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**INVERMAY**

**MINIATURE RAILWAY**

**INCORPORATED PLAN**

**Ballarat Society of Model Engineers Inc  
July 2002**

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## **1.0 Background**

The Ballarat Society of Model Engineers Incorporated (BSME) is planning to build a Miniature Railway Complex at the Invermay Recreation Reserve. (Figure 2). An amendment to the planning scheme is required to allow this project to proceed.

The track will be built in a number of stages according to available funding, Stage 1 has commenced on the basis of a \$5,000 grant from the City of Ballarat and internal funds from the BSME. Stage 1 will consist of 145 metres of dual 3½" and 5" gauge track and 200 metres of dual 5" and 7¼" gauge track. A number of fences will be erected to protect the installation and ensure public safety.

Stage 2 of the track will be constructed once funds are available and will consist of a further 182 metres of dual 3½" and 5" gauge track and a further 328 metres of dual 5" and 7¼" gauge track bringing the total length of track to 327 metres of 3½" and 5" gauge track and 528 metres of 5" and 7¼" gauge track. There is potential to further increase track length beyond this if this is thought necessary. If funds are available a overtrack footbridge and Railway Station will be built. Some minor fencing changes will be made to include the extended area of track.

Trains consisting of members existing Locomotives and BSME riding cars will be run on the track. The Locomotives are variously powered by steam, battery electric or petrol. The complex will be open to the general public on a regular basis and rides will be provided for a moderate fee, the collection of funds will be used to further develop and extend the complex. The complex will also be used for inter club rallies with kindred Clubs and Societies and may even be used for a convention.

Club functions are currently held on individual members private tracks thus the BSME has existing locomotives and rolling stock in 3½", 5" & 7¼" gauges. It is proposed to provide rides to the public on the Invermay track using these existing locomotives and riding cars in 5" & 7¼" gauge.

## **2.0 Ballarat Society of Model Engineers Inc**

The BSME was formed 18 years ago although foundation members operated as an informal club for many years prior to this. Meetings are held on a monthly basis, run days are also held on a minimum of a monthly basis and frequently more often. The BSME currently has 30 members is incorporated and is affiliated with the Australian Association of Live Steamers (AALS) which is a national body which looks after the interests of the hobby. The BSME carries Public Liability Insurance to the value of \$5 million, once public running commences this will be increased to \$10 million. The BSME was incorporated in October 1984 and is bound by a constitution.

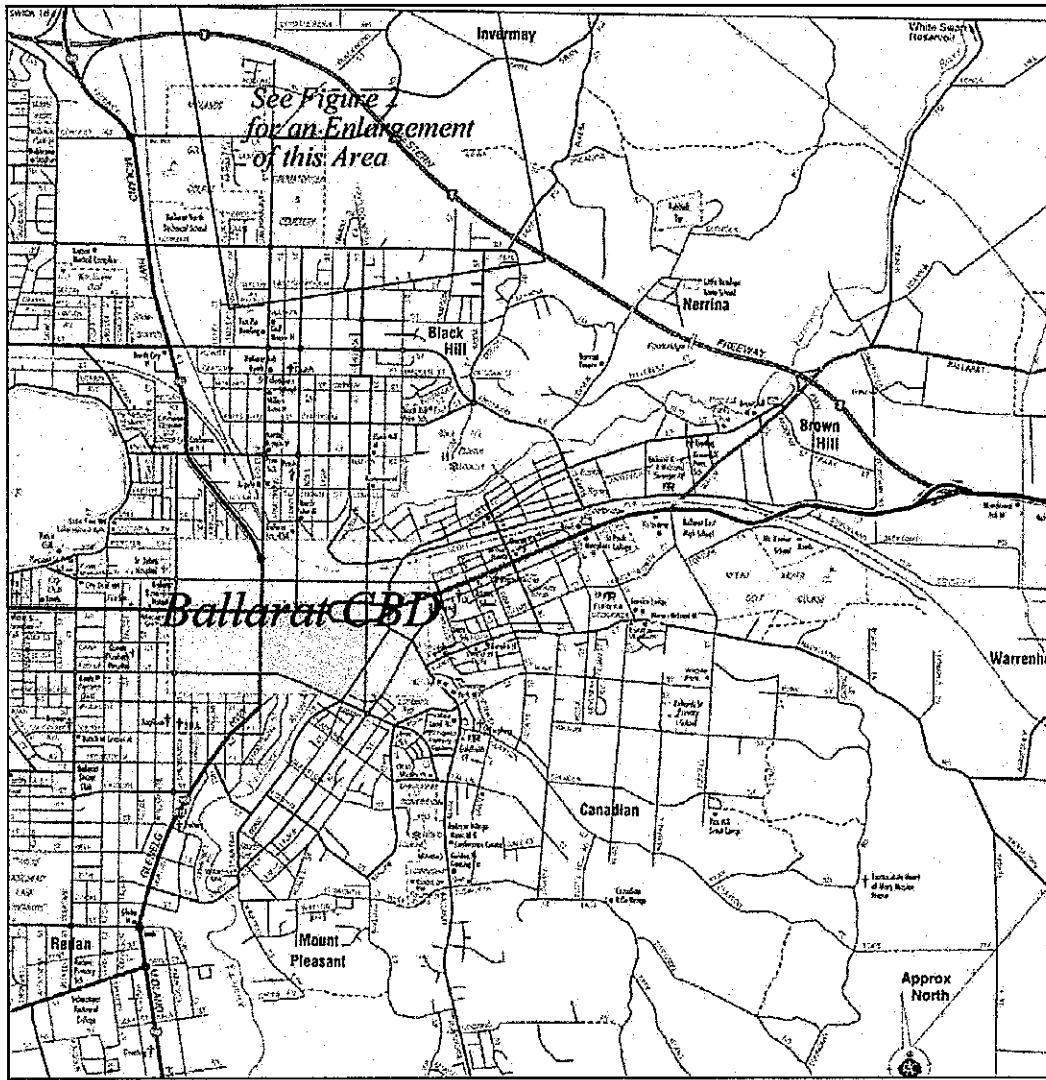


Figure 1

Map of Ballarat City showing the location of Invermay to the North

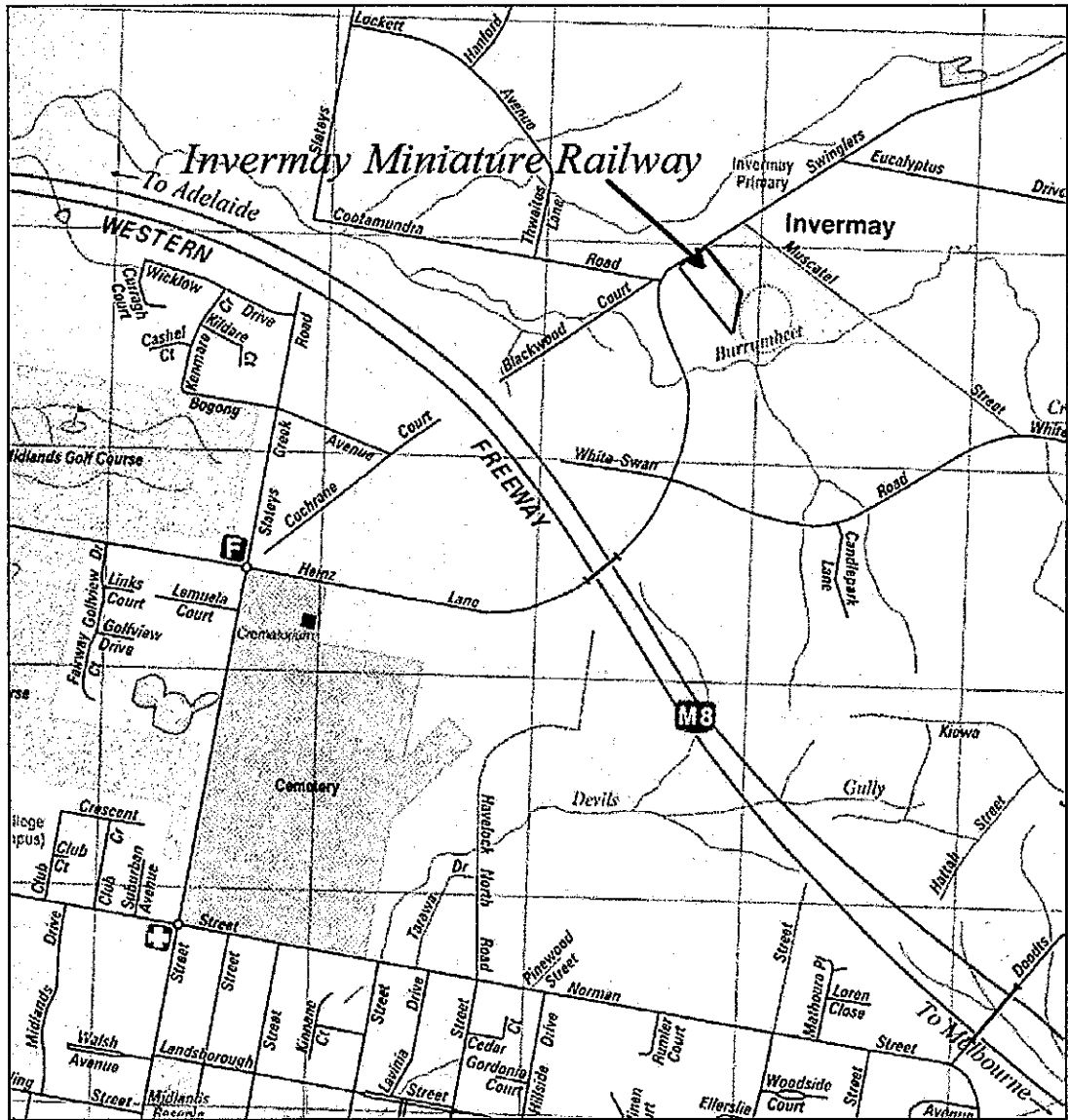
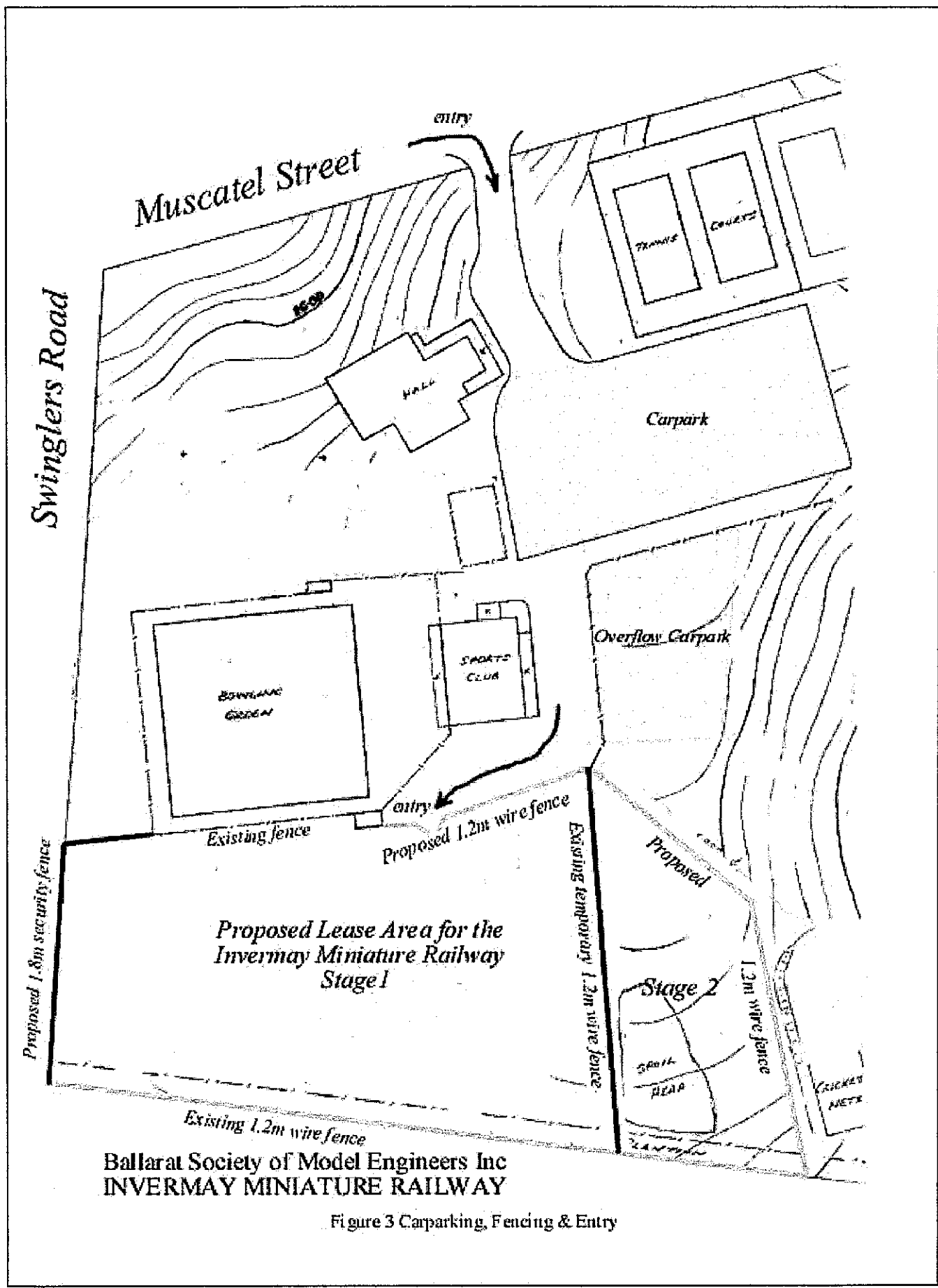


Figure 2

North Ballarat showing the location of the Invermay Miniature Railway  
(within the Invermay Recreation Reserve)



**Ballarat Society of Model Engineers Inc  
INVERMAY MINIATURE RAILWAY**

Figure 3 Carparking, Fencing & Entry

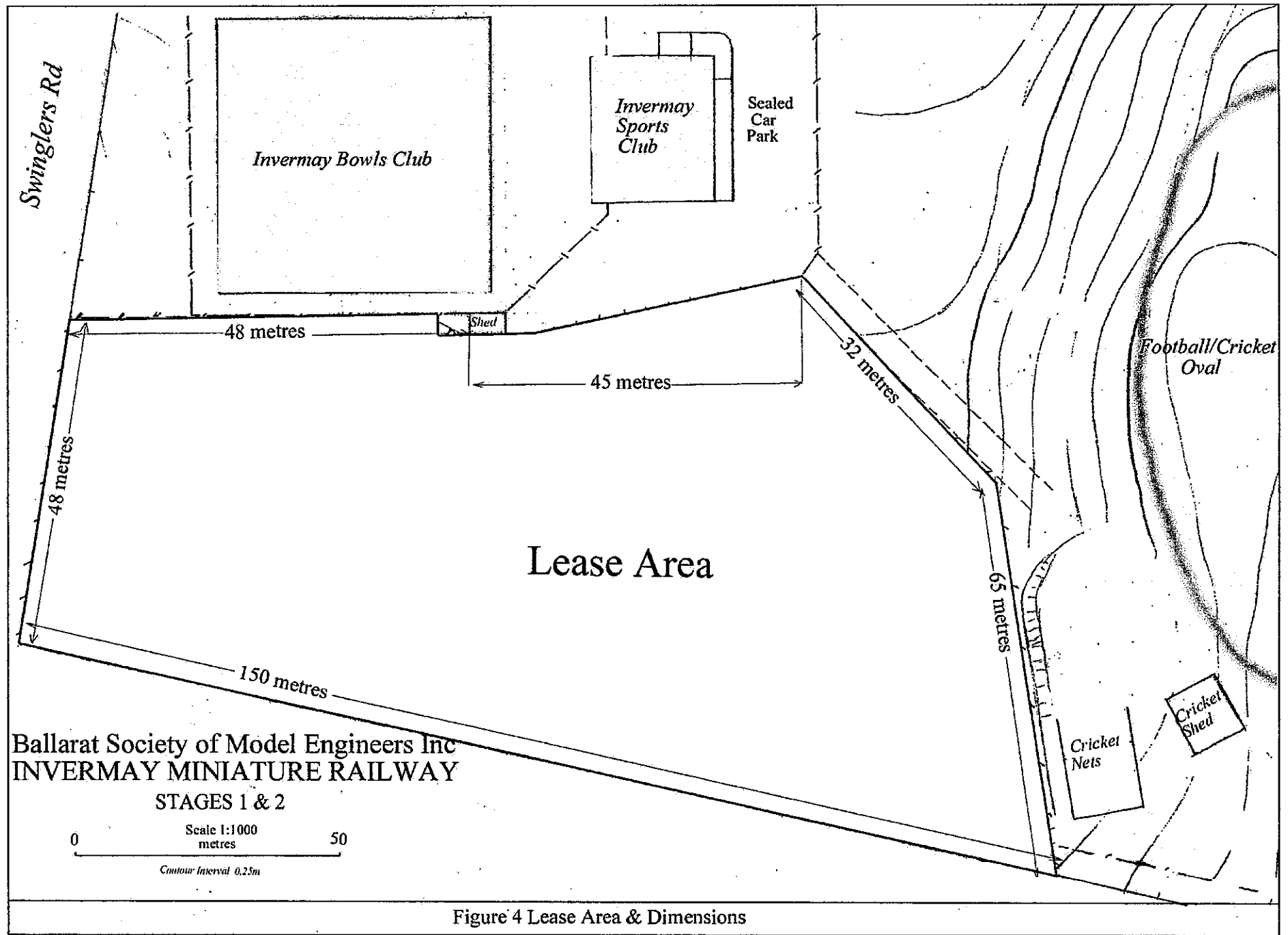


Figure 4 Lease Area & Dimensions

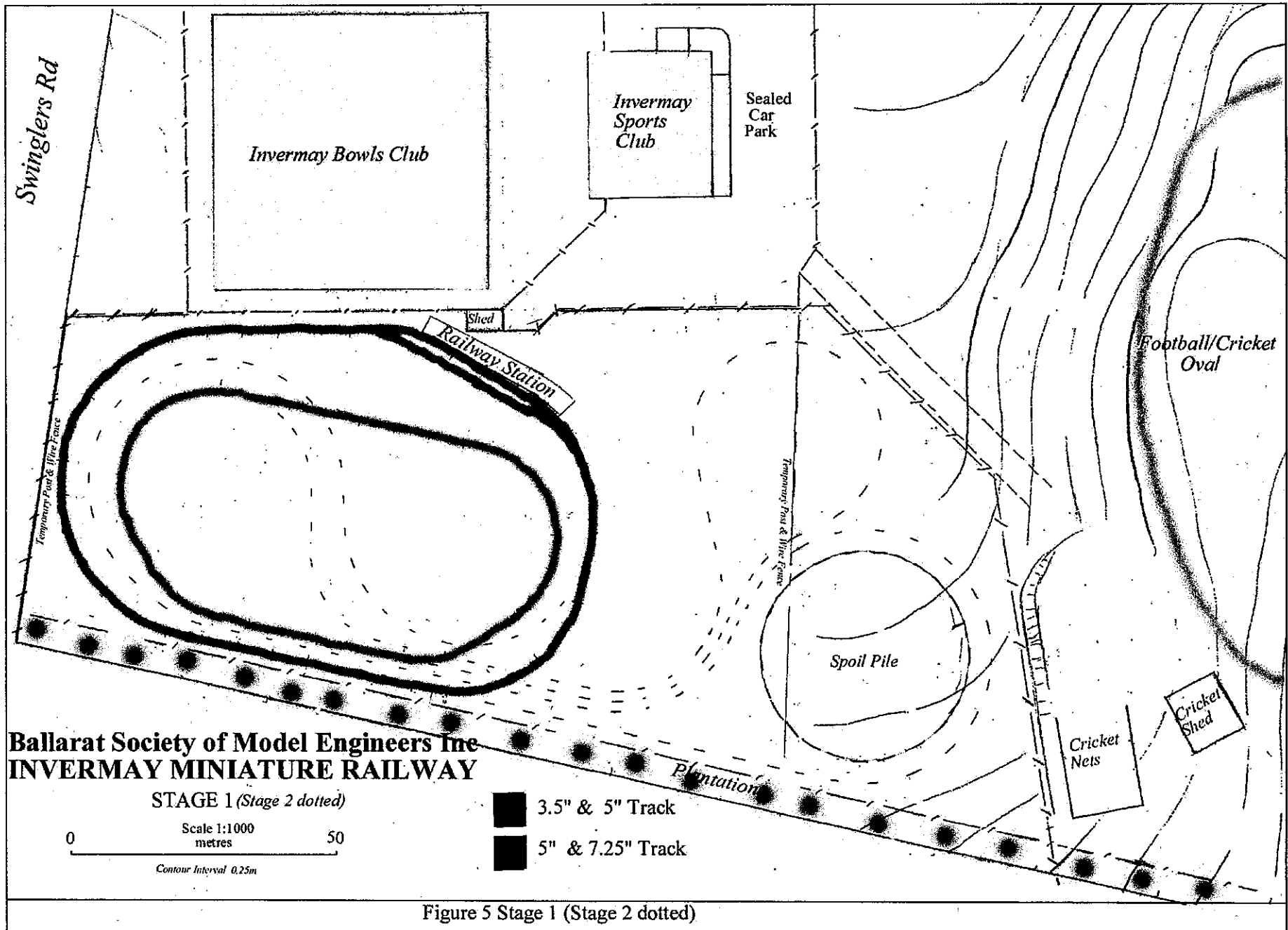
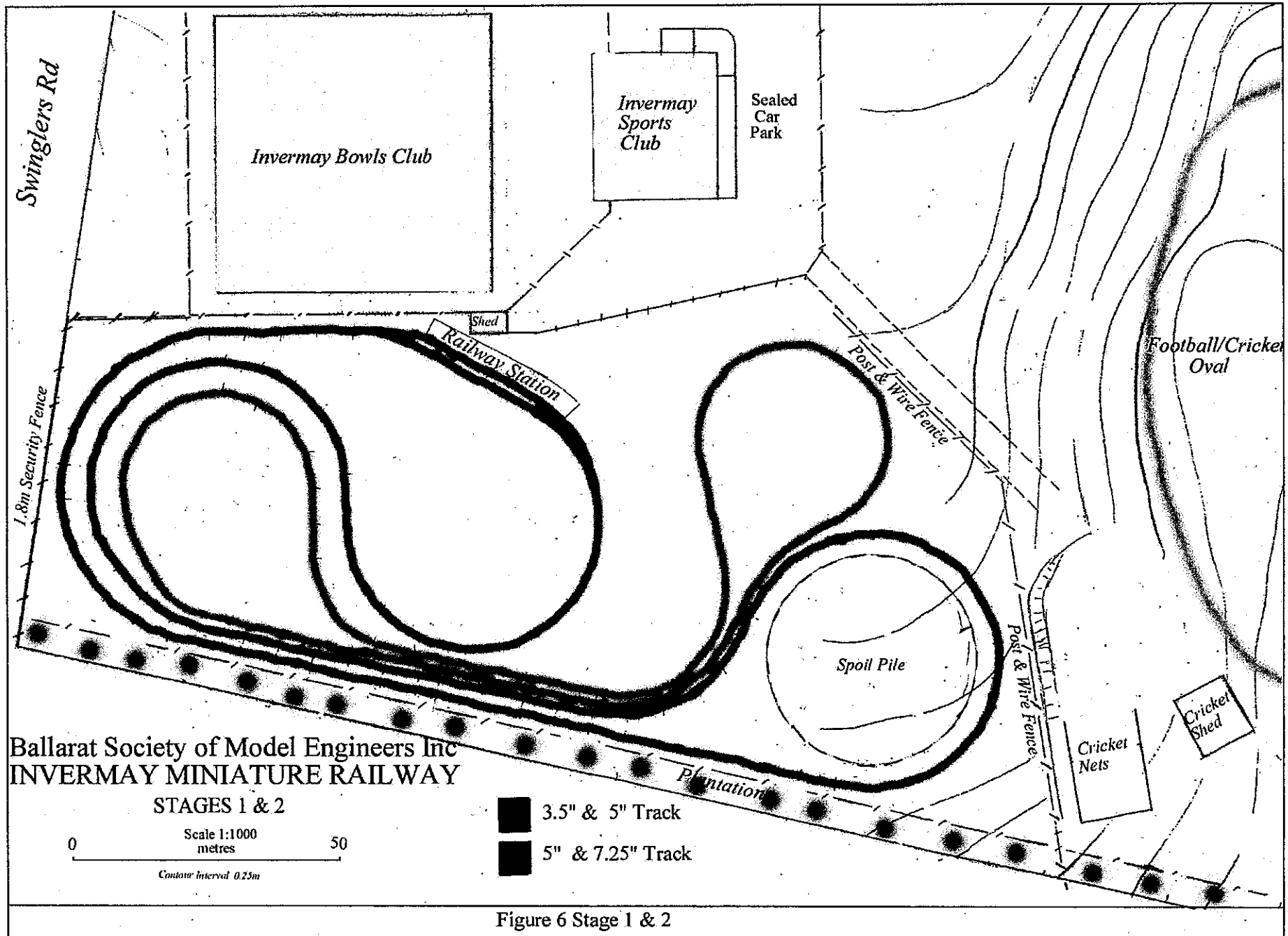


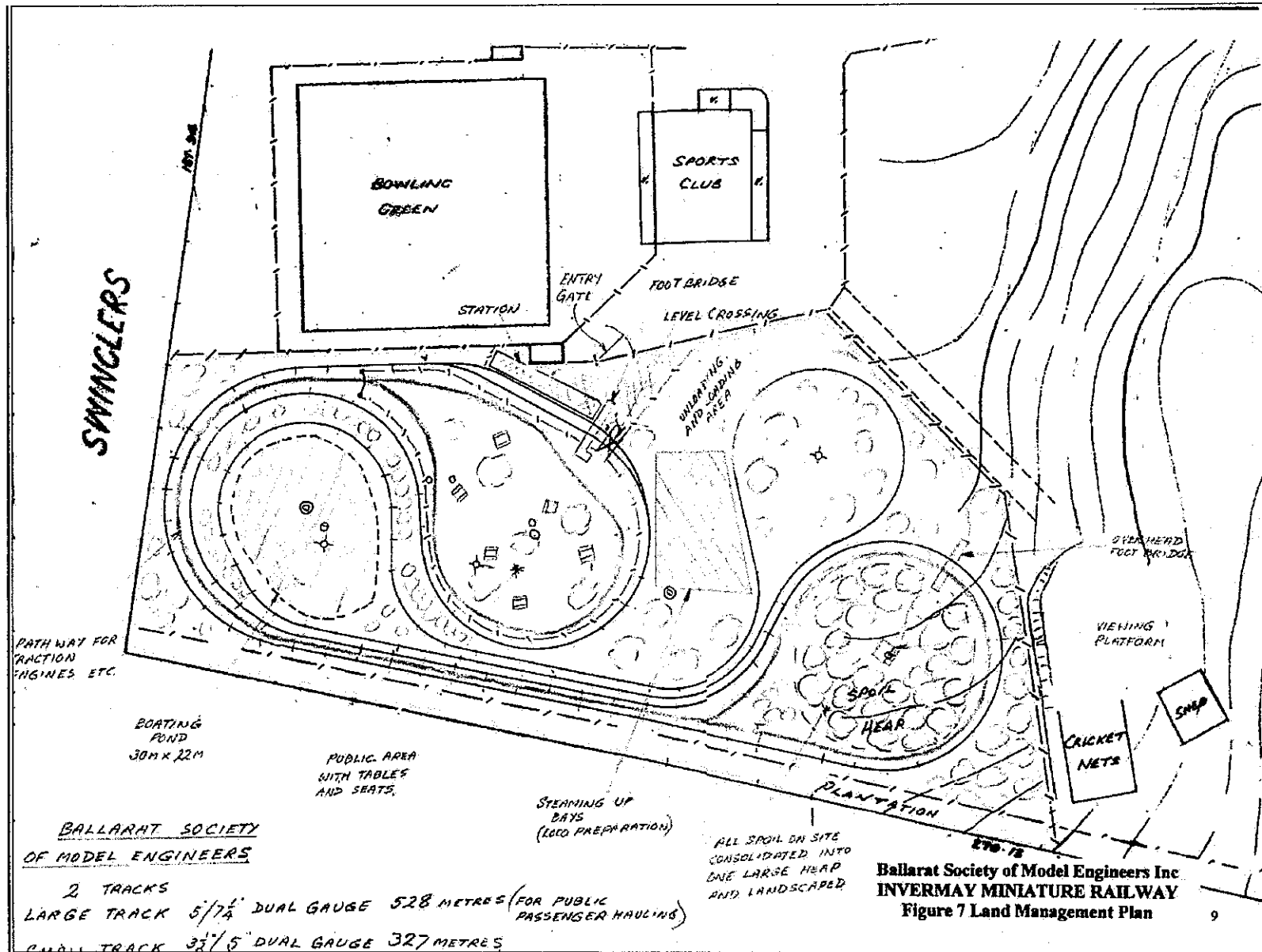
Figure 5 Stage 1 (Stage 2 dotted)





Ballarat Society of Model Engineers Inc  
**INVERMAY MINIATURE RAILWAY**  
 STAGES 1 & 2

Figure 6 Stage 1 & 2



### **3.0 Track Location**

The BSME has secured a lease of land from the Invermay Recreation Reserve Special Committee (IRSC) at Invermay which is 5 kilometres from the Ballarat GPO. (Figures 1 & 2) This IRSC is a sub Committee of the Invermay Recreation Reserve Management Committee which administers the Invermay Reserve on behalf of the City of Ballarat Council.

The subject area is within Crown Allotment 1, Section J, Parish of Ballarat. The site is included in the Public Park and Recreation Zone and the Environmental Significance Overlay Schedule 1 Invermay Land Protection Area. It is not expected that the limited extent; flat topography and the activity proposed for the site will pose a salinity or erosion threat to the site.

The Invermay Reserve is fully developed and has a range of facilities which include a modern Community Hall, separate meeting rooms, a sealed carpark (60 spaces) and many other related amenities. Other organizations with facilities at the Reserve are the Invermay Bowls Club which has an 8-rink Bowling Green, the Invermay Riding Club which has a gymkana setup and the Invermay Tennis Club which has a number of sealed tennis courts.

The BSME has secured a 5 year renewable lease on an area approximately 150 metres by 75 metres which is of sufficient size to establish the proposed miniature railway track. Further land is likely to be available in the future if the operations of the railway need to be expanded, this will be addressed at that time if necessary.

The leased area is bounded on the southern side by a wire farm fence and a row of trees, and the Bowling Club forms the northern boundary. The north western boundary is adjacent to Swinglers Rd and will be fenced initially by a post and wire fence and later when funds become available by a 1.8m security fence. The south eastern boundary is skirted by the oval which will be fenced off using a post and wire fence.

The land is substantially flat with about a 2% grade sloping to the east. Some mounds of earth and concrete have been placed on the site, these are not substantial and will be re-moulded into hill features as part of the railway landscaping and vegetated.

There are no land heritage issues at Invermay as far as the BSME is aware. The land in question is a flat featureless paddock which includes a few mounds of concrete/earth fill which appears to have had a past history of agricultural use. (Plates 4 & 5). Hence any features that originally existed have been obliterated over the last 100 years or so.

Wild introduced pasture grasses cover the site which is regularly mowed and a row of immature trees exists along one boundary, these trees would be less than 15 years old. The BSME is not aware of any significant fauna or flora which exists on the site and there is no evidence of any significant anthropological, scientific or cultural features.

The existing site is ideal for a miniature railway and requires very little work to prepare it for the laying of track.

#### **4.0 Proposed Development**

An overview of the proposed Invermay Miniature Railway (IMR) is provided in Figure 7. Referring to the sketch it is proposed to develop 2 intertwined dual gauge miniature railway tracks substantially covering the site. It is intended to fully landscape the site providing trees, scrubs and similar plants to beautify, breakup the site and prevent erosion. The perimeter of the area will be fenced to ensure public safety, fencing details are provided on Figure 3.

Public parking will be available in the main sealed Invermay Recreation Reserve car park. Entry to the IMR site is from the car park past the sports club building. Access will be through a gate to the station where rides may be booked. Alternately access to the Picnic Area in the centre of the tracks will initially be over a ground level track crossing and later over an overpass when funds permit. It is intended that the picnic area be provided with tables and possibly Bar-B-Q's.

Other features will be constructed as time and funds allow. This includes a miniature traction engine path which will wind around the site, this track will be traversed by miniature traction engines and other similar steam powered vehicles. A boating pond may also be constructed in the centre of one of the track loops, this will enable the sailing of model boats.

A spoil pile of broken concrete and dirt currently on the site will be reshaped as a hill which will provide an elevated viewing platform from which to view the site. A storage tunnel made of concrete culverts may be constructed within this hill at a later date using the "cut and cover" construction method. This will be constructed within Council planning rules and will be designed by a qualified engineer. The tunnel will provide a secure possibly vandal proof storage area for locomotives and rolling stock.

A loading and unloading area will be provided in an area adjacent to the station. This area will be setup to assist engine owners to unload and reload their engines from trailers and cars. There will be no public access to this area to ensure public safety. A section will be provided for the steaming up, servicing and marshalling of trains and is likely to include either a turntable or traverser. In future it is intended that a shed be constructed in this area for the storage of rolling stock, engines and other equipment associated with the running of the railway.

The BSME intend to fully landscape the site providing trees, shrubs and similar plants to beautify and visually breakup the site. This landscaping will be carried out in an environmentally sensitive fashion and will be consistent with the Environmental Overlays aim of preventing erosion, reducing salinity and land degradation. The site is in good environmental condition having been improved in the past. There are no land degradation problems and there are no watercourses or creeks on the site.

## 5.0 Members Engines

BSME members have constructed and/or purchased a number of locomotives over the years. A broad breakdown of the numbers of member's engines is as follows;

Gauge	Built and running	Under Construction
3½"	7	2
5"	13	8
7¼"	2	1

Members locomotives have various motive power, the majority are steam powered, quite a few are battery powered and a few are petrol powered.

Rides to the public will be given on the 5" and 7¼" gauges as these are more amenable to riding on by the general public due to their broader gauge and more comfortable seating arrangement.



*Plate 1 BSME Member Geoff Armstrong on his NA "Puffing Billy" Locomotive*

It is probable that as the railway gains momentum a club locomotive may be purchased or built using funds raised from operations.

## 6.0 Rolling Stock

The BSME currently owns and operates two 5" gauge riding cars which can each seat 3 adults comfortably. Additional riding cars are being constructed including some 7¼" cars. Various members also own riding cars which will be suited to passenger hauling on the new track

## 7.0 Track Construction

Members of the BSME have made a study of other miniature railway tracks throughout Australia and have concluded that steel flats slotted into plastic sleepers would best suit the resources and requirements of the Society.

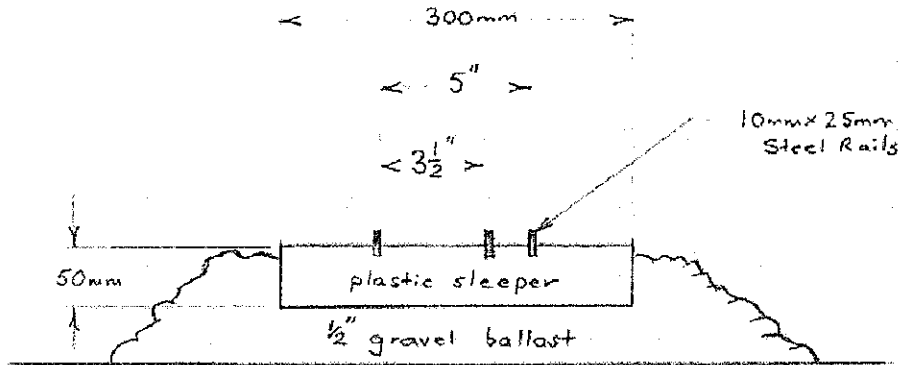


Fig 8 Cross section of 3 1/2" and 5" Track

Standard 25mm x 12mm and 25mm x 10mm steel flats will be used for the rails. Sleepers will be cut from 50mm x 50mm square plastic billets made from recycled plastic. A slotting machine will be used to cut 12mm and 10mm wide slots in the sleepers. The rail will then be pressed in using a hydraulic press. Panels of rail in 6 metre lengths will then be welded together to form the track. The track will then be laid on ballast consisting of 12mm unscreened scoria.

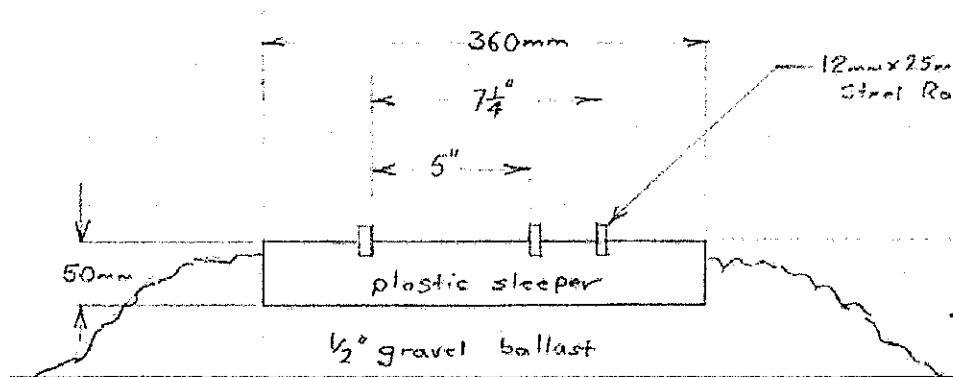


Fig 9 Cross section of 5" and 7 1/4" Track

All of this construction will be carried out by BSME members many of whom are experienced track layers having either built their own track or assisted in the construction of other members tracks. All funds will be allocated to the purchase of raw materials, all labour will be unpaid volunteer work by members.

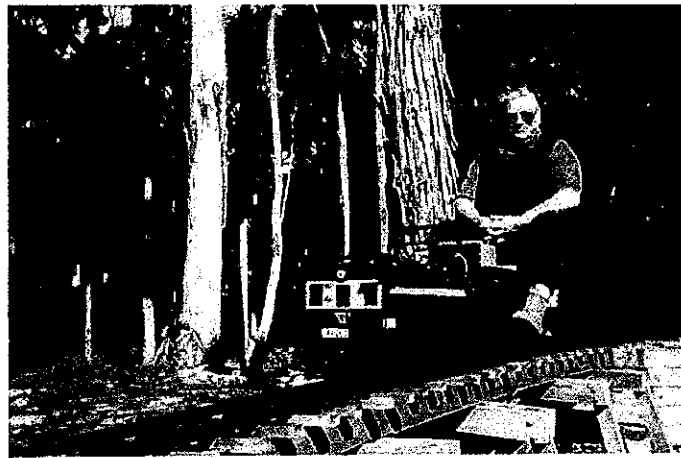
## 8.0 Construction Costs

The Invermay Miniature Railway has been fully costed. Construction has been divided into 2 stages to accommodate funding. Stage 1 has been funded by member's contributions and a grant from the City of Ballarat and is ready to proceed. Stage 2 will commence when funds are available either through a grant or through revenue raised by public running.

Construction Costs for the Invermay Miniature Railway have been estimated on the basis of quotes from suppliers and the incremental and full projects costs estimated using a 3 page spreadsheet.

Overall Project Costs are summarised as follows

	STAGE 1	STAGE 2	TOTAL PROJECT
Track	\$6,671	\$9,794	\$16,456
Security	\$850	\$3,170	\$4,020
Station/Tunnel	\$1,000	\$9,250	\$10,500
Labour	\$4,800	\$4,800	\$9,600
	\$13,321	\$27,014	\$40,335



**Plate 2** *BSME President Erik Hagen rides an electric loco over a trestle bridge*

## 9.0 Facilities

### **Existing Facilities**

The BSME as members of the Invermay Progress Association and the Invermay Sports Association will be entitled to use the existing facilities on the site so it is not necessary for the BSME to erect any infrastructure other than that relating directly to the Miniature Railway.

The existing facilities include a sealed car-park with a capacity of 60 cars in marked bays, this is considered adequate for the operation of the miniature railway. Other additional areas have been identified to provide overflow parking if necessary and are shown on Figure 3. Parking may be tight occasionally if two functions are held at the facility at the same time but this will be avoided where possible.

The capacity of the existing effluent system is 400 persons which is well in excess of the BSME's projected patronage. Ned Beslagic, City of Ballarat Environmental Health Coordinator has confirmed that the Invermay Public Hall facilities will cater for 300 persons while the Invermay Sports Club facilities will cater for 100 persons giving a total capacity of 400 persons.

The BSME does not plan initially to build any facilities on the railway other than a Station which will simply be a raised platform. This will serve as a focal point and assist in the loading and unloading of passengers.

Once funds become available it is intended to construct a Station Building, a Locomotive and equipment storage shed/tunnel and other associated facilities. Permits for these will be obtained through the Council prior to construction to ensure that the structures meet the relevant building and other regulations.

Beautification and landscaping of the area will commence when construction of the project begins and will be ongoing throughout the life of the railway.



**Plate 3** 8 year old Peter Darveniza drives an electric loco



### **Proposed Facilities**

It is planned to erect a 1.8 metre high chain mesh fence along the Swinglers Rd boundary of the site, this is to provide some measure of security and prevent unauthorised access and site damage which is currently a problem. It is intended to erect various 1 metre fences around the site consistent with public safety.

It is intended in the future as funds become available to construct an unloading bay and steaming up facilities which will be closed to the public for safety reasons. The unloading facilities will be used to assist in the unloading of engines from vehicles onto the track. Steaming up facilities will be used for the maintenance and steaming up of locomotives. Power and water will be provided at the steaming up bays, this will be installed by licensed tradesmen to the relevant standards and regulations.

Depending upon demand it is intended that a miniature traction engine road will be constructed in and around the railway facility, this will initially be a sand/gravel path and may be sealed at some time in the future.

At some time in the future a boating pond may be constructed within the centre of the railway if there is demand for one. This will be utilized by radio controlled boats which will be powered by sail, steam and other means. The pond is likely to be about 300mm deep to aid in the recovery of stranded boats by wading in gum boots or waders.

It is possible that in the future the railway track may be extended beyond the current lease area, this would be done with the consent of the Land Management Committee. Ideas discussed at this stage include the possibility of a loop along the south west fence to the south eastern property boundary where a balloon loop would enable a return along the same track. More ambitious suggestions include a complete loop around the football/cricket oval basically encompassing the whole recreation area.

### **Signage**

It is intended that signage on the site will be consistent with that already on the Reserve. A sign to the effect "BSME Invermay Miniature Railway" will be erected facing Swinglers road, it is expected that this sign would be painted metal.

Signs within the facility will be of two main types, those related to the facility i.e. replicas of signs normally found on a full scale railway and safety or direction type signs erected for the safe and efficient running of the Railway. One board of sponsors signs may be erected but will be in keeping with the site and within planning guidelines.

### **Lighting**

It is not intended that any special lighting will be provided other than that required for the general operation of the facility at night which will be minimal or perhaps some security lighting. Security lighting if installed would be placed to minimise nuisance to neighbors and passing traffic. The BSME has no intention of installing flood lighting as this would ruin the atmosphere of night running quite apart from the prohibitive erection and maintenance costs involved.

## **10.0 Public Running**

At the moment the BSME holds a track day once per month generally on a Sunday, this is likely to continue when we run at Invermay. Although it has not yet been decided it is likely that a track day will consist of private running for members in the morning with public running in the afternoon. Private running would not normally commence until 10am and may continue until 12 - 1pm, public running would normally be undertaken between 1 pm to 5 pm. Night runs may be carried out once or twice per year and may run until 10pm

All BSME members will have access to the track and will be entitled to run at any time they wish, it is highly likely that groups of retired members will have midweek day runs.

It is expected that children's parties could be hosted at the facility and would be run at a time to suit the client. Children would be given unlimited rides during the party.

Currently track days attract about 10 members and their families which is about 25 people, visitors usually number less than 10. Projections for the future are difficult to make but in the formative years it is expected that about 50-60 people may visit the site on a public run day with a maximum of 30-40 on the site at any one time. This is expected to build over time.

Discussions were held with the IRSC during lease negotiations regarding function clashes, both parties agreed that it would be in each parties best interests to avoid these if possible. It was agreed that full prior consultation between parties will take place prior to functions to avoid clashes.

### **Noise Nuisance**

It is not expected that the facility will create any noise nuisance for adjacent neighbors. The running of a miniature railway generates very little noise due to the low relative speeds and small scale of the trains. Steam whistles and imitation diesel horns will be used as warning devices during the operation but as these are not full size their ability to "carry" will be limited.

It is not intended to erect a public address system as this is not required.

Model Engineers and patrons are not expected to create any unduly high noise levels which will disturb neighbors. The experience of sister clubs throughout Australia confirms that noise levels are insignificant and not a problem.

## **11.0 Promotion**

The location of the Invermay Miniature Railway adjacent to the Ballarat by-pass Road and its close proximity to Ballarat should ensure a high level of patronage by the public. Promotion of the railway will be multifaceted in a number of media.

## **12.0 Future Funding**

Once the Stage 1 of the railway is constructed the operation is expected to be self funded through revenue raised by charging members of the public a modest fee for rides. At this stage the amount of revenue raised though this is uncertain, suffice to say that all similarly operated miniature railways throughout Australia successfully fund their current and ongoing operations and expansions in this manner.

**Appendix 1**  
**Views of the Proposed Site**



*Plate 4 View of site from Swinglers Rd looking south east to the oval*



*Plate 5 View of site from the oval looking north west to Swinglers Rd*

**Appendix 2**

**Ballarat Society of Model Engineers Inc - Office Bearers**

**President** Erik Hagen phone 5348 4135

**Secretary** Peter Darveniza phone 5330 2917

**Treasurer** Eddie Davies phone 5334 7522

## **Appendix 3**

### **City of Ballarat Proposed Conditions for Use and Development**

#### **Use and/or Development:**

*The use and/or development as shown on the Invermay Miniature Railway Incorporated Plan Figures 5 Stage 1, Figure 6 Stage 2 and Figure 7 Land Management Plan, must not be altered without the written consent of the Responsible Authority. All buildings and works are to be constructed and or undertaken in accordance with the Incorporated plans to the satisfaction of the Responsible Authority prior to the commencement of the use approved by this Incorporated Plan. All buildings shall be located clear of any easements or water and sewer mains.*

*The location and extent of all buildings and works including the track gauge should generally be in accordance with the Incorporated Plan.*

#### **Hours of Operation:**

*The use may operate only between the hours of 9am -6.00pm Monday to Sunday except during daylight saving when the operation may be extended to 9pm. The use may also operate until 10pm on four occasions per year, without further written approval of the Responsible Authority.*

#### **Access to Public Facilities:**

*Existing on site public facilities are to be accessible by the public while the railway is operating, for use by the public.*

#### **Landscaping**

*The site is to be landscaped in accordance with the Incorporated Plan, using indigenous native plants only.*

#### **Site Fencing:**

*All site security fencing shall consist of chain mesh with support poles of similar colour.*

#### **Signage:**

*The location and details of signs shown on the Incorporated Plan must not be altered without the written consent of the Responsible Authority. Signage is limited to signage promoting the location and nature of the site use and sponsorship signage as identified in the Incorporated Plan. No commercial advertising or sponsorship signage may be erected without planning approval where the signs face outwards onto adjoining roads.*

*All signs must be constructed and maintained in good condition to the satisfaction of the Responsible Authority.*

*Signs must not be illuminated by external lights except with the written consent of the Responsible Authority.*

Lighting:

*All lighting must be baffled to prevent glare and light spill beyond the boundaries of the site.*

Noise Emissions:

*No sound shall be emitted from any device or from any source or activity so as to become a nuisance to occupiers of adjoining properties or impair or impinge upon the amenity of occupiers of properties within the near vicinity to the satisfaction of the Responsible Authority.*

*No amplified music or public address systems are permitted.*

Access:

*All pedestrian sites access is to be via the entry gate shown on the Incorporated plan.*

*All access to the site shall be via the existing driveway and carpark area off Muscatel Street.*

Structures:

*No structures other than railway track, picnic facilities, identified fencing and railway platform footbridge and canopy, overhead footbridge and viewing platform are to be erected without obtaining further planning permit approval.*

Drainage:

*All site works are to be designed to ensure no off site discharges other than to a legal point of*