



**HERITAGE
COUNCIL**
OF WESTERN AUSTRALIA

REGISTER OF HERITAGE PLACES

Assessment Documentation

11. ASSESSMENT OF CULTURAL HERITAGE SIGNIFICANCE

Cultural heritage significance means aesthetic, historic, scientific, social or spiritual value for individuals or groups within Western Australia.

In determining cultural heritage significance, the Heritage Council has had regard to the factors in the *Heritage Act 2018* and the indicators adopted on 14 June 2019.

PRINCIPAL AUSTRALIAN HISTORIC THEME(S)

- 3.4.4 Making forests into a saleable resource
- 3.4.5 Tapping natural energy sources
- 5.8 Working on the land

HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)

- 110 Resource exploitation and depletion
- 304 Timber Industry
- 310 Manufacturing and processing

11(a) Importance in demonstrating the evolution or pattern of Western Australia's history

Charcoal Burner Site, Mount Observation demonstrates the operation of a small-scale charcoal burning site dating from the twentieth century, utilising natural resources and simple but inventive construction techniques, and as such represents a distinctive land use and way of life that is no longer practiced.

Charcoal Burner Site, Mount Observation demonstrates the utilisation of the forests between Perth and York for a range of products as settlement expanded, the development of charcoal production in the twentieth century and the post-war concern with environmental conservation.

Charcoal Burner Site, Mount Observation demonstrates the commercial use of a rural industrial site and associated with the rural subdivision and development of the area during the twentieth century.

Charcoal Burner Site, Mount Observation may be linked to charcoal burning activities at the industrial complex of Wundowie (P23525), a major iron producer during the twentieth century.

11(b) Importance in demonstrating rare, uncommon or endangered aspects of Western Australia’s heritage

Charcoal Burner Site, Mount Observation is an exceptionally rare known, extant example of a small scale charcoal production site, particularly one with remnant structures, and represents a way of life no longer practiced.

11(c) Potential to yield information that will contribute to an understanding of Western Australia’s history;

Charcoal Burner Site, Mount Observation utilises a number of basic building techniques that demonstrates the inventiveness required when working in isolated bush conditions.

Charcoal Burner Site, Mount Observation has archaeological potential that may contribute to the understanding of the methods, construction and economics of charcoal burning in the twentieth century.

11(d) Its importance in demonstrating the characteristics of a broader class of places;

Charcoal Burner Site, Mount Observation demonstrates the representative characteristics of a small scale charcoal production site, including charcoal pits and felling areas.

Charcoal Burner Site, Mount Observation demonstrates representative characteristics of small scale rural construction, including the use of local materials and simple construction methods.

11(f)¹ Its importance in exhibiting particular aesthetic characteristics valued by any group or community;

Charcoal Burner Site, Mount Observation evocatively demonstrates the isolation of working the bush through the remnants of abandoned industrial features set within the open bushland of the Mount Observation area.

¹ 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.
Please note that HERCON factors with no corresponding value are not included in this document

12. DEGREE OF SIGNIFICANCE

12.1 CONDITION

Charcoal Burner Site, Mount Observation is in a completely ruined condition, including remnant structures and abandoned work areas.

12.2 INTEGRITY

This section explains the extent to which the fabric is in its original state.

Overall, the place has moderate to high integrity, with only minimal site disturbance present.

12.3 AUTHENTICITY

This section explains the extent to which the original intention is evident, and the compatibility of current use.

Overall, the authenticity of this site is considered to be moderate, as the felling areas, laydown areas and charcoal pits can still be read within the landscape and demonstrate the function of the site. However, it is considered very unlikely that this site would be able to be restored back to its original state.

13. SUPPORTING EVIDENCE

The documentation for this place is based on the heritage assessment completed by the Department of Planning, Lands and Heritage (Heritage Services), with amendments and/or additions by the Heritage Council and the Department.

13.1 DOCUMENTARY EVIDENCE

Charcoal Burner Site, Mount Observation is an early twentieth century charcoal production site including ruined structures and environmentally modified features relevant to the practice of charcoal burning.

Noongar people living around the Swan Valley in the pre- and early contact period can broadly be described as comprising small family groups moving through the landscape in response to seasonal change, utilising a toolkit of wooden and flaked stone tools and grinding stones, notably of quartz, dolerite and chert. The artistic culture of the Noongar people was expressed in painted and engraved art in a wide variety of forms, relating to a complex spiritual worldview that incorporated a connection to the natural world, and the remembrance or ongoing influence of ancestral and spiritual figures.²

The Noongar people living in and around the York and Avon Valley region were known as the Ballardong, and anthropologist Normal Tindale also recorded that this was also the Noongar name for York.³

Following early British exploration of the Helena River by Ensign Robert Dale in 1829, the inland British settlement of York was established in the 1830s and a track blazed between Perth and the new farming centre.⁴ Various government surveys further mapped routes between Perth and York, and various allotments of land were taken up by British settlers.⁵ By the end of the nineteenth century the forests of the Mount Observation area had been allotted to private farms or the Land Corporation of Western Australia. The latter was a private group established in 1885 by Anthony Hordern as part of the development of railway lines from Perth to the Avon Valley.⁶

One of the largest private land grants at this time was Avon Location 1771, which had been purchased by Catholic Bishop Matthew Gibney in May 1890. This 8,400 acre grant encompassed the area north and south of the Helena River between Ridley Island to the east and Wundabiniring Road to the west. The purpose of the grant was for future subdivision and resale of the land in order to fund Catholic Orphanages, and in 1908 Bishop Gibney wrote to the Minister for Lands expressing

² Crawford, I M, 'Aboriginal cultures in Western Australia', & Hallam, S, 'The First West Australians', in *A New History of Western Australia*, C T Stannage (ed.), UWA Press, 1981, pp. 16-20, 56-66; Meagher, S & Ride, W D L, 'Use of natural resources by the Aborigines of south-western Australia', & Berndt, R M 'Aborigines of the South-West', in *Aborigines of the West: Their Past and Present*, R M Berndt & C H Berndt, (eds.), UWA Press, 1908, p. 76-77, 81-86

³ 'Balardong (WA)', online archives of the South Australian Museum, accessed 19 August 2019, <http://archives.samuseum.sa.gov.au/tindaletribes/balardong.htm>

⁴ I Elliot, *Mundaring: A history of the Shire*, Shire of Mundaring, 1983, pp. 3-6

⁵ See Assessment documentation, P8565 *Chauncy's Cairn* (RHP)

⁶ *Avon 12 [Tally No 506099]*, State Records Office AU WA S980- cons4931 Avon 12.2, accessed 13 December 2017, <https://archive.sro.wa.gov.au/index.php/avon-12-tally-no-506099-avon-12-2>; *The West Australian*, 29 August 1885, p. 6; *The West Australian*, 24 October 1885, p. 5; W Kimberley, *History of West Australia*, Chapter 19, 1897, Wikisource website, accessed 16 January 2018, https://en.wikisource.org/wiki/History_of_West_Australia/Chapter_19

his intention to sell the land to offset the costs of erecting the boys' orphanage P2401 *Clontarf* (RHP) in 1901.⁷

The Certificate of Title notes that the land had been totally transferred by endowment to the Bishop in 1907. Bishop Gibney took out a mortgage with the Union Bank of Australia on the land in 1908. Permission to sell the land was granted in 1911 and the mortgage that was discharged by 1916. The majority of land then remained in the possession of the Archdiocese throughout the early twentieth century.⁸ As the land was largely unused during this period, one of methods of offsetting costs was to lease portions to private companies and individuals for the purpose of timber cutting and charcoal burning.

Charcoal was one of the main fuel sources in Western Australia during this period. Produced by the slow heating of wood or other organic substances in the absence of oxygen, it burned at a higher temperature than wood with very little smoke. Charcoal production was an essential part of the operation of early settlements following the arrival of Europeans in Australia, and was in demand as a fuel source for forges and cooking, and was also used in the process of infusing iron with carbon to create steel.⁹ Early charcoal production appears to have been undertaken across the State in an ad hoc fashion, depending on demand and available resources.

In Western Australia in the 1850s, lime burner TA Briggs was constructing kilns for construction of lime and charcoal in the Peppermint Grove and Cottesloe areas.¹⁰ In the 1870s, his son, TJ Briggs, established a small business in what is now the suburb of Carine producing both lime and charcoal in an open topped limestone kiln, recalling:¹¹

*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.*¹²

Charcoal burning on a larger scale was undertaken through the use of pit burning, where larger quantities of wood were cut and stacked in an earth pit, covered with soil and then set alight via a small opening. Charcoal burner William Trichet worked in the industry at Wanneroo in the 1930s and remembers:

Drag all the big logs in, pack 'em tightly, make a big mound, high as a house, and then you cover it with gum leaves and then you put sand all over it, and you light it in one little corner. Once you light it, you got to stay there the whole time in case it burns a

7 Certificate of Title T 32-61; Dr M Gibney, letter to Minister for Lands, Perth, 25 November 1908, Archives of the Catholic Archdiocese of Perth; P2401 *Clontarf* Assessment Documentation

8 Certificate of Title T 32-61

9 Harman, Kristyn, July 2012, 'The Art of Cutting Stone': Aboriginal convict labour in nineteenth-century New South Wales and Van Diemen's Land', in Fijn, N, Keen, I, Lloyd, C & Pickering, M (ed.) *Indigenous Participation in Australian Economies II*, p. 122

10 R Brittan, 1984, *The Lime Kilns of Wanneroo: A study in the Preservation and conservation of a series of historic structures*, Shire of Wanneroo, p. 13; P9842 *Briggs' Kiln (1), Carine* (RHP) — Assessment Documentation, p. 4; Shire of Meekatharra MI, P25191 Rinaldi Kiln, Meekatharra, Source: <http://inherit.stateheritage.wa.gov.au/Public/Inventory/Details/74acc64e-d96c-4b08-96d0-7a978abfa1a9?preview=true>, Accessed 10 June 2016.

11 The site of P9842 *Briggs' Kiln (1), Carine* (RHP).
P9842 *Briggs' Kiln (1), Carine* (RHP) — Assessment Documentation, p. 4

12 Briggs, Thomas Allen, 1917, *Life and Experiences of a Successful West Australian*, Sands & McDougall, Perth, cited in Brittan, op cit., pp. 80-81 & P9842 *Briggs' Kiln (1), Carine* (RHP) — Assessment Documentation, p. 4

*hole in the top or sides, and that will let all the gas out, so you got to be there, twenty-four hours a day, until it's burnt right down to flat, which could take two to three days, depends on the size of the kiln and the size of the logs. And you just gotta keep them gases in, keep the fire going, and then you let it cool off ...then you gotta rake it out with a rake, then bag it up.*¹³

The advantage of the earth pit system was that large amounts of charcoal could be produced for very little cost and using readily available resources, however the disadvantage of this system was that the covering soil would inevitably contaminate the final product.¹⁴ Other systems of charcoal burning in the twentieth century include the Retort system, where a portable metal kiln provided an airtight chamber for carbonisation of wood, which while producing smaller amounts, enabled a quicker turnaround of burning with greater control over charcoal quality.¹⁵ A more substantial system was the use of a sealed brick and metal kiln, which required the greatest capital cost but was capable of producing large quantities of high quality charcoal.¹⁶

In 1928 Bishop Gibney sold the eastern portion of Avon Location 1771 to Reginald and Ivy McKee for £3258. The Certificate of Title notes that the eastern third of Avon Location 1771 was transferred to Reginald and Ivy McKee in 1933.¹⁷ While *Charcoal Burning Site, Mount Observation* is in the central area of Avon Location 1771 and outside of McKee's portion, McKee is known to have been charged with unlawfully accessing and removing timber at Chidlows Well in 1929 and along the York Road in 1940.¹⁸

It has not been possible to definitively determine via the documentary evidence if charcoal burning at *Charcoal Burner Site, Mount Observation* began before or after World War II. There does not appear to have been much activity at the place during World War II, however petrol shortages during this time forced the use of 'gas-producer,' engines for vehicles powered by charcoal which saw a resurgence in the use of the material in Western Australia.¹⁹

Another timber worker who appears to have been active on Avon Location 1771 around this time was Alfred MacKrill, who was granted a timber cutting lease in 1948. However MacKrill then sub-leased to the Industrial Extracts Ltd. to cut wandoos in the area on payment of a royalty per ton to the Church as the owners of the land. In 1949 MacKrill declared himself bankrupt, and it was revealed that he had not transferred any of the royalties from the Industrial Extracts firm to the

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- 13 *Interview with William Trichet* [sound recording], Battye Library OH242/13; see also Battye Library images *Clay and Fisher family Photographs*, BA2525/19-22
- 14 F Humphries, G E Ironside, *Charcoal from New South Wales Species of Timber*, Technical Paper 23, Wood Technology and Forest Research Division, Forestry Commission of New South Wales, 1974, p. 15
- 15 *ibid.*, p. 15-16, 18-20; VITA, *Marking Charcoal: The Retort Method*, Volunteers in Technical Assistance, 1980
- 16 Humphries & Ironside, *op cit.*, pp. 16-18; W Emrich, *Handbook of charcoal making: the traditional and industrial methods*, 1985, Kluwer Academic Publishers, pp. 56-74
- 17 Certificate of Title T 32-61, Transfer 1034-115; Dr M Gibney, Church Lands Estate Perth, Particulars and Conditions of Sale of Freehold Land, Perth, 11 August 1928, Archives of the Catholic Archdiocese of Perth
- 18 *The Avon Gazette and York Times*, 19 July 1929, p. 2; *The West Australian*, 12 December 1940, p. 2
- 19 D Bartlett, *Producer Gas & the Australian Motorist: An Alternative Fuel during the Crisis of 1939-1945*, Engineering heritage Victoria, 2008

Church, and it was unclear to the Church finance officer of the day if MacKrill had ever been given permission to delegate such an arrangement.²⁰

Another source of timber cutting activity in the area of *Charcoal Burning Site, Mount Observation* was the result of a Caveat placed upon the area of land remaining in possession of the Church in 1951. This was an agreement between the Catholic Church and the Charcoal Iron and Steel Industry Board of Management, a group created through the *Wood Distillation and Charcoal and Steel Industry Act 1943* to manage and develop the industrial town site of Wundowie.²¹

During the inter-war period, the Western Australian Government became concerned about the State's vulnerability in terms of its isolated location and dependence upon imported iron and steel.²² The nearest iron and steel works at the time were at Whyalla, South Australia.²³ To alleviate concerns, the government resolved in 1941 to construct a blast furnace and refinery in Western Australia that would produce high quality iron ore using charcoal, thereby eliminating the need for external sources.²⁴ A plant was developed at Wundowie, north of *Charcoal Burning Site, Mount Observation*. Wundowie was ideally situated close to the Eastern Railway Line, Goldfields Water Supply Scheme and Great Eastern Highway.²⁵

The plant itself was designed in 1942 by BHP, and preparatory site work at Wundowie began in 1943.²⁶ Construction of the complex was slow due to post-war building materials shortages, and Wundowie did not begin operating until 1948.²⁷ Timber for the furnaces (mostly wandoo) was provided by the Forests Department at Mundaring, and also contract timber cutters, and was processed at an onsite sawmill.²⁸ One of the possible identities for the builder and operator of *Charcoal Burning Site, Mount Observation* may therefore have been a private contractor working to supply Wundowie.

In the 1950s, the Church began the processes of subdividing and selling the remaining lots in Avon Location 1771. A memo from J Ackland to Premier Hawke in 1954 notes that he had arranged the sale of the 5,000 acres of Church property in early 1953.²⁹ A subdivision map from this period shows Avon Location 1771 split longitudinally into a number of lots, the area previously sold to McKee now owned by Gerich & Co Sawmills, with the remaining lots split between Raymond Owen,

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- 20 E Ryan, Church Office, Avon Location 1771 – timber cutting lease, 14 February 1949-25 February 1949, Archives of the Catholic Archdiocese of Perth
- 21 Certificate of Title T 32-61; *Western Australia Transfer of Land Act 1893-1950 Caveat*, 136/1951, 21 February 1951
- 22 Relix & Fiona Bush Heritage and Archaeology, *Wundowie Conservation Plan* (2008), p.9
- 23 Menck, Clare, for Main Roads Wheatbelt Region, 'A Thematic History of Bridges in the Wheatbelt Region Western Australia', Draft report, April 2016, p.94
- 24 Relix & Fiona Bush Heritage and Archaeology, *Wundowie Conservation Plan* (2008), p.9
- 25 National Trust (WA), 'Town of Wundowie' (2011), p.3
- 26 Relix & Fiona Bush Heritage and Archaeology, *Wundowie Conservation Plan* (2008), p.9
- 27 Relix & Fiona Bush Heritage and Archaeology, *Wundowie Conservation Plan* (2008), pp.12-15
- 28 Menck, Clare, *Mundaring Weir Forestry Settlement 1923-2011: A History of Community Life and Work*, prepared for Water Corporation, printed by Mundaring & Hills Historical Society, October 2013, p.164; Relix & Fiona Bush Heritage and Archaeology, *Wundowie Conservation Plan* (2008), pp.12-14
- 29 *Helena Catchment – Subdivision Avon Loc 1771*, SRO, AU WA S3035- cons1578 1954/0855, pp. 19-20

O'Donahue and Arthur Jones. *Charcoal Burning Site, Mount Observation* is located in the area controlled by Owen.³⁰

Raymond Owen was an MLA from the Independent Country Party for the electorate of Swan during 1944-1965, and during the early 1950s was still active in rural pursuits.³¹ In particular, Owen was noted as an inventor who developed a range of home-made mechanical devices for farming.³² A State government memo from January 1955 notes that Owen had been performing 'considerable activity' developing his land during this time, however the list of improvements did not list any charcoal burning structures.³³ A memo from the Deputy Conservator of Forests in late 1955 notes that Owen was mostly confining himself to bulldozing and clearing, but that "Wundowie is endeavouring to confine the clearing operations... because it is not convenient at present to work the area for firewood."³⁴ It is therefore possible that the beginning of charcoal burning at this site dates from this point, however it cannot be proven.

In August 1956, the Minister for Works advertised his intention to resume parts of Avon Location 1771 as an expansion to the Helena Catchment Area.³⁵ The post-war government had become increasingly aware of the need to protect vital water sources from contamination, as well as responding to calls for upgrades and expansions to the regional water supply.³⁶ The resumption had been planned in 1954, and a list drawn up the following year of the Avon and Helena locations that were to be resumed as part of the expanded catchment included Avon Location 1771. The owner of Avon Location 1771 was still listed as the Roman Catholic Bishop of Perth, however the list does note the caveat to the Charcoal Iron and Steel Industry Board of Management, and that the longitudinal subdivision of the site had not yet been endorsed.³⁷ As part of this land resumption, the western area owned by Gerich & Co sawmills was bought by the government in August 1955.³⁸

The Government Gazette for September 1956 noted that Lots 1, 2 and 5 of Avon Location 1771 had been resumed by the government for the purpose of "Country Water Supply," and listed the owner as being the Roman Catholic Bishop of Perth with Douglas Jones and Arthur Jones as the "reputed owners."³⁹

A Certificate of Title for the central portion of Avon Location 1771 (Lot 3) dated to December 1956 does identify Raymond Owen as the owner, although the Certificate of Title notes that portions of land were resumed by the government in 1971, which was carried out in conjunction of resuming sections of Lot 4.⁴⁰

30 *ibid.*, tracing map, np

31 *Biographical Register of Members of Parliament of Western Australia: Raymond Cecil Owen*, Parliament of Western Australia website, [http://www.parliament.wa.gov.au/parliament/library/MPHistoricalData.nsf/\(Lookup\)/FABDE592B2B10CBD482577E50028A756?OpenDocument](http://www.parliament.wa.gov.au/parliament/library/MPHistoricalData.nsf/(Lookup)/FABDE592B2B10CBD482577E50028A756?OpenDocument)

32 'Meet the Member!', *Western Mail*, 22 February 1951, p. 6

33 *Helena Catchment – Subdivision Avon Loc 1771*, SRO, AU WA S3035- cons1578 1954/0855, pp. 5-6, 12

34 *ibid.*, p. 32

35 *Government Gazette*, 17 August 1956, p. 2111

36 *The West Australian*, 16 April 1951, p. 2; *Sunday Times*, 4 October 1953, p. 34; *The West Australian*, 14 July 1954, p. 13

37 *Helena Catchment – Subdivision Avon Loc 1771*, SRO, AU WA S3035- cons1578 1954/0855, np

38 *GWS Helena Catchment – Avon Loc 1771 Acquition (sic)*, SRO, AU WA S3035- cons1578 1954/0855

39 *Government Gazette*, 21 September 1956, p. 2349; Certificate of Title T 32-61

40 Certificate of Title T 1197-593; *Government Gazette*, 5 November 1971, p. 4308

After this date *Charcoal Burning Site, Mount Observation* lay largely forgotten, although there may have been some more recent disturbance to the site in the form of the grading of tracks and improvements to roads in the area.

The documentary evidence does not point to any clear identity for the builder and operator of *Charcoal Burning Site, Mount Observation*, or when it was constructed nor are there any clear indications given by the physical evidence described below. The most likely candidates are Alfred MacKrill, Raymond Owen MLA, or a firewood and charcoal contractor working for the Charcoal Iron and Steel Industry Board of Management. However the structures could conceivably have been constructed by any of the other identities listed above – or by a contractor who has not been recorded.

13.2 PHYSICAL EVIDENCE

Charcoal Burner Site, Mount Observation is an early twentieth century charcoal production site including ruined structures and environmentally modified features relevant to the practice of charcoal burning. The place demonstrates the method used to manufacture charcoal from timber, as well as the organisation of a small timber site utilising local natural resources.

Charcoal Burner Site, Mount Observation lies within the bushland bordered by the Helena River to the south, the Great Southern Highway to the north and west of Mount Observation, approximately 20 km southwest of York. The place is situated along both sides of an unsealed dirt track intersecting with Ball Road, approximately 200 m south of the Ball Road/Yarra Road Intersection and approximately 2 km north of the Helena River. The local vegetation consists of medium forest and woodland, dominated by Eucalyptus species (*E marginata* & *E wandoo*), low Grasstrees (*Xanthorrhoea* sp), and low acacia shrubs.⁴¹ The site slopes gently to the south and there is a small ephemeral water source running approximately northwest to southeast through the southern portion of the site.

The cultural features of the site consist of a central structure, a central pit, a number of metal cages, two northern shafts, and a number of felled tree stumps. Between these structures lie a number of remnant charcoal pits. The wider area around the structures and objects did not reveal any kind of artefact scatter, however surface visibility was very poor due to low shrubs and heavy leaf litter.

In the centre of the area lies a remnant structure, roughly 5 m by 2 m in size, and oriented to the parallel to the track running north-northwest to south-southeast. The structure consists of nine thick bush timber posts, with a long carriage bolt through the posts at approximately 2.5 m high, oriented either horizontally across the rectangular structure or vertically along its side. Along the northeast edge of the area lined by the posts lies concrete foundations, which appears to be concrete poured over brick, retained by corrugated iron. Over this lies a small remnant of a concrete pad towards the centre. Around this space lies a scatter of brick rubble. This includes red bricks from the state Brickworks, identified by the maker's marks 'S B' in the brick frogs, as well as white bricks from the private Statham brickworks which are stamped with 'Statham'. The date range for the state Brickworks is 1915-1961 and Statham branded brickworks is 1894-1962. Of note is that the Statham

⁴¹ 'Vegetation Map of Western Australia', DPAW website, accessed 23 January 2018, https://www.dpaw.wa.gov.au/images/documents/about/science/cswa/articles/PreEuropeanVegMap_Jun_14.pdf;

bricks were commonly used in the construction of kilns.⁴² Also present are fragments of earthenware sewage pipe, which has not been dated. At the southeast end of the structure lies a large metal plate, approximately 1 m by 2 m in size, consisting of two sheets of iron held together with a series of metal bands and bolts. Given the placement of the flat sheet at one end of the structure, it has been interpreted as a lid or door to a kiln.

Extending from the northern end of this central structure are two parallel lines of smaller bush timber fence posts, forming an avenue leading towards the central structure.

Immediately northeast of this central structure is a large central pit, approximately 4 m in diameter and approximately 1 m at its deepest point. The pit is roughly circular in shape but does not contain any visible traces of charcoal.

Three metal cages lie along the eastern edge of the central track. The cages are approximately 1.7 m by 1.7 m by 1 m in size, and welded by hand from iron or steel pipes. The cages are designed with thicker pipes creating the walls and floor of the cube, with the floor infilled by smaller pipes welded closely together while the walls are infilled with metal 'v' stakes to form ribs. Two of the cages still have remnants of a floor covering; a flattened oil or petrol drum that appears to have been wired to the floor. One cage also displays this flattened drum sheeting along one of the interior walls. Each cage has one open side, the main structural pipes displaying a roughly welded loop at the top. Two of the cages show the remaining side in place, a 'door' to the structure consisting of metal pipes with a longer top pipe that was inserted into the loops of the main cube, thus forming a door that swung at the top. A metal loop at the bottom of these doors was likely the handle.

There are no tops to the cages, nor are there any attachment points or broken welds that indicate that a top covering existed. The bottom of the cages display additional pipes welded to the bottom in pairs, welded in turn to what appears to be an old axle or tram wheel. However, the welding is solid across the wheel, indicating that it would never have been able to spin.

The workmanship of the cages is rough, showing uneven lengths and broken welds, as well as ad hoc repairs using metal stakes and wire. Two of the cages are uniformly corroded, with a black-brown patina; the third appears to be more corroded at the bottom of the structure. Two of the cages are on their side, indicating that they have been moved from their original position (likely with great difficulty).

Adjacent to these cages are three other large metal remnants. The first is another metal lid of similar construction to the one found adjacent to the central structure. The second lid is approximately 1 m by 2 m in size and displays several large bolts and metal fastening plates that may represent repairs or attachment points on the other side. Another remnant is an oval metal hopper bucket, constructed and bolted together from sheets of scrap metal. The 'lip' at the bottom of the bucket swung from a central attachment point bolted to the main structure; the lip itself is lying nearby. The final object is a large makeshift metal bucket, formed from an oil or

⁴² see assessment documentation P15829 *Armadale State Brickworks Dust Room & Machinery Shed (fmr)*, (RHP); assessment documentation P10570 *Statham's Quarry* (RHP); E Leighton, *Brocks in Glen Forrest: The story of 'Statham' Brickworks*, E Leighton, 1997, pp. 1-3, 6-7

petrol drum with a metal handle created by bending a metal rod through holes in the sides.

Immediately north of the cages are two narrow pits, approximately 2.5 m by 40-70 cm in size and 50 cm deep, both originating from a central point. One of these shafts appears to contain a flattened oil drum lining to one side, as well as a welded metal tubular frame lying over the top. The second shaft comprises a dirt trench with no additional features. It is difficult to determine if metal structures on the first shaft were deliberately built as part of the structure or have simply been discarded over the top.

A number of sawn tree trunks were noted around these northern and eastern areas, with one tree found abandoned before being completely cut down. The cut marks on this tree indicate that these trees were not cut down with axes but with saws, or more likely power tools. Also noted in these areas was a large number of sawn Grasstrees (*Xanthorrhoea sp.*). Two clearings were observed in the larger woodland area, which may have acted as points where trees were de-limbed and cut into manageable pieces before being transported to the central processing area.

A total of five remnant charcoal mounds (that is, assumed to be the raked out bottom of a previously cleared charcoal mound) were recorded across the site, clustered mostly in the northern/central area near the shafts, with a much larger remnant mound in the southern part of the site. These mounds range from 2 m to 6 m in diameter, and display a floor of fine charcoal particles. These mounds were also noticeably rounded and elevated above the surrounding ground.

Overall, this evidence indicates the area was a small-scale charcoal burning site. Trees towards the north and east of the area were felled, then de-limbed and cut into manageable pieces at the clearings, which were likely laydown areas. From here the timber was transported to the central area, whereupon it was converted into charcoal. This is supported by the presence of numerous charcoal mounds and central pit, which correspond to the pit burning method described in the documentary evidence. Of note in this regard are the headless grasstrees, which are interpreted as acting as a fuel layer in the charcoal pit. The two shafts in the northern portion of the site are interpreted as fire access points for a charcoal pit.

The central structure is interpreted as a small charcoal kiln, given the presence of Statham kiln bricks, concrete and the earthenware pipes. The kiln likely would have used the reinforced metal lid that lies adjacent to the remnant structure. The positioning of these structures is logical, oriented adjacent to the access track of the site for ease of loading and unloading.

However, there are many physical aspects of this site that remain unclear. The purpose of the line of fence posts leading to the central kiln is unknown. The metal cages, by far the most visually dramatic elements of the site, are of unknown use. Given the metal sheeting it is possible they were part of a retort charcoal conversion system, however this system relies on an airtight container and there is no indication of a top. The cages could have been buried as a fire cage within a charcoal pit to avoid soil contamination, however again the lack of a top would have made this difficult. The hung door to the cages is also a difficult design element to explain; given the very heavy metal frame, a door that would have required heavy lifting and constant propping while open is an inexplicable choice compared to a swing gate or drawbridge-style door swung from the bottom. It is possible that these

metal frames were simply storage containers for firewood; however given the heavily engineered design it would have been cheaper and easier to erect a wooden shed.

It is also noted that the charcoal mounds found across the site appear to be surprisingly small, given the greatest economic advantage of the pit burning method lies in cheaply producing large amounts of charcoal at the cost of quality. Historic photos of pit burning and oral histories outlined in the documentary evidence above indicate that charcoal pits were very large elements compared to those present on the site. It is however possible that the full extent of these remnant mounds has been obscured by regrowth.

Overall the site doesn't appear to have been heavily disturbed since abandonment, save the metal cages moved onto their sides. The grading of the central access track has however disturbed some of the material associated with the central structure, with a small mound of broken brick and concrete noted near the track in the southern portion of the site.

13.3 COMPARATIVE INFORMATION

Charcoal burning

It is difficult to determine how many comparable places are still extant as it is probable the vast majority of charcoal burning sites have not been included on heritage lists such as municipal inventories and have therefore not been entered in the State Heritage Office database.

A search of the State Heritage database for places with the keyword 'charcoal' returns 23 entries of which one place was listed in the state register of heritage places (RHP):

- P9842 *Briggs' Kiln (1), Carine* (RHP): the first site established by TJ Briggs who built and maintained several businesses producing lime in the Wanneroo area. This early site was part of his first small business producing both lime and charcoal.
- P25191 Rinaldi Kiln, Meekatharra: an earth kiln used for burning lime and charcoal, and used by the Rinaldi family to supply charcoal in the 1920s to the engines on the mines. (Shire of Meekatharra MI)
- P8203 Hill Bros Bakehouse, Road & Field Services (fmr), Corrigin: The Hill brothers originally developed charcoal burners for use on their farm during the fuel rationing during World War II. In the mid-1940s they moved their patented 'Avon Gas Producer' enterprise to this location. (Shire of Corrigin MI)
- P8493 Ivan Elliot's Shearing Shed, Keysbrook: c. 1950s shearing shed, owned by Ivan Elliot, a well-known member of the local community, who was one of a few men in the district who produced charcoal for vehicles in the district during the World War II to conserve petrol rations. (Serpentine-Jarradale MI)
- P5865 Moppett's Bus Lines, Naremben: The bus service was established in 1940. During the fuel rationing in WWII, charcoal burning gas producers were fitted to the buses, to provide valuable transport for not only school, but important community and social interaction. (Shire of Naremben)

- P7161 Charcoal Pit, Site, Yealering: established in 1940, the site was used for the production of charcoal during World War II. As a result of fuel rationing, gas producing charcoal burners were fitted to motor vehicles as a replacement fuel source. (Shire of Wickepin MI)
- P12323 Charcoal Pits – Site of, Tambellup: located on Baldo Hills, no other information available. (Shire of Broomehill-Tambellup)
- P25032 Charcoal Pit, Williams (part of P16151 McDermott's Hill, Charcoal Pit, Washpool, Bannister's Campsite, Williams): no information provided, but may be associated with site thought to have been established in 1830s by Capt Bannister during their explorations of the interior.
- P15305 WS Waterhouse & Sons Hardware Shop, Nungarin: the place comprises a shop frontage and several purpose-built sheds at the rear, including a shed that held charcoal for gas producers for use during the World War II fuel restrictions.
- P8226 Gannaway's Blacksmith Shop: the site of a blacksmith business where if there was no ready access to coke, the blacksmith burned his own charcoal as required. (Shire of Corrigin MI)
- P20079 Armadale Settlers Common, Bedforddale: an area approximately 383 hectares comprising natural bushland, picnic areas and the remains of former gravel pits used from 1922 until 1971. In addition, during WWII, part of the Common (then in private ownership) was used for charcoal production. Because of this, an area in the northwest of the Common is now known as Charcoal Hill.
- P23525 Town of Wundowie (Assessment Program): a State Government established townsite designed from 1943 using the principals of the Garden City Movement, and established to provide accommodation and a town for the employees of the newly constructed charcoal iron plant and refinery at Wundowie.

A search for charcoal burning sites was also undertaken in other Australian states, with the following results:

- The New South Wales heritage database lists no places for the item category 'Charcoal kiln'. One place with the item category 'Charcoal pit', *Charcoal Pit: Three Sandstone Lined Pits* in Wedderburn, dating to the fuel rationing of World War II.
- The Victorian Heritage Register lists 71 places associated with charcoal burning, including pits and kilns, however some of these listings appear to be duplicates. The most comparable listing to *Charcoal Burner Site, Mount Observation* is Charcoal Burning Kiln in Gembrook Tonimbuk Road, Cardinia, which consists of a small kiln constructed from scrap metal in an isolated bush setting. However no historical information is provided for this place.
- The Queensland Heritage Register does not list and places specific to charcoal production, however P600970 Yengarie Sugar Refinery ruins does include a reference to a charcoal retort system in use in the sugar mill at the place.
- The South Australia Heritage Register does not contain any places with the keyword 'Charcoal'.

- The Northern Territory Heritage Register does not contain any places with the keyword 'Charcoal'.
- The ACT Heritage Register does not contain any places with the keyword 'Charcoal'.

Historic Associations

A search of the State Heritage database was performed to determine if any places exist associated with individuals connected to *Charcoal Burner Site, Mount Observation*. The following searches yielded no results:

- Reginald & Ivy McKee
- Alfred MacKrill
- Charcoal Iron and Steel Industry Board
- Industrial Extracts
- Gerich & Co
- Raymond Owen

A search of the State Heritage database for Arthur Jones returns one place, P24405 House, 7 Rule Street, built in the 1920s as a rental property for Arthur Jones. However, it is not known if this is the same Arthur Jones who was active at Avon Location 1771.

A search of the State Heritage database for O'Donahue returns two places. P15295 Nungarin townsite lists a J O'Donohue as a butcher, and P1964 Brisbane Hotel lists a P O'Donahue as a previous occupant. Neither of these options are considered to be likely matches to the O'Donahue who was active at Avon Location 1771.

A search of the State Heritage database was also performed for Catholic Bishop Matthew Gibney, the original owner of the land. This search returns 20 places, of which 9 are listed on the state register of heritage places. Unsurprisingly, the majority of these places have a religious rather than industrial use. The most comparable place is P18081 Alisa Craig & Mount View, Semi-Detached Dwellings, which was a housing estate bought by Bishop Gibney for the purposes of subdivision and sale. Another place associated with both Bishop Gibney and *Charcoal Burner Site, Mount Observation* is P2401 *Clontarf* (RHP), which Bishop Gibney intended to fund from the sale of land within Avon Location 1771.

Conclusions

The comparative evidence for the site function indicates that *Charcoal Burner Site, Mount Observation* is exceptionally rare as a known extant example of a charcoal production site relative to the RHP. Clearly it was an operation that occurred in different areas of the State and across Australia, with charcoal produced using a variety of different methods.

In terms of individual associations, *Charcoal Burner Site, Mount Observation* is linked to a number of people and groups who are not represented on the RHP, however the documentary evidence suggests that the men and women involved are not considered significant individuals at a State level. The exception to this is Bishop Matthew Gibney, whose life and work had a significant impact on the development of the Catholic Church and the provision of education, however Gibney's role more appropriately represented on the State Register at sites with

more overt religious associations and the activities of the Catholic Church more generally during his tenure.

13.4 KEY REFERENCES

13.5 FURTHER RESEARCH

Further research may reveal other places associated with charcoal burning within Western Australia.