City of Greater Bendigo: Marong Heritage Study Mining Sites

SHAMROCK REEF MINE AND CYANIDE WORKS

Other Names

Location Parcel No. P127174, State Park, junction of Loeser Road and Bright Road, Shamrock Reef, Whipstick; Epsom 1:25,000 - 579.432

Map Reference

Victorian Heritage Register	No
National Estate Register	No
Planning Scheme	No

Description

Cyanide works
150 metres south of Hartland's eucalyptus distillery is a dump of treated battery sand. At the south side of the base of the dump there are three depressions where once there had been 17 foot diameter cyanide vats.
Reef workings
Immediately east of the cyanide works and extending across Sandfly Gully there is a large eroded heap of battery sand. Further east, on the slope towards Bright Road there is an area of shallow reef workings which have been flattened.
House site
Between the distillery and the cyanide works, on the west side of Loeser Road, is a stone fireplace associated with several lines of quartz rocks (possibly garden borders). Near the house site is a dump of 20th century domestic rubbish.

History

Period of activity: 1862-1881, including a battery; tailings cyanided in the 1930s.
Line of reef: Shamrock
Maximum recorded annual production: 606ozs obtained from 1801 tons in 1881
Total production: unknown
Deepest working level: 160 feet
Deepest shaft: 160 feet (at water level)

Thematic Context

Mining

Comparative Examples

The site is one of a number of representative shallow-level low-production mines in the study area, namely: Christoff (1856-1898), Wallace (1856-1906), Black Rock (1857-1879), Sandfly (1857-1890), Barkly (1857-1951), Elliott (1858-1889), Unfortunate Bolle's (1862-1865), and Apollo Hill (1864-1887).

There are five other cyanide works sites within the study area. These are: Gold Dumps (Moon Reef), Devonshire Sand, Frederick the Great, Old Tom Reef, and Wilson's Hill. All are from the 1930's period of mining on Bendigo and therefore relate to the second phase of cyaniding in Victoria. There are no sites in the study area which belong to the first phase of cyaniding, prior to 1914.

Statement of Significance

The site is now associated with the small-scale re-treatment of tailings by the cyanide process and represents the last phase of mining on the Shamrock Reef which first began in 1865 (criterion A). The site is representative of the smaller cyaniding sites in the study area (criterion D) and has the potential for education and interpretation about this phase of mining in the area as part of the Loeser Picnic Area (criterion C).

Level of Significance Local

Recommendation The site should be protected by inclusion in the Schedule to the Heritage Overlay Table in the City of Greater Bendigo Planning Scheme, in accordance with the general principles of the conservation policy for mining sites, and should be included as a significant sub-area within the Sandfly Gully Mining Heritage Area.

Heritage Boundaries The Sandfly Gully Mining Heritage Area is bounded on the south by Scotsmans Track, on the east by Sandfly Road up to a point 100 metres from its crossing of Sandfly Gully, on the south by a line generally 75 metres south of Sandfly Gully across Loeser Road as far north as the junction of Loeser Road and Bright Road and then along Bright Road to the corner of fenced property, on the north by this property fence west to Sandfly Gully, on the east by a line 75 metres east of Loeser Road to its junction with Black Rock Road then along Black Rock Road for a distance of 200 metres to a point north of a large shallow dam, on the west and north by a line 50 metres west of Black Rock Road, Loeser Road and Sandfly Gully as far as a track west of the reef workings, and on the west by this track as fas as Scotsmans Track.

References

1. W. Perry, “Tales of the Whipstick: a history of the Whipstick, Neilborough, Sebastian, Raywood and Myers Creek gold rushes, Victoria.” Eaglehawk, Perry, 1975, 249pp.
2. “Mining. Shamrock Reef (Iguana Gully).” The Bendigo Advertiser, Saturday, 27 September 1862.
3. “Mining. The Whipstick reefs.” The Bendigo Advertiser, Tuesday, 21 July 1863.
4. “Huntly.” From our own Correspondent, Thursday, 27 July; The Bendigo Advertiser, Saturday, 29 July 1864, p5, col.1.
5. Reports of the Mining Surveyors and Mining Registrars, Sandhurst mining district, Raywood division.
6. “Mining intelligence. Raywood.” The Bendigo Advertiser, Tuesday, 12 June 1866, p2, col.5.
7. Department of Mining and Industrial Development Reports - Files.
8. Reports of the Mining Surveyors and Mining Registrars.
9. “The Sandhurst Prospecting Board. The Whipstick tour.” The Bendigo Advertiser, Wednesday, 19 January 1887, p3, cols.3/4.
10. F. Cusack, “Bendigo: a history.” Melbourne, Heinemann, 1973.
11. Victoria, Department of Mines. Annual Report including gold and mineral statistics and boring records for the year.
12. Annual Report of the Secretary for Mines, Victoria.
13. Annual Report of the Secretary for Mines and Water Supply, Victoria.
14. “Mining intelligence. Cyaniding in Bendigo.” The Bendigo Advertiser, 16 September 1896, p4, cols.1/2.
15. “The Mining Exhibition. A great success.” From our Correspondent, The Bendigo Advertiser, 1 February 1897, p3, col.2.
16. “The cyanide process.” The Bendigo Advertiser, Friday, 9 July 1897, p2, col.7.
17. Victoria, Department of Mines, Gold and mineral statistics for the year.
18. Department of Mines, Victoria. Annual Report including gold and mineral statistics for the year.
19. Department of Mines, Annual report including statistics relating to the mining industry. Victoria, Department of Mines.

Notes

Assessed by David Bannear in February 1992 and reviewed by Peter Milner in June 1998

Chronology 07.1856 Wallace Reef was worked by a party, Scott and Company, in July 1856. They persevered for some time, and by October 1857, Wallace Reef was

a busy place with a dozen claims in operation. One party had already struck payable gold at a depth of 20 feet . . . A visitor to the Whipstick saw a battery of from four to six stamps driven by a small high pressure engine, and worked by a party of Germans. ...Towards the close of 1863, Wallace Reef was deserted ...The battery was later shifted further into the Whipstick to the Shamrock Reef, where it remained in operations for many years. [1.7]

□27.09.1862□Shamrock Reef, Iguana Gully. A new reef which has received the above name has been lately found by Messrs Waylen and mates, at the head of Sandfly Flat. N one of the stone has been crushed, but a considerable number of specimens have been taken out. The reef was discovered while taking off surface for puddling. The prospecting claim has not yet been set off. The prospectors are sinking a fresh shaft in order to catch the main stone, which underlies to the westward at about 1 to 1. The first claim to the southward has been taken up and commenced by Buckley and Company. They are already down about 12 feet, but have not yet the stone, as it is somewhat to the southward. Next south, Messrs Clisby and Dorrington have a claim; to the north some claims are also marked off. [2]

□21.07.1863□We were yesterday informed that Bachyth and party, who have been for some time back prospecting on the Shamrock Reef, Sandfly Hill, near the Whipstick, had struck a rich body of stone at a depth of about 90 feet. The reef is from 3 to 4 feet in thickness, and appears to be increasing in width. The fact of this paying stone having been struck at such a depth is a proof of the incorrectness of the theory which some miners ... have held, that the reefs in the Whipstick are only payable near the surface. [3]

□29.07.1865□About 3 miles from Huntly, on the road to Elysian Flat, is a reef known as the Shamrock Reef. A portable engine if about 8 horsepower, driving a battery of 6 heads, started to work last week on the claim of Messrs Hooknoy and Company, who have sunk a shaft to the depth of 160 feet. The quartz is reported to yield from 4 to 6dwts to the ton. [4]

□09.1865□In submitting my report for the quarter, I have to state that two new engines have been erected during the last three months; one at Sebastian, on the Eureka Reef, ... The other engine is in the Whipstick, by one of the Huntly roads; eight horsepower, with six stamp heads. The reef is named the Shamrock. [5.54-55]

12.06.1866□Our Raywood correspondent writes that amongst a very good display of gold in the window of the Bank of Victoria on Saturday last, was a fine cake of 35ozs 8dwt, the produce of 11 tons of stone from Messrs Harding and Brown's claim on the Barkly Reef, Elysian Flat. This quartz was raised from an 80 foot level, and on an entirely new lode, being about 40 feet to the east of the old workings. The stone was crushed at the Shamrock engine, in the Whipstick, as, I am sorry to say, the engine on the flat is still idle, waiting for water. [6]

□06.1866□Shamrock Reef Company, Whipstick: 8ozs 10dwt obtained from 17 tons of stone and 3ozs 8dwt obtained from 22 tons of stone. [5.48-50]

□06.1866□The Shamrock Reef.- The proprietors have a small engine at work; the reef is 200 yards away, and the shaft is down about 60 feet. They have obtained a great quantity of stone, averaging half an ounce to the ton. [5.48-50]

□12.1867□Shamrock Company, Shamrock Reef: 19ozs 10dwt obtained from 70 tons of stone at 130 feet. [5.20]

□ 1866/7□The Shamrock Reef - The proprietors have a small engine at work; the reef is 200 yards away, and the shaft is down about 60 feet. They have obtained a great quantity of stone, averaging half an ounce to the ton. [7]

□03.1879□Shamrock Reef Company, Whipstick: 59ozs 11dwt obtained from 88 tons of stone. [8]

□03.1880□Shamrock Reef Company, Whipstick: 72ozs 7dwt obtained from 134 tons of stone. [8]

□09.1880□Shamrock Reef Company, Whipstick: 46ozs 11dwt 12 grains obtained from 79 tons of stone. [8]

□12.1880□Shamrock Reef Company, Whipstick: 349ozs 11dwt obtained from 764 tons of stone. [8]

□06.1881□Shamrock Reef Company, Whipstick: 169ozs obtained from 422 tons of stone. [8]

□09.1881□Shamrock Reef Company, Whipstick: 301ozs 14dwt 12 grains obtained from 935 tons of stone. [8]
□12.1881□Shamrock Reef Company, Whipstick: 146ozs 4dwt obtained from 446 tons of stone. [8]
□19.01.1887□Passing the Shamrock machine the roughest part of a very rough journey was encountered (by the Sandhurst Prospecting Board). [9]
□ 1930s□Gold production in the thirties was appreciably supplemented by local alluvial mining and cyaniding. A great many hydraulic sluices were working in the Bendigo district by the mid-thirties and some 1,500 men found employment in alluvial mining. The mountains of tailings or battery sand that rose about the valley and filled houses in summer with a gritty dust, were a cyanider's dream, and in the 1930s some thirty plants, employing 300 men, were operating about Bendigo. The largest company, the Adelaide-based Devonshire Sands, paid out £3,700 in dividends in 1935. [10.222]
□ 1936□Cyanide - Approximately 23 plants are operating at Bendigo, Eaglehawk and Huntly, between 200 and 300 men employed. [11]
□ 1937□Approximately 30 cyanide plants, employing in all about 300 men, have been operating at Bendigo, Eaglehawk, Huntly, Fosterville, and Sebastian. [11]

Tailings treatment, principally by cyaniding, in Victoria
□1893□5291ozs 2dwt 2 grains of gold obtained from 43,521 tons of tailings by undisclosed processes. [12.12]
□1894□2097ozs 14dwt 6 grains of gold obtained from 53,849 tons of tailings by undisclosed processes. [12.14]
□1895□5380ozs 8dwt 14 grains of gold obtained from 62,319 tons of tailings by undisclosed processes. [13.10]
16.□09.1896□Cyaniding in Bendigo. At Mr. J. Deeble's United Pyrites Works, the plant is being extended so as to provide for the use of cyanide and kindred solutions. In order to get over the difficulty experienced in South Africa of making the slimes, which form a large portion of the refuse from the crushing machines, amenable to treatment by the solutions, Mr. Deeble has invented a mechanical appliance which is claimed to achieve this object, and it has been patented all over the world, and it is probable that the system may be taken up by British capitalists. The works and the vicinity are now lighted during the night by two large electric arc lights.
The cyanide process will probably cater more prominently in the future history of Bendigo mining should initiatory experiments prove profitable. Mr. A. Hamann is now erecting buildings, etc, for a cyanide plant at the Great Britain mine to work the old tailings.
In Africa experiments are being made in submitting to cyaniding the quartz directly after being broken by a rock crusher and without being crushed or rolled . The quartz, however, is very friable and crumbles easily. The recent leading article in the Indigo Advertiser on the subject of cyaniding has been the subject of considerable discussion. In connection with this matter an exchange very practically says:- "It will not do to suppose that the possession of a few hundred-weight of cyanide, and a heap of tailings, is necessarily the groundwork of a fortune. In the first place there may not be sufficient gold in the tailings to pay for extraction. In the next place the gold may be there in satisfactory quantities, but it may be allied with other metals which also are greedy for cyanide, and thus cause too great a consumption of the wonder-working solvent to be profitable." [14]
01.□02.1897□The Mining Exhibition [Melbourne]- A cyanide plant, exhibited by Mr Deeble, of Bendigo, is attracting great attention. [158]
□ 1897□Annual Report: Re cyaniding . ..During the year a large number of samples of tailings have been sent into to be experimented on as to their suitability for treatment by the cyaniding process, and in nearly every case it has been demonstrated that the gold can be extracted by means of that solvent, though frequently the gold contents are too low to make it profitable. A large number of plants are now in existence in the principal mining areas. At Stawell 200 tons and more a day are put through, but with one or two notable

exceptions the plants are all working on old tailing heaps. It would be a great advantage to this colony if more of the working batteries had cyanide plants attached to their existing appliances, as by that means the gold could be extracted profitably, and which is now going to waste; but often if the tailings be run into a heap the cost of getting them in motion again is too great to leave a margin of profit. The South Star mine at Ballarat, and the South German at Maldon, are both cyaniding their tailings . . . One of the difficulties of the treatment of tailings by cyanides is caused by the slimes which are always produced during crushing and are usually the richest in gold; if they be not removed they settle so densely in the vats that the percolation of the liquor is stopped; this is usually overcome by running the tailings through Butter's distributers, by which means the great bulk of the slimes are removed . . .Two different systems have been devised by local inventors, one by Mr J. J. Deeble, of Bendigo, which consists of a circular vat with agitating blades capable of being raised or lowered, and keeping the whole thoroughly stirred; the vat is provided with a single side gate which can be gradually lowered to allow the clear liquor carrying the gold in solution to overflow after stoppage of the arms and the settlement of the slimes. This method is adopted in the South German Mine ...[where] the vats are 18 feet diameter and 4 feet deep, and require 3 horsepower. They hold about 20 tons each, and to get a complete extraction the slimes need 30 hours' agitation, the whole operation of agitation, settling and decanting takes 48 hours, the consumption of cyanide being about 1½1bs. per ton of slimes. Several parcels of pyrites have been treated without calcining by this method with over 95 per cent of extraction of gold content. [13]
□1896□8822ozs 15dwt of gold obtained from 115,702.5 tons of tailings by undisclosed processes, but with cyaniding now on the increase. [13.11]
09.07.1897□From the Herald we learn that the Minister of Mines has received from Mr Stone, the departmental assayer, a report on 2 tons of tailings sent to him from Axedale for cyanide experiment. Mr Stone says the lot was treated in four half ton parcels, and the results showed that the best results were secured in each successive parcel, the causes of the loss of gold and consumption being gradually found out and overcome, until in the final parcel an extraction of 74.6 per cent of the gold was obtained for a consumption of 0.53 pounds of cyanide per ton; or a cost of one shilling 4 pence for chemicals, including caustic soda. The value of the gold recovered being 7 shillings 9 pence per ton, the profit was then 6 shillings 5 pence per ton to cover cost and handling and depreciation of plant. ... Some interesting hints are added by Mr Stone, as well as a table, and the whole report is to be printed for the information of the mining community. [16]
□1897□15,717ozs 4dwt of gold obtained from 161,723 tons of tailings, mostly by cyaniding. [13.10]
□1898□17,845ozs 1dwt of gold obtained from 351,067 tons of tailings, mostly by cyaniding. [13.11]
□1899□17,412ozs 13dwt of gold obtained from 359,848 tons of tailings by cyaniding. [13.11]
□1900□28,741ozs 16dwt of gold obtained from 283,532 tons of tailings by cyaniding. [13.10]
□1901□41,990ozs 10dwt of gold obtained from 482,278 tons of tailings by cyaniding. [13.11]
□1902□43,302ozs 15dwt of gold obtained from 504,212 tons of tailings by cyaniding. [13.14]
□1903□35,839ozs of gold obtained from 444,897 tons of tailings by cyaniding. [13.16]
□1904□48,035ozs 16dwt of gold obtained from 644,925 tons of tailings by cyaniding. [13.18]
□1905□45,221ozs 4dwt of gold obtained from 626,745 tons of tailings by cyaniding. [13.20]
□1906□44,495ozs 15dwt of gold obtained from 665,785 tons of tailings by cyaniding. [13.18]
□1907□65,961ozs of gold obtained from 983,034 tons of tailings by cyaniding. [12.17]

□1908□77,245ozs of gold obtained from 1,225,768 tons of tailings by cyaniding. [12.15]
□1909□75,429ozs of gold obtained from 1,257,338 tons of tailings by cyaniding. [12.18]
□1910□68,583ozs of gold obtained from 1,177,232 tons of tailings by cyaniding. [12.18]
□1911□59,986ozs of gold obtained from 1,102,956 tons of tailings by cyaniding. [12.20]
□1912□55,740ozs of gold obtained from 881,306 tons of tailings by cyaniding. [12.18]
□1913□45,397ozs of gold obtained from 692,256 tons of tailings by cyaniding. [12.17]
□1914□39,920ozs of gold obtained from 607,260 tons of tailings by cyaniding. [12.16]
□1915□21,511ozs of gold obtained from 317,636 tons of tailings by cyaniding. [12.12]
□1916□14,635ozs of gold obtained from 203,016 tons of tailings by cyaniding. [12.5]
□1917□8930ozs of gold obtained from 127,012 tons of tailings by cyaniding. There were 66 cyanide plants in operation during the year. [12.3]
□1918□4420ozs of gold obtained from 45,600 tons of tailings by cyaniding. There were 34 cyanide plants in operation during the year. [12.3]
□1919□4198ozs of gold obtained from 43,000 tons of tailings by cyaniding. [17.4]
□1920□4226ozs of gold obtained from 37,596 tons of tailings by cyaniding. [17.4]
□1921□5326ozs of gold obtained from 39,937 tons of tailings by cyaniding. There were 20 cyanide plants in operation during the year. [17.3]
□1922□5847ozs of gold obtained from 41,163 tons of tailings by cyaniding. There were 12 cyanide plants in operation during the year. [17.3]
□1923□3415ozs of gold obtained from 18,644 tons of tailings by cyaniding. There were 14 cyanide plants in operation during the year. [17.3]
□1924□2052ozs of gold obtained from 12,108 tons of tailings by cyaniding. There were 14 cyanide plants in operation during the year. [17.3]
□1925□971ozs of gold obtained from 8344 tons of tailings by cyaniding. There were 14 cyanide plants in operation during the year. [17.3]
□1926□1323ozs of gold obtained from 7748 tons of tailings by cyaniding. There were 7 cyanide plants in operation during the year. [17.3]
□1927□1672ozs of gold obtained from 11,060 tons of tailings by cyaniding. There were 8 cyanide plants in operation during the year. [17.3]
□1928□1199ozs of gold obtained from 6397 tons of tailings by cyaniding. There were 8 cyanide plants in operation during the year. [17.3]
□1929□772ozs of gold obtained from 4047 tons of tailings by cyaniding. There were 10 cyanide plants in operation during the year. [17.3]
□1930□There were no reports of gold being obtained from tailings by cyaniding during the year. There were no reports of cyanide plants in operation during the year. [11.3]
□1931□807ozs of gold obtained from 8933 tons of tailings by cyaniding. There were 14 cyanide plants in operation during the year. [11.3]
□1932□2060ozs of gold obtained from 39,317 tons of tailings by cyaniding. There were 22 cyanide plants in operation during the year, including 5 Government plants. [11.5]
□1933□3550ozs of gold obtained from 63,565 tons of tailings by cyaniding. There were 32 cyanide plants in operation during the year, including 5 Government plants. [11.5]
□1934□14,842ozs of gold obtained from 321,104 tons of tailings by cyaniding. There were 86 cyanide plants in operation during the year, including 7 Government plants. [11.20]
□1935□22,460ozs of gold obtained from 630,318 tons of tailings by cyaniding. There were 121 cyanide plants in operation during the year, including 7 Government plants. [11.24]

□1936□28,565ozs of gold obtained from 794,640 tons of tailings by cyaniding. There were 141 cyanide plants in operation during the year, including 7 Government plants. [11.29]
□1937□41,923ozs of gold obtained from 1,233,914 tons of tailings by cyaniding. There were 157 cyanide plants in operation during the year, including 7 Government plants. [11.21]
□1938□40,384ozs of gold obtained from 1,202,623 tons of tailings by cyaniding. There were 132 cyanide plants in operation during the year, including 7 Government plants. [18.32]
□1939□43,458ozs of gold obtained from 1,358,304 tons of tailings by cyaniding. There were 150 cyanide plants in operation during the year, including 7 Government plants. [18.25]
1939□Cyanide plants at Bendigo, Eaglehawk, Ironbark, Huntly, Sebastian, Fosterville and Marong are giving in most cases payable results. [18]
□1940□38,759ozs of gold obtained from 1,225,301 tons of tailings by cyaniding. There were 188 cyanide plants in operation during the year, including 7 Government plants. [18.25]
□1941□37,050ozs of gold obtained from 1,176,936 tons of tailings by cyaniding. There were 165 cyanide plants in operation during the year, including 4 Government plants. [18.23]
□1942□19,869ozs of gold obtained from 626,643 tons of tailings by cyaniding. There were 85 cyanide plants in operation during the year, including 2 Government plants. [18.20]
□1943□6626ozs of gold obtained from 78,716 tons of tailings by cyaniding. There were 36 cyanide plants in operation during the year, including 2 Government plants. [18.19]
□1944□2936ozs of gold obtained from 59,045 tons of tailings by cyaniding. There were 19 cyanide plants in operation during the year, including one Government plant. [18.19]
□1945□2442ozs of gold obtained from 47,197 tons of tailings by cyaniding. There were 22 cyanide plants in operation during the year, including one Government plant. [18.19]
□1946□8694ozs of gold obtained from 262,810 tons of tailings by cyaniding. There were 40 cyanide plants in operation during the year, and no Government plants. [18.22]
□1947□9977ozs of gold obtained from 268,893 tons of tailings by cyaniding. There were 39 cyanide plants in operation during the year, and no Government plants. [18.22]
□1948□10,746ozs of gold obtained from 376,143 tons of tailings by cyaniding. There were 30 cyanide plants in operation during the year, and no Government plants. [18.26]
□1949□10,312ozs of gold obtained from 359,577 tons of tailings by cyaniding. There were 24 cyanide plants in operation during the year, and no Government plants. [11.34]
□1950□10,834ozs of gold obtained from 468,758 tons of tailings by cyaniding. There were 27 cyanide plants in operation during the year. [19.31]
□1951□5093ozs of gold obtained from 220,625 tons of tailings by cyaniding.
□1952□1453ozs of gold obtained from 60,466 tons of tailings by cyaniding. There were 9 cyanide plants in operation during the year. [19.27]
□1953□1025ozs of gold obtained from 15,807 tons of tailings by cyaniding. There were 11 cyanide plants in operation during the year. [19.24]
□1954□789ozs of gold obtained from 14,677 tons of tailings by cyaniding. There were 11 cyanide plants in operation during the year. [19.21]
□1955□764ozs of gold obtained from 13,805 tons of tailings by cyaniding. There were 8 cyanide plants in operation during the year. [19.23]
□1956□476ozs of gold obtained from 10,785 tons of tailings by cyaniding. There were 6 cyanide plants in operation during the year. [19.23]
□1957□523ozs of gold obtained from 11,861 tons of tailings by cyaniding. There were 7 cyanide plants in operation during the year. [19.23]
□1958□569ozs of gold obtained from 11,150 tons of tailings by cyaniding. There were 5 cyanide plants in operation during the year. [19.31]