

**HISTORIC HERITAGE ASSESSMENT –
GOLDEN MARA MINE AREA
(WARRENTINNA GOLDFIELD),
BRANXHOLM, NORTHEAST TASMANIA**

REPORT FOR MINERAL RESOURCES TASMANIA,
ROSNY PARK, TASMANIA.



BY

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November 2007

Cover Photo: *R-L: East Volunteer Adit, Underlay shaft above Bayley's Adit, open stopes in the north section of the Little Branxholm Reef, and capped shaft at the north end of the Coronella Reef.
[photos – A. McConnell, Nov 2007].*

DISCLAIMER

In preparing this cultural heritage assessment, the consultant has taken all reasonable measures to identify all available information on the cultural heritage within the study area and other relevant background information within the scope of the project requirements and to provide sound advice with respect to cultural heritage management in the light of the proposed development. However, there may be sources of information which were not identified, and other development or management issues may arise which were not foreshadowed during this study. The consultant therefore disclaims liability in the event that additional heritage or relevant background information in relation to the project is identified, or where new development or management issues arise.

EXECUTIVE SUMMARY

This historic heritage assessment of the Golden Mara Mine area, Warrentinna, has been undertaken for Mineral Resources Tasmania. The assessment is required to ensure that historic values can be taken into account in safety works that Mineral Resources Tasmania intend to carry out in the area on the abandoned mine shafts. The safety works are part of a public program funded by the Rehabilitation of Abandoned Mining Lands Trust Fund and will involve a combination of capping, sturdy fencing and hazard signage. The historic heritage assessment has been undertaken by heritage consultant Anne McConnell for Mineral Resources Tasmania on a contract basis. Greg Dickens was provided by Mineral Resources Tasmania to assist with the on-ground field survey and also provided background historical information to the project. The field work, analysis and reporting was undertaken in November 2007.

The aim of the project was to identify, document and assess the historic mining related heritage of the Golden Mara Mine area in order to document the heritage prior to disturbance from mine safety works, and to provide advice on sensitively accessing the Mine area and undertaking the proposed safety program works.

The scope of works was to:

- record mining heritage values within the area of interest;
- assess the cultural significance of site elements; and
- produce a site map showing features associated with historic mining activity and a report of the work undertaken.

The Warrentinna Goldfield was predominantly an area of quartz reef mining, with the first reefs being located in 1890 and mining on the field continuing until the 1920s. Numerous small mines and prospects were developed on the Warrentinna Goldfield, but most were short-lived. The goldfield was small in area with most of the workings centred on a small number of reefs that made up the field. The Golden Mara Mine commenced operation in 1911 as such, being refloated twice under similar company names before it closed down in the 1920s. The extent of the Golden Mara Mine is such that the Mine and the Warrentinna Goldfield are essentially the same area. The Golden Mara Mine recorded a total production of 104.4 kg from 3,560 tonnes of ore mine which was the highest recorded production of any mine on the Warrentinna Goldfield (c.93% of total production).

The field survey located and recorded 81 mining related feature and an additional 5 probable habitation related features in the Golden Mara Mine area. The mining related features appear to relate to the full period of use of the Golden Mara Mine (also the Warrentinna Goldfield), and include adits (& tunnels), vertical shafts, underlay shafts, open stoping, collapse into shallow underground stoping, surface stoping, trenching, exploration pits, costeans, mullock heaps (including well formed finger dumps), working platforms, a dam, access tracks, mining equipment (sheave wheel, boiler, ore bin and ore sled), shoed tree stumps, a hut site (chimney butt), possible tent or hut platforms, and exotic plants that may relate to the small town that was established in association with the goldfield.

The identified features are mostly closely associated with one of the six reefs in the area or with a major known shaft or adit. As the reefs are in close proximity, particularly in the south part of the central workings (the reefs fan out to the northeast from this area), the historic features identified are strongly clustered in this area., where features, including main shafts and open stopes may be within 10m of each other.

On the basis of existing information, the Golden Mara Mine is considered to be of regional significance historically as it was the main mine on the Warrentinna Goldfield both with respect to its life and production, and it was the main focus of mining investment and effort over the full history of the Warrentinna Goldfield. The Mine also covers the main period of historical gold mining in the State (although it does not represent the earliest or last phases). The Golden Mara Mine complex is also considered to have significance at the regional level, and possibly the state level, as an extremely well preserved, compact suite of historical mining features which can demonstrate the range of workings associated with historical gold reef mining in Tasmania, and which can demonstrate through the strong relationship of the reefs and workings the way in which reefs were worked historically. The small number of well preserved, relatively rare types of working, in particular the open stoping, shallow crosscuts and underlay shafts, contribute to the regional and possible state level significance of the Mine. The intactness of the workings and the high integrity of the works also strongly contribute. The Mine is considered to have some regional significance in relation to the 12-head Mara Battery that was a comparatively large battery for the region and the time which operated on a number of fields and which still survives.

In order to retain the significance of the sites disturbance to the workings should be kept to a minimum or done in a way that is reversible, and be limited to that which is essential. The risks and obligations for Mineral Resources Tasmania in relation to making the site safe therefore need to be carefully assessed so that no unnecessary impacts result. The significance of the Golden Mara Mine site is such that there is also the opportunity for using the site for interpretation.

The extent of deep open features (the majority of shafts and stopes) indicates that there is a serious need to carry out safety works of some type in the area. The results suggests that as well as carrying out the work on abandoned mine shafts, making the stopes safe will also be necessary.

The nature and significance of the site is such that fencing should be considered as the main form of securing the open workings as this is considered to create the least impact and to be the safest method. If there is a desire to allow for some tourism or other visitation to the site, then consideration should be given to the placement of the fencing and the installation of locked gates in the large fenced areas. For access, safety and cost reasons, consideration should also be given to fencing a few larger areas, rather than fencing each unsafe features separately, although a small number of features may need to be fenced individually. Consideration should also be given to gating the East Volunteer Adit portal. Iron grilles should also be considered as an alternative to capping.

The findings of the present assessment suggest that the minimum conservation position, given the significance of the site, is to retain representative suites of workings uncapped (the line of shafts and other features along the Branxholm Reef; the open stoping and other features on the Coronella Reef; the features associated with the Mara Mine; and one of the adit complexes).

In relation to access, it is considered preferable to use the existing tracks in the main mine area as it will be extremely difficult to avoid significantly impacting the workings if new tracks are constructed. Reused or recent tracks should be used in preference to the undisturbed historic tracks. The preferred track for accessing the central mine workings is the bulldozed track that runs south of the Branxholm Reef.

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ACKNOWLEDGEMENTS

I would like to thank those people who have assisted in the preparation of this report.

In particular, I would like to sincerely thank Greg Dickens, Mineral Resources Tasmania, for his significant assistance to the project - in providing background historical information (including Blake's 1934 plan on which the field work was highly dependent), in the field and with driving and organising the fieldwork.

I would also like to thank Michael Reid, Mineral Resources Tasmania, for administrative assistance to the project.

ABBREVIATIONS

DIER	Department of Infrastructure, Energy & Resources
DTAE	Department of Tourism, Arts & the Environment (Tas) (former Dept of Tourism, Parks, Heritage & the Arts)
FT	Forestry Tasmania
MRT	Mineral Resources Tasmania

1 INTRODUCTION

1.1 Background to Project

This historic heritage assessment of the Golden Mara Mine¹ area, Warrentinna, Northeast Tasmania, has been undertaken for Mineral Resources Tasmania. The assessment is required to ensure that historic values can be taken into account in safety works that Mineral Resources Tasmania intend to carry out in the area on the abandoned mine shafts.

The safety works are part of a public program funded by the Rehabilitation of Abandoned Mining Lands Trust Fund and will involve a combination of capping (fitting pre-cast concrete panels onto shaft openings), sturdy fencing and hazard signage. Erecting fencing is not likely to result in significant site disturbance, but in the capping process, the area immediately surrounding each shaft will be disturbed to create a sound and level surface for positioning panels. The extent of disturbance will be generally one metre around each shaft opening. Tracks may also need to be formed to each site to allow machinery and equipment to access the shafts.

The historic heritage assessment has been undertaken by heritage consultant Anne McConnell for Mineral Resources Tasmania on a contract basis. The liaison person for Mineral Resources Tasmania in relation to this assessment has been Michael Reid. Greg Dickens of Mineral Resources Tasmania provided historical background information to the project and accompanied Anne McConnell in the field, contributing his knowledge from an earlier field inspection and assisting in the field recording. The field work, analysis and reporting was undertaken in November 2007.

This report documents the assessment.

1.2 Project Aims, Scope & Study Area

Aims

The aim of the project was to identify, document and assess the historic mining related heritage of the Golden Mara Mine area in order to document the heritage prior to disturbance from mine safety works, and to provide advice on sensitively accessing the Mine area and undertaking the proposed safety program works.

Scope

The scope of works as set out in the Project Brief (MRT, Aug 2007) was to:

- record mining heritage values within the area of interest;
- assess the cultural significance of site elements; and
- produce a site map showing features associated with historic mining activity and a report of the work undertaken.

Greg Dickens was provided by Mineral Resources Tasmania to assist with the on-ground field survey and provide instruction on the geographic extent of the area (see below).

The assessment project has been carried out in line with standard accepted guidelines for cultural heritage assessment and management in Australia, in particular the *Burra Charter* (Australia ICOMOS 1999).

¹ The mine is named the 'Golden Mara Mine' by Blake (1943), but appears to be also known, including historically, as the 'Mara Mine' (eg, Loone 1981). It should also be noted that the broader area of this mine approximates the full Warrentinna Goldfield.

Study Area

The Golden Mara Mine area is located in Northeast Tasmania, c.3.5 km north of Branxholm and immediately west of the Warrentinna Road (refer Figure 1).

The actual area investigated in the field was the area of workings shown on Blake's (1934) plan of the Mara Mine (refer Figure 2). This was found in a previous Mineral Resources Tasmania inspection to be a relatively accurate plan and also accurate in respect of showing the workings and their relationship to the gold reefs in the area. It was felt therefore that there was no need to investigate areas away from the workings shown on Blake's plan.²

The study area also approximates the area of the Warrentinna Goldfield (refer Section 2.2).

1.3 Project Approach & Methods

As required by the Project Brief, this study was primarily a field investigation to identify, document and assess the significance of the historic mining features of the Golden Mara mine area. To support this work, a small amount of background historical research was undertaken to understand the history, nature and scale of the mine, and later disturbance history. Also, because of the proposed safety works, the project has considered potential impacts to the historic mining features of the area and has provided some comment regarding impact mitigation and safety.

The methods used in the various project tasks are outlined below:

Background Research

The background research was primarily into the history of the site. Greg Dickens undertook a search of the MRT mining database and provided copies of relevant documents to the project. Anne McConnell reviewed all documents identified as relating to the Golden Mara Mine and the Warrentinna Goldfield. A small number of broader based historical works and key historical heritage reports for the area were also reviewed to provide contextual information.

This research indicated that documentation relating to the Golden Mara Mine and the Warrentinna Goldfield is very limited. Only two reports were located that provide any detail on the Golden Mara Mine. Webster (1998) in his review of historic gold mining sites of Northeast Tasmania has undertaken extensive historical background research and summarises the history of both the Golden Mara Mine and the Warrentinna Goldfield. The other report is an historical report by government geologist F. Blake in 1934. This report is extremely valuable as, although the mine had been closed for over 20 years when he visited the site, the report is the most detailed historical description of the mine. In addition Blake prepared a detailed, accurate plan of the mine showing the reefs and the mine workings.

Field Survey

The field survey was undertaken from the 5th November 2007 to the 7th November 2007, and comprised 2 full days of field survey. Greg Dickens and Anne McConnell both participated fully in the field survey. Anne McConnell undertook the general feature and site documentation (mapping, written descriptions and digital photographs) and Greg Dickens took archival quality photographs and assisted with the mapping.

The field survey was undertaken on foot. The field survey was not a comprehensive survey. Instead, because of the large number historic mining heritage features in the study area and the reliability of Blake's (1934) plan, the survey focus was the areas of reef shown to have workings. Where features not mapped by Blake (1934) were identified on the ground, the survey expanded to follow those features.

² Field survey in areas away from the mapped workings failed to locate any additional unequivocal historical features, although a number of unmapped exploration pits and flat benches in the slope that may be historical features were observed.

The survey however is considered comprehensive in terms of inspecting and documenting all those areas of reef and mining features shown on Blake's (1934) plan (other than the two central western trenches/costeans shown in lease area 1420G).

Feature Mapping & Analysis

GPS locations were taken in the field for all identified features (that readings could be obtained for). However because most readings were accurate to c.12m or less (due to vegetation cover and the location of features in the landscape), compass bearings and paced distances between key features were also recorded in the main area of workings where features are as close together as 5-10m. It was also assumed that Blake's (1934) map was accurate enough to use as the base map.

When plotting up feature locations it was found that, except for a small number of GPS readings, the accuracy of the readings was too poor for the fine grained feature mapping required. The mapping was therefore compiled from a combination of reliable GPS points, the available compass and paced measurements, and key features on Blake's plan. In addition, field sketch plans with estimated distances were used for features for which there was not more accurate information. The feature plan therefore is considered to be reasonably accurate, but should not be used as a highly accurate plan.³

The mapping and analysis suggest that while Blake's (1934) plan shows the location of the reefs and features with reasonable accuracy, there are some minor inaccuracies that mean it is not possible to use it exclusively as a base plan. Inaccuracies noted by the study were varying distance between some of the reefs, the Branxholm Reef appears to be offset some 20-30m to the NW, and a small number of features (including 1 shaft) are not shown (or labelled)). The map also does not show the processing areas⁴, the historic tracks and other access routes or the living areas (huts, tents, etc)).

The mapping from the field survey has been produced as a single plan (Plan 1) showing all the known and inspected features. Three more detailed scale plans have been produced for each of the main activity areas (Plans 2-4).

Site Recording

Because the area investigated is regarded as one single mine site (ie, the Golden Mara Mine), no individual site records have been prepared, and this report should be considered as the Golden Mara Mine site record.

All historic mine features identified or otherwise known have been described individually and assessed. The features are documented in the Historic Feature Inventory, Table 1. The Inventory also includes GPS points where taken. To assist in relating the various elements of the site, features have been grouped by reef or major working (eg, adit). Each feature has been given a unique identification number. Feature photographs are provided in digital form, and are identified by feature number.

Only features identified as, or considered likely to be, historic features have been included in the Inventory. Clearly post-1920s features are not included. Exploration pits (a number of which are considered post-1920) and costeans are not included in the Inventory as they are minor features and all similar in nature.

Significance Assessment

The significance assessment has been undertaken at two levels. Both levels of significance assessment should be regarded as indicative assessments as there is at present only limited information on gold shaft mining heritage in the State, hence it is difficult to make comparative assessments. The lack of historical information also hinders the ability to reliably assess the site and individual features.

³ *It is estimated that the error may be as much as 1m in 5m for some feature relationships in Plan 2.*

⁴ *Four stamp batteries are known to have been erected in the mine area historically.*

The primary level is the cultural heritage assessment of the Golden Mara Mine site (refer Section 4). This follows the standard approach as set out in the Australia ICOMOS (1999) *Burra Charter*.

The second level is the assessment of individual features. This has taken the standard approach used when assessing elements within an area of significance, which is to assess the contributory significance of the element to the broader place. Where a feature is also considered to have other significance (eg, as a good or rare example of its type) this significance is also noted. Feature assessments are provided in the Inventory (Table 1).

1.4 Project Limitations

The project experienced a small number of constraints in relation to meeting the project aims. These limitations are as follow:

Historical Information

There is limited historical information on the Golden Mara Mine. Webster (1998) has undertaken extensive analysis of the historical literature and compiled a summary history based on a range of sources, primarily government records of mine ownership, transfer and production. Hence, the only historical source identified which has any substantive information is Blake's (1934) report, and this document is limited by being written c.20 years after the Golden Mara Mine was active.

As a consequence, much of the history of the mine is unknown and a number of working and other activity areas (eg, dwelling/camp sites and tracks) potentially remain unknown. As a consequence additional historic features which have not been located may occur in the area, and it is difficult to confidently assess the significance of the site.

Field Survey

Since the field survey relied heavily on Blake's (1934) plan, focussing on features that he mapped and was not a comprehensive (ie, 100% ground coverage) survey, there may be other historic features not identified in the field. These however are expected to be mainly minor features such as exploration pits and costeans. Additional dwelling, processing and access related features may also be identified.

The ability to confidently relocate and assess all the known features (based on Blake's 1934 map) has been reduced by the forestry related disturbance in the area. Forestry Tasmania has mature pine plantations (understood to be established in c.1935 (Gaughwin 1991)) throughout the Branxholm -Warrentinna area. In the Golden Mara Mine area, pine plantations occur on the west, north and east peripheries and the west and north area have bulldozed firebreaks. On both these sides it appears that the firebreaks and the pine planting have destroyed or substantially disturbed a number of the historical features, making it difficult to reliably locate, interpret and assess some features, and the mine as a whole.

Significance Assessment

As noted above (Section 1.3) the assessment of cultural significance is limited by the very small amount of comparative information on other heritage sites and features related to gold reef mining in Tasmania. Other than in relation to historical significance which has been assessed by Webster (1998) on the basis of extensive historical research, this lack of comparative information means that the assessments provided in this report should only be considered as preliminary assessments.

2 DESCRIPTION OF AREA

2.1 Physical Setting

The Golden Mara Mine is set in rolling hills on the western margin of the Ringarooma River floodplain some 25-30km from the north coast. The land ranges from 300m asl and 200 asl.

Within the mine area the land comprises broad ridge crests and saddles, broad and narrow valley bottoms and intervening slopes of moderate steepness. There is not a strong clearly defined pattern to the topography, although most creeks ultimately drain eastwards into the Ringarooma River.

The mine area itself carries eucalypt regrowth forest, although the west and northern peripheries are under pine plantation. The forest is reasonably open, but has understorey trees and scrubby vegetation. There is also considerable plant litter on the ground.

The vegetation is such that major features which have some relief can be located over a c.30m viewing distance, but in-ground features are difficult to locate within even 5m in areas of dense plant litter or ferns. This has implications for locating historic features and for safety.

2.2 Summary History

The following summary history is taken primarily from Webster (1998). As Webster has summarised the primary and secondary historical sources (eg, Blake 1934, Bottrill 1994, Dickens 1995), those reviewed for the project are not cited here except where they provide additional relevant information. Webster (1998) also provides a good summary table of the chronological history of various aspects of the Warrentinna Goldfield, including the establishment of shafts and adits/tunnels.

The Warrentinna Goldfield

The Warrentinna Goldfield was predominantly an area of quartz reef mining, with the first reefs being located in 1890. Numerous small mines and prospects were developed on the Warrentinna Goldfield, but most were short-lived. The Warrentinna Goldfield has a total recorded gold production of 112kg (although production may have been higher as early records are poor). The goldfield also appears to have been small in area with Webster's (1998) analysis suggesting that most of the workings were centred on the reefs included in the present project study area. Gaughwin (1991, 47) notes that there was a small town which grew up around the Golden Mara Mine (which has now disappeared).

The Warrentinna Goldfield is often considered collectively with the Forester and Mt Horror Goldfields to the north.⁵ This set of small goldfields occur within the north part of the Managana-Alberton-Lyndhurst Zone, which is the principal zone of lode gold deposits in northeastern Tasmania, the most important gold area in the State. The gold in this area occurs in quartz veins within the Mathinna Series Ordovician to Devonian sediments which are locally contact metamorphosed by granitic to dioritic rocks (Bottrill 1994). In terms of the production, the Warrentinna, Mt Horror and Forester Goldfields are vastly overshadowed by the earlier and highly productive Mangana-Mathinna and Alberton Goldfields (Bottrill 1991).

Gold has been recovered from alluvial tin mining in predominantly Tertiary sediments in this broader area, but only in within the Boobyalla River drainage system. No production figures are available for the alluvial mining, but it is assumed to have been relatively low.

⁵ The Mt Horror Goldfield is in some cases regarded as part of the Forester or Warrentinna Goldfield rather than as a separate goldfield. The three goldfields are included in the Mt Horror Exempt Area.

The first payable gold was found at Warrentinna in 1883 by Messrs Clyde and King who represented a local syndicate. The reef they found was eventually to become the Derby Mine. According to Gaughwin (1991, 47) this started a rush to the Warrentinna field from the Lisle field. The discovery of the Forester Goldfield (c. 1922) was much later than at the Warrentinna field, and most production took place in the 1920's (Bottrill 1994). These were some of the later goldfields to be developed, with the first gold reef mining in the State starting in 1852 at Blythe Creek near Beaconsfield, and reef mining starting at Mangana in 1858 (Bottrill & Dickens 2005).

The Golden Mara Mine Area

Given that the mining on the Warrentinna Goldfield was all in the area consolidated, hence mined by, the Golden Mara Mine the following history of the Golden Mara Mine Area is essentially the history of the Warrentinna Goldfield.⁶ Most of the detailed information comes from Blake (1934). Figure 2 is Blake's (1934) plan which shows the locations of reefs and other features. Table 1 provides a summary of what is known about the working of the various reefs.

In 1890, prospectors Hodge and Reece had two leases on which they had successfully prospected a number of reefs. Their Eastern Section contained the Branxholm Reef and the Little Branxholm Reef (plus a third reef) and their Western Section contained the Coronella, Blue, Riley's and Ascot Reefs. For much of the history the sections were operated as separate mines under separate ownership.

In at least c.1893 to 1894, the Warrentinna Goldfield had one of the few custom treatment mills to be erected in the northeast. This was the "Dauntless" Battery which offered a local custom treatment service to the prospectors and miners in the surrounding district. In 1894 however, the track to Warrentinna was reported by the Mines Inspector to be in a bad state. Only with difficulty could foot travellers and riders pass over it, and this was considered to be hampering the development of the field. In 1895-96 little work was being done on the Warrentinna Goldfield as none of the companies had sufficient capital to develop their properties.

The eastern lease (ie, the Branxholm Reef) was held by the Branxholm Prospecting Association from 1894 to 1897. In 1897 the Branxholm lease was transferred to the East Volunteer GM Co (of Lefroy) who held it until approximately 1902. As well as carrying out intermittent mining of the Branxholm and Little Branxholm Reefs, the new owners undertook considerable exploration and extension, putting in a main adit (the East Volunteer Adit) that was designed to cut all of the major reefs at depth and which was the main focus of the operations of the company during their period of ownership. In 1897 the company also installed the East Volunteer Battery to service their Warrentinna holdings. Little is recorded about this machinery and it was presumably sold off when the company closed in 1897. After the demise of the East Volunteer Company the lease remained dormant until 1911 when reactivated by the Golden Mara Mine.

When reported in 1898, the main adit development had reached 915', the Branxholm Reef had been intersected 550' from the portal, and there was still 165' left to go to hit the Blue Reef. By 1914, the adit may have been as long as 1700' (although there may be confusion with Bayley's Adit on the Coronella Reef). In its first period of exploitation (1893-c.1897), the Branxholm lease produced significant amounts of gold. Between 1893 and 1895, 1323 tons of quartz produced 950 oz and from 1897 to c1901, 96 tons of quartz realised 100.5 oz of gold.

⁶ *The exception is Kerrison's Prospect which was a short-lived small "show" that was found and developed in 1893 by a party of working miners who prospected in their spare time. The Prospect very short-lived and little is known of the workings, but it is known that a small crushing plant was constructed.*

The Western lease (Coronella, Blue, Riley's and Ascot Reefs) was operated by the Coronella Extended GM Co. from 1894 to 1898. In 1897-98 no work was being done at the Coronella Mine pending the results of a crushing at the East Volunteer Battery. In 1898 the Coronella lease was transferred to H.W. Bayley who held it until 1902.

Under Bayley, a major adit (Bayley's Adit) was commenced and within the year (in 1898) the southern end of the Little Branxholm Reef was cut at 1091' (after passing through the other reefs in the area). In 1899-1900 a 10 head stamp battery was erected, but this battery had a short lived life (one crushing).^{7 8} In 1900-1901 a 300' drive was put in and Bayley's Shaft reached 136' deep, connecting the adit workings to the surface in the main reef area.

In 1911 the Golden Mara Mining Co consolidated the eastern (Branxholm) and western (Coronella) leases into one operation. The new company set about testing the mine and sent trial parcels of ore to Mt Lyell and Cockle Creek, though it is not clear which reefs the samples came from. There were high hopes for the new company which was expected to do better than the previous owners because the latter didn't have a suitable treatment plant and as a result, most gold was lost⁹.

Work was suspended at Coronella Reef in 1912 while the company was refloated and re-capitalised as the New Golden Mara GM Co. This company began the consolidation of the previously separate Branxholm and Coronella workings into one mine. A winding and pumping plant, considered "old" in 1912 was acquired from the O'Briens Section at Dans Rivulet. The machinery was purchased from the New Golden Gate GM Co who had formerly held this section. Preparations were being made to dismantle it and to move it to the Golden Mara Mine. In addition, a new 3 compartment, 11' by 4' Main Shaft (Mara Main Shaft?) was sunk by windlass to 50' with plans to reach 330'. Drives were also developed on the Coronella Reef at 294'.

By 1914 the new Mara Shaft development was linked with the Bayley's Adit workings via a rise put up to link with a winze from the 136' level. In 1914, the company purchased a second hand 12 head stamp battery from the New River Co and erected it at the mine. The machinery was completed in 1915 and crushing commenced.¹⁰ The battery is reported as undertaking a six week run of crushings for poor returns and subsequent crushings were worse. By 1915, much underground development had been undertaken but nothing payable had been found. By this stage, the mine required government assistance of 1000 pounds, on a pound for pound basis to continue operating. This was not enough to compensate for the low battery returns and operations ceased in early 1916.

In 1917 the Mara GM Co was reformed and, for the third time, the lease was taken up by some of the old shareholders. Some work may have been done on the Branxholm Reef that year. Between 1918 and 1921, work was carried out on 136' and 200' levels of the Branxholm area, and trial crushings also took place in 1918. By 1919, sufficient gold was being produced to keep a few men employed. The mine appears to have ceased production completely in 1921 and in 1934 when Blake visited the site only the East Volunteer Adit was accessible (Blake 1934).

⁷ *It is unclear why the plant failed, but it may have been that the mine didn't have a suitable treatment plant, hence most of the gold was lost (Secretary of Mines Report 1911 cited in Webster 1998).*

⁸ *Webster (1998) also notes that there is a photo of a battery being erected at Warrentinna in 1901 in Willson (1988; 174) which is captioned as the Mara Mine battery. In his view however the date of erection suggests it is Bayley's Battery, built in 1900.*

⁹ *This battery appears to have been located at Bayley's Shaft (Webster 1998).*

¹⁰ *Loone (1981, 60) notes that the battery established at this time at the 'Mara Goldmine' was a 10 head battery (not a 12 head battery). Loone mentions that the Mine Manager was a Mr J.T. Stubs, and Frank Bond of Hobart was a major shareholder.*

Between 1915 and 1919 the battery was still present and crushing ore, although in 1918 the tailings had been stacked for future re-treatment (and in 1919 the battery is reported as treating ore from the Dawn of Peace Mine). The battery fades from the record around 1920 and is not heard of again. Webster (1998, 3) is of the opinion that possibly "this venerable old 12 head battery, originally installed at the Mt Victoria Mine in Alberton in 1883" is the battery that "found its way to the Chintock Tin Mine on Blue Tier in 1933" and which in 1994 was taken from the Chintock site by the Beaconsfield Museum.

The Golden Mara has the highest recorded production of any mine on the Warrentinna Goldfield. Bottrill (1994) records a total production of 104.4 kg from 3,560 tonnes of ore mined, which is around 93% of the production of the Warrentinna Goldfield.¹¹

In 1931 the government geologist, P.B. Nye suggested there had been no real renewed interest in mining at Warrentinna because of the low average gold content of the quartz reefs and the smallness of the quartz veins in the reefs (<6"). Nye also noted that by 1931 all trace of the historic mining activity had disappeared except for "abandoned shaft workings and surface excavations scattered over the fields which now for the greater part is used for pastoral purposes" (Nye 1931, 19). According to Gaughwin (1991, 47) the pine plantations in the area were established in 1935, presumably taking up the pastoral land.

2.3 Historic Heritage Background

Previous Heritage Assessment

The Golden Mara Mine is included in the two regional heritage assessments for Northeast Tasmania that include mining heritage (ie, Gaughwin 1991, Webster 1998).

Webster (1998), who has conducted a preliminary heritage review of historical gold mining fields of Northeast Tasmania based on historical information and some (limited) field assessment, includes the Golden Mara Mine. He did not visit or record the site, but on the basis of his regional review he assessed the site to be of regional historical significance –

"The Golden Mara Mine workings (including the workings on the Coronella and Branxholm reefs) are of regional historical significance as they were the main focus of mining investment and effort throughout the history of the Warrentinna Goldfield. Several companies exploited the reefs there for a period of over 40 years, with varying levels of success." (Webster, 1998, 5).

Gaughwin (1991, 47) in her discussion of the Warrentinna Goldfield mentions the Golden Mara Mine, but the mine does not appear to be listed in her site inventory. In her view the Warrentinna goldfield was 'one of the least successful fields in the Northeast'.

No historic heritage survey, documentation or assessment is known to have been previously undertaken for the Golden Mara Mine site.

Listings

The Golden Mara Mine site (or any individual features) is not listed on any existing statutory heritage register or list as a heritage site.

The Golden Mara Mine site is included however in the MRT review of gold mining sites in Northeast Tasmania (Webster 1998) (see *Previous Work* above).

¹¹ As a comparison, the Golden Gate Mine at the Mathinna Goldfield recorded a production of 7.896 t (at a similar grade - 26g/t compared to 29g/t at the Mara mine).

3 DESCRIPTION OF THE HISTORIC HERITAGE

3.1 Summary Description

The field survey located around 100 mining related features in the Golden Mara Mine area, of which 81 have been recorded. An additional 5 features have been recorded which relate to the occupation of the area (eg, bed frame, sawn timber, and exotic plants), but which are dwelling related features that cannot be definitely related to the mining and may relate to the later pastoral use of the area or post-mining rubbish dumping.

The mining related features appear to relate to the full period of use of the Golden Mara Mine (also the Warrentinna Goldfield) given the range of features and their distribution. The features include adits (& tunnels), vertical shafts, underlay shafts, open stoping, collapse into shallow underground stoping, surface stoping, trenching, exploration pits, costeans, mullock heaps (including well formed finger dumps), working platforms, a dam, access tracks, mining equipment (sheave wheel, boiler, ore bin and ore sled), shoed tree stumps, a hut site (chimney butt), possible tent or hut platforms, and exotic plants that may relate to the small town that was established in association with the goldfield.

The identified features are mostly closely associated with one of the six reefs in the area or with a major known shaft or adit. As the reefs are in close proximity, particularly in the south part of the central workings (the reefs fan out to the northeast from this area), the historic features identified are strongly clustered in this area. In this core area the feature relationships are difficult to interpret without historical background information.

The occurrence of the identified historical features is outlined below, primarily by reef. All identified historical features are listed in Table 2 which is a feature inventory and the location of these features is shown in Plan 1 (refer Figure 3). Plans 2-4 (refer Figures 4-6) show feature locations in more detail for the main area of workings, the East Volunteer Adit and Bayley's Adit, respectively. Photographs of the features are contained on a CD (see pocket rear cover of report).

Branxholm Reef

The survey located five shafts, two open stopes and a small number of exploration pits and costeans along the line of the Branxholm reef. These are all understood to date to the 1890s and be amongst the earliest workings in the area.

The line of reef has two shafts in close proximity at the south end. North of these is an exploration pit and north of this in about the centre of the line of reef is a third shaft. North of this is a possible exploration pit and at the north end of the line of reef are two more shafts with two intermediate areas of open stope. The in-stope and in-shaft views from above indicate that these features have a significant amount of crosscut working at shallow depth (c.3-8m). The shafts all have distinctively high, steep sided mullock heaps enclosing 2-3 sides of the shaft. The mullock heap associated with the northernmost shaft is the most extensive and is possibly a two phase accumulation. The shafts and associated mullock heaps are well preserved. The similarity of the five shafts suggests that these shafts are all approximately of the same period.

All these shafts, stopes and trenches are open.

Little Branxholm Reef

The Little Branxholm Reef can be considered as two sections, a north section and a south section. The north section comprises two shafts in close proximity, one of which is the Coronella Shaft, with a SW-NE line of stopes to the north, culminating in a shaft and associated adit at the north end of the reef. The southern shafts are medium sized and have an

associated area of heaped mullock, including two finger dumps. These shafts appear to be related to the East Volunteer Adit. The stopes to the north comprise a southern set of three open stopes with mullock along both sides, and another set of three open stopes to the north. The northern three stopes may be collapsed shallow stoping as the entrances are relatively small. The northern shaft is also small. The adit could not be located and appears to have been deliberately destroyed as the area has been bulldozed. There is some mullock along the lower eastern slope edge which may be related to the adit.

The south section commences south of the Main Mara Shaft and comprises (in a southerly direction) a circular depression (possibly a collapsed shaft), a small shaft and mullock heap, an open stope, a small open stope (possible collapse into shallow stoping), an open stope, and c.50-60m further on are two large open stopes with medium sized mullock heaps. South of this is an area with several costeans and trenches and a small number of flat benches, which are presumably made (not natural).

All the shafts and stopes in this area are open, although the northernmost shaft and stope have some rudimentary fencing (star pickets and two strands of wire) which is in poor condition.

Bayley's Adit

Bayley's Adit is c.150m southwest of the south end of the Little Branxholm Reef and in the order of 300-350m the southwest of the main area of workings. It comprises the adit, an underlay shaft c.6m north of the adit portal, and a vertical air shaft 60-65m to the north (up the spur crest). On the west side of the air shaft is an area of different regrowth that suggests this area was an historic activity area of some type. The underlay shaft and air shaft are open but rock fall just inside the adit portal blocks access to the tunnel.

The adit has a long (c.40m) entrance trench and some associated spoil. The entrance trench opens out at the south end on the creek floor at about the break in slope. To the northwest on the valley floor is a large costean with spoil which appears to have been cut or destroyed at the north end by the creek (the same creek which starts below Bayley's Shaft). On the hillside above is a small, flat benched area consistent with a tent/hut site. East of the adit are several trenches and one line of three costeans cut at right angles across the valley floor. In this area on the south side of the valley floor is a disturbed area with scattered mullock. It is possible there are other historic features in this area, but the only survey carried out was around the adit.

East Volunteer Adit

The East Volunteer Adit is some distance (c.250-300m) to the southeast of the main area of workings and c.200-250m east of Bayley's Adit. Historic features identified in this area include the adit which has a south facing portal, c.30m of entrance trench and a well preserved tunnel running north from the portal. The tunnel is open. On the southwest side of the adit proper is a flat area benched into the slope which has an irregular mound of mullock at the back (upslope). A narrow benched formation, possibly an historic access track, runs southwest from the south end of the platform.

Riley's Reef

Riley's Reef is located in the central area of workings. Historical features identified along the reef are, from south to north, a deep open stope with a medium sized mullock heap, a circular pit (possibly a collapsed shaft or stope), a small mullock heap, a small shaft into a large area of shallow stoping, a major entrance into this line of stoping, two small entrances into the same stoping (probably collapse rather than open stoping), and Riley's Shaft at the north end (which is also on the Little Branxholm Reef). The line of shallow stoping at the north end appears to be extensive and continuous and there is considerable mullock in the area. This mullock is connected to the mullock from Riley's Shaft which includes at least two short, but well formed, steep sided finger dumps.

The open shafts and stopes in this area have some rudimentary fencing (star pickets and two strands of wire) which is in poor condition, except for the small central shaft which opens up into the extensively stoped area.

Blue Reef

The Blue Reef, like Riley's Reef is relatively short, but also has an extensive line of workings. It is c.15-20m west of Riley's Reef. At the south end is a shaft with a medium sized mullock heap. C.10m to the north is a c.20m line of open stope, and beyond this to the north is a small L-shaped shaft, and then an adit with a c.15m long entrance trench (to the north). At the north end of the adit entrance trench on the northwest is Neenan's Shaft (which has relatively little mullock) and on the northeast is an open stope which is in line with Riley's Shaft. This area is heavily worked and it is difficult to confidently relate the different features.

All the shafts and stopes in this area, except for the L-shaped shaft, have rudimentary fencing (star pickets and two strands of wire) which is in poor condition.

Coronella Reef

The Coronella Reef is c.20-30m west of Blue Reef. Although it is mapped by Blake (1934) as starting near the north end of Blue Reef, it may extend south to Bayley's Shaft which is in line with it and c.60m to the south. Bayley's Shaft is a medium-large shaft with a medium-large associated mullock heap. North of the shaft and in line with the reef is a long flat strip of benched ground with mullock on the lower side and two costeans on the west side. The first evidence of working north of this is a small square hole c.25m to the north. Just north of this is the start of one of the three long sections of open stoping on this reef. Each of the three sections is between 10-20m long with mullock along the lower (east side). At the north end of the intermediate stope is what appears to be a shaft. At the north end of the northernmost stope is a large open circular pit. This has a trench (not connected) on the northwest end, and a gully, presumably formed by water flow, leads off from the northeast end and flows northeast to the road. A small unmapped shaft is located in this gully. Immediately to the northwest of this shaft and on the south edge of the main track is another shaft which is capped (with one pre-cast concrete slab). This appears to be the feature labelled as 'hole' on Blake's (1934) map at the north end of the Coronella Reef. This has a medium-large amount of associated mullock. The mapping suggests that the Coronella Reef continues north, intersecting or becoming closer to the Little Branxholm Reef in the area of the Coronella shaft.

All the shafts and stopes in this area have some rudimentary fencing (star pickets and two strands of wire) which is in poor condition except for the small shaft in the gully which is unfenced.

Ascot Reef

The Ascot Reef is a very short line of reef c.10-15m west of the Coronella Reef. The only features identified with this reef are the two features mapped by Blake (1934) – a large surface stope and a small hole at the south end of this stope. The surface stope is essentially a large semi-rectangular trench. This is an unusual feature, being only a maximum of c.6' deep and open at one end. The hole is only c.4' deep.

Mara Main Shaft Area

The Mara Main Shaft does not appear to be located on a reef (but possibly intersects one or more reefs at depth). This is a large shaft, the largest located in the Golden Mara Mine area, and has a medium size associated mullock heap. There is however a large finger dump c.25m to the northwest. There are several other features in the general vicinity of the Mara Main Shaft which appear to be associated with this shaft rather than other workings. These include a large flat, formerly open area below the shaft and finger dump; what appears to be a dam on the west side of the platform; a sheave wheel on the north edge of the platform and a boiler c.30m southwest of the shaft. An historical benched track also runs in from the north to directly above the shaft where there is a small benched platform on the track edge.

The Mara Main Shaft has some rudimentary fencing around it (star pickets and two strands of wire) which is in poor condition.

New Find Creek (NE of the area of Workings)

The New Find Creek valley in the area of the workings (ie, immediately northeast of the central area of workings) is broad and relatively flat. It has been mostly planted with pines which are now mature and there is no understorey vegetation. In spite of the good visibility only a few features were located in this area. These included an area of low irregular hummocky mullock north of the creek line, and a small area with a scatter of mullock to the southeast (south of the creek). This area of scatter had one depression and associated mining artefacts (and ore bin and an ore sled) and a section of massive timber beam. Consequently, the depression is thought to be the location of the filled shaft recorded by Blake (1934).

This area also had an iron bed frame and blue bells, and more exotic plants (jonquils/daffodils and foxgloves) were noted to the north on the edge of the Warrentinna Road. Other exotic plantings (a yew type conifer and foxgloves) were noted south of the filled shaft as far as the main track, and a pile of sawn timber was also noted on the north side of the main track. A brick and corrugated iron chimney base was also located between the main track and New Find Creek. None of these features is mapped by Blake (1934) but are likely to be mainly associated with habitation in the area, and in the case of the bed frame and timber may be dumped rubbish.

3.2 Analysis of Findings

Interpretation

Given the historical information for the site and the extensive visible workings much of the visible evidence is able to be interpreted, although establishing the chronology from the evidence is more difficult. It appears, as indicated by the historical literature, that the mine workings are closely related to the six reefs in the area with chains of surface workings visible along the surface lines of reef. It is more difficult to understand the function of those shafts that are not clearly related to a line of reef, but some of these can be linked to the working of particular reefs through the historical literature (refer Table 1). The historical literature also clearly indicates that the various reefs were worked concurrently, often by the one mining company and frequently from the one main shaft or adit. This is reflected in the large number and complex, dense arrangement of historic mining features in the Golden Mara Mine area. This is also reinforced by the repeated feature types (eg, sets of stopes, sets of shafts, tracks, working areas, possible associated habitation areas) in different areas.

Only a small number of features cannot be easily related to one of the reefs and a mining company or period. These are Riley's Shaft (presumably exploiting Riley's Reef), the shaft immediately north of the main track (F48), the filled shaft in New Find Creek (F64) and the western shaft (F86). It is also unclear where the four batteries which are known to have been erected on the goldfield were located. It is presumed that each of these was located near the main adit/shaft, but there is no definitive evidence of this. In the absence of such evidence it is considered likely that the East Volunteer battery was located on the flat platform immediately southwest of the adit (F83); that Bayley's Battery was located on the relatively flat area to the north of Bayley's Shaft (possibly at F39) and/or at the adit opening (F81); and that the Mara battery was located just below or above the Mara Main Shaft (at F11 or F8). There is no information as to where the Dauntless battery, the earliest battery on the field was located, but it is possible that this was in the area of mullock in New Find Creek (F63).

It is more difficult to establish the location of the associated habitation as only one definite dwelling was located. All other probable habitation features (exotic plantings) located are potentially related to later pastoral occupation and/or rubbish dumping, particularly the bed frame which is located in an area of historical mine workings. The flowering plants also possibly relate to later occupation and the conifers in the same area may be wildlings from the

Firth Memorial Plantation c.0.5km to the north. The conjunction of all the probable occupation evidence in the same area in the broad open valley of New Find Creek and adjacent to the Warrentinna Road, however strongly suggests that the main area of habitation was in this area to the northeast of the main workings.

There is also evidence for other possible habitation areas. These are primarily the set of benched platforms noted in several parts of the Golden Mara Mine area, notably west of the north end of the Coronella Reef workings, west of Bayley's Shaft and at the south end of the workings on the Little Branxholm Reef. Although it is unclear that these are tent platforms, the benches are horizontal surfaces, c.3m wide by 5m long which is what would be required for a tent and working area. The benches appear to be made and not the result of tree falls which would have a more irregular surface. The clustering is also unusual, and is suggestive of a 'camp'.

The other area that is considered to have potentially been an occupation area is the area immediately west of the air shaft just north of Bayley's Adit. The nature of the regrowth suggests the ground in the area has been compacted and is similar to a number of other mining habitation areas inspected in Northeast Tasmania (A. McConnell, pers obsv). The area may alternatively have been a processing areas.

The historical tracks are not mapped and the survey has only located a limited number of historic access tracks. The main access track appears to be the well preserved section of benched track that runs north of the Branxholm Reef to just above the Mara Main Shaft (F73). Although this could not be followed east of the Branxholm Reef, it is possible, given its location, that it curved around the nose of the Branxholm Reef spur and connected with (or was) the tramway shown running east from the Warrentinna Road on Blake's (1943) map. Another section of track that is interpreted as historic track runs at right angles to this track northeast to the workings at the north end of the Little Branxholm Reef (F74) and may have been an offshoot to access this part of the field. The well preserved benched track that runs west from Bayley's Shaft (F75) is also interpreted as an historic track, presumably linking Bayley's Shaft to the Bayley Adit. The historic track appears to be overprinted at its western end by the pine plantation fire break trail and it is likely from here southwards the fire trail approximates and overprints the route of the historic track. The benched formation south of the East Volunteer Adit (F84) is considered likely to be the historic access to the East Volunteer Adit.

The other tracks are considered to be recent (c.mid-late 1900s) bulldozed tracks, although given its location, the track that runs along the south side of the Branxholm Reef may be an historic offshoot track from the north Branxholm Reef track that has been reused (and bulldozed) more recently for mineral exploration. It appears that this track, the north Branxholm Reef track and the west Bayley's Shaft track all met historically on the saddle in the flat area at the south end of the Coronella, Blue and Riley's Reefs.

Preservation and Disturbance

The workings are diverse and show a range of techniques. Of particular interest is the extent of open stoping and the different types of open stoping. Also of interest is the complexity of the mining which is visible not only in the stoping but in the crosscut drives that are visible at various depths in the shafts and stopes.

The area is also of interest as it has some uncommon features that are well constructed and well preserved, in particular the underlay shafts and long lines of open stoping along the lines of reef. The preservation of a small amount of mining equipment on site is also unusual in a Northeastern Tasmanian context and contributes to the overall degree of preservation of the site and helps interpret the site

The historic heritage of the Golden Mara Mine area is a well preserved suite of historic features representing a small but industrious gold mining area. Only one feature (north Little Branxholm Reef adit) is known to have been deliberately destroyed, and it appears that three

shafts have been filled in or covered and one shaft capped. The rest of the suite of workings appears to be intact and apparently unmodified. There are a small number of earlier historical features that have been partly impacted by later historical mining, but this overprinting is minimal and helps establish the chronology of the site.

The extent of features and their condition suggest that apart from the establishment of the pine plantations in 1935, there has been little subsequent use and disturbance of the area. The establishment of the pine plantations in the area appear to have been responsible for completely destroying one adit, for significantly impacting at least one shaft and associated mullock area as well as a second mullock area, and for disturbing costeans, track ends and shaft mullock heaps (shafts seem to have been avoided) in the area of workings. The main track that currently runs through the area appears to have resulted in one shaft being covered and the mullock of two adjacent shafts being partly removed/redistributed. A small amount of damage also seems to have occurred in the area of the Mara Main Shaft (mainly the removal of part of the finger dump), probably from mining exploration in the c.2000.

The least well preserved aspect of the goldfield is the associated habitation. Assuming that the main area of habitation was in the New Find Creek valley to the northeast of the main workings, then it appears that the establishment of pine plantations in this area in c.1935 has been responsible for a significant loss of historical evidence in this area.

Survey Coverage & Reliability

The survey is considered to have identified all the key preserved above ground features known and documented historically. In this sense the survey is considered to have been comprehensive and reliable for both the Golden Mara Mine area and the Warrentinna Goldfield.

The only areas which are still considered likely to potentially have some as yet unidentified historic mining features are:

- south and east of the East Volunteer Adit (including east of the Warrentinna Road);
- south and west of Bayley's Adit;
- north of New Find Creek west of the Warrentinna Road; and
- east of the Warrentinna Road along the length of the goldfield.

It is also expected that there will be number of costeans and exploration pits in the unsurveyed areas of the Golden Mara Mine and Warrentinna Goldfield, but as these are ubiquitous features on any mining field they are not considered to require identification.

4 HISTORIC HERITAGE SIGNIFICANCE

The following assessment is for the Golden Mara Mine as a whole, which is taken to be the full extent of mine workings and related features identified and assessed by this study (refer Section 3.1). The project has also assessed the contributory significance of the various elements (features) identified in the study and the level of contributory significance is provided in the Feature Inventory (refer Table 2).

Because this is a preliminary assessment and there has been no previous assessment, this report is only able to provide a preliminary or indicative assessment. The assessment focuses on those values recognised under the *Historic Cultural Heritage Act 1995* and in the *Burra Charter* (Australia ICOMOS 1999) ¹².

Overall Statement of Significance

The Golden Mara Mine is considered to be of regional significance historically as it was the main mine on the Warrentinna Goldfield both with respect to its life and production. The Mine also covers the main period of historical gold mining in the State (although it does not represent the earliest or last phases). Moreover, this mine complex was the main focus of mining investment and effort over the full history of the Warrentinna Goldfield, to such an extent that the goldfield and mine are much the same thing. In a regional and statewide context however, both the Golden Mara Mine and the Warrentinna Goldfield were relatively small in size and production.

The Golden Mara Mine complex is considered to have significance at the regional level, and possibly the state level (this is difficult to establish with the present level of data), as an extremely well preserved, compact suite of historical mining features which can demonstrate the range of workings associated with historical gold reef mining in Tasmania, and which can demonstrate through the strong relationship of the reefs and workings the way in which reefs were worked historically. The small number of well preserved, relatively rare types of working, in particular the open stoping, shallow crosscuts and underlay shafts, contribute to the regional and possible state level significance of the Mine. The intactness of the workings and the high integrity of the works also strongly contribute.

The Mine is considered to have some regional significance in relation to the 12-head Mara Battery that was a comparatively large battery for the region and the time, and which was moved around the region (to gold and tin fields) and is known to be associated with the Mt Victoria Mine (from which it came) and the Chintok Mine (where it later went). This aspect of significance is enhanced because the battery still survives (although it is now located out of context in the Beaconsfield Museum). The Golden Mara Mine also has probable local to regional significance for its association with Mr J.T. Stubs, who is understood to have been a well known figure in mining in the region.

The mine is not considered to have particular aesthetic or landscape significance. The social significance of the Golden Mara Mine has not been assessed, although the history, nature and present-day apparent lack of use suggest that it is not a well known mine. This suggests that its social significance, if it socially valued, is likely to be largely local (ie, related primarily to the Branxholm area).

¹² *The values are the historical, scientific, social, spiritual and aesthetic values. In assessing these values, aspects such as intactness, authenticity, integrity, seminal nature, ability to demonstrate important themes and aspects, important associations, and associated places are all important considerations and can contribute to and enhance the cultural significance of a place.*

5 COMMENT IN RELATION TO PROPOSED SAFETY WORK

The present study has been undertaken to inform proposed safety work in the Golden Mara Mine area and to document the site prior to this disturbance. The following comment is offered in relation to the safety work to assist in the mitigation of impacts on the cultural values of the site and site features that will potentially result from the proposed work.

It should be noted that this comment does not constitute a comprehensive assessment or a risk assessment, and should not be used as such.

Obligations & Opportunities Arising from the Significance of the Site

Given that the site has been assessed as having regional and possibly some state level significance for its historical role and importance, as well as a well preserved, largely intact, high integrity suite of reef mining workings, the maintenance of these values is important for maintaining the cultural value of the site.

In effect this means that disturbance to the workings should be kept to a minimum or done in a way that is reversible, and be limited to that which is essential. Once a feature is disturbed or destroyed it cannot be replaced. This means therefore that the risks and obligations for Mineral Resources Tasmania in relation to making the site safe need to be carefully assessed so that no unnecessary impacts result. Such an assessment should take into account the provisions and principles of the Tasmanian *Civil Liabilities Act 2002* which, contrary to earlier legislation, places some responsibility on authorised and unauthorised users of the area (assuming the land owner/manager has exercised a reasonable duty of care).

The significance of the Golden Mara Mine site is such that there is also the opportunity for using the site for interpretation. Given the extensive open, deep workings, any on-ground interpretation would need to address safety issues, either through making the site safer for visitors or by restricting visitation to guided groups with appropriate safety measures in place.

These key obligations and opportunities should be taken into consideration in determining the safety works program in the Golden Mara Mine area.

General Approach to Securing Unsafe Features

The extent of deep open features (the majority of shafts and stopes) indicates that there is a serious need to carry out safety works of some type in the area. The results suggests that as well as carrying out the work on abandoned mine shafts, making the stopes safe will also be necessary.

The number of shafts and stopes and the large size of many of the stopes, make capping or covering the deep open features difficult, particularly given the need to access each shaft and stope. This also has safety risks attached as the shafts and open stopes are close together in many cases, and there is additional risk from possible unmapped, shallow, but not open, stoping along the lines of reef. This is particularly an issue where heavy machinery is being used as this increases the risk of collapse.¹³

Another consideration is that the capping will disturb the shaft collars and prevent any views of the underground workings which are a significant aspect of the site. If any interpretation of the site is envisaged in the future this is therefore probably not the most desirable approach.

Given the above and given the dense nature of the central works and the linear arrangement of many of the open workings, it is suggested that fencing should be considered as the main form of securing the open workings as this is considered to create the least impact and to be the safest method (as it will not disturb the actual workings and does not require heavy equipment

¹³ This risk is not thought to be great from foot traffic.

to access each shaft and stope). Given the condition of the current fencing which has suffered from tree falls and lack of maintenance, if fencing is used this will need to be sturdy fencing and will need to be regularly inspected and possibly maintained (depending on the style of fencing used). If there is a desire to allow for some tourism or other visitation to the site, then consideration should be given to the placement of the fencing and the installation of locked gates in the large fenced areas.

In evaluating the option of fencing, the fencing of relatively large areas, rather than fencing each feature, should be considered. For example fenced areas might include 1. the central workings located on Blue Reef and Riley's Reef, 2. the full suit of workings on the Coronella Reef, 3. the features in the southern section of the Little Branxholm Reef and 4. the features in the northern section of the Little Branxholm Reef.

A small number of features may need to be fenced individually as they are too far away from other features. These features include the shafts on the Branxholm Reef (although the northern two shafts and intervening two open stopes could be fenced as one area), the isolated shaft on the East Volunteer Adit (F48), the air shaft on Bayley's Adit (F79), the Mara Main Shaft (F9) and possibly Bayley's Shaft (F38). Consideration should also be given to gating the East Volunteer Adit portal which is understood to provide access to the full length of the main tunnel (G. Dickens, pers comm).

Another option which should be given consideration as an alternative to capping is fitting sturdy iron grilles over select shafts and smaller open stopes. This has the advantage of leaving the openings visible for interpretation and monitoring. It is also possible this approach may have less impact on the shaft collars and associated mullock heaps depending on how these are designed and fixed in place.

The recommended preferred option for each feature is provided in the Feature Inventory (Table 2). It should be noted that this listing does not consider collective fencing.

The findings of the present assessment suggest that the minimum conservation position, given the significance of the site, is to retain representative suites of workings uncapped. The key suites of workings are considered to be the line of shafts and other features along the Branxholm Reef (which represents earlier period shallow shaft mining), the open stoping and other features on the Coronella Reef (representing shallow open stoping), the features associated with the Mara Mine (which represents the later phase of mining at the site and deep shaft mining), and one of the adit complexes (to represent the use of adits in the area).

Accessing the Site

In relation to access, there are already access tracks and historical formations that could be used to sensitively access the site. It is considered preferable to use the existing tracks in the main mine area as it will be extremely difficult to avoid significantly impacting the workings if new tracks are constructed. The reused or recent tracks should be used in preference to the undisturbed historic tracks, and where possible the pine plantation fire break trails should be used for access.

The preferred track for accessing the central mine workings is the bulldozed track that runs south of the Branxholm Reef and which can be used with little work to gain access to all the reefs in the southern and central part of the Golden Mara Mine area. The present study is unaware of existing access to Bayley's Adit, but the 1:25,000 map suggests it can be accessed from the fire trail track on the western side of the study area.

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. Scottsdale 1:25,000 topographic map (Tasmap, 1982).

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. Greg Dickens – Technical Officer, Mineral Resources Tasmania – 29th October 2007, 5-7 November 2007.

ENDNOTES

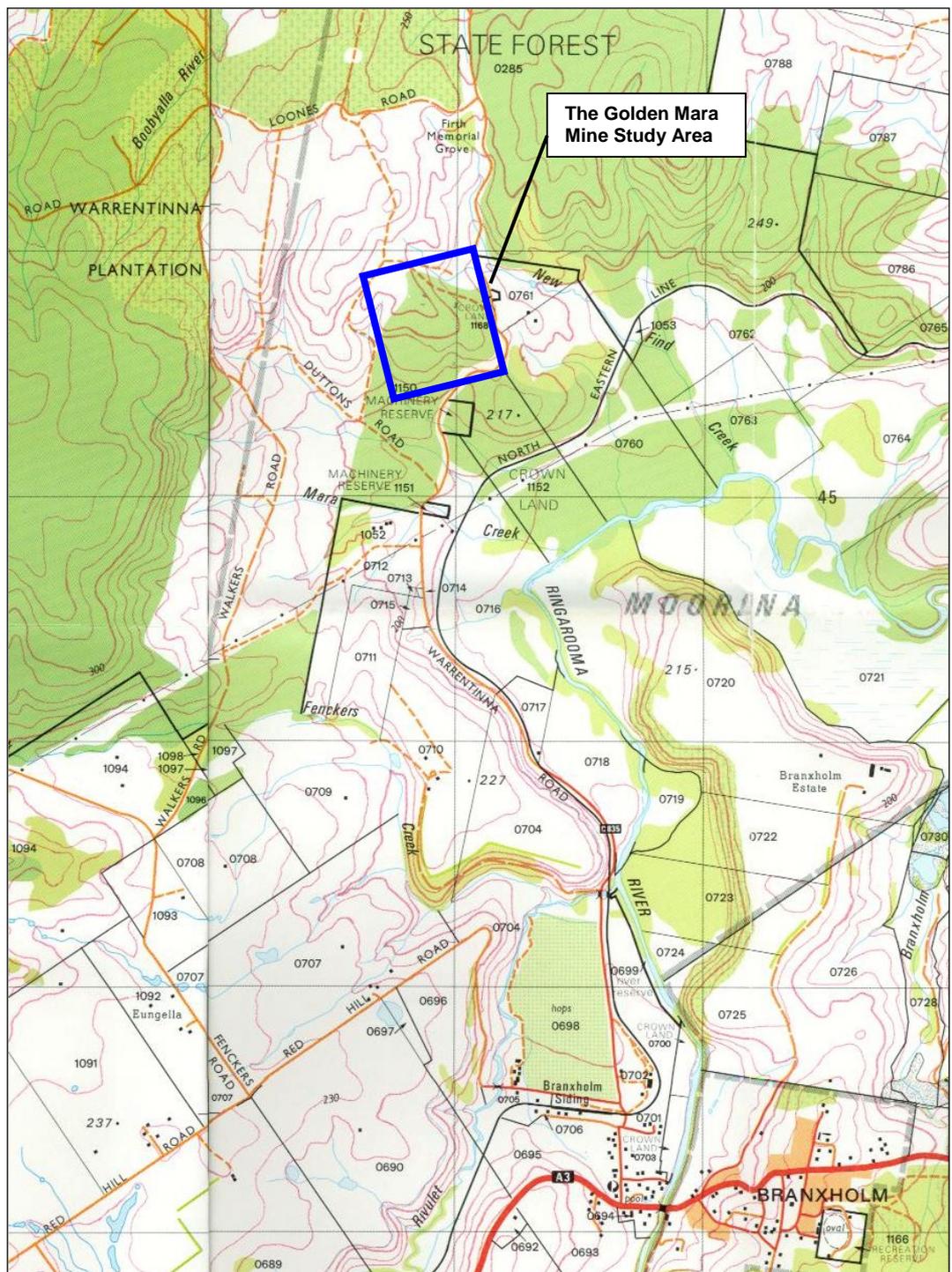
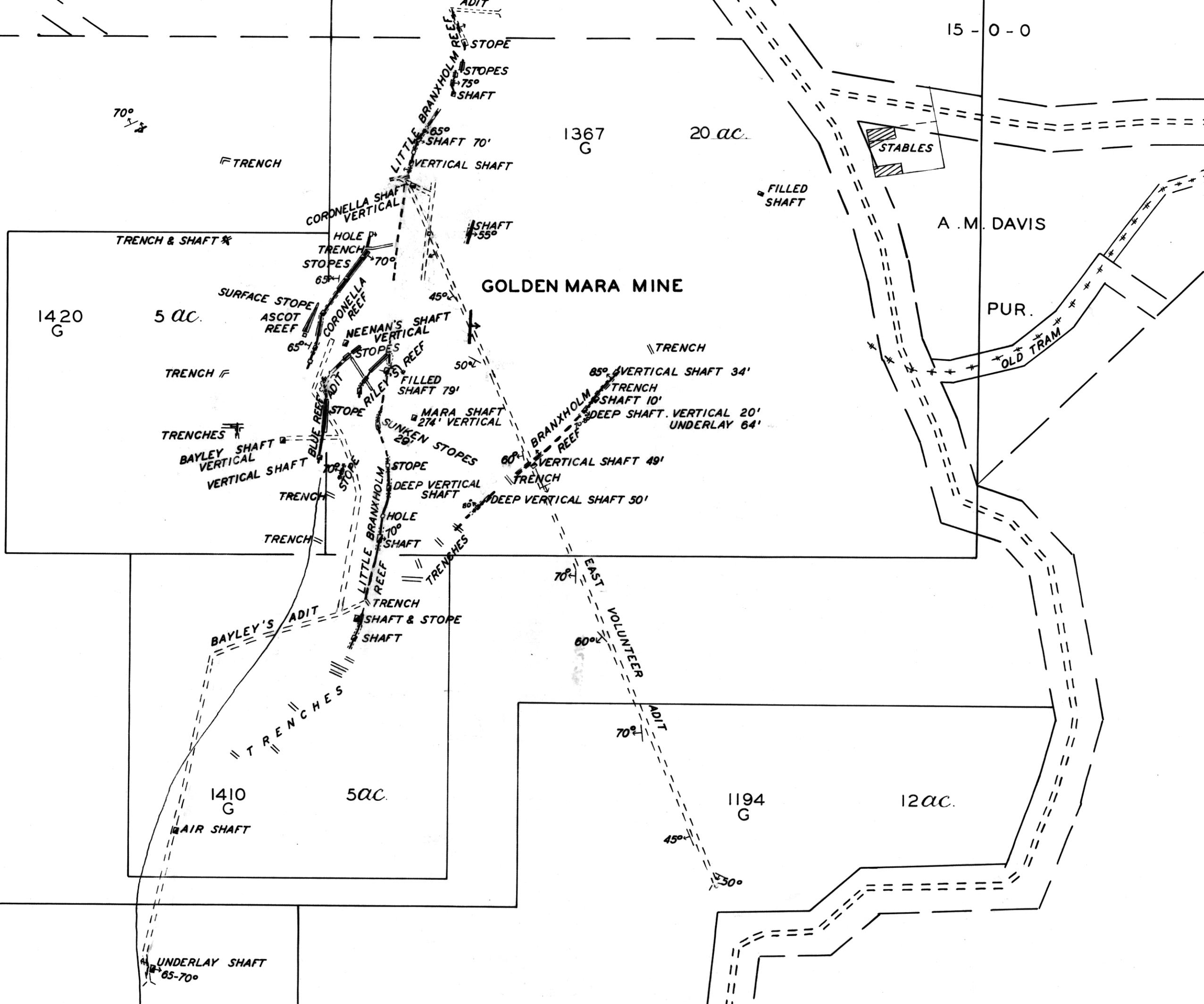


Figure 1. The location of the Golden Mara Mine Study Area (the base map is taken from the 1:25,000 Derby and Scottsdale topographic maps).

Figure 2.

Blake's 1934 plan of the Golden Mara Mine workings.



15-0-0

1367 G 20 ac

1420 G 5 ac

1410 G 5 ac

1194 G 12 ac

GOLDEN MARA MINE

STABLES

A. M. DAVIS

PUR.

OLD TRAM

TRENCH & SHAFT

TRENCH

TRENCH

TRENCHES

BAYLEY SHAF
VERTICAL

TRENCH

TRENCH

BAYLEY'S ADIT

TRENCHES

AIR SHAF

UNDERLAY SHAF
65-70°

LITTLE BRANHOLM REEF
VERTICAL SHAF

CORNELLA SHAF
VERTICAL

HOLE
TRENCH

STOPE
65°

SURFACE STOPE
ASCOT REEF

CORNELLA REEF

NEENAN'S SHAF
VERTICAL

STOPE
65°

ADIT

STOPE RILEY REEF

ADIT

STOPE

SHAF
55°

STOPE
70°

STOPE
45°

STOPE
50°

85° VERTICAL SHAF 34'

TRENCH

SHAF 10'

DEEP SHAF. VERTICAL 20'
UNDERLAY 64'

BRANHOLM REEF

VERTICAL SHAF 49'

TRENCH

DEEP VERTICAL SHAF 50'

EAST VOLUNTEER
ADIT

70°

45°

50°

70°

FILLED SHAF

TRENCH & SHAF

TRENCH

TRENCHES

BAYLEY SHAF
VERTICAL

TRENCH

TRENCH

BAYLEY'S ADIT

TRENCHES

AIR SHAF

UNDERLAY SHAF
65-70°

LITTLE BRANHOLM REEF
VERTICAL SHAF

CORNELLA SHAF
VERTICAL

HOLE
TRENCH

STOPE
65°

SURFACE STOPE
ASCOT REEF

CORNELLA REEF

NEENAN'S SHAF
VERTICAL

STOPE
65°

ADIT

STOPE RILEY REEF

ADIT

STOPE

SHAF
55°

STOPE
70°

STOPE
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STOPE
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85° VERTICAL SHAF 34'

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SHAF 10'

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70°

45°

50°

70°

FILLED SHAF

TRENCH & SHAF

TRENCH

TRENCHES

BAYLEY SHAF
VERTICAL

TRENCH

TRENCH

BAYLEY'S ADIT

TRENCHES

AIR SHAF

UNDERLAY SHAF
65-70°

LITTLE BRANHOLM REEF
VERTICAL SHAF

CORNELLA SHAF
VERTICAL

HOLE
TRENCH

STOPE
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STOPE RILEY REEF

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70°

45°

50°

70°

FILLED SHAF

TRENCH & SHAF

TRENCH

TRENCHES

BAYLEY SHAF
VERTICAL

TRENCH

TRENCH

BAYLEY'S ADIT

TRENCHES

AIR SHAF

UNDERLAY SHAF
65-70°

LITTLE BRANHOLM REEF
VERTICAL SHAF

CORNELLA SHAF
VERTICAL

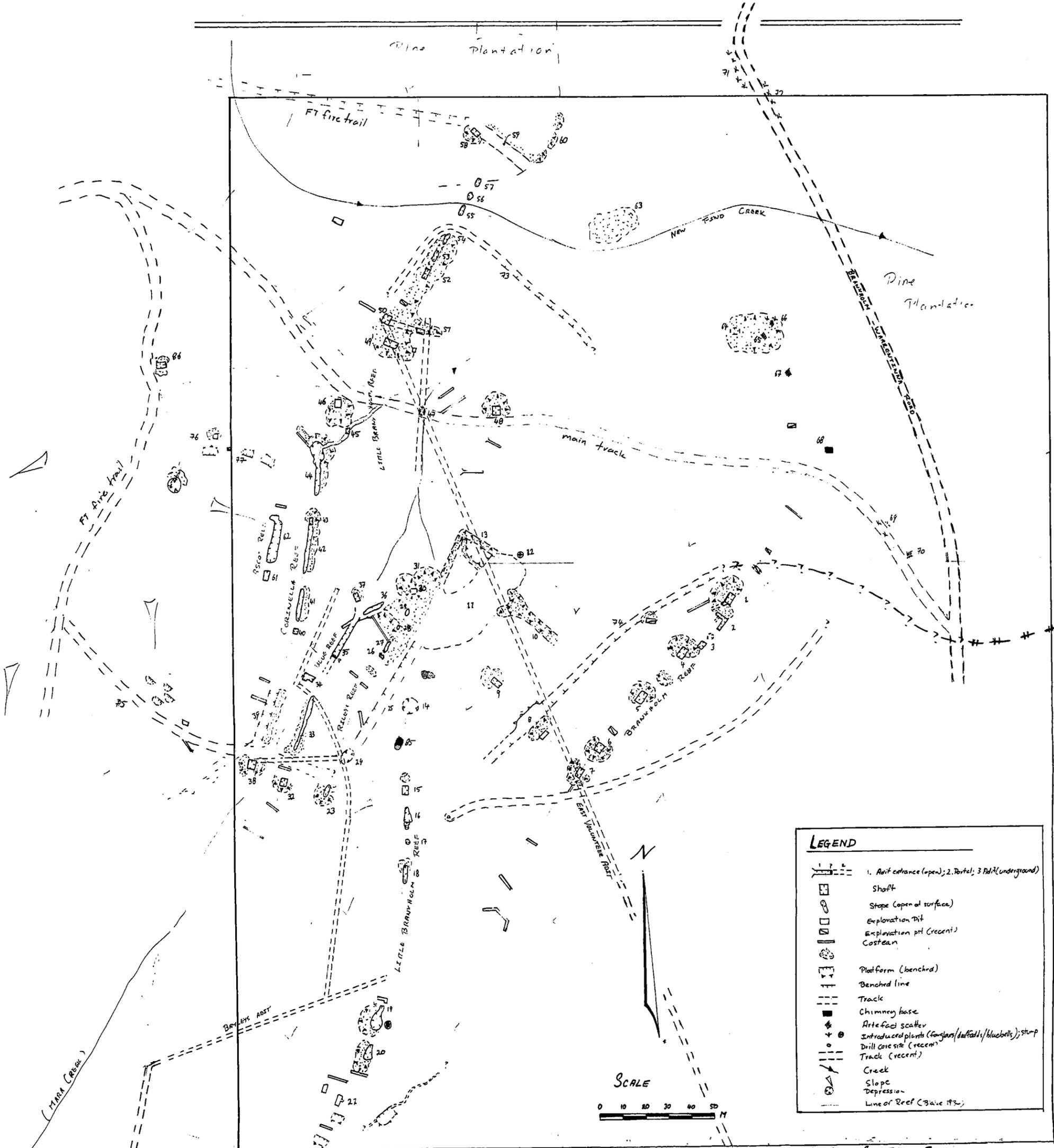
HOLE
TRENCH

STOPE
65°

SURFACE STOPE
ASCOT REEF

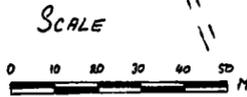
Figure 3.

Plan 1 – Historic features of the Golden Mara Mine area (Nov 2007).



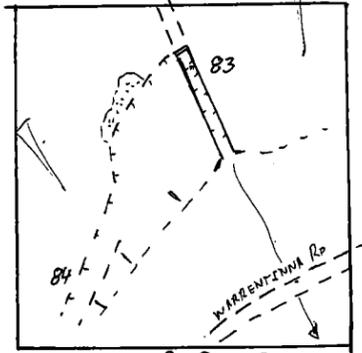
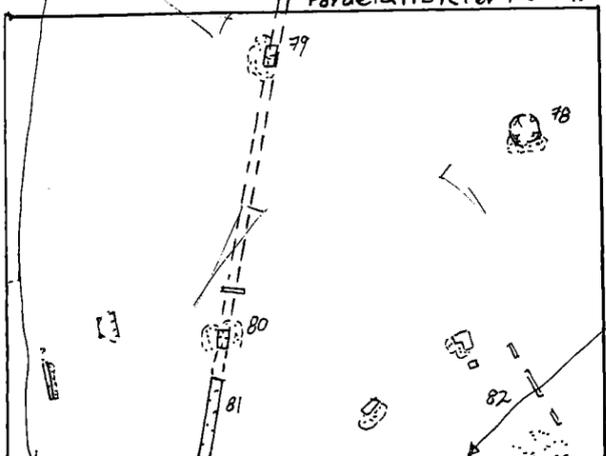
LEGEND

	1. Shaft entrance (open); 2. Portal; 3. Shaft (underground)
	Shaft
	Slope (open at surface)
	Exploration Pit
	Exploration pit (recent)
	Costean
	Platform (benched)
	Benched line
	Track
	Chimney base
	Artefact scatter
	Introduced plants (foxgloves/daffodils/bluebells); stump
	Drill core site (recent)
	Track (recent)
	Creek
	Slope
	Depression
	Line of Reef (Baile 193)



For detail - refer Plan 2

For detail - refer Plan 4



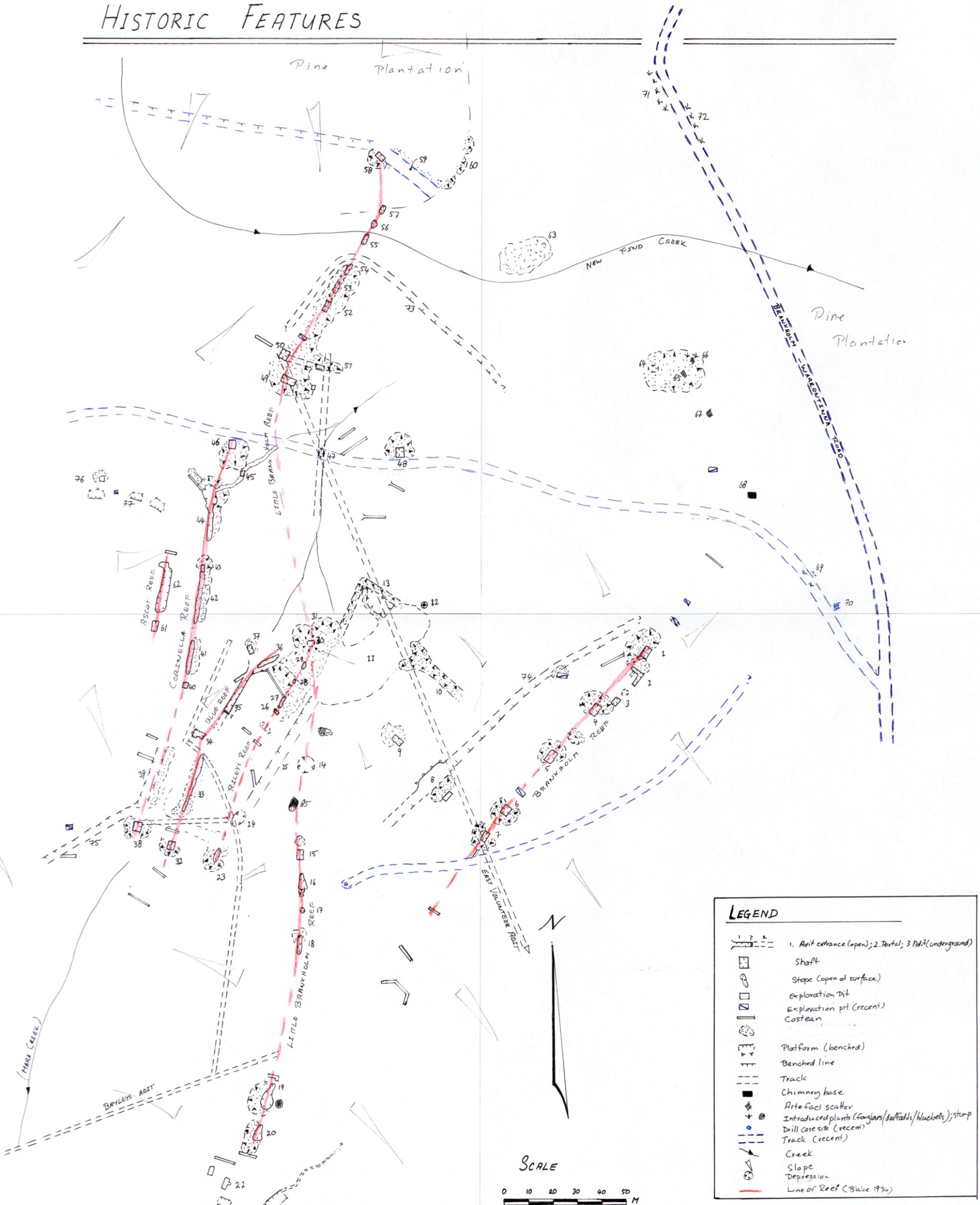
For detail - refer Plan 3

Figure 4.

Plan 2 – Detail of the historic features of the central Golden Mara Mine area (Nov 2007).

GOLDEN MARA MINE AREA, WARRENTINNA, NE TASMANIA

HISTORIC FEATURES



LEGEND

- 1. Adit entrance (open); 2. Portal; 3 Adit (underground)
- Shaft
- Slope (open at surface)
- Exploration Pit
- Exploration pit (recent)
- Costean
- Platform (benched)
- Benched line
- Track
- Chimney base
- Artefact scatter
- Introduced plants (foxgloves/daffodils/bluebells); stump
- Drill core site (recent)
- Track (recent)
- Creek
- Slope
- Depression
- Line of Reef (Blake 1934)

SCALE

0 10 20 30 40 50 M

NB: Plan is approximately to scale. It is based on a combination of points from GPS, Blake's 1934 Plan, the 1:25,000 topographic map, and compass + pacing measurements, and sketch plans. Adits based on Blake 1934. Field survey: A. McConnell 5-11 November 2007. Drawn: A. McConnell 21/11/2007.

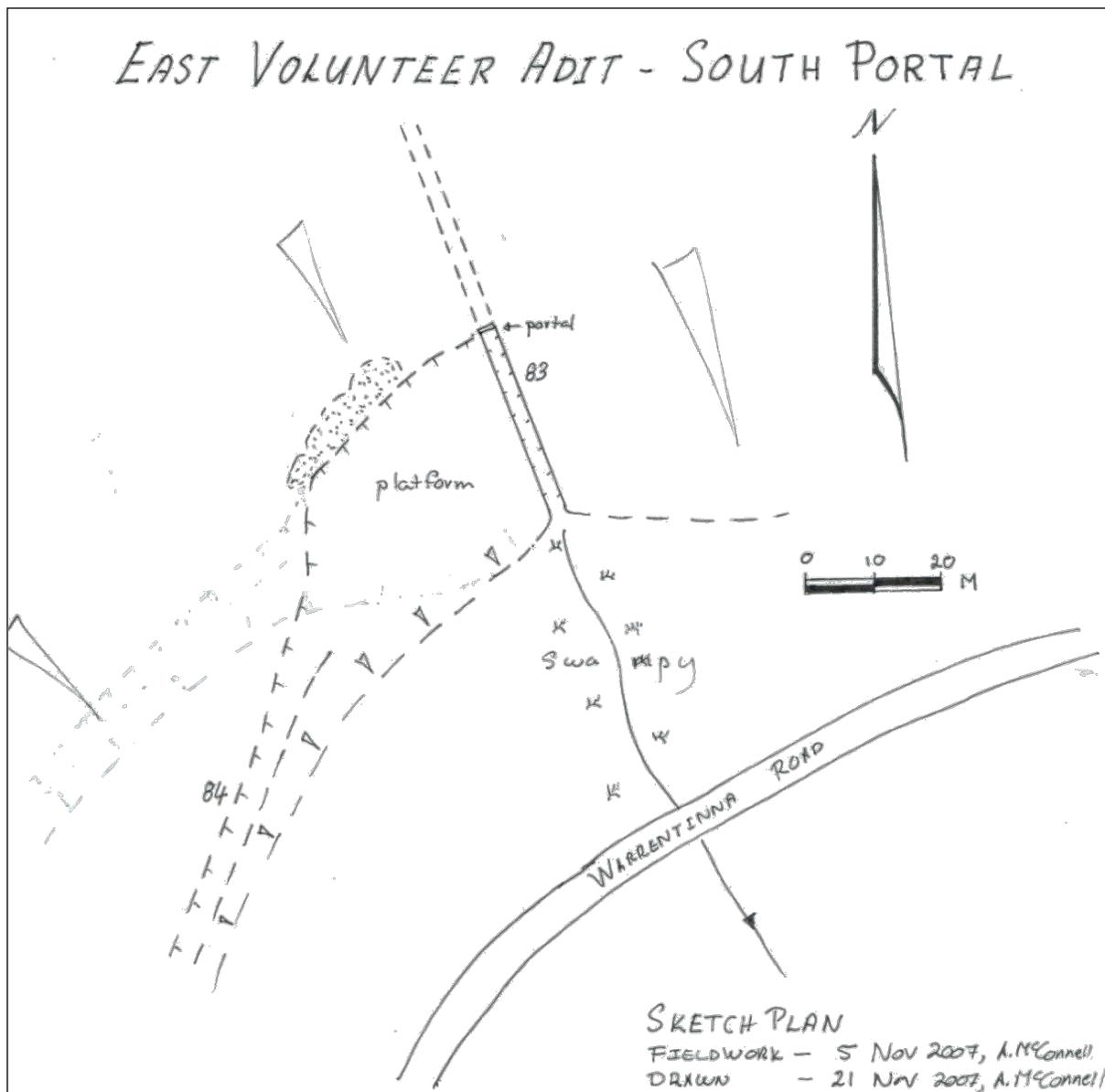


Figure 5.

Plan 3 – Detail of the historic features of the East Volunteer Adit (Nov 2007).

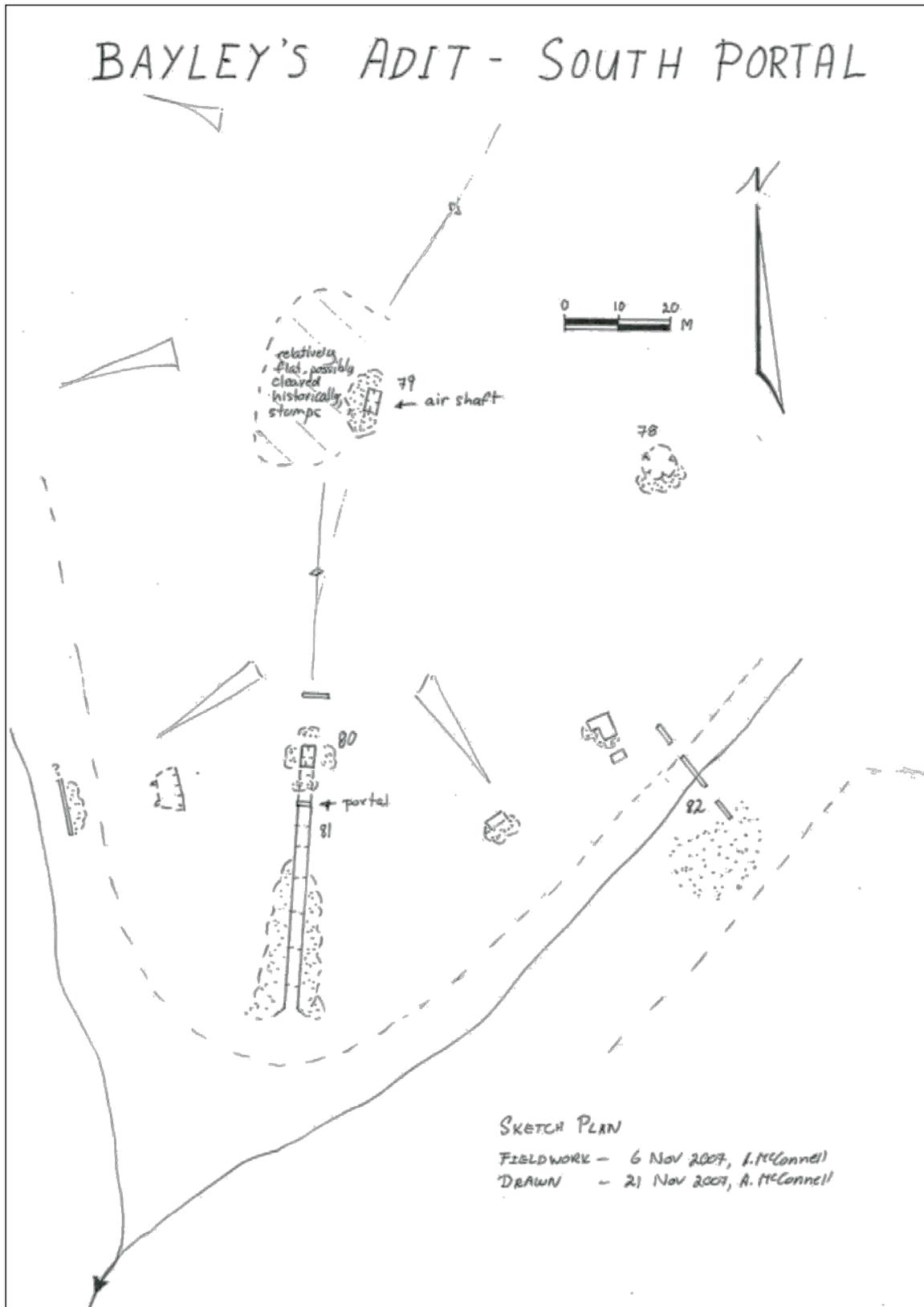


Figure 6

Plan 4 – Detail of the historic features of Bayley's Adit and associated workings (Nov 2007)

Approximate Dates/Area of Workings	Branxholm Reef	Little Branxholm Reef	Rileys Reef	Blue Reef	Coronella Reef	Ascot Reef	Other Areas/ Unknown Locn
1890 - 1896	worked to shallow depths (1894-1896) line of old shafts (at least 3 – N end, 20'; 64' underlay shaft; SW end 50'); & associated trenches (c.1890s)	worked to shallow depths (1894-1896) several groups of shafts with associated open stopes (c.1890s?) shaft to 79' (1890s?)	worked to shallow depths (1894-1896) 79' shaft on LB Reef used to mine reef; assoc. stoping (1800s?).	worked to shallow depths (1894-1896) Neenan's Shaft i/s reef with assoc. stoping (1894-6)	worked to shallow depths (1894-1896); Neenan's Shaft sunk (1894-6)	worked to shallow depths (1894-1896)	track to Warrentinna field (in poor condition) (1893-4) Dauntless Battery erected & crushed ore from all workings (1894-96);
1897 - 1901	intermittent mining, principally by East Volunteer/ Main Adit (1897-1901)	intermittent mining, principally by East Volunteer/ Main Adit (1897-1901) Bayley's Adit intersects S end LB Reef (1898)	Bayley's Adit intersects Reef ? (1898+)	Volunteer/ Main Adit has 165' to go to hit Blue Reef (1897-8) Bayley's Adit intersects Reef ? (1898+)	Bayley's Adit intersects Reef ? (1898+) Bayley's shaft (vertical) sunk to 136' (1901)	Bayley's Adit intersects Reef ? (1898+)	East Volunteer Battery (1897-1902) Bayley's Battery (10-head) erected (1901)
1911 - 1914	Mined via crosscut from the Mara Main Shaft (c.1912-1914+)		Mined via the Mara Main Shaft (c.1912-1914+)		Mara Main Shaft sunk to 294' (3 compartment?), crosscuts i/s reef (& rise to connect with winze from Bayley's shaft) (1912-14)		winding & pumping plant erected (1912); Mara Battery erected (1914-1919)
1915 - 1917					Mining continues (1915-1917)	Mining continues (1915-1917)	
1918 - 1921					Mining continues (1918-1921)		shallow workings (1914) tailings stacked for future treatment (1918)

Table 1. Listing of Historical Mining Events on the Warrentinna Goldfield (taken from Blake 1934 & Webster 1998)

Table 1 Golden Mara Mine Area Inventory of Historic Heritage Features Based on Field Survey, 5-7 Nov 2007 (this study).

Feature No.	Area	Feature	Description	Significance	Suggested Safety Work (covering ¹ /other key)	GPS No.
1	Branxholm Reef	shaft (N end)	large, square, vertically sided shaft c.3' x 6' oriented at 162°; collar is wider (c.10' x 12') and irregular; shaft has a line of stope running from NW corner at c.230°; very large steep sided mullock mound on W, N & E sides with a flat area (c.3m diameter) on top of the mound on the N side (possibly a 2-stage mound); - unfenced	<ul style="list-style-type: none"> ▪ strongly contributes . secondary shaft; well preserved 	<ul style="list-style-type: none"> ▪ grille or fence 	129
2	Branxholm Reef	stope	Narrow, deep, right angled trench between 2 northern shafts; trench is c.2' wide by c.6' along each arm, and c.10' deep; a line of stoping (or drive?) runs SW (at right angles) from the NW-SE arm; possibly not exposed at surface originally? - unfenced	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ cap or fence 	
3	Branxholm Reef	stope	irregular-rectangular opening between 2 northern shafts; line runs at c.33°; top section has relatively vertical walls (c.3' x 6') but these slopes to N at depth - stoping or an underlay shaft; c.8m+ deep; - unfenced	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ cap or fence 	
4	Branxholm Reef	shaft (second from N end)	approx rectangular, vertical sided shaft, c.4' x 6'; oriented at c.37°; shaft lies under to W corner or opens into a line of stoping in the W corner; large steep sided mullock mound on N & E sides; - unfenced	<ul style="list-style-type: none"> ▪ strongly contributes . secondary shaft; well preserved 	<ul style="list-style-type: none"> ▪ grille or fence 	128
5	Branxholm Reef	central shaft	rectangular, vertical sided shaft, c.4' x 6'; oriented at 25°; collar is irregular (poorly preserved) and c.3m diameter; c.7m+ deep; large steep sided mullock mound on N & E sides; - unfenced	<ul style="list-style-type: none"> ▪ strongly contributes . secondary shaft; well preserved 	<ul style="list-style-type: none"> ▪ grille or fence 	126
6	Branxholm Reef	shaft (second from S end)	irregular (circular-square), c.6' diameter', vertical sided shaft; at least c.12m deep; large and steep sided mullock mounding on N, W and S sides; - unfenced	<ul style="list-style-type: none"> ▪ strongly contributes . secondary shaft; well preserved 	<ul style="list-style-type: none"> ▪ grille or fence 	124
7	Branxholm Reef	shaft (S end)	rectangular, vertical sided shaft, c.4-5' x 6-8' in upper part (and possibly to depth) opening into stoping at depth; c.8m+ deep; line of stoping is at c.42°; - unfenced	<ul style="list-style-type: none"> ▪ strongly contributes . secondary shaft; well preserved 	<ul style="list-style-type: none"> ▪ grille or fence 	
8	Mara Main Shaft	platform	rectangular benched area c.3m wide x 5m long above the Mara Main Shaft; has a steep, c.1m drop of to NW; the back (SE) edge of the platform is the lower edge of a steep sided mullock heap associated with a c.3' x 5' pit (exploration pit/filled shaft?) – this may be later implying the platform may have been originally slightly larger; a line of benched track (F74) runs out each end; purpose unknown – possibly a processing or loading area.	<ul style="list-style-type: none"> ▪ contributes . significant for its relationship to the Mara main shaft 	<ul style="list-style-type: none"> ▪ retention desirable as part of Mara suite 	138

9	Mara Main Shaft	main shaft	large (c.6' x 12-14'), vertical shaft; very deep (depth unknown; medium sized mullock heaps associated; interpreted as a two compartment shaft (only one noted in this mining area); has a relatively large amount of (probably) associated features – see F8, 10, 11, 12, 13, 74 & 85; - fenced (poor condition)	<ul style="list-style-type: none"> ▪ very strongly contributes . major shaft (only shaft with a range of related features -clearly associated workings, activity areas and artefacts) . significant as the area takes its name from this mine and is the largest shaft in the area 	<ul style="list-style-type: none"> ▪ grille or fence 	70
10	Mara Main Shaft	finger dump	c.25m long high, steep sided ridge of mullock which bifurcates into two thin fingers at the NW end; well preserved except for some modern removal of material at the NW end.	<ul style="list-style-type: none"> ▪ strongly contributes . significant as a rare well preserved finger dump in area . significant for its relationship to the Mara main shaft 	<ul style="list-style-type: none"> ▪ retain (leave undisturbed) 	71
11	Mara Main Shaft	large flat area below shaft	a large (c.15m x 40m), relatively flat area below the Mara main shaft and associated finger dump (F10); has a probable dam (F13) on the W side and various other features around the edge incl. a possible track (F25) and a sheave wheel (F12)	<ul style="list-style-type: none"> ▪ contributes . significant for its relationship to the Mara main shaft 	<ul style="list-style-type: none"> ▪ retain (leave undisturbed) 	
12	Mara Main Shaft	sheave wheel (winding wheel)	cast iron winding wheel (for headframe? – possibly the Mara Main Shaft); 22" diameter; 4" wide outer (winding) flange; 13" long axle shaft; 1 1/4" axle diameter; the wheel has c.1/3 of the rim broken (possibly a result of modern exploration)	<ul style="list-style-type: none"> ▪ strongly contributes . rare mining artefact . significant for its relationship to the Mara main shaft 	<ul style="list-style-type: none"> ▪ retain (leave undisturbed) ▪ removal should only be considered if risk of souveniring is deemed high 	115
13	Mara Main Shaft	dam?	a roughly triangular area defined by the edge of a flat area (F11), and 2 narrow hard packed (and mortared?) lines of rubble which stand c.3m above and slope steeply to the ground below on the N & W sides; the triangular area is c1.5m deep and is wet and vegetated; a low line of rubble running across the N part compartmentalises the feature	<ul style="list-style-type: none"> ▪ strongly contributes . rare type of associated feature . significant for its relationship to the Mara main shaft 	<ul style="list-style-type: none"> ▪ retain (leave undisturbed) 	72
14	Little Branxholm Reef	depression	irregular-rounded, large (c.3m x 4m) depression; c.1m deep; possibly filled or collapsed stope or shaft into the Little Branxholm Reef	<ul style="list-style-type: none"> ▪ minor contribution . possibly part of the Bayley Adit system 	<ul style="list-style-type: none"> ▪ retention desirable 	118
15	Little Branxholm Reef (S line)	shaft	approx rectangular (with irregular ends), c.3' x 6' vertical sided shaft; c.5m+ deep; has very large tree fern growing out of the hole; - fenced (poor condition)	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ fence (within area 2) 	67

16	Little Branxholm Reef (S line)	stope	irregular opening c.5' x 7' into steeply dipping stoping with c.5' x 6' area of collapse at S end; - fenced (poor condition)	<ul style="list-style-type: none"> contributes 	<ul style="list-style-type: none"> fence (within area 2) 	68
17	Little Branxholm Reef (S line)	stope	small (c.3' x3'), irregular-round opening to steeply dipping stoping; - unfenced?	<ul style="list-style-type: none"> minor contribution 	<ul style="list-style-type: none"> fence (within area 2) 	
18	Little Branxholm Reef (S line)	shaft/stope?	elongate, irregular-rectangular opening (c.3' x 8') into stoping which deepens to N; - unfenced?	<ul style="list-style-type: none"> contributes 	<ul style="list-style-type: none"> fence (within area 2) 	66
19	Little Branxholm Reef (S line)	stope	irregular, large (>2m x 4m) steeply dipping opening into a stope; medium mullock mound on W side; 2m high eucalypt stump with shoe marks on the E side of opening; - unfenced	<ul style="list-style-type: none"> strongly contributes good example of stoping open to surface; well preserved 	<ul style="list-style-type: none"> grille or fence 	
20	Little Branxholm Reef (S line)	stope (S end)	irregular, large (c.2.5m x 3.5m) steeply dipping opening into a stope; continues relatively wide (c.3-4m) at depth; c.5m+ deep; has a rectangular pool of water at base directly below the opening which suggests this may be a shaft as well as stoping; medium mullock mound on W side with steeply sloping high sides; - unfenced	<ul style="list-style-type: none"> strongly contributes good example of stoping open to surface; well preserved 	<ul style="list-style-type: none"> grille or fence 	
21	Little Branxholm Reef (S line)	area of disturbance	area of costeaning (3) and trenching (exploration pits) (2) and small (c.2m x 3-4m) approx level areas (2) benched into slope on the line of the reef; interpreted as historical since the costeans are shown on Blake's (1934) map (pits may be more recent?)	<ul style="list-style-type: none"> minor contribution 	<ul style="list-style-type: none"> retention desirable 	
22	Little Branxholm Reef (S line)	platform	medium-small (c.2m x 4m) approx level area benched into slope, with possible foot track leading out both ends around the line of slope; interpreted as a possible tent site	<ul style="list-style-type: none"> minor contribution (if a made platform) 	<ul style="list-style-type: none"> retention desirable (if historic feature) 	
23	Riley's Reef?	stope	irregular-rectangular, vertical sided opening (c.3-4' x 8') to steeply dipping stoping; at least 5m deep; fenced (poor condition)	<ul style="list-style-type: none"> strongly contributes good example of stoping open to surface; well preserved 	<ul style="list-style-type: none"> grille or fence 	65
24	Riley's Reef?	depression	irregular-rounded depression; c.3m x 5m and c.2m deep; location suggests this is a collapsed or filled stope or shaft into Riley's Reef	<ul style="list-style-type: none"> minor contribution 	<ul style="list-style-type: none"> retention desirable 	
25	Riley's Reef?	track?	straight flat bottomed area of earth/rock c.6' wide running along the E side of Riley's line of reef; has mullock on W side (or has trimmed mullock from Riley's Reef); interpreted as a later historic track; possibly connects to F75; alternatively is modern sampling	<ul style="list-style-type: none"> minor contribution (if track) 	<ul style="list-style-type: none"> retention desirable (if historic track); can be used 	
26	Riley's Reef	shaft into line of stope	rectangular, vertical sided shaft (c.4' x 6'); c.8m+ deep; opens into line of stoping also accessed by F27; - fenced (poor condition)	<ul style="list-style-type: none"> contributes 	<ul style="list-style-type: none"> fence (within area 1) 	104
27	Riley's Reef	stope	irregular diagonal opening into a major area of stoping running at c.210°; stoping goes S for 15m+ and goes to over c.6m depth; - fenced (poor condition)	<ul style="list-style-type: none"> strongly contributes major section of stoping; relatively well preserved 	<ul style="list-style-type: none"> fence (within area 1) 	

28	Riley's Reef	stope	small (c.2' diameter) opening into deep, steeply dipping stoping along the line of reef; - unfenced?	<ul style="list-style-type: none"> ▪ minor contribution 	<ul style="list-style-type: none"> ▪ fence (within area 1) 	
29	Riley's Reef	stope	small (c.2' x 4') opening into deep, steeply dipping stoping along the line of reef; - unfenced?	<ul style="list-style-type: none"> ▪ minor contribution 	<ul style="list-style-type: none"> ▪ fence (within area 1) 	
30	Riley's Reef	Riley's Shaft (filled)?	rectangular – round shallow (<1m) depression c.1m x 2m in large area of mullock (including short finger dumps) (F31); has two large eucalypts growing out of edge of depression (suggests similar age to Bayley's Shaft) (F38); - filled	<ul style="list-style-type: none"> ▪ contributes . major shaft (named) 	<ul style="list-style-type: none"> ▪ retain (leave undisturbed) 	103
31	Riley's Reef	mullock heaps	c.20m x 20m area of mounded mullock around Riley's Shaft (F30); includes tow well formed rounded finger dumps with high (c.2-3m) steep regular faces on the W & N sides of the shaft	<ul style="list-style-type: none"> ▪ strongly contributes . well formed and well preserved mullock formations 	<ul style="list-style-type: none"> ▪ retain (leave undisturbed) 	
32	Blue Reef	shaft (S end)	rectangular, vertical, c.4' x 6' shaft; depth unknown; high steep edged mullock heap on S side; has a large eucalypt growing out of the bank; - fenced (poor condition)	<ul style="list-style-type: none"> ▪ strongly contributes . secondary shaft; well preserved 	<ul style="list-style-type: none"> ▪ fence (within area 1) 	64
33	Blue Reef	stopping	elongate, steeply dipping stope; c.1.m wide x c.8m deep at S end; possible a shaft entrance at S end as the upper walls are vertical; N end is vertical sided with cross cut stopping at depth - fenced (poor condition)	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ fence (within area 1) 	105
34	Blue Reef	shaft (on Bayley's Adit)	relatively small (c.2' x 5'), vertical walled, L-shaped shaft; location suggests that it accessed the Blue Reef and Bayley's Adit; - unfenced?	<ul style="list-style-type: none"> ▪ contributes . possibly part of the Bayley Adit system 	<ul style="list-style-type: none"> ▪ fence (within area 1) 	107
35	Blue Reef	adit (& portal)	c.20-25m line of open trench to adit portal with a short narrow cross cut trench to W; adit continues SW (line is 214°); adit not followed - unfenced	<ul style="list-style-type: none"> ▪ strongly contributes . rare only surface adit/portal in main area of workings; well preserved 	<ul style="list-style-type: none"> ▪ fence (within area 1) 	
36	Blue Reef?	line of stope	elongate opening (c.7-8m long) into stopping; stopping is steeply dipping to the E; deep (depth unknown); in low area (possibly former open trench?); - unfenced?	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ fence (within area 1) 	73
37	Blue Reef?	Neenan's Shaft	rectangular, vertical shaft (c.4' x 6'); deep (depth unknown); minor associated mullock; - fenced (poor condition)	<ul style="list-style-type: none"> ▪ strongly contributes . major shaft (named) . possibly part of the Bayley Adit system 	<ul style="list-style-type: none"> ▪ fence (within area 1) 	74
38	Coronella Reef?	Bayley's shaft	rectangular, vertical shaft; c. 4' x 6'; deep (depth not ascertained); mullock heaps (high) on SE & SW sides with open channel directly to S; - fenced (poor condition)	<ul style="list-style-type: none"> ▪ strongly contributes . major shaft; well preserved . part of the Bayley Adit system 	<ul style="list-style-type: none"> ▪ grille or fence 	63

39	Coronella Reef	track? running north from Bayley's shaft	c.15-20m long, 6' wide flat bottomed area benched slightly into the slope; spoil on E side; interpreted as a track or working/processing area (possibly modern sampling area).	<ul style="list-style-type: none"> minor contribution (if historical) 	<ul style="list-style-type: none"> retain; can be used 	
40	Coronella Reef	stope/shaft (small (c.3' x3') rectangular, vertical sided opening into the steeply dipping line of stope; - unfenced?	<ul style="list-style-type: none"> contributes 	<ul style="list-style-type: none"> fence (within area 3) 	
41	Coronella Reef	stope (S end line of stope)	elongate, irregular opening (c.8-12m long) into extensive, steeply dipping stoping; 5m + deep; mullock along E edge; - fenced (poor condition)	<ul style="list-style-type: none"> strongly contributes (as part of line of open stoping) 	<ul style="list-style-type: none"> fence (within area 3) 	101
42	Coronella Reef	stope (in line of stope)	elongate, irregular opening (c.20m long) into extensive, steeply dipping stoping; 5m + deep; line of open stoping is at c.8°; joins shaft at N end (F43); mullock along E edge; - fenced (poor condition)	<ul style="list-style-type: none"> strongly contributes (as part of line of open stoping) 	<ul style="list-style-type: none"> fence (within area 3) 	76
43	Coronella Reef	shaft (in line of stope)	rectangular vertical shaft (c.4' x 6') that opens into stoping at depth; depth unknown; mullock around N end; - fenced (poor condition)	<ul style="list-style-type: none"> strongly contributes (as part of line of open stoping) representative example of stoping open to surface; well preserved 	<ul style="list-style-type: none"> fence (within area 3) 	77
44	Coronella Reef	stope (N end line of stope)	elongate (c.15m+ long x c.4' wide) opening into a steeply dipping stope; depth up to c.5m; has large open pit which sloping sides in high mullock dump on the N end, and there is mullock along the E side; a narrow water cut gully runs NE from the NE corner of the open pit; - fenced (poor condition)	<ul style="list-style-type: none"> strongly contributes (as part of line of open stoping) representative example of stoping open to surface; well preserved 	<ul style="list-style-type: none"> fence (within area 3) 	79
45	Coronella Reef?	shaft? (in gully)	small (c.3' x 3'), rectangular-irregular vertical sided opening into stoping (?) set in base of narrow water eroded gully; deep (depth unknown); - unfenced	<ul style="list-style-type: none"> contributes 	<ul style="list-style-type: none"> cap or fence (within area 3) (need to consider issue of water flow in gully) 	97
46	Coronella Reef	shaft (capped) (previously thought to be the East Volunteer Adit air shaft)	concrete capped shaft (by MRT, recent) with large mullock mounding on the S and E sides; N side of mullock mounds disturbed by capping and the main track; the nearby features and relationships suggest this is the 'hole' at the N end of the Coronella Reef shown on Blake's (1934) plan; - capped	<ul style="list-style-type: none"> contributes 	<i>no action</i>	52
47	East Volunteer Adit	shaft (filled)	the hole (air shaft?) on the E. Volunteer Adit to the SE of the Coronella Shaft shown on Blake's (1934) plan was not been relocated; the Nov 2007 mapping suggests that it has been filled and covered by the formation of the main track; - filled	<ul style="list-style-type: none"> contributes part of the East Volunteer system 	<i>no action</i>	

48	East Volunteer Adit	shaft (E of the E. Volunteer Adit air shaft)	rectangular shaft, c.3' x 5'; probable underlay shaft as top c.4-5m of shaft is vertical sided and lower walls slope to E (for another 4-5m+); medium sized mullock mound on NW corner; appears to be slightly trimmed by main track - unfenced?	<ul style="list-style-type: none"> ▪ contributes . secondary shaft; well preserved . part of the East Volunteer system 	<ul style="list-style-type: none"> ▪ grille or fence 	113
49	Little Branxholm Reef (& Coronella Reef?; East Volunteer Adit)	Coronella Shaft	rectangular (c.3m x 5m) vertical shaft; no timbering evident; well preserved but no timbering evident; is surrounded by mullock (F51); - fenced (poor condition)	<ul style="list-style-type: none"> ▪ strongly contributes . major shaft (named) . part of the East Volunteer system 	<ul style="list-style-type: none"> ▪ grille or fence 	53
50	Little Branxholm Reef (& East Volunteer Adit)	shaft	square (c.3.5m x 3.5m) vertical shaft; no timbering evident; c. 5-6m deep; is surrounded by mullock (F51) ; - fenced (poor condition)	<ul style="list-style-type: none"> ▪ contributes . part of the East Volunteer system 	<ul style="list-style-type: none"> ▪ grille or fence 	
51	Little Branxholm Reef (N line) (& Coronella Reef?)	Coronella Shaft finger dumps/mullock	c.20m x 20m + area of mullock; the E side has steep slopes to ground level and includes 1 clear finger dump	<ul style="list-style-type: none"> ▪ contributes . part of the East Volunteer system 	<ul style="list-style-type: none"> ▪ retention desirable 	
52	Little Branxholm Reef (N line)	stope/shaft	large, semi-rectangular opening (unclear if open stope or shaft) at the S end of depression also containing F54 & F55); steeply dipping; has mullock mounds both sides; - unfenced	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ cap or fence (within area 4) 	
53	Little Branxholm Reef (N line)	stope	elongate opening (stope); steeply dipping; in a depression with mullock along both sides (see also F52 & F 54); - unfenced	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ cap or fence (within area 4) 	
54	Little Branxholm Reef (N line)	stope	medium size elongate opening (stope) ; steeply dipping; in a depression with mullock along both sides (see also F52 & F 53); - unfenced	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ cap or fence (within area 4) 	
55	Little Branxholm Reef (N line)	stope	small opening (stope) ; steeply dipping; - unfenced	<ul style="list-style-type: none"> ▪ minor contribution 	<ul style="list-style-type: none"> ▪ cap or fence (within area 4) (need to consider water flow issues) 	
56	Little Branxholm Reef (N line)	stope	small opening (stope) ; steeply dipping; - unfenced	<ul style="list-style-type: none"> ▪ minor contribution 	<ul style="list-style-type: none"> ▪ cap or fence (within area 4) (need to consider water flow issues) 	
57	Little Branxholm Reef (N line)	stope/shaft (N end N line)	semi-rectangular opening (unclear if open stope or shaft) at the N end of a line of stoping; steeply dipping; - unfenced	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ cap or fence (within area 4) 	54
58	Little Branxholm Reef (N line)	shaft	approx. square (small medium) vertical shaft; has some mullock on the S side (any mullock on the E & N will have been reworked by bulldozing); - unfenced	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ cap or fence (within area 4) 	

59	Little Branxholm Reef (N line)	adit portal (destroyed)	a c.5m wide band of bulldozing from the base of the slope up to the N side of a shaft (F58); runs at 130°; interpreted as the area of a former adit which has been bulldozed in when pine plantation established - filled	<ul style="list-style-type: none"> no contribution (as destroyed) 	<i>no action</i>	
60	Little Branxholm Reef (N line)	dumps/mullock	a scalloped N-S line of mullock (dumps) along the break in slope; appears to have been disturbed	<ul style="list-style-type: none"> minor contribution 	<ul style="list-style-type: none"> retention desirable 	
61	Ascot Reef	shaft/hole	rectangular, vertical sided shaft/hole; c.2' x 4' and c.4' deep (partly infilled); - partly filled/shallow	<ul style="list-style-type: none"> minor contribution 	<ul style="list-style-type: none"> retention desirable 	100
62	Ascot Reef	surface stope	large (c.15-20m long) elongate, rectangular open trench, the trench has approx vertical sides which are c.2m deep at the deepest end; the trench is c.2m wide at the S end and narrows slightly towards the N end; open at the N end and has a joining irregular-rectangular shallow pit on the NW corner; - shallow	<ul style="list-style-type: none"> strongly contributes . additional technique that complements the range of techniques in this mining area 	<ul style="list-style-type: none"> retain (leave undisturbed) 	98
63	New Find Creek	low mound area of dump/mullock	area of low irregular mounded mullock; this area is part of the FT pine plantation (ie, probably disturbed)	<ul style="list-style-type: none"> minor contribution 	no action (highly disturbed)	
64	New Find Creek	possible site of filled shaft	area of low irregular mullock with depression at the W end; the probable filled shaft is a c.1.5m x 3m depression (c.0.5-1m deep) with low mullock on the W and N sides; also nearby is a clear sauce bottle ('Bendigo Tomato Products'), an ore bin (F65) and a section of massive timber beam (c.11" x 10"); this area is part of the FT pine plantation (ie, probably disturbed); - filled	<ul style="list-style-type: none"> minor contribution (as mostly destroyed) 	<ul style="list-style-type: none"> retention desirable (if filled shaft area) 	150
65	New Find Creek	ore bin	steel bin presumed to be for hauling ore up a shaft – rivetted steel with steel Y frame rope attachment at one end; bin is 4'6" deep x 2'7" x 3'; open topped; small door with internal hinge on 1 side; steel band with flanges down the centre of 1 side; c.5m E of F65; this area is part of the FT pine plantation	<ul style="list-style-type: none"> strongly contributes . rare mining artefact 	<ul style="list-style-type: none"> retain (leave undisturbed) removal should only be considered if risk of souveniring is deemed high 	51
66	New Find Creek	bedframe & bluebells	iron bed frame with decorative knobs (joins) (c.early-mid 1900s?); a scatter of bluebells (in flower) in the general area; this area is part of the FT pine plantation	<ul style="list-style-type: none"> no contribution 	<i>no action</i>	149
67	New Find Creek	small ore sled	rectangular, low walled object of rivetted iron; c. 4' 5" long x 2' 7 1/4" wide; sides are c.10" high; base (floor) slightly concave from end to end; hinged flap across one end; side edges are flanged (outwards) with bolt holes; sides have semi-circular opening with flange (rims?) and floor appear to bend up over the circular openings; partly crushed	<ul style="list-style-type: none"> strongly contributes . rare mining artefact 	<ul style="list-style-type: none"> retain (leave undisturbed) removal should only be considered if risk of souveniring is deemed high 	148

68	New Find Creek	hut site - chimney	brick base (hearth?) of a brick and corrugated iron chimney; associated cgi fragments; has a slightly benched/leveled area on the S side.	<ul style="list-style-type: none"> strongly contributes . significant as only dwelling remains located to date (probably) associated with the mining 	<ul style="list-style-type: none"> retain (leave undisturbed) 	50
69	New Find Creek	S edge of conifer copse/foxgloves on track	south end of an area of multi-age conifers of 1 type (yew-like needles); the copse extends north to the pine plantation N of New Find Ck; includes very large mature trees (younger trees probably wildlings); foxgloves also growing on the track in this area	<ul style="list-style-type: none"> contributory significance unknown (insufficient data) 	<ul style="list-style-type: none"> requires further assessment 	49
70	New Find Creek	sawn timber pile	an irregular pile of sawn short (<c.2m) lengths of timber of various sizes some of which has staples and nails (contemporary), also wire associated; age uncertain but possibly a mid-late 1900s dump	<ul style="list-style-type: none"> no contribution 	<i>no action</i>	151
71	New Find Creek	area of jonquils/daffodils	area of jonquils or daffodils on the road verge (on edge of pine plantation); interpreted as indicated historic mining housing area? or old farmstead?; see also F72	<ul style="list-style-type: none"> minor contribution (if associated with mining) 	<ul style="list-style-type: none"> requires further assessment 	
72	New Find Creek	area of foxgloves	area of foxgloves on the road verge (on edge of pine plantation); interpreted as indicated historic mining housing area? or old farmstead?; see also F71	<ul style="list-style-type: none"> minor contribution (if associated with mining) 	<ul style="list-style-type: none"> requires further assessment 	
73	New Find Creek	track?	faint to moderately distinct linear formation c.4'+ wide; slightly benched in the E mapped section; was not traced beyond mapped extent; location and nature suggests it is an historic track associated with mining of the north Little Branxholm Reef	<ul style="list-style-type: none"> contributes 	<ul style="list-style-type: none"> retention desirable (if historic track); can be used 	
74	New Find Creek	benched track (N of Branxholm Reef N)	a well defined, clearly benched, well graded formation along the N slope of ridge below (N of) the Branxholm Reef; formation c. 6' wide; mullock/spoil from an exploration pit which covers the track and large eucalypts growing out of the track indicate the track is historical; formation cannot be traced beyond F 1, but it is possible that it curves E around the nose of the spur and joins the alignment marked as 'tramway' on Blake's (1934) map	<ul style="list-style-type: none"> strongly contributes . rare clear section of benched track that is demonstrably historic; clearly associated with the Mara Shaft 	<ul style="list-style-type: none"> retain (leave undisturbed) 	142
75	western slopes	track W from Bayley's Shaft	flat alignment, c.6' wide, benched into the slope and running on a gentle gradient from approx Bayley's Shaft around the hillside to the modern FT fire trail (not followed from here); nature suggests this is an historic mining track	<ul style="list-style-type: none"> contributes 	<ul style="list-style-type: none"> retention desirable (if historic track); can be used but formation should not be bulldozed/modified 	108
76	western slopes	hole/exploration trench?	irregular-rectangular hole (probable exploration trench), c.2m x 3.5m, c.3m deep; has a mound of mullock on the downslope (N) side	<ul style="list-style-type: none"> contributory significance unknown (insufficient data) 	<i>no action</i>	55

77	western slopes	benched platforms?	benched platform in slope; aligned across slope; c.3.5m x 5m; not well defined; interpreted as possible tent sites	<ul style="list-style-type: none"> ▪ contributes (if tent platforms) 	<ul style="list-style-type: none"> ▪ retention desirable (if made platforms associated with mining) 	57
78	Bayley's Adit (&/or Little Branhholm reef)	nearby depression	irregular-rounded concave pit, c.3m x 5m and c.1.5m deep; on hillslope above gully; probable exploration pit	<ul style="list-style-type: none"> ▪ contributory significance unknown (insufficient data) 	<i>no action</i>	121
79	Bayley's Adit	air shaft	rectangular, vertical walled shaft, c.2'+ x 5'; well preserved; mullock mounded on S and W sides; on the W side of the shaft is a c.30m x 40m relatively flat area that has unusual regrowth suggesting it may have been cleared (and the ground compacted) historically and which also has a relatively high number of tree stumps; - unfenced	<ul style="list-style-type: none"> ▪ contributes . part of the Bayley Adit system 	<ul style="list-style-type: none"> ▪ grille or fence 	
80	Bayley's Adit	shaft (underlay)	rectangular shaft, c.3' x 5' with top c.3 wall vertical then curving to the SE to c.7m+ depth; well preserved; mullock all around but mainly mounded on the NE side; - unfenced	<ul style="list-style-type: none"> ▪ . strongly contributes . good, well preserved example of an underlay shaft . part of the Bayley Adit system 	<ul style="list-style-type: none"> ▪ grille or fence 	
81	Bayley's Adit	S adit entrance & portal	comprises a c.40m long vertical walled trench approach from the gully floor to the adit portal on a bearing of 5°; the adit is blocked by collapse c. 4m inside the portal; a small number of upright timbers still in place and a few are collapsed just inside the portal; portal dimensions are c.6' 9" high x 5' wide at base and 3' 8" wide at roof; portal has a c.4' high headwall; no seepage; some mullock on both sides of the lower section of the access trench; - tunnel blocked by fall	<ul style="list-style-type: none"> ▪ strongly contributes . good well preserved example of adit entrance; visible element of major underground working 	<i>no action (tunnel is blocked by collapse)</i>	122
82	Bayley's Adit	trenched & disturbed area	stretches across a broad, relatively flat floored valley; comprises – 1. an L-shaped trench (exploration pit?), c.4' x 6'; vertical sides c.3m deep (possibly infilled) on N side of gully; 2. a line of costeaning (3) across gully floor; and 3. a c.20m x 30m area of disturbed ground with low irregular mullock mounding on the S side of the gully floor.	<ul style="list-style-type: none"> ▪ minor contribution . part of the Bayley Adit system 	<ul style="list-style-type: none"> ▪ retention desirable 	
83	East Volunteer Adit	S portal	well preserved adit access trench (c.30m), portal and tunnel (tunnel has been inspected by R. Bottrill, MRT)c. 3-40m NW of the road; on a line of 338°; tunnel inside portal is 7' high x 4'7" wide at floor; no in situ timbering evident, but several uprights have been placed upright against the tunnel wall near entrance and just outside the entrance is a length of timber with a large steel hinge bolt indicating the tunnel has had a timber gate (all timber is in poor condition, hence likely to date to the mining period); minimal portal headwall; access trench has recently been cleared out; water seepage from portal into swampy area that drains under the road;	<ul style="list-style-type: none"> ▪ strongly contributes . good well preserved example of adit entrance; visible element of major underground working . part of the East Volunteer system 	<ul style="list-style-type: none"> ▪ consider gating portal as just visible from road. 	48

			has c.30m x 40m area of platform on W side of trench, with possible track leading away to SW (F84); - tunnel open			
84	East Volunteer Adit	track to adit?	benched formation, c.4-6' wide, running around slope; runs approx SW-NE to Adit (F83); possible historic benched track	<ul style="list-style-type: none"> ▪ contributes if (historical) ▪ part of the Bayley Adit system 	<ul style="list-style-type: none"> ▪ retention desirable (if historic track) 	
85	Mara Main Shaft	boiler	medium-small (c.4' diameter x 6'+ long) steel boiler cylinder; resting on an angle with one end buried in the ground; possibly associated with the Mara main shaft (F9)	<ul style="list-style-type: none"> ▪ contributes 	<ul style="list-style-type: none"> ▪ retain (leave undisturbed) ▪ removal should only be considered if risk of souveniring is deemed high 	69
86	western slopes	shaft (filled)? & trench	elongate-rectangular depression c.4-5' x 7' in the centre of a low mound of mullock; depression oriented c.E-W; c.10m E of FT fire break; - filled	<ul style="list-style-type: none"> ▪ no contribution (as destroyed) 	<i>no action</i>	89

¹ covering/gating implies retention.