



REGISTER OF HERITAGE PLACES

ASSESSMENT DOCUMENTATION

11. ASSESSMENT OF CULTURAL HERITAGE SIGNIFICANCE

The criteria adopted by the Heritage Council in November 1996 have been used to determine the cultural heritage significance of the place.

PRINCIPAL AUSTRALIAN HISTORIC THEME(S)

- 3.4.3 Mining
- 3.14 Developing an Australian engineering and construction industry
- 5.1.2 Coping with dangerous jobs and workplaces

HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)

- 110 Resource exploitation and depletion
- 303 Mining (including mineral processing)
- 603 Local heroes and battlers

11.1 AESTHETIC VALUE*

11.2. HISTORIC VALUE

The construction and operation of *Briggs' Kiln (1), Carine* by a 15 year old Thomas Briggs demonstrates the self-reliant lifestyle of British settlers in the colonial period. (Criterion 2.1)

As an example of a small commercial lime burning enterprise, *Briggs' Kiln (1), Carine* demonstrates the development of Western Australia's building industry from 1850-1900, before the shift to larger grouped kilns (Criterion 2.2)

Briggs' Kiln (1), Carine was the first kiln built by Thomas James Briggs, who went on to become a successful figure in the state's lime and limestone industry as well as becoming Mayor of Claremont. (Criterion 2.3)

* For consistency, all references to architectural style are taken from Apperly, R., Irving, R., Reynolds, P. *A Pictorial Guide to Identifying Australian Architecture. Styles and Terms from 1788 to the Present*, Angus and Robertson, North Ryde, 1989.

For consistency, all references to garden and landscape types and styles are taken from Ramsay, J. *Parks, Gardens and Special Trees: A Classification and Assessment Method for the Register of the National Estate*, Australian Government Publishing Service, Canberra, 1991, with additional reference to Richards, O. *Theoretical Framework for Designed Landscapes in WA*, unpublished report, 1997.

11. 3. SCIENTIFIC VALUE

Briggs' Kiln (1), Carine has the potential to demonstrate the evolution of lime kiln construction when compared to other lime kilns of the period through both its remnant structure and potential archaeological remnants at the site. (Criterion 3.1)

11. 4. SOCIAL VALUE

Briggs' Kiln (1), Carine has value to the City of Stirling as demonstrating a significant link in the development of the lime burning industry in the State and is recognised as contributing to the City of Stirling's heritage identity. (Criterion 4.2)

12. DEGREE OF SIGNIFICANCE

12. 1. RARITY

Briggs' Kiln (1), Carine is very rare as a circular lime kiln remnant from the period 1850-1900, that demonstrates the methods used in its construction. (Criterion 5.1)

Briggs' Kiln (1), Carine is very rare as an example of early commercial lime burning. (Criterion 5.2)

Briggs' Kiln (1), Carine is very rare as an early lime kiln whose construction and operation were documented by its builder. (Criterion 5.2)

12. 2 REPRESENTATIVENESS

12. 3 CONDITION

The condition of *Briggs' Kiln (1), Carine* is in poor to moderate condition, although it is still structurally recognisable.

12. 4 INTEGRITY

A great deal of fabric has been removed from the original kiln structure, leaving only a remnant. Furthermore, the trees growing into the kiln walls represent a threat to the stability of the site. Despite this, there is potential for the site to be partially restored and any further dilapidation halted.

The surrounding area appears undisturbed, and is considered to have archaeological potential.

12. 5 AUTHENTICITY

Briggs' Kiln (1), Carine demonstrates a moderate to high level of authenticity. While the place is no longer used for lime burning and condition of the kiln is poor, the remaining original fabric is still in its original context and the function of the kiln can be discerned.

13. SUPPORTING EVIDENCE

The documentation for this place is based on the heritage assessment completed by State Heritage Office staff, in January 2014, with amendments and/or additions by the State Heritage Office and the Register Committee.

13.1 DOCUMENTARY EVIDENCE

Lime burning is a process that has occurred around the world as early 9000 BP, taking advantage of the reactive nature of lime.¹ The basic process of lime burning involves exposing limestone (a mix of minerals, but predominantly Calcium carbonate, CaCO_3) to temperatures of 750°C-900°C to produce 'quicklime' (Calcium oxide, CaO). Some varieties of limestone are sought after for containing small amounts of silica, alumina and iron, which when burnt produce 'hydraulic lime', capable of setting underwater after slaking. Slaking occurs when water is added to the burnt lime to produce 'slaked lime' or 'hydrated lime' [Calcium hydroxide, Ca(OH)_2]. Quicklime is used in industrial processes such as mixing cement and as a fluxing agent in mining, while slaked lime is an ingredient of plaster and lime mortar.²

The earliest lime kilns in Western Australia were established at Fremantle and Albany in the 1830s, where settlers had access to local supplies of limestone. During the early expansion of the Swan River colony, small kilns were established at Cottesloe, Peppermint Grove and Claremont from the 1850s to the 1890s. By the turn of the 20th century, the limestone supplies available in these areas were becoming exhausted, and from the 1900s to 1930s a new series of kilns were established in rural and peripheral metropolitan areas, including Coogee, Bullsbrook, Yallingup and Ludlow. Wanneroo, which had access to large supplies of limestone, became another lime burning area at this time.³

As the lime burning industry developed so too did the lime kilns themselves. The earliest kilns in the eastern colonies of Australia were 'pit-burn' kilns, where large amounts of fuel and limestone was buried under sod and burnt via an access shaft. This was later replaced with a 'D' kiln, an open-topped semi-cylindrical shaft carved into a bank of earth and lined with stone or brick, with a wall and fire arch (fuel access point) built across the front.⁴

One of the early lime burners during the state's second (1850s-1890s) phase of development of the lime industry was Thomas Allen Briggs, an Englishman who came out to Western Australia as a member of the 96th Regiment from 1847-49.⁵

¹ B Arkun, *Neolithic Plasters of the Near East: Catal Hoyuk Building 5, a Case Study*, (University of Pennsylvania:2003), pp. 19-21

² R Brittan, *The Lime Kilns of Wanneroo: A study in the Preservation and conservation of a series of historic structures*, (Shire of Wanneroo:1984), pp. 10-11; A Cowper, *Lime and Lime Mortars*, (Building Research Establishment:1927), pp. 10-11, 23-24; E Eckel, *Cements, Limes and Plasters*, Donhead Publishing, 2005 (original edition 1905), p. 176. It should be noted that while quicklime and hydraulic lime are the result of the same burning process, the additives in the latter produce a very different product after slaking.

³ J Mackay, *Conservation Plan for Traditional Lime Burning in Wanneroo, Western Australia*, (Curtin University of Technology:2000), pp. 19-20; R Brittan, *op cit.*, pp. 13-15

⁴ M Pearson, 'The Lime Industry in Australia – An Overview,' *Australian Historical Archaeology*, 1990 vol. 8, pp. 28-31

⁵ R Erickson *Bicentennial Dictionary of Western Australians* (UWA Press:1987) p.310

T A Briggs constructed a series of kilns for the production of lime and charcoal at Peppermint Grove and Cottesloe c.1858.⁶

T A Briggs' son, Thomas James Briggs, learnt the trade from his father's business, and eventually decided to begin lime burning himself:

Fired with the desire for an outside life, I picked up a mate to work with me in taking on a contract for burning lime and charcoal. This was in the year 1874, which made my age 15 years. My mate's name was Robert Atkinson... We commenced "business" in a locality six miles north of Claremont, and eight miles from Perth. The first thing "the firm" had to think about was to erect a place in which to camp. We built ourselves a small bush shanty out of sheets of bark taken from the jarrah trees, and constructed a big open chimney out of rough stone... When we got fairly going with the lime and charcoal burning, drays came out every day to take back the lime and the charcoal.⁷

The land T J Briggs selected was north of the original Balcatta Road where it took a conspicuous dog leg around the northern end of Careniup Swamp. It is this kiln that is now known as *Briggs' Kiln (1), Carine*. The land was part of Swan Location K, owned by George Walpole Leake, a Perth barrister who had bought the land from the original owner Robert Ansell Partridge in 1868. After Briggs abandoned the kilns in 1875, there is no documentary evidence to indicate that the kilns were then utilised by Leake or the subsequent owner, Bernard Duffy, who bought the land in 1886.⁸

T J Briggs worked in a number of different jobs until he decided to return to the sale of lime and limestone. Briggs advertised himself as a lime producer in 1891 with an office in Leake Street, Perth, and was listed in the 1893 Western Australian Post Office Directory as operating a Lime Depot in Hutt Street. His autobiography lists the date as 1892, building a new kiln '8 miles from Perth on the Wanneroo Road,'⁹ Both this kiln and *Briggs' Kiln (1), Carine* are described as circular kilns 8 miles from Perth, and the similarity in the location and description is a potential source of confusion. However Brittain identifies the 1892 kiln as much further inland and further from Cottesloe, making the earlier kiln in Carine the 1874 kiln, and the subject of this assessment.

T J Briggs then opened a quarry in Cottesloe, continuing to advertise and operate under his own name until 1895 when he announced his retirement as the proprietor of the Cottesloe Lime works.¹⁰ The business was then sold to W Train, J Rowland and G Allan in 1896, the group renaming the company 'Briggs & Co. Ltd,' which advertised to supply limestone for building and to develop a tram line to their various quarries and kilns.¹¹

6 R Brittan, *op cit.*, p. 13

7 T J Briggs, *Life and Experiences of a Successful Western Australian*, Sands & McDougall, 1917, pp 26-27

8 Heritage and Conservation Professionals, 'Cottage Old Balcatta Road Carine,' (North Suburban Historical Society Inc: 1998), pp. 9, 13

9 *The Inquirer & Commercial News*, 22 July 1891, p. 2; *Western Australian Post Office Directory* 1893, p. 64 'Police Court Reports,' *The Inquirer & Commercial News*, 7 September 1894, p. 5; T J Briggs, *op cit.*, p. 124. and R Brittan, *op cit.*, pp. 13,15, 28

10 *The Inquirer & Commercial News*, 5 Jul 1895, p. 1; T J Briggs, *op cit.*, 1917, pp. 124-125

11 *The West Australian*, 13 April 1896, p. 4; 'Business Announcements,' *The West Australian*, 29 July 1896, p. 4; *The West Australian*, 11 April 1896, p. 4; 'Business Announcements,' *The West Australian*, 29 July 1896, p. 4

The Western Australian Post Office Directories for this period show the split of this company; 'Briggs, T J., Hutt St' listed as the sole Lime Depot in 1894, to be replaced with 'Briggs, T. J. Cottesloe' and 'Briggs, Thomas J. Hutt St. Perth,' in 1895. In 1897, the Lime suppliers are listed as 'Briggs & Co. (Train William & Harvey George, mgrs.), Cottesloe' and 'Briggs & Co. Limited (C. H. Yeo, sec.), Hutt Street, Perth'.¹² Briggs himself recalls:

In 1896 there were numbers of people looking for investments, and as the building trade was unusually brisk, they came along my way and asked if I would sell out. I replied that I was agreeable at a price. I fixed the value of the lime works and business at £6,500, and the intending investors appeared satisfied after an inspection of my books. These gentlemen took the proposition to Melbourne, where they floated it for £12,000.¹³

Briggs & Co. was an active business, expanding their operations in Cottesloe with new works and a tram line, as well as advertising and sponsoring 'Builder's labourer's races'.¹⁴

However, Briggs & Co. was running with serious administrative problems and in 1899 T J Briggs announced he had returned to a leadership role at Briggs & Co.

Briggs & Co. also took control of Harvey & Co., with the combined businesses managed under Briggs' personal supervision, and began advertising a range of lime and limestone products.¹⁵ Despite improvements made by Briggs over nine months, the company was sold at the demand of investors. Briggs stayed on as manager but resigned after a further nine months, stating "I was anxious to be once more my own master."¹⁶ Despite the sale, Harvey & Co. continued to be listed in the Western Australian Post Office Directory until 1902, and Briggs & Co. continued to advertise as a separate entity until 1907.

Briggs started a new lime and stone company and was then joined by J Rowland, with the company renamed Briggs & Rowland in 1901, with offices in Wellington Street, and quarries and lime kilns at Buckland Hill, Coogee and Woodman Point.¹⁷ This company ran in direct competition with Briggs & Co., which caused confusion and required the new company to state that they had 'the only Briggs in the trade. No connection with anyone trading under a similar name.'¹⁸ The new company was successful, becoming members of the Perth Chamber of Commerce 1903.¹⁹

¹² *Western Australian Post Office Directory* 1894, p. 52; *Western Australian Post Office Directory* 1895, p. 272; *Western Australian Post Office Directory* 1897, p. 506

¹³ T J Briggs, *op cit.*, 1917, pp 134-135. Given the discrepancy with the newspaper announcement date, he may have quoted the date incorrectly.

¹⁴ *The West Australian*, 22 September 1896, p. 4; *The Daily News*, 22 October 1896, p. 2; 'Business Announcements,' *The West Australian*, 1898, p. 5

¹⁵ T J Briggs, *op cit.*, 1917, pp 135-136; *The Daily News*, 10 August 1899, p. 2; *The Daily News*, 19 October 1899, p. 1

¹⁶ T J Briggs, *op cit.*, 1917, p 136

¹⁷ *The West Australian*, 12 April 1901, p. 1; *The West Australian*, 2 August 1901, p. 7; 'The Buckland Hill Quarries,' *The West Australian*, 15 May 1902, p. 7; *The West Australian*, 17 December 1902, p. 6; *The West Australian*, 23 February 1903, p. 5

¹⁸ *The West Australian*, 16 July 1901, p. 7; *The West Australian*, 2 August 1901, p. 7; *Sunday Times*, 16 April 1905, p. 11

¹⁹ 'Perth Chamber of Commerce,' *The West Australian*, 16 September 1903, p. 6

A photograph of the Briggs & Rowland company quarries at Coogee in 1905 shows an extensive group of lime kilns, of the square, buttressed style, situated directly on the railway line.²⁰ However in 1908, Briggs decided once more to retire from lime burning, selling out his company for £5,000 under condition that he not start another lime burning company for 5 years.²¹

In 1919 Briggs started another lime supply company, advertising himself by name only.²² The new company continued to run in direct competition with Briggs & Rowland, however in 1923 the Briggs and Rowland company quarries were sold to Millars Timber & Trading Company, who leased the site back to Briggs & Rowland and continued to act as agents for the firm until 1931.²³

During this period T J Briggs continued to operate as a lime merchant under his own name. An advertisement taken out by Briggs in 1933 pointedly refers to his business as “the all-British lime and stone firm.”²⁴ By the 1930s Briggs was competing against a new generation of lime suppliers in Wanneroo run by Southern and Eastern European migrants, which caused complaints from British lime kiln workers who faced lower wages in competition with the new arrivals.²⁵ Briggs continued to advertise his business through supplying stone and lime to the 1933 Building Revival Campaign, but died in 1935.²⁶

During his life, T J Briggs spent a number of years in politics, elected as one of the first Claremont Municipal Council members in 1898, and serving as Mayor of Claremont 1907-1909.²⁷ While Mayor, Briggs ran for the seat of Claremont in the State Legislative Assembly in the 1908 elections, but was unsuccessful.²⁸ In 1914, Briggs also ran for the seat of Fremantle in the Federal election, but again was unsuccessful.²⁹

The site of *Briggs’ Kiln (1), Carine* remained undisturbed after Brigg’s abandonment of the site. The 1886 land owner Bernard Duffy established a market garden and dairy farm on the property which was carried on until Duffy’s death in 1926 and then passed onto his son.³⁰ The land surrounding this property was slowly subdivided during this period, with the Careniup Swamp drained and subdivided to form a number of market gardens called the Balcatta Estate in 1907.³¹ By the 1940s, very little had changed in the landscape, although the

²⁰ ‘Briggs & Rowland’s Lime-Kilns, Coogee,’ *Western Mail*, 25 December 1905, p. 54

²¹ T J Briggs, *op cit.*, 1917, p. 145

²² *The West Australian*, 17 October 1921, p. 3; *Western Australian Post Office Directory* 1919, p. 618

²³ State Heritage Office Assessment P10180 *Three Lime Kilns Group, Cockburn*, p. 8-9; *Western Mail*, 2 April 1931, p. 43

²⁴ *Sunday Times* 5 March 1933, p. 13

²⁵ *The West Australian*, 19 August 1937, p. 20; *The West Australian*, 20 August 1937, p. 26

²⁶ *The West Australian*, 6 September 1933, p. 7; ‘The Late T. J. Briggs,’ *Sunday Times*, 10 March 1935, p. 20. The Building Revival Campaign was a government initiative to stimulate the building industry as a result of the Depression. See assessment documentation P8894 *Model Brick Home*.

²⁷ ‘Claremont Municipality,’ *Western Mail*, 9 September 1898, p. 31; ‘The Recent Municipal Elections,’ *The West Australian*, 3 December 1907, p. 7; *The West Australian*, 18 November 1909, p. 8

²⁸ *The Daily News*, 15 August 1908, p. 6

²⁹ *Kalgoorlie Miner*, 26 June 1914, p. 4

³⁰ Heritage and Conservation Professionals, ‘Cottage Old Balcatta Road Carine,’ (North Suburban Historical Society Inc: 1998), pp. 9-10, 13

³¹ Gwleup Progress Association, *History of North Western Metropolitan Lakes District*, unpublished report 2001, pp. 28-32; ‘The Bursting up of a Big Estate,’ *The Daily news*, 5 January 1907, p. 19; *Sunday Times*, 6 October 1907, p. 6

Chinese market gardeners who had worked in the area were eventually replaced by newer Italian migrants in the 1920s.³² Aerial photographs of the site taken in 1953 show numerous markets gardens south and west of the *Briggs' Kiln (1)*, *Carine* site, and a golf course further southwest. It was not until the 1970s that aerial photographs show residential housing encroaching in the previously agricultural areas. By the 1980s the area was a mix of suburban style residences, market gardens associated with the former swamp and industrial development to the east, leaving the site of *Briggs' Kiln (1)*, *Carine* an increasingly isolated patch of bushland.³³

From 1993-1995, the extension of the Reid Highway through the Carine area to Marmion Avenue sparked a conversation between local community groups, Main Roads and the City of Stirling, centred on the proximity that the proposed works would have on the site of Briggs' kiln.

The source document for lime kilns in the area was Brittain's 1984 study of lime kilns in Wanneroo. Brittain numbered the kilns identified from 1 to 50. Briggs' 1874 kiln was listed as no. 1 and Briggs' 1892 kiln is listed as no. 2. Brittain originally identified Briggs' 1874 kiln as demolished, the former site being near Marmion Avenue in Duncraig (in the vicinity of Illohra Way) and identified from a kiln marked on an undated map. However, he later identified the Carine kiln as Briggs' 1874 kiln after an inspection of the site in 1995, and it was identified as a place of exceptional heritage significance by the City of Stirling in 1997.³⁴

Correspondence between Main Roads and the City of Stirling between 1997 and 1998 reveal that Main Roads agreed to build a retaining wall to protect the site from damage during construction of Reid Highway, and were made aware of the City of Stirling's concerns with rubbish dumping at the site.

When the place was identified as warranting assessment for the State Register in 28 April 2000, Main Roads confirmed further work would be undertaken to protect the site and they were aware of the problems of rubbish dumping. Interpretive signage was also erected at the site at about this time.

13.2 PHYSICAL EVIDENCE

Briggs' Kiln (1), *Carine* consists of one kiln remnant located on a reserve south of Reid Highway in Carine. The area lies on the southward-facing slope of a low hill, with a limestone retaining wall running east-west across the northern margin of the site. Along the eastern edge of the site is a bicycle and walk trail, which leads to a highway underpass. Construction of this track has created a large dozer push along the edge of the track. Vandals have also left rubbish at the site. A concrete plinth with an interpretative panel has been placed along the bike track near the site, providing information on the history of the place.

The environment of the reserve consists of open Eucalypt woodland, with *Acacia* sp., *Grasstree (Xanthorrhoea* sp.), and a thick understorey of grass, weeds and leaf litter. The soils are light brown and limestone-rich, part of the Spearwood Dune system which itself overlays the extensive Tamala Limestone formation

³² *Ibid.*, pp. 12, 45-48

³³ Landgate Map Viewer, accessed 9 April 2013, <https://www.landgate.wa.gov.au/bmvf/app/mapviewer/>

³⁴ Considine & Griffiths Architects, D Erickson, *City of Stirling Municipal Inventory*, City of Stirling, 1997

stretching from Cape Range in Western Australia's central coast south to Albany.³⁵

The kiln is built into a limestone outcrop at the top of a slope, immediately south of the limestone wall running along the edge of the site. Initially, the kiln was covered in a thick layer of leaf litter, which had to be removed. Once exposed it was determined that the kiln is circular, measuring approximately 2 m in diameter with 0.75 m of the wall remaining. No fire arch is remaining, but the kiln appears to have had a single opening facing southwest measuring approximately 0.5 m across.

The kiln is constructed of random uncoursed limestone rubble, and no mortar could be discerned. The kiln is lined with red brick (and occasionally orange brick), which while being mortared in a haphazard mixture of stretchers and headers, presents an even face that gently curves downwards towards the base of the kiln. Limestone fragments were noted southeast of the kiln, and may be remnants of the collapsed wall. Fragments of broken brick and limestone rubble were also noted downhill of the kiln remnant. No evidence of a bagging floor could be identified.

While only the base of the kiln remains and the condition of the remnant is dilapidated, the site appears stable. Comparisons of images taken in 2013 with photos of the site in 2002 show no major changes to the lime kiln remnant.³⁶ However, two trees are growing in or near the walls of the kiln, which over time are likely to damage the remaining fabric. A nearby tree was noted with marks along its trunk that are likely to have been from wire wrapped around the trunk, suggesting that it was incorporated into a wire fence.

One artefact was found inside the kiln remnant, a rusted metal file approximately 18 cm by 2 cm. It was not possible to date this artefact as it was too rusted.

Given the heavy leaf litter in the area, a direct inspection of the ground surface was not possible in most parts of the site. However it is considered possible that there are other remnants of structures and activities associated with the lime kiln (such as the bagging floor) that exist as subsurface remains in association with the kiln remnant.

13.3 COMPARATIVE INFORMATION

Studies of lime kiln construction in Western Australia, in particular Brittain (1984) and Pearson (1986), suggest three phases to lime burning.³⁷ The first phase focused on limestone sources at the initial settlement sites of Albany and Fremantle, the second characterised by an intensification of the existing quarry and kiln sites after 1850 with a slow spread of new kilns throughout the settled areas. The third phase of this development was characterised by intensive 20th Century development of lime kilns at the more remote areas of Bullsbrook,

³⁵ A Smith, S Massuel, D Pollock, 'Geohydrology of the Tamala Limestone Formation in the Perth Region: Origin and role of secondary porosity,' *Water for a Healthy Country Flagship Report Series*, (CSIRO:2012), p. 3, 5

³⁶ External Inspection Report by Ian Hocking and Don Wallace in October 2002, Site file P9842, State Heritage office.

³⁷ R Brittan, *The Lime Kilns of Wanneroo: A study in the Preservation and conservation of a series of historic structures*, (Shire of Wanneroo:1984), p. 13-14; M Pearson, 'The Lime Industry in Australia – An Overview,' *Australian Historical Archaeology*, 1990 vol. 8, p. 28-31

Coogee and Wanneroo.³⁸ The 20th Century also saw the development of factory-processed lime burnt using oil or gas fuel, one of the earliest used in 1937, which slowly became the norm after 1960.³⁹

Briggs' Kiln (1), Carine was established during the second phase of development, however a search of the State Heritage Office database for examples of traditional lime kilns established 1850-1900 or established 1829-1900 but modified 1850-1900 returns 5 places, of which one is on the State Register of Heritage Places (RHP) and three are part of the current assessment program:

- P1915 *Lynton Convict Hiring Depot* (RHP): comprises a complex of buildings relating to the place's history as a convict hiring depot 1853-1856. Significant as a reminder of Western Australia's convict history and the settlement of the Port Gregory area. The place includes a circular lime kiln constructed of lime rubble.⁴⁰
- P4622 *Lime Kilns* (RHP): an industrial complex of early circular lime kilns in an isolated rural area near Capel, constructed in 1899. The spiral loading ramps used for loading the kilns are believed to be unique in the state.
- P5805 *Yathroo Homestead and Outbuildings*: comprises a number of buildings constructed after 1855 including a homestead, shed, barn, cool room, slaughterhouse and lime kiln. On the assessment program.
- P5806 *Kayanaba Homestead Group*: consists of a number of buildings constructed from 1869 to 1920. The place includes the ruins of a lime kiln, undated but likely to constructed 1869-1880. On the assessment program.
- P8918 *Lime Kiln & Quarry – Site of*: the ruin of a 1850s lime kiln, with a quarry nearby, associated with the Lynton Convict Hiring Depot. The kiln is circular in shape, 3.9 m in diameter with a single draught hole, built into the side of a hill.
- P12291 *Pell Bridge, Quarry & Lime Kiln Sites*: a quarry and number of lime kilns sites located above the north bank of the Irwin River near Pell Bridge, constructed in 1873.

There are two other places for which some comparison can be made to *Briggs' Kiln (1), Carine*. The first is P23650 *Howatharra Lime Kilns & Stone Ruin*, Oakajee, consisting of two vernacular lime kiln remnants, a brick kiln remnant, an associated stone loading platform, and the remains of a purpose built vernacular stone and concrete block dwelling. The kilns were built in the early 20th century and used until the 1950s. This place has been assessed but has not yet progressed to the Register.

Another place where some comparison can be made is P15938 *Quarry Site*, a part of the Devil's Elbow cliff face in Peppermint Grove. The cliff face still bears the marks of quarrying in the period 1850s to the 1870s, and contains traces of lime burning.

³⁸ H Fels 'Sheep Improvement,' *Agriculture in Western Australia Agriculture in Western Australia 150 years of development and achievement 1829 to 1979*, G Burvil, ed., (UWA Press:1979), p. 6216-217, 223-225

³⁹ 'New Wiluna Lime Kilns Nearly Completed,' *Kalgoorlie Miner* 29 June 1937, p. 2; J Mackay, *Conservation Plan for Traditional Lime Burning in Wanneroo, Western Australia*, (Curtin University of Technology:2000), p. 72-73

⁴⁰ I Lilley, M Gibbs, *An Archaeological Study of the Lynton Convict Hiring Depot*, National Trust of Australia (WA), 1993, pp. 5, 75, 77, 78

Another significant aspect of *Briggs' Kiln (1), Carine* arising from the documentary evidence is its association with the Briggs family. A search of the State Heritage Office database for entries associated with the Briggs family returns the following places:

- P10180 *Three Lime Kilns, Cockburn* (RHP): consists of a group of kilns, including a double kiln, Tylee kiln and Munster Kiln. The group is a rare remnant of lime burning at Cockburn and are considered to be characteristic representations of limestone kilns. The kilns are associated with the lime merchants Briggs and Rowland.
- P7744 House: a single storey residence in Claremont constructed of timber with a corrugated iron roof in 1904. The place was owned by T J Briggs.
- P15938 Quarry Site, Peppermint Grove: discussed above

The comparative evidence indicates that *Briggs' Kiln (1), Carine* is very rare as an example of a 19th century traditional lime kiln, and rarer still as an example of a commercial rather than government or private use (i.e. homestead) lime kiln.

Briggs' Kiln (1), Carine also appears to be very rare as a place associated with the Briggs lime burning family, particularly as an extant place associated with the early attempt at lime burning by the 15 year of Thomas James Briggs. *Briggs' Kiln (1), Carine* also appears to be very rare as an early lime kiln where details of the construction and operation were documented by its builder.

13. 4 KEY REFERENCES

13. 5 FURTHER RESEARCH
