

# **Assessment of Significance Hawkins Hill Reef Mining Precinct Hill End NSW 2850**



Shaft heads on Hawkins Hill in 1872. These workings were placed directly above the line of the gold bearing reef.  
(American & Australasian Photographic Co., Holtermann Collection, State Library of NSW)

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For

Hill End & Tambaroora Gathering Group Inc

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## Executive Summary

The Hill End and Tambaroora Gathering Group has been working for some years to have the cultural heritage significance of mining relics on Hawkins Hill assessed and has been working to this end. In 2023 the group received funding for this task from Bathurst Regional Council under the 2023/24 Interpretation Fund. Ray Christison from High Ground Consulting was engaged to assess the significance of the place in accordance with Heritage NSW guidelines.

The significance of the Hawkins Hill reef mining area is summarised as follows:

Mining in the Hill End and Tambaroora Goldfield from the early 1850s provided a great filip to the New South Wales economy and attracted hopeful migrants from all over the world. The Hawkins Hill reef mining area was and remains among the richest goldfields on earth. The astounding gold reefs of Hawkins Hill were exploited from the 1860s and mining has continued throughout the subsequent 150 years. There is every prospect that reef mining will continue well into the future. Reef mining in Hill End generated spectacular wealth that created extravagant lifestyles for many individuals, including the remarkable Harriett Beard and others. The most significant association with Hawkins Hill is that of Bernard Otto Holtermann, who used the wealth generated from the Star of Hope mine to fund a photographic study that has created an important social record and a benchmark for historical investigation. This project alone provides the place with state level historical association significance. The Hawkins Hill reef mining area contains a unique environment, with the remnants of a line of closely-spaced mines and associated landscape scars forming a spectacular visual assemblage. This is reinforced by the photographic record created by Beaufoy Merlin in 1872. The surviving stone rubble walls of the mining leases also provide a visually stunning memory of past efforts to exploit the rich gold deposits within the hill. The reef mines created the foundation for a settled mining community in Hill End and helped to fund development of the town over decades. Hill End is now a State Significant place with an active economy based on tourism and the arts. The former reef mines continue to support these industries. The place draws people searching for glimpses into the life of historic mining places. The Hawkins Hill reef mining area contains a unique collection of historic reef mines and the infrastructure that supported mining activity over more than a century. This assemblage includes evidence of shafts, tunnels, horse whim and steam winding, mullock heaps, aerial ropeways, and stamper batteries. Collectively these features provide significant examples of reef mining technologies applied over more than a century. The Hawkins Hill area is unique in New South Wales. Nowhere else is there substantial evidence of closely-spaced reef mines that have generated such wealth. The goldfield has also seen continuous mining that is still being carried out today. The reef mining area is representative of the contribution of New South Wales gold reserves to the growth of the colony in the 19<sup>th</sup> century. It is also representative of reef mining activity that commenced in the 1850s and continues to the present time. Despite ongoing mining activity and removal of infrastructure, the Hawkins Hill mining area has an amazingly high degree of integrity. The place has state historical, historical association, aesthetic, social and technical/research significance, rarity, representativeness and a high degree of integrity.

### Recommendation

It is recommended that:

1. The Hawkins Hill Reef Mining Precinct be listed as an item of local significance on the Heritage Schedule (Schedule 5) of the Bathurst Regional LEP with appropriate provisions for protecting and managing the item.
2. The Hawkins Hill Reef Mining Precinct be nominated for inclusion on the NSW State Heritage Register.
3. A Conservation Management Plan be prepared for the precinct.



## Introduction

The Hill End & Tambaroora Goldfield maintains a pre-eminent role in the history of gold mining in New South Wales. A gold rush occurring at Tambaroora in the early 1850s saw intensive alluvial mining, and by the 1860s attention had been drawn southwards towards the gold reefs located at Hill End. These reefs extended southwards towards the Turon River along the ridge known as Hawkins Hill. By the early 1870s a row of reef mines had been developed along Hawkins Hill. In 1918 Government Geological Surveyor L.F. Harper noted in a report that “The Hill End or Hill End-Tambaroora Gold-field, as it is known officially, was the scene of the first reef-mining in Australia”.<sup>1</sup> Despite this fact, and regardless of decades of study of the goldfield, listing of the Village of Hill End on the New South Wales State Heritage Register, and general recognition of the special status of the place the reef mining area of Hill End has been largely ignored and its cultural heritage significance not fully assessed. This has been the subject of only a few limited archaeological investigations and its significance is largely disregarded outside the geological and mining community and the historians of Hill End.

The Hill End & Tambaroora Gathering Group has engaged Ray Christison MPHA MAICD MAICOMOS of High Ground Consulting to research the story, context and fabric of a number of extant Hawkins Hill relics to determine their cultural heritage significance in accordance with Heritage NSW guidelines. The aim of this heritage assessment is to provide feasible options for the preservation or restoration of the two major relics on Hawkins Hill. Recording the history of this part of the famed Golden Quarter Mile over 150 years will establish the significance of the site and these items.

After preliminary investigation of the subject matter Ray has determined that a formal Assessment of Significance is required for the Hawkins Hill Precinct, and that the identified relics be considered within the context of this assessment.

This assessment attempts to:

- Outline the mining history of Hawkins Hill,
- Describe the physical evidence of mining,
- Identify other New South Wales gold mining sites listed on the State Heritage Register or Local Government Heritage Schedules, and compare,
- Assess the cultural heritage significance of the place,
- Provide basic recommendations for conservation of the place.

The assessment was prepared with financial assistance provided by Bathurst Regional Council under the 2023/24 Interpretation Fund.

## Definition of Study Area

The Hawkins Hill reef gold workings covered in this report are located on Lot 7318 DP 1184369. This consolidated lot stretches along Nuggetty Gully and the western side of Hawkins Hill from the southern edges of the Village of Hill End to the Turon River.

## Methodology

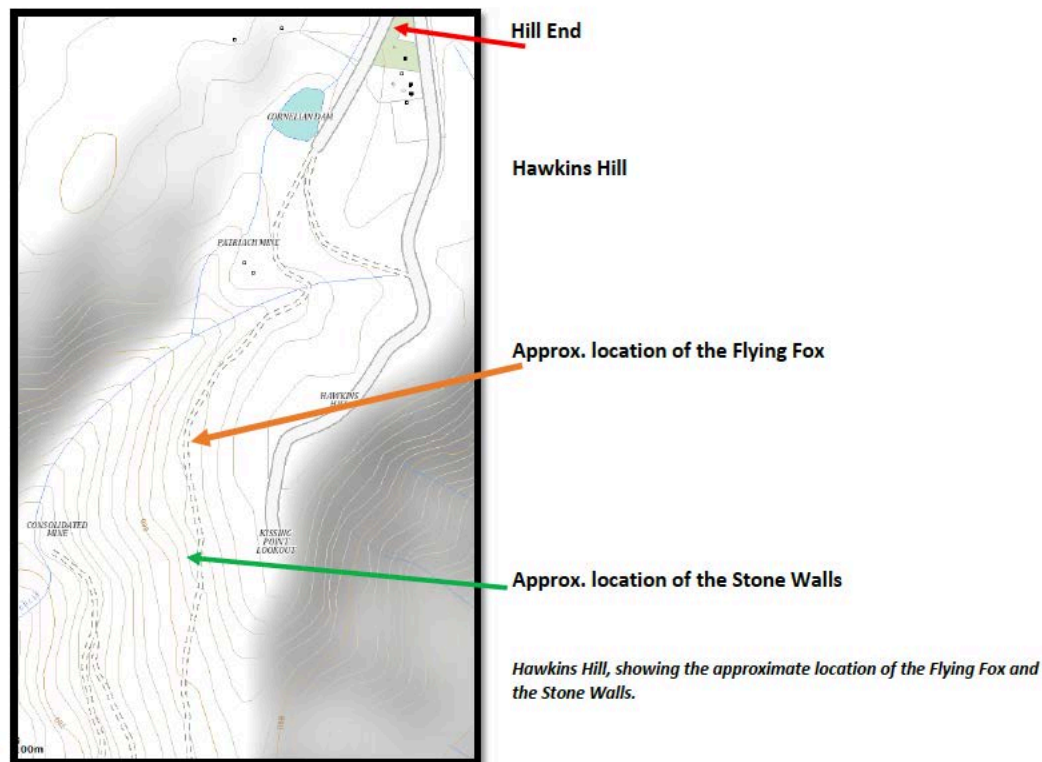
This report has been prepared in accordance with the following Heritage NSW guidelines:

Department of Planning & Environment, 2023. Assessing Heritage Significance - Guidelines for assessing places and objects against the Heritage Council of NSW criteria

A site inspection was undertaken on 17 August 2023. This included photography of the sites. Additional historical research was undertaken to provide a clearer understanding of the history of gold mining in Hill End and the development of the Hawkins Hill deep lead mines.

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<sup>1</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.1



**Figure 1:** Map showing the location of key features in relation to the Village of Hill End.  
(Summary of the Report on the Golden Mile, Hill End)

### Identification of Author

This report was prepared by Ray Christison BA (Hons) Archaeology and Palaeoanthropology MAICD MPHA MICOMOS, Historical Archaeologist and Professional Historian of High Ground Consulting. Ray has extensive experience assessing and managing cultural heritage significance across regional New South Wales. He has been heritage advisor for Coonamble, Gilgandra, Harden, Hilltops, Liverpool Plains, Orange City, Warrumbungle, Walgett and Young Local Government Areas. He has also undertaken heritage main street studies in Baradine, Boorowa, Gilgandra, Peel Street Tamworth and Werris Creek. Ray is also a regular provider of heritage services to Australian Rail Track Corporation, Essential Energy, Glencore Coal and NSW National Parks & Wildlife Service.

Experience relevant to the assessment of mining sites includes:

- Preparation of Conservation Management Strategies for more than 30 places, including mine sites in the Hill End and Tambaroora district.
- Archaeological assessment of Tambaroora Village.
- Study of coke oven sites in the Lithgow Valley.
- Recording and assessment of alluvial gold mining sites in the former Burrangong Gold Field, including Krebs Lane mining area, Milky Gully sluice works and Blackguard Gully.
- Research and publication of 11 histories of coal mines and communities in New South Wales and Queensland.
- Community Based Heritage Study of Broken Hill.

Valuable assistance in research of the property, and review of this report, was provided by Richard Shaw and Lorraine Purcell of The Hill End & Tambaroora Gathering Group, and Tully Richards, Technical Director, Vertex Minerals Limited.

## Limitations

This study was conducted on an extremely tight budget. It has been limited to sites that are readily accessible by vehicle or safely accessible on foot. It focuses on the most intact features present on Hawkins Hill and within Nuggetty Gully. These sites include:

- The Flying Fox constructed by Amalgamated Hill End Limited and upgraded by Devon Mining N.L.,
- Tube boiler located near the Flying Fox,
- Beyers & Holtermann's Star of Hope headworks,
- Krohmann's South headworks,
- Carroll & Beard's headworks,
- Rapp's shaft headworks and horse whim site,
- Consolidated/Carver's Tunnel portal,
- Consolidated Stamper,
- Price's/Petersen's Stamper,
- Amalgamated Tunnel portal.

Numerous other sites within the mining area have not been recorded or assessed. These sites should be considered to contribute to the cultural heritage significance of the place.

## Outline History

Hill End is on the lands of the Wiradjuri people.

### National, State & Local Historic Themes

The Hawkins Hill mining precinct has associations with the following national and state historic themes including:

National theme	New South Wales theme	Regional (Central West NSW) theme
Developing Local, Regional and National Economies	Environment – cultural landscape	Landscapes of mining
	Mining	Mining for gold
Building Settlements, Towns and Cities	Towns, suburbs and villages	Vernacular towns serving a specific industry
Marking the Phases of Life	Persons	Persons

This thematic history has been arranged to reflect the order of the national and state themes.

### Timeline of Gold Mining on Hawkins Hill

- 1851 Payable gold was discovered on the Hill End & Tambaroora Goldfield.
- 1852 Reef gold was first exploited near Tambaroora. This was a first in New South Wales.
- 1855 Reef gold was identified on Hawkins Hill.
- 1857 The first stamper battery was erected near Tambaroora.
  
- 1860 Hawkins Hill reef gold was first worked.
- 1868 The Rose of England shaft was opened on a reef of the same name.
- 1860s Numerous claims were taken up on Hawkins Hill and a mining boom ensued.
  
- 1870 There was a slump in mining activity leading to amalgamation of mining operations.
- 1871 Thomas Chappel purchased the original battery and relocated it to Hill End.
- 1872 The Star of Peace Gold Mining Company Limited was formed to work amalgamated claims on Hawkins Hill
- 1875 The Star of Peace worked Paxton's Main Shaft to a depth of 500 feet.
- 1877 Mining on Hawkins Hill was reported as being in a depressed state.
- 1880 Star of Peace promoter, Alfred Fairfax, travelled to England to secure additional capital.
- 1882 Fairfax returned to promote a new company, Hawkins Hill Consolidated Gold-Mining Company, which took over the interests of the Star of Peace. This company extended the Patriarch Shaft and Vickers Shaft, the latter to over 1,000 feet.
- 1887 Hawkins Hill Consolidated Gold-Mining Company was described as being in receivership.
- 1898 Hawkins Hill Consolidated Gold-Mining Company was officially wound up.
- 1898 The New South Wales Government moved to reserve the Hawkins Hill reef area from mining to encourage mining by companies.
  
- 1900 There was a revival in interest in gold mining.
- 1901 Hawkins Hill Reward Gold Mining Company established to take over William Marshall's holdings and operations on the northern end of Hawkins Hill.
- 1907 The Consolidated syndicate was formed by Hill End locals to work various older leases through "a tunnel from the creek bed" (The Consolidated Tunnel).
- 1911 Prospectus issued for Amalgamated Hill End Limited. Amalgamated drove the "Bottom" tunnel from Nuggetty Gully.
- 1917 Amalgamated Hill End ceased mining operations.
- 1918 Hill End Reward Gold Mining Company amalgamated with the Golden Key and the Deep Levels Hawkin Mining Company was formed.
- 1918 Amalgamated Hill End Limited sold its interests to Marshall's Hill End Gold Mines.

1933	North Bismarck Lucknow Gold N.L. was working the Consolidated Tunnel from the Patriarch Shaft to the Frenchmans Shaft.
1949	Devon Gold N.L. took out multiple gold leases on Hawkins Hill.
1950	Devon Gold began working from the Consolidated Tunnel.
1957	Devon Gold operations stalled.
1958	Devon Gold leases were cancelled.
1990s	Nugget Resources followed Devon Gold.
1990s	Silver Orchid existed towards the end of Nugget Resources' tenure.
2000s	Hill End Gold took over the lease area, becoming Peak Gold then Pure Alumina.
2021	Vertex Minerals took over the lease area.

### Regional Historic Theme: Landscapes of Mining

It is often assumed by the casual observer that landscapes such as the Hill End gold diggings are the product of a single event or movement. This conception is commonly, and often falsely, applied to former mining landscapes. In 1991 Ritchie identified the problem presented to archaeologists in reading such areas:

Those who are familiar with the mining history of specific regions will be aware of ... examples of alluvial or hardrock mining sites which at first glance appear to be one interconnected contemporaneous system but in reality were not the product of single events or of one party's activities. Rather they evolved as a result of a succession of mining operations on the same claim.<sup>2</sup>

This is definitely true of the Hawkins Hill reef mining area. The reef mining areas of Prince Alfred Hill and Hawkins Hill reflect a very different landscape to those created by alluvial mining. Reef mining landscapes are characterised by the following:

- Clear evidence of mine workings – a mining site with a substantial combination of mining evidence (including ruined or partially disturbed elements) which might include: shaft or adit head equipment such as a poppet head, rail lines, collaring and either the machinery for or concrete footings for winding machinery, pumps or air compressors.
- Clear evidence of – a processing site with substantial evidence (which may include evidence in ruin) and might include batteries, boilers, engines, mills, cyanide vats, tailing heaps, or in the case of more complex sites, kilns and furnaces with flues and smelter stacks.
- Clear evidence of habitation – such as isolated huts or groups of huts or in the case of larger fields, villages or even small towns. The sites may only be visible as rectangular areas 4 metres by 6 metres or less, with only an outline of stones where the chimney stood. Ovens or forges are located separately and measure about one metre square.<sup>3</sup>

### Regional Historic Theme: Mining for gold

This section deals specifically with commercial and mining activities undertaken by the mining operations working the gold reefs of Hawkins Hill. The general context of 19<sup>th</sup> century goldmining in Hill End is described below.

Payable gold was discovered in the Hill End and Tambaroora goldfields by mid 1851, following discoveries in the region in previous months. Shortly afterwards the population exploded and, for a while, the area exceeded the Victorian fields in size and prosperity. Early efforts were focused on alluvial gold and the towns of Hill End and Tambaroora grew up around the creeks and dams worked for that purpose.

In 1859, with the imposition of an urban plan for Hill End, the town grew in a more orderly fashion and by the height of the second, larger rush in 1872, it was the largest inland settlement in the colony of New South Wales. In the latter part of the century, however, the population dwindled with the exhaustion of the major reefs in the area. Today the population stands at about one hundred and twenty, a stark contrast from the estimated 8,000 during its peak.

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<sup>2</sup> Ritchie, N., 1991. 'Is There an Optimum System? The Recording and Assessment of Historic Mining Sites.' p.39

<sup>3</sup> Pearson, M. & McGowan, B, Undated. Mining Sites in NSW: History and Heritage. p.122

The discovery of alluvial gold, readily recoverable from the clay beds of creeks and dams, brought large numbers of individual, inexperienced prospectors to the Tambaroora area. The inexpensive and often simplistic equipment needed to extract the gold was well suited to both the skills and capital such individuals possessed. A good living could be made by the self-employed miner. This ensured an ever-changing stream of immigrants and locals moving in and out of the goldfields from the cities. Few miners remained to settle in the areas where they made their fortune, a tendency indicated by the small percentage of families present on many of the major fields and the sharp falls in population during times of drought or when the gold supply itself began to run out. By the late 1860s reef exploitation had emerged as the most popular and profitable method of mining, acting as the catalyst for the second, larger gold rush of the 1870s, when Hill End reached its peak in size and prosperity. (NPWS 1997: 13-15)

In their overview study of mining in New South Wales Pearson and McGowan observed that the efficiency of gold mining was initially hampered by poor regulation and administrative arrangements that restricted the size of gold leases. Reef mining did not start in New South Wales until the 1870s. Commencement of this type of mining was delayed by more complex capital requirements, “punitive licence fees”, inappropriate requirements for tenancy of leases, and relatively high processing costs compared to alluvial mining.

Reef gold was first discovered on what later became the Hill End and Tambaroora goldfield very soon after the discovery of the first alluvial gold in 1851 but was not seriously mined until the late 1850s and “... the first stamper battery was not erected until 1857”. Several claims were opened on Hawkins Hill in the early 1860s, however stamper batteries were not erected until 1870. Reef mining boomed in the early years of the 1870s.

By the end of 1871 ... there were several hundred claims on payable gold and not less than ten batteries at work, totalling over 100 head of stampers. “The whole of Hawkins Hill was divided up into very small claims and more individual fortunes were taken from there than any other gold field in NSW. The peak years of production were from 1870 to 1872”.<sup>4</sup>

There is a reasonable consensus that the gold reefs of Hawkins Hill were among the richest gold deposits discovered in Australia. This is accompanied by a view that mining on the field was crippled by a “mania for investment” that occurred in 1871-1872. Numerous speculative ventures established in the early 1870s split the goldfield into postage stamp sized claims that had little hope of providing a return on the high levels of investment required for deep lead mining. This was exacerbated by a lack of relevant technical knowledge within the goldfield. This is evident in the incapacity of most mining enterprises to manage water influx into their mine workings. For these reasons many of the early ventures failed quite quickly.

In his 1989 study of the Hawkins Hill mining relics archaeologist Don Godden noted that: “Hawkins Hill was the most successful area for miners as a dozen or so small seams were worked. More individual fortunes were made at Hill End than at any other mining site in NSW. From 1874 the miners started drifting away and by 1875 only 12 claims were active. Much of the machinery was taken to other sites and the first and biggest Hill End rush was over”. Mining continued sporadically from that time. Injections of capital to explore further were made in 1877, 1911, 1912 and 1915. It appears that mining never ceased altogether and that there were increases in activity in the 1920s and the 1940s.<sup>5</sup>

Pearson and McGowan noted that: “Many of the Hawkins Hill claims were floated into companies. For instance, Beyers and Holtermann’s claim was floated into a company with a capital of £72,000 and Carroll and Beard’s was formed into a company with capital of £90,000. A number of companies commenced operations in the period 1910 to 1920, for example, the Amalgamated Hill End with a capital of £100,000, the Hawkins Hill Reward Gold Mining Company with capital of £20,000 and the Hawkins Hill Central Gold-mining Company with capital of £37,000. In 1918 the former company sold its interests to Marshall’s Hill End Gold Mines. Up until 1921, 688,722 oz of gold were recovered.”<sup>6</sup>

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<sup>4</sup> Pearson, M. & McGowan, B, Undated. Mining Sites in NSW: History and Heritage. pp.95-96, 104-105

<sup>5</sup> Don Godden & Associates Pty Ltd, 1989. Hawkins Hill Hill End. Assessment of Mining Relics. p.4

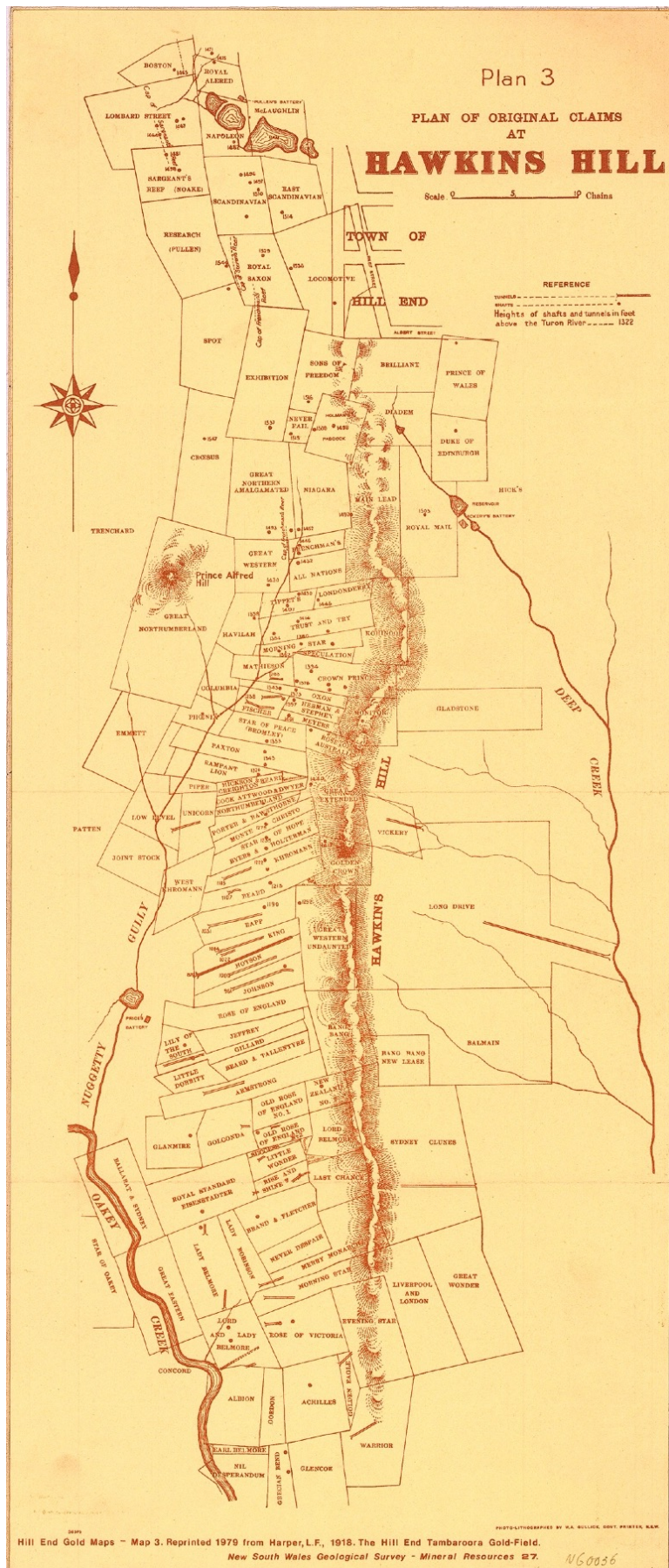
<sup>6</sup> Pearson, M. & McGowan, B, Undated. Mining Sites in NSW: History and Heritage. pp.95-96, 104-105

The leases and mining operations associated with the mining relics covered by this study are briefly described in the following sections.



Shaft heads on Hawkins Hill in 1872. These workings were placed directly above the line of the gold bearing reefs. This photograph clearly illustrates the “cheek by jowl” nature of reef mining on Hawkins Hill during the 1870s boom. (A & A Photographic Company, Holtermann Collection, State Library of NSW)





**Figure 2:** Plan of the original gold leases on Hawkins Hill showing the numerous mining leases covering the ridge from Prince Alfred Hill to Oaky Creek. This clearly demonstrates the complexity of the field. (Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field.)



### Early reef mining 1852 to 1875

According to Government Geologist L.F. Harper, reef mining commenced on the Hill End and Tambaroora Gold-field in around 1852:

Between the years 1851 and 1852 it is stated that ... a miner named Collison, who had been surreptitiously dollying quartz specimens containing coarse gold obtained on Sargent's Hill, and hammering out his winnings to resemble alluvial gold, had an interview with a Mr Sargent, a solicitor in Bathurst, who brought the matter before the authorities and obtained the right to mine for 'gold in matrix,' the extent of his 'claim' being from the Turon River to the Dirt Holes Creek ... The syndicate or company formed brought out Cornish miners from England to work the property and ordered a battery from England. Thus it would appear that Sargent's Hill, Hill End, was the site of the first reef mining claim in Australia. ...<sup>7</sup>

This syndicate, which came to be known as "The Old Company" erected its battery north of Tambaroora and it was later moved to Hargraves. This battery was purchased by Thomas Chappell in 1871 and relocated to a site on Hill End Creek near Bald Hill to process ore from the Hawkins Hill reefs.<sup>8</sup>

By 1855 Rowley Brothers were winning gold from its matrix near the crest of Hawkins Hill by surfacing at a spot discovered by Mr. J. Wythes. Despite the fact that they were getting most gold along a rubbly line of quartz, it was through a Cornish miner, Daddy Nichols, that the presence of a reef was detected, and this vein was first worked during 1860.<sup>9</sup>

Some reef mining occurred along Golden Gully, between Hill End and Tambaroora during 1858 and 1859<sup>10</sup>. According to local historian Harry Hodge, John Gustave Renatau, "a lusty, Rabelaisian Frenchman from Bordeaux" purchased the Victoria stamper battery, which had been commissioned near Golden Gully in 1859 and "crushed thousands of tonnes over the years".<sup>11</sup>

In 1861 "a man named W. Adams" noticed gold in quartz on Hawkins Hill while rounding up horses. This was the surface of what became known as The Rose of England reef, which was mined from 1868. Most of the ore from this lease was treated at Renatau's Victoria Battery. The Rose of England is considered the first shaft to be opened on Hawkins Hill. In the next few years "... quite a number of claims were opened on Hawkins Hill" and William Pullen erected two stamper batteries on the northern end of the reef mining area.<sup>12</sup>

The whole ridge was divided into "very small claims" straddling up to "a dozen veins" that ran in a roughly north-south direction. Despite the richness of the ore bodies, many of the claims proved difficult to make profitable. The size of the claims and the dip of the gold reefs made mining a very hit and miss affair. A slump in mining activity during 1870 led to amalgamation of some mining operations and, by 1875, the following mines were in operation:

- |                     |  |
|---------------------|--|
| • Carroll & Beard's | • Cock Atwood & Dwyer                    |
| • Krohmann's        | • Beyers & Holtermann's                  |
| • Rawsthorne        | • Hermann's                              |
| • Star of Peace     | • Mathewsons – on tribute                |
| • Paxton's          | • Hickson Creighton & Beard – on tribute |
| • Monte Christo     | • Browns – on tribute                    |

The locations of these leases are shown in **Figure 2**.<sup>13</sup>

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<sup>7</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.10

<sup>8</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.11

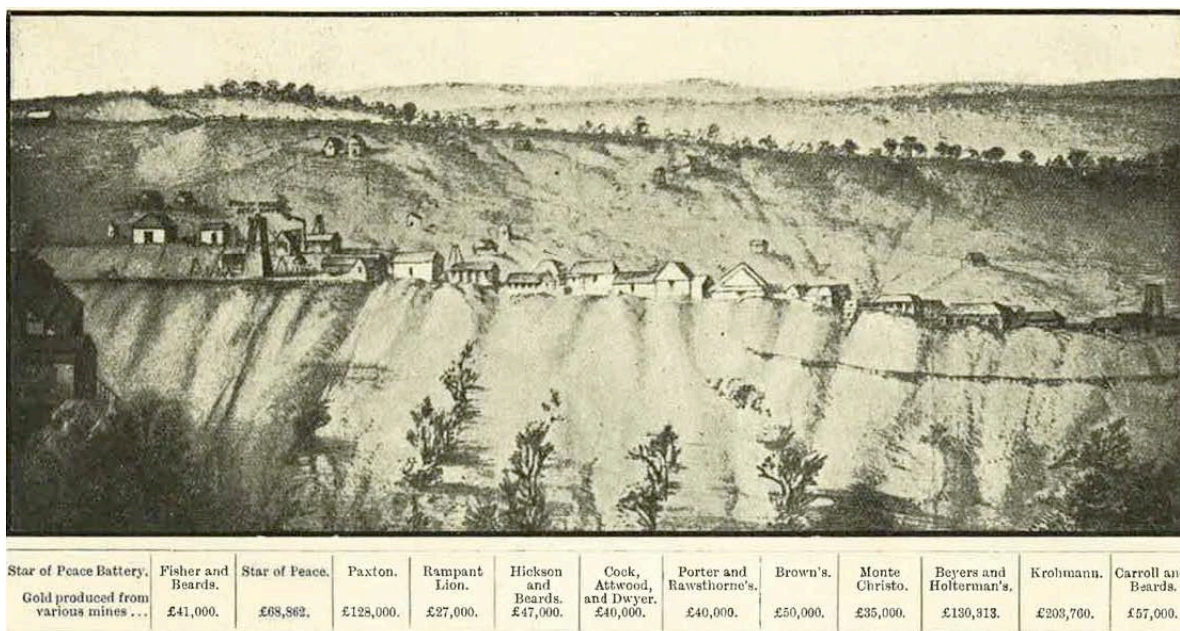
<sup>9</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.10

<sup>10</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.10

<sup>11</sup> Hodge, H., 2004. *The Hill End Story Book 1*. p.133; Hodge, H., 1989. *The Hill End Story Book 2*. p.83

<sup>12</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.10

<sup>13</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. pp.11-12



**Figure 3:** A representation of Hawkins Hill mines in 1871. The name & capital value of each mine is noted. (Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. Plate V.)

Various mining operations on Hawkins Hill between 1875 and 1960 are described in the following sections.

#### Star of Peace Gold Mining Company Limited 1872 to 1880

The Star of Peace Company mine was located towards the centre of Hawkins Hill and amalgamated surrounding mining leases in the late 1870s. The Star of Peace Company was formed on 10 May 1872 to operate the company's original mine. The company's lease measured 153 feet (north to south) by 600 feet (east to west). This lease, originally known as Bromley's, was renamed Star of Peace by Alfred Fairfax, one of the principal purchasers and the largest of the company's seven shareholders. Neighbouring claims included Fischer and Beard's, Beyers and Holtermann's, and Hermann's.<sup>14</sup>

The Star of Peace initially showed great promise. In November 1872 William Collings, Mining Surveyor and Sydney Morning Herald correspondent wrote a full report on a day spent in the Star of Peace Mine in the company of Alfred Fairfax. Collings gave an account of stoping activities in Holtermann's vein on the northern side of the workings. On that day, two shots fired in the vein yielded very promising and Fairfax sent samples to Sydney for assaying. Collings remarked that the claim "now looks really good as to its prospects; this vein is opened the whole length of the claim, is from 10 to 14 inches thick, carries rich gold, and has the perpendicular shaft within about two or three days' work of it. It is intended, now that the claim is proved payable, to sink a new shaft in the middle of the ground ..." The Star of Peace had also reached Krohmann's veins "in its most westerly crosscut".<sup>15</sup>

By 1875, Paxton's Main Shaft, the principal shaft in the Star of Peace workings, had been sunk to a depth of "about 500 feet" (152.5 metres). It was reported that the mine was "stopping down to 480 feet (146.4 metres) on the 'Star of Peace' vein." This suggests that a gold vein was being followed to that level.<sup>16</sup> The Department of Mines Annual Report for 1877 noted that the Hill End Goldfield was generally in a depressed state, with "few of the old mines at work". The Star of Peace Company had either purchased mining leases from their former owners or taken up cancelled leases. The company was also working some leases on tribute to their owners. Consequently, the only mines working were in the hands of the Star of Peace. The Mining Warden described the operations of the Star of Peace as follows:

The Star of Peace Mine is, I believe, the deepest mine on Hawkins Hill, but their prospecting up to the present date has not resulted in any permanent valuable discovery. Two or three times small patches

<sup>14</sup> Pittman, E.E., 1880. *The Star of Peace Gold Mining Limited, Hawkins Hill, Tambaroora*. Sydney, Jarrett & Co. pp.11-16

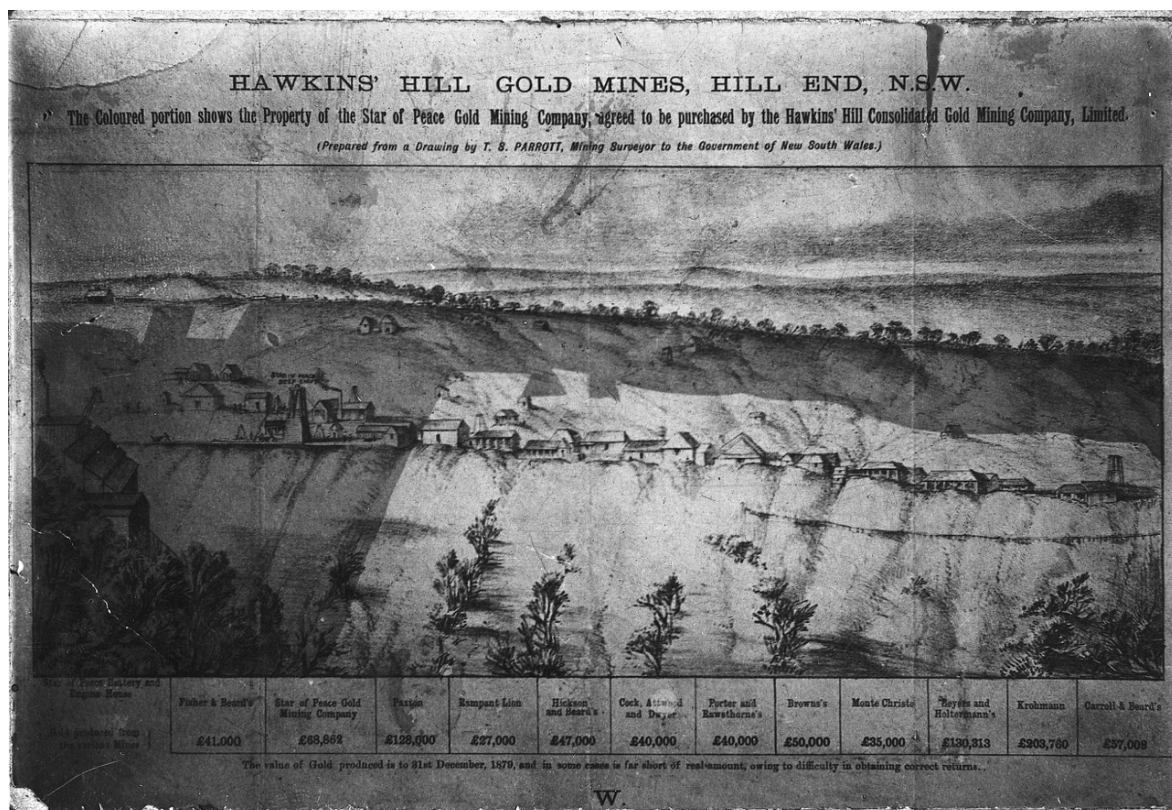
<sup>15</sup> "Hill End" in Sydney Morning Herald 22 November 1872 p.3

<sup>16</sup> Department of Mines Annual Report 1874 p.66

have been found at different depths, but these have not led to anything more valuable. The proprietors seem however to have confidence in their mine, as they have lately erected near their works machinery for crushing, professing themselves dissatisfied with the returns from the machines where their quartz has heretofore been treated; be this as it may, a substantial benefit must accrue to the company in the saving of expense in not having to cart or pack the quartz to a battery at a distance.<sup>17</sup>

In 1878 Inspector of Mines W.H. Slee described the Star of Peace as “the principal mine at work in Hill End”. In that year the company erected a stamper battery and mined between 400 and 500 tons of ore.<sup>18</sup>

It appears that Alfred Fairfax, who was living in Hill End, had energetically pursued the strategy of lease acquisition. By 1880 the Star of Peace Company had reached a point at which it had acquired sufficient leases to justify high levels of expenditure in its operations. As part of a strategy to encourage investors, the company issued a prospectus in June 1880. It was seeking to raise capital of £100,000.<sup>19</sup>



**Figure 4:** Graphic showing the Hawkins Hill leases taken over by the Hawkins Hill Gold Mining Company in 1882 represented by shaded areas.

### Hawkins Hill Consolidated Gold Mining Company 1882 to 1898

In 1880 Alfred Fairfax, promoter of the Star of Peace, travelled to Great Britain to find investors. A downturn in the world-wide gold mining industry had created a difficult environment for new investment and Fairfax struggled to raise interest in his venture. He did, however secure the support of a number of influential British mining investors. By 1882 Fairfax was promoting the Hawkins Hill Consolidated Gold Mining Company, which had been established to take over the affairs of the Star of Peace and consolidate its leases. Directors of this company included William MacAndran, Chair of the Mexican Bank of America and Lord Elphinstone.<sup>20</sup>

<sup>17</sup> Department of Mines Annual Report 1877 p.64

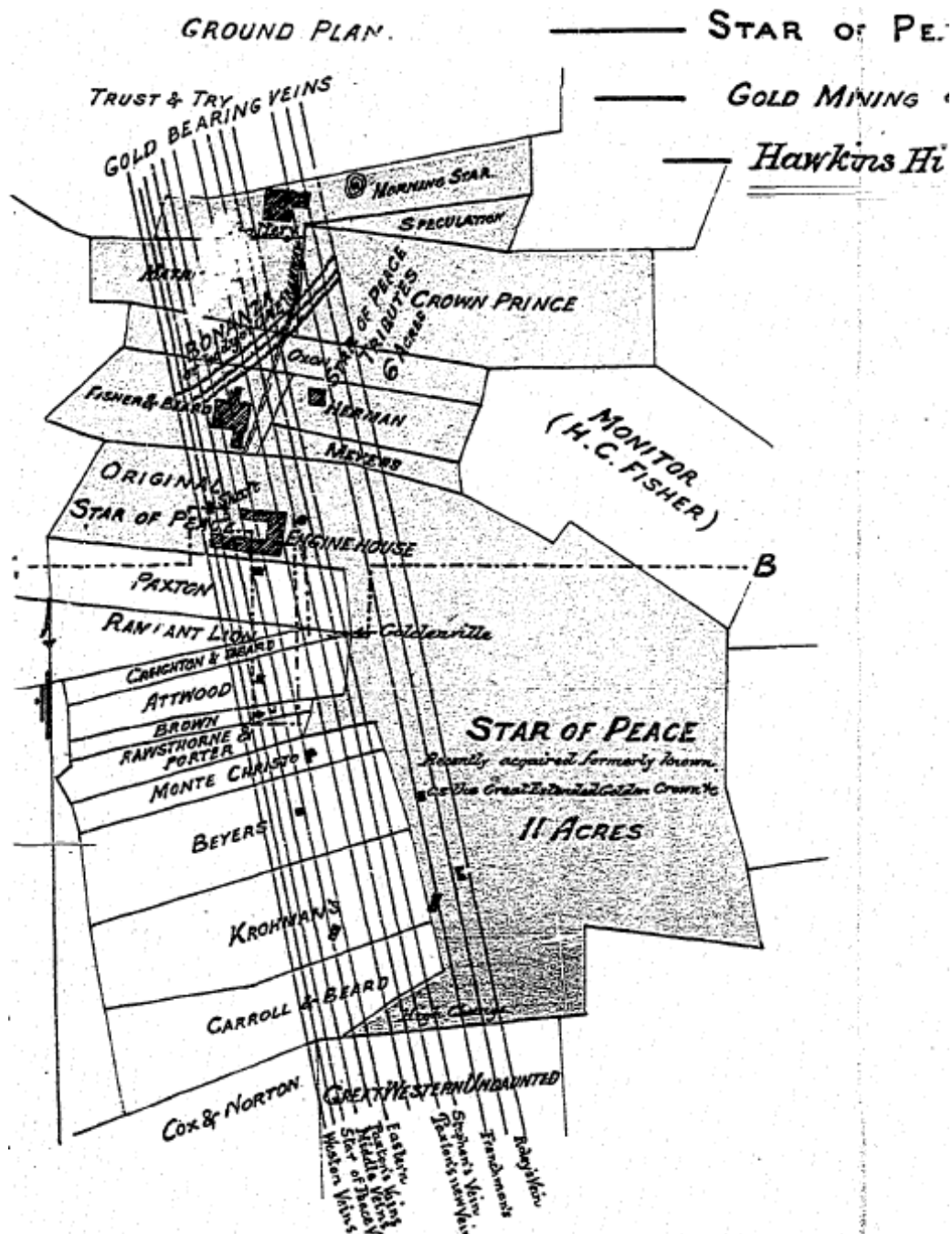
<sup>18</sup> Pittman, E.E., 1880. *The Star of Peace Gold Mining Limited, Hawkins Hill, Tambaroora*. Sydney, Jarrett & Co. p.17

<sup>19</sup> Pittman, E.E., 1880. *The Star of Peace Gold Mining Limited, Hawkins Hill, Tambaroora*. Sydney, Jarrett & Co. pp.3-6

<sup>20</sup> "Mining News Hawkins Hill Consolidated Co." in Evening News, The, 24 March 1882 p.3; "The Hawkins Hill Gold Mining Company" in Sydney Daily Telegraph 18 April 1882 p.3.



In the mid 1880s this company, headed by the Duke of Manchester, has been described as “very wealthy”. After a shaky start, the company focused operations on the Patriarch Shaft. Under the direction of a Colonel North the Patriarch Shaft was sunk to a depth of 500 feet and a W.H. Collins was brought out from England to oversee the excavation of Vickery’s Shaft to 1,080 feet.<sup>21</sup>



**Figure 5:** Hawkins Hill gold leases prepared in 1880. The darker shaded areas identify the parcels held and/or worked by the Star of Peace Company. These were located well south of Fairfax House. (Pittman, E.E., 1880. The Star of Peace Gold Mining Limited, Hawkins Hill, Tambaroora.)

The Hawkins Hill Consolidated Gold Mining Company quickly became embroiled in legal disputes over the sale of assets in England and by 1887, while these matters were before the Supreme Court of NSW, it was placed in

<sup>21</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.12

liquidation. These disputes dragged on into the 1890s and, despite the support of high-profile capitalists, the company was wound up in 1898.<sup>22</sup>

Around the time of liquidation of the Hawkins Hill Consolidated Gold Mining Company, the New South Wales Government moved to "... reserve from mining lease an area 1 mile long by ½ mile wide in the neighbourhood of Hill End. This was done in order to prevent claim holders from exploiting the ground at the expense of any company prepared to undertake a comprehensive prospecting scheme. This decision appears to have determined the character of mining on Hawkins Hill from the beginning of the 20<sup>th</sup> century.<sup>23</sup> According to Hodge, the 19<sup>th</sup> century ended with small operations on Hawkins Hill reprocessing mine tailings using the cyanide process.<sup>24</sup>

#### Early 20<sup>th</sup> Century developments 1900 to 1940

The year 1900 saw a revival of interest in the Hawkins Hill gold deposits. At this time proposals were made to drive a tunnel from the base of Hawkins Hill to the line of gold veins. This proposal received support from Government Geologist E.F. Pittman. In 1911 a prospectus was issued for Amalgamated Hill End Limited with a capital of £100,000 in 500,000 shares of four shillings each. Operations were commenced soon after and the company pursued "a vigorous development policy" over the next six years. According to Harry Hodge, Amalgamated Hill End initially sought access to Foster's Amalgamated Tunnel, but failure to reach agreement with the owners forced them to drive the new "Bottom" tunnel. The expenditure on this tunnel appears to have exhausted the company's capital and operations ceased in 1917.<sup>25</sup>

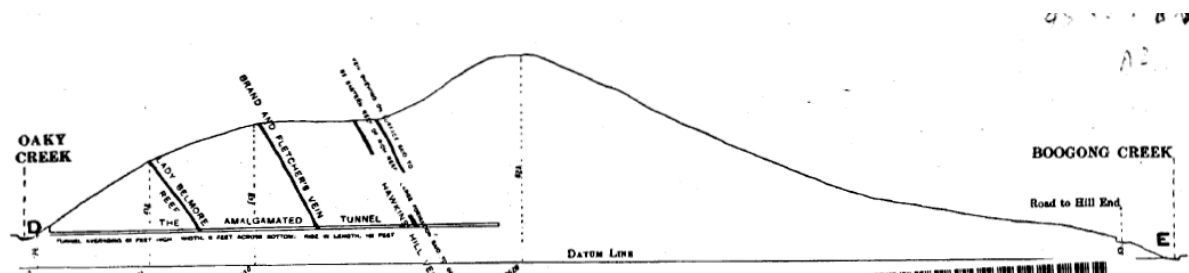


Figure 6: Section from Plan 1 in L.F. Harper's Mineral Resources No.27 The Hill End Tambaroora Gold-field showing the Amalgamated Tunnel. (Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field.)

The Hawkins Hill Reward Gold Mining Company was established in 1901 to take over William Marshall's holdings and operations on Hawkins Hill. William Marshall was one of the new company's directors. Leases covered by this arrangement were located at the northern end of Hawkins Hill. They included Tippetts, Royal Exchange, Great Western, Havilah, All Nations, Frenchman's, Main Lead, Great Northern Amalgamated, Niagara, Exhibition, Never Fail, Sons of Freedom, Holman's Paddock, Brilliant, Research, Royal Saxon, Locomotive, Duke of Edinburgh, Prince of Wales, and Robert Emmett. Marshall's Syndicate had been re-opening the Emmett and Hughes shaft and Exhibition Shaft. To its south were the leases of Rowley's Reef Syndicate, which was working leases along the centre of Hawkins Hill. These included Fisher and Beard's, Star of Peace, Paxton's, Hickson and Beard's, Monte Christo, Porter and Rawsthorne's, Brown's, The Rampant Lion, Krohmann's, Beyers and Holtermann's, and Carroll and Beard's.<sup>26</sup>

According to L.F. Harper this company operated from 1912 to 1918, "... when a reconstruction and amalgamation took place. The Hawkins Hill Central Gold-mining Company was formed in 1915 with a capital of £75,000 in 250,000 shares. This company focused on "driving the Amalgamated Tunnel through the property for dewatering purposes". Subsequent proposals included sinking a 500 foot-deep shaft a further 150 feet to connect with the Amalgamated Tunnel. In mid 1918, the Hawkins Hill Reward company amalgamated with the Golden Key. The resulting new company, Deep Levels Hawkin Mining Company, focused its attention on leases

<sup>22</sup> "Supreme Court – Hawkins Hill Consolidated Gold-Mining Company v Briscoe and Others" in Sydney Morning Herald 29 November 1887 p.4; "Hawkins Hill Consolidated Gold Mining Co. vs. Briscoe & Others" in Sydney Morning Herald, The 14 April 1892 p.7; Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.12

<sup>23</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.12

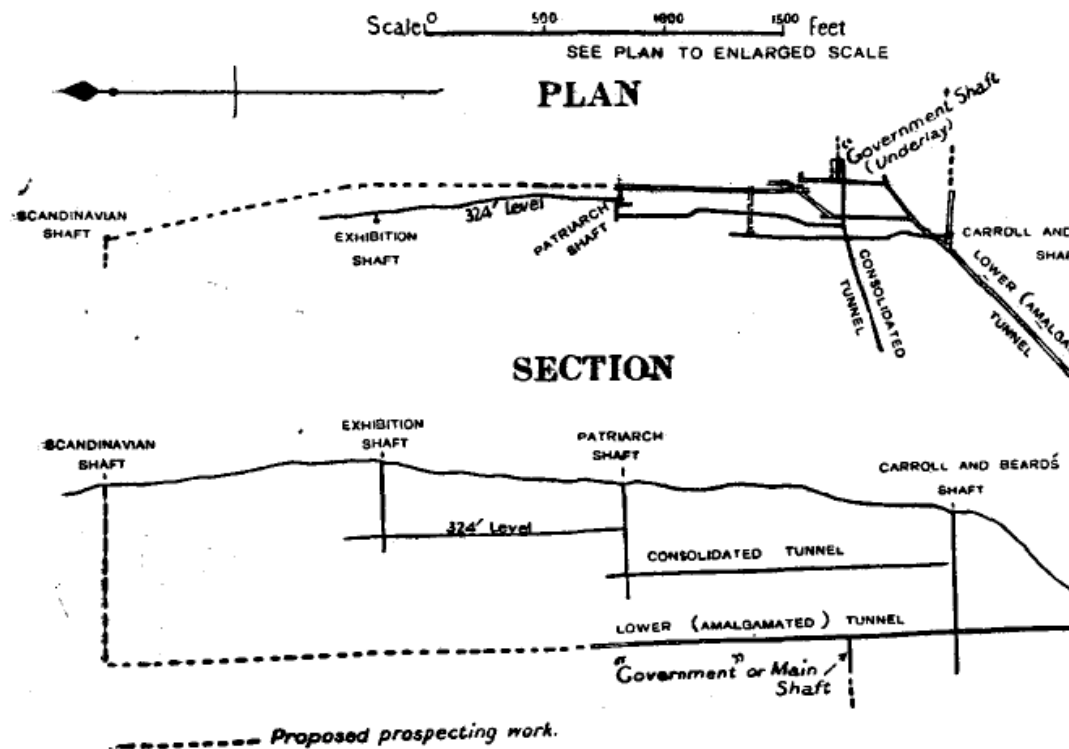
<sup>24</sup> Hodge, H., 1989. *The Hill End Story Book 2*. p.91

<sup>25</sup> Marshalls Gold Reward Hawkins Hill [Online]; Hodge, H., 1989. *The Hill End Story Book 2*. p.87

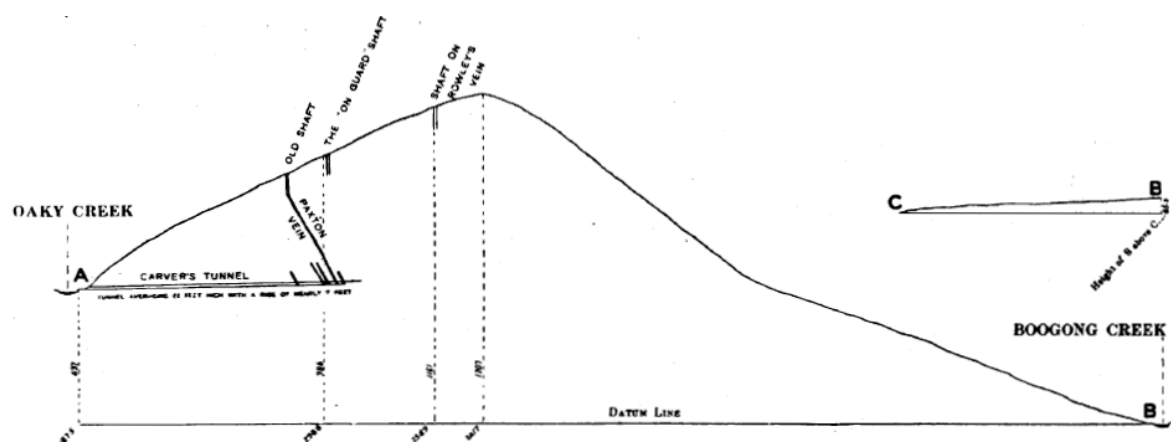
<sup>26</sup> Marshalls Gold Reward Hawkins Hill [Online]; Hodge, H., 1989. *The Hill End Story Book 2*. p.87

at the northern end of the Hawkins Hill veins, including the Scandinavian lease. It was proposed to extend the Scandinavian Shaft to a depth of 800 feet and drive a tunnel from there to the Amalgamated Tunnel.

In March 1918 the Amalgamated company sold its assets to Marshall's Hill End Gold Mines, which immediately began working the Amalgamated Tunnel "... north towards the Deep Levels Hawkins Hill Company's leases, through the Hawkins Hill Central Company's ground, and to prospecting the various reefs by cross-cuts". It was stated in 1918 that Marshalls intended "... to unwater the old Carroll and Beard's Shaft and cross-cuts and prospect the main veins 300 feet below the tunnel level".<sup>27</sup>



**Figure 7:** Plan & Section from Plan 2 in L.F. Harper's Mineral Resources No.27 The Hill End Tambaroora Gold-field, a 1918 proposal to link the Scandinavian Shaft with Carroll & Beard's Shaft. (Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. p.16)



**Figure 8:** Section from Plan 1 from L.F. Harper's Mineral Resources No.27 The Hill End Tambaroora Gold-field showing Carver's Tunnel. (Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field.)

<sup>27</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. pp.15-16

On 12 May 1931 A.J. Carver and W. Sack were granted approval to occupy the Rowley's Reef mine on GL320. They worked from a tunnel seeking various veins until 1934 with little success. In June 1934 A.E. Ackerman of Hill End wrote to the Under Secretary of the Mines Department advising that he and A. Haynes had been working through the Armstrong Tunnel since 1931 to access their workings. He sought permission to continue use of this tunnel. The tunnel was identified as occupying Gold Leases 322 and 425, which were on the old Rose of England Lease. Approval was granted the following month and this area was worked by Ackerman and subsequently W. Byrne as "The Grey Vein" until the leases were cancelled in 1940.<sup>28</sup>

The Consolidated syndicate appears to have been formed by Hill End locals in 1907 to work the former Brown's, Porter & Rawsthorne, Hurley & Morrison, Beyers & Holtermann, and Unicorn lease areas through an existing "tunnel from the creek bed". This syndicate operated a battery with eight stamps driven by a 10 horsepower engine. Hodge noted that, in 1933, the North Bismarck Lucknow Gold Mine N.L. took over the central Hawkins Hill leases with a plan to work the Consolidated Tunnel north from the Patriarch Shaft towards the Frenchman's Shaft. Boring was done using reciprocating machine drills. A Mines Department report of 1934 described the company's surface plant as:

This consists of two Colonial Type under fired boilers. These have been recently tested. A battery engine serving as a prime mover for an 18 head stamp battery, each stamp weighing eight cwts. The battery is equipped with amalgamating tables and 220 mesh screens but no necessary equipment for the making of a concentrate. A Roberts straight line air compressor and receiver is also included.<sup>29</sup>

#### Devon Gold N.L. 1950 to 1958

In 1949 Devon Gold N.L. took out multiple Gold Leases on Hawkins Hill. This company appears to have been established as an operating entity for various enterprises with interests in Hawkins Hill gold deposits. In 1950, Devon Gold "... bought out Cornish miners to work from the Consolidated Tunnel". During 1951 the company erected a change room and office on GL326 and commenced extensions to their stamper battery. A Tel Smith jaw crusher was in use, as well as a bucket elevator to a surge bin. Consulting Engineer Paul Jones asked the Department of Mines about the availability of Wilfley tables from West Wyalong or Hillgrove to assist with ore processing.

In 1952 Government Geologist H.J. Harrison described the venture in scathing terms:

The operation of the Devon Gold Mines from its inception could only be regarded as a speculative gamble. One of the objects of the company was "to test the Hawkins Hill reefs at depth". For some unexplained reason their capital has been expended on the Consolidated tunnel, 300 feet above the Amalgamated tunnel, and 450 feet above the deepest ground worked in the leases. When exploration on the reefs at the southern end of the leases proved uneconomic, ... None of the reefs encountered and stoped have proved payable.

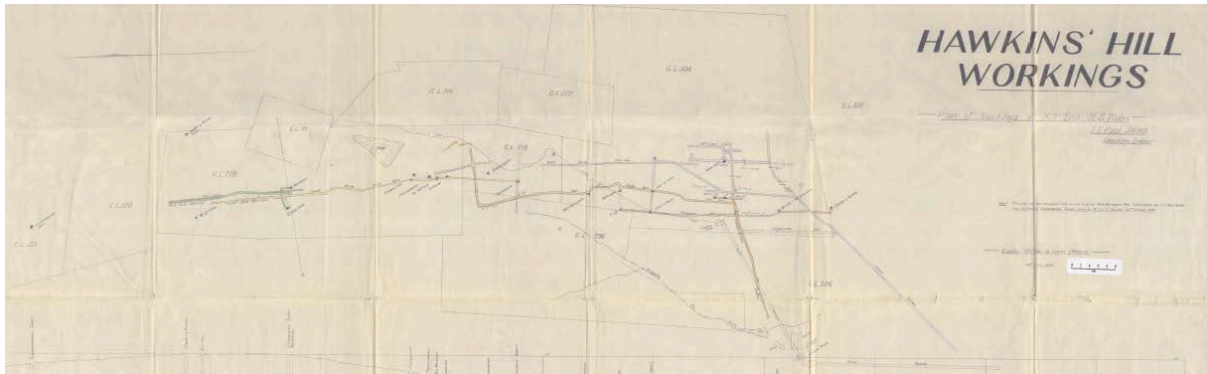
By September 1954 the company had overhauled mechanical plant and repaired the flying fox from Hawkins Hill. A double-drum lowering winch had been installed on the flying fox by April 1955. Some promising results were achieved during 1955-1956, however mining activity appears to have stalled in 1957. In that year it was reported that the Devon leases were being worked under tribute by "Messrs Woolard, Watson and O'Donnell". The company's leases were cancelled in 1958.<sup>30</sup>

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<sup>28</sup> Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field. pp.15-16

<sup>29</sup> Mine Record MR2728 Hawkins Hill Group of Mines [Online]; Hodge, H., 1989. *The Hill End Story Book 2*. p.88

<sup>30</sup> Government Gazette of the State of New South Wales 13.1.1953 [Online]; Mine Record MR2728 Hawkins Hill Group of Mines [Online]; Hodge, H., 1989. *The Hill End Story Book 2*. p.88



**Figure 9:** Part of a 1950 Plan of the Hawkins Hill Workings of Devon Gold N.L. (Marshall's Gold Reward Hawkins Hill [Online])

### Regional Historic Theme: Vernacular towns serving a specific industry

The following brief account of the history of Hill End has been adopted from the NSW State Heritage Register listing of the village:

Payable gold was discovered in the Tambaroora and Hill End goldfields by mid 1851, following discoveries in the region in previous months. Shortly afterwards the population exploded and, for a while, the area exceeded the Victorian fields in size and prosperity. Early efforts were focussed on alluvial gold and the towns of Hill End and Tambaroora grew up around the creeks and dams worked for that purpose.

In 1859, with the imposition of an urban plan for Hill End, the town grew in a more orderly fashion and by the height of the second, larger rush in 1872, it was the largest inland settlement in the colony of New South Wales. In the latter part of the century, however, the population dwindled with the exhaustion of the major reefs in the area. Today the population stands at about one hundred and twenty, a stark contrast from the estimated 8,000 during its peak.

The discovery of alluvial gold, readily recoverable from the clay beds of creeks and dams, brought large numbers of individual, inexperienced prospectors to the Tambaroora area. The inexpensive and often simplistic equipment needed to extract the gold was well suited to both the skills and capital such individuals possessed. A good living could be made by the self-employed miner. This ensured an ever-changing stream of immigrants and locals moving in and out of the goldfields from the cities. Few miners remained to settle in the areas where they made their fortune, a tendency indicated by the small percentage of families present on many of the major fields and the sharp falls in population during times of drought or when the gold supply itself began to run out. By the late 1860s reef exploitation had emerged as the most popular and profitable method of mining, acting as the catalyst for the second, larger gold rush of the 1870s, when Hill End reached its peak in size and prosperity. (NPWS 1997: 13-15)

Public interest in Hill End resumed in the 1940s due largely to the work of several artists including Donald Friend and Russell Drysdale. The discovery in the 1950s of hundreds of photographic plates depicting scenes and buildings in the Hill End in the early 1870s captured by Beaufoy Merlin, further boosted interest along with the extensive Holtermann photographic collection. The town was gazetted as an historic site under the National Parks and Wildlife Act in 1967.<sup>31</sup>

In his historical landscape interpretation commissioned by the National Parks & Wildlife Service Mayne identified eight social landscapes which are relevant to an understanding of the entire story of human involvement in the Hill End district. These landscapes are:

- Wiradjuri possession
- Pastoralism
- The first gold boom: alluvial mining, 1851-70
- The second gold boom: reef mining, 1871-74

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<sup>31</sup> NSW Heritage Office, 2002.



- The third gold boom, 1908-24
- Poor man's diggings
- Artist colony, 1947-2002
- Historic site, 1967-2002<sup>32</sup>

Mayne contends that for much of its history since European settlement Hill End has been sustained by ongoing pastoralism and subsistence mining activity. His account of the story of Hill End presents these activities as being punctuated by the gold mining booms and indicates that they have been major forces in determining the character of the community and its landscape. He concludes that:

“The scatter of heritage sites and artefacts across the slopes and gullies, the arresting quality of the paintings produced here, the folklore, and multiplicity of quirky details about everyday life that emerge from Holtermann's boom time photographs and from the court records of the poor man's diggings all give use clues as to what an extraordinarily rich place this landscape undoubtedly is. Hill End's significance does not depend on its uniqueness, and whether or not it produced the biggest nugget, the largest gold rush population, or the most famous painting. It rests in part on the representative qualities of a landscape which encapsulates many of the important historical elements of regional Australia. It rests as well on the strangely varied impact which this landscape has made on the human imagination.<sup>33</sup>

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<sup>32</sup> Mayne, A., 2003.Hill End – An Historic Australian Goldfields Landscape, p.53

<sup>33</sup> Mayne, A., 2003.Hill End – An Historic Australian Goldfields Landscape, pp.139-140

## Physical evidence

Pearson and McGowan's guidelines for assessing the heritage values of mining places suggest the following characteristic elements associated with reef mining of gold:

- Mine Workings, including;
  - Vertical shafts or inclines - "Shafts were often shored up with timber collars to prevent collapse. ... The internal workings of many reef mines ... were often very complex."
  - Stopes – The ground between drives from which ore was taken. Stopes were supported by complex timber structures.
  - Equipment to raise gold ore and assist with drainage – This included windlasses, post and pulley, tripod hoists, horse driven whims. Deep mines often had winding engines and pumping equipment powered by steam boilers.
- Processing sites, including;
  - Stamper batteries and associated driving equipment, and ore feeders.
  - Other crushing machinery, including crushers and Cornish rolls or ball mills, if relevant. Concentrating equipment, buddles etc.
  - Cyanide processing equipment such as vats and tailing heaps.
- Habitations, including;
  - Isolated huts or groups of huts,
  - Ovens or forges.

In his 1989 study Don Godden concluded: "The only remains from this early period in the area under study are the shafts and mullock heaps, the retaining walls, two small weirs on Nuggetty Gully water course, the foundations of several buildings and their chimneys and one stamping battery platform. Over 100 years of salvage operations, bushfires and ongoing mining activity has greatly depleted the record. However, the remaining material which can best be described as a reef gold shaft mining landscape together with the available documentary evidence is an extraordinarily significant cultural relic."<sup>34</sup>

Relics present on Hawkins Hill are discussed in the following sections. This discussion includes observations made by Don Godden in 1989.

### Shafts

Hawkins Hill is strewn with mine shafts. As noted by Don Godden in 1989, almost all are vertical, having been sunk directly into the lines of granite bearing gold reefs. Shafts are present on the northern Royal Saxon lease area around Fairfax Cottage in the Village of Hill End, but most were sunk along the western side of Hawkins Hill. Godden noted that:

"Shafts which were below the original main access road, such as the Matheson, Fischer, Herman and Star of Peace, simply tipped their mullock into the gully. Those on the top of the ridge such as Monitor and Rose of Australia spread mullock around the shaft while those immediately above the road were forced to build retaining walls to prevent their mullock spilling onto the road and the claims immediately below them.

Several of the shafts are deep and show evidence of having been worked probably in the 1940s or 1950s while others are simply circular mounds of earth surrounding a collapsed and filled shaft. Many shafts are overgrown with vegetation. The most significant feature of this area is the clustering of the shafts and the mullock heaps which indicates the small area of the original individual leases, the amount of material brought out after using hand power only and the type of material excavated."<sup>35</sup>

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<sup>34</sup> Don Godden & Associates Pty Ltd, 1989. Hawkins Hill Hill End. Assessment of Mining Relics. pp.4-5

<sup>35</sup> Don Godden & Associates Pty Ltd, 1989. Hawkins Hill Hill End. Assessment of Mining Relics. p.6

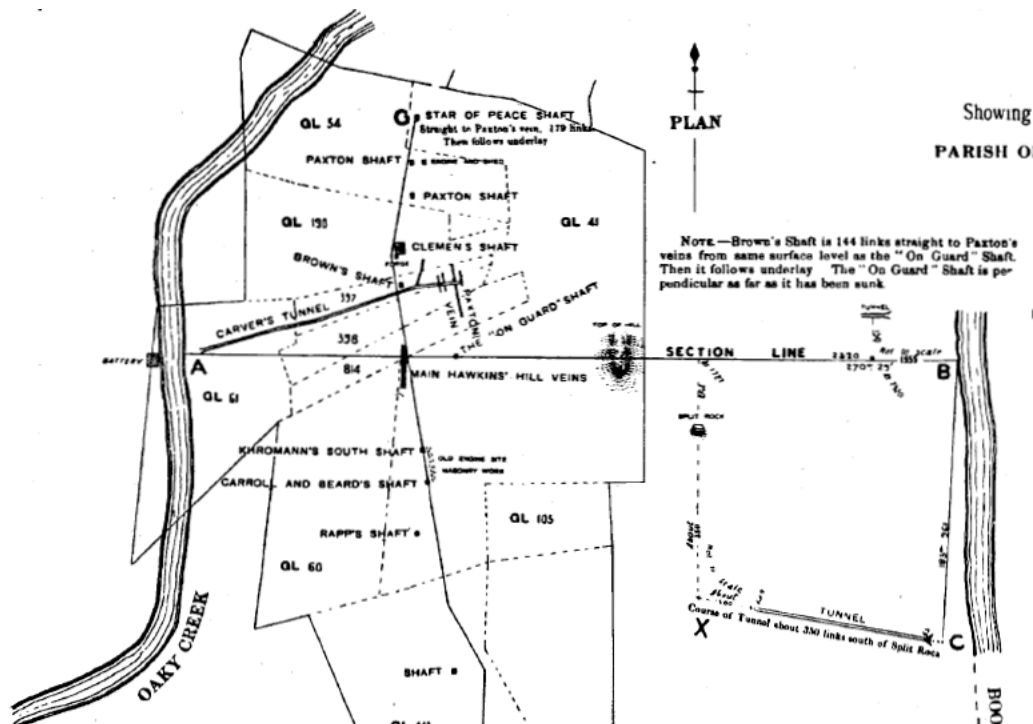


Figure 10: Part of Plan 1 from L.F. Harper's Mineral Resources No. 27 The Hill End Tambaroora Gold-field showing the location of shafts described in this section. (Harper, L.F., 1918. Mineral Resources 27 The Hill End Tambaroora Gold-field.)

### Pithead works

Reef mining at Hill End in the 1870s was generally characterised by minimal capital investment and most shafts were worked with hand worked winding equipment. According to Godden: "The only headframes which exist on the hill are the Patriarch and Cornish Shafts. Both headframes and headworks are relatively modern.<sup>36</sup> Neither is present in 2023. The pithead works recorded for this study are described from north to south in the following sections.

### Beyers & Holtermann's Star of Hope

The Star of Hope was described by Harry Hodge as "... the most famous on the field". The site of the shaft has been buried by an '... avalanche of rubble from the 'On Guard' claim above it'. This claim "... was worked intermittently from 1866 onwards by its partners ...". In October 1872 a shot revealed "... a wall of gold over two metres high, and a monster specimen of gold and slate was blasted from this face". This was the famous Holtermann Nugget. According to Hodge, the mine worked until 1879 when it was absorbed into an amalgamation of the Krohmann, and Carroll and Beard leases.<sup>37</sup> The retaining walls in this area appear to be in good condition for their age.

<sup>36</sup> Don Godden & Associates Pty Ltd, 1989. Hawkins Hill Hill End. Assessment of Mining Relics. p.7

<sup>37</sup> Hodge, H., 1989. *The Hill End Story Book 2*. pp.61-62





View from above the area of Krohmann's South Shaft towards Beyer's and Holtermann's Star of Hope headworks. (Ray Christison 16.8.2023)

### Krohmann's South Shaft (The Jewellers Shop)

Hodge noted that "Johann Krohmann worked his claim steadily from 1866 onward, financing the first sinking by means of his garden and wine agency. By 1870 he was already a fairly rich man". In 1872 he sold his share in the claim and returned to his native Hesse Darmstadt (Budenheim). "Despite the greater fame of its neighbour, Krohmann's was the richest claim on the field."<sup>38</sup> This shaft site is backed by stone rubble retaining walls. There is extensive evidence of tree growth and collapse.



View towards stone walls associated with Krohmann's South Shaft. (Ray Christison 16.8.2023)

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<sup>38</sup> Hodge, H., 1989. *The Hill End Story Book 2*. pp.62-63; Purcell, L., 2006. Hill End & Tambaroora Pioneer Register to 1920. p.76





Krohmann's South Shaft area looking north.  
(Richard Shaw)

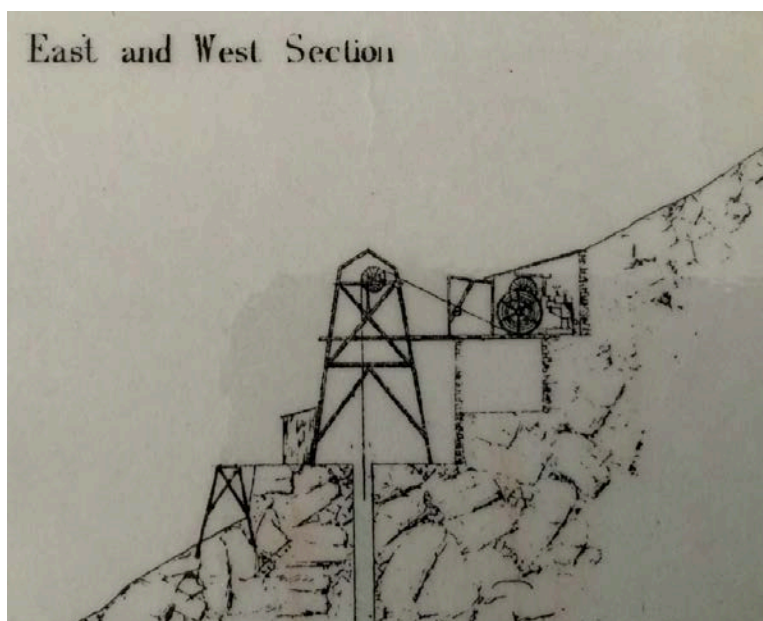


Krohmann's South Shaft area looking south.  
(Richard Shaw)

### Carroll & Beard's

This claim, originally named "Nil Desperandum", was worked from 1870. It was one of a number of claims that attracted investment from Harriett Beard, "matriarch of Tambaroora", who had successfully operated businesses in the alluvial mining town from the early days of the gold field. It is recalled that, when Harriett left Tambaroora in 1872, she burnt all of her books of account, "thus cancelling the indebtedness of scores of down-in-their-luck miners". She also distributed her remaining trading stock to the needy in the community.<sup>39</sup> She retired to live in Wynyard Square and subsequently Elizabeth Bay in Sydney.<sup>40</sup> The Carroll & Beard initially passed through an extremely rich area, which was exhausted by late 1873. Working continued until 1878 and the Carroll & Beard lease was amalgamated with Beyers & Holtermann's and Krohmann's in 1879, under Krohmann's GMC. The high levels of capital investment in the mine are reflected in the scale and complexity of its surface area.<sup>41</sup>

The works associated with Carroll & Beard's Shaft are the most substantial on Hawkins Hill. This shaft was wound by a steam driven winding engine with a haulage cable strung over a sheave mounted on a wooden poppet head. The winding gear was mounted on a massive set of stacked rubble walls. These walls have experienced partial collapse resulting from root invasion, tree-fall and failure of ground drainage. Every effort should be made to ensure the stability of the surviving walls and integrity of the place.



Parrott's c.1878 sketch of the  
Carroll & Beard's shaft head  
winding arrangements.  
(Courtesy Richard Shaw)

<sup>39</sup> Hodge, H., 1989. *The Hill End Story Book 2*. p.63; Hodge, H., 2004. *The Hill End Story*. p.131

<sup>40</sup> Christison, R., 2007. Village of Tambaroora Landscape Management Plan

<sup>41</sup> Hodge, H., 1989. *The Hill End Story Book 2*. pp.63-64





Substantial stacked rubble walls that once supported the winding gear and shaft head works of Carroll & Beard's Shaft. These walls have suffered partial collapse. (Ray Christison 16.8.2023)



Winding engine footings above Carroll & Beard's Shaft. (Ray Christison 16.8.2023)



Geofabric laid across the top of the Carroll & Beard walls to assist in controlling erosion. (Ray Christison 16.8.2023)

### Rapps' Shaft

According to Harry Hodge, brothers Henry, Jacob and John Rapp entered into a partnership with Sebastian Bierschenk to mine a small lease adjacent to Carroll and Beard's. They worked the claim with a shaft and tunnel. The partners apparently obtained a rich reward from their claim and sold their interests in 1872 before returning to Germany. The lease was subsequently worked by a company that had been floated in 1872. During the 1930s a group of tributes worked over the lease and were lucky to strike a pocket of gold missed by the early partnership and company.<sup>42</sup> Haulage in Rapps' Shaft was undertaken by horse whim, which can be seen in Merlin's 1872 photograph of Hawkins Hill. This photograph shows the shaft and whim roofed with an

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<sup>42</sup> Hodge, H., 1989. *The Hill End Story Book 2*. p.64



un-milled timber structure clad in bark. The mining site is backed by substantial coursed stone rubble walls, which are in fair condition for their age and location. The location of the horse whim is clearly discernible.



View across the location of Rapp's Shaft showing the levelled area south of the horse whim. (Ray Christison 16.8.2023)



Stacked rubble walls with Rapp's Shaft in the foreground. The horse whim site is on the right. (Ray Christison 16.8.2023)



Rapps' Shaft and the horse whim area adjacent to the shaft. (Ray Christison 16.8.2023)



### Beard and Tallentyre Tunnel

A small tunnel is located beside the road leading to the Amalgamated Tunnel. It has been estimated that this was associated with the mining lease operated under the ownership of Jacob Tallentyre and Harriett Beard from 1867 until 1877.<sup>43</sup>



Adit to the tunnel believed to be associated with the Beard & Tallentyre mine. (Ray Christison 16.8.2023)

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<sup>43</sup> Hodge, H., 1989. *The Hill End Story Book 2*. p.66



### Carvers'/Consolidated Tunnel

This tunnel appears to have first been developed by the Hawkins Hill Consolidated Gold Mining Company in the 1880s. After the failure of this company it appears to have been used by others, including Albert Carver and Devon Gold N.L. to access various older workings and gold bearing veins. The tunnel entrance appears to be in fair condition for its age.



Carver's/Consolidated Tunnel.  
(Ray Christison 16.8.2023)

### Amalgamated Tunnel

The Amalgamated Tunnel is the deepest tunnel on Hawkins Hill, having been opened by Hill End Amalgamated Limited from about 1911. It was subsequently worked by Marshall Brothers. In more recent decades it was used as an access by Hill End Gold and is currently the site of operations of Vertex Minerals. The tunnel entrance appears to be in fair condition for its age.



Amalgamated Tunnel. (Ray Christison 16.8.2023)

### Mullock heaps

Mullock heaps are generally located close to shafts. Don Godden noted placement of mullock around the shaft head assists in preventing ingress of rainwater. Don Godden noted that, on Hawkins Hill: "Many shafts are now no more than depressions surrounded by a circular mound. These appear to be the shafts from the earliest



phases of mining and are found slightly away from the main strike. They indicate shafts which were quickly worked out. The mullock was initially well broken and over the last century has allowed revegetation.”<sup>44</sup>

The western face of Hawkins Hill below the Golden Quarter Mile is strewn with extensive cascades of stone mullock. This is a significant feature of the mining area.



View of mullock strewn down the hillside north of the flying fox.  
(Ray Christison 16.8.2023)

### Flying Fox (Aerial Ropeway)

It appears that a flying fox was erected on Hawkins Hill in the early decades of the 20<sup>th</sup> century. In 1989 Don Godden described it as follows:

“The flying fox dates from early this century. It is a double suspension cable running from a point about one fifth the way down the slope to the bottom of the gully. Initially it was used to take mine timbers to the mine in the gully and to bring out small loads. The two suspended cradles were joined by a continuous rope which passed around sheaves on the top and bottom headframes so that the loaded cradle brought the unloaded one up.

Later, the flying fox headframes were reinforced and a winch was established above the top headframe. Ore was brought from the mines to the ridge for processing. The winch is of a relatively modern design and presumed to date from post WWII days.”<sup>45</sup>

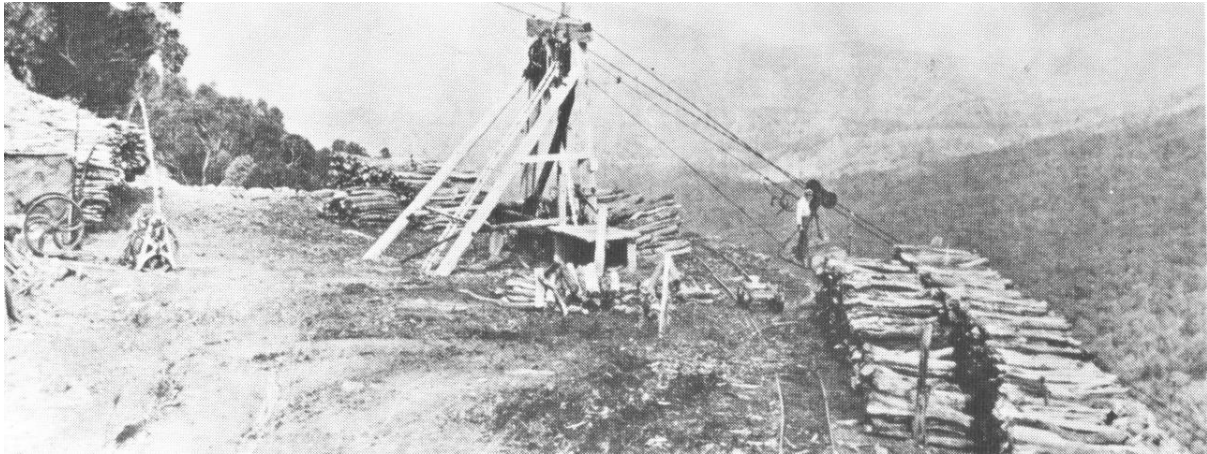
It is believed locally that the flying fox was constructed in 1910-1911. Department of Mines reports indicate that the winch was installed, and frame strengthened by Devon Gold N.L. in 1955.<sup>46</sup> Vertex Minerals have recently conducted stabilisation works on the headframe.

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<sup>44</sup> Don Godden & Associates Pty Ltd, 1989. Hawkins Hill Hill End. Assessment of Mining Relics. pp.6-7

<sup>45</sup> Don Godden & Associates Pty Ltd, 1989. Hawkins Hill Hill End. Assessment of Mining Relics. p.8

<sup>46</sup> Government Gazette of the State of New South Wales 13.1.1953 [Online]; Mine Record MR2728 Hawkins Hill Group of Mines [Online]; Hodge, H., 1989. *The Hill End Story Book 2*. p.88



The original flying fox on Hawkins Hill c.1918. It is believed that this structure was burnt out in 1925 and subsequently replaced. (Geological Survey of New South Wales)



Riding the flying fox boat in 1953 (H.E. Hocking Photograph Helen Wood Family Collection)



**Figure 11:** Detail from a 1950 Plan of Workings at Hill End N.S. Wales prepared by J.T. Paul Jones. This shows the line of the aerial ropeway from Hawkins Hill to the Consolidated stamper in Nuggetty Gully. A second aerial ropeway ran along the side of Prince Alfred Hill. (Marshall's Gold Reward Hawkins Hill [Online])





The flying fox headframe photographed on 16 August 2023. (Ray Christison 16.8.2023)

### Boilers & pressure vessels

In 1989 Don Godden noted two boilers on Hawkins Hill:

- A Cornish boiler dating from the 19<sup>th</sup> century. This was located on the lower road in Patriarch Shaft lease area.
- A firetube boiler located “some 60m ... north of the flying fox winch. Because it is also of a relatively recent design it is believed it supplied steam to the winch”.<sup>47</sup>

The current study noted the following boilers:

- A Cornish Boiler located adjacent to the mining lease access road near the top dam. This boiler apparently fell from a horse-drawn dray during an attempted removal and has not moved since.
- The firetube boiler noted by Godden in 1989. This boiler was possibly brought to the site by Devon Gold N.L. in the 1950s.
- Colonial boilers in the Consolidated Battery complex.



Tube boiler located above the Flying Fox site. (Ray Christison 16.8.2023)

A large rivetted compressed air receiver was also noted near the Beard and Tallentyre adit. This vessel appears to have been dumped in this area. Its provenance is unclear.

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<sup>47</sup> Don Godden & Associates Pty Ltd, 1989. Hawkins Hill Hill End. Assessment of Mining Relics. p.9





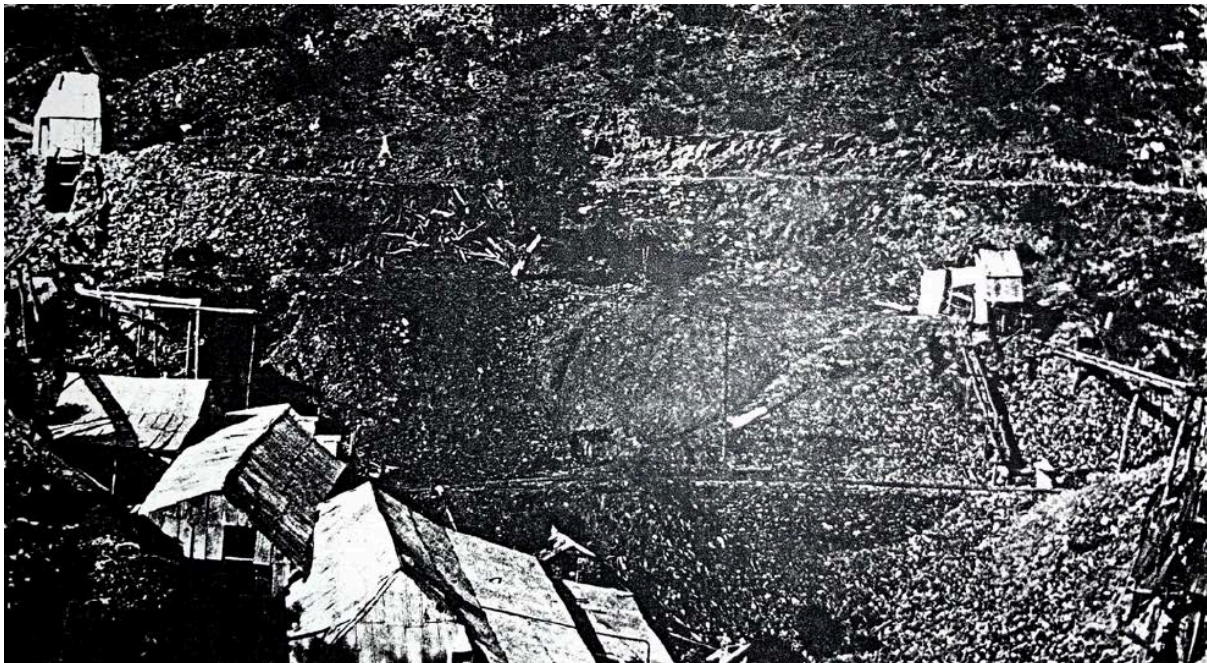
Compressed air receiver. (Ray Christison 16.8.2023)

### Stamping battery sites

Don Godden noted in 1989: "There were at least 10 stamping battery sites in the immediate vicinity of Hawkins Hill and there were probably three in the area being studied. Subsequent working of the tailings by cyanate (cyanide) and chlorination processes has removed most of the surface evidence of the batteries. The buildings and machinery had been stripped out decades previously. Evidence of fines was found near the remains of a hut and chimney which are close to the Crown Prince Shaft. However they were not extensive and no other remains were found.

### Star of Peace Stamper Battery

The largest battery site is almost due south of the Patriarch Shaft. Here a battery was built on a platform partially excavated and partially built up behind a rock retaining wall. The platform has the footings of a small building and several pieces of scattered ferrous metal including two cast anvils from a battery on its surface. It is likely that much more evidence would be found if a thorough search was undertaken. It is assumed that this battery is the Star of Peace battery."<sup>48</sup> This battery site was not inspected during the current study.



The Star of Peace stamper battery photographed in 1880. (Department of Mineral Resources)

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<sup>48</sup> Don Godden & Associates Pty Ltd, 1989. Hawkins Hill Hill End. Assessment of Mining Relics. p.7



### Consolidated Battery

This battery is located in Nuggetty Gully west of the Consolidated Tunnel. According to Harry Hodge, it was constructed by the Amalgamated Hill End Company and subsequently served a number of mining operations. A 1934 Department of Mines report described the battery as follows:

This consists of two Colonial Type under fired boilers. These have been recently tested. A battery engine serving as a prime mover for an 18 head stamp battery, each stamp weighing eight cwts. The battery is equipped with amalgamating tables and 220 mesh screens but no necessary equipment for the making of a concentrate. A Roberts straight line air compressor and receiver is also included.<sup>49</sup>

Plans prepared for Devon Gold N.L. show landing stages for two flying foxes just above the battery. During 1951 Devon Gold N.L. erected a change room and office on GL326 and commenced extensions to the stamper battery. They introduced a Telsmith jaw crusher and began a search for a Wiffley table from West Wyalong or Hillgrove to assist with gold processing.<sup>50</sup> The plant appears to have been abandoned after the failure of Devon Gold in 1958 and by the early 1970s it had been partially buried by mullock washed down the gully.



The Consolidated Battery photographed in 1951. (Neil Andersen Scrapbook – Hill End & Tambaroora Gathering Group collection)



Ruins of the Consolidated Battery photographed in 1973. (Courtesy Richard Shaw)

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<sup>49</sup> Mine Record MR2728 Hawkins Hill Group of Mines [Online]; Hodge, H., 1989. *The Hill End Story Book 2*. p.88

<sup>50</sup> Government Gazette of the State of New South Wales 13.1.1953 [Online]; Mine Record MR2728 Hawkins Hill Group of Mines [Online]; Hodge, H., 1989. *The Hill End Story Book 2*. p.88





The Consolidated Battery photographed from the north-east. (Ray Christison 16.8.2023)



The Consolidated Battery stampers. (Ray Christison 16.8.2023)



Colonial boilers & the original 12hp steam engine. (Ray Christison 16.8.2023)



Twin Crossley steam engines & a small kerosene engine. (Ray Christison 16.8.2023)



A Fraser Brothers ship tank. This possibly served as a water tank for the boilers. (Ray Christison 16.8.2023)

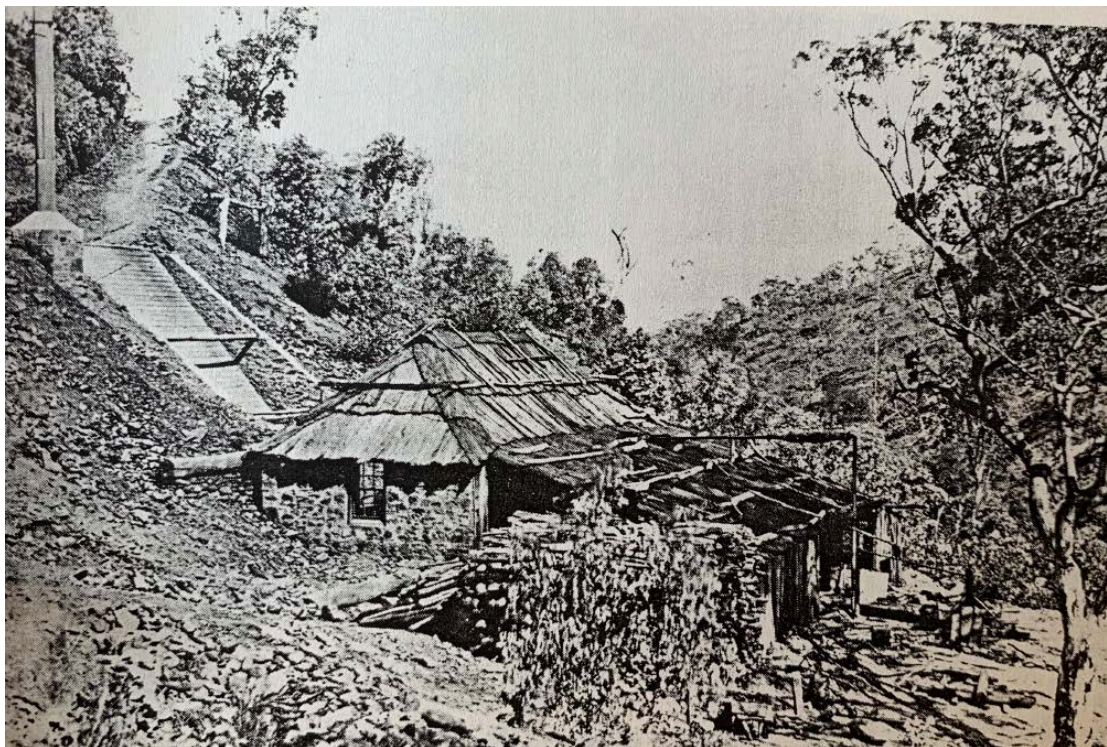
The battery appears to be generally complete. All former sheltering structures have been demolished with little evidence remaining and the site is partially buried in mullock and erosion materials that have washed down the gully. Various elements of mine cars and other paraphernalia are scattered around the site. There is still evidence of the landing stages for the flying foxes.



### Price's/Petersen's "Sir Hercules" Battery

According to Harry Hodge this battery was built in the bed of Nuggetty Gully in 1871. "Peterson installed a tramway to its twelve-head machine in order to compete with Chappell. It (the tramway) extended as far north as Fisher and Beard's, the system being based on gravity. A full truck going downhill to the battery pulled the empties up." The stamper's boiler was removed early in the 20<sup>th</sup> century and relocated to Sunny Corner.<sup>51</sup>

This battery is located on Nuggetty Gully at the lowest point of the Hawkins Hill workings, directly below the Rose of England lease area and close to the Amalgamated Tunnel. It is noted on early mining plans as Price's Battery. Plans show a dam located below the battery. The battery was constructed in stone rubble with a hipped roof clad in bark. A stone-walled extension had a bark-clad skillion roof. In true Cornish fashion a chimney flue was constructed up the slope of the hill. This flue, constructed in stone rubble, led to a brick and stone chimney base that supported a steel or cast iron flue. The brick chimney base and sections of stone walls mark the location of the battery. These features are located between two access roads currently used by Vertex Minerals.



Price's Battery photographed by A&APhotographic Company in 1872. (Holtermann Collection)



Ruins of Price's/Petersen's Battery. (Ray Christison 16.8.2023)

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<sup>51</sup> Hodge, H., 1989. *The Hill End Story Book 2*. p.91





Brick & stone chimney base of Price's/Petersen's Battery. (Ray Christison 16.8.2023)



## Assessment of Cultural Significance

### Comparative analysis

A search of the New South Wales State Heritage Inventory reveals a total of 126 places described as a mine site. Only five reef mining sites are listed on the New South Wales State Heritage Register. The SHR listed sites are briefly described in the following sections.

#### Bald Hill Mine, Hill End

The Bald Hill Mine comprises a shaft and tunnel arrangement that are typical of Hill End reef mining. These workings were opened by the Bald Hill Company between 1872 and 1874. The mine struck a number of veins, none of which contained any trace of gold, and the workings were abandoned. In more recent years the mine has operated as a tourist mine, providing the public with the opportunity to view a 19<sup>th</sup> century gold mine opened using the hammer and tap method of mining.

Bald Hill Mine is of State Significance, as it is included in the Hill End Historic Site. The author prepared a Conservation Management Strategy for the place in 2005, however backup files have become corrupted and were not accessible for reference in the current study. Regardless, the mine provides a rare opportunity to interpret the internal workings of 19<sup>th</sup> century reef gold mines.

#### Fairfax House (including the Royal Saxon and Locomotive workings), Hill End

It is the firm belief of the author that, during the 1870s, Fairfax House served as the Hill End office of the Star of Peace Gold Mining Company Limited and may have also been an office for the Hawkins Hill Consolidated Gold Mining Company. The site contains the shafts of the Royal Saxon Mine and mullock heaps associated with the Royal Saxon and Locomotive workings. These shafts were worked in the late 19<sup>th</sup> and early 20<sup>th</sup> century by Benjamin Carver and subsequently his son Albert Carver. These sites are included within the Hill End Historic Site. In 2005 the author prepared a Statement of heritage Impact as follows:

Fairfax House is part of the fabric of the historic village of Hill End. As such it is one of the surviving manifestations of the story of this goldfields community. As an element of the village of the place retains clear associations with the events and forces which shaped the growth and decline of many gold mining regions. Fairfax House is a good example of a building constructed using vernacular methods, and later extended to a reasonably high standard during a time of economic boom. The brick section of the building is an attractive manifestation of the changing fortunes of a mining community. Fairfax House is representative of the lives of families that comprised the community of Hill End over an extended period. The house and its grounds have the potential to provide information about structures built within a 19<sup>th</sup> Century mining landscape. The potential of the property to provide information has been partly compromised by reconstruction activities and new building works. Fairfax House is a rare surviving example of a brick structure, which may be directly associated with gold mining activity in Hill End. Its location within the Hill End Historic Site provides a clear opportunity for its conservation into the future. Fairfax House is a representative of dwellings constructed in New South Wales during the 19<sup>th</sup> Century.

#### Valentine Mine, Tambaroora

The Valentine Mine is located north of Tambaroora in the area known as The Dirtholes, close to the location of the first reef mining in New South Wales. The mine was worked from the 1960s and was last active in 1923. It contains relatively intact and partially reconstructed elements of a reef mining site, including:

- Wooden poppet head and shaft collar – These are modern reconstructions, completed in 1994.
- Visible underground stopes,
- Mullock heaps,
- Stamper battery – This appears to have been reconstructed from gathered components,
- Cyanide Plant,
- Remnant stamper battery footing,
- Engine house base,
- Hut site,

- Dam.

The site is included in the State Heritage Register by virtue of its location within the Hill End Historic Site. In 2006 the author prepared a Statement of Significance for the site:

The Valentine Mine is representative of at least four periods of gold mining in Hill End and Tambaroora and demonstrates evidence of the application of a number of mining processes. The mine retains associations with gold mining in the Hill End district and also has direct associations to Enoch Goodwin who featured prominently in the Hill End community in the mid 20<sup>th</sup> century. It retains a range of features associated with shaft mining sites, and with secondary processing of mine waste. These features present a rare relatively intact assemblage of shaft mining processes. The place has associations with various phases of gold mining in the Hill End district, including boom era mining and subsistence mining operations of the 20<sup>th</sup> century. It is also one of the few coherent mining sites available for public visitation. It has the potential to provide information on late 19<sup>th</sup> and early 20<sup>th</sup> century shaft mining techniques and on small 20<sup>th</sup> century cyanide treatment operations. The site also retains an intact stamper battery with components manufactured as early as 1871. The Valentine Mine site is one very few remaining gold mine leases within the Hill End-Tambaroora gold field with intact infrastructure including a stamper battery and cyanide treatment plant. Its situation within the Hill End Historic Site provides a clear opportunity for its conservation into the future. It is representative of the many 19<sup>th</sup> and 20<sup>th</sup> century reef mining operations on the Hill End-Tambaroora gold field. The Valentine Mine has state Historical and Technical/Research Significance, Rarity and Representativeness, and local Historical Association, Aesthetic and Social Significance.

#### The Wentworth and Reform Mines, Lucknow

The Wentworth and Reform Mines, at Lucknow near Orange, are the only reef mining gold site listed on the State Heritage Register. They are included in a combined listing. The Statement of Significance for The Wentworth and Reform Mines is as follows:

The Wentworth and Reform Mines are of state heritage significance as together the sites form relatively intact representations of the central west's gold mining history. The central west was the most productive gold mining area in NSW during the gold rush era. These sites are rare due to the intactness of buildings and significant associated with their prominence as significant and prominent landmarks and representing the cultural heritage association with Lucknow's mining past. Overall the sites represent a compact and intact example of late 19th century and early 20th century gold mining. The presence of the intact stamper battery building, and its associated infrastructure is a rare example of its type remaining in situ in NSW. (SHR 5056732)

These sites, particularly the Wentworth Mine, retain a high degree of integrity, with mine buildings still standing and well managed, an intact stamper battery and concentrating plant, a poppet head, winding engine and de-watering equipment all intact. The Wentworth Mine provides an exemplar for conservation and management of a reef gold mining site.

Regardless, the Lucknow gold field is unusual in New South Wales. It was characterised by "... extremely rich deposits of gold ... distributed along the field. These deposits were called 'Bonanzas'. They '... were separated both horizontally and vertically by considerable distances of barren ground'".<sup>52</sup> It would be difficult to describe this field as representative of other reef mining areas in New South Wales.

#### Statement of significance

NSW Heritage Assessment Criteria

Criterion (a)	An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
Criterion (b)	An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).

<sup>52</sup> Christison, R., High Ground Consulting, 2000. Conservation Management Plan Bowyer's Mine Shaft, Lucknow. p.7

Criterion (c)	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).
Criterion (d)	An item has a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
Criterion (e)	An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
Criterion (f)	An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).
Criterion (g)	An item is important in demonstrating the principal characteristics of a class of NSW's <ul style="list-style-type: none"> <li>• Cultural or natural places; or</li> <li>• Cultural or natural environments</li> </ul> (or a class of the local area's <ul style="list-style-type: none"> <li>• Cultural or natural places; or</li> <li>• Cultural or natural environments.)</li> </ul>

### Cultural Heritage Significance

NSW Heritage Assessment Criterion	Significance	Reasons
<b>Historical significance</b> Criterion (a)	State	Mining in the Hill End and Tambaroora Goldfield from the early 1850s provided a great filip to the New South Wales economy and attracted hopeful migrants from all over the world. The Hawkins Hill reef mining area was and remains among the richest goldfields on earth. The astounding gold reefs of Hawkins Hill were exploited from the 1860s and mining has continued throughout the subsequent 150 years. There is every prospect that reef mining will continue well into the future. The Hawkins Hill reef mines retain a high level of significance in the history of New South Wales.
<b>Historical association significance</b> Criterion (b)	State	Reef mining in Hill End generated spectacular wealth that created extravagant lifestyles for many individuals, including the remarkable Harriett Beard and others. The most significant association with Hawkins Hill is that of Bernard Otto Holtermann, who used the wealth generated from the Star of Hope mine to fund a photographic study, now known as the Holtermann Collection, that has created an important social record and a benchmark for historical investigation. This collection alone, which is included in the UNESCO Australian Memory of the World Register, provides the place with state level historical association significance.
<b>Aesthetic significance</b> Criterion (c)	State	The Hawkins Hill reef mining area contains a unique environment, with the remnants of a line of closely-spaced mines and associated landscape scars form a spectacular visual assemblage. This is reinforced by the photographic record created by Beaufoy Merlin in 1872. The surviving stone rubble walls of the mining leases also provide a visually stunning memory of past efforts to exploit the rich gold deposits within the hill.
<b>Social significance</b> Criterion (d)	State	The Hawkins Hill reef mines created the foundation for a settled mining community in Hill End and helped to fund development of the town over decades. Hill End is now a State Significant place with an active economy based on tourism and the arts. The former reef mines continue to support these industries. The place draws people searching for glimpses into the life of historic mining places.
<b>Technical/ Research significance</b> Criterion (e)	State	The Hawkins Hill reef mining area contains a unique collection of historic reef mines and the infrastructure that supported mining activity over more than a century. This assemblage, containing items dating to the 1870s, includes evidence of shafts, tunnels, horse whim and steam winding, mullock heaps, aerial ropeways, and stamper batteries. Collectively these features, supported by extensive documentary

NSW Heritage Assessment Criterion	Significance	Reasons
		collections, provide significant examples of reef mining technologies applied over more than a century.
<b>Rarity</b> Criterion (f)	State	The Hawkins Hill area is unique in New South Wales. Nowhere else is there substantial evidence of closely-spaced reef mines that have generated such wealth. The goldfield has also seen continuous mining that is still being carried out.
<b>Representativeness</b> Criterion (g)	State	The Hawkins Hill reef mining area is representative of the contribution of New South Wales gold reserves to the growth of the colony in the 19 <sup>th</sup> century. It is also representative of reef mining activity that commenced in the 1850s and continues to the present time.
<b>Integrity</b> Criterion (h)	Despite ongoing mining activity and removal of infrastructure, the Hawkins Hill mining area has an amazingly high degree of integrity.	

### Summary Statement of Significance

The significance of the Hawkins Hill reef mining area is summarised as follows:

Mining in the Hill End and Tambaroora Goldfield from the early 1850s provided a great filip to the New South Wales economy and attracted hopeful migrants from all over the world. The Hawkins Hill reef mining area was and remains among the richest goldfields on earth. The astounding gold reefs of Hawkins Hill were exploited from the 1860s and mining has continued throughout the subsequent 150 years. There is every prospect that reef mining will continue well into the future.

Reef mining in Hill End generated spectacular wealth that created extravagant lifestyles for many individuals, including the remarkable Harriett Beard and others. The most significant association with Hawkins Hill is that of Bernard Otto Holtermann, who used the wealth generated from the Star of Hope mine to fund a photographic study, now known as the Holtermann Collection, that has created an important social record and a benchmark for historical investigation. This collection alone, which is included in the UNESCO Australian Memory of the World Register, provides the place with state level historical association significance.

The Hawkins Hill reef mining area contains a unique environment, with the remnants of a line of closely-spaced mines and associated landscape scars form a spectacular visual assemblage. This is reinforced by the photographic record created by Beaufoy Merlin in 1872. The surviving stone rubble walls of the mining leases also provide a visually stunning memory of past efforts to exploit the rich gold deposits within the hill. The reef mines created the foundation for a settled mining community in Hill End and helped to fund development of the town over decades. Hill End is now a State Significant place with an active economy based on tourism and the arts. The former reef mines continue to support these industries. The place draws people searching for glimpses into the life of historic mining places.

The Hawkins Hill reef mining area contains a unique collection of historic reef mines and the infrastructure that supported mining activity over more than a century. This assemblage, containing items dating to the 1870s, includes evidence of shafts, tunnels, horse whim and steam winding, mullock heaps, aerial ropeways, and stamper batteries. Collectively these features, supported by extensive documentary collections, provide significant examples of reef mining technologies applied over more than a century.

The Hawkins Hill area is unique in New South Wales. Nowhere else is there substantial evidence of closely-spaced reef mines that have generated such wealth. The goldfield has also seen continuous mining that is still being carried out. The reef mining area is representative of the contribution of New South Wales gold reserves to the growth of the colony in the 19<sup>th</sup> century. It is also representative of reef mining activity that commenced in the 1850s and continues to the present time. Despite ongoing mining activity and removal of infrastructure, the Hawkins Hill mining area has an amazingly high degree of integrity. The place has state historical, historical association, aesthetic, social and technical/research significance, rarity, representativeness and a high degree of integrity.

## Gradings of significance

The grading of significance of the major elements of the reef mining area has been assessed in accordance with its integrity, interpretations of its relationship to the identified historic themes, and its relationship with other features. Gradings of significance have been assessed using NSW Heritage Office criteria contained in the Guidelines for assessing places and objects against the Heritage Council of NSW criteria. Different components of a place make a different relative contribution to its heritage value. Loss of integrity or condition may diminish significance. Gradings of significance reflect the relative contribution of an item or its components to the significance of the whole. The NSW Heritage Manual update Assessing Heritage Significance identifies gradings of significance as follows:

### Gradings of Significance

Grading	Justification	Status
<b>Exceptional</b>	Rare or outstanding item of local or State significance. High degree of intactness. Item can be interpreted relatively easily.	Fulfil criteria for local or State listing.
<b>High</b>	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfil criteria for local or State listing.
<b>Moderate</b>	Altered or modified elements. Elements with little heritage value, but which will contribute to the overall significance of the item.	Fulfil criteria for local or State listing.
<b>Little</b>	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
<b>Intrusive</b>	Damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing.

Gradings of significance of the elements of the Hawkins Hill reef mining area have been determined in accordance with the following criteria:

- Original elements are generally regarded to have an exceptional or high grading of significance depending on condition and integrity.
- Gradings of significance of elements that have been compromised by ongoing modifications, storm damage, weathering or vandalism have been allocated according to the condition and integrity of each element.
- More recent elements or elements that have been heavily compromised have been identified as having little significance.

Hawkins Hill Reef Mining Area	Grading of Significance				
	Exceptional	High	Moderate	Little	Intrusive
<b>Pithead works</b>					
Beyers & Holtermann's Star of Hope		X			
Krohmann's South Shaft		X			
Carroll & Beard's		X			
Rapp's Shaft		X			
Beard & Tallentyre's Tunnel		X			
Carver's/Consolidated Tunnel		X			
Amalgamated Tunnel		X			
Mullock heaps			X		
<b>Aerial ropeways</b>					
Consolidated Battery Flying Fox	X				
Other flying fox paths			X		



Hawkins Hill Reef Mining Area	Grading of Significance				
	Exceptional	High	Moderate	Little	Intrusive
<b>Boilers &amp; Pressure Vessels</b>					
Cornish boiler			X		
Firetube boiler – Devon Gold			X		
Colonial boilers – Consolidated stamper		X			
Compressed air receiver			X		
<b>Stamping battery sites</b>					
Star of Peace Stamper Battery			X		
Consolidated Battery		X			
Price's/Petersen's Battery		X			

### Archaeological Potential

The Hawkins Hill mining precinct contains numerous representative examples of reef mining infrastructure and archaeological evidence of mining activity extending over a period of approximately 160 years. All of the sites and features identified in this report can be regarded as relics under the definition contained in the Heritage Act 1977. The Heritage Act defines a relic as follows:

*"relic" means any deposit, artefact, object or material evidence that:*

- (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
- (b) is of State or local heritage significance.*

Despite the deterioration of some sections of stone walls and modifications caused by modern mining the areas covered in this report are considered to have high to moderate archaeological potential.

## Conservation Policies

The following recommendations are made to assist in conservation of the Hawkins Hill reef mining area. The Hawkins Hill area is still an active mining precinct and ongoing mining of the gold reefs helps to underpin the significance of the place. With this in mind, recommendations have been made to permit ongoing commercial mining activities. This should include permission to re-process mullock heaps in the vicinity of the Consolidated and Amalgamated Tunnels.

## Definitions

The following Burra Charter definitions apply to terms used in these conservation policies and guidelines:

- Place means site, area, land landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.
- Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.
- Fabric means all the physical material of the place including components fixtures, contents, and objects.
- Conservation means all the processes of looking after a place so as to retain its cultural significance.
- Maintenance means the continuous protective care of the fabric and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction.
- Preservation means maintaining the fabric of a place in its existing state and retarding deterioration.
- Restoration means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.
- Reconstruction means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric.
- Adaptation means modifying a place to suit the existing use or proposed use.
- Use means the functions of a place, as well as the activities and practices that may occur at the place.
- Compatible use means a use which respects the cultural significance of a place. Such use involves no, or minimal, impact on cultural significance.
- Setting means the area around a place, which may include the visual catchment.
- Related place means a place that contributes to the cultural significance of another place.
- Related object means an object that contributes to the cultural significance of a place but is not at the place.
- Associations means the special connections that exist between people and a place.
- Meanings denote what a place signifies, indicates, evokes or expresses.
- Interpretation means all the ways of presenting the cultural significance of a place.

## Policies

### Fabric

Significant fabric of the reef mining area should be conserved in the following ways:

- Fabric as having exceptional or high gradings of significance. must be conserved and should not be damaged or interfered with.
  - Failed sections of stone rubble walls should be stabilised after seeking suitable advice. Reconstruction may be permitted after careful planning and review of the potential impact of such works on original structures.
  - The Consolidated Battery site could be excavated in accordance with the provisions of the Heritage Act 1977, and new shelter structured erected to protect the machinery of the battery.
- Fabric identified as having a moderate grading of significance should be conserved but may be modified after seeking suitable advice.
- Fabric identified as having little or intrusive gradings of significance may be modified or removed.
- New work - Any new work must not damage, or interfere with, existing fabric considered to have exceptional or high gradings of significance.

### Management of the place

Vertex Minerals is responsible for the management of the Hawkins Hill reef mining area and its significant fabric. Vertex Minerals should, at the earliest opportunity, develop a Conservation Management Plan for the place covering the following matters:

- Responsibility for management,
- Security and monitoring of the precinct,
- A maintenance schedule including an inspection timeframe.
- Conservation of stone retaining walls by prevention of tree root invasion.
- Prevention of ground water runoff across stone retaining walls.
- Reconstruction of failed retaining walls.
- Ensuring tree growth does not negatively impact flying fox cables.
- Excavation and conservation of the Consolidated Battery.

### Heritage listings

It is recommended that the Hawkins Hill Reef Mining Precinct be listed on the following heritage registers:

- Bathurst Regional Council Local Environmental Plan Schedule 5,
- New South Wales State Heritage Register.

These listings will require the consent of the property manager.

State Heritage Register listing will require a formal application to the Heritage Council of New South Wales. The information contained in this Heritage Assessment may be used in such application.

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