operated it has been abolished. This has put limitations on the easy access to information through oral and documentary sources.

5.12 Proposed Planning Controls

It is envisaged that the Planning Controls would be in the form of a Heritage Overlay over the complete length of the former railway reservation. The more significant areas as specified in this report would have more stringent controls than formation only which exists predominantly from Beech Forest to Crowes. The actual drafting of the schedule relating to the overlay controls is yet to be formulated however prior to a planning scheme amendment being placed on exhibition the documentation would be completed in consultation with Heritage Victoria. There would be allowance for exempt works which would normally relate to routine maintenance. The existing use rights of private landowners should not be varied by the proposed scheduled controls.

6. Conservation Action

6.1 Statutory Protection

It is recommended that the Colac-Beech Forest-Crowes railway surviving formation and associated features be individually listed and protected by the Colac Otway Shire Planning Scheme with a Heritage Overlay.

It is recommended that the Colac-Beech Forest-Crowes railway route in its entirety be acknowledged in a suitable form in the Colac Otway Shire Planning Scheme consistent with the long term plans of the Old Beechy Rail Trail Committee.

It is recommended that the railway route be acknowledged in the Colac Otway Shire Planning Scheme's proposed Heritage Overlay for the site as a non-aboriginal archaeological site under the Heritage Act 1995.

It is recommended that the site should also be considered for nomination onto the Victorian Heritage Register of the Victorian Heritage Council.

6.2 Prioritised Schedule of Works

The following schedule of works identifies works of an immediate and short and long term nature.

6.2.1 Immediate Priority

This time frame represents from the present and for the next twelve months.

1. sleeper in side road at Tulloh. **Action.** Ensure sleeper remains as is, where is, through advice to Shire road maintenance personnel.
2. waterlogging of road bed at approaches to Ten Mile Creek. **Action.** Inspect during wet weather to see extent of problem and reinstate drains and culverts using like materials.
3. cracking to north end of 2 metre diameter concrete culvert at Ten Mile Creek. A collapse may impede water flow under the embankment. **Action.** Arrange engineering inspection and report for action, if any.
4. boiler ash heaps at Barongarook Water Stop. **Action** Remove fallen tree that encourages trail bikes to ride over heap on west side of existing formation, erect light fence around heap.

5. trail bike damage near Cashins Road. **Action.** Backfill and make good the gouge using local materials.
6. replanting works at Banool station site may affect the goods-siding mound. **Action.** Advise forestry company of concern and request that mound be not affected by any earth movement or earth gouging works.
7. four sleepers in road at Wimba. **Action.** Ensure sleepers remain as is, where is. These sleepers have survived since 1962 because they are usually covered with a thin layer of gravel. They have been exposed by heavy log traffic. Advise grader operators to avoid damage to sleepers when regrading road surface and it is permissible to cover the sleepers. Ensure that future road reconstruction works, if any, take account of the sleepers.
8. Severe deterioration of north supporting pile in overhead bridge remains at McDevitt. **Action.** Advise land owner of status. Arrange structural inspection of relic and replace defective pylon with like pylon before structure collapses.

6.2.2 Short Term Priority

This time frame represents from one year to ten years.

1. Bridge and culvert plans. **Action.** Measure and photograph bridge and culvert sites for future as-is setting in rebuilding.
2. Bridges. **Action.** Rebuild/reconstruct bridges as required when Rail Trail reaches sites.
3. Railway reservoir earthworks at Elliminyt. **Action.** Advise landowner of status and monitor condition..
4. Coram and McDevitt station sites. **Action.** Erect corrugated iron passenger shelter to original design.
5. Pick marks in cutting walls at Coram. **Action.** Erect interpretative sign.
6. 101 and 103 mile posts. **Action.** Clean and repaint with black lettering and white background. Advise land owner of status for 101 mile post.
7. 106 mile post. **Action.** Advise land owner of status. Relocate three metres east off road bed mound, face the right way and clean and paint with black lettering and white background.
8. Road bed on public land at Birnam. **Action.** Restore road bed mound from Cashin Road crossing southwards to road at private property boundary.
9. Hitt's Siding. **Action.** Restore siding road bed and lay down short length of narrow gauge sleeper and rail and short length of timber tramway. Original sleepers retrieved from the formation after 1962 are available and should be considered for use here. Erect interpretative sign.
10. Road bed south of Gellibrand caravan park. **Action.** Clear vegetation and restore road bed for 2.2 km to link road crossing between old and new Beech Forest roads.
11. Banool Ballast Siding. **Action.** Clear vegetation from siding existing formation, re-form level road bed and erect interpretative sign.
12. Cutting road bed not compromised by heavy machinery near Banool. **Action.** Advise landowner of status. Clear vegetation without ripping soil and build light fence around zone to keep cattle and pedestrians off. See also Item 30 for an alternative recommendation.
13. Water take off point at Wimba. **Action.** Advise landowner of status and monitor condition..
14. Overhead bridge site at McDevitt. **Action.** Erect interpretative sign.
15. Horseshoe cutting with original camber intact near Dinmont. **Action.** Advise land owner of status and recommend that no heavy vehicles drive through

- cutting, nor should the road bed be ripped or superimposed with a heavy coating of track/road surfacing materials. Erect interpretative sign.
16. Railway telephone pole near Dinmont. **Action.** Advise landowner of status. Arrange for materials conservator to inspect and make recommendations, if any, for retention in the long term. Erect interpretative sign.
 17. Water tank at Dinmont. **Action.** Request Shire to develop maintenance and renewal plan for long term retention of asset. Erect interpretative sign.
 18. Pipeline for Dinmont water tank in roadbed. **Action.** Leave as is and erect interpretative sign.
 19. Pick marks in cutting near Devitt Bros siding. **Action.** Erect interpretative sign.
 20. Water collection point and channel at Beech Forest. **Action.** Advise landowner of status and monitor condition.
 21. Turning loop at Beech Forest. **Action.** Erect interpretative sign
 22. Stand pipe at The Tanks. **Action.** Advise landowner of sub-surface cinder deposits and request that no excavations take place without permit.
 23. Water collection point at The Tanks. **Action.** Advise landowner of status and monitor condition.
 24. Road bed west of Wyelangta cemetery. **Action.** Restore road bed mound westwards to curved embankment, clear next cutting of vegetation and building debris deposited therein and clear vegetation adjacent to former SRWSC Depot and towards Wyelangta station site as far as private property boundary.
 25. Remnant road crossing with rails near Crowes. **Action.** Clean and rehabilitate.
 26. Palm and pine trees tree at Crowes. **Action.** Arrange for inspection by horticulturalist for any possible remedial action, clean area and repair and paint existing fence around palm tree. Erect interpretative sign.
 27. Water tank at Crowes. **Action.** Clean out tank, erect fence around, make path to site from car park and erect interpretative sign.
 28. Buffer stop at Crowes. **Action.** Maintain and paint as required.
 29. Water collection point at Crowes. **Action.** Advise landowner of status and monitor condition.
 30. Supplies of original sleepers retrieved from the formation after 1962 are available. **Action.** Insert sleepers into original cavities or on original mound (as appropriate) at Items 12 and 15, **6.2.2** and Item 4, **6.2.3**, add ballast and smooth to top surfaces of sleepers. This action will allow for pedestrian and bicycle traffic over the sections.
 31. Original relics moved from the formation may re-appear or be re-discovered after distribution of this report and these relics may typically be mile posts or telephone poles. **Action.** Replace relics in original position after reconditioning and repair.

6.2.3 Long Term Priority

This time frame represents from ten years to 100 years.

1. Remove existing buildings, sheds and tanks on or within 15 metres of the centre line of the existing formation at the end of their economic/useful lives.
2. Move post and wire fence off the centre line of the existing formation south of Harris Road.
3. Restore road bed at Tulloh.
4. Clear the vegetation from the sleeper impressions near the 103 mile post without ripping soil and erect light fence around area to keep off cattle and pedestrians. See also Item 30, **6.2.2** for an alternative suggestion.

5. Restore road bed south of Birnam
6. Discontinue using railway embankment at Kawarren, at 726133-262380, as a dam wall. Drain dam and rehabilitate embankment.
7. Reconfigure road bed north of Banool from 8 metres wide back to 4 to 5 metres.
8. Restore road bed through the former Church property at Wimba, including re-opening deep cutting that had overbridge.

6.3 Financial and Technical Assistance

6.3.1 Financial Assistance

Policy

Funding opportunities may be available for restoration works to the Colac-Beech Forest-Crowes railway formation and associated features from some Government Departments and Agencies and other sources. There are a range of programs occurring from time to time from Governments, and private sources as well, including heritage, landscape, ecology and educational leaning philanthropic trusts.

There are financial implications applying to the archaeological nature of the Colac-Beech Forest-Crowes railway formation. Heritage Victoria currently has in place the Artefact Conservation Agreement that encompasses non-aboriginal archaeological sites more than 50 years old. This arrangement requires the party responsible for the disturbance and recovery of historical archaeological artefacts to contribute towards the cost of their conservation and management. The amount of the Conservation Agreement is determined by Heritage Victoria's conservation and archaeology staff, using a formula that considers factors such as the size of the site and the expected density and significance of the artefact content. The developer/excavator is required to provide the artefact conservation sum before the commencement of the proposed works.

Under no circumstances is the client liable for more Conservation Agreement money than is specified at the beginning of the work. At the end of the project any money that has not been required for the treatment of the artefacts is returned, minus a 20% levy, that is used to fund the management of archaeological materials from sites throughout Victoria. Contact Heritage Victoria

6.3.2 Technical Assistance

Policy.

It is recommended that competent, qualified or demonstrated expertise be sourced, if and when required, to fulfil the recommendations in this Conservation Management Plan.

A. The Old Beechy Line Rail Trail Committee

The Old Beechy Line Rail Trail Committee has available from its resources a range of plans, elevations and sections for the earthworks, bridges, buildings and sheds to be used as references for management, conservation, preservation and reconstruction purposes. This documentation is currently available to, or within call of, the Colac Otway Shire.

Some members of the Old Beechy Line Rail Trail Committee have been involved in the Crowes Buffer Stop project and either currently have, or know where to source, technical assistance for restoration and reconstruction purposes.

B. Kindred Groups

There are a number of kindred groups who may be able to offer technical advice and/or honorary assistance and these include bush walking clubs, cycling bodies, the Light Railway Research Society of Australia and the Emerald Tourist Railway Board.

6.3.3 Lodgement of the Conservation Management Plan

Policy

It is recommended that a copy of this Conservation Management Plan be lodged with the Old Beechy Line Rail Trail Committee, the Colac Otway Shire, the Colac Historical Society and the Geelong Heritage Centre (custodian of the Colac Otway Shire public records archives).

Rationale

The depositing of a copy of the Report in a recognised repository such as the Geelong Heritage Centre and at a local historical facility is in accordance with the Australia ICOMOS Burra Charter.

7. Sources and Bibliography

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Aire Valley, Zone 54, 7620-4-3, 1995 Reprint

Colac, Zone 54, 7621-3-4, 1983

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Appendix A

Detail description

The Beech Forest railway commenced on the south side of the Colac railway station and where a substantial narrow gauge yard was laid out. Facilities here included loco stabling and servicing infrastructure, storage sidings and running roads and an arrangement of tracks to enable the transfer of goods between the narrow and broad gauge lines by hand or by crane.

The main running line commenced at a buffer stop adjacent to Gellibrand Street and from here the line was laid east and then south on the natural surface via a 4 chain curve to Wilson Street and then proceeded for 300 metres on a straight alignment then swung into a long 50 chain curve, crossed Hearn Street, straightened near Queen Street, and proceeded along an 800 metre straight towards Elliminyt. A short 4 span bridge provided a drainage channel across the flats approaching Airey Street.

At Airey Street the **Elliminyt** station, 155.3 kms, was placed in 1926 as a nameboard stopping place. From here the route ran on the surface for a short distance before the line rose on a long embankment from 1 to 2 metres high to gain elevation to climb the first of the hills, this first hill being the western slope of Reservoir Creek. A short 5 span bridge at this change of grade about 300 metres beyond the station took the route over Reservoir Creek and 450 metres further on another 4 span, tall bridge crossed a loop in the creek..

The Reservoir (originally for railway watering purposes at the Colac railway station from 1877 to 1911) was passed on the west by means of a shallow side cut, 2 metre embankment and shallow side cut, all curving around a gully above the Reservoir. The route straightened and entered a long sweeping curve of 1.5 kms made up of several minor curves and straights, and with a low uphill cut, to turn to the south-west. The long grade then continued as a left hand sweep with a 2 to 3 metre uphill cut towards the Gellibrand Road where the head of a side gully of the creek was reached. Here a tight 3 chain left hand curve on an embankment took the route to the other side of the slope and generally southwards on the upper head of Reservoir Creek.

The route here was laid on the surface with a slight uphill cut for 750 metres on a series of right hand curves until the route straightened and ran more or less due south for a short distance to cross the (old) alignment of the Gellibrand Road, which then formed a horseshoe around the rails, at **Tulloh** railway station. Tulloh, 159.4 kms and 234 metres ASL, was a nameboard station only and no siding was laid here.

The route left Tulloh on the straight for 450 metres, curved to the south-east and straightened near the brickworks site, ran more or less on the natural surface to Shorts Road. The route left Shorts Road on the surface and entered into a sweeping 19 chain curve on a 3 metre embankment to the east, straightened and then curved to the south through a low cutting, emerged on the flat, proceeded on a 1.5 metre embankment that straightened the route to the south and took it into a long cutting whose banks rose to 2 metres. **Coram** station, 161.3 kms and 272 metres ASL, was sited here and was a nameboard and passenger shelter station only. Near the end of the cutting the route turned south-east, ran across a long, low embankment and returned to the natural surface near the Barongarook Road.

Crossing the road, the route continued straight on the surface for 600 metres, curved to the east and entered into a long 2 metre cutting on a rising grade, emerged from the cutting near the 101 mile post, then proceeded on a trending south easterly curve on a low, 1 metre embankment for 200 metres before dropping downgrade, still on the embankment for 150 metres. At this point the route reverted to the surface, with very low downhill batters and continued to drop towards the Barongarook station along a straight for 600 metres, where a sweeping curve with a 50 cm uphill batter ran through for 150 metres, before the route entered onto a low embankment, rising to 2 metres before gradually easing to surface level. Boundary Creek was crossed on the embankment by a 4 span trestle bridge.

The **Barongarook** station yard, 164.4 kms and 225 metres ASL, was built on a flat without earthworks of any kind and was a station with the mainline and two loop sidings, passenger office and goods shed. Two timber tramways ran to the goods yard from 1919 to 1923. The station was a major crossing point for trains and signals were provided at each end of the yard.

The route left the Barongarook station on the surface for 300 metres and swung around a 20 chain curve with a slight elevation, then another 7 chain reverse curve on a 50 cm to 1 metre embankment. The embankment rose in height to 2 to 3 metres to carry the route over some swampy ground as part of a 400 metre straight and then the rails returned to the natural surface, and made a sweeping 40 chain curve to the south west as a 1.5 metre cutting trending downgrade. This marked the entry to the Ten Mile Creek valley.

Continuing on the 1 in 38 downgrade the route entered into a long straight of 200 metres along a low embankment of 1 metre uphill and 3 metres downhill before entering a low cutting rising to 3 metres uphill. At the end of the cutting a 5 chain left hand curve took the route onto a 5 metre embankment 110 metres long, then into another cutting of 95 metres rising to 2 metres downhill and 4 metres uphill.

A short 4 metre embankment led the route into a 5 chain right hand curve initially through a low cutting and then a series of uphill cuts, mostly with a steep downhill fall away, around a 5 chain right hand curve, then a 5 chain left hand curve, through a low 2 metre cutting near the end of which was situated a **loco watering point**, 167.4 kms and 161 metres ASL, from 1901 to 1921. This spot had a water tank and coal stage here during the construction phase and a water tank thereafter.

From here the route crossed a 3 metre embankment over a dip and on a 20 chain curve. A 2 metre cutting with a borrow pit towards its west end led onto a large embankment

80 metres long and 15 metres high over a gully head. A substantial concrete pipe 75 cms in diameter runs under the embankment to allow for water flow. A long 165 metres cutting up to 7 metres deep then carried the route into another long straight developing as an embankment 110 metres long and 13 metres high on a 2.5 chain horseshoe curve at its west end taking the route over a main head gully of Ten Mile Creek. The creek flows under the embankment through a 20 metre long by 2 metre high concrete culvert. This culvert was formed and poured on site and the earth piled on top of it to create the road bed.

From the embankment the route passes through a 5 metre cutting, known as Wiggin's after its foreman builder, on a south easterly heading before curving south to run along the main creek side as a gently curving arc. An embankment 65 metres long by 3 metres high takes the line over a side gully and at this point. The route then turned into a 3 chain curve with a 2.5 to 3 metre uphill cut and steep downhill fall away. The route straightened for a short distance, entered a 10 chain sweeping left hand curve, ran across a 2 metre embankment over a wide dip, ran past a low uphill cut with the bank set back well off the track and rounded a 28 chain right hand curve to the **Ballast Siding**, 169 kms and 175 metres ASL.

This was the site for the first ballast siding used on the railway from 1900 to 1902 and comprises a large cut away of the slope from where the ballast was sourced. This ballast proved to be too soft as it was little more than a type of hard sand and tended to be squeezed out from under the sleepers when wet. When a hard ballast source was located near Banool, this quarry was closed. The siding was a single spur line with the points facing Beech Forest.

From the Siding the route swung around a 10 chain left hand curve on a 100 metres long by 10 metres high embankment over a gully, came off the bank and entered a long straight of 400 metres. The start of the straight was in a very long box cutting, some 70 metres, which downhill side reverted to the natural surface and the uphill side became a 1.5 to 2 metre set back cut.

The route continued downslope on the straight to the bottom of what was called the Barongarook Bank and at the change of grade was sited the second **Barongarook water point**, 169.5 kms and 160 metres ASL. The original water point further up the bank was abolished in 1921 because the more heavily loaded trains had difficulty in starting on the incline. From the water point the route continued downgrade on the straight for 600 metres, turned into a 10 chain curve, then a following 5 chain curve and crossed Cashins Road.

From here a low embankment around 1 metre, gradually lessening, carried the line straight for 600 metres. At the 105 mile post hereabouts was the site of **Watson & Facey's Siding**, 170.5 kms and 141 metres ASL, where timber was loaded onto the train from a tramway while the train waited as no loop siding was provided. After the mill closed in 1925 the stopping place of **Birnam**, 171.6 kms and 141 metres ASL was created for local passenger traffic.

The long straight continued past the 106 mile post where a 10 chain curve turns the route south around a projection of the slope via a 3 metre uphill cut and a downhill bank of 1.5 to 2 metres, through a brief 2 metre cutting and across a low 50 cms embankment on a 10 chain curve. The route straightens here for 300 metres, then swings through a 10 chain right hand curve before running straight for over 400 metres

and along the east facing slope of the creek via very low earthworks up to 2 metres deep or high comprising a succession of banks across 6 gully dips and 8 cuttings through the high spots between the gullies.

A long, sweeping right hand 10 chain curve, then takes the route onto a continuous 2 metre embankment, passing over Loves Creek by a 7 span trestle bridge, then 300 metres further on, a 6 span trestle bridge over a side tributary, after which the embankment lowers to 1.5 metres on a 15 chain right hand curve and enters an 800 metre straight heading to Kawarren station. The route continues on the low embankment to near Serpentine Creek where higher earthworks approach the Creek, which watercourse was crossed by a 4 span trestle bridge, followed by an embankment and cutting. The route continues on the surface through to Kawarren station.

Kawarren, 174.2 kms and 119 metres ASL, was an important intermediate station, comprising a loop siding with a lime loading shed built over part of it. Over the years there were four timber tramways running to the goods loop and a tramway to Alkemade's lime works.

The route departed Kawarren on a low mound and then turned into a 3 chain curve and a long 2 metre cutting that eased to surface level at its south end. The route entered the longest straight section on the railway here that ran for 1 km. The rails crossed a deep gully on a 10 metre embankment, continued downgrade into a long cutting with an easterly rise of 3 to 7 metres and a westerly of 4 metres, emerged from the cutting at a long, sloping grade where Hitt's Siding was situated.

Hitt's Siding, 175.5 kms and 114 metres ASL, was a loop that was fed by a timber tramway to the west and remained open from 1914 to 1929.

After Hitt's Siding the route entered onto an embankment rising to 2 metres, followed by a short cutting 3 metres deep and then a long embankment of 3 metres that was situated on a long sweeping 10 chain curve where the grade dipped even more sharply towards Gellibrand, that signalled a long straight of nearly 600 metres.

Coming off the embankment the route ran through a cutting, rising 4 metres then dropping to 1 on the east side and 2.5 metres to 50 cms on the west, entered onto another high, 6 metre embankment over a dip, with the embankment gradually easing down to 50 cms, then a surface section with a 50 cms uphill cut, then a 20 chain curve on the flat, a low cut on the east side before entering a long and low 3 metre cutting on the sweeping 40 chain curve before emerging on the flat.

From here the route entered into a low cutting, crossed a deep gully on a 10 metre embankment, swung into a low uphill cut on the west on a 20 chain curve, ran through a 3 metre cutting with a curve at the south end, carried on across a 2.5 metre embankment that gradually increased to 3 metres east and 4 metres west across a dip, came off the embankment on the flat and ran through a cutting with a 3 metre east and 1 metre west height that eased down to surface level.

The route continued on the surface to a large gully, which was crossed by a 5 span trestle bridge, came off the bridge and trended downslope with a slight uphill cut and downhill bank. A 2 metre embankment took the route across a small gully and continued on the flat to Lovat.

Lovat station, 178.5 kms and 82 metres ASL, comprised a loop siding and passenger shelter. The route left Lovat on an embankment over a dip, followed by a short level section to another embankment over a dip, then a long downgrade with a 2 to 3 metre uphill cut leading into an embankment over a dip, an 80 chain curve to the right, and metre section onto another embankment over a dip.

The route continued straight for 400 metres then curved to the left to begin the final drop to the Gellibrand River through a 4 metre cutting, over a 4 metre embankment, through another 4 metre cutting and following embankment. The river was crossed on a 9 span trestle bridge and the route climbed on a small embankment and surface lay for 500 metres to the Gellibrand station.

The **Gellibrand** station, 181.2 kms and 75 metres ASL, was the second most important station on the line and comprised the mainline and three loop sidings. Facilities included a station office, waiting room, parcels shed, refreshment room and a goods shed and pig race. There were also loco watering tanks at each end of the yard and signals for train crossing purposes. Four timber tramways ran to the station from 1914 to 1930.

Gellibrand was the lowest point on the entire route.

Leaving Gellibrand the route rose on a low embankment up to 2 metres for 150 metres then levelled for a short distance before climbing again in a low 1 to 2 metre cutting for 400 metres, then levelled before a change of grade to a higher level was made by a short, low 50 cm embankment before entering a long, low cutting of 450 metres to emerge on the flat at the link road between the Charleys Creek and old Beech Forest roads.

A swampy depression on the south was carried by means of a long embankment peaking at 4 metres in the centre and ending at a 5 chain curve where the route entered into the first stages of the rugged climb to Beech Forest.

The route climbed on a 1 in 30 grade, more or less straight for 1 km to a 9.5 chain curve, which point at 726044-205315 marks the commencement of the almost constant curves of mostly 2 and 3 chains radius to Banool.

The route rounded the 9.5 chain curve, previously mentioned, went into a straight with a shallow sloping uphill batter, rounded a right hand curve on the flat, turned into a left hand curve through a 6 metre cutting, ran on a wide, flat over a gully, turned into a right hand curve, crossed a flat, continued the curve with a low, uphill batter, rounded a left hand curve on a 3 metre cutting, at which point, 726044-207315, was the **19 Mile Ballast Siding**, 184 kms and 130 metres ASL. This siding was the main source of ballast for the railway from 1903 to the early 1920s and comprised a single spur line cut into the side of the slope. The ballast was delivered from the quarry on the slope above and fed into a wooden chute running down to the railway.

From the siding the route continued on a flat embankment over a gully, swung sharply on a 2 chain right hand curve along an uphill cut rising 3 to 4 metres, across a flat, then into a long cutting rising to 6 or 7 metres on the uphill side and 3 to 6 on the downhill, across another right hand flat over a gully, then into a long, sweeping left hand curve with an uphill batter of 3 to 4 metres, across a flat over a gully on a right hand curve, into a 4 metre cutting on the straight, emerging on a left hand curve on the flat and then into a sweeping left hand curved cutting rising to 4 metres on both sides.

The route emerged from the cutting and crossed a deep gully by a 5 span trestle bridge on the straight, 726044-212301, then swung into a right hand curve with a low uphill batter, crossed a gully on a low embankment, still on the curve and continued the curve into an uphill cut of 4 metres and dropping to 1 as the right hand curve continued on the flat to a left hand curve through a low cutting of 2.5 metres on the uphill batter.

Emerging from this cutting the route ran straight for 240 metres paces in a south-easterly direction on the flat, crossed a dip on a 3 metre embankment, swung into a right hand curve in a 2 metre cutting and emerged on the flat for a length of straight before turning into a 90 degree right hand curve.

The rails were more or less on the natural surface here at a wide uphill depression in the slope and then climbed the right hand side of a slope through a sequence of low cuttings and flat areas before a sharp left hand 2.5 chain curve through a 2 metre cutting brought the route onto a level section.

This was the start of a long section of level running, with a low uphill cut varying from 50 cms to 2 metres and on a shallow batter before a curve to the right into hillier terrain raised the uphill cut in parts to 4 metres and with some downhill cuts present. A shallow curve to the left across a low embankment and a section of 3 to 4 metre uphill cut brought the route out onto a rise and through a reverse curve and another straight to arrive at the Banool railway station.

The **Banool** station, 187.1 kms and 192 metres ASL, was built on the east side of a rise, with the passenger shed side on the west being cut into the slope and the goods yard and siding as a mound infill to the east. Banool was the principal intermediate station between Gellibrand and Beech Forest and comprised a mainline, passing loop and goods loop. A staff office and passenger shelter was installed here. Banool was a train crossing place for many years and signals were provided at each end of the yard.

The route left Banool on a 4 metre embankment across a dip, then turned via a 4 chain curve to the west for 250 metres before entering more rugged terrain via a 2 chain left hand curve and 4 metre cutting. The uphill batter was very shallow and the route proceeded on the surface with minimal infill for 200 metres. A 4 metre cutting on a tight curve sent the route to the east into the steeper slopes where a 2 metre cutting, a 2 metre embankment and a long 2 metre cutting on a reverse 3 and 2 chain curves kept the route trending to the south. A long 3 metre embankment leading the route into a 2 metre cutting, a flat spot and a 4 metre cutting on a 5 chain curve brought the route towards a crossing of the old Gellibrand to Beech Forest Road.

A low embankment took the route across the road and to the opposite side of the ridge, where the uphill batter was on the west rather than on the east. At 250 metres from the road a deep 6 metre cutting on a horseshoe 3 chain curve enabled the route to pass the top of a side spur coming off the main ridge. A road bridge was built over the top of this cutting to allow access to a farming property here.

Emerging from the cutting on a curve the route continued south along the slope with an uphill cut of 2 metres, ran on a low embankment across a flat spot and then cut closer to the slope with a 3 metre batter for 200 metres. At 726044-229271 is a saddle in the ridge and the route passed along the east side of this saddle on the surface and turned south east for 250 metres with a 1 to 2 metre uphill cut.

From here the route ran as a surface line on the flat for 450 metres before coming to Wimba station at the main road crossing. **Wimba**, 190.2 kms and 214 metres ASL, was a nameboard and shelter only, as well as a loco watering point, and no siding was laid here.

From Wimba the route continued on the surface with a set back uphill cut of 3 metres and downhill fallaway of 1 to 3 metres for 300 metres until the route returned to the western slope of the main ridge through a low saddle. The route ran south-east more or less straight, with a 1.5 to 4 metre uphill cut, for 600 metres to the head of the gully and then swung round to the south-west on a 2 chain curve on a low embankment. At this curve in the 1920s was a **timber loading point** at the end of a tramway from the Wimba Sawmill Co to the east.

From here the route continued on the rise with a low uphill cut, crossed a gully on a 4 metre embankment, turned into left hand curve in a cutting rising to 7 metres high on the uphill and 4 on the downhill, swung into a right hand curve over a gully on a high embankment and continued straight through a 4 metre cutting, crossed a low embankment and began a turn around the projecting spur with a left hand curve through a low cutting and across a flat spot.

The route rounded the actual tip of the spur via a 4 metre cutting on a 2 chain curve and ran south east with a 2 to 3 metre batter for 500 metres, took a 2 chain curve on a 3 metre embankment and ran south west on the surface for 300 metres to the tip of another spur. A deep cutting on a 2 chain curve rounded the spur and at the top of this cutting was a road over bridge to serve a farming property. The route trended south east for 600 metres towards McDevitt station through a mix of side batters up to 3 metres, several flat spot infills, one 2 metre embankment and one 6 metre cutting. The site of the first **McDevitt** station, 193.1 kms, was along here at 726044-233247 until it was shifted in about 1921 to be alongside the re-routed main road at 726044-235245.

McDevitt station, 193.1 kms and 309 metres ASL, was only ever a nameboard and shelter and very few goods were loaded or unloaded here.

The route left the McDevitt station site on an uphill grade with a low cut on the east face for 200 metres and then began a sequence of cutting, embankment and cutting with a 5 metre cutting, low embankment, 5 metre cutting, long 5 chain curving embankment about 1 metre high, 5 metre cutting on a curve and a low 1 metre embankment before the road bed resumed the natural surface with a 1 metre uphill batter.

Along this face of the slope are three precipitous side watercourses flowing down to Charleys Ck on the north and west and these were crossed by three long and high embankments, the first being 30 metres, followed by a 3 metre cutting, then 60 metres embankment, then a short length of flat road bed with a slight downhill cutting batter of 1 metre, then a deep 6 metre vertical sided cutting 140 metres in length on a 2 chain curve that came out onto a 50 metres embankment about 10 metres high.

The route then ran straight in a slight south-west direction for 100 metres with a shallow uphill batter set back from the rails and at 726044-226238 turned south east on the surface and then east around a 2 chain curve with a 4 metre uphill cutting and ran straight for 200 metres. A slight downhill cutting wall of 1 metre marked the end of the

defined uphill batter and the route continued on the surface with an occasional low embankment.

At 726044-229235 the route turned south across a depression on an embankment, ran through a 3 metre cutting and continued on the surface for 450 metres with an occasional low cutting until reaching Dinmont station.

The **Dinmont** station site, 195.9 kms and 388 metres ASL, was placed on a relatively level area near the top of the ridge. Facilities here comprised a loop siding, passenger shelter and a loco watering tank. A timber tramway ran to the loop from 1902 to 1911.

The route left Dinmont on a low embankment for 100 metres, ran through a small cutting and across a low embankment before reaching the steeper slopes and from here there was a continuous section of curves and lengths of heavy earthworks for 1.5 kms.

The route traversed a 2 metre cutting on a curve, emerged onto a high embankment crossing a gully, reverse curved through a cutting rising to 4 metres on the uphill and 1 metre to 1.5 metres on the downhill side, swung to the east on a tight 2 chain curve over a creek on a 6 metre embankment, entered another reverse curve to a cutting with an uphill batter of 5 metres, dropping to 1, 2, and 3 metres over its length, swung around a curve over a creek, which was crossed by a short, wooden culvert, entered a 3 metre cutting, came out of the cutting on a curve on the flat, curved into a long and deep 3 to 4 metre cutting with vertical sides, curved out of the cutting on a slight embankment, crossed a gully on a 10 metre embankment, entered a 3 metre cutting on the same curve, crossed another small gully on an embankment and rose to the top of an intersecting spur.

Here was situated **Devitt Bros Siding**, 197.7 kms and 431 metres ASL, from 1908 to 1919 and it comprised a spur line with the points facing Beech Forest. A timber tramway from Devitt's mill to the north ran to the siding.

From the Siding the route swung through 90 degrees on a 2 chain curve with an uphill 2 metre cut, and ran close to the top of the spur on the surface with minimal earthworks for 200 metres. Here the route turned through a 2 chain curve to the south with a low side cut on the east face of the hill, ran 200 metres, took a 10 chain left hand curve to the south and continued following the surface ripples of the slope by a series of 12 curves, almost continuous as reverse curves, for 2.4 kms as low uphill cuts, low embankments and surface mounds to the site of **Ditchley** station.

This station, 199.9 kms and 511 metres ASL, was a nameboard and shelter only and was used for unloading goods destined for the Ditchley Park Hotel prior to 1914 and as the stopping place for the Beech Forest racecourse and sports ground.

From Ditchley the route continued around the curve, passing under the high peak that marks the tallest part of Beech Forest on a 2 chain curve cut into the hill via a 3 to 4 metre batter, emerged from the shadow of the hill on a low embankment on the straight, rounded a high spot via a 3 metre cutting on a 5 chain right hand curve, then a left hand curve around a gully head and continuing the 15 chain curve into the **Beech Forest** railway station.

The station, 201 kms and 532 metres ASL, was laid out on the top of the main Otway Ridge and comprised the mainline, three loop sidings, dead end extensions to one siding, a siding to the loco shed and coal stage and a reversing loop at the east end. There was a large station building erected that comprised an office, waiting shed, parcels shed and tea stall. Other structures included a crew rest hut and track gang sheds. On the south side was a large goods shed, two cranes and a livestock yard and race. The loco water supply was provided through a pipeline from a collecting weir and race. A timber tramway ran to the station from as far out as Olangolah and was fed by several sawmills from 1909 to 1931

When the route was extended to Crowes in 1911 there was an extra mainline put in coming off the No.2 loop and a scissors crossover installed to facilitate train movements over the two lines.

The Crowes route left the station as a separate line and followed the Colac route for 300 metres before swinging to the west under a road bridge and running along the south face of the main Otway Ridge. The route trended up grade and on the surface with a low uphill cut and some downhill fallaway for 150 metres before entering broken country with nine gully heads falling away to the south. A sequence of cuttings and low embankments traversed this section, then a 5 chain right hand curve through a low cut, an embankment across a gully head, a short and low cutting to the north-west on a 4 chain curve and a 3 metre embankment over a gully head brought the route out onto the Ridge top via 6 chain left hand curve and to the Buchanan railway station.

Buchanan, 202.6 kms and 551 metres ASL, was a nameboard and shelter station and was the highest point on the entire railway.

From Buchanan the route ran straight for over 700 metres on a low mound, and continued in this fashion with several spaced curves to follow the Ridge Top to Phillips Track junction. Here the slope of a deep gully head was passed by a 2.5 chain right hand curve with a low uphill cut, to be immediately followed by a 3 chain left hand curve to bring the route to Ferguson railway station.

The **Ferguson** station, 205.3 kms and 529 metres ASL, had a loop siding, spur siding and a passenger shelter. Three timber tramways ran to the sidings from 1911 to 1931.

From Ferguson the route continued almost due west on a falling grade, skirting the north side of the Ridge Top by a bench cut into the slope, crossing a gully head on an embankment and generally following the folds in the slope with a low uphill cut bench on continuous curves that were as wide as 9 chains and as sharp as 2.5 chains.

The bottom of the grade was reached about 1.5 kms from Ferguson and then a steep climb on a series of 1 in 30s grades was begun. The route carried on as a sequence of almost continuous curves on a bench with a low uphill cut for 800 metres, then a straight section with a diminishing uphill cut to come out on the Ridge Top, cross to the south side and proceed on the natural surface to the Weeaproinah railway station.

The **Weeaproinah** station, 208.4 kms and 521 metres ASL, had a single loop siding with a ramped platform, a sheep and pig race and a passenger shelter.

From Weeaproinah the route ran west, down slope, on a low mound on a more or less straight alignment for 700 metres to **Pile Siding**. This siding, 209.5 kms and 498

metres ASL, was a timber loading point and comprised a spur siding fed by two timber tramways between 1915 to 1945.

The route left Pile Siding on a 20 chain left hand curve, almost on the Ridge Top and followed a line between the gully heads running off both sides of the Ridge though five curves and low earthworks for 1 km before straightening for around 400 metres.

Kincaid railway station, 210.8 kms and 472 metres ASL, was situated in the middle of this straight. Kincaid station was a timber loading point and had a loop siding and a passenger shelter. A timber tramway ran to the siding from 1911 to 1928. From here the route ran west down a long grade to the bottom of a dip, crossed the main road, and began a steady climb to Wyelangta. The track continued west on an embankment across the dip, rounded the head of a gully on a right hand curve, entered a left hand curve with a low uphill cut to skirt another gully head and straightened. At the end of the straight the route curved around a gully head with a 3 metre uphill cut and entered a long straight in the centre of which was the Water Tanks Stopping Place

The Tanks, 211.9 kms and 472 metres ASL, was a stand pipe for locomotive watering purposes. Water was fed via a pipeline from a collecting weir on a nearby gully. Two timber tramways ran to this point from 1912 to 1923.

From here the route proceeded south-west, rounded a rise via a three metre cutting and ran across a deep embankment on a right hand curve, swung into a left hand curve through a 4 metre uphill cut and 1.5 metre downhill cut in a 80 metres long horseshoe cutting on a 2 chain curve, came out of the cutting and ran straight across a low embankment with a steep fall away to the north, swung into a right hand curve, more or less on the natural surface, went through a small cutting and across a swampy dip on a low embankment heading north-west. A long, projecting spur trending off the main Ridge was rounded by means of a 2 chain horseshoe curve in a 110 metres long cutting up to 5 metres deep. From the cutting the route headed south on a reasonably straight alignment on low earthworks for 500 metres to return to near the top of the Ridge at the west end of the Wyelangta Cemetery.

From the Cemetery the track ran straight on a rising grade close to the top of the Ridge for 500 metres, turned though a right hand curve on a long embankment, proceeded through a 4 metre cutting and ran straight to the Wyelangta Railway Station.

Wyelangta station, 213.9 kms and 539 metres ASL, was the main intermediate station between Beech Forest and Crowes and consisted of the mainline, loop siding with dead end extensions, ramped platform, crane, goods shed, office and passenger shelter. Three timber tramways ran to the siding from 1911 to 1928.

Leaving Wyelangta on the flat, the route entered into a 4 chain right hand curve to skirt the ripples in the north face of Mount Chapple and followed through with three more curves on shallow earthworks before crossing the main road on the level and then entering a shallow cutting on a right hand curve and proceeding on the south side of the ridge.

The route ran downgrade on a low mound for 600 metres to Amiets track and from here more or less on the natural surface close to the Ridge top for 300 metres to **Pettits Siding**. This siding, 215.5 kms and 522 metres ASL, was a timber loading point and

comprised a loop siding fed by a timber tramway from 1911 to 1924. A passenger shelter was provided.

From here the route ran close to the Ridge top on a down grade for 800 metres, rounded a 10 chain right hand curve, then a 4 chain curve and a sweeping 20 chain curve in a short 3 metre cutting through a rise and coming to Stalker railway station.

Stalker station, 216.8 kms and 517 metres ASL, had a passenger shelter and loop siding and was mostly a timber loading point. From 1911 to 1939 a timber tramway ran to the siding from the north-west and in the late 1940s a sawmill was built in the railway yard.

A looming rise to the west of the station was skirted to the south via a 500 metre long S bend, with a slight uphill cut, that closely followed the (old) main road, swung onto a long straight at a gully head (to the south) on a low embankment and proceeded west more or less on the Ridge top.

A long 2 metre cutting at the end of the straight took the route past a gully head on the north and into another long straight where the Macknott Siding was situated. **Macknott Siding**, 218.2 kms and 499 metres ASL, was a timber loading point from 1916 to 1928 and consisted of a loop siding fed by a timber tramway.

From Macknott the route continued downgrade on the Ridge top for 1 km and the swung to the south around a 5 chain curve and ran straight for 300 metres to round a projecting spur with a 1.5 metre uphill cut via a 2.5 chain curve before turning out of the arc via a 2 chain curve and running straight to the bottom of the dip and then proceeding upgrade.

The route continued straight on the climb before rounding a 4 chain right hand curve, with a low uphill cut, and then swung around a gully head, on a 6 chain curve, on the top of the Ridge and on a down grade to the Lavers Hill railway station.

Lavers Hill station, 220.8 kms and 490 metres ASL, comprised a loop siding and livestock trucking yards, goods shed, passenger shelter and office. A privately owned goods shed was also installed for the local general store owner.

The route departed Lavers Hill on a curve, crossed the Apollo Bay Road (now the Ocean Road), on the level and moved to the south side of the Ridge via a low uphill cut. The grade descended and the route swung around a 2.5 chain left hand curve to effect a long horseshoe bend around a projecting spur and with a low uphill batter. Emerging from the horse shoe curve the route crossed a gully head on an embankment, entered a low cutting, swung around another gully head on a 2 metre embankment, followed the face on a gentle curve, entered another curve with a 50 cm uphill bank, straightened for a short distance, swung into a right hand curve through a 2 metre cutting and then crossed a gully head on a 2 metre bank on a left hand curve.

The route came out on the top of the Ridge and continued straight on a low embankment for 150 metres, curved around a 3 chain bend on a gully head, continued straight with a low uphill cut, turned into a 10 chain curve, with a crossing of the main road, and ran over a slight dip on a 2 metre embankment.

The route continued downgrade close to the top of the Ridge for a short distance, then eased onto the north face via a low banks around two gully heads and a low cutting

through a rise before a long 10 chain left hand curve around a height to the south to come to the Crowes railway station.

Crowes station, 224.1 kms and 413 metres ASL, was laid out as a terminal point, with the line terminating at a buffer stop at 224.2 kms. The station had the mainline, two loop sidings, a dead end loco siding with shed and ashpit, goods shed, goods platform, sheep and pig race and office, waiting room, parcels shed and passenger shelter. A large concrete, in ground tank, was built on the hill to the east of the station to supply loco water and this was fed to a stand pipe on the loco road near the ashpit. The water for the tank was pumped from a reservoir in a gully about 300 metres to the west. Bushfires removed several of the structures and in later years the station facilities comprised a crew rest hut and a track gang shed. A timber tramway ran south from the goods yard to a sawmill in Melba Gully and later a barrel stave mill was erected in the goods yard.

Appendix B

Route Maps

Appendix C

Gradient and Curves Diagram

Appendix D

Site Condition Report

The rail route was inspected from end to end and the findings noted below. The map references are to the recent Vic Map 1:25,000 series as listed in the Reference and Bibliography. These maps use the 1966 AMG co-ordinate system.

The terminus and lead out of the Colac railway yard have been obliterated by works for railway purposes, building and parking for a bowling club and construction of a Specialist School. Some brick footings for a small building associated with the loco depot area remains.

From behind the school the route mound is evident to Hearn Street where building works for the Aquatic and Fitness Centre and the Colac College farm have obliterated the route for over 200 metres.

A dwelling has been placed on the route on the south-east corner of Queen Street and Pound Road but, apart from this, the route is evident from the College Farm, and in good condition to the old Railway Reservoir, situated beyond the end of Tulloh Street. There are three derelict bridges in this section. From the end of Harris Road the route has a fence built along the centre line for several hundred metres. Further around this hill the route has trees planted close to it and is a cattle track as far as the Gellibrand Road.

The 3 chain curve embankment is intact at the Gellibrand Road but from here the route has been scarified for a few hundred metres leading to the Tulloh station. There is one sleeper present in the gravel road approaching Tulloh. At the site of Tulloh station, the route is evident although a fire brigade station has been built on the road bed, and from here the route has been converted to a driveway and access for a dwelling built on the line. The driveway continues as a well made road to Shorts Road to serve another dwelling.

At Shorts Road the route enters farmland and retains its earthworks and trees along the railway reserve and continues like this to Coram station, where a vehicle track cuts in and takes the route to the Colac-Barongarook Road.

From the Barongarook Road the route has been turned into a farm road for several hundred metres before reverting to its state as of the closing of the railway. The embankments, cuttings and associated trees on the reserve are intact all the way from

the Barongarook Road to Barongarook station. The cuttings that are not used as cattle pads or tractor ways tend to be waterlogged because the drainage points are overgrown. The 101 mile post is intact in this section. The bridge over Boundary Creek has been replaced with a stone causeway and culvert and a farm road is on top of the embankment leading to the bridge.

The Barongarook station yard is a clear paddock with a road across the middle of it. From here the route is intact all the way through the Ten Mile Creek valley to the Cashins Road crossing at Birnam. The section from Barongarook Station to the commencement of the Birnam rail trail, some 1.4 kms, is intact as it was left when the rails were pulled up and at 726133-278425 is a short section in a shallow cutting showing the sleeper impressions.

This is the best example of sleeper impressions along the entire railway. The 103 mile post is intact in this section.

The route from here to Cashins Road has been made into a rail trail. Light vehicle and horse access is evident and there is only minimal damage to the surface from these sources. In one section along here at 726133-267422 the side drains and pipes have collapsed and the road bed is very wet and this is a cause for concern. The earthworks are intact over the Birnam rail trail and this includes two very large embankments, one at 726133-261421 being the largest along the entire railway. The horseshoe curve embankment at 726133-258420 has a 20 metre by 2 metre concrete culvert underneath, the only one of its type and length on the railway. The portal at the north end has developed a large crack and the fabric has shifted a little.

At the Barongarook Bank water tank site there is a pile of cinders. At the time of the inspection the cinder pile had evidence that it was regularly driven over by trail bikers and was being damaged.

From Cashins Road the route has been heavily compromised for 1 km and in parts there is little evidence remaining of the railway over this section. The 106 mile post is intact in this section.

From 726133-272391 the embankments, cuttings and surface impressions are intact and remain so through to Kwarren station, although the railway reserve trees and vegetation are patchy throughout. The soil is very soft hereabouts and some erosion and soil slips in the cuttings and side cuttings are evident. At 726133-262380 there is a dam constructed using the railway embankment as the retaining wall and the wooden bridges over Loves Creek and the next tributary to the south are intact, although in a derelict state. The Loves Creek bridge at 726133-271378 has protruding piles from the previous bridge that was burnt in the 1939 bushfires. The bridge over Serpentine Creek has been removed and replaced with a log bridge for farm use.

The Kwarren station site has been compromised with road works and a CFA building.

From Kwarren the route is evident and intact. Parts of a cutting are incorporated into the play yard of the Kwarren School and extraneous features introduced. From near here the route is part of farming land. Hitt's Siding has had a dozer cut put in from its north end and running down to the nearby main road and this has affected the original levels. From near the south end of the Kwarren school yard the formation has been turned into a public road and extends for 1.2 kms to serve several farming properties. At

the end of this gravelled road the route reverts to private property as a largely intact set of embankments, cuttings and trees along the original reserve to near the front gate to the Amaroo property, 762044-231355, where road works have destroyed the route for the next 3.2 kms through to Gellibrand.

Road works and developments in the Gellibrand township have obliterated the approaches to the Gellibrand station and the station site itself. Two railway houses and one cypress tree are the only surviving remnants of the station complex.

From the Gellibrand station the route proceeds for over 2 kms to the start of the steep climb to Beech Forest and some parts of this section has been compromised by intersecting road works and clearing works although, overall, the section is reasonably intact.

From the link between the old Beech Forest Road and Charleys Creek Road the route has been converted into a farm access road and this proceeds for a little over 1 km to the south boundary at 762044-205310 where the hardwood forests commence. The route from here was converted into a logging road many years ago and a log landing abuts the route near the boundary. The subsequent route to Banool is a mix of farm roads, pine plantation roads and farm paddocks and all except one short section in a cutting has been driven over by light and heavy vehicles at some stage or another.

Two embankments at wet spots near 726044-217315 have been rebuilt by land holders and in parts the route has been graded and extended for up to twice its originally built width by the pine companies. Take off points for side roads have damaged the route at several points and pines have been planted to the edges of the embankments. One timber bridge over a gully head is extant at 762044-212301, the site of the 19 Mile Ballast Siding is intact and definable at 762044-207315 and at 726044-214299 is a cutting in which the road bed mound is intact and shows no signs of having been driven over since the rails were lifted.

At Banool the route for 750 metres has been made into an all weather metalled road with a camber and the station site compromised by pine plantings and harvesting. However the earthworks at the station are intact and the site can be interpreted as a passenger and goods station at 762044-221284.

The route south from Banool has been disturbed for plantation works and a roughly graded track on top for 250 metres when the route re-enters the hardwood forest at 762044-219281. This section for 1.3 kms shows evidence that heavy vehicles have driven along it many years ago but the undergrowth and blackberries have since reclaimed the route. The route is intact here but hard to interpret because of the blackberry cover, especially on the higher embankments on the curves.

The mutilated and hard to detect route then crosses the old Beech Forest Road at 762044-226274 and from here to Wimba has been heavily compromised. The earthworks from the Beech Forest road, through what was Church's property have been completely obliterated by plantation operations for about 400 metres. This obliteration included destroying a deep cutting and remains of an overbridge. The route then runs close to the road as the boundary for a plantation and has suffered from logging and replanting works. A water tank to a private dwelling is sited on the route here. The route through this site to Wimba has been dozer cut and driven over by heavy vehicles but the uphill earthworks remain intact and the railway can be readily discerned.

At Wimba station there are four sleepers remaining in the main road at 762044-230264. Some Arrum Lilies mark the site of the railway house a little to the south.

The route is clearly evident from here with the roadbed and embankments intact. The route enters a pine plantation near here and takes in the full extent of the plantation. Heavy vehicles have driven along the formation and from the horseshoe curve near the main road, the formation was been widened and laid with metal for 300 metres to allow for logging operations and some of the downhill earthworks widened or reconfigured.

At the south end of the 2002-2003 pine logging operations at 726144-229255 the route reverts to a normal width road bed that has had continuous light vehicle traffic on it since the railway closed. There is some damage to the original bed for 300 metres at a pine logging site and some take off points for side roads. The remains of an overbridge at a deep cutting are evident at 726144-229250.

The site of McDevitt station has been part compromised by an access track being put through from the main road to the rail route. The route continues south relatively intact but with evidence of vehicle traffic many years ago. The road bed route is very soft here although there is no indication of churning from heavy vehicles so the route was probably used for farm purposes. The route enters a pine plantation at 726144-236245 and there is some degree of damage due to pine plantings on or near the route and in parts the road bed is badly cut up. Cattle have made a mess of the route in several sections but the side earthworks and embankments are intact and the route is easily defined.

At 726144-230242 and thereabouts there are four large embankments taking the route over gully heads and side creeks and these have evidence of the borrow pits at the ends of them. At 726144-227242 is a deep box cutting complete with the rail bed camber or super elevation of the outside curve that characterised sharp and steeply graded curves. It is rare for this camber feature to survive.

At 726144-226238 the route leaves the plantation and enters farming lands. The route is used for access by cattle and light farm vehicles, without detriment to the road bed or side earthworks.

In this section at 726144-226236 is a remnant telephone pole, complete with cross arms and insulators, from the railway era.

At 726144-231234 the route has been turned into a gravelled farm road and runs though to near the site of Dinmont station. The station site has been compromised by building works and all that remains of the railway era is the water tank on its original site and still in use as a Colac-Otway Shire facility.

The tank abuts the Beech Forest road and from here the route is evident as a low embankment that meets a metalled road built along the formation. Lengths of the now disused metal water pipe used to convey water from the creek to the tank at Dinmont remain on the route. The route hereabouts is intact with its earthworks, including pick marks in the cuttings, although there is some damage to the site of Devitt Bros Siding from a side road take-off for logging and fire fighting purposes.

The route continues to 726144-240222 and here all evidence terminates at a property boundary where the route has been ploughed over for agricultural purposes for a distance of over 2 kms.

Approaching the Beech Forest sports ground from the east, the route is not evident owing to it being ploughed in. The route mound is intact at the site of Ditchley station and westwards from here around the bottom of the Beech Forest hill for about 300 metres, from which point the cuttings have been filled in and the embankments flattened.

The original terminus was Beech Forest and evidence of the extensive facilities here is now hard to locate. Road works in the 1970s have obliterated most of the railway yard and regradings of the land forms to establish a park, works depot and hotel have altered the original surface levels. At the eastern end of the railway yard site is the balloon loop for turning the trains and this feature is intact as are two railway houses on the north side of the station reserve and the cutting leading to the balloon loop.

The balloon loop is a unique feature.

The route from Beech Forest to Crowes commenced as a turn out adjacent to the public hall but there is no evidence of this on account of alteration to the original surface levels. A road embankment replaces the original road overbridge under which the Crowes line ran and it is only on the western side of this embankment that the Crowes route can be discerned.

A walking track has been formed on the formation for a few hundred metres and this ends at a private property boundary. The route has been ploughed in west from here and, apart from an occasional remnant earthwork, there is nothing to see of the route until the partially ploughed over curve near the Phillips Track junction on the approach to Ferguson.

The Ferguson station site is sandwiched between the tennis courts and a large shed and no distinguishing features remain. From Ferguson the route is indistinguishable to Weeaprounah. The Weeaprounah station site has a large shed built on its east end and centre and some of the station yard mound can be detected at its west end.

From here to Pile Siding there is nothing to see and Pile Siding is indistinguishable. The route to Kincaid cannot be discerned and Kincaid station site is a cleared area with a plantation of exotic trees (almond or mulberry?).

Roadworks obscure the route for the next few hundred metres but from near The Tanks site the roadbed is intact through to the Wyelangta cemetery. This section runs through a rain forest area and, apart from The Tanks site which is clear, is overgrown with blackberry, tall grasses and ferns.

From the Wyelangta Cemetery westwards the route has been ploughed in and only survives intact at one bend on the west side of the cemetery and 500 metres west at a long curving embankment and cutting approaching the Wyelangta railway station.

The Wyelangta station site is intact as a grassed paddock. From here to Stalker the route has either been ploughed in or had a telephone line buried under it and the road bed mound is non-existent or heavily compromised.

The Stalker railway station site has a cattle route along its southern side and the main body of the yard has been planted with trees.

The route from Stalker for 700 metres has been ploughed in. A cutting survives at 752012-093166 but has been cut through by road works and none of the route is intact for the next 1.2 kms, and this includes the site of Macknott siding

Road works obscure the route from here through to Lavers Hill, except for the 2.5 chain horseshoe curve at 752012-089162, which is in a paddock south of the main road.

The Lavers Hill railway station site has a bus depot built on it. From here, across the Ocean Road and for 300 metres the route had disappeared under road works and building works. For the next 800 metres or so the route is distinguishable around the 2.5 chain horseshoe curve to the west of the Ocean Road crossing, although it has been part ploughed and has faint traces on the uphill side at its eastern end. The balance of the route through Lavers Hill to the school area is part ploughed but is evident in one cutting and at three embankments on curves.

The Ocean Road intrudes into the route west of the school and the former railway road bed is either under the road or cut into as the southern batter. An embankment survives a little further on for about a 100 metres and from here through to Crowes the route has either been obliterated by road works and heavily damaged by pine plantings.

At a bypassed level crossing over the Ocean Road at 752012-066151 and close to Crowes is an intact section of rails in the bitumen.

The Crowes railway station has the Ocean Road running across its eastern end, its centre turned into a gravel dump and the Melba Gully Road built across its western end.

There are several intact features at Crowes and these are the concrete water tank on the hill at the east end, a palm tree and a cypress tree near the station office site, the buffer stop at the end of the line and the collection weir for the water in a gully about 300 metres west of the buffer stop. The water tank was part of the loco water supply apparatus and dates from 1911, the buffer stop was built in 1942 as a replacement for the original stop which was destroyed in a derailment and the palm tree (or its progeny) is a remnant of Station Master Norman Blackie's efforts at beautifying the station from 1914 to 1916. There is also a pine tree that dates from an early era of railway activity.